

# UC Irvine

## UC Irvine Electronic Theses and Dissertations

### Title

A Program Evaluation of an Academic Integrative Healthcare Center: Barriers to, and facilitators in, applying Integrative Medicine to Primary Care

### Permalink

<https://escholarship.org/uc/item/7n33b8fn>

### Author

Khorsan, Raheleh

### Publication Date

2017

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA,  
IRVINE

A Program Evaluation of an Academic Integrative Healthcare Center: Barriers to, and facilitators  
in, applying Integrative Medicine to Primary Care

DISSERTATION

submitted in partial satisfaction of the requirements  
for the degree of

DOCTOR OF PHILOSOPHY

in Planning, Policy, and Design

by

Raheleh Khorsan

Dissertation Committee:

Professor Daniel Stokols, Chair

Professor Ian D. Coulter, Co-chair

Professor Richard Matthew

2017



## DEDICATION

To

my husband James, my children Jayrahn and Josette,  
my parents Guity and Hamid and my family and friends  
that walked with me through this wonderful and courageous adventure.

From weakness to strength,  
from suffering to something,  
you have molded me to who I am  
by your grace.

I would be nothing without you.

Thank you.

Rather, ten times, die in the surf, heralding the way to a new world, than stand idly on the  
shore!

Florence Nightingale

(Nightingale, ca.  
1852/1979, p. 29)<sup>1</sup>

---

<sup>1</sup> Nightingale, F. (1979). Cassandra. Old Westbury, NY: Feminist Press. (Original work published 1852)

## TABLE OF CONTENTS

	Page
LIST OF FIGURES	v
LIST OF TABLES	vi
ACKNOWLEDGMENTS	vii
CURRICULUM VITAE	viii
ABSTRACT OF THE DISSERTATION	xix
INTRODUCTION	1
Addressing Health and Care in United States – Current issues	1
Changing Medical Views Toward CAM and Integrative Health Care (IHC)	4
CHAPTER 2: DESCRIPTIONS AND DEFINITIONS	9
A Brief History of Complementary and Alternative Medicine (CAM)	9
Use of CAM and Related Costs in the United States	14
United States Historical Barriers to CAM	16
Philosophy	16
Safety of IHC	19
Liability	20
CHAPTER 3: LITERATURE REVIEW	24
Models of IHC	26
The Potential for an IHC Team-based Patient-centered Care Approach	45
Review of Other Theoretical Models	48
CHAPTER 4: RESEARCH AIMS AND METHODS	56
Study Aims and Hypothesis	56
Methods and Analytic Approaches	57
Description of the Center	58
My Role in IHC	64
CHAPTER 5: RESEARCH FINDINGS	69
Qualitative Analysis	69
Qualitative Results	71
Major Themes	72
Facilitators	73
Theme I: Teamwork and Collaboration as an Important Part of IHC Definition	73
Theme II: Nurses' Place in IHC	78
Theme III: Affiliation with a Research and Academic University	79

Theme IV: Holistic Philosophical View of Treatment is Important to the Integration of IHC	82
Theme V: Diverse Modalities of Care	86
Perceived Barriers to IHC	88
Theme I: The Support Staff is a Significant Factor in their Success in Integrating IHC	88
Theme II: IHC Patients Require Additional Time for Diagnoses and Treatment	90
Theme III: Funding and Reimbursements Issues for CAM Treatment are Limited	92
Theme IV: No Direct Referral System from the Academic Hospital to the Clinic	94
Theme V: Center Embedded in a Biomedical University Model	96
Leadership-based Themes	98
Theme I: Lack of Funding from the University	98
Theme II: Location and Physical Space	100
Patient-based Themes	101
Facilitator Theme: Open Collaboration and Communication about Care	101
Barrier Theme: Limited Accessibility of CAM Services	103
Summary of Qualitative Data	105
Quantitative Analysis	106
Characteristics of Patients who use IHC	106
Results from the Patient Satisfaction Survey	111
Summary of Main Findings	113
 CHAPTER 6: DISCUSSION	 117
1. Significance of Research to University Based IHC	117
a. Potential for Whole-Systems Model	119
b. The Science of Team Science	120
2. How Can Payments for CAM Health Services Influence IHC Integration	123
The Future of IHC in a University Based Healthcare System	127
Evidence-Based IHC	131
Limitations	134
The Road Ahead	136
 REFERENCES	 143

## LIST OF FIGURES

	Page	
Figure 3.1	Scoping Review Flow Chart	27
Figure 3.2a	IHC as a Consultative Bridging Model	43
Figure 3.2b	IHC as an Embedded Model	51
Figure 4.1	The Center Bridge Mode	59
Figure 4.2	Major Components of the Susan and Henry Samueli College of Health Sciences	60
Figure 4.3	Integrative Health Care Program Logic Model	63

## LIST OF TABLES

		Page
Table 3.1	Conceptual Models for IHC Based on a Continuum	29
Table 5.2	Definitions, Terminology and Philosophical View of IHC by Patients	102
Table 5.3	Demographic of Patients in Quantitative Analysis	107
Table 5.4	Household Income and Education Status	108
Table 5.5	Clinical Usage by Patients	109
Table 5.6	Patient Satisfaction Survey	112
Table 5.7a	Key Clinical Barriers for Access and Integration	114
Table 5.7b	Key Clinical Facilitators for Access and Integration	115



## **ACKNOWLEDGMENTS**

I would like to express the deepest appreciation to my committee chairs, Professor Dan Stokols and Professor Ian D. Coulter. Dan and Ian, I am not sure if words can express the gratitude I feel for your support during this journey. Please accept my heartfelt gratitude for the line-by-line editing of the multiple versions of this dissertation. Thank you both for your patience in me through the countless hours of tireless work. Lastly, thank you for being a role model of what I aspire to be as a scholar and as a person. Your encouragement was a guiding light during a time in healthcare reform where I thought no light could exist.

I would also like to thank my committee member, Professor Richard Matthew, for his guidance and persistent motivation that kept this project on task. I would also like to thank the individuals that participated in this evaluation of health care. Their stories were the foundation of this project.

Financial support was provided by the School of Social Ecology and Department of Planning, Policy and Design, University of California, Irvine.

## **CURRICULUM VITAE**

### **Raheleh Khorsan**

- 2000 B.A. in Criminology, Law, and Society (Double Major), University of California, Irvine
- 2000 B.A. in Criminology, Psychology and Social Behavior (Double Major), University of California, Irvine
- 2000-02 Teaching Assistant, School of Social Sciences, University of California, Irvine
- 2002 M.A. in Social Science (Concentration on Demographics and Social Analysis (DASA)), University of California, Irvine
- 2002-06 Research Manager, Southern California University of Health Science, Whittier
- 2005-06 Data Coordinator, Southern California University of Health Science, Whittier
- 2006 – 07 Research Assistant, Samueli Institute, Integrative Medicine and Clinical Research Program, Corona del Mar
- 2007-15 Research Associate, Samueli Institute, Military Medical Research Program Integrative Medicine Research Program, Corona del Mar
- 2009-15 Teaching Assistant, School of Social Ecology, University of California, Irvine
- 2010 -14 Research Service (Without Compensation Appointment (WOC), VA Greater Los Angeles Healthcare System, The Research & Development Department, Los Angeles
- 2015- 17 Senior Research Associate (Contractor), Samueli Institute, Corona del Mar
- 2016- 17 Instructor, Southern California University of Health Science, Whittier
- 2017 Ph.D. in Planning, Policy and Design, University of California, Irvine

### **FIELD OF STUDY**

Integrative Healthcare Implementation and Evaluation

## PUBLICATIONS

1. Hawk C, Minkalis AL, Khorsan R, Daniels CJ, Homack D, Gliedt JA, Hartman JA, Bhalerao S. Systematic Review of Nondrug, Nonsurgical Treatment of Shoulder Conditions. *J Manipulative Physiol Ther.* 2017 Jun;40(5):293-319. doi: 10.1016/j.jmpt.2017.04.001. Epub 2017 May 26. Review. PubMed PMID: 28554433.
2. Tyrosine for mitigating stress and enhancing performance in healthy adult humans: a rapid evidence assessment of the literature. Attipoe S, Zeno SA, Lee C, Crawford C, Khorsan R, Walter A, Deuster PA. *Mil Med.* 2015 Jul;180(7):754-65. doi: 10.7205/MILMED-D-14-00594. PubMed PMID: 26126245
3. Rapid evidence assessment of the literature (REAL©): Streamlining the systematic review process and creating utility for evidence-based healthcare. Crawford C, Lee C, Jain S, Khorsan R, Jonas WB. *BMC Research Methodology.* 2015 Nov 2;8:631. doi: 10.1186/s13104-015-1604-z. PubMed PMID: 26525982; PubMed Central PMCID: PMC4630849.
4. Are there Efficacious Treatments for Treating the Fatigue-Sleep Disturbance-Depression Symptom Cluster in Breast Cancer Patients? A Rapid Evidence Assessment of the Literature (REAL©) Jain S, Lee C, Fiorentino L, Khorsan R, Crawford C. *Breast Cancer (Dove Med Press).* 2015 Sep 2;7:267-91. doi: 10.2147/BCTT.S25014. eCollection 2015. Review. PubMed PMID: 26379445; PubMed Central PMCID: PMC4567232.
5. Variations in the implementation and characteristics of chiropractic services in VA. Lisi AJ, Khorsan R, Smith MM, Mittman BS. *Medical Care. Special supplement on CAM use among veterans and military personnel.* 2014; *Med Care.* 2014 Dec;52(12 Suppl 5):S97-104. doi: 10.1097/MLR.0000000000000235. PubMed PMID: 25397831.
6. The Effect of Omega-3 Fatty Acids on Biomarkers of Inflammation: A Rapid Evidence Assessment of the Literature. Khorsan R, Crawford C, Ives JA, Walter AR, Jonas WB. *Military Medicine. Special supplement on Omega.* 2014; *Mil Med.* 2014 Nov;179(11 Suppl):2-60. doi: 10.7205/MILMED-D-14-00339. PubMed PMID: 25373087.
7. Mixed-Methods Research in a Complex Multisite VA Health Services Study: Variations in the Implementation and Characteristics of Chiropractic Services in VA. Khorsan R, Cohen AB, Lisi AJ, Smith MM, Delevan D, Armstrong C, Mittman BS. *Evid Based Complement Alternat Med.* 2013;2013:701280. doi: 10.1155/2013/701280. Epub 2013 Dec 31. PubMed PMID: 24489589; PubMed Central PMCID: PMC3893840.
8. How to assess the external validity and model validity of therapeutic trials: a conceptual approach to systematic review methodology. Khorsan R, Crawford C. *Evid Based Complement Alternat Med.* 2014;2014:694804. doi: 10.1155/2014/694804. Epub 2014 Jan 19. Review. PubMed PMID: 24734111; PubMed Central PMCID: PMC3963220.

10. Research methodology: choices, logistics, and challenges. Coulter ID, Lewith G, Khorsan R, Kirk R, Mittman B. *Evid Based Complement Alternat Med*. 2014;2014:780520. doi: 10.1155/2014/780520. Epub 2014 Apr 14.  
PubMed PMID: 24959192; PubMed Central PMCID: PMC4052625.
9. A Systematic Review of Biopsychosocial Training Programs for the Self-Management of Emotional Stress: Potential Applications for the Military. Crawford C, Wallerstedt DB, Khorsan R, Clausen SS, Jonas WB, Walter JAG. *Evid Based Complement Alternat Med*. 2013;2013:747694. Epub 2013 Sep 23.  
PMID: 24174982
10. Coulter I, Khorsan R, Crawford C, Hsiao A. Challenges of Systematic Reviewing Integrative Health Care. *Integr Med Insights*. 2013 Jun 27;8:19-28. doi: 10.4137/IMIS11570. Print 2013.  
PMID: 23843689 [PubMed - indexed for MEDLINE]
11. Coulter I, Khorsan R, Crawford C, Hsiao A. Integrative Health Care Under Review: An Emerging Field. *J Manipulative Physiol Ther*. 2010 Nov-Dec;33(9):690-710. Review.  
PMID: 21109060 [PubMed - indexed for MEDLINE]
12. Findlay B, Smith K, Crawford C, Coulter ID, Ader D, Khorsan R, Jonas WB. Methodological complexities associated with systematic review of healing relationships. *Altern Ther Health Med*, 2010. 16(5): p. 46-57.  
PMID: 20882730 [PubMed - indexed for MEDLINE]
13. Khorsan R, Coulter I, Crawford C, Hsiao A. Systematic review of evaluations of integrative medicine programs: randomized control trials, clinical studies, and meta-analysis, *Evid Based Complement Alternat Med (eCAM)*. Epub 2011 Sept 3. Article ID 636134, Epub 2010 Sep 8.  
PMID: 20953383
14. Khorsan R, York A, Coulter I, Coeytaux R, Wurzman R, Walter J. Patient-based Outcome Assessment (PBOA) Instruments in Acupuncture Research . *J Altern Complement Med*. 2010 Jan;16(1):27-35.PMID: 20064021 [PubMed - indexed for MEDLINE]
15. Khorsan R, Smith M, Hawk C, Haas M. A Public Health Immunization Resource Website for Chiropractors: Discussion of current issues and future challenges for evidence-based initiatives for the chiropractic profession. *J Manipulative Physiol Ther*. 2009 July-Aug;32(6):500-504.  
PMID: 19712794 [PubMed - indexed for MEDLINE]
16. Khorsan R, Hawk C, Lisi A, KizhakkeVeetil A. Spinal Manipulative Therapy for Pregnancy and Related Conditions: a Systematic Review. *Obstet Gynecol Surv*. 2009 Jun;64(6):416-427.  
PMID: 19445815 [PubMed - indexed for MEDLINE]
17. Coulter ID, Khorsan R. Through the rear view mirror: a content evaluation of the journal *Chiropractic & Osteopathy* for the years 2005-2008. *Chiropr & Osteopat*. Nov 2008;16(1):14  
PMID: 19014553 [PubMed - indexed for MEDLINE]

18. Singh BB, Khorsan R, Vinjamury SP. Influence of Co-Morbidities on Improvement of Fibromyalgia Symptoms When Treated With Acupuncture: A Short Report. *Altern Ther Health Med.* Sep/Oct 2008;14(5): 24-5.  
PMID: 18780581 [PubMed - indexed for MEDLINE]
19. Coulter ID, Khorsan R. Is Health Services Research the Holy Grail of CAM Research? *Altern Ther Health Med.* 2008 July/Aug;14(4): 40-5.  
PMID: 18616068 [PubMed - indexed for MEDLINE]
20. Vinjamury SP, Singh BB, Khorsan R, Comberiat R, Meier M, Holm S. Effectiveness of Pragmatic Chiropractic Therapy Integrated with Ayurvedic Herbal Support in Temporomandibular Disorders (TMD): A Pilot Study. *Altern Ther Health Med.* 2008 July/Aug;14(4):60-3  
PMID: 18616071 [PubMed - indexed for MEDLINE]
21. Khorsan R, Coulter ID, Hawk C, Choate CG. Outcome Measures in Chiropractic Research: How Do We Choose Patient Based Outcome Measures? *J Manipulative Physiol Ther.* 2008 Jun;31(5):355-75.  
PMID: 18558278 [PubMed - indexed for MEDLINE]
22. Singh BB, Khorsan R, Vinjamury SP, Der-Martirosian C, KizhakkeVeettil A, Anderson T. Herbal Treatments for Asthma: A Systematic Review. *J Asthma.* 2007 Nov;44(9):685-98.  
PMID: 17994396 [PubMed - indexed for MEDLINE]
23. Hawk C, Khorsan R, Lisi A, Ferrance R, Evans W. Chiropractic Care for Non-Musculoskeletal Conditions: a Systematic Review with Implications for Whole Systems Research. *J Altern Complement Med.* 2007 Jun;13(5):491-512. Abstracted in the American Academy of Pain Management. *Currents: Pain Management News and Research.* 2007 Sept.  
PMID: 17604553 [PubMed - indexed for MEDLINE]
24. Singh BB, Liu XD, Der-Martirosian C, Hardy M, Singh V, Shepard N, Khorsan R. Menopausal issues: a national probability sample of US women. *Altern Ther Health Med.* 2007 May-Jun;13(3):24-9.  
PMID: 17515021 [PubMed - indexed for MEDLINE]
25. Singh BB, Wu WS, Hwang SH, Khorsan R, Der-Martirosian C, Vinjamury SP, Wang CN, Lin SY. Effectiveness of Acupuncture in the Treatment of Fibromyalgia. *Altern Ther Health Med.* 2006 Mar-Apr;12(2):34-41. Abstracted in the American Academy of Pain Management. *Currents: Pain Management News and Research.* 2006 March  
PMID: 16541995 [PubMed - indexed for MEDLINE]
26. Singh BB, Liu XD, Der-Martirosian C, Hardy M, Singh V, Shepard N, Gandhi S, **Khorsan R.** A National Probability Sample of AMA Gynecologists and Primary Care Physicians Concerning Menopause. *American Journal of Obstetrics and Gynecology.* 2005 Sept;193: 693-700.

PMID: 16150262 [PubMed - indexed for MEDLINE]

27. Singh BB, Udani J, Vinjamury SP, Der-Martirosian C, Gandhi S, **Khorsan R**, Nanjgowda D, Singh V. Safety and effectiveness of an L-lysine, zinc, and herbal-based product on the treatment of facial and circumoral herpes. *Altern Med Rev*. 2005 Jun;10(2):123-7. PMID: 15989381 [PubMed - indexed for MEDLINE]

## Editorial

1. Khorsan R, Hawk C. Letter to Editor: Pregnancy and labor alternative therapy research. *Altern Ther Health Med*. 2009 Jan-Feb;15(1):14; author reply 14. PMID: 19161042 [PubMed - in process]

2. Crawford C, Khorsan R, Jonas W. FACT summary and commentary: The addition of homoeopathy to rehabilitation had no effect on muscle tone of children with spastic cerebral palsy. *Focus Altern Complement Ther*; 2008 Sept ; 13(3) (Electronic Journal)  
[http://www.medicinescomplete.com/journals/fact/current/fact1303a07g03r01.htm?q=%22khorsan%22#\\_hit](http://www.medicinescomplete.com/journals/fact/current/fact1303a07g03r01.htm?q=%22khorsan%22#_hit)

3. Khorsan R, Why should Chiropractors attend the University of California Irvine, Susan Samueli Center for Integrative Medicine, Annual Conference on Nutrition & Supplements: An Evidence-Based Approach? *Naturopathy Digest*; 2008 Feb. Reprint in *Dynamic Chiropractic: Chiropractic Nutritional Wellness*; 2008 Feb (Electronic Journal)  
[http://www.nutritionalwellness.com/archives/2008/feb/02\\_uci\\_conference.php](http://www.nutritionalwellness.com/archives/2008/feb/02_uci_conference.php)

4. Khorsan R, The University of California at Irvine, Susan Samueli Center for Integrative Medicine Annual Conference on Nutrition & Supplements: An Evidence-Based Approach. *Acupuncture Today*; 2008 Jan 21 (Electronic Journal)  
[http://www.acupuncturetoday.com/mpacms/at/article.php?id=31673&no\\_b=true](http://www.acupuncturetoday.com/mpacms/at/article.php?id=31673&no_b=true)

## Book Chapters

1. Hawk C, Khorsan R. (2015) “Second Edition: Manual Medicine”. IN Low-Dog T, Maizes V (Eds.) *Integrative Women’s Health*. Oxford University Press; Oxford, England . ISBN-13: 978-0190214791: ISBN-10: 0190214791

2. Khorsan R, York A, Coulter I, Coeytaux R, Wurzman R, Walter J, Berry K. “The Evolution of Patient-Based Outcome Assessment Instruments in Acupuncture Research: Choosing Patient-based Outcomes”. IN Chen CL, Cheng TO (Eds.) *Acupuncture in Modern Medicine*. InTech; New York, (March 6, 2013). Chapter 17, p. 349-370: ISBN 980-953-307-748-7

3. Coulter ID, Khorsan R. (2011) “Chapter 7, Health Services Research”. IN Lewith G, Jonas W, Walach H (Eds.) *Clinical Research in Complementary Therapies 2c*. Elsevier; Oxford, England, Edinburgh : Churchill Livingstone/Elsevier, 2011. NLM ID: 101523353

4. Hawk C, Khorsan R. (2010) “Manual Medicine”. IN Low-Dog T, Maizes V (Eds.) *Integrative Women’s Health*. Oxford University Press; Oxford, England . ISBN13: 978-0-19-537881-8 ISBN10: 0-19-537881-4

5. Coulter ID, Khorsan R. (2011) “Complementary and Alternative Medicine: Current Challenges for Outcomes Measurement”. IN Magnabosco JL, Manderscheid R (Eds.) *Outcome measurement in the human services: crosscutting issues and methods 2c*. NSW PRESS, Washington DC. ISBN: 978-0-87101-422-1

### **PLATFORM PRESENTATION/ABSTRACT**

1. Khorsan R, Crawford C. Systematic review and rapid evidence assessment of the literature methodology: The field, logistics, and challenges. American Public Health Association (APHA) 141th Annual Meeting and Exposition, Session: 3433.0 Public health, education, and research in integrative and complementary and alternative medicine (CAM): Boston, MA. Monday, November 4, 2013: 5:10 PM. (Abstract # 290480)

2. Crawford C, Khorsan R, Jonas W. Advancing CAM/IM research with the rapid evidence assessment of the literature process. American Public Health Association (APHA) 141th Annual Meeting and Exposition, Session: 4007.0 Research in Integrative, Complementary and Alternative Medicine: Boston, MA. Tuesday, November 5, 2013: 9:10 AM. (Abstract # 289569)

3. Khorsan R, Cohen A, Smith M, Lisi A, Mittman B, Coulter I, Walter J. Integrative Chiropractic Services in VA: A Pilot Study (VICCS). American Public Health Association (APHA) 140th Annual Meeting and Exposition, Session: 3418.0 Policy, regulation, comparative and cost effectiveness research: San Francisco, CA. Monday, October 29, 2012: 5:15 PM. (Abstract #269497)

4. Cohen A, Smith M, Khorsan R, Lisi A, Mittman B, Jerkins D, Armstrong C. Methodological and logistical challenges to conducting multi-site partnered research in the VA healthcare system. American Public Health Association (APHA) 140th Annual Meeting and Exposition, Session: 3323.0 Chiropractic Research: Current status and updates: San Francisco, CA. Monday, October 29, 2012: 3:00 PM. (Abstract #268597)

5. Smith M, Cohen A, Khorsan R, Jerkins D, Armstrong C, Lisi A, Mittman B. Tracking VA's chiropractic program: Implementation timelines and variations across selected facilities. American Public Health Association (APHA) 140th Annual Meeting and Exposition, Session: 4133.1 Veteran’s Health Care and Health Risks: San Francisco, CA. Tuesday, October 30, 2012: 11:30 PM. (Abstract #265497)

6. Lisi A, Mittman B, Khorsan R, Smith S, Cohen A, Armstrong C, MacGregor C, Carucci M, Jenkins DM. Variations in the Implementation and Characteristics of Chiropractic Services in VA: A Pilot Study. US Department of Veterans Affairs Health Services Research and Development QUERI National Conference, July 16-19, 2013 (tentative dates), Washington DC

or Baltimore, MD (TBD); Workshop Title: Innovative Research-Operations Partnerships in VHA. (Presentation accepted: Conference Postponed)

7. Lisi A, Mittman B, Khorsan R, Smith S, Cohen A, Armstrong C, MacGregor C, Carucci M, Jenkins DM. Variations in the Implementation and Characteristics of Chiropractic Services in VA: A Pilot Study. Association of Chiropractic Colleges (ACC) and Research Agenda Conference (RAC): Las Vegas, Nevada. March 20-21, 2012.
8. Lisi A, Mittman B, Khorsan R, Smith S, Cohen A, Armstrong C, MacGregor C, Carucci M, Jenkins DM. Studying the introduction, integration and effectiveness of chiropractic services within the VA healthcare system: A novel clinical/research collaboration. Association of Chiropractic Colleges (ACC) and Research Agenda Conference (RAC): Las Vegas, Nevada. March 19-21, 2011.
9. Lisi A, Mittman B, Khorsan R, Smith S, Cohen A, Armstrong C, MacGregor C, Carucci M, Jenkins DM. Variations in the implementation and characteristics of chiropractic services in VA Association of Chiropractic Colleges (ACC) and Research Agenda Conference (RAC). ): Las Vegas, Nevada. March 19-21, 2011.
10. Crawford C, Wallerstedt D, Khorsan R, Walter J, Jonas W. Biopsychosocial Training Programs for the Self-Management of Emotional Stress: Potential Applications for the Military. Armed Forces Public Health Conference: Hampton, VA. March 24, 2011
11. Khorsan R, Coulter I, Crawford C, Hsiao A. Systematic review of evaluations of integrative medicine programs: randomized control trials, clinical studies, and meta-analysis. (Research Agenda in Chiropractic Conference: Las Vegas, NV. March 20, 2010
12. Khorsan R, York A, Coulter ID, Coeytaux RR, Walter JA, Wurzman R. Patient-based outcome measures in acupuncture clinical research: how do we choose? American Public Health Association (APHA) 137th Annual Meeting and Exposition, Session: 4256.0 Integrative Therapies and Wellness: Philadelphia, PA. Tuesday, November 10, 2009: 3:04 PM (Abstract # 4256.0)
13. Khorsan R, Smith M, Hawk C, Haas M. A public health immunization resource website for chiropractors. American Public Health Association (APHA) 137th Annual Meeting and Exposition, Session: 3403.0 Adverse Event Reporting and UPIRTSO: Philadelphia, PA. Monday, November 9, 2009: 4:30 PM (Abstract #195771)
14. Coulter ID, Khorsan R. Innovation and Reformation in Clinical Education for Chiropractors. Keynote Plenary Speech, Research Agenda in Chiropractic Conference: Las Vegas, NV. March 13, 2009
15. Khorsan R, Coulter ID, Hawk C, Choate- Goertz C. How Do We Choose Health Services Clinician-based Measures? American Public Health Association (APHA) 136th Annual Meeting and Exposition, Current Research in Chiropractic II: San Diego, CA. Monday, October 27, 2008: 12:30 PM (Abstract # 176311)



16. Khorsan R, Coulter ID, Hawk C, Choate- Goertz C. Outcome Measures in Chiropractic Research, Part I. How Do We Choose Patient Based Outcome Measures? American Public Health Association (APHA) 135th Annual Meeting and Exposition, Session: Expanding the Evidence Base: Status of Current Research; Washington, DC. Monday, November 5, 2007: 10:50 AM (Abstract # 149072)
  
17. Coulter ID, Khorsan R. Professionalism and Ethics. Keynote Plenary Speech, Research Agenda in Chiropractic Conference: Phoenix, AZ. March 15, 2007  
Abstracted in the Journal of Chiropractic Education 2007
  
18. Vinjamury SP, Hawk C, Resnick D, Li JT, Khorsan R, Kizhakkeveettil A. Development of a Practice Based Research Program at a University Health Center: A Pilot Study. Research Agenda in Chiropractic Conference: Phoenix, AZ. (Abstract #230) March 16, 2007  
Abstracted in the Journal of Chiropractic Education 2007
  
19. Singh BB, Khorsan R, Vinjamury SP, Der-Martirosian C, Kizhakkeveettil A, Anderson T. Herbal Treatments for Asthma: A Systematic Review. American Public Health Association (APHA) 134th Annual Meeting and Exposition, Session: Herbal and Dietary Health Practices; Boston, MA. Monday, November 6, 2006: 2:30 PM (Abstract #125062)
  
20. Vinjamury SP, Schultz G, Khorsan R, KizhakkeVeettil A. Improving the scholarship of research in chiropractic faculty. American Public Health Association (APHA) 134th Annual Meeting and Exposition. Session: Statues of Chiropractic Research; Boston, MA. Monday, November 6, 2006 - 1:15 PM (Abstract#131575)
  
21. Ayad S, Rose K, Khorsan R. Factors affecting students' awareness and opinions regarding public health concepts. American Public Health Association (APHA) 134th Annual Meeting and Exposition, Session: Public Health Education and Service in Chiropractic; Boston, MA. November 6, 2006 - 11:00 AM (Abstract #132022)
  
22. Singh BB, Wu W, Hwang SH, Khorsan R, Der-Martirosian C, Vinjamury SP. Influence of Co-Morbidity on Improvement of Fibromyalgia Symptoms when Treated with Acupuncture. Research Agenda in Chiropractic Conference: Las Vegas. NV. March 18, 2005. Abstracted in the Journal of Chiropractic Education. 2005 Spring;19(1):30-31
  
23. Vinjamury SP, Singh BB, Mishra LC, Khorsan R, Comberiati R, Meier M, Holm S. Effectiveness of pragmatic chiropractic treatment in temporomandibular disorders (TMD)- A pilot study. ACC/RAC Conference: Las Vegas, NV. March 18, 2005. Abstracted in the Journal of Chiropractic Education. 2005 Spring;19(1):40 2005
  
24. Singh BB, Mishra LC, Gandhi S, Khorsan R, Singh VJ, Vinjamury SP, Kizhakkeveettil A. Ayurvedic and Collateral Herbal Treatments of Liver Diseases: A Systematic Review of Randomized Control Trials (RCTs) and Quasi-Experimental Designs (QEDs). National Ayurvedic Conference organized by NAMA; Long Beach, CA. Oct 22, 2004.

25. Singh BB, Mishra LC, Vinjamury SP, Khorsan R, Nanjegowda D, Kubik E, Shepard N. 2004 Effectiveness of Pragmatic Ayurvedic Care on the Treatment of Osteoarthritis (OA): An Experimental Case Series. WAVE Conference: Shady Grove, MD. Sept. 4, 2004.

### **POSTER PRESENTATION**

1. Jain S, Fiorentino L, Lee C, Khorsan R, Crawford C, Jonas W. Treatment Efficacy for the symptom cluster of fatigue, sleep disturbance and depression: A Systematic Review. American Psychosocial Oncology Society (APOS) 10th Annual Conference: Huntington Beach, CA. 14-16 February, 2013. (Abstract: 0204)

2. Crawford C, Jain S, Fiorentino L, Lee C, Khorsan R, Jonas W. Treatment Efficacy for the symptom cluster of fatigue, sleep disturbance and depression: A Systematic Review. MASCC/ISOO 2012 International Symposium on Supportive Care in Cancer: NYC, NY. 28-30 June, 2012. (Abstract: A-445-0018-01134)

3. Lisi A, Khorsan R, Mittman B, Smith S, Cohen A, Armstrong C, MacGregor C, Carucci M, Jenkins DM. Variations in the Implementation and Characteristics of Chiropractic Services in VA: A Pilot Study. International Research Congress on Integrative Medicine 2012 (Consortium of Academic Health Centers for Integrative Medicine (CAHCIM) Conference): Portland, OR. May 15-18, 2012

4. Khorsan R, Coulter I, Crawford C, Hsiao A. Systematic review of evaluations of integrative medicine programs: randomized control trials, clinical studies, and meta-analysis. UCLA Collaborative Centers for Integrative Medicine (CCIM), Integrative Medicine Conference. University of California, Los Angeles: February 3, 2010.

5. Coulter I, Khorsan R, Crawford C, Hsiao A. Integrative Health Care Under Review: Systematic Review of Evaluations of Integrative Medicine Programs. UCLA Collaborative Centers for Integrative Medicine (CCIM), Integrative Medicine Conference. University of California, Los Angeles: February 3, 2010.

6. Coulter ID, Findlay B, Khorsan R, Finch M, Elfenbaum P. Assessment of Optimal Healing Environments and Integrative Medicine at Allina Health Care System. Samueli Institute: Alexandria, VA. October 1, 2007

7. Khorsan R, Coulter ID, Hawk C, Goertz-Choate C. Outcome Measures in Chiropractic Research: How Do We Choose Patient Based Outcome Measures? Samueli Institute: Alexandria, VA. October 1, 2007

8. Singh BB, Wu W, Hwang SH, Khorsan R, Der-Martirosian C, Vinjamury SP. Effectiveness of Acupuncture in the Treatment of Fibromyalgia. Society for Acupuncture Research Symposium (SAR): San Francisco, CA. October 1-3, 2004

9. Singh BB, Vinjamury SP, Udani J, Der-Martirosian C, Gandhi S, Khorsan R, Nanjegowda D, Singh V. Safety and Effectiveness of a Lysine Based Ointment for Facial and Circumoral

Herpes, Natural Supplements Evidence-Based Practice: A Clinical and Research Update. Scripps Center for Integrative Medicine: San Diego, CA. Jan 2004.

10. Singh BB, Vinjamury SP. Udani J, Der-Martirosian C, Bock M, Kettler D, Pawlak M, Khorsan R. Kubic E, Shepard N., Phase2 (Phaseolus vulgaris) for Short-Term Weight Loss. Scripps Center for Integrative Medicine: San Diego, CA. Jan 2004.

11. Robins S, Khorsan R, Safai M, Osborn D. The Field of Psychology Turns to the Positive Side of Human Potential. American Psychology Society Convention (APS). Session: Wisdom and Emotional Intelligence; (Poster # IV-022): Miami Beach, FL. June 10, 2000

### **HONORS/AWARDS**

- 2016 Dean's Dissertation Writing Fellowship
- 2012 Samueli Institute  
Service of Excellence Award
- 2010 Samueli Institute  
Service of Excellence Award
- 2009 Samueli Institute  
Service of Excellence Award
- 2008 American Public Health Association (APHA-CHC)  
Service of Excellence Award
- 2007 American Public Health Association (APHA-CHC)  
Service of Excellence Award
- 2006 American Public Health Association (APHA-CHC)  
Service of Excellence Award
- 2001 Association of Professors and Scholars of Iranian Heritage (APSIH)  
Recipient of Excellence in Education for Masters Degree
- 2000 Association of Professors and Scholars of Iranian Heritage (APSIH)  
Recipient of Excellence in Education for BA
- 2000 Deans Honor Roll  
University of California, Irvine  
School of Social Ecology

### **PROFESSIONAL AFFILIATIONS/APPOINTMENTS**

- July 05-present American Public Health Association
- Oct 05-present Association of Professors and Scholars of Iranian Heritage (APSIH)
- Feb 06-Mar 06 Member of the Student Judicial Board  
Southern California University of Health Sciences, Whittier, California
- Jan 06-Mar 06 Faculty sponsor for the Persian Student Chiropractic Association (PSCA)  
Southern California University of Health Sciences, Whittier, California
- Sept 05-Mar 06 Faculty Senate Adhoc Chair for Faculty Election Models  
Southern California University of Health Sciences, Whittier, California
- July 05-Mar 06 Faculty Senate Representative and Senator Elect  
Southern California University of Health Sciences, Whittier, California

Jun 04-July 05 Faculty Senate Representative  
Southern California University of Health Sciences, Whittier, California

June 04-05 Academic Team (Alternative Substitute for Official Member Dr. Betsy B. Singh)  
Southern California University of Health Sciences, Whittier, California

June 04-05 Executive Team (Alternative Substitute for Official Member Dr. Betsy B. Singh)  
Southern California University of Health Sciences, Whittier, California

Dec. 02-03 Staff Senate (Alternative Substitute for Official Member Mr. Neil Shepard)  
Southern California University of Health Sciences, Whittier, California

Sept.00-01 American Psychological Society

### **SERVICE ACTIVITIES**

July 10- present American Public Health Association (APHA-CHC): Leadership counsel  
Susan Samueli Center for Integrative Medicine  
University of California, Irvine, California

Oct 08-present Susan Samueli Center for Integrative Medicine Development Committee  
Invited member by Dr. Susan Samueli, Chair and Founder  
Susan Samueli Center for Integrative Medicine  
University of California, Irvine, California

Jan 02-present DASA alumni panel. Annually in winter  
Program in Demographic & Social Analysis (DASA)  
University of California, Irvine, California

Feb 08-Feb 09 CME Conference Planning Committee  
*“Successful Aging: Integrative Medicine Throughout a Lifetime?”*

April 06-Feb 08 CME Conference Planning Committee  
*“Nutrition for Health: An Evidence-Based Approach through Diet and Supplements”*  
Susan Samueli Center for Integrative Medicine  
University of California, Irvine, California

July 05-Oct 09 American Public Health Association (APHA-CHC): Web-editor

### **REVIEW SERVICE TO PROFESSIONAL JOURNALS**

American Journal of Public Health  
Alternative Therapies in Health and Medicine  
Journal of Manipulative and Physiological Therapeutics  
Psycho-Oncology

## **ABSTRACT OF THE DISSERTATION**

A Program Evaluation of an Academic Integrative Healthcare Center: Barriers to, and facilitators  
in, applying Integrative Medicine to Primary Care

By

Raheleh Khorsan

Doctor of Philosophy in Planning, Policy and Design

University of California, Irvine, 2017

Professor Dan Stokols, Chair

Professor Ian D. Coulter, Co-Chair

A number of earlier studies have evaluated various aspects of Integrative Health Care (IHC). However, little is known about specific parameters of IHC integration in academic institutions. This dissertation presents the findings from a two-year program evaluation conducted at a university-based academic medical center and clinic for IHC. A major objective of the research was to identify perceived barriers and facilitators of IHC and address potential models of successful integration. The study employed a mixed-methods approach incorporating qualitative observations and interviews conducted with key-stakeholders, patients and health care providers. In addition, quantitative analyses incorporating demographic data and participants' responses to a patient satisfaction scale were conducted. The majority of the themes from the literature and interviews include structural factors, especially external barriers for IHC (i.e., costs, insurance payment and regulations) and internal barriers (i.e., lack of profits, clinic or appointment waiting time). Whereas shared values, culture, and communication to foster trust,

empathy and knowledge exchange are essential for actualizing IHC integration. In addition, collaborative, and team-based approaches that influence the design of the integration and can influence the evolutionary path of IHC. Although signs of integration were apparent, significant challenges still remained that prevented IHC providers from operating as academic hospital providers. An integrated interdisciplinary change strategy is needed that engages the IHC providers in mainstream transdisciplinary healthcare, education and research opportunities. Successful IHC integration will need to continue to address wider structural and political barriers.

## **CHAPTER 1: INTRODUCTION**

### **Addressing Health and Care in United States – Current issues**

There are many issues that are central to the ongoing debate about health care and the health care delivery system in the United States. The challenge of achieving cost-effective integrated delivery raises complex issues. According to the Institute of Medicine (IOM), health care in the United States, at its best, is excellent. Nevertheless, the IOM Roundtable on Health Care Quality found that health care in the United States is not at its best for everyone (Chassin & Galvin, 1998). The United States has the largest health care spending per capita in the world (Ridic, Gleason, & Ridic, 2012). In addition, compared to other highly advanced industrialized countries such as Germany and Canada, the United States has the highest infant mortality rate (5.8) per 1000 live births in the same year (Germany 3.4; Canada 4.5) (Central Intelligence Agency, 2017).

On a positive note, the population in the United States, at all ages and for both sexes, has had a declining mortality rate. According to the National Center for Health Statistics' (NCHS) data, between 2000 and 2010: (1) the life expectancy at birth increased 2.1 years for males and 1.7 years for females; (2) the life expectancy at birth increased more for the black than for the white population, thereby narrowing the gap in life expectancy between these two racial groups; (3) the infant mortality rate decreased 11% from 6.91 to 6.15 deaths per 1,000 live births; (4) the age-adjusted heart disease death rate decreased 30%, from 257.6 to 179.1 deaths per 100,000 population; and (5) the age-adjusted cancer death rate decreased 13%, from 199.6 to 172.8 deaths per 100,000 population (National Center for Health Statistics, 2013). The exact cause for the decline is unknown but, experts hypothesize that there are many variables that have contributed in to the decline including early diagnosis and treatment of life-threatening diseases

(Verbrugge, 1984). However, the declining mortality rate appears to be a relatively weak indicator of overall health. It seems, in sum, signs of increasing morbidity far exceed signs of decreasing mortality for adults in the United States.

In an annual report of national trends in health statistics titled *Health, United States, 2012* several findings were noted. First, in 2011, 48% of adults aged 18 and over did not meet the 2008 federal physical activity guidelines. This percentage increased with age, rising from 36% of adults aged 18–24 to 68% of adults aged 75 and over. Second, between 1988–1994 and 2007–2010, the percentage of adults aged 20 and over with grade-1 obesity [a body mass index (BMI) of 30.0–34.9] increased from 14% to 20%. Those with grade-2 obesity (BMI of 35.0–39.9) rose from 5% to 9% and those with grade-3 or higher obesity (BMI of 40 or higher) doubled, from 3% to 6%. Third, in 2011, 19% of U.S. adults were current cigarette smokers, unchanged from the 2010 level. Men (22%) were more likely than women (17%) to be current cigarette smokers. Fourth, in 2009–2011, 6% of children under age 18 had an asthma attack in the past year, and 5% had a food allergy. Ten percent of children under age 5 had three or more ear infections in the past year. Among school-age children aged 5–17, 10% had attention deficit hyperactivity disorder and 6% had serious emotional or behavioral difficulties. Fifth, in 2011, the percentage of adults who reported their health as fair or poor ranged from 7% of those aged 18–44 to 29% of those aged 75 and over. Sixth, in 2011, 27% of adults aged 18–64 reported a disability (defined as any basic actions difficulty or complex activity limitation), compared with 62% of those aged 65 and over. Seventh, in 2010–2011, 45% of men and 31% of women aged 75 and over have been diagnosed with heart disease. Lastly, in 2010–2011, 26% of men and 19% of women aged 75 and over were diagnosed with cancer (excluding squamous and basal cell skin cancers) (National Center for Health Statistics, 2013).



The World Health Organization (WHO) defines four noncommunicable diseases (NCDs) (blood pressure, cholesterol, body mass index and blood sugar) as major behavioral risk factors that increase people's risk of developing chronic diseases leading to death and disability. In 2011, the United States reported 87% of all deaths are due to NCDs. Sixteen percent of the population smokes and 43% are physically inactive. On average, blood pressure has decreased since 1980; body mass index has increased; and glucose levels have risen (World Health Organization, 2011). WHO also reports that at least 80% of premature heart disease, stroke and type 2 diabetes, and 40% of cancers can be preventable through health promotion activities such as healthy diet, regular physical activity and avoidance of tobacco products (World Health Organization, 2013).

Healthful eating, physical activity, managing stress, and avoiding tobacco are relatively new concepts in health care. Although these health factors were examined previously, prior to the 1970's, most medical treatments were focused on the treatment of disease (Breslow, 2006). Little was known about individual or population based health promotion or wellness interventions. In general, only 2.5% of the United States annual health care expenditures was dedicated to preventive health care during the early 1970's (Brennan, 1982; Stokols, 2000). Today health promotion and wellness promotion has become a priority for improving health related quality of life nationally.

One major trend in the "wellness" market is the increasing use of complementary and alternative medicine (CAM). In fact, wellness is often cited as one reason for CAM use (Astin, Marie, Pelletier, Hansen, & Haskell, 1998; J. A. Astin, K. R. Pelletier, A. Marie, & W. L. Haskell, 2000; Eisenberg et al., 1998; Eisenberg et al., 1993; Wolsko et al., 2000).

Another major trend in healthcare is a growing movement toward CAM use by both adults and children for pain management in the United States (Burnand et al., 2017; Caron, Gallo, Durbin, & Mielenz, 2017; Groenewald, Beals-Erickson, Ralston-Wilson, Rabbitts, & Palermo, 2017). Parents reported that of the 26.6% children with pain conditions (e.g., headache, abdominal, musculoskeletal pain) in the past year, about 21% of these children used CAM (Groenewald et al., 2017).

In geriatrics, the prevalence of CAM use is 41% including herbs (24%), chiropractic (20%), massage (15%), and acupuncture (14%) (J. Astin, K. Pelletier, A. Marie, & W. Haskell, 2000). The use of CAM was 92% among the elderly with fall associated pain (Caron et al., 2017). Among all adults, CAM use for back pain, neck pain and cancer related pain is growing (Kemppainen, Kemppainen, Reippainen, Salmenniemi, & Vuolanto, 2017). Nearly six percent of the United States population used CAM to treat their back pain in 2002. Of those who use CAM to treat back pain about 60% perceived a “great deal” of benefit (Kanodia, Legedza, Davis, Eisenberg, & Phillips, 2010).

## **Changing Medical Views Toward CAM and Integrative Health Care (IHC)**

Historically CAM has been mainly defined in relationship to conventional biomedicine. According to the National Institute of Health (2017), the therapies not taught in medical schools and not used to treat disease by conventional biomedicine providers are termed "alternative". Those therapies that are practiced in conjunction with conventional biomedicine are said to be "complementary"(National Institutes of Health National Center for Complementary and Integrative Health (NCCIH), 2017).

The study by Eisenberg et al. (1993), looking at CAM use in the United States reported that: “A full third of the respondents who used unconventional therapy in 1990 did not use it for any of their principal medical conditions” (Eisenberg et al., 1993). In fact, according to this study, “unconventional therapy is used for non-serious medical conditions, health promotion, or disease prevention (Eisenberg et al., 1993)” (Schuster, Dobson, Jauregui, & Blanks, 2004). Here, CAM is used alongside conventional biomedicine. Today, the line between CAM and conventional medicine is becoming harder to draw (I. D. Coulter, Khorsan, Crawford, & Hsiao, 2010, 2013; Khorsan, Coulter, Crawford, & Hsiao, 2011). Others have reported that individuals use CAM “as part of a healthy lifestyle that promotes wellness” (Schuster et al., 2004). Seeing CAM as a central aspect of a wellness lifestyle involves using major elements of health promotion, most commonly disease management and prevention, weight loss, increased physical activity, and stress reduction. This is an important distinction for understanding the different potential benefits of CAM use (Schuster et al., 2004). This distinction includes CAM therapies for wellness compared to CAM therapies to disease management including the clinical impact of CAM on pain.

Integrative healthcare (aka integrative medicine (IM) or integrated healthcare) can be the result of systematic integration of the beliefs, assumptions, values and practices of both CAM and conventional biomedicine to treat the well-being of the whole person (Barrett et al., 2003; Khorsan et al., 2011). A general misunderstanding is that CAM and conventional biomedicine are mutually incompatible. The osteopathic example demonstrates that providers (the D.O.s) whose philosophy is embedded in the inductive holistic paradigm can practice “medicine” alongside their medical counterparts (the M.D.s).

Today, IHC programs can be found in government institutions such as the US Department of Veterans Affairs (VA) or the US Department of Defense (DoD) (Herman, Sorbero, & Sims-Columbia, 2017; B. Horrigan, Lewis, Abrams, & Pechura, 2012; Madsen, Vaughan, & Koehlmoos, 2017), clinical centers, (Knutson, Johnson, Sidebottom, & Fyfe-Johnson, 2013), and a number of medical schools that offer academic programs and degrees in IHC (Ehrlich, Callender, & Gaster, 2013). In 2017, the Academic Consortium for Integrative Medicine and Health included a membership of over 70 academic medical centers and affiliate institution with IHC programs (The Academic Consortium for Integrative Medicine & Health 2017).

In addition to the popularity shift for traditional therapies in the 1970's, the broad social shifts such as patient empowerment and the wellness movement have advanced the legitimacy of CAM and ultimately IHC. As health promotion programs gained popularity in the 1970's, so too did the new trend of self-care health management practices known as "wellness". Prior to the 1970's little was known about self-care health management or individual-oriented health practices (Kickbusch, 1989). As health premium increases have been rising across all regions of the United States so has the adoption of wellness strategies increased. (Executive Office of the President, September 22, 2009; Nayer, Berger, & Mahoney, 2010). Health promotion accounts for only 2% to 3% of health care expenditures in the United States (Satcher, 2006; Woolf, 2009). However, health promotion programs can be found in schools, worksites, community settings, hospitals, and outpatient clinics (Oldenburg, Sallis, Ffrench, & Owen, 1999; Stokols, 1992, 1996, 2000). In comparison, wellness programs are mainly self-managed or available through the private sector (Kickbusch, 1989; Kickbusch & Payne, 2003). One major trend in the wellness market is the increasing use of CAM. In fact, wellness and health promotion are often cited as

major reasons for CAM use (Astin et al., 1998; J. A. Astin et al., 2000; Eisenberg et al., 1998; Eisenberg et al., 1993; Wolsko et al., 2000). Indeed, survey data collected by IHC multi-institution known as PRIMIER (Patients Receiving Integrative Medicine Interventions Effectiveness Registry) reported that IHC patients are overall leaner than the United States general population and also seem to be more health conscious with regards to current tobacco use (D. Abrams, Dolor, Dusek, Horrigan, & Kligler, 2015).

Perhaps, the trend toward increased CAM use has resulted from a combination of consumer interest, evidence-of-effectiveness (E. Ernst, 2001; Linde, Hondras, Vickers, ter Riet, & Melchart, 2001; Linde, ter Riet, et al., 2001; Linde, Vickers, et al., 2001) and a reconciliation between two previously competing or mutually exclusive paradigms. In fact, many have argued that the rapid rise in CAM and IHC services follows an important shift in societal values including a belief-centered, value-laden, and sociocultural shift (I. D. Coulter & Willis, 2004). Others have commented on how the incorporation of a more holistic, patient centered care and empowering healing philosophy such as CAM has influenced the progression of holistic practices within conventional biomedicine (Baer, 1992; Barrett et al., 2003; Illich, 1995; Miller, 1988; Pelletier, 1979). Barrett et al., (2003) discuss how within conventional family medicine or primary care, physicians have strongly embraced a philosophy consistent with the values of CAM. They argue that the beliefs and values associated with Engel's biopsychosocial model (Engel, 1978) and Ray's cultural creative model (P. H. Ray, 1983; P. H. Ray & Anderson, 2000) may indeed be the driving force behind the recent rapid rise of CAM, and ultimately the rise to prominence of IHC (Barrett et al., 2003). There is a great deal of interest in, and some initial experience with, the integration of CAM and conventional biomedicine (Fenton & Morris, 2003). It is difficult to forecast to what extent and in what forms integration will progress, but

this study attempts to shed some light on this issue, by focusing on an attempt at integration within an academic setting.

## **CHAPTER 2: DESCRIPTIONS AND DEFINITIONS**

### **A Brief History of Complementary and Alternative Medicine (CAM)**

CAM has had a long history and includes traditional systems of medicine such as acupuncture, traditional Chinese medicine, Ayurveda, African medicine, Native American medicine, and many more traditional and holistic healthcare systems.

Acupuncture, including traditional Chinese medicine also known as Eastern Medicine, has a long history dating back as far as 6000 BCE (White & Ernst, 2004). Indeed, acupuncture as an organized healthcare system of diagnosis and treatment was documented in “The Yellow Emperor’s Classic of Internal Medicine”, dating as far back as about 100 BCE. Later, during the Ming Dynasty (1368–1644), the first documentations for the basis of modern acupuncture were published as “The Great Compendium of Acupuncture” (Edzard Ernst, 2006). Up until the modern era of medicine, acupuncture and other traditional healthcare systems were used as standard medical therapies in China (White & Ernst, 2004).

During the 19th Century, with the increase popularity of Western medicine and the emergence and popularity of modern pharmaceutical science and industry CAM found itself at war with conventional medicine over the right to practice. In the United States, by the mid-19th century, CAM gained popularity and began to compete with conventional medical professionals (Ventola, 2010). During this era, “medical pluralism was a war zone. Beginning in the earlier 1800s, the first wave of organized opposition to orthodoxy was led by the Thomsonians (botanical healing), Grahamites (health food), homeopaths (microdilution medicine), hydropaths (water-cure therapies), and mesmerists (the “energy” healing of the time). Beginning at the end

of the 19th century, a second advance was spearheaded by the osteopaths, chiropractors, drugless practitioners, and Christian Scientists” (Kaptchuk & Eisenberg, 2001).

In China, there was a decline in CAM popularity. In fact, China outlawed acupuncture and traditional Chinese medicine in 1929 and later reinstated it with the change in régime to Communist government in 1949. In the United States, CAM was also a political movement against the medical elite groups that prevented the traditional healers from practicing healthcare without licensing laws. By the 1960’s, alternative medicine in the United States, had lost its popular support (S. E. Straus, 2000).

In 1972, United States President Richard Nixon and his physician Dr. Tkach made an historic visit to China. During the President’s visit, a journalist in President Nixon’s press corps received acupuncture treatment for postoperative abdominal distension and the journalist experienced symptomatic relief. The renaissance for acupuncture began when the journalist reported in the New York Times that needling might release endorphins in the brain and reduce pain. This resulted in a flood of interest and research on acupuncture in the United States (E. Ernst, 2009). By the late 1970s, osteopathy and chiropractic were both licensed every State (Whorton, 2006).

About twenty years ago, CAM was defined as practices that were "neither taught widely in U.S. medical schools nor generally available in U.S. hospitals" (Eisenberg et al., 1993). Today this definition no longer applies since CAM is increasingly taught in medical schools and CAM therapies are being applied in some programs available in hospitals (Busse et al., 2009; Cohen, 2002a, 2002b; Eisenberg et al., 2002).

From 2001 to 2005, the National Center for Complementary and Integrative Health (NCCIH) (formally known as The National Institutes of Health National Center for



Complementary and Alternative Medicine (NCCAM) defined the term CAM as “healthcare practices that are not an integral part of conventional medicine” (I.D. Coulter, Ellison, Hilton, Rhodes, & Ryan, 2008). Today NCCIH defines CAM as “health care approaches developed outside of mainstream Western, or conventional, medicine for specific conditions or overall well-being” (National Center for Complementary and Integrative Health, June 28, 2016). However, the definitional term CAM can be as problematic as the term “conventional biomedicine”. Indeed, Wiseman (2004) defined many labels of conventional biomedicine such as conventional medicine, allopathic medicine, orthodox medicine, western medicine, modern medicine, scientific medicine, biomedicine, and mainstream. Each of these labels presents difficulties including difficulty in distinguishing “medicine” from much of CAM (I.D. Coulter et al., 2008; Wiseman, 2004). CAM, like conventional biomedicine, has had various terms to describe it including: irregular, unconventional, non-mainstream, unorthodox, quackery, folk, alternative, complementary, adjunctive and traditional.

CAM has gone through several generations of definitional shifts. Some have reported that most patients who use CAM use it as complementary or in conjunction with their conventional biomedicine (W. B. Jonas, Eisenberg, Hufford, & Crawford, 2013). As NCCIH (2016) states, “true alternative medicine is not common. Most people use non-conventional approaches along with conventional treatments. The boundaries between complementary and conventional medicine overlap and change with time. For example, guided imagery and massage, both once considered complementary or alternative, are used regularly in some hospitals to help with pain management” (National Center for Complementary and Integrative Health, June 28, 2016). Also what was considered CAM in the past such as osteopathic medicine can be redefined as conventional biomedicine today. Ultimately, CAM can be viewed

as an umbrella term of practices ranging from very focused therapies such as dietary supplements to whole traditional systems such as traditional Chinese medicine (I.D. Coulter et al., 2008).

With greater creditability of CAM, healthcare services and centers and insurance plans and hospitals have taken notice (Toupin April & Gaboury, 2013). Many health care services and centers have incorporated CAM into their usual plan of care. That is, CAM has been recently incorporated into conventional biomedicine to create a newly emerging form of medical care termed by many as integrative healthcare (IHC).

Integrative healthcare (IHC) or “integrative medicine/ integrated medicine” are terms used to describe a developing field of health care in many countries, characterized by the combination of CAM and conventional biomedicine. For example, back pain treatment centers with IHC programs may offer services such as acupuncture or chiropractic care to help manage symptoms and side effects for patients who are receiving conventional treatments such as NSAIDs (nonsteroidal anti-inflammatory drugs).

Like CAM, IHC has not been unproblematic in terms of either its definition or actualization. In fact, there have been a number of conceptual models within and around the notion of IHC, and there are debates over the definition of IHC, what integrative care is, and about the nature of the transformation that is occurring within the field of IHC. Most recently, IHC has been discussed as an innovative program to transform health care in hospitals and other health care facilities in the United States. However, earlier research has revealed a lack of consensus on definitions and about what IHC is and how it can be most effectively implemented. The definition of IHC “ranges from simply incorporating CAM into conventional medicine to the notion that integrative health care constitutes a new form of medical practice involving shared management of the patient, shared patient care, shared practice guidelines, and shared

common values and goals (i.e., to treat the person in a “whole-person approach” and not just the disease)”(I. D. Coulter et al., 2010). In fact, healthcare agencies, like the United States Department of Veterans Affairs (VA) healthcare delivery systems, have responded to this increasing demand by beginning to provide various CAM services, implemented as IHC, in outpatient and inpatient settings (Ananth, 2009, 2012; Lisi, Goertz, Lawrence, & Satyanarayana, 2009). The establishment of chiropractic clinics within the VA has been described as being at the crossroads of CAM and mainstream medicine (Lisi & Brandt, 2016; Lisi, Khorsan, Smith, & Mittman, 2014; Meeker & Haldeman, 2002) and its inclusion into the VA healthcare system exemplifies that duality for IHC.

Congress directed the VA to establish a policy regarding chiropractic services for musculoskeletal conditions in 1999 (Public Law 106-135, 2012). The establishment of chiropractic clinics within VA was challenged by the rarity of existing IHC models in other healthcare systems, and by the widely varying perception of chiropractic services by medical physicians (Busse et al., 2009; Busse et al., 2011). Today by policy, chiropractic care is now part of VA’s standard medical services; however, in practice and perception it retains many of the limiting features of a CAM service within a traditional medical setting. Therefore, the addition of chiropractic services in the VA faces not only the expected challenges of introducing any new service/program into a large healthcare system, but also the unique obstacle of blending non-traditional services into conventional medical settings (B. N. Green, Johnson, & Lisi, 2009; B. N. Green, Johnson, Lisi, & Tucker, 2009; Lisi et al., 2009).

About five years ago the Bravewell Clinical Network surveyed 29 IHC centers and programs across the United States, not including government institutions such as the VA or the DoD (B. Horrigan et al., 2012). Today, there are over 70 IHC centers and programs across the

United States, not including government institutions such as the VA or the DoD (The Academic Consortium for Integrative Medicine & Health 2017). There has been an increase in the number of university clinical centers that provide IHC, (Knutson et al., 2013) the number of medical schools that offer academic programs and degrees on IHC (Ehrlich et al., 2013), and the number of research studies on IHC interventions, (Wolever et al., 2011) or lack thereof (Khorsan et al., 2011), dependent on the definition the IHC. Little is known about whether IHC is being offered in the same and similar manner in each clinical setting or how IHC is being defined and practiced.

Given the growth in the number of IHC centers and programs, it is now imperative to develop and implement evaluation studies that measure and collect data regarding the *actual* practice of IHC, which by definition treats the whole person (i.e., addresses the range of physical, emotional, mental, social, spiritual, and environmental influences that affect a person's health).

## **Use of CAM and Related Costs in the United States**

CAM patient use is increasing in the United States and internationally. A 2002 systematic review of published research documenting CAM use in the general population of six countries found that the most rigorous studies, conducted in Australia and the United States, showed a high proportion of the population using CAM (E. Ernst, 2000; Harris & Rees, 2000). The Eisenberg studies suggested the use of CAM products or practitioners increased significantly in the United States from 33.8% of the population in 1990 to 42.1% in 1997. Reported annual visits to these practitioners also increased, from 12.3% to 19.5% (Eisenberg et al., 1993).

A 2007 United States national survey (National Health Interview Surveys (NHIS)) found almost 4 out of 10 United States adults had used CAM therapy during the previous 12 months (Barnes, Bloom, & Nahin, 2008; Nahin et al., 2007). Today that number has grown significantly both in the national population (E. M. Cohen, Dossett, Mehta, Davis, & Lee, 2017; R. R. Green, Santoro, Allshouse, Neal-Perry, & Derby, 2017; Groden, Woodward, Chatters, & Taylor, 2017; Robles, Upchurch, & Kuo, 2017) as well as CAM use in the military (Herman et al., 2017). Additionally, in 2012 adults in the United States spent 30.2 billion/each year, \$28.3 billion for adults and \$1.9 billion for children, out-of-pocket on visits to CAM practitioners and purchases of CAM-related products, classes, and materials. This accounts for about 1.1% of total health care expenditures in the United States (\$2.82 trillion) and up to 9.2% of out-of-pocket health care expenditures (\$328.8 billion). Compared to prescription drugs, Americans have spent \$12.8 billion in out-of-pocket expenditures for the purchase of natural product supplements, which is about 24% of the amount Americans have paid for prescription drugs in 2012 (\$54.1 billion) (Nahin, Barnes, & Stussman, 2016). Past studies reported that the prevalence rates for the use of CAM increased as family income increased (Nahin, Barnes, Stussman, & Bloom, 2009; Sherman et al., 2006). More recently, it is estimated that the average per user out-of-pocket expenditure for CAM approaches for lower income families was \$435 (family incomes of less than \$25,000) and \$590 for those with family incomes of \$100,000 or more (Nahin et al., 2016). In addition, the hospital inpatient population has also stated willingness to pay for these services, especially for healthy food (71%), massage therapy (70%), and stress management (48%) (Montross-Thomas et al., 2017).

The motivation for CAM use among patients is likely multifactorial, but research has shown that consumers feel empowered using CAM, and report feeling increasingly comfortable

with CAM practitioners (Emmertson, Fejzic, & Tett, 2012; Fejzic, Emmerton, & Tett, 2010; Montross-Thomas et al., 2017).

## **United States Historical Barriers to CAM**

**Philosophy.** Currently the definition of IHC is emerging, but we know that IHC in hospital settings involves some form of CAM and conventional medicine. However, given the historic conflict between allopathic medicine and CAM, integrating them is a difficult task.

For example, there has been some animosity between the Chiropractic profession and allopathic medicine since the early 1900's. The theoretical principles and philosophy of health and healing are probably the strongest form of contingency between the two fields. The underlying Chiropractic philosophy is similar to the original principles of Osteopathy founded by Andrew Taylor Still. The tenets of both chiropractic and osteopathy are akin to the philosophy of holistic medicine (Meyer & Price, 1993). That is, a person as a unit is a combination of body, mind and spirit (Franzel, Schwiegershausen, Heusser, & Berger, 2013). As stated, in the mid-19<sup>th</sup> Century, as medicine began to accept the germ theory and reject the metaphysical causes of disease, healing became a licensed profession (Wilson, 2013). Medical schools became accredited and the American Medical Association (AMA) was established. The establishment of the AMA in 1847 was to form policy and standards for medical education and practice. By the early 1900's allopathic medicine became a powerful national lobby creating National State Boards to license medical practitioners and oversee medical education. Those professionals involved in "healing practices" not endorsed by the AMA were labeled as "quacks" practicing "quackery" medicine and therefore dangerous to public health. In 1910, the Flexner Report, that

enumerated protocols of mainstream medical education and research and was financed by the Carnegie Foundation. resulted in the closing hundreds of private medical and homeopathic schools across the United States and Canada (Ober, 1997). By the early 1960's, the AMA created committees to combat "quackery" and launched a national campaign to eliminate or co-opt all forms of "quackery" as legitimate medical practice including both chiropractic and osteopathic therapy (N. Gevitz, 1989). In 1961, the AMA and California State Board of Medicine issued that University of California Board of Regents:

“(I) convert the California osteopathic college into an allopathic college, (2) arrange for the converted medical school to issue M.D. degrees to California D.O.s holding an unlimited California license to practice medicine, (3) form a temporary statewide medical society to accommodate the new M.D.s until they became absorbed into the regular county medical societies, and [4] legislate to prevent future licensure of D.O.s and for the termination of all powers of the Board of Osteopathic Examiners except over those who chose to continue to practice as D.O.s [(E. Blackstone, 1977)]... The AMA's House of Delegates decreed that each state medical society could determine whether or not to accept D.O.s as professional equals: “the test should be: Does the individual doctor of osteopathy practice osteopathy or does he in fact practice a method of healing founded on a scientific basis [(Berge et al., 1961)] (p.705)”(Baer, 1981).

In 1962, a statewide ballot initiative in California aimed to eliminate the practice of osteopathic care in the state. Immediately following this legislation, the AMA re-accredited the formerly osteopathic university, the California College of Osteopathic Physicians and Surgeons as the University of California, Irvine School of Medicine, as a new accredited medical school for allopathic medicine. In addition, the AMA placed a ban on out of state Doctors of Osteopathy (D.O.) to be eligible for physician licenses when she/he relocated to California. Ultimately, in 1972, a law suit by D.O.s was filed against the California Medical State Board ("Osteopathic Physicians & Surgeons v. California Medical Association, 224 Cal. App. 2d 378,"

1964). This legal case ended with a California Supreme Court ruling that the refusal to grant D.O. licensure to practice medicine in the state of California was unconstitutional (Huff, 1974).

“Perhaps the most significant was the case whereby in 1974 the California Supreme Court overturned the 1962 licensing statute which denied licenses to new D.O.s on the grounds that it ‘denied equal protection of the law to the graduates of osteopathic colleges’ [(Bruce & Vodicka, 1975)]. A state law passed in California made it illegal for a hospital to refuse any properly qualified applicant a staff position on the basis of school of origin [(Denbow, 1977, May 19)]. Even earlier, the Supreme Court of the State of Washington ruled on November 24, 1967, that a ‘quickie’ medical school, which was established by the Washington State Medical Society for the sole purpose of allowing osteopathic physicians to exchange their D.O. degrees for M.D. degrees, was illegal [(E. Blackstone, 1977)] (p.706)” (Baer, 1981).

In addition to the California Supreme Court decision, two other major factors also led to the “legitimization” of the D.O. degree (i.e., gaining the same legal privilege to practice medicine as physicians with an M.D. degree): (1) the merger between the two medical schools (the College of Osteopathic Physicians and Surgeon and the University of California, Irvine School of Medicine); and (2) as part of the merger, the D.O.s were viewed as competent as M.D.s. In fact, ex-D.O. faculty received a M.D. Degree and taught alongside conventional (M.D) faculty, even for several decades henceforth. In the conversion of the College of Osteopathic Physicians and Surgeon (formerly known as Los Angeles osteopathic college) into an MD-granting school (now the University of California, Irvine, School of Medicine) not only changed the history of osteopathy in the United States but the University of California, Irvine in the center for that historic change. The merger may have influenced “the quick national amalgamation of all DOs and their institutions” (p. 704) (Norman Gevitz, 2009). Indeed, by the mid-1970s osteopathic universities provided DO students with clinical and academic experiences relative to their MD counterparts.



Today, a D.O. degree has the same legal privilege to practice medicine in the United States as those physicians with an M.D. degree. In fact, it is estimated that by 2019, “upwards of 25% of all U.S. medical school graduates produced annually will be doctors of osteopathic medicine” (Norman Gevitz, 2009).

The debate over Osteopathy was long and protracted. Today, Chiropractic and other CAM practices are still marginalized and are engaged in similar debates, much around the lack of evidence based CAM.

Despite CAM’s growing scholarly development and popularity, there still remains a distinct lack of evidence from rigorous, in-depth, analyses conducted on the factors that facilitate CAM integration such as IHC practices. Some argue that in addition to the lack of consensus about the paradigm or philosophy underlying CAM and conventional biomedicine the accreditation and licensure to practice health of CAM practitioners poses a barrier to integration (Ehrlich et al., 2013). Indeed this is especially true for IHC in a hospital setting where a team-based approach from healthcare team members is an important aspect of care. It can be argued that IHC is a phenomenon that is defined by the requirements for membership that is pre-determined by larger systems such as the VA or AMA.

**Safety of IHC.** Research is trying to differentiate between CAM therapies that work and those that do not. Authors have also noted that not all therapies work equally well for all using them and that some therapies may not be appropriate for everyone (Budzynska, Gardner, Low Dog, & Gardiner, 2013; Cherkin, Sherman, Deyo, & Shekelle, 2003). However, more information is needed on the factors that determine the responses of different individuals to therapy. Understanding this individual variation in response to CAM therapy is a key to

understanding the potential for IHC liabilities. As it is used in medicine, the definition of malpractice liability is whether a given therapy falls below the standard of care and thereby injures the patient (M. H. Cohen et al., 2005; M. H. Cohen, Natbony, & Abbott, 2013).

However, applying malpractice liability as ‘whether a given therapy falls below the standard of care and thereby injures the patient’ literally is problematic. For example, physicians integrating CAM therapies depart from conventional medical norms of practice. They therefore risk malpractice liability irrespective of any actual negligence since the courts might view the very selection of a nonstandard therapy as equivalent to substandard care. That is, these physicians are failing to meet the requisite level of professional care (M. H. Cohen & Eisenberg, 2002).

**Liability.** As stated previously the field of IHC is emerging (I. D. Coulter et al., 2010, 2013; Khorsan et al., 2011). Because the field of IHC is emerging, the standards of care of IHC practices tend to be less researched than in conventional medicine. Therefore, courts assessing whether the standard of care has been met and whether the therapy has harmed the patient are likely to rely on medical consensus regarding the safety and efficacy of a given (singular) CAM therapy. According to Cohen’s study of potential liability that health care providers (i.e., medical physicians, nurses, and CAM providers) as they provide IHC therapies falls into four guiding frameworks: (1) the medical and scientific literature supports both safety and efficacy; (2) the evidence supports safety, but evidence regarding efficacy is inconclusive; (3) the evidence supports efficacy, but evidence regarding safety is inconclusive; and (4) the evidence indicates either serious risk or inefficacy (Cohen 2002). In summary, a framework for assessing

potential liability risk involves assessing the evidence concerning safety and efficacy, and then aligning clinical decisions with liability concerns.

Once evidence supports both safety and efficacy, the CAM therapy should gain general medical acceptance, and fall within the standard of care (Houze, El-Khatib, & Arbour, 2017). By this definition, evidence-based CAM therapies present little risk for patient injury (M. H. Cohen, 2003) and therefore, the medical physician who provides or counsels a patient under his or her care about evidence-based practice (EBP) (aka Evidence-Based Medicine (EBM)) has little, if any, liability exposure to malpractice. In fact, if there is evidential support for both the safety and efficacy of a CAM therapy then the physician should recommend and monitor these EBPs. For example, chiropractic for low back pain (Bigos, Bowyer, & Braen, 1994 ; Koes, Assendelft, van der Heijden, & Bouter, 1996), has been determined to be both safe and effective but also cost-effective, and therefore should be considered appropriate care for low back pain in an IHC practice. On the other hand, if the evidence indicates serious risk or inefficacy, the physician not only is deviating from conventional standards of care, but is also causing patient injury, and thus probably faces malpractice liability. The majority of CAM therapies are likely to fall in the middle (evidence supports safety, but evidence regarding efficacy is inconclusive (M. H. Cohen & Eisenberg, 2002; M. H. Cohen et al., 2005).

The Cohen et al., (2005) study of credentialing, malpractice liability, and pharmacy policies governing integration of CAM therapies and providers into conventional medical settings found that most institutions had no consistent approach to provider mix and authority within the integrative care team. In fact, in 19 hospitals across the United States, CAM providers had minimum requirements for professional liability insurance, informed consent disclosure, and hiring status. Overall, hospitals are using heterogeneous approaches to address licensure,

credentialing, scope of practice, malpractice liability, and dietary supplement use in developing models of integrative care. Less than a third had a formal (stated) policy concerning dietary supplements; those selling supplements in their pharmacy lacked consistent, evidence-based rationales regarding which products and brands to include or exclude. Although many hospitals confiscated patient supplements on admission, institutions had inconsistent criteria regarding allowance of home supply. They also state there was no consistent pattern of liability insurance, either by provider type or between academic and nonacademic centers. Furthermore, institutional inconsistency and ambiguity complicate clinical decision making as well as research, and foster ethical issues (K. E. Adams, Cohen, Eisenberg, & Jonsen, 2002).

CAM therapies also account for only approximately 5% of the total medical malpractice insurance market; to date, both the number of claims against CAM providers and the average indemnity paid per claim have been lower than claims against primary care physicians (Cohen et al., 2005). Malpractice risks are greatest for the conventional-care practitioner attempting to practice integrative care in the following circumstances (Mann, Gaylord, & Norton, 2004):

- when patients are referred to a CAM provider without informed consent or adequate education about the type of therapy provided,
- when the condition is fully treatable by conventional means and nonstandard therapy is used with a resulting delay in treatment or diagnosis,
- when patients are referred to a complementary practitioner who is known to be incompetent,
- when a patient is jointly treated by a conventional-care provider and a CAM practitioner known to be incompetent, and

- when a condition known to be treatable with a complementary approach is not so treated, especially in the face of failure of other therapies (Cohen, 2002a).

In addition, the potential liability risk can be reduced if IHC centers or hospitals serve as a ‘key educational hubs’ where medical and CAM practitioners and researchers receive cross-disciplinary training necessary for safe, EBP of IHC and innovative investigation. Therefore, stakeholder groups could, individually and collectively, encourage relevant professional organizations and agencies to consider creative ways of using integrative care centers to help further consistent clinical care and research (M. H. Cohen et al., 2005).

## CHAPTER 3: LITERATURE REVIEW

A scoping review was conducted to identify program evaluations of IHC using a systematic exploration of the available literature from June 21, 2000 to May 1, 2017. This methodology does not involve an assessment of the quality of the included studies. The eligibility criteria for studies were based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) criteria (Moher, Liberati, Tetzlaff, Altman, & Group, 2009). Three electronic databases were searched: PubMed, CINAHL and Cochrane Library. Additionally, grey literature (non-academic or non-peer reviewed published materials) was also searched using Google Scholar (first 100 citations) (Wu, Roychowdhury, & Khan, 2017). A systematic review protocol was not registered. This portion of the dissertation did not use systematic review software to analyze or categorize data.

The following initial searches, as entered into PubMed, were combined to produce the final search: Integrat\* and Medicine; Integrat\* and Health\* (for healthcare); multidisciplinary care; complementary or alternative and conventional medicine or health care; delivery of health care and integrat\*; integrative program; and holistic health. The titles and abstracts for relevance based on the inclusion criteria were screened for this paper. This scoping review includes only articles in English and involving human subjects. In addition, this scoping review reports only on the program evaluations, practice models, and models of integration that apply to the United States health care model and that passed the second level review screening. Integrative health care is defined. (I. D. Coulter et al., 2010; Khorsan et al., 2011) as “including at least one modality from CAM and one modality from conventional medicine and they are combined using an integrative healthcare paradigm (Khorsan et al., 2011)” to “a new form of medical practice

involving shared management of the patient, shared patient care, shared practice guidelines, and shared common values and goals (i.e., to treat the person in a “whole-person approach” and not just the disease) (I. D. Coulter et al., 2010). Therefore, this portion of the dissertation will assess where the included reports fall along the spectrum of IHC using methodology based on the Grounded Theory Literature Review Method (Wolfswinkel, Furtmueller, & Wilderom, 2013). Often qualitative research discourages a literature review conducted before data collection and analysis. However, literature review during a qualitative methodology “is neither avoidable nor undesirable, but rather recognized and included in the analytic process” (Ramalho, Adams, Huggard, & Hoare, 2015). Reflexive strategies during the literature review process are important in minimizing researcher bias (Ramalho et al., 2015). Indeed, there are several literature review studies that use the Grounded Theory Literature Review Method to explore an emergent field (Meuwly et al., 2017; Mills, Bonner, & Francis, 2006; Montazemi & Qahri-Saremi, 2015).

This dissertation also excluded studies with one of the following criteria: (1) exclusively CAM without integration with conventional medicine; (2) use of CAM as adjunctive therapy to conventional medicine without incorporating an integrative health care paradigm in the design of the study; and (3) not applicable to Western health care setting. Studies were also marked as “not relevant to IHC” if the study reported on integrated care pathways without IHC, non-IHC integrated review, integrated managed health system without IHC (i.e. electronic patient records, integrated delivery systems/networks or health care delivery), non-IHC integrated case management, integrated analysis without IHC, and clinical integration without IHC. Exclusively CAM without conventional medicine integration, exclusively conventional medicine without CAM integration, exclusive CAM or conventional medicine into a curriculum for education, scholarship of integration without IHC, integrating theory (non-IHC) of conventional medicine,

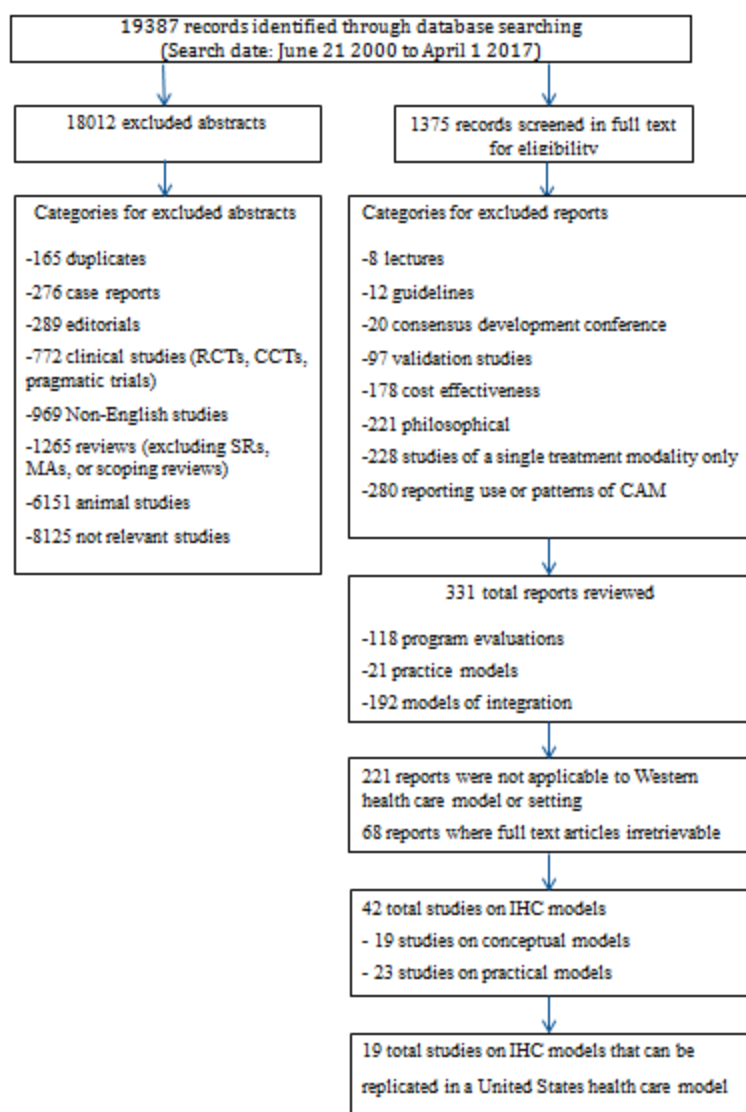
integrated approach to concepts or integrating a single conventional medicine therapy to another were also excluded. All included studies must be applicable to Western health care settings, including Western legalities or regulation of integration (Khorsan et al., 2011).

## **Models of IHC**

This dissertation found 19387 records identified through database searching. Of the reports that were included, 12 studies (Barrett et al., 2003; H. Boon, Verhoef, O'Hara, Findlay, & Majid, 2004; Brooks, Silverman, & Wallen, 2013; Chung, Ma, Hong, & Griffiths, 2012; Goldblatt, Wiles, Schwartz, & Weeks, 2013; Kaptchuk & Miller, 2005; Leckridge, 2004; E. J. Lim, J. L. Vardy, B. S. Oh, & H. M. Dhillon, 2017; Maizes, Rakel, & Niemiec, 2009; Mann et al., 2004; Patterson & Arthur, 2008; Wiese, Oster, & Pincombe, 2010) articulated conceptual models of IHC. In addition, there are seven studies (Chong, 2006; Geffen, 2010; Kanherkar et al., 2017; E. Lim, J. L. Vardy, B. Oh, & H. M. Dhillon, 2017; Perard, Mittring, Schweiger, Kummer, & Witt, 2015; L. Weeks, Balneaves, Paterson, & Verhoef, 2014; Witt et al., 2015) that assessed and evaluated the use of IHC in institutional settings such as the academic and hospital settings (See Figure 3.1. Scoping Review Flow Chart below).



**Figure 3.1. Scoping Review Flow Chart**



The construction of conceptual models may help in identifying possible patterns or forms of collaboration of conventional medicine and CAM in different health settings and explain how this collaboration could be applied to the study of IHC. Fourteen of the 19 studies included conceptual/practice models of IHC that meet the inclusion for descriptive evaluation (See Table 3.1. Conceptual Models for IHC Based on a Continuum below for included studies). This portion of the dissertation addresses the most current literature on models of integration and

attempts to explain the gaps in the literature as it applies to the integration of CAM services in a single academic setting

**Table 3.1. Conceptual Models for IHC Based on a Continuum from less integration (left hand) to more integration (right hand) ; n=14**

Organized by publication year

Authors



Lim et al. 2017	Independent System	Dependent System	Integrative system: transformative integration patterns; dynamic and interactive relationships; interaction between teams or disciplines; multidisciplinary; individual institutional environments;		
	Coexistent: minimal interaction; conceptual conflict; distrust; conventional medical physician deciding CAM involvement; services operated independently	Cooptative: selective incorporation of CAM; based on conventional medical diagnostic; CAM services are highly dependent on conventional medicine; inclusive systems; no CAM legislation or education curriculum.	Cooperative: separate decision-making but consist of multidisciplinary teams	Collaborative: shared decision-making; building consensus from the collaborative team and a partnership; patients consensus; interdisciplinary teams with a nonhierarchical blending.	Patient-centered: advanced care version of the collaborative model; patient centered; patient involvement in treatment planning; greater acknowledgement of the clinical value of both medical paradigms.
Perard M. et al. 2015 and Witt C. M 2015			Theoretical merger (i.e., Bridge Model): bridging cultures based on 4 overall aspects: culture, strategy, organizational tools and outcomes. Each culture is represented by 3 dimensions: corporate philosophy (core and identity of the medicine and the clinic), patient (all characteristics of the professional team's contact with the patient), and professional team (the characteristics of the interactions within the professional team).		
Brooks T. A. et al., 2013			Shared Decision Making (SDM): Quality communication between providers and patients is essential (shared responsibility to work toward patient centered care)		
Goldblatt at al., 2013	ACCAHC Competencies for Optimal Practice in Integrated Environments: evidence-informed practice and institutional healthcare practices, interprofessional education, institutional healthcare culture and practice, communication and interprofessional relationships and health care policies are important core competencies for interprofessional collaborative practice.				

Chung et al., 2012	Balanced Inteprofessional Collaboration model: Integration of conventional medicine and IHC are similar to those between conventional medicine and allied health professionals. Allied health professionals with CAM training, or CAM providers with substantial knowledge of conventional medicine, would fit better into integration initiatives. Their conventional medicine background could help to minimize the negative effect of social categorization when they interact with MDs.						
Wiese M. et al., 2010	Incorporation (aka co-optation): CAM into the biomedically dominated health system is the form that is preferred by physicians as it ensures physicians (MDs) remain in control. MDs trained in 'selected' CAM therapies and methods	Integration: 'ideal form' a process of collaboration & mutual respect between the systems involved; Integrative setting; full range of services based on the needs of the patient.			Pluralization: health consumers choose the medical option that best suits them; patient autonomy; preserving the integrity of the treatment systems involved.		
Maizes V. et al., 2009							Team-Based: clear goal with measurable outcomes, clinical & administrative systems; division of work; training of all team members; effective communication
Patterson & Arthur, 2008	IHC health care agency model: Four major resource categories necessary for implementing IHC are within the domains of 1) professional and research development, 2) health human resource planning, 3) regulation and legislation and 4) practice and management in clinical areas.						
Keptchuk et al. 2005	Opposition: CAM collapsed for sociological, legal, and ethical reasons as medical care overtaken by patient autonomy.	Integration: unable to give patients a consistent and clear rationale for therapeutic options. Effect of combining therapies is mostly unknown; may compromise integrity of either paradigm.			Pluralism: aims for optimal patient care and offers the benefit of competition and self-reflection of practitioners, where each system's strengths can flourish and weaknesses be perceived.		
Boon et al. 2004	Parallel: Each practitioner works independently within their scope of practice	Consultative: Expert advice from one professional, communication via referral note from GP	Collaborative: Practitioners share information but practice independently, ad-hoc in nature	Coordinated: Formalized administrative structure. Communication and sharing of patient records with information transferred via case coordinator.	Multidisciplinary: Decisions regarding treatment made independently but integrated by a team leader (non-physician)	Interdisciplinary: Decisions based on consensus made by regular face to face meetings	Integrative: Non-hierarchical blending, mutual respect, shared vision, patient contribution
Mann et al. 2004	Informed clinician: physicians (MD)is knowledgeable	The informed, networking clinician: Add informal referral networks	The informed, CAM-trained clinician: Specific CAM training for physicians (MD);	Multidisciplinary integrative (i.e., Bridge Model); Group practice With CAM and	Interdisciplinary Integrative Group Practice:	Hospital-Based Integration: Both services	Academic Medical Center Integration: Integrates teaching,

about CAM services, improves communication	with CAM practitioners: Increases CAM knowledge; increased mutual understanding and trust develop	expand professional skills, expand treatment options, and add billable procedures to the practice mix.	MD partnership, often focused on specific clinical issues; Cross-referral but patients see different providers in the clinic	providers in multiple disciplines see patients together as a team but the focus is often on a special area; team leaders are MDs	under the auspices of a hospital/medical center; improve patient & family experiences in an inpatient setting & to honor a commitment to provide integrated care.	research, & clinical care; Increases awareness; increased integrative clinical services, & increased research initiatives.
--	---	--	--	--	---	--

Leckridge B., 2004

Market model: Patients choose CAM products and services; no regulation;

Regulated model: Increased regulation on the safety of the services and products

Assimilated model: MDs provide CAM products and services into conventional medicine practices

Patient centered model: Team work for both groups, integrative care pathways, shift in the balance of power from providers to patients

Barrett et al., 2003

HEAL Thematic Framework: IHC is incorporating a more holistic, empowering and accessible therapeutic approach

ACCAHC, Academic Consortium for Complementary and Alternative Health Care; IHC, Integrative Health Care; CAM, Complementary and Alternative Medicine

For instance, a recent review (E. J. Lim et al., 2017) described an overarching conceptual framework for ICH based on a continuum moving from independent (i.e., coexistence or parallel model of care) to integrative (patient-centered care).

The authors (E. J. Lim et al., 2017) identified five main theoretical models for IHC integration. These authors defined IHC on a continuum starting from coexistence, cooptative, cooperative, collaborative, and ending with patient-centered care (PCC).

Lim et al. also defined three primary systems that support the integration of CAM and conventional medicine (independent, dependent, and integrative). The theoretical models of the dependent (cooptative models) and independent systems (theoretical coexistence) illustrate segregated roles for healthcare providers and CAM practitioners. The main model, the coexistence model, is characterized by limited (minimal) involvement and interaction between the CAM providers and conventional physicians, with each working independently in practice and clinical decision-making.

The cooptative model is illustrated by process of selective incorporation of CAM modalities, but based on the diagnostic methods of conventional medicine. The cooperative and collaborative models are described as team-based, with structured care practices and interaction between the two medical paradigms of conventional medicine and CAM.

The patient-centered care model is rooted in the philosophy of the integrative model (H. Boon, Verhoef, O'Hara, & Findlay, 2004). This model is based on the collaboration between disciplines around patient needs. The models based on a hierarchical design are outlined in Table 3.1.

Perard et al. (2015) and Witt et al. (2015) create an IHC model based on four overall aspects: culture, strategy, organizational tools and outcomes. However, the main focus of

integration is on culture (i.e., the similarities and the differences in both conventional and CAM cultures “to support a successful and sustainable integration”. Perard et al. reported that conventional medicine is described as conventional medicine has been described as scientific, analytic and deductive. In comparison, CAM was described as holistic, empowering, individualistic, inductive and intuitive (Perard et al., 2015). The research team later tested the culture model via an expert panel. They found that, “on a macro level, conventional medicine appeared to have a more uniform and sharply delineated culture with clear norms and values, whereas the macroculture of complementary medicine seemed to be more heterogeneous and strongly influenced by the different treatment modality philosophies (e.g. Chinese medicine) (p.115)” (Witt et al., 2015). They concluded that intuitional integration is dependent on the regulation of CAM practice (national and local). Provider integration is motivated by both intrinsic factors (i.e., patient benefit) and extrinsic factors (i.e., financial incentives) (Witt et al., 2015).

Goldblatt et al. (2013) looked at the academic IHC. The research team reviewed the documents from educators, clinicians, and researchers involved with the Academic Consortium for Complementary and Alternative Health Care (ACCAHC) to create a “Core Competencies for Interprofessional Collaborative Practice” (Interprofessional Education Collaborative, May 2011). They concluded that successful integration for all professional practices including CAM and conventional medicine is dependent on evidence-based healthcare and EBP, interprofessional education, institutional healthcare culture and practice, communication and interprofessional relationships, and healthcare policy (Goldblatt et al., 2013). Similar to the Goldblatt et al. study, Chung et al (2012) researched how organizational determinants of interprofessional collaboration influence successful integration of IHC. They concluded that the conflicts among IHC providers

and convention providers are similar among healthcare professional. These include conflicts about role boundaries, ill-defined scope of practice, and confusion about accountability between CAM and conventional providers. Factors including support for innovation, connectivity, timely communication skills, consensus statements and timely feedback all facilitates integration.

Maizes et al. (2009), Keptchuk et al. (2005) and Boon et al. (2004) discuss integration as systematic approach that brings the best of IHC and conventional medicine together. The Maize et al. case driven program evaluation of the Arizona Center for Integrative Medicine clinic evaluates how IHC history impacts principles and current practice models. The authors suggest an IHC model is rooted in a team-based approach. This model includes a common set of principles that were created from a working document of the Arizona Center for Integrative Medicine. They state that: (1) the healing process involves healing teams; (2) healing is multifactorial and it is influence by mind, spirit and community, as well as body; (3) Appropriate use of both conventional and CAM methods are required; (4) Effective interventions that are the least invasive should be the first course of action; (5) EBP is based on practical and pragmatic research models; (6) Ultimately, healthcare is patient driven and is based on the patients' values and beliefs. Patient belief and values must be respected; (7) broader concepts of health promotion and the prevention are required; and (8) practitioners should practice and exemplify the principles and commits for health themselves.

In addition to these key principles the authors (V. Maizes et al., 2009) outline recommendations that can help facilitate the implementation of IHC. These include: (1) creating financial incentives aligned with health promotion and prevention; (2) have insurers consider the total costs of IHC including the potential cost effectiveness of positive lifestyle changes, the value of longer medical visits to develop a therapeutic relationship and thereby create positive



behavioral change; (3) develop outcomes research to track the effectiveness of IHC models including the funded, feedback and dissemination strategies; (4) create additional competencies for all IHC providers and partners to stimulate successful integrative practices; (5) develop team-based skills that function well in a biomedical setting or institution; (6) understanding the diverse healing traditions; (7) enhancing communication skills; and (8) develop new providers, new provider models, and a realignment of incentives and a commitment to health promotion and disease management. The immense range of recommendations above may be best explained using a system-based approach.

Boon et al. devised a conceptual framework based on a comprehensive review of the IHC literature and an international workshop. The framework comprises seven different team-oriented IHC models (parallel, consultative, collaborative, coordinated, multidisciplinary, interdisciplinary, and integrative) specifying the different ways conventional medicine and CAM integration may be undertaken. These models form a continuum of health care, as developed around four key components: philosophy, structure, process, and outcomes (H. Boon, M. Verhoef, D. O'Hara, & B. Findlay, 2004; H. S. Boon et al., 2004; Shortell, Gillies, Anderson, Erickson, & Mitchell, 2000). Each of these models occupies a position along the proposed continuum from the non-integrative to fully integrative approach they take to patient care. Thus, a move from the parallel to the integrative pole implies an increase in diversity of health care philosophies, complexity of organizational infrastructure, degree of communication, and aspects of well-being upon which practitioners focus (H. Boon, M. Verhoef, D. O'Hara, & B. Findlay, 2004).

The models described in the review are represented below:

*Parallel Model (Ivey, Brown, Teske, & Silverman, 1988; Meeker, 2001, 2002)*

- independent health care practitioners working in a common setting; formally-defined scope of practice.

*Consultative Model (Ivey et al., 1988; Meeker, 2001, 2002)*

- expert advice between practitioners (via direct personal communication or formal letter or referral note)

*Collaborative Mode (Ivey et al., 1988)*

- Shared communication of care between practitioners on patient care; ad-hoc collaboration on a case-by-case basis

*Coordinated Model (Ivey et al., 1988)*

- Formalized administrative structure; communication and the sharing of patient records among providers; team practice; administrative support via case coordinator/manager

*Multidisciplinary Model (Ivey et al., 1988)*

- Team-based; managed by a leader; service directed by small teams including ancillary members; autonomy for each provider practice including treatment decisions and recommendations potentially integrated by the team leader; highly articulated and formalized outgrowth of coordinated practice

*Interdisciplinary Model (Ivey et al., 1988)*

- Based on multidisciplinary practice; team-based (consensus building model); practice decisions about patient care facilitated by regular; face-to-face meetings.

*Integrative Model (H. Boon, M. Verhoef, D. O'Hara, B. Findlay, et al., 2004)*

- Consists of an interdisciplinary (non-hierarchical team-based) approach; seamless continuum of decision-making and patient-centered care and support; specific set of core values (i.e., whole person, innate healing properties, health promotion, wellness, disease

prevention); interdisciplinary team approach (consensus building model); mutual respect, and a shared vision of health care, shared knowledge and skill contribution within the context of a shared, synergistically charged plan of care.

Patients' participation (i.e., involvement in and responsibility for health care decisions) increases as one moves to the right along the continuum (see table 3.1). However, the degree of participation in their health care appears to vary across patients and within the same patient across different health care issues and across time based on a variety of changing social and cultural factors (Deber, 1994; Deber, Kraetschmer, & Irvine, 1996; Stewart & Roter, 1989). It is important to understand how the patient role changes across the continuum of practice models. Each model can serve patients differently and may help the patient access care that meets her/his perceived need.

Similarly, Mann et al. identified seven IHC models that they suggest signify different degrees of conventional health care and CAM integration: (1) the informed clinician; (2) the informed, networking clinician; (3) the informed, CAM-trained clinician; (4) multidisciplinary integrative group practice; (5) interdisciplinary integrative group practice; (6) hospital-based integration; and (7) integrative medicine in an academic medical center. They suggest that, (p.157) the initial form and subsequent development of IHC practice in a specific health setting are dependent upon patient motivation including an appreciation of many of the characteristics and qualities of CAM care that are not typically found in mainstream medicine, including a holistic approach to healing, personal attention, cultural sensitivity, lower cost, and fewer negative side effects (Astin et al., 1998; Mann et al., 2004). These characteristics include beliefs, values, and practices held in common by many CAM modalities, such as emphasis on promoting the body's self-healing abilities; recognition of the interaction of mind, body, and

spirit in healing; and acknowledgment of the individualized healing process (Gaylord & Coeytaux, 2002). For example, a growing list of systemic disorders (i.e., fibromyalgia) that frequently do not respond to many of the treatment approaches of conventional medical practice are candidates for treatment approaches using multidimensional healthcare (De Bacquer et al., 2004; Yunus, Bennett, Romano, & Russell, 1997, 1998). IHC seems to offer expanded treatment options and enhanced health care outcomes for such disorders (Davidson et al., 2003; Somri et al., 2001).

In addition to constructing analytical research models of care, both Boon et al. and Mann et al. have also identified a number of critical elements or factors dictating success and influencing the ability to create the IHC practice. These include interests, motivations, and skills/experience of the practitioners. According to Boon et al. (2004), “an appreciation of the differences among health provider roles across different team-oriented practice models will help students and health care professionals to choose the practice settings that best suit their interpersonal styles and professional needs (Ivey et al., 1988). The degree of professional autonomy and independence vis à vis other professionals is identified as an important factor in both choosing a team-oriented practice model and in the socialization of new health care professional students (Ivey et al., 1988; M. D. Ray, 1998)” (H. Boon, M. Verhoef, D. O'Hara, & B. Findlay, 2004).

Mann et al. state that these “factors are shaped by individual and interpersonal experiences as well as personal beliefs, institutional policies, and societal forces. They include caregiver openness (philosophy), health care administrative support (structure), community resources, availability of educational and training opportunities (process), and concern for patients’ safety and care quality (outcome)(Mann et al., 2004).” The authors state that the

control over these many factors varies considerably. For example, while decisions regarding personal education may be largely under individual control, more difficult to influence are institutional and societal barriers such as limited third-party reimbursement for CAM services.

Lastly, Kaptchuk and Miller (2005) argue that CAM and conventional medicine are involved in three distinct relationships: (1) the oppositional where CAM and conventional medicine struggle in a competitive model that fosters animosity and mistrust between providers. The authors argue that this model is less relevant today compared to the early 1900's since changes in bioethics, legal precedent and patient demands have all fostered better relationship between CAM and conventional providers; (2) the integration model where biomedicine centers or institutions create an integrative medical practice including a cluster of medical, alternative, and complementary therapies. The integration model is described as an incoherent medical framework since the unresolved philosophical, epistemological, and practical differences between medicine and CAM systems defy coherent integration. This model lacks a common medical language for diagnosing conditions and prescribing treatment. In this model, equal partnership between CAM and medicine can help foster IHC; and (3) the pluralistic model where CAM and medicine manage patient care in separate silos but have a tolerant and/or cooperative relationship. This model understands that there are epistemological differences in the research methods for therapy development and treatment validation between CAM and conventional medicine and validating, but “acknowledges that both mainstream medicine and CAM can offer clinically valuable treatment options for patients in the light of informed choices based on their preferences and values (p. 288). The model focuses on expanding the healthcare options for patients (Kaptchuk & Miller, 2005).

In addition, Kaptchuk and Miller (2005) review assumes that mutual respect between CAM and conventional medicine can be fostered without mutual language, communication and integrative practice.

Additional factors influencing the IHC practice may include adequate marketing, solid referrals, appropriate staff, effective record and communication, cross-professional education, provider compensation arrangement, and supportive organizational structure (Barrett et al., 2003; H. S. Boon & Kachan, 2008; Mulkins, Eng, & Verhoef, 2005; Verhoef et al., 2005). Other approaches to defining IHC include the systems approach based on market or economic model (Leckridge, 2004) and the value based perspective (Templeman & Robinson, 2011).

For example, Bob Leckridge (2004) devised four models for the integration of IHC. Each model was based from a continuum of either biomedical or CAM practice parameters. His first model, the “market model” is an economic driven model (consumer vs. supplier). Here free market with minimal regulations allows patients to freely choose the best products and services for their specific needs. In this scenario, the patient may purchase some services and products from the biomedical discipline (e.g., doctor appointments and prescription drugs). At the same time the patient may also buy some services from the CAM industry (e.g., manipulations and herb supplements) (Leckridge, 2004). The advantage of this model is patient freedom of choice. What this model does not account for is funding barriers. It assumes that patients are consumers and will pay for health care out of pocket, regardless of the cost. Additionally, the actual inhibition of informed choice is missed in this model. This model also assumes that there is a total absence of cooperative health care teams and agents (i.e., products and services compete rather than cooperate) and the self-interest of the providers and products drive health care. This

model also lacks integration, patient-centered care, and team-based approach. This model best resembles the parallel model.

The second model known as the “regulated model” is similar to the “market model” in that patients can choose services and products that best fit their need. However, regulatory agencies (governmental or institutional) regulate the safety of the services and products (i.e., certifications of products and credentialing of providers).

Unlike the “regulated model” or the “market model,” the third model known as the “assimilated model” is described as the assimilation of CAM products and services into conventional medicine practices. For example, conventional providers prescribe herb and supplement via formal prescription requirements and service patients directly using CAM practices (e.g., family physician M.D. skilled in acupuncture and herbal supplements). Here there are no teams. The CAM provider, products and services are marginalized and the IHC industry is dominated by medical physicians.

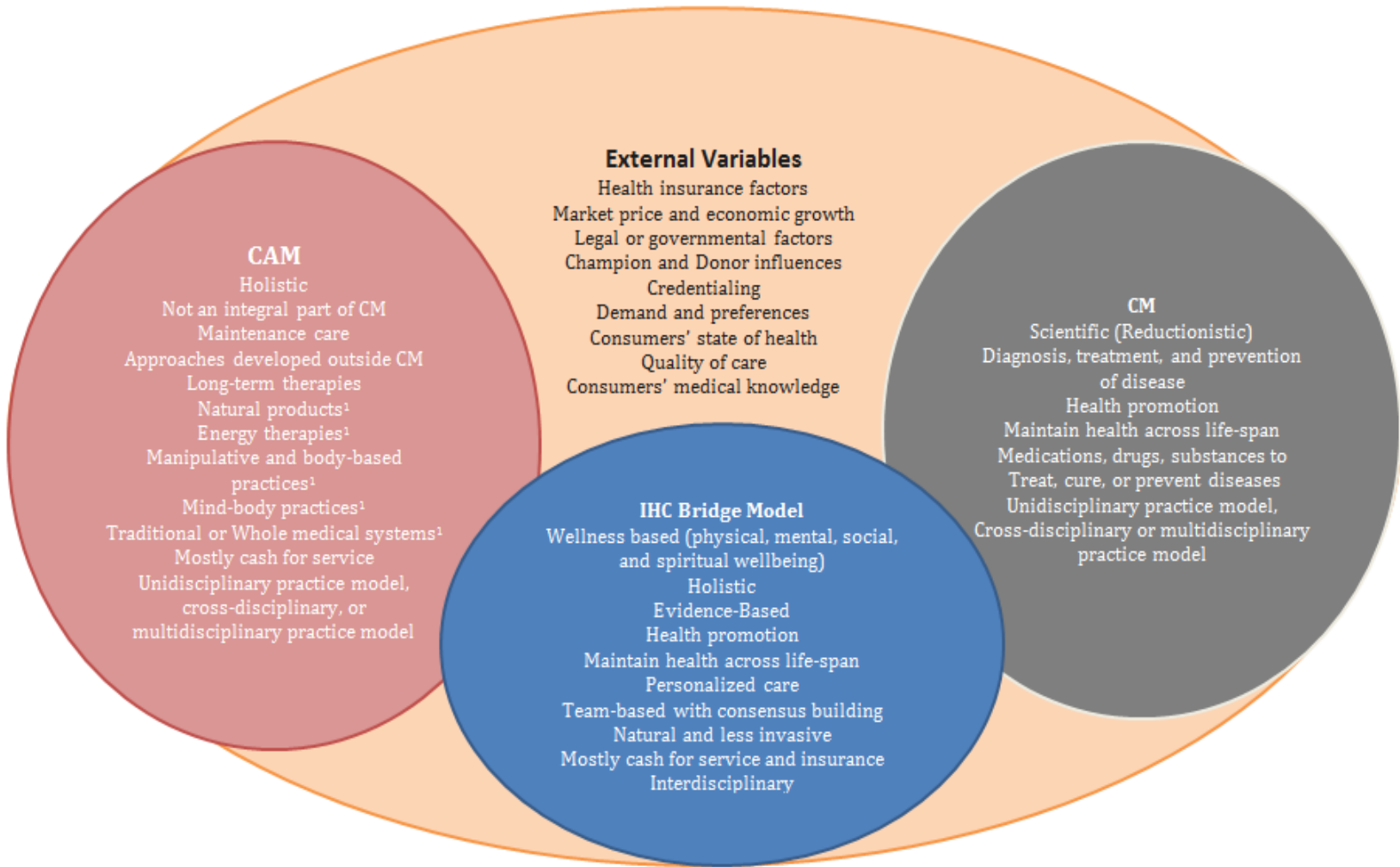
The final model is the “patient-centered model.” This puts great value on the needs and care of the patient. It does not see patients as consumers but rather individuals whose main goals are wellness and illness recovery. Additionally, patients drive health care services based on their own personal values and etiology. Here both CAM and conventional products and services are equally important (as viewed by the patient). This model includes key aspects of the other models such as being patient driven and emphasizing treatment safety. Finally, and probably most importantly, this model demands a team-based collaboration approach.

But are there differences in the classification of the modes of IHC implementation? An Australian review by Templeman and Robinson (2011), found “various classifications of modes of implementation (e.g., “horizontal” vs. “vertical” delivery, parallel vs. team oriented

delivery, unification, equalisation, and subjugation)”(Templeman & Robinson, 2011). While this review mainly looked at the Australian healthcare system, the models of implementations can be applied to the current healthcare system in the United States. Templeman and Robinson describe the two dominant models of IHC implementation known as the (‘ideal’) model or the selective model. The ideal model as described by Lewith and Bensoussan (2004) was created to include the selective incorporation of the most effective elements of CAM and conventional medicine for the optimal health outcome for the client. This model, incorporates both the best of the biomedical and CAM evidence and best therapies with clinical efficacy as valued by the patients and providers. This also includes integrated health outcomes and team-approach healthcare (LeWITH & Bensoussan, 2004). This approach compared the definition of IHC by Bell et al. (Bell et al., 2002) that “facilitates CAM and conventional medicine practices working harmoniously with, and complementary to, each other with CAM practitioners and members of the medical profession such as general practitioners (GPs) becoming co-workers with equal autonomy, input and standing” (Templeman & Robinson, 2011). This model best represents the Department of Veterans Affairs (VA) implementation and integration of chiropractic treatment teams across seven clinical sites (Khorsan et al., 2013; Lisi et al., 2009). This model is referred to as the ‘bridge model’ in this dissertation (see Figure 3.2a. IHC as a Consultative Bridging Model).



Figure 3.2a. Model of IHC as a Consultative Bridge Model



CAM-Complementary and Alternative Medicine; CM- Conventional Medicine; IHC-Integrative Health Care; 1. Expanding Horizons of Health Care. Special Section CAM. Winter 2009 Issue: Volume 4 Number 1 Pages 16 - 17 <https://medlineplus.gov/magazine/issues/winter09/articles/winter09pg16-17a.html>

The second model is known the selective model is described as the “selective incorporation of evidence-based CAM” (Templeman & Robinson, 2011). This model is similar to the assimilation model described previously. Here IHC including diagnosis, monitoring and coordination of health care and treatment plans is conducted by the general medical physician (MD). These physicians act as the primary contact for patients including gatekeepers to IHC practices. Referrals are needed for any subsequent IHC visits. Much of the therapeutic decision making is done by the Conventional medical physician exclusively. Therefore this model will be inevitably accompanied by the loss of essential CAM features.

The last model is known as the integrative practice in which general medical physician act as primary contact providers or gatekeepers to CAM services. Here the conventional physicians are responsible for diagnosis, monitoring and coordination of health care and treatment plans. In this model, CAM providers have little to no influence on patient healthcare or patient health outcome. Therefore, the term integrative may not be appropriate for this model.

There have been several IHC models described in the literature (see Table 3.1 for details). Lim et al. (2017) argue for the Patient Centered Integrative System as collaborative model of IHC. The articles by Perard et al. and Witt et al. (2015), discuss how IHC is culturally driven by philosophies for collaboration between providers. Others also argue for greater collaborative efforts (i.e., inter-professional collaboration) between CAM and conventional providers (i.e., shared responsibilities toward patient center care) is an important variable in IHC integration (Brooks et al., 2013; Chung et al., 2012; Goldblatt et al., 2013). Four articles expand on the collaborative model to a team-based non-hierarchical model with blended patient centered care with shared respect between providers (H. Boon, M. Verhoef, D. O'Hara, & B. Findlay, 2004; Leckridge, 2004; Maizes et al., 2009; Mann et al., 2004). Many more articles emphasize the

importance of institutional healthcare culture , knowledge and practice as mediating factor for IHC integration (Barrett et al., 2003; Chung et al., 2012; Goldblatt et al., 2013; Kaptchuk & Miller, 2005; Patterson & Arthur, 2008; Wiese et al., 2010).

While many of the articles above discuss collaborations and team-work as part of a successful IHC model, only a few discuss the key components of an integrative team-based approach to health care (H. Boon, M. Verhoef, D. O'Hara, & B. Findlay, 2004; Leckridge, 2004; Maizes et al., 2009; Mann et al., 2004). In addition, some of the articles did not incorporate the patient's perspective into their model design. A patient-centered approach is thought to be a key feature of IHC (Cloninger, 2011; Crawford et al., 2014; Yunus et al., 1997). Indeed, the patient-centered care approach, which advocates that the patient engage in the therapeutic process/encounter to help cultivate patient well-being and even improve health outcomes is a distinctive aspect of IHC compared to other approaches to healthcare.

45

## **The Potential for an IHC Team-based Patient-centered Care Approach**

According to the literature review, IHC models share common variables including multidisciplinary collaborative care, patient-centered care, corporate philosophy, mutual respect, communication, and a holistic therapeutic approach to patient care. Therefore, IHC can be defined as a team-based patient-centered holistic healthcare approach.

Patient centered care (aka person centered care) focuses on each person as a unique actor engaging in his/her individual health care and well-being. Many view patient centered care as the key to holistic health care (Ziebarth, 2016). There are several important attributes of holistic health care including faith and spirituality, health promotion, team-work and collaboration, team management and coordination, empowerment, and increased access to care. IHC is by definition

a holistic patient centered care approach (Andersson, Sundberg, Johansson, & Falkenberg, 2012; Barrett et al., 2003; Brooks et al., 2013; Dacher, 1995).

Based on the literature, another important aspect of IHC to consider is the team-based approach. Perhaps, IHC is best described as team-based, patient-centered approach, including a comprehensive transdisciplinary approach to patient care based on the biopsychosocial model. Therefore, IHC models should involve all stakeholders in the care process of the patient. These teams include all participants in treatment decisions. Patients may benefit from improved training for teams to move toward a transdisciplinary patient-centered team including IHC providers. Conventional physicians, social workers, and pharmacists can add additional information on safe and effective supplements/herbs. Integrative nurses (aka holistic nurses) can provide additional support including counseling. Finally, psychologists can offer mindfulness-based stress reduction training or coping strategies, and physiotherapists have a greater role in rehabilitation (Conrad, 2013; Dossey & Guzzetta, 1994; Geffen, 2010). IHC may best occur in collaboration with academic institutions that support research and equip students with best practices including health promotion, health prevention and public/community health. Currently, there are only a few published studies regarding the conceptualization of an IHC team-based patient-centered approach. Also, these concepts, while related, create confusion in terminology (similar or related concepts to IHC team-based patient-centered approach) (Kress et al., 2015). Therefore greater conceptual clarity is needed. The following articles address cases and models of IHC team-based patient-centered approach, with potential for implementation in an academic setting.

A case driven program evaluation of the Arizona Center for Integrative Medicine clinic describes how IHC history impacts principles and current practice models including patient centered care

and a team-based approach. This model includes a common set of principles that was created from a working document of the Arizona Center for Integrative Medicine (Maizes et al., 2009). The authors state that both the patient and practitioner are “partners” in the healthcare process. Healthcare is a continuous process embedded in evidence-based knowledge and team-based approach that honors the uniqueness of each healthcare provider involved (Heidemann et al., 2008; Khaw et al., 2008; Maizes, Koffler, & Fleishman, 2002; Maizes, Schneider, Bell, & Weil, 2002; Schroeder, 2007). Like the Keptchuk and Miller (2005) study, Maizes et al. (2009) places the responsibility for healthcare decision-making on the patient. They state, “ultimately the patient must decide how to proceed with treatment based on values, beliefs, and available evidence (p.279)”. Unlike the Keptchuk and Miller (2005) study, Maizes et al. emphasize collaboration between CAM and conventional providers to partner with patients in choosing the best informed healing path.

47

As stated previously, distinct differences between CAM and conventional allopathic medicine are theoretical systems, philosophies and accreditation criteria. Conventional medicine is based on the germ theory and focuses on disease and fairly homogeneous hierarchical philosophical ideology. This belief system is rooted in reductionistic “Western” scientific principles. On the other hand, CAM reflects a holistic perspective sometimes loosely based on a combination of global medical systems such as Ayurvedic Medicine, TCM, and Traditional African Medicine that approach health and healthcare from an individualized whole-systems approach. These differences among health paradigms may make it challenging to integrate these health care systems. However, despite the differences, integration of CAM therapies into the conventional medical system has occurred in some form or another over the past decade. In fact, research on primary health care providers has found that models that encourage communication

and collaboration between team members representing both conventional and CAM practitioners were most successful in preventing conflict over main issues of power, control and decision making (Paterson & Peacock, 1995; Perry, Dowrick, & Ernst, 2014; Shirwaikar, Govindarajan, & Rawat, 2013).

## **Review of Other Theoretical Models**

Similar to the patient centered team based approach, the systems approach advocates treating the health or illness as an emergent property of a complex and dynamic system (Bell et al., 2002; Dacher, 1995). IHC has the potential to draw on the system approach as a model based on sciences of biology, psychology, sociology, and ecology. This approach assumes that the IHC model (J. Adams, Hollenberg, Lui, & Broom, 2009) is “a particular service arrangement, which facilitates conventional and alternative practitioners working harmoniously and as mutually supporting partners for the improvement of patient health” (Adams, Hollenberg, Lui, & Broom, 2009. p793). According to this model “IHC attempts to go beyond the limitation of traditional thinking by shifting the focus of health integration from individual discipline/practitioner to the symbiotic exchange between and cooperation across different kinds of health professions and practices (Dacher, 1995)” (Adams, Hollenberg, Lui, & Broom, 2009, p793). The systems approach is useful in developing a holistic patient centered intervention that allows for multiple pathways for healthcare. But it may not be adequately in addressing the power struggles and causes of inequality in healthcare especially IHC (the merger of two conflicting paradigms (i.e., holistic versus reductionist) (Flood & Jackson, 1989).

Like the systems approach models for IHC, a critical social science perspective maintains that the development of health services is shaped by complex social structural processes (Eakin,

Robertson, Poland, Coburn, & Edwards, 1996; Poland, Coburn, Robertson, & Eakin, 1998). However, a critical social science perspective assumes that these processes may reflect power imbalances, marginalization, and domination by one professional group or knowledge form over another. Based on the theory of the Frankfurt School of thought (Calhoun, 1995; Held, 1980), this perspective “incorporates a belief that things could be otherwise and, through unpacking and problematizing what is usually “the taken-for-granted,” provides the potential for an alternative organization of health provision. A critical social science agenda also helps illuminate a reflective sociology of health care that subjects the current assumptions and arrangements of the sociologist to critical reflection (I. D. Coulter, 1991; R. Straus, 1957)” (Adams, Hollenberg, Lui, & Broom, 2009. p.794).

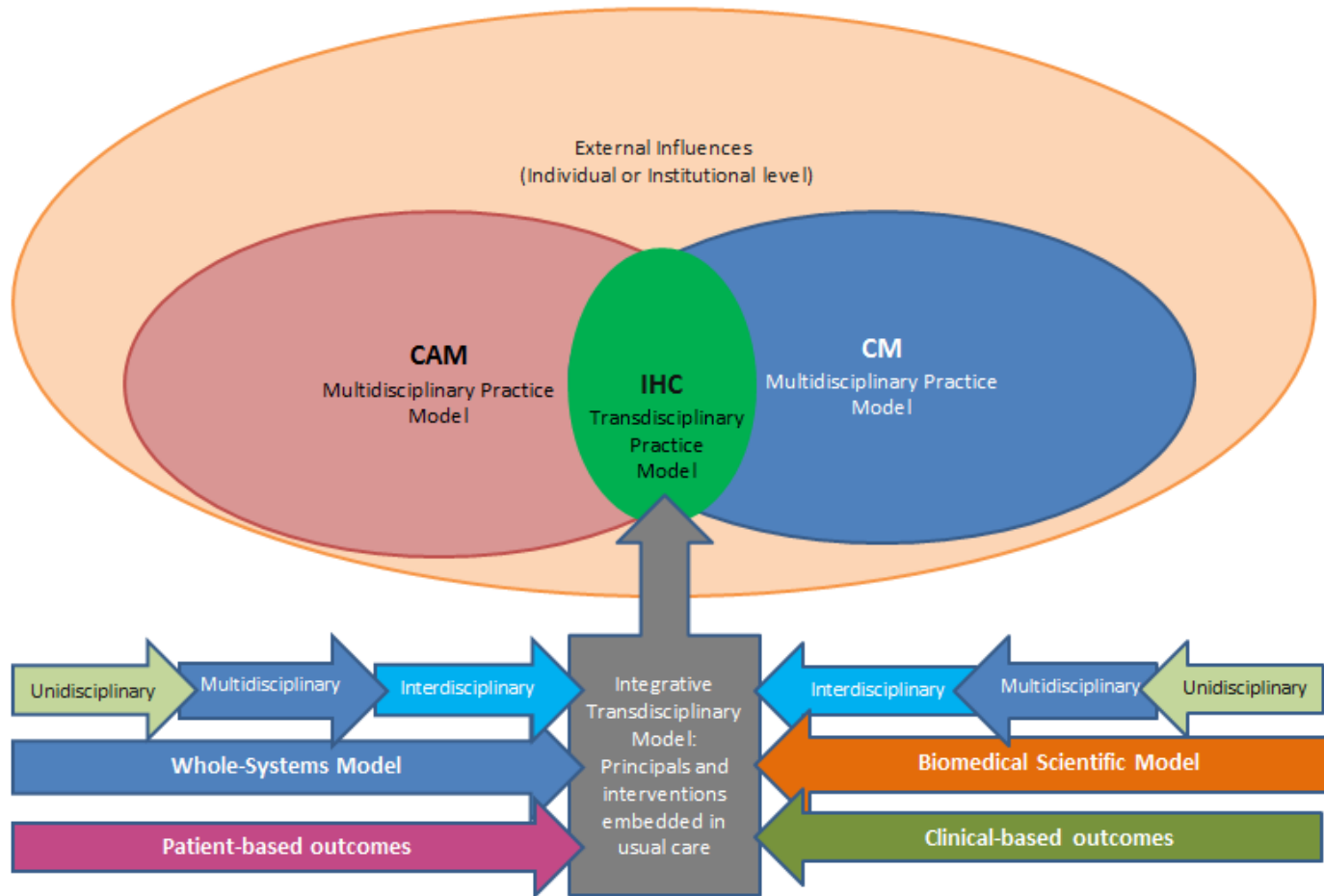
According to the critical social science perspective, power and available resources of different professional groups as well as the dominant ideology of health care policy have the greatest impact on the actual practices of IHC. An IHC model, as devised by this perspective, is practical only when wider structural and cultural contexts governing IHC in practice is investigated. “In short, a critical social science perspective is concerned with a contextual analysis of power, knowledge, and critique (p.794)” (Adams, Hollenberg, Lui, & Broom, 2009).

Today the most common models of IHC may be those that expand staffing to include other CAM providers (herbalist, Reiki healer, etc.,) and broaden the treatment focus to other conditions and age groups. In this model, medical physicians provide conventional therapies and CAM practitioners provide complementary therapies in a partnership, often focused on specific clinical issues (Gaudet, 1998; Maizes et al., 2009; Vohra, Feldman, Johnston, Waters, & Boon, 2005). A distinctive feature of this model is that although practitioners work collaboratively in the same office setting, patients see different providers in the clinic, although cross-referrals

happen regularly. In this dissertation, I refer to this model as the “Bridge model”. Figures (3.2a and 3.2b) illustrate the two main models for integration of IHC in primary care. The bridge model focuses on increasing the involvement and effectiveness of IHC consultants in the care of patients and their families. Most patients directly seek services or are referred by primary care physicians. The interactions of conventional physicians and ICH practitioners are minimal.



Figure 3.2b. IHC as an Embedded Model



An example of bridge model is the Veterans Administration (VA) incorporating chiropractic therapies at VA hospitals. The VA's introduction of chiropractic services is the most extensive introduction of any CAM service into the largest integrated United States health care system (Dunn, Green, & Gilford, 2009; B. N. Green, Johnson, & Lisi, 2009; Khorsan et al., 2013). A program evaluation of this model found that there is considerable variation in clinic planning and implementation processes and clinic features in the VA, as well as perceptions of clinic performance and quality. Administrative data showed high variation in patterns of clinic patient care volume over time (Lisi et al., 2009).

The bridge model may enhance ease of implementation. However, it is not clear whether this model provides the most efficient delivery of patient care and if it enhances caregiver growth.

The *embeddeds model* is theoretical and seeks to embed IHC principles and practices into daily patient care provided by the IHC team (including integrative physicians, CAM practitioners, nurses, etc.) for all patients and their families. The integrative model is based on the multidisciplinary models that incorporate holistic philosophies of patient care may provide greater integration. The embedded model was created in this dissertation based on the commonalities and gaps in the literature reviewed (H. Boon, M. Verhoef, D. O'Hara, & B. Findlay, 2004). On a continuum, as IHC moves from the bridge model to the embedded model it gains evidence-based practices (i.e. guidelines and protocols), more insurance reimbursements, equitable partnerships and team-work especially in academics, communication and consensus building, practice validation and greater regulation, and an increase in patient-centered care especially for conventional medicine. The embedded model will also introduce greater patient-centered outcomes, more patient autonomy and greater choice for healthcare modalities

especially in hospitals and at the bedside. An example of a field that uses this model is integrative nursing.

Nursing is, by definition, a multidisciplinary field. Nurses play an important role in patient care including education, advocacy and decision making. Nurses often incorporate holistic philosophies of patient care. The emphasis in nursing is on the social, spiritual, and psychological needs of patient care. Therefore, nurses inherently bring a multidisciplinary holistic approach to patient care. This approach has the potential to be a primer for the integrative model.

Integration of IHC into the nursing paradigm for pain and other symptoms is a natural extension of this multidisciplinary foundation, both in the general practice setting as well other institutions such as hospitals. Therefore, nursing may be appropriately aligned as an interface between CAM and conventional medicine leading to successful IHC (Conrad, 2013; Diehl, 2009; Jenna, 1986; Knutson et al., 2013; Kreitzer, 2013).

“Holistic” or “integrative” nursing constitutes an ongoing effort to incorporate the concept of IHC within nursing (Mariano, 2007). This concept supports the use of IHC in institutional, community, and private health care settings where nurses dominate patient health care. These CAM services provided by nurses include a wide arrange of modalities (i.e., massage therapy, music therapy, art therapy, guided imagery, relaxation therapy, and therapeutic touch (Kramlich, 2017). The nurse's role within these settings is subject to a range of institutional factors, including the practice size, patient demographics, practice structure, and individual employment arrangements. In addition, regulatory, legal, ethical, and safety concerns are factors that influence implementation of integration of IHC for the nursing profession.

In summary, IHC, as defined in these models, has paid some attention to the wider structural, ecological, biosocial and cultural contexts governing IHC in practice. Also, these models are not mutually exclusive. For example, Boon et al.'s 2004 conception of different integrative practices as a continuum around a framework of philosophy, process, structure and outcome provides a primer for the embedded model. It may also provide helpful guidance on how to explore models of patient care. Like Boon et al. and Mann et al. (2004) models, the embedded model can build on an emerging concept taking form in a number of directions that range from the informed practitioner, to fully integrated group practices, to hospital-based and academic center systems of integration. Adams et al. (2009), argue that the prevailing theories of IHC models and practices fail to explain why a "particular form of integrative practice would arise or prevail in a specific setting and, further assumes that "complete" integration is in fact entirely possible as a final stage" (Adams, Hollenberg, Lui, & Broom, 2009).

In conclusion, there are gaps in the research on IHC program/practice models that will need to be addressed by future research. Since IHC is an emerging field it is not surprising that IHC program and practice frameworks are also emerging. Because the field is going through an evolutionary process it is difficult to subscribe to one conceptual model. Indeed, IHC practices are often multifaceted involving a unique mix of conventional medicine and CAM therapies and providers. The continuum of IHC models include a variety of different relationships and partnerships between providers and patients ranging from coexisting (CAM as adjunctive) to integrative (holistic team-based/patient-centered care). Indeed, empirical studies of IHC settings have found that "each IHC setting is different, with a unique mix of biomedical and CAM therapies, varying from one CAM therapy to as many as eight or more (D. Hollenberg, 2006) (p. 798)" (Adams, Hollenberg, Lui, & Broom, 2009).

Currently the above theoretical models have not been tested empirically. Despite these challenges, these creative frameworks may help IHC researchers facilitate investigation of IHC healthcare delivery systems.

## CHAPTER 4: RESEARCH AIMS AND METHODS

### Study Aims and Hypothesis

The objective of this dissertation is to provide a program evaluation (single case study) investigating an IHC program at the Susan Samueli Integrative Health Institute at University of California Irvine School of Medicine. This dissertation explored how a single care clinical IHC program (out-patient only) can potentially fit into a larger academic healthcare center or academic hospital. The study was intended to identify circumstances that facilitate or hinder the implementation of an evolving IHC program within a university-based medical setting.

#### Study Aims

A mixed methods approach was used to pursue the study's three specific aims:

- i. To develop a program evaluation and outcome assessment for an IHC clinic ;
- ii. To evaluate selected organizational processes including key factors leading to different implementation patterns and clinic characteristics including definitions of IHC; and
- iii. To examine selected patient (client) and provider outcomes, including their reported levels of health and satisfaction.

To address study aims i and ii, this case study employed a grounded theory approach (Artinian, 1998). Research methods included (a) interviews to gather data from key stakeholders; (b) the collection and content analysis of policy and procedure documents and other archival/documentary material to supplement interview-provided data using a program logic model; and (c) qualitative measures of patients' experience, perception and satisfaction of

IHC management. In addition, this evaluation compiled quantitative measures from a small cohort of selected IHC patients including using a short patient satisfaction survey instrument (I. D. Coulter, Hays, & Danielson, 1994). To address study aim iii, the study uses qualitative assessment of patients' experiences and perceptions and quantitative patient satisfaction survey.

### Hypotheses

The evaluation methods include both qualitative and quantitative approaches for inductive (hypothesis generation and exploration). Therefore, for the processes and outcome evaluations there are no *a priori* hypotheses. The evaluation will generate information regarding IHC service development, practice and planning rather than hypothesis testing.

This dissertation was exempt by the University of California, Irvine, Institutional Review board. All participants gave informed consent to participate in the study. While this Center Clinic treats pediatric patients, this study only includes data on adults aged 18 years or more.

## **Methods and Analytic Approaches**

This program evaluation employed a mixed methodology approach (Creswell & Clark, 2007). The literature review portion of the dissertation evaluated the effectiveness of IHC based on the current literature (Barbour, 2001). This method takes advantage of the available evidence and aims to tease out the variations in definitions and reporting in this field (Dicks, Ranse, van Haren, & Boer, 2017). In summary, the literature review portion of this study (a) explores the current state of the science on the effectiveness of IHC program models and (b) descriptively synthesizes the available evidence to draw initial conclusions based on the current state of the evidence for its application for the second and third portions of this study, with emphasis on barriers and facilitators of the included programs.

The second portion of this study uses a qualitative approach to discover the key issues and factors that facilitate or inhibit desired outcomes, mechanisms for integration, and processes for change via key stakeholders in this particular clinic. This *qualitative fieldwork* including observation, key informant interviews, and reviews of institutional documents such as organizational charts, business plans, and staffing, and staffing ratios uses both and applies secondary process evaluation to move from what is stated on paper to what actually occurs in practice. Lastly, the final portion of this study uses *quantitative data* regarding practitioner beliefs of IHC plus patient's outcomes (e.g., repeated use of the center; satisfaction scores; functional patient measures; health status outcomes; and pain symptoms).

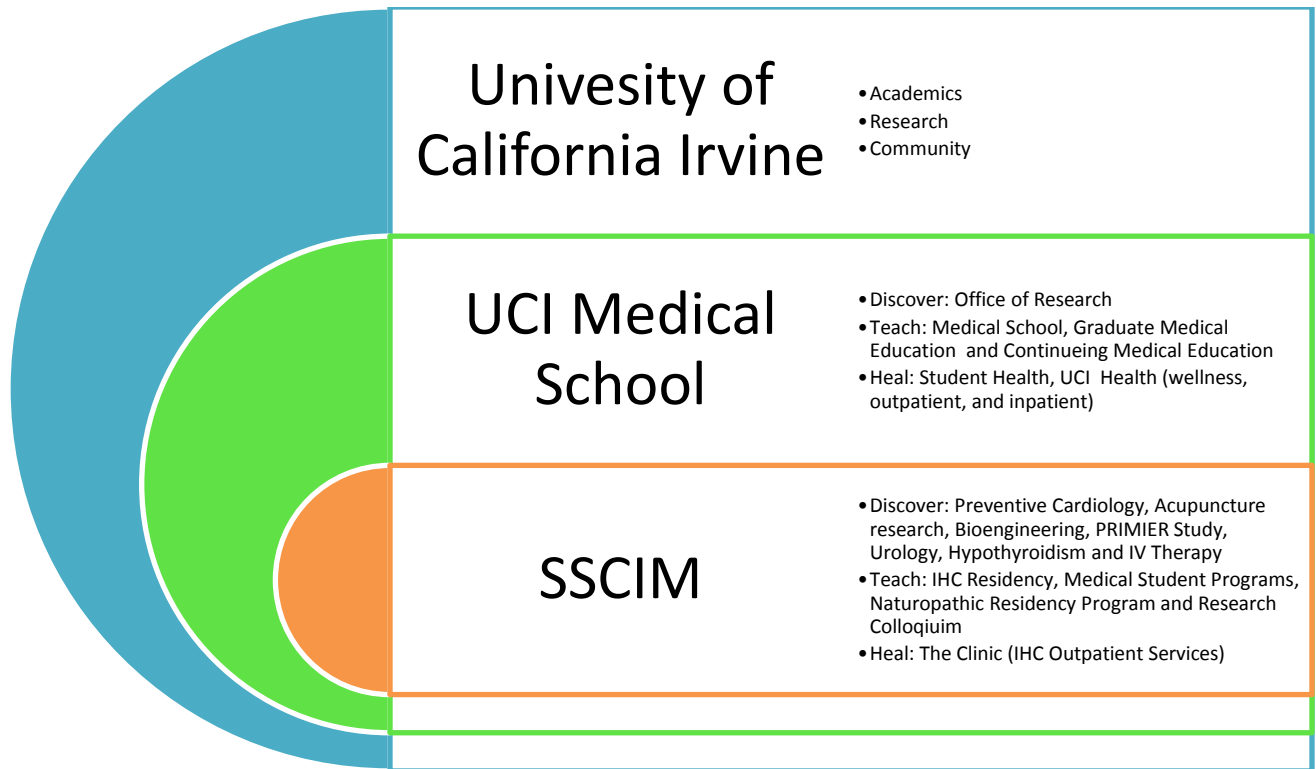
## **Description of the Center**

The Susan Samueli Integrative Health Institute (also known as the Institute; formerly known as the Susan Samueli Center for Integrative Medicine (also known as the Center) was established in 2001 with a donation of \$5.7 million from Henry and Susan Samueli. The Center includes the health clinic (the Clinic), under investigation, that serves as a resource to the University of California Irvine (UCI) Medical School and the UCI Academic Health System. In addition to providing clinical patient care, the center focuses on both scientific research and education in CAM or IHC.

During this evaluation, the Center resided directly within the university medical school. That is, the Center and the Clinic were both overseen and governed by the University Of California Irvine, School of Medicine. While the Center is part of a university and within a medical school umbrella it is not a direct part of the university medical hospital or the university primary care and/or ambulatory clinics throughout Orange County. While some clinical staff



members at the Clinic conduct rounds at the university medical hospital, patients of the Clinic cannot make direct visits to the Clinic providers at the university hospital or the primary care and/or ambulatory clinics including student health services (see Figure 4.1. The Center Bridge Model).



**Figure 4.1. The Center Bridge Model**

Today, the Center resides within the newly developed college, the Susan and Henry Samueli College of Health Sciences. The new college includes the Center (as well as the Clinic) and will ultimately include: (1) School of Medicine; (2) the Sue & Bill Gross School of Nursing; (3) School of Pharmacy (formerly known as the Department of Pharmaceutical Sciences); and (4) the School of Population Health (formerly known as the Program in Public Health) (See Figure 4.2. Major Components of the Susan and Henry Samueli College of Health Sciences).

# Susan and Henry Samueli College of Health Sciences



Figure 4.2. Major Components of the Susan and Henry Samueli College of Health Sciences

The Center also engages in community services including educational classes and lectures on CAM practices and wellness, Culinary Medicine Initiative and Teaching Kitchen serving patients at the UC Irvine Santa Ana Family Clinic. Other community services include contributions to Live Healthy OC and the Integrative Medicine Community Clinic Initiative and the Serve the People Initiative. The Clinic is located in a densely populated county (Orange County) in the state of California. The location is mostly suburban with a diverse ethnic population. According to the United States Census, Orange County has a population of 3,172,532 individuals with 1,032,218 families. These individuals are mostly young ( $37.7 \pm 0.2$  medium age) and affluent with a median household income of  $\$81,837 \pm \$1,290$ . The median household income of Orange County is about 20 percent higher than the amount in California of  $\$67,739$  (U.S. Census Bureau, 2016).

The Clinic incorporates a multidisciplinary practice model delivering outpatient health care services in a collaborative fashion that coordinates CAM with conventional medical care. As previously stated, like the Center, the Clinic is also under the umbrella of the UCI medical school (the University). The Clinic is located in a private commercial medical building about 10 miles (City of Costa Mesa, California) from the university-based academic medical center (full services teaching hospital in the City of Orange, California) and main university campus (City of Irvine, California).

In the Clinic some of the treatments like therapeutic massage and acupuncture are offered to patients for a cash fee, often not covered by insurance plans. Classes and courses on wellness, mind-body approaches, and supplements are also offered for cash. Insurance reimbursement for clinical services provided by CAM providers differs by provider specialty. Overall, insurance reimbursement accounts for a large portion of Clinic funding. A recent study found that compared with primary care physicians, the likelihood of reimbursement for any service was lower for acupuncturists (69%), doctors of chiropractic medicine (71%), and doctors of naturopathic medicine (62%) (Whedon, Tosteson, Kizhakkeveetil, & Kimura, 2017).

The Clinic recently established residency programs for students interested in IHC and training in multidisciplinary practice. The Clinic houses family medicine residents specializing in IHC. In addition, the Clinic is also home to naturopathic residents interested in multidisciplinary practice and integrative patient care approaches.

There are several other educational programs at the Center and Clinic. Much of the educational activities occur outside the Clinic, such as an annual conference on women's health (Women's Wellness Day), lectures and seminars at the local level and presentations at the national level. The Clinic lectures and seminars by clinical provider and staff such as the mind-

based stress reduction (MBSR) lectures or Culinary Medicine lectures are well-attended events, often sold-out with standing-room-only audiences. Today, the Clinic has seen a 133% increase in patients over the last year. Also the staff ratio has now increased by more than five times within a time span of two years (Macaulay, Dec 14, 2017).

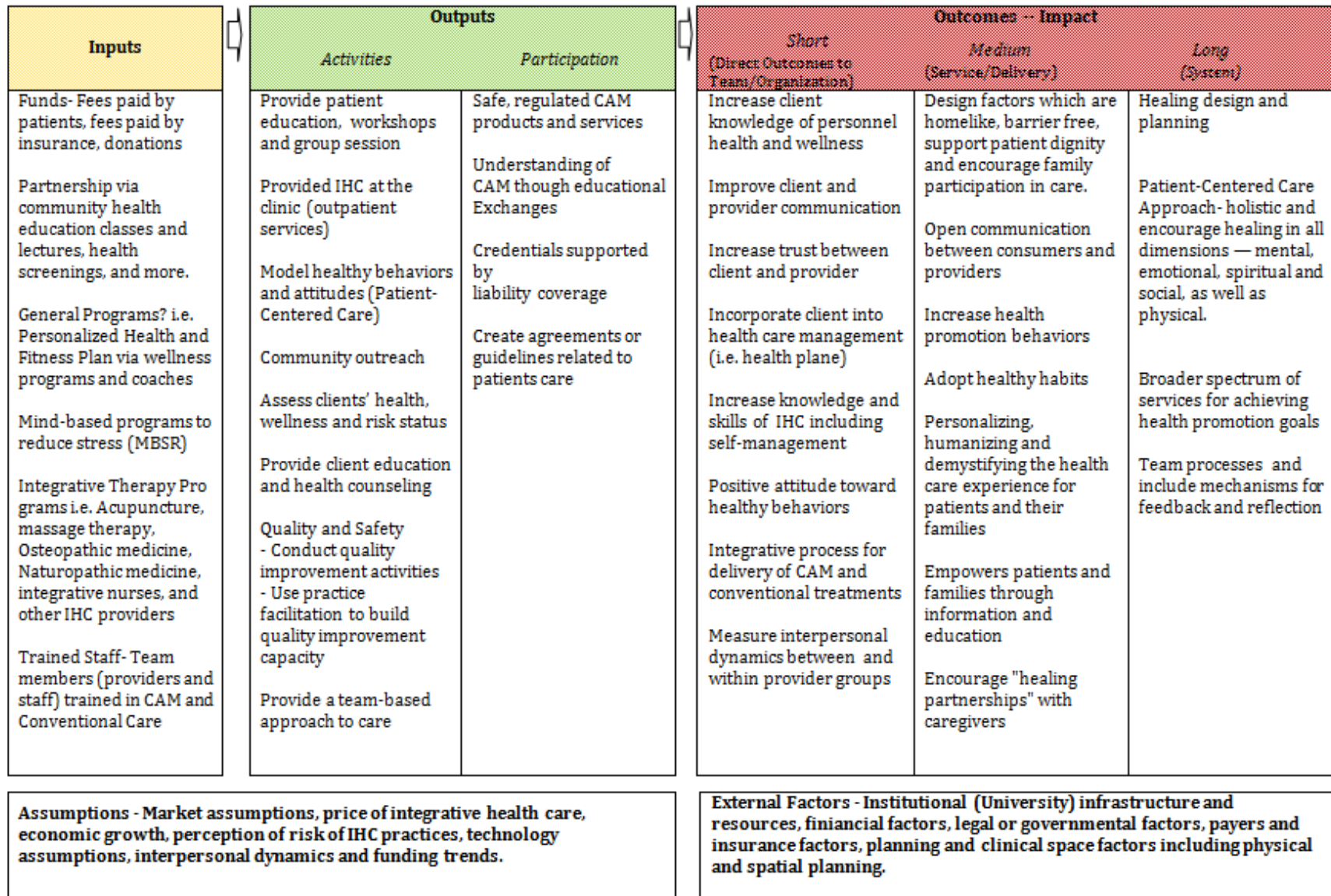
The Clinic also assists the Center and other academic departments that are interested in researching CAM modalities and IHC in the application of these modalities to their patient populations. The majority of the research at the Center is funded by federal, university and local grants and is conducted by university faculty.

The teaching and research aspect of the Center is not the focus of this evaluation. This evaluation focuses on the patient care and IHC provided by the Clinic. The Clinic has had one prior evaluation that was performed in 2008-2009 (a business model review). That external review committee's evaluation objectives were to examine the "evolution" of IHC within the Clinic and better understand the processes by which biomedicine practitioners practice health care alongside allied health care practitioners such as acupuncturists. The external review committee evaluation found that the best practice for a university based model is self-sufficient . They suggested a model with better patient marketing including a well-established referral system with the University health services.

Similar to business model review, this case study examined how IHC program (out-patient only) and CAM services within the clinical programs at the Clinic fit within a university clinical model. However, the aim was to understand what factors facilitate and which impede an evolving IHC clinical program within a university biomedical setting.

The program logic model integrates several specific program elements including inputs, outputs, and impacts (McLaughlin & Jordan, 1999) (see Figure 4.3. Integrative Health Care Program Logic Model).

Figure 4.3. IHC Program Logic Model adopted from McLaughlin (1999)



While research on CAM is growing and systematic evaluation of IHC is gaining momentum, the research data on these integration issues are unfortunately, still quite limited. There have been very few evaluations of IHC, especially hospital-based IHC (Chung et al., 2012; I.D. Coulter et al., 2008).

## **My Role in IHC**

Researchers often choose their research topic based on intrinsic values including their personal experience, discipline, culture, and passions (Mruck & Breuer, 2003). Indeed some have even argued that “culturally incompetent research is bad research, something which is unethical because it can waste resources and may lead to inappropriate policies” (Papadopoulos & Lees, 2002). I have researched CAM and IHC for over a decade and published over 30 peer-reviewed studies on the topic. Also, I have worked as a Research Associate for the Samueli Institute prior to this dissertation for about a decade. I have also sat as a volunteer in several committees for the Center and Clinic including a member of the Center’s Development Committee. Being a volunteer for the Center over the past 10 years has given me a deep understanding of issues related to the integration of IHC services at the Center and Clinic. I am familiar with the business model for the Center and Clinic including many of the organizational processes and services that are otherwise not readily available to an outsider. I was not particularly familiar with the individual provider staff at the Clinic and therefore spent a considerable amount of time (about 150 hours) observing and interacting with members. In addition, my research knowledge of CAM and IHC also helped me gain the trust of the participants.

The objective of this dissertation was to explore how IHC is integrated and what facilitates or hinders successful integration. As a researcher and social scientist, I am strongly committed to evidence-based methods for the integration of CAM therapies and IHC.

It was my goal to be as objective as possible throughout the research process. I used semi-structured interviews, surveys, systematic notes and reflections with a variety of participants (i.e. providers, staff, leadership, stakeholders, and patients) to increase the rigor of my methods (i.e. triangulation) and strove to frame an objective picture of the subject. At the same time, I was engaged in ‘my’ field of research while examining the tension between *being at home* (my personal experiences) and *being away* (my scientific experiences; (Alsop, 2002). This tension is especially problematic for an integrative transdisciplinary discourses because it often relies on emerging (newly defined) concepts (Ferrer, 2003). Therefore, studying IHC involves an epistemological stance that includes both deductive and inductive thinking. To begin exploring this concern, I began to reflect my own participatory perspective on the subject including how IHC is guided by both paradigms for me.

Susan Saegert (1987) uses the transformative synthesis for research to account the *embeddedness* of the researcher into a scientific exploration. She states, “As this embeddedness increases, the need for theoretical and methodological practices that acknowledge the historical and material nature of people and environments becomes more pressing. We become aware of our boundaries in time and space and of the specificity of our geographic, economic, social, political, biological, and psychological realities (p. 104)” I used this transformative model to guide my own research process, a constructive process, to reflect on my past experience and how that impacts my research questions (Saegert, 1987). With that on mind, in the research process, I end all interviews with an interview debriefing. I asked myself



questions such as: (1) what were the main issues or themes from this interview; (2) list the main ideas derived from the interview that you think are important (i.e. what does it mean to you); (3) list specific insights from this interview (i.e. why is it important and what is it telling you); (4) what was the tone or mood of the interview; (5) what are your impressions, concerns, ideas, and reflections from this interview; (6) what new or remaining questions do you have; and (7) what information do you gain about this interview that would not be conveyed by a written transcript?

I used my own subjectivity as an important path to understanding and constructing knowledge and insight about the topic and by generating informative scientific knowledge. In essence, I was trying to talk to myself (Mruck & Breuer, 2003). Indeed, I believe a transformative journey occurred, beginning with the interviewees' narratives and extending to my own personal inquiry (*my narrative inquiry*) about the research topics addressed in this research. That is, exploring the variables that hinder and help a marginalized and emerging holistic phenomenon (IHC) in healthcare at a time in our history where health promotion and disease management is under major debate and under scrutiny (Korobkin, 2014). I was more than a researcher. I was an agent for change (Campbell, Schwier, & Kenny, 2005). I was tied to the moral and ethical dimensions of my research topic and my role as an agent of healthcare change. This unapologetic design requires that the researcher has a moral obligation to conduct research to influence change.

Transformative synthesis by definition “violates some canons of accepted scientific practice (p.104)” by recognizing that the researcher has specific interests and that those interests are acceptable as long as the researcher “examines the interests and assumption leading to particular question formulations methods (p. 104)” (Saegert, 1987). In addition, transformative synthesis allows the researcher to examine the context of his/her relationship as an agent of

change. This model requires more than just a synthesis of different knowledge domains and limitations. In the course of change, the researcher will enter into social, psychological, and environmental transactions. These transactions will create dialogue between parties. Furthermore, the conversation between the participants and researcher are multisided and reflective. Therefore, it is inevitable that the researcher will also change in the process. I recognized my own limitations upfront. If you disqualify researchers because of their beliefs then you would be disqualifying a vast majority of researchers (i.e. medical doctors from conducting medical research). Research does not ask researchers not to have an opinion or personal interest. In fact, not having beliefs or interest is unwise. What the research process asks researchers to do is to demonstrate the discipline and integrity to ensure that those personal beliefs don't interfere with the researcher's ability to conduct sound research. Here, I also recognized how my own personal interests and assumptions about IHC might have led to the formation of my research questions; my inquiry evolved as I better understood my own place within the social, political, and economical context surrounding the integration of IHC.

Lastly, the transformative synthesis model implies that researchers embody moral values to achieve communication in a thoughtful and deliberate methodological design from the ethical stance adopted by change agents. Reflexive dialogue can help align the research questions with the researcher's own political, social, environmental and cultural context. This dissertation had several objects. As noted earlier, a major goal of this dissertation was to document and better understand factors that contribute to the integration of IHC practices and services for patients at a large academic medical institution in Orange County. Overall, I felt that the participants gave thoughtful, articulate, and personal accounts of their story. It is important to note that there is an

intentional, even altruistic goal of this dissertation: to help make greater patient healthcare options available for preventing and treating disease and promoting wellness and vitality.

## CHAPTER 5: RESEARCH FINDINGS

### Qualitative Analysis

In this portion of the program evaluation, a series of semi-structured one-on-one qualitative interviews with a range of participants (i.e., clinicians, support staff, administrators and other key stakeholders) was completed. The semi-structured interviews were similar to those used by previous studies to explore CAM and IHC integration (I.D. Coulter et al., 2008; Khorsan et al., 2013; Lisi et al., 2009). Using qualitative methodology, the results of this part of the study offers insight into the perceived facilitators and barriers to the integration of IHC services within an academic healthcare center based on interview data.

Qualitative thematic analysis is a common approach in qualitative research (Jamison, Sutton, Mant, & De Simoni, 2017). This evaluation used qualitative thematic analysis to analyze the qualitative data. Transcribed interviews are coded for recurrent patterns. The results are compared to the relevant models found in previous chapters of this evaluation. Therefore, this study draws conclusions primarily from present data, but also in comparison with ideas that extend beyond the present study.

Twenty-six interviews with providers and key stakeholders were conducted lasting a minimum of thirty minutes to three hours each. Fourteen patient interviews lasted from three minutes to ten minutes.

Lastly, the researcher observed team meetings and interaction as well as clinic operations at several stages throughout the data collection period. Some clinical operations for staff include checking patients in and out, scheduling appointments for patients, answering questions for patients, and answering phone calls. Therapies offered by the Clinic providers includes

acupuncture & traditional Chinese medicine, Ayurvedic therapies, naturopathy and functional medicine, massage therapy, meditation, mindfulness including MBSR, nutritional counselling, physical medicine and rehabilitation, preventive cardiology, sports medicine and osteopathic manipulation, Tai Chi, vitamin infusion therapy, women's health, yoga, and healing coach.

The full outcome evaluation involves qualitative data from interviews with outpatient staff and clinicians, key-stakeholders, patients, and those referring patients to the Clinic and staff. All qualitative data was coded and analyzed concurrently and in parallel so that the specific dialogues, concepts or incidents were examined in relationship with one another. The emerging and recurring themes were coded using bucket sorting in MS excel.

Convenience and referral sampling was used since the study participants were specifically selected based on their relationship and ability to contribute knowledge to the research questions being examined (Trotter, 2012). An invitation was sent to all potential participants. Of the 44 potential participants, four did not respond to follow-up email invitations (90% response rate). Most interviews were audio-taped with the participants' consent; patient's interviews were not audio-taped. The author conducted all the interviews in this study. Interviews were continued until redundancy of themes, concepts and information occurred (Cook, 2005).

The validity of the qualitative analysis was established by triangulation and data cross-checks. The analyses in this study used a combination of methods (reflective, qualitative, and quantitative). The interpretation of interview data was a continual process of case checking and comparisons. Also, in most cases, the themes from the interview data were checked with the concepts described in the literature review portion of this paper (Chapter 3) (Pandit, 1996).

The University of California, Irvine (also known as UCI) is coded as “the university”. The center name was coded as “the Center”. The clinic name was coded as “the Clinic”. All individuals reported by name in this report are anonymous. Therefore, alias names replace real names (Kaiser, 2009). These names were created by a random name generator. Lastly, specific demographics of the Clinic providers and leadership are not reported in this report because this information may jeopardize the anonymity of the Clinic providers and might make them identifiable to others. Gender is also not described in this report because gender may also jeopardize the anonymity of the Clinic providers. All respondent information is reported in the male gender (he) regardless of the participant’s actual gender.

## **Qualitative Results**

The initial interviews were sought from key-stakeholders and leadership of the Center. Information from these interviews added to the evaluation and the role of CAM services within IHC practices in the clinic historically. Later responses (i.e., an iterative process) were sought from practitioners on the role of CAM practice and services including what factors improve services and what elements create barriers for IHC clinical services using the participants’ own self-descriptions and definitions. Other information gathered from providers contributed to the profile of the practice and their contribution to it, integrative practitioners’ training, and referral patterns. Further, informants were chosen based on their likely contribution to the refinement or expansion of the concepts and theory that were being developed from previous research.

A total of 40 interviews were conducted with 11 IHC providers (integrative medical physicians, osteopathic physicians, naturopathic physicians, acupuncturists, massage therapists, and nutritionists), two referring providers, one practice nurse, and one office assistant (all coded

as “Providers”). Additionally, 11 key stakeholders (University and Center administrators, Center development committee members, and Center board members) and 14 patients were interviewed. Most patients interviewed were White (79%) and female (93%) between ages 31 to 44 years old (64%) (See Table 5.1. Demographics of Patients in Qualitative Analysis).

<b>Age category</b>	<b>Number</b>	<b>Percent</b>
18-30y	0	0%
31-44y	9	64%
45-64y	2	14%
≥ 65y	3	21%
<b>Race</b>		
Non-Hispanic White	11	79%
American Indian or Alaskan Native	0	0%
Black or African American	0	0%
Asian or Pacific Islander	2	14%
Hispanic Origin	0	0%
Other	1	7%
Abbreviations: Y, years		

## **Major Themes**

The business model of the Clinic has changed considerably over the last year. At the time of the evaluation, the Clinic was organized as a single practice model originally under the supervision of a single medical director. In addition, the Clinic has tripled its medical provider staff since 2014. Each provider practices his specialty with great autonomy but with collaboration with other IHC providers and/or conventional providers within the University. In

addition, the Center has expanded its medical services to include integrative nurses and Doctors of Acupuncture (D.Ac.). By including integrative nurses, specialized in IHC practices including subspecialties in mindfulness, stress reduction, and nutrition, can be viewed as a trend toward offering and integrating CAM therapies in conventional medical care settings including hospitals. The most common barriers and facilitators IHC clinical services, as identified by the stakeholders, are discussed below.

### *Facilitators*

## **Theme I: Teamwork and Collaboration as an Important Part of IHC**

### **Definition**

The safety of patients and quality of care often depend on the collaborative or team efforts of health care providers including nurses, practitioners, and medical assistants. This may be especially true for multiprofessional and multidisciplinary health care practices including IHC. IHC includes a diverse practice environment where practitioners work inside and outside of their medical paradigm (i.e., reductionist versus holistic). A team can be defined as “a distinguishable set of two or more people who interact dynamically, interdependently, and adaptively toward a common and valued goal/object/mission, who have each been assigned specific roles or functions to perform, and who have a limited life span of membership” (Salas, Dickinson, Converse, & Tannenbaum, 1992). The Clinic has a diverse staff that includes both IHC providers who operate as either a solo clinical practice or multi-physician referral practice.



“There are two models of integrative medicine. There is the old model of integrative medicine that is very silo. Every practitioner worked in their own office and saw their own patients [...] but the new model which is much more integrative. It’s more of the team-based. The patient goes through different providers and usually there is a lead physician that oversees or coordinates the care. And directs the care but there are all these team players that contribute to the care of that patient [...] We fall into the old model because that’s how it was. But we collaborate so we are one step above the old model. Kind of going into your room and doing your own thing. But that was the power mentality. That’s when integrative doctors or allied practitioners had to work really hard to be successful [...] Our vision, our goal is to move toward the team-based approach. But to do that we need to just go through the stages.” <sup>Provider 43b</sup>

A shared commitment to IHC clinical goals and outcomes, open communication between providers and knowledge of each profession's roles and responsibilities were identified by participants. One participant offered group consultation analogy with team-based integrated health services as an already proven model (Mitchell et al., Oct 2012) that could facilitate greater implementation of IHC in the out-patient setting:

“In the ideal world we have a patient come in and we have a consultation on different modalities [...] and they say, what’s the issues? [...] they (*the patients*) come in and sit with all of us and together we (*the providers*) decide which way to go. That way the patient doesn’t have to go to each one of us and tell their stories separately.” <sup>Provider 01z</sup>

This collaborative approach involves strong interpersonal relationships between providers including problem solving and communication skills. These skills are needed for IHC providers to work together towards a common goal. Therefore, collaboration between IHC providers with other IHC is a multifaceted issue. These facets of this issue include holistic characteristics around shared goals, decision-making, trust i.e., “openness” and respect:

“We have a great team. Everyone loves each other. Everybody respects each other. They know what to do [...] The staff has great camaraderie.”  
Provider 02x

Respect and trust were overwhelmingly represented as facilitating collaboration in this evaluation. Providers shared several comments on positive inter-professional relationships between individual IHC providers: “The openness is here day in and day out” .<sup>Provider 01z</sup> Providers linked trust and teamwork to open communication between providers: “Everyone is communicating and helping each other out with their patients [...] just good team work [...] we all rely on each other a lot for teamwork.”<sup>Provider 03c</sup>

The dominant concern was the need to communicate across parallel medical services. This is when one patient sees several health providers for one or many conditions. If providers lack communication or there is a breakdown of communication among the health care provider team members there is a potential for misdiagnoses and medical errors. Indeed, the increased awareness of the importance of communications for teams in health care can encourage interdisciplinary collaboration between providers:

“I think relationship building is so important. I think here (*the Clinic*) they value that. The foundation of the Center values that relationship building and helping people over the long-term. That’s why I feel really connected to it (*the Clinic*) [...] I love the focus on healing. I love how research-based it is and connection with a university. I love the philosophy of care. It is really personalized. And they stay true to it.”<sup>Provider 089rfklp</sup>

A single-discipline or solo practice model within an inter-professional practice model, such as IHC, can cause organizational confusion. By definition IHC is collaborative. Attitudes toward and perception of teamwork was mixed. The quality and safety of patient care was indicative of the commitment to teamwork and communication skills among providers. For

example, some providers made comments about the coordination of care and by the frequency of communication in their relationships with patients and providers:

“It’s frustrating actually because, and this (*the Clinic*) is a great setting, but the problem is that they (*the patients*) go and see Dr. Cze who’ll put them on supplementation and Dr. Voc will put them on stuff. I’ll put them on stuff and all of the sudden they (*the patients*) are on all this stuff and you can’t figure out what works and what doesn’t work. They have Western medication...it would be nice if we can streamline it.” Provider 01z

“If you have an open communication with an outside physician (collaborations) can happen. But it’s like finding a needle in a haystack.” Provider 01z

Providers often described communication and teamwork in their relationships with referral patterns. They perceived that an increase in collaboration can lead to an increase in referral patterns within the Clinic:

“I may think that patients need to see acupuncturists. So I’ll send them to the acupuncturist or the nutritionist or the massage therapist. But some of the acupuncturists see patients that only come in to see them, themselves. So he might be like, you might want to see Dr. Flow for stomach issues or hormone issues. Then he’ll cross-refer over to me.” Provider q3we4

“We are starting to be more collaborative in the Clinic.” Provider q3we4

“We work close with medical doctors (within the Clinic).” Provider 43b

“We are a team care approach, using conventional and evidence-based natural medicine. So we are here spending a lot of time with our patients. Sixty to 90 minutes in our initial (consultation) trying to get to the root cause of the disease instead of just symptom management and a Band-Aid of the symptoms with a drug. So the philosophy is that in order to heal someone you have to understand all their systems. How everything is connected? How they are a whole person? And how their symptoms are manifesting in something else being probably wrong and hasn’t been addressed? So how we are unique and different is that most of our patients have been to 10 or 15 other doctors. They are sort of complex cases. And some of them are on 10 different drugs and they are really struggling. So we kind off start at the root and really take our time to figure out what’s going on.

What's the real root cause of this person's illness or symptoms? And then what's unique is the team-based approach is that we will refer out to different practitioners, either within our center or someone outside our center. So for example, physical therapists that we do not have here we work closely with. We work with neurologists at the university and gastroenterologist at the university. We are basically managing that patient's care with that team. I (for example) act as the primary care physician or the umbrella person that's kind of bringing everything together and putting the puzzle together for the patient. Because often they'll say, 'I went my specialist and they said 'this'. And I saw this specialist and they said 'this'. And none of them are communicating.' And the patient is lost with the advice of the cardiologist that said, 'you've got to do this.' Or the gastroenterologist who said, 'you have to do that.' Or the neurologist that said, 'you have to do this.' So the patient says, 'who do I listen to? What does this all mean? They gave me this medication and that (*the medication*) gives me headaches. And then I went to the neurologist and they have me another one (*medication*) for the headache. And that one (*medication*) is making me urinate more at night. And then I went to see the urologist.' And you can see at this time they need someone like me that needs to communicate with the doctors. And say, 'look this is what I think is going on. Are you guys on par to try this method first?' and it has worked really well [...] So that makes us unique. That team based approach [...] A lot of centers say that's what they are doing but they are really not [...] when I refer patients within our group we also discuss the case of that patient.' » Provider 1267

While the provider collaboration within the Clinic may have improved over time, external collaboration with other providers throughout the university health care system has maintained status quo with little improvements:

“I wish he (*Past Clinic Leader*) collaborated more with physicians at the university [...] So there were some physicians that had an integrative meaning and he did not capitalized on that [...] Every department should know about us (*the Center*), know about our program and know about what we can offer them. And we are not there yet.” » Key stakeholder09m

Only case conferences within the clinic is conducted. P<sup>provider 0168</sup>

Another participant stated that the Center is willing to change its habits related to communication between providers for the benefit of the patients regardless of costs: “The Clinic

isn't so money focused that they won't take the most appropriate steps that's the best for the patients.” Key stakeholder10c

## Theme II: Nurses' Place in IHC

Particular aspects of IHC are framed as being strongly aligned with and beneficial to nursing:

“Inherently nurse practitioners work in an integrative model. All the training takes into account the mind, body, and spirit, that's how (*the NPs*) are trained. I feel like it's almost redundant. Right? [...] And nursing is based on these pillars [...] you take into account the person and that's how all the training is [...] Nurse practitioners have their own specialties like women's health and adult geriatrics and we practice in really conventional model but all the training, the theory. The nursing theory and the foundation is all integrative medicine.” Provider 089rfklp

As stated previously, there has been debate on how the IHC holistic paradigm can be aligned with a biomedical hospital program. Here participants comment on how nursing is embedded in the “body, mind, and spirit” (Kramlich, 2017) approach and how the “body, mind, and spirit” approach to patient care can facilitate IHC implementation:

“Part of the vision is building a relationship with the hospital. Maybe have them (IHC nurses) do some inpatient stuff.” Provider q3we4

In addition, participants state how nurses influence the patient's perception by educating patients on IHC options:

“If you are newly diagnosed, you are freaked out. Nurses should be able to say, ‘listen, we know how upset you are and we know you are going through a lot. So, if you are interested, here is this trifold (*information on the Clinic*). Call them (*the Clinic*). Get an appointment and go talk to them (*the Clinic providers*). And they can help you with the nutrition part.’ [...]

[Do you think the nurses know you are there? You think they know the Center exists? Research]

The nurses are not educated enough to know (*on the existence of the Center*). And we don't have those trifolds for them [...] and we need to educate those nurses better. Nurses are the best for integrative medicine.” Key stakeholder09m

Other participants describe how system-based barriers such as hierarchical models of care (physician as gatekeepers of IHC) and difficulties in patient care management can affect the success of IHC.

“I don't think they (*nurses*) have that much power. I still think it comes down to the doctors. Nurses are our best advocates because they are there talking to the patient, doing all the education, doing all the post-op, and you know all the hospital care. But it still comes down to the doctors who are writing the orders and telling the patients what to do.” Provider 01z

“We have a systematic barrier to engage in these types of therapies (*IHC therapies*) or these types of discussions. Because you can take a bedside nurse or nurse researcher or a nurse practitioner or anyone in the field but the way the system is, it's a very production based system. A bedside nurse as valuable as how many patients they have in the ticket that day. So for better or for worse integrative therapies need time. That's the key. I would love to see nurses, nursing, at the Center of expanding integrative medicine. I think (NPs) are in the perfect position to do that. The experience, the training and philosophy.” Provider 089rfklp

### **Theme III: Affiliation with a Research and Academic University**

Many of the participants discussed how affiliation with a research and academic university increases access to resources and facilities greater team-work: “Anything I need to know, I can just access through (the university). I can call a physician or I can call an administrator and I get the answer.” Provider 02x

Another benefit of the university affiliation is greater access to insurance plans. Universities (especially public universities) accept/approve access to many PPO insurance plans. Indeed some States such as Washington State require private health insurance to cover licensed CAM providers (Lafferty et al., 2006). Increased benefits to patients may help facilitate greater

patient utilization of IHC services: “That’s one of the great things of being part of (the university) is that we are automatically on most insurance plans, not the HMOs but the PPOs. So that (acupuncture) is covered.” Provider 03c

In addition to access to insurance other participants discussed university department and schools as potential collaborative. The clinic is embedded in a large university organization with multiple health care and research institutions including university hospital, children’s hospital, urgent care centers, student health centers, departments or schools affiliated with the university hospital and school of medicine. The Center model includes both research and teaching components, but implementing these components is difficult.

“We should have a better relationship with all the departments at the university, (*For example*) cancer and cancer pain. Every cancer patient wants to know what they can do [...] anyone that gets diagnosed with anything in the beginning (*desires options*). Like you (*the patient*) gets diagnosed with some weird autoimmune disease or cancer or some disease that is chronic. They are perfect people (*the patients*) that should be sending to us so we can help them with their lifestyle and their nutrition. That’s something we still lag in [...] and we are not setup to do it yet, which is a problem. But some of the department want us and some of the department can care less about us.” Key stakeholder09m

Indeed, some of the Clinic providers joined the Center via research activity, research interest, or as faculty candidates. Currently, some of the Clinic providers have additional appointments as faculty at the University hospital or medical school but many do not. The medical doctors (MDs) who conduct the integrative consultations are faculty at the University. Other IHC including many of the CAM providers do not have cross appointments as faculty: “I did a couple of research... he (Past Center Leader) knew that I was interested in (*CAM*) research...that’s how I got started.” provider 01z Other participants discuss how a “conservative”

academic stance on included CAM therapies at the Clinic may have enabled the Center to remain viable:

“[Does the Center have a history of early adoption of new programs and innovations?]”<sup>Researcher</sup>

Probably the reason it’s been successful is the answer “no”. It was not cutting edge. It was not adopting maybe what other clinics were doing. And I think that was because of the leadership. Dr. Roy Blue (Past Center Leader) was extremely conservative and I think it was probably why it was successful and well respected for a longtime. It was because of Dr. Roy Blue and he was very conservative. And I know it was difficult and annoying for people who wanted it (the Clinic) to offer more modalities that was accepted by everyone else doing that kind of healthcare. But unless there was proof he would not let it in. And you know, a lot of these things are not big money makers. So there is not going to be any studies. We know that now. There just was no reason for anybody to study them. And not people to write grants to finance any research to study at the time [...] We lost a lot of backers because of that [...] There is a different leader needed for each life cycle of a company [...] I think there was a time where Dr. Roy Blue was the perfect leader [...] but maybe there was a time when we were not as competitive with some of the other big organizations who were doing some things that were a little bit cutting edge.” <sup>Key stakeholder10n</sup>

The university as a research organization engages in evidence building. This engagement was viewed by participants as an element to success. As early adopters of EBP such as acupuncture, the Center was better able to engage with skeptical colleagues about the value of their approach. Indeed, the original structure of the Center was based exclusively on research and it grew around a foundation of research. The original program model established for the Center was based on the Center leadership’s passion and interest in specific CAM therapies such as acupuncture:

“In a clinical sense you barely get 15 minutes to do the basic things. So to get into that space of integration and big picture stuff [...] what I love about it is that this Center is affiliated with a university. Because I’m really committed to EBP. And I think we get into a grey area with integrative therapies, alternative therapies, complementary therapies where we want to be on the side of evidence-



based. We want that consistency and continuity. A lot of private practices, they are not, they may not be as research-based or evidenced-based like a university setting. So that's why I wanted to be here. I see it happening a lot in a non-standard way.” Provider 089rfklp

Thus over time, the Center through research and evidence building started to build confidence and acceptance within the university research umbrella: “We are finally getting the respect that we need from the university.” Key stakeholder09m When asked if the Center should consider an inpatient model with the university hospital, most participants replied that they would:

“So in an inpatient setting you will get nurses. Because one they spend the most time with the patients. They develop a relationship with the patient. And integrative medicine is really relationship-based. They (*the IHC providers*) are the ones that develop a relationship with the patients. I see a lot of these therapies and techniques being used. Especially like meditative breathing and reframing and cognitive support. Or simply focusing on the more personal and emotional and spiritual part of the patient. I mean nurses are right there. I think the problem is that this is not standard practice and (*the conventional providers*) practice a lot of check-box medicine.” Provider 089rfklp

“Inpatient is not an easy setting to integrate to but we should. We should.” provider 01z

#### **Theme IV: Holistic Philosophical View of Treatment is Important to the Integration of IHC**

Another major theme in this evaluation centered on the holistic view of the treatment as an important variable to IHC integration. The providers discuss the how being “healthy” and “being well” is an important part of their treatment paradigm. The type of holistic care including a “multitude of modalities” addresses the patient as a whole person--that is, holistically:

“We provide a multitude of modalities for people who want to, you know, get healthy and interested in being well and we fix the sick as well [...] we are here to

serve, educate, and provide the care that they (the *patients*) need and you know in many different ways...from homeopathy, naturopathic physicians, Chinese medicine and herbs, to (*conventional medicine*) and supplementation [...] So we hit all the ways to make people healthy emotionally, physically, and psychologically.”  
provider 01z

Addressing the “whole” person including mind, body and spiritual approach was discussed by many of the participants. Another aspect of holism defined by the participants was complete transparency of care. “Everything is on the table.” The participants compared this transparency in the methods of holistic care to pharmaceutical industry:

“Outstanding, like one of a kind, patient care. We (*the Clinic providers*) don’t need advertisement [...] I mean we have word of mouth. All of us have a three month waiting period. We address patient care that addresses the whole person and all their concerns. And everything is on the table. Without this, not serving the formula of Western medicine in and out in 10 minutes and giving pharmaceutical medication. I mean that’s not really medicine. That is pharmaceutical dispensing.”  
Provider 02x

Holistic care also included the combination of an “organic and well balanced approach.” Here the participant compared their approach to care as “well balanced” compared to physical therapy:

“Providing providers that are organic and well balanced approach to whatever their expertise is. Rather than let’s do physical therapy for 15 mins, 15 mins, and 15 mins[...] And it doesn’t work like that. Our bodies doesn’t respond in 15 mins. We have to impact that patient with information from here where he will take it home.”  
Provider 02x

Another aspect of the practitioner’s belief system is the combination of Eastern and Western therapeutic approach. IHC is viewed as complementary to primary care for patients: “The doctors here try to do mind, body, and soul. Taking in both Eastern and Western medicine and only the best.”  
Provider 03c

The Center's leadership's commitment to the IHC philosophy of health is also an important factor to the successfulness of IHC integration: "Our first medical director was Joe Bake. And he was an unbelievably caring and wonderful physician. Who practiced integrative medicine just naturally. So he really believed in it (IHC)." <sup>Key stakeholder09m</sup>

For the respondents the phrases, "practice integrative medicine just naturally" and "really believed in it" emphasizes the commitment to the IHC belief. This understanding leads to a better understanding of the Clinic needs including the "different modalities" that create a well-balanced health care system. Also, the IHC paradigm is better understood when compared to its counterpart conventional medicine. A leader of IHC plays the important role of ambassador toward all parties in order to reduce the tensions created by opposite belief systems. Bring the parties together for discussion and create relationships with respect and trust may help reduce the underlying conflict in health care paradigms:

"He (Clinic Leader) really understands the needs like supplements, and prevention and test. Things that are not invasive and keep you healthy [...] He has a great understanding of the Clinic [...] We have all these different modalities in an integrative clinic in order to make it work right [...] MDs always feel like they are on top of the mark. And we have found out that this is just not us [...] the respect for these other practitioners (*IHC providers*) is just not easy [...] we would all be working together and I would say 'let's do research'. And they (*CAM providers at another center*) would say, 'I don't want to do research. I know it works.' So they (*IHC providers at other clinics*) are just as bad [...] So if we can figure this out. Get people (*IHC and conventional providers*) to really speak to each other and be respectful and more transparent, in the long run, it'll be better for our patients." <sup>Key stakeholder09m</sup>

In sum, the strategy of care for IHC is driven by the holistic philosophical view. This practice strategy model looks at unconventional variables that may influence the patient's health and wellbeing including the mind, body and spirit. Their holistic

approach also requires longer treatment regimens and includes biopsychosocial diagnoses of disorder/disease. Therefore, the conventional methodologies for practice strategies may not be suitable for IHC practice:

“The strategy of care is as important as the tools that you use to care for the patient. So strategy is everything. So it’s like how long I support this and what am I expecting to see before I introduce the next part of treatment? [...] like you can come with arthritis and the first thing we do is talk about your stress level and then we look at your diet and we look at your bio-markers. So it can take 8 weeks to clean up the diet and decrease inflammation [...] it’s hard work on us because it’s an ongoing management of your patients [...] we are primary care providing concierge services. And we can’t see that many people, right? That our biggest challenge [...] Number of different patients. Not the number of visits. I see the same patient like 8 times.” <sup>Provider 43b</sup>

“I think in integrative medicine, when you practice it, you come from a place which is a little bit more humble. You accept the fact that you don’t know everything. You can’t explain everything and that each person has the power within themselves. That you can’t prescribe. That may be intangible. I like working with people with the same mindset [...] Integrative medicine, practicing it, means providing the patient with the best possible care, medical care, and spiritually and with the connection of the mind and body. So kind of connecting all those things to provide the best possible care for the patient. And helping the patient achieve the most optimal sense of health and wellness.” <sup>Provider 089rfklp</sup>

The mind-body and emotional wellness is a major component of holist practice. Participants discuss how terminology such as “mind, body and spirit” is over used by the healthcare industry. The over-use or miss-use of holistic terms leads to “clichés” and potentially incorrect interpretation of IHC practices:

“A therapeutic space is not new to medicine. You have to create a therapeutic space [...] The system doesn’t support for that. But that’s vertical integration. That’s mind, body, and spirit. Everybody uses those clichés, but they don’t necessarily do that. It is a way to bring understanding to stress but it does not go far enough to find out what’s the source to the stress. What’s the quality of the stress. You know, there are different types of stress, but right now is integrating

different tools. So it's more of a horizontal integration [...] We document based on the management of the case not the therapeutic space we are given.” Provider 43b

## Theme V: Diverse Modalities of Care

The Clinic provides patients with diverse options of CAM therapies integrated with conventional modalities including a comprehensive IHC care plan. The IHC care plan at the Clinic includes mindfulness-based stress reduction classes, yoga, Tai Chi, Ayurvedic therapies, functional medicine, meditation, nutritional counseling, physical medicine & rehabilitation, preventive cardiology, sports medicine & osteopathic manipulation, acupuncture, massage therapy, healing coach, naturopathy, vitamin infusion therapy, women's health, colloquium and conferences on wellness and prevention, Integrative medicine clubs, IHC physicians with medical degrees with emphasis on IHC: “It (*the program*) gives people a ton of options for their wellbeing [...] from classes to all the different practitioners. And I think you can come here and basically find anything you need to get better.” Provider 01z

During the evaluation the Center had three times more providers compared to five years ago. The number of providers has grown considerably and thereby has broadened the options for integrated patient care:

“When I joined here (the Clinic) there were only a few practitioners. Now there is just such a variety of specialties and providers and staff. It's grown an immense amount. It's been really nice to see.” Provider03c

“People want it (*IHC*). People love it. People love our practitioners [...] Anybody can come in. Because it's holistic you can bring a child in or an elderly person in and Bob Voy does women's care. So you can get a gynecological exam as well. So we are seeing everybody [...] So maybe we should be more focused like in women's care. But if you are holistic, you can't do that. So, if you are an integrative center you are not an integrative women's center. Just be an integrative center so that anyone can come in [...] everybody gets to come in.” Key stakeholder09m

“Having different options available to patients is really important. And even training the nurses in integrative care or integrative methods that can help ease the suffering of patients or help them get better and go through it; I think it’s vital. Absolutely essential [...] You can’t have integrative health over here in a little cubical by itself. It is integrative health for a reason. I know. At (*an IHC conference*) Dr. Low was saying that he did a lecture and I didn’t go to his lecture [...] and so I went to a different lecture. And he said that he does pain management as part of being an (integrative provider). You get to a certain point where integrative medicine is no longer effective and your patient is in pain and he will write a prescription of pain reliever for you. And he was saying that, as he was going on with his lecture, saying, ‘that there are some pain medicine that he recommends and prescribes.’ Evidently, a man got up and said, ‘I thought this was all natural medicine. Why are you prescribing pain relief and everything?’ And he (Dr. Low) said, ‘I didn’t know what to say.’ And I said, ‘I wish I was there in the room. That’s why they call it integrative medicine. It’s not ‘natural medicine.’ It’s ‘integrative medicine.’” Key stakeholder10c

Whereas the Clinic offers a variety of IHC modalities some patients commented that private CAM clinics offer a wider spectrum of CAM services, with more options to providers, flexible scheduling, and no requirement for referrals.

Today, the Clinic is not accessible to inpatients. In addition, it does not use trans-disciplinary team-based approaches to evaluate the appropriateness of IHC treatments, prior to developing an IHC treatment or practice plan. Therefore, the interviews with providers and patients emphasized the limited visibility of IHC therapies and programs in this academic Clinic, as something that hindered patient and community access to IHC services overall. An increased awareness of the IHC Center and Clinic may improve patient access. However, limited resources and the university and hospital perception of the Center and Clinic can also influence patient access. Therefore, these variables need to be accounted for in a successful IHC practice model.

## *Perceived Barriers to IHC*

### **Theme I: The Support Staff is a Significant Factor in Implementing IHC**

Administrative support including staff support (nurses, medical assistants, front office, billing and insurance, etc.) is a major factor in the Clinic's success in IHC implementation. Indeed, the lack of support from one's staff members can make offering IHC services more difficult or can even prevent certain IHC modalities from being offered: "We have to have the right people supporting the operation." <sup>Provider 02x</sup> Properly trained administrative staff with knowledge and buy-in is required. For example, CAM modalities require additional training for clinic staff including herbal and nutritional supplement knowledge, to change the conventional intake forms to more holistic patient intake surveys, or to have more IHC services experience with clinic patients:

"We got one staff member that did not get the proper training so that ended after the 6 months. And we get a lot of temps. So they are constantly rotating. But they are just generally trained and since we are integrative medicine, it's so different than, you know what most people worked in. Even if they've been a MA (medical assistant) or admin they are still not used to integrative medicine. So a lot of people come in so unaware of what we are doing, especially if they are temps. You only want to put so much time into their training since they are temps [...] We had a premed student and she had integrative medicine and that worked out great. But she went to medical school. So we lost her [...] It's hard, especially for the patients since patients get attached to the MAs. Each MA works for one or two doctors so they (the patients) know who to go to get an order or make an appointment. So they get attached to one another and the patients have to do that all over again. I think they (the patients) take it more personally [...] they take it as a negative [...] they (the patients) feel that they got secure with somebody. Because patients call with so detailed questions for help that they rely to have that person (MA) being here." <sup>Provider 03C</sup>

As stated previously, both staff and providers' commitment is largely rooted in personal experiences of IHC and the holistic model of healing and wellness, and this personal

commitment is important in finding a way to overcome the obstacles in clinic management.

Therefore, recruiting the staff with IHC experience and knowledge may facilitate IHC implementation:

We post that we would like to have integrative experience. And it seems that there is not a lot of people out there. I don't know if it is because most people that want to work at an integrative medicine are there for a while and not available [...] Yeah, it takes a long time to learn the supplements and just the way of the scene is so much different. And if you are going to primary care it would be nice to have somebody knowledgeable in that area. Provider 03C

We don't have a big staff. We need bigger staff [...] Adding staff that would really help [...] [...] Think about the things we could, we can create those trifolds and going out in front of all those departments. We can be creating more programs [...] even increase those CME courses. Key stakeholder09m

The difficulty is recruiting and sustaining the appropriate staff. That is, credentialing and training are important components to the IHC model. The clinic wants the western-trained staff to be also familiar with the philosophy, language, and diagnoses of the holistic paradigms. The problem exists when most staff members are recruited directly through the University and many do not have IHC or CAM knowledge. The University is a highly bureaucratic, and turf wars are not uncommon in large institutions such as this University. In addition, the University moves slowly to implement policies (new or old). It takes the University a month to a year to hire new staff depending on credentialing. Thus, while the IHC implementation requires team-based incentives and innovation, turf wars and institutional hierarchies impede a radical change in culture and practice. The Center and Clinic have difficulty challenging the existing political structures of the University. Therefore, there is a high turnover in the clinic staff and administrator positions at the IHC Clinic.

“It's hard to find the right people for the jobs [...] here is the thing, a non(university) person wouldn't have the indoctrination to succeed in the kind of support that we need them to be, because there is a certain level of



‘universitiness’ that you need to have to know how to navigate the system. Otherwise you don’t know who to call if you have a computer problem or who to call if you have telephone issues [...] But if you have a (university) experienced person they come from the more traditional (university) skill sets. And we are not a traditional clinic. We are anything but. With us customer service is a much bigger focus in our clinic. Not only that but the customer care, the level of care we provide like the type of relationships that our providers have with their patients. It goes far beyond [...] I think our MAs are always challenged by the uniqueness of our patient’s need and as well as our provider’s needs. It’s just not that there are 10 MDs and they do the same thing. They put referrals and they order prescriptions and they manage patients. We have acupuncture that requires certain needs and we have massage that requires certain needs. Then we have naturopathy that are a different piece all together [...] Labs that can take 20 minutes to explain to the patients for MA. Our billing issues are so different. We are not just conventional billing. Because that’s said and done. Everyone knows how to bill for a medical doctor and labs, traditional labs. But we have ... these labs and that lab that are part of the testing. So the kind of things we do is so different that it creates a lot more challenges for our MAs and our AAs and our billing and scheduling persons. We also see patients more frequently [...] maybe once every 6 weeks. And in the grand scheme of things, that’s pretty frequent compared to medicine [...] Once every six week for the first six months.” <sup>Provider 43b</sup>

## **Theme II: IHC Patients Require Additional Time for Diagnoses and Treatment**

In the past, CAM practitioners were not usually involved in diagnostic activities in medical clinical centers such as the Clinic. Regulation and licensure issues limited the CAM providers from conducting medical diagnosis. Recently, there have been greater opportunities for CAM providers to engage in patient diagnoses including naturopathic and traditional Chinese medicine diagnostic techniques. However, the medical physicians still need to sign off on diagnoses and treatment plans and this therefore reduces the autonomy of CAM care.

“If I have a patient with GI pain I can’t see them without the doctor signing off on it. It’s more a time management issue [...] I don’t have that autonomy there (inpatient). So you know there is still that power struggle.” <sup>Provider 01z</sup>

The referral of pathology tests is a common practice for most CAM practices including naturopathic diagnosis. But the University referral system and reimbursement for insurance and third-party payers severely restricts the practices for pathology testing by naturopaths.

“We all do blood work. So doctors do labs and you look at it and everything looks good. So you kind off sign off on it and you release it. So the MA calls the patient to let them know that the doctor read your labs and everything is okay and we’ll see you in 6 months. But for us we have the stool analysis, so we might do a urinary hormone analysis, we might do a Boston Heart. Each lab requires the doctor to go over it with the patient. There is no normal or abnormal. It’s an interpretation. So a patient needs a full visit to just go over urinary hormones [...] and patients come for follow-up. Someone needs to do research on what motivates our patients to be so engaged. Because it’s hard.” <sup>Provider 43b</sup>

Also the number of visits increases drastically for CAM patients. For example a provider states, “When I see a patient, I see that patient a lot [...] I see him weekly.”

<sup>Provider q3we4</sup> The lack of time influences how much and in what way a IHC provider is able to engage with conventional medical colleagues at other University health centers. Another provider said, “I think time is a factor, workload is a factor, and when people have acute things they are not in the right space to think of wellness [...] Integrative medicine is really relationship based. They are the ones that create relationships out of these specialized therapies or techniques.” <sup>Provider 089rfklp</sup> Medical colleagues are key players in helping allay fears about “quackery medicine” and help create and implement University-wide credentialing procedure (including hospital privileges) for CAM colleagues (I.D. Coulter et al., 2008). Buy-in from this group is important to successful IHC integration and implementation.

### **Theme III: Funding and Reimbursements Issues for CAM Treatment are Limited**

The Center was created through philanthropy. Additionally, the Center was first created as a research organization and grew from research to teaching and clinical programs. It was established at a time of economic downturn in the health field. A business plan was not well established and most of the strategic planning came later. The vision, mission and operating budget was initially created by the University and Board members (mostly University leadership and Center donors). The marketing strategy was originally inadequate, and funding was dependent on donors to the Center. The research aspect of the center was funded by research grants and faculty funding was limited. Most faculty were associated with multiple University centers, departments, and/or schools. The original leadership based the Center model on a market niche of the early 2000's of CAM practices and research.

Today the Center has an endowed chair/director. All direct costs including provider salaries, overhead for rent, and malpractice and director insurance, and billing service are all supported by the clinical patient care profits and philanthropy. There are no direct funding sources for patient clinical care from the University:

“We can't hire the people we want to hire because this is a philanthropic institution. There are only certain funds that are allocated. We can't say, 'well, I need a nurse manager here and I need a better qualified medical assistant or I need a better qualified IV personnel' [...] So that means we are overextending our physicians. At some point there may be a burnout.” <sup>Provider 02x</sup>

“This is a non-traditional place to get healthcare [...] but I think because of that there are a lot of cost issues like insurance, out of pocket payments, confusion. Those kinds of things make it difficult to provide the type of care we want to provide. And communication and that's true for any clinic. Because patients are in such need to communicate with providers all the time. And they can't get that a lot of the time [...] and I think that's for the fact that a big institution usually has

a lot of avenues for communication. And here is just one number and if you call and it's busy you'll have to call again to get a live person. It's just logistically difficult.” <sup>Provider 089rfklp</sup>

Although initially planned as a cash only clinic, the Center has grown out of its original model. Today, associated with a major university medical school and university hospital obligates it to take most insurance plans (Preferred Provider Organizations (PPOs) as well as Medicare. This change in the financial model has had a drastic impact on the Center's ability to generate more clinical health care profits:

“Most people come in and expecting and wanting to use their insurance for everything. And that's one of the first things they ask, do we take insurance. So that's a huge factor [...] lab tests are expensive if you don't have insurance[...] Acupuncture is covered under PPO but not Medicare[...] It'll have to be cash pay.” <sup>Provider 03c</sup>

Today, the Center offers supplements and herbs directly to be sold by the Clinic rather than by the hospital pharmacy or private pharmacy, thus creating a potential for additional profit. Recently, the Clinic has started offering group visits as another potential profit line. A small group of patients of five to 15 people, who share similar health concerns, together see a specific provider and discuss a particular treatment option or strategy relevant to their specific health condition. Usually group visits run from 90 minutes to two hours. The informal dialogue and stories create a shared therapeutic experience on dealing with related health/condition issues:

“We started group visits [...] it makes sense. Financially, it makes sense. Where you speak on a common subject not to just one person but to 10-15 people [...] How to manage, let's say, diabetes [...] they all have a common thirst for knowledge. So why spend one on one an hour and get paid by insurance [...] we are not a only cash practice to have access to our practice. People in the community would like to use their insurance. But the insurance doesn't pay for 1.5 hours for the physician time. So we don't get compensated for our time and operational costs [...] so group visits will help.” <sup>Provider 02x</sup>

“I love it. I think patients get a lot more out of it. You can address all the medical concerns and you get all this support and camaraderie in a really emotional and social aspect of it. Something that you sometimes don't get in a one on one. So I

love the group medical model. There is a ton of research on group medical model not only how they are time efficient but also in patient satisfaction [...] it's so robust. People love it [...] I think that group thing, that accountability, is totally there. So if we discuss something people are more accountable. And when they are back next week, they know that they have to report on. You can be basic, like motivational interviewing, health goals, and we focus more on preventive [...] People have complex things going on so maybe they've had an MI or trying to prevent one. Maybe they've had heart failure and all kinds of things. That parallel experience, drawing from that, is so valuable and I think that contributes really positively to compliance [...] I think in addition of being followed one-on-one by a provider, I think the group visits function perfectly in an integrative medicine setting. Because in a group medical visit we take into account all those pieces like, mind, body and spirit. It's engrained, it's developed in the model. In the group medical model. The model just goes hand-in-hand with integrative medicine.” Provider 089rfklp

The current model of the Clinic is funded by a combination of philanthropy, insurance (PPO), Medicare, and cash for services including nutritional supplements. The Clinic is self-sufficient paying for its own costs but not profitable. As a participant states, “We need more money [...] We'll always need donors [...] Actually donors help bring more people to the Center.[...] it's good for the board and community.” Key stakeholder09m But even if the Clinic is profitable, the University structure will prevent the total profit from flow of revenue back directly to the Center. The profits will be split (direct and indirect costs) to the University and Medical school.

## **Theme IV: No Direct Referral System from the Academic Hospital to the Clinic**

Another barrier to integrative care is the lack of direct systems for patient referrals. Although there is not much overt opposition to the Center or Clinic from the University, medical school, or university hospital, there is still a widespread skepticism within the University culture

towards IHC and CAM. Therefore, broad-based referral of patients directly from the university is limited. Currently, there is no formal referral system for the Clinic. A medical physician or another provider at the University hospital or student health serves cannot formally request for patient referrals to the Clinic. The Clinic is excluded from University electronic records referral system:

We don't have a direct referral in the system. I can refer to cardiology [...] We are not in the system [...] I've had some patients referred over here (the Clinic) but they had to make the appointment themselves [...] Yeah, they (referring MDs) have to tell the patient to call here. <sup>Provider q3we4</sup>

The referral issue is also compounded since there is another IHC health center at the University through UC Irvine Family Health Center, City of Santa Ana, offering CAM therapies. In addition, some departments at the University including health services centers/clinics, student health centers, satellite clinics, and the hospital also offer their own CAM therapies such as mindfulness, yoga, nutritional therapy, and osteopathy. As a provider states, "About 20% from University physician, about 20% outside physician and the rest from self-referral [...] I don't know how they know us. But the patient comes in and says Dr. Blank Pie referred me to you." <sup>Provider 02x</sup> This qualitative comment is in agreement with the quantitative patient results. When patients were asked on their quantitative survey, "Why did you choose this particular health center?," about 35% of the patient participants received referrals from physicians. Another 22% choose the Clinic based on their insurance plan and 21.5 % from the advice of friends, family and co-workers (13%, 6%, and 2.5%, respectively). Interestingly, another 11% choose "other" including "internet", "reputation," "holistic focus," "integrated philosophy," as reasons for preferring the Clinic.

As stated previously, there is no formal referral structure including authorization request for a new patient consultation provided for the Clinic. This gives makes it more difficult for the Clinic to introduce new patients to the Clinic or Center. The current model for clinical referrals is by word of mouth (including physicians) and patients directly seeking services. One key stakeholder expressed concern that the Clinic generates patient referrals via “word of mouth” but it may take months for patients to see an IHC provider. The length of time to see a provider may negatively influence word of mouth referrals: “We get our patients by word of mouth [...] we have a backlog and you don’t want to have patients wait three months.” Key stakeholder09m

## **Theme V: Center Embedded in a Biomedical University Model**

Part of the process of creating an IHC center is identifying the philosophical assumptions that impede IHC. IHC subscribes to a holistic paradigm of illness, treatment, and care compared to conventional medicine (biomedicine), which gives rise to a different set of health practices and a reductionistic view of health (I.D. Coulter et al., 2008). These are very significant philosophical paradigm differences:

“This is one of the best centers attempting to do that (*Integrate IHC*). But I still think you have the bio-medical model with the MD down [...] but it is the best of what we can have. And I want to make sure about that it’s all about the patient and not about the all-mighty dollar. But unfortunately when you have an integrative center in an academic setting, just in the medical model itself, it’s hard to get away from that.” Provider 01z

In general, the University as an institution is more compatible with the beliefs held in biomedicine. It is unknown whether the systems can be compatible and coexist but they often cause confusion and conflict for patients, providers, and staff:

“I think it is hard for some patients that come to (the clinic) and go home and try to explain to people that they are at (the clinic) for and doing things that the public doesn’t

understand. So it's not necessarily our barrier. It's a barrier of society [...] I think that's just a stigma that's just going to go away. And that's just society. And we just have to go through that. And I think that's just a phenomena that's just going to be a tipping point as more and more patients have more success and wonderful experiences [...] and get to talk about what they go through.” Key stakeholder10c

One of the Clinic's regulatory successes was implementing university policies and procedures for credentialing and garnering clinical privileges for CAM providers. However, university credentialing policies and procedures also impede privileges for new providers, especially those practices that are not already integrated into the University structure:

“The university said “why do you need that...?” [...] I said, “I can mix it here, I can do it in two minutes and give it to the patient. But I'm dealing with a university [...] She can't council (give CAM treatment), unless I get certified and overlook her because it (the CAM therapy) has no certification in California so it has to go under MD. That means I have to learn it. And I expressed a wish to do so [...] The university just doesn't understand us. They don't get it (CAM services) [...] The university is a barrier for sure for doing quicker things because they just don't get it. It takes us years and years to explain what we need [...] like it took us a year to get an Ayurvedic practitioner here [...] for massages. We had to say, ‘we are not using knives or needles. This is just massage therapy with oil.’” Provider 02x

“The reality is that in an institutional clinic like (the university). A university comes with certain restrictions and you have to be comfortable with those restrictions. And know how to work within those parameters. I think it is more challenging for practitioners that haven't been part of a system before [...] It takes an institutionally minded person to have the patience.” Provider 43b

Of the 11 CAM practitioners about half (five providers) assume the role of a general practitioner to patients. About three of the five providers have privileges at the University hospital. Increasing privileges at the University hospital, even as in-patient, may facilitate integration of IHC services:

“I see it happening a lot in a non-standard way. So in an inpatient setting you will get nurses. Because one they spend the most time with the patients. They develop a relationship with the patient. And integrative medicine is really relationship-based. They (IHC providers) are the ones that develop a relationship with the



patients. I see a lot of these therapies and techniques being used. Especially like meditative breathing and reframing and cognitive support, or simply focusing on the more personal and emotional and spiritual part of the patient. I mean nurses are right there. I think the problem is that this is not standard practice and (providers) practice a lot of check-box medicine.” Provider 089rfklp

But it takes University engagement and respect to support and facilitate the integration. Buy-in from University faculty, staff, leadership and student body is important to the Clinic’s successful integration. It seems that the model is moving in that direction with the recent introduction of naturopathy and mindfulness-based therapies (MBSR): “Recently, there has been a lot more approval by the University for allowing new things (at the Center).” Provider03c

### ***Leadership-based Themes***

#### **Theme I: Lack of Funding from the University**

As stated in previous chapters, stakeholders (individuals with a stake in IHC such as leadership, administrators and referring physicians) have a unique perspective of IHC and play an important role in the process of integration of IHC. Stakeholders introduced two major themes: (1) lack of funding from the university and (2) the location and physical space of the Clinic.

The clinic faces a number of financial issues. Many of the financial issues at the Clinic stem from how the Center was originally planned. Originally, the Clinic was planned as an add-on service to existing university health clinics. In fact, the Center originally was named “complementary and alternative medicine” not “integrative:”

“The university is a very conservative medical school. In the beginning they (*the university*) were really cautious about what we were doing [...] In the beginning we really were not respected [...] Although acupuncture research is really respected [...] we just kept plugging along. We just kept doing it. So we kept

having our Center. We kept getting patients. Eventually you keep getting patients and we have a great community and education. And you are funding research and eventually you start getting some respect. And the other thing that happened is that the students started to get interested in what we were doing. So they [students] started a medical integrative club. And they volunteered at our events and everything [...] The school [the University] has to pay attention and to the trend. The students want it and the patients want it.” Key stakeholder09m

Most recently, the Center has been renamed to the Susan Samueli Integrative Health Institute. This forward progression in the name of the Center reflects a forward continuum from Complementary and Alternative Medicine to Integrative Medicine to Integrative Healthcare. These changes may indicate a larger paradigm shift from CAM to a larger more inclusive healthcare system (IHC).

The Center was also created originally as single-payer cash for services model. Slowly the Clinic was able to incorporate the University healthcare plans and accept major insurance PPO plans as well. The Center is also designed to be consistent with a preventative healthcare model, not a disease based model. Therefore some participants believe that it is difficult to recruit donors for preventive or wellness care compared to disease:

“A lot of centers are based on disease. So if they go in and help somebody, that person is more likely to donate money like the cancer center. People leave their houses to them. But when you are trying to prevent disease [...] there is no money in that [...] I think there is a natural progression [...] As we were talking, so many of these (Centers) are not successful. Every organization has tried to because there is a patient needs to offer some of these services. And they just haven’t been successful. And I’m not sure just why we have because if this was a business it could not withstand the amount of time we went through where we were not making money. We relied a lot on philanthropy. In business you just can’t get loans and ask people to support you if you are not making money. You have to show you are making money. I think we just winged it for a while and hoped that we would make money someday. Because nobody had the perfect model.” Key stakeholder10c

Originally, the business plan was developed without financial support from the University. Generally, the long-term plan on funding to build and sustain growth has been based mainly on philanthropy.

“We were always under threat that if we closed it in the red we would be cut from the university [...] I think that the support that we have had in the last few years is because we have more support from management (the university) [...] it is so important, it really is [...] I hear Mannie (university leader) talk about it. And he has a new vision of health. As it should be as the whole country is going toward the vision of ‘we need to invest in our wellness and not wait until we are sick. And then start investing in our health [...] It isn’t until you start to get signs of age that you start to really think about your healthcare and about what role you are going to take in your healthcare. And what doctors you are going to see [...] and I think it’s frustrating because some of the philanthropists are not old enough to really understand the importance of something like this [...] and then I have other friends that are major philanthropists [...] and everybody goes, ‘can’t you bring them?’ and I go, ‘they just don’t get it.’ Their father was a pediatrician and they are like in their 70’s. And they are kind of outside the window a little bit. They say, ‘no this is the way we’ve always done it. This is the way we are always going to do it. So, I think there is this generation that is looking for better health care because we are breaking down and we don’t want to rely only on drugs. We don’t want to rely only on surgeries.” Key stakeholder10c

Therefore, one major factor impeding the successful integration IHC model is the current university model that undervalues preventive and wellness services while overvaluing (invasive) specialty care:

It’s undervalues. The (university) as a whole undervalues it (IHC services). It doesn’t systematically see a value or benefit of it. It wants to capitalize on it. But our Center is unique. We have philanthropy that supports what we do and we have an excellent director who supports what we do. Provider 43b

## **Theme II: Location and Physical Space**

The clinic is located in a multi-story building with other health related disciplines such as dentistry. The building next door is a chiropractic health care center. It is also located within a one-mile radius of other prominent health care centers that offer a number of CAM therapies, some not offered at the Clinic. In fact, some of the providers work at these other centers or refer

patients to these centers for therapies that are not offered by the Clinic. This means that the Clinic is operating in a competitive and saturated market. While there is no formal referral system in place at the Clinic from the University, most patients surveyed in this evaluation come to the Clinic via indirect provider referrals.

The ambience of the Clinic is of a high-end medical center with neutral colors, plenty of natural light, live plants, contemporary art, and comfortable furniture. There is plenty of parking for patients and location is close to a major freeway. However, the Clinic does lack adequate space. As the number of clinical providers has grown so has the number of patients. It takes some patients over four week to see a provider. As one participant states, “We need a bigger space.” <sup>Key stakeholder09m</sup> Indicative of this statement, the Clinic has transformed a closet into an exam room. The cramped space raises potential privacy issues and it can also be disruptive to the patients’ treatment experience.

Overall, the patients, providers, and stakeholders all are enthusiastic about the Clinic’s setting and environment:

“You want the center to be accessible. Which we are now. You definitely, as a matter of esthetics for a center for integrative medicine and the model we are thinking and vision. I think the center itself can reflect the philosophy and the model of care [...] You can have more natural light. More natural dispensary and more rooms for different activities. I mean our space works and it’s a nice space and we have put a lot of work into the furniture and making it warmer [...] but we can definitely benefit from more space.” <sup>Provider 43b</sup>

### ***Patient-based Themes***

#### **Facilitator Theme: Open Collaboration and Communication about Care**

Nearly all of the providers at the Clinic showed interest in greater communication with patients and providers:

“Every single thing is documented here. Every phone call or even reminder call that we have left for the patient is put into our documentation system EHR (electronic records)[...] Even face to face conversations are documented. So we have phone noted, nurse notes and practitioner notes. Everything is documented.”  
 Provider 03c

“We need to encourage our patients more to use the patient portal. Like, “hey, use the portal. Message us on the portal. So yeah, we get messages [...] but it’s hard to get people set-up.”  
 Provider 089rfklp

All the patients reported that their providers listened carefully to them during their appointments: “I love my provider. He always listens to my issues.”  
 Patient02409 Most also felt their providers showed respect for what they had to say. Most patients prefer to discuss their prognosis directly with their provider. About half of the patients interviewed reported that their providers always explained things to them in a way that was easy to understand. This may be due to difficulties with medical terminology and definitions:

“I’ve pain all over. I can’t eat. My back hurts. My (doctor) cares about me. That’s why I come here. We talk about all the options. And you know, I need more information.”  
 Patient5gbi

“I want to get well,altogether, it’s wellbeing. Dr. Flow has a special focus. He engages on problems with chemotherapy, side effects. Dr. Flow is not just ‘fixing’ it [...] We discuss it all the time.”  
 Patient4rfgy

Table 5.2 describes how patients view IHC. The differences between terminology and definitions are wide.

Table 5.2. Definitions, Terminology and Philosophical View of IHC by Patients
What does integrative health care mean to you?
“Integrative health care means that it is a partnership of patient and doctor to decide what is best for overall health. Active PARTNERSHIP! Includes diet, lifestyle, herbs, sleep habits, and includes many modalities like acupressure, massage, etc...” Patient 02409
“Combination of Eastern and Western medicine.” Patient 5gbi
“Integrative medicine is my primary healthcare and has been so helpful for helping my health issues.”
“Mind and body help!” Patient 06839
“Integrative medicine to me is the natural way of medicine/healing was supposed to be. Western medicine is ‘new’ and ultimately ends up following integrative medicine after research. IM is based on 1000s of

years of experience of herbalist, traditional medicine doc, yogis and raj vedas.” Patient 03826
“Looking for alternatives.” Patient 03kft
“It has all the ingredients that I need.” Patient 036hy
“I am looking for mindfulness” Patient 02409
“Functional medicine combined with traditional” Patient 01bu
“Integrated way of healing,” Patient 5gbi
“Explore wellness modality rather than ‘fixing’ an illness.” Patient 7ghbi
“I use internet as a source of information of care [...] Food is important to my health.” Patient 02736
“I use acupuncture as treatment of pain.” Patient 00953
“I do not like traditional allopathic doctors. Last time I saw (one), A number of years ago they typed on the labtop the whole time and only looked at labwork results. Wanted to prescribe pharma instead. And I had to pay for parking and waited over one hour to see him for 5 minutes. This is not medicine. I was treated like a number.” Patient 0628467
“Developing a meditation practice through resilience training. Patient 020834
“Improve mood, regulate hormones, discontinue Rx, make healthy food choices, lifestyle choices for more energy.” Patient 4rfgy

## **Barrier Theme: Limited Accessibility of CAM Services**

Most patients reported that their experience in making an appointment at the Clinic was similar to past experiences with other medical clinics/centers. However, some patients complained about having to leave a message, often multiple messages, instead of talking to a live attendant/receptionist regarding appointment, questions, or billing. The patients also complained that appointments would change based on a particular doctor’s limited availability. Making appointments became more problematic as the Clinic increased providers and grew in services. For example a patient stated that. “Providers are excellent and well-informed but seem to be slammed with patients. Administrative staff is friendly but often disorganized. I am grateful to have holistic health center that offers good service and works with my insurance.” Patient3628

Therefore patients are willing to wait for services.

While most patients were able to make an appointment to see practitioners within two to four weeks, some patients reported having to wait months. Once patients arrived for their appointment, the waiting time in the front office to see a provider was generally 10 minutes or

less. The longest waiting time observed for any patient was 20 minutes. When asked if he was satisfied with his waiting time the patient responded that he had arrived too early for the provider and the provider was still with another patient. Another patient said, “It would be good to have acupuncture more there (at another university center) for pain.”<sup>Patient904576</sup>

Few patients remember receiving messages about appointment and follow-up. For example a patient said, “Due to a phone malfunction, I did not receive voicemails from the front office staff that they left me to change my appointment. So I came for nothing. Rescheduled and filled out paperwork for new appointment time in two days.”<sup>Patient8620</sup> Additionally, both patients and providers have discussed the barriers of having part-time providers. A provider stated, “We have doctors that are only here once or twice a week. This has upset patients because they call when they are not here.”<sup>Provider 03C</sup>

Additionally, patients reported spending varying lengths of time with each provider, depending on the type of visit (e.g., acupuncture, naturopathy, massage, etc.,) and depending on the reason for the visit (initial intake, 90 minutes or follow-up visits, 45 minutes).

If they needed to talk with a provider between appointments, some patients were able to reach the provider using emails or patient portals rather than calling the office directly. Most patients did not complain about communication with providers. In fact, some patients stressed that they felt comfortable to reach out to their provider: “I feel like I can talk to my doctor about my needs.”<sup>Patient03kft</sup> But, as stated, some patients complained about the difficulty of reaching a live attendant in the office or receiving a response to their messages to providers. But overall, patients are happy with the Clinic services as stated by this patient: “I found this place myself. The provider is in my insurance plan. That’s nice because that’s what I was looking for.”<sup>Patient</sup>

067ie

## Summary of Qualitative Data

Overall, interview participants (IHC providers) reported a range of facilitators and barriers related to the implementing and practice of IHC within an academic healthcare institution. As a group, they discussed five main types of facilitators for the success of academic IHC practice: (1) teamwork and collaboration within IHC providers and between IHC providers and conventional medical practitioners as an important aspect in the evolving definition of IHC; (2) nursing has a potential to act as a champion for IHC in a large academic setting; (3) affiliation with a research and academic university boosts the credibility of IHC; (4) holistic philosophical view of treatment is a foundation to IHC and can be a tool in the integration of IHC; and (5) the diverse options of modalities of IHC offers patients greater healthcare opportunities and increase IHC implementation. There were also five main challenges to the implementation of IHC: (1) the lack of support administration staff makes the practice and implementation of IHC difficult; (2) IHC patients require additional time for diagnoses and treatment compared to patients in conventional medicine; (3) funding and reimbursements for CAM therapies in the practice of IHC are lacking or limited; (4) there are no formal referral systems from the academic hospital to the Clinic; and (5) the Center and Clinic are both embedded in a biomedical university medical school that challenges fundamental principles (i.e., values, methods, and education) of IHC, making IHC integration difficult.



According to major stakeholders, main challenges to the implementation of IHC includes the lack of traditional funding, incentives, and reward systems that do not recognize IHC practice or research. Lastly, the Clinic is outgrowing their physical space. While the Clinic has created a beautiful environment that takes into account the science of healing environments such as color, texture, natural light, and sound (Wayne B Jonas & Chez, 2004), it remains miles from the University Hospital and other University Health Centers.

For patients open collaboration and communication about care is the most vital aspect of IHC. A major challenge is the accessibility of CAM services and IHC providers.

## **Quantitative Analysis**

As stated in chapter 3, the primary purpose of the qualitative data analyses was to provide in-depth information about patient and providers view of IHC at the Clinic. Equally important, however, was collecting quantitative data to add to the knowledge base on the characteristics of a population that uses IHC services (i.e., IHC patient demographics and clinic usage) and to guide operations, which included patient volume by specialty type and patient satisfaction with services.

## **Characteristics of Patients who use IHC**

The demographics of the all patients in this dissertation are presented in tables 5.1 and 5.3. For the patients who fully completed the survey (n= 63), the vast majority are female (84%), middle aged (39.5 as median age) and ethnically white (91%). They are also middle class and educated (see Table 5.3 Demographics of Patients Included in Quantitative Analyses). The median household income for the sample is \$80,000. In 2015, the median household income in

the United States was \$55,755 (Posey, Sept 2016). The sample in this evaluation is making \$24,000 more than the average American household (see Table 5.4. Household Income and Education Status).

<b>Table 5.3. Demographic of Patients in Quantitative Analysis</b>	
Characteristics of IHC Clinic Patients Included in this evaluation (Received IHC Services)	
<b>Gender</b>	
Male	9
Female	54
Missing data	2
<b>Age Group</b>	
Mean (SD)	51.23 (16)
Median	39.5
Range age	25-82
18-30y	2
31-44y	18
45-64y	30
≥ 65y	6
Missing	9
<b>Race</b>	
Non-Hispanic White	58
Black or African American	1
American Indian or Alaskan Native	0
Asian or Pacific Islander	2
Hispanic Origin	0
Other	1
Missing	3
<b>Marital status</b>	
Single	16
Married	25
Divorced	4
Widowed	2
Other	3
Missing	14

Abbreviation: y, years; SD, Standard Deviation

<b>Table 5.4. Household Income and Education Status (N=50)</b>		<b>Sample</b>	<b>2015 U.S. Census Data</b>
<b>Household Income</b>			
Median dollars	\$80,000		\$55,755
Mean dollars	\$120,550		
Range	\$9k-850K		
≤ \$10,000	1		
\$10,000 - \$40,999	5		
\$41,000 - \$70, 999	8		
\$71,000 - \$100,999	7		
\$101,000 - \$200,999	9		
≥\$201,000	4		
Missing	16		
<b>Educational Status (N=50)</b>			
Some High School	0	100.00%	88.40%
High School Graduate/GED or more	2	96.00%	58.90%
Some College, No 4 yr Degree or more	11	64.00%	32.50%
4 yr College Degree or more	19	36.00%	12%
Post Graduate Degree	18		
Abbreviation: k, times one thousand; y, years; SD, Standard Deviation; GED, General Educational Development			

Additionally clinical usage data were gathered for patients. Table 5.5 includes clinic usage for all patients who completed the quantitative surveys for this evaluation. The majority of the patients (about 88%) have been previous patients of the Clinic. Fourteen percent of the sample has been patients at the Clinic for over 10 years. About 76% of the total patient sample has had pain as the main health concern with 36% suffering from musculoskeletal disorders. Another 40% of the patients are receiving services for other health related concerns such as

cancer or depression. Check-up or wellness visits account for 8% of the health concerns of patients. The vast majority of the patients had chronic health concerns with over 4 months of health issues. In fact, the majority of patients who receive IHC services from the Clinic suffer from chronic musculoskeletal pain disorders. When asked “Do you think that the service(s) in this clinic might help, or is currently helping, with this health goal”, the vast majority of patients (75%) believed that they are “very sure it might/does help”. Sixty-eight percent (68%) of the patients have used IHC services in the past for their health concern. Another 72% see their conventional physician for the problem(s) that bring them to the Clinic.

The top most used therapies at the Clinic are: (1) acupuncture (50%); (2) Naturopathy (20%); (3) Osteopathy (12%); (4) Integrative medicine consultation (10%); and (5) massage therapy (8%).

<b>Table 5.5. Clinical Usage by Patients (N=50)</b>	<b>Number of response</b>	<b>Percent</b>
<b>Length of Time as Patient at the IHC at Clinic</b>		
Initial visit	6	12%
≤ 3mths	10	20%
3-6mths	15	30%
7-9mths	2	4%
10-12mths	9	18%
13mths-35mths	9	18%
3-6y	3	6%
7-9y	0	0%
≥10y	7	14%
Missing	4	8%
<b>Main Health Concern</b>		
<b>Check-up or Wellness</b>	4	8%
<b>Pain of any type (top 3)</b>	38	76%
<i>Musculoskeletal Disorder</i>	18	36%
<i>Inflammatory Disorder</i>	6	12%
<i>Headache</i>	5	10%

- Choose Multiple Conditions	12	24%
<b>Other Concern (top 3)</b>	20	40%
<i>Cancer or Chemotherapy Related</i>	4	8%
<i>Anxiety Disorders</i>	3	6%
<i>Depression</i>	2	4%
<b>Length of Time of Main health concern, n=50</b>		
Mean (SD) of years	8.64 (8.69)	
Median of years	5	
Range of years	1.9-37	
≤ 1 wk	0	0%
1-12 wk	2	4%
4mths-1year	18	36%
≥ 1year	33	66%
Made multiple selection based on multiple health concerns	3	
<b>Do you think that the service(s) in this clinic might help, or is currently helping, with this health goal?</b>		
Very sure it might/does help	48	75%
Somewhat sure it might/does help	12	19%
No expectations	3	5%
Somewhat sure it might/does not help	1	1%
Very sure it might/does not help	0	0%
<b>Have you used the services in the past?</b>		
Yes, for the problem that brings me here today	34	68%
Yes, for other health problem	8	16%
Yes, for general health prevention	3	6%
No	8	16%
<b>Are you currently under the care of a medical physician</b>		
Yes, for the problem that brings me here today	36	72%
Yes, for other health problem	14	28%
Yes, for general health prevention	9	18%
No, but I saw one for this problem in the past	4	8%
No	1	2%

<b>Why are you here today? (top 5)</b>		
Acupuncture	25	50%
Naturopathy	10	20%
Osteopathy	6	12%
Integrative medicine consultation	5	10%
Massage therapy	4	8%
Abbreviation: mth(s), month(s); wk(s), week(s); y, year(s); SD, Standard Deviation;		

## **Results from the Patient Satisfaction Survey**

Sixty-six patients were recruited to complete the patient satisfaction survey instrument (I. D. Coulter et al., 1994). Six patients were unable to complete the survey due to the lack of time. Sixty patients completed the patient satisfaction survey. The patient satisfaction scores were computed as the group averages of the individual average responses to the 12 questions. All patients reported high levels of satisfaction. The lowest score 5.83 was for the cost of services. Still 69% of the patients score 6 to 7 for costs. That is about 70% of the patient sample believe that cost is only a minor factor. The mean satisfaction score for the sample is 6.30 (See Table 5.6. Patient Satisfaction Survey).

Table 5.6. Patient Satisfaction Survey (n=60)

Items	Very Poor		Poor		Fair		Good		Very good		Excellent		The Best		6+7 %	Mean	SD	Item Score
	1 Score	%	2 Score	%	3 Score	%	4 Score	%	5 Score	%	6 Score	%	7 Score	%				
a. The amount of privacy you were given	0	0%	0	0%	0	0%	1	2%	6	9%	33	50%	26	39%	89%	6.27	0.69	88
b. Interest shown in you as a person	0	0%	0	0%	0	0%	1	1%	4	6%	31	46%	31	46%	93%	6.37	0.67	90
c. Friendliness, warmth, and personal manner of the provider(s) who treated you	0	0%	0	0%	0	0%	1	1%	5	7%	24	36%	37	55%	91%	6.44	0.70	91
d. Explanations of treatment	0	0%	0	0%	0	0%	2	3%	10	15%	27	42%	26	40%	82%	6.18	0.80	86
e. Willingness to listen to what you had to say	0	0%	0	0%	0	0%	1	2%	4	6%	23	35%	38	58%	92%	6.48	0.68	91
f. Understanding of your health problem	0	0%	0	0%	0	0%	3	5%	10	15%	26	39%	27	41%	80%	6.16	0.85	86
g. Answers given to your questions	0	0%	0	0%	0	0%	2	3%	9	14%	26	39%	29	44%	83%	6.24	0.80	87
h. Amount of time spent with you	0	0%	0	0%	0	0%	2	3%	4	6%	30	45%	30	45%	91%	6.33	0.73	89
i. Cost of the care to you	0	0%	1	2%	1	2%	10	16%	7	11%	19	31%	24	39%	69%	5.83	1.23	81
j. Skill and ability of the provider(s)	0	0%	0	0%	0	0%	2	3%	2	3%	25	38%	36	55%	94%	6.46	0.70	91
k. Advice about ways to avoid illness and stay healthy	0	0%	1	2%	0	0%	6	10%	7	11%	25	40%	24	38%	78%	6.01	1.06	84
l. Ability of the provider(s) to put you at ease	0	0%	0	0%	1	2%	0	0%	4	6%	28	42%	33	50%	92%	6.39	0.74	90
m. Courtesy, politeness, and respect shown by the provider(s)	0	0%	0	0%	0	0%	0	0%	3	5%	23	35%	40	61%	95%	6.56	0.58	93
n. Care received overall	0	0%	0	0%	0	0%	1	2%	3	5%	28	42%	34	52%	94%	6.43	0.65	91
Total Group Mean																6.30		
Total Group SD																	0.78	
Total Group Score																		88

Reference: Coulter, I. D., R. D. Hays, and C. D. Danielson, The Chiropractic Satisfaction Questionnaire, Topics in Clinical Chiropractic, Vol. 1, Issue 4, 1994, pp. 40-43.

## Summary of Main Findings

There is overlap between the data from the qualitative interviews and the quantitative survey. For instance, both focus predominantly on the health concerns of middle-aged females with chronic (multiple conditions) pain associated disorders:

“Sometimes I can help my patients and sometimes I can’t. We get really complicated patients [...] they have multiple medical conditions [...] Yeah, they have a lot of problems. It’s very challenging. I have patients that have problems digesting their food, chronic pain, nerve problems, some type of unknown rheumatological problem, and they have some type of colitis. So they have at least five different specialists taking care of them but then they are still suffering. I think that’s the nature of the type of patient that comes to an integrative clinic. There has been studies that have shown that people who come to integrative clinics [...] have either cancer for some type of rheumatological condition or some type of pain condition. And people who have rheumatological conditions most likely have pain problems. So those in of themselves are complex. But we try to help the patients to the best of our ability.” <sup>Provider q3we4</sup>

The barriers and facilitators for IHC integration within an academic-based university medical model are described below. The tables below illustration the major themes generated between the scoping review and the qualitative data (see Tables 5.7a Key Clinical Barriers for Access and Integration and 5.7b Key Clinical Facilitators for Access and Integration). These major themes were derived from the major themes in previous studies discussed in chapter 3 as well as the major themes from the qualitative portion of this dissertation. The themes from the literature review (Chapter 3) and the qualitative data from interviews share some overlap on the internal and external barriers and facilitators of IHC integration.



<b>Table 5.7a. Key Clinical Barriers for Access and Integration</b>	
Lack of appropriate staff**	Lack of Evidence Based Research*
Lack of communication*	Differences in Language and Jargon*
Gatekeepers to patients and practices**	Lack of credentialing or licensing***
Cultural Difference*	Territorialism*
University rules and regulations aka 'institutionalization' **	Lack of Outcomes*
Lack of Profits**	Lack of Respect ***
Logistic barriers**	Discriminatory practices***
Costs vs. benefits*	Lack of Purchasing Power**
Lack of trust***	Lack of Formal Systems such as Electronic Referrals**
Clinic and Appointment Wait**	Insurance Payments and Reimbursement*
Lack of Funding and Economic Influences*	Distance from University Hospital**
Lack of Knowledge Services and Practice*	Lack of Advertising**
Lack of Space**	Labeling as 'medicine' **
* themes derived from both the literature and qualitative analyses, **themes derived from only qualitative interviews, *** themes derived from only the literature review	

The majority of the themes shown in Table 5.7a include structural factors, especially external barriers for IHC (i.e., costs, insurance payment and regulations) and internal barriers (i.e., lack of profits, clinic or appointment waiting time). Most of the barriers noted in the table span both internal and external categories. In addition, process outcomes such as value, culture, and communication also represent a major influence on integration. Very few studies reviewed in this dissertation discussed the need for evidence-based research (EBR). Therefore, the lack of research or discussion around EBR in IHC reflects the gap that's needs to be address by additional research in this field. In comparison, the facilitating factors to IHC integration and implementation were mostly process outcomes (see below Table 5.7b).

<b>Table 5.7b. Key Clinical Facilitators for Access and Integration</b>	
• Holistic Practice*	• ‘Word of mouth’**
• Length of Time Spent with Provider**	• Leadership and ‘Champions’*
• Patient centered care*	• Access to university resources, researches & centers**
• Whole-systems based care*	• Inter-professional education*
• Spiritual and mind-based care*	• Insurance and cash for services*
• Team-based*	• Costs vs. benefits*
• Positive interpersonal relations**	• Evidence-based and informed Practice*
• Competency*	• Licensure and regulations*
• Straightforwardness**	• Authenticity and validation
• Client, not patient**	• Biopsychosocial model of care*
• Wellness*	• Financial Donors and funding*
• Sincerity**	• Beautiful Clinic Ambiance and healing environments**
• Trust*	• Referrals**
• Honesty**	• Preventive care*
• Empathy**	• Communication* and electronic medical records***
• Focus on Healing*	• Mind-body integration*
• Connectivity between mind, spirit and body*	• Personal treatment**
• Traditional treatment*	
* themes derived from both the literature and qualitative analyses, **themes derived from only qualitative interviews, *** themes derived from only the literature review	

These external and internal process variables (i.e., empathy, communication, understanding, and trust) can also influence the design of the integration (bridge model vs. embedded model) and can influence the evolutionary path of IHC. It is unknown whether the structural variables or the process variables in both Tables 5.7a and 5.7b are linked or have causal relationships.

Lastly, for those patients surveyed, the majority at the Clinic are middle-aged women who use acupuncture and other physical modalities to treat chronic pain. This is not surprising

since most CAM users are middle aged females in the United States (Barnes et al., 2008) and acupuncture has been associated with the Clinic from its inception. Also, there are several ongoing research studies at the Clinic measuring the effect of Acupuncture on health and disease prevention. Lastly, acupuncture is relatively well studied for its therapeutic effects on chronic pain (MacPherson et al., 2017). Therefore, the results of this dissertation are not divergent from the findings of similar studies (H. Boon, M. Verhoef, D. O'Hara, & B. Findlay, 2004; Knutson et al., 2013; Witt et al., 2015).

## **CHAPTER 6: DISCUSSION**

The conclusions and findings from this evaluation project contribute to our understanding of practice-based knowledge related to IHC implementation and promotion. They also provide the participating organization with information and tools for learning and development, and offer credible data to support IHC program development and refinement.

In short, the program evaluation carried out in this research examined organizational issues, challenges, and concerns in an effort to discern what is working particularly well in the medical organization that participated in this study. This method of evaluation is well suited to evaluating the university IHC program because this program already has been implemented with enthusiasm and significant external support from patients, providers, donors and the university.

### **1. Significance of Research to University Based IHC**

The majority of medical research focuses on disease-based models of care. IHC research emphasizes multi-dimensional systems and uses complex science and whole systems approaches to study packages of care. In addition, most research opportunities and efforts nationwide apply reductionist techniques to CAM and IHC research, an approach that may not answer broader questions regarding holistic models of care or the nature of healing. Therefore, researching a single intervention or a singular aspect of an intervention taken out of holistic context may not provide an adequate measure of the value of the intervention (I. D. Coulter et al., 2010, 2013).

Most health care programs that are well received and popular are often continued in the absence of scientifically rigorous evaluation to assess whether the program is appropriate, effective, and efficient. More recently, there has been greater emphasis on implementing

interventions that have demonstrated their effectiveness (Mallonee, 2000). While it was not the scope of this dissertation to measure effectiveness, determining that a program is effective (i.e., effectiveness sustained over time and the program substantially improves outcomes) is as important as determining whether the program creates unexpected outcomes (Deniston & Rosenstock, 1970; Deniston, Rosenstock, & Getting, 1968; Deniston, Rosenstock, Welch, & Getting, 1968; Mallonee, 2000; Thompson & McClintock, 1998).

Generally, program evaluations ensure that: (1) patients receive the most appropriate care available; (2) that patients are not harmed; and (3) funding allocations are not wasted. Rigorous program evaluations are especially needed for CAM and IHC programs because they often do not fit neatly into the reductionist research paradigm and are at risk for being marginalized without appropriate methods for determining their full therapeutic potential.

IHC might play a significant role in reducing the burden on health care. According to a survey study by the American Hospital Association (AHA), in the U.S. the percentage of hospitals that offer CAM has almost doubled in less than a decade, from 8.6 percent in 1998 to 16 percent in 2004 and 24% of hospitals said they planned to add CAM services and programs in the future (Larson, 2009). In addition, a survey in 2011 found that more than 42 percent of responding hospitals indicated they offer one or more CAM therapies. That is a 26 percent increase from 2004. Also, according to the survey, 85 percent of responding hospitals indicated patient demand as the primary rationale in offering CAM services (American Hospital Association and Samueli Institute., Sept 2011). As the number of IHC programs increases so does the need for their evaluation. Indeed, Mallonee's (2000) evaluation study of injury prevention programs found that "interventions that have been subjected to thorough evaluation in a variety of settings and found to be effective do not require the same intensity of evaluation as

new and untried interventions (p165)”. Therefore, in essence, all existing IHC programs should be evaluated.

While the most common use of a program evaluation is to determine whether proposed program goals and objectives are met (i.e., effectiveness) (Mallonee, 2000), again that is not the goal of this study. This study aimed to identify facilitators of and barriers to establishing an IHC in a university setting. The generalizability of the study’s findings to other populations and settings, however, is not known because this study focused on a single case rather than comparing alternative IHC programs. Nonetheless, the findings obtained in this single-case IHC evaluation study may prove useful to other medical organizations that wish to incorporate IHC into their practice models.

### **a. Potential for Whole-Systems Model**

As noted earlier, researching a single intervention or a singular aspect of an intervention taken out of holistic context may not provide an adequate measure of the value of the intervention (I. D. Coulter et al., 2010, 2013). The practice approach discussed in this study requires a theoretical research paradigm shift, from a reductionist perspective toward a complex holistic systems approach. It is essential to understand that research questions arise from the paradigm; they do not question the paradigm itself (Kuhn, 1970; Patton, 2015) That is, asking research questions from a complex systems perspective requires that the study focus on new methodological field of whole systems research. This research approach holds promise for holistic research in IHC. In fact, for both CAM and IHC practice and research, it is important that all components of a holistic model be recognized.

The Whole Systems Model (WSM) can be defined as an “approach to health care in which practitioners apply bodies of knowledge and associated practices in order to maximize the patients’ capacity to achieve mental and physical balance and restore their own health, using individualized non-reductionist approaches to diagnosis and treatment” (Ritenbaugh, Verhoef, Fleishman, Boon, & Leis, 2003). Assessing the effectiveness of whole systems is more complex than assessing the efficacy of single modalities or treatments. The basic challenge is to acknowledge all key components of the intervention as a network, such that none of the components can be assumed to work effectively in isolation from other parts of the system (Verhoef et al., 2005). This evaluation used the WSM approach and also incorporated a mixed-methods research design (Hawk, 2007).

## **b. The Science of Team Science**

In the past 15 years, innovative, cutting-edge methodology known as transdisciplinary team science has emerged as a valuable basis for understanding and managing complex research and societal problems. IHC as a field organized around multi-provider (interprofessional) evidence-informed, patient-centered health care teams based in a complex system of CAM and conventional medicine has the potential to fit well within this model. The present study found that team-centered concepts like “collaboration,” “trust,” “respect,” “team-based” were frequently mentioned by health care providers, key-stakeholders, and patients in their conversations and remarks about IHC.

Stokols et al. (2008) define team science as large research initiatives that “are designed to promote collaborative—and often cross-disciplinary—approaches to analyzing research questions about particular phenomena (e.g., the joint influence of social, behavioral, and

biogenetic factors on cancer etiology and treatment....and the multilevel determinants of health disparities” (p. S78). The authors present a continuum of specific distinctions between unidisciplinary, multidisciplinary, interdisciplinary and transdisciplinary approaches (Stokols, Hall, Taylor, & Moser, 2008).

Not all collaborations progress in a smooth linear fashion. In fact, team members often have epistemological differences and therefore team collaboration can become laborious and sometimes conflicted. This is especially true for those teams that are derived from opposing paradigms (epistemological conflicts) between the two distinct systems of medicine such as CAM and conventional medicine. Promoting, developing, engaging in, and managing team collaborations in IHC requires multifaceted understanding of how and in what ways teams collaborate (or not). The “science of team science”, therefore, may offer useful insights and contribute evidence-based principles, interventions, tools, and practice guidelines for effective integration of CAM and conventional medicine, and lead to a more effective IHC implementation. Currently it is unknown how well IHC transdisciplinary practice can be successfully actualized in health care settings in academic institutions. The science of team science may help facilitate our understanding of IHC integration.

Indeed, clarification of concepts and ideas is important in team-based communication. Vogel et al. (2014) found that team science is hindered by “discipline-based differences in collaborators' values, terminology, methods, and work styles (p.6)”. Terminology is vitally important in successful IHC implementation since the meaning of “integrative” in one health care field does not always mean the same across all disciplines. Team members must not assume that others know what they know or perceive things the same ways they do (p. 254-255) (Rose & Anderson, 2016). Therefore, clear definitions on what constitutes “integrative health care” in



relationship with “integrative medicine”, “integrated medicine,” “complementary medicine/therapies,” “alternative medicine/therapies,” and “complementary and alternative medicine/therapies” are crucial for enhancing the effectiveness of team science. Like interdisciplinary science teams, IHC also can benefit from cross-initiative perspectives (Vogel et al., 2014).

There are other practice conditions that support or hinder effective teamwork and collaboration. Many of the interview participants commented that they have interest in greater engagement with their conventional medical colleagues, but are not sure how to initially pursue in that engagement. This is especially true for IHC providers that lack credentialing or have limited credentialing (i.e., naturopaths and massage therapists) and struggle with these aspects of collaboration in a medical field. Creating institutional organizations or clubs such as the student-based integrative clubs (undergraduate and graduate), internship, post-doctorate fellowships, or residence programs can help bring young scholars and practitioners together early in their academic life.

Senior faculty and university leadership can initiate conversations that promote collaboration and integration among students, faculty, and staff. Creating early positive values of IHC conducive to these groups will enable productive interaction among CAM and conventional medicine providers and patients. Young providers can benefit most from team science since their values, methods, and work styles are undergoing development and therefore more malleable.

Group leaders (i.e., coaches and champions) are also an important factor in team science that positively contribute to successful IHC implementation. Leaders are responsible for creating a safe climate that supports expression and trust among team members, without fear. IHC is a

practice created by the integration of CAM and conventional medicine. As stated previously, CAM is a marginalized field (Thorburn, Faith, Keon, & Tippens, 2013). Social factors and attitudes toward CAM practitioners and students can contribute to successful integration. Group leaders in both CAM disciplines and conventional medicine can reduce discrimination against IHC by addressing conflict resolution via open dialogue. Leaders also need to address the specific goals and expectations that maybe in conflict. Conflict resolution and team cohesion should be established early in the team building process. Trust building activities such as formal case presentation, curbside consults, and patient rounds can cultivate a culture in which team members share ideas and develop their therapeutic skills.

Currently, there is a gap in knowledge about exemplars of successful IHC integration. More research on IHC practices and team-based approaches to IHC will help advance new ideas and facilitate greater research in the field. IHC can use the lessons learned from both team science and personalized medicine to advance the field.

## **2. How Can Payments for CAM Health Services Influence IHC Integration**

The payment for CAM health services, particularly in light of their private nature and lack of support in publicly funded health systems (i.e., private and public insurance coverage), is affecting IHC settings including integrative hospital programs that often combine biomedicine and CAM.

In the case of IHC insurance coverage, the biomedical options in IHC clinics have been shown to take precedence over CAM options, mainly because they are covered by national or other health care insurance plans and viewed as superior to CAM. In turn, patients must prematurely terminate the CAM part of their treatment plan because they cannot afford the

private CAM treatments. As a result, CAM practitioners experience low patient flow, low salary, and ultimately marginalization in the IHC setting (D. Hollenberg, 2007). In IHC settings such as these, integration becomes tailored to the affluent and often provided by medical providers without full CAM practice and theoretical training (J. Adams et al., 2009).

In 1997, the projected annual expenditure for CAM professional services exceeded \$21 billion with approximately 60% paid out-of-pocket (Cleary-Guida, Okvat, Oz, & Ting, 2001). This observation is important and at-the-heart of current concerns about the costs of health care and the role of third party payers. Earlier studies suggested that CAM has a growth rate close to 30% per year (Blecher & Douglass, 1997) due to an increase in the proportion of the population seeking alternative therapies, rather than increased visits per patient (Eisenberg et al., 1998). These studies reveal a CAM market that is significant in size, utilized by a major segment of the population, and undergoing rapid growth. While health insurance coverage for allopathic medicine has been well-studied and reported, similar research on health insurance coverage for CAM has been more limited (Cleary-Guida et al., 2001).

Health insurers and managed care organizations that have incorporated CAM into their policies state that their primary motivation is market demand (Pelletier, Marie, Krasner, & Haskell, 1997). Therapies such as nutritional counseling, biofeedback, acupuncture, preventive medicine, and chiropractic are increasingly covered under many health plans (Pelletier, Astin, & Haskell, 1999). In 2002, Pelletier and Astin conducted an extensive literature review and information search to determine which new insurers had special policies for CAM from 1999 to 2000. By 2002, most of the insurers offer some coverage for the following: nutrition counseling, biofeedback psychotherapy, acupuncture, preventive medicine, chiropractic, osteopathy, and physical therapy. All new companies indicated that market demand was a primary motivator for

covering CAM. Specific factors that influence whether insurers will offer coverage for additional therapies include potential cost-effectiveness, consumer interest, and demonstrable clinical efficacy. Among the most common obstacles impediments to incorporating CAM into mainstream healthcare were lack of research on clinical or cost-effectiveness, economics, ignorance about CAM, provider competition, and lack of standards of practice (Pelletier & Astin, 2002).

It is important to note that CAM insurance coverage varies regionally in the United States and varies considerably internationally. CAM reportedly is utilized to a greater extent on the west coast of the United States and may be covered by more insurance carriers (Robles et al., 2017). For example, there is a mandate in Washington State that prohibits insurance companies from excluding coverage of licensed practitioners in naturopathy, acupuncture, midwifery, chiropractic and massage therapy (Lafferty et al., 2006).

Another example of this is the near-universal coverage of chiropractic services in the United States that may serve as an instructive case study. The inclusion of chiropractic services within health insurance plans was set in motion with the addition of chiropractic benefits under Medicare in 1972 (Kaptchuk & Eisenberg, 1998). The inclusion of chiropractic health care took place when the health insurance industry was in an early stage of development and cost containment was not yet an issue (Cleary-Guida et al., 2001). In addition, legislative actions at the state and federal levels also played an essential role (Hurwitz, Coulter, Adams, Genovese, & Shekelle, 1998; Jensen, Roychoudhury, & Cherkin, 1998). However, the integration of chiropractors into conventional health care systems (creating an IHC multidisciplinary team) is contingent on their acceptance of a reduced scope of practice (Theberge, 2008).

Countries such as Canada, Sweden and Austria with universal health plans provide valuable health care services to patients. However, nearly all Western health care systems including the Canadian health care system lack “universal” access to certain health services such as CAM therapies. Canadians are thus left paying out of pocket, or must purchase additional private health care insurance for certain health care services including certain biomedical health services or products. These include, among others, the majority of pharmaceutical drugs (unless admitted to hospital), fees for paramedical professions (e.g., dentists, physical therapists) and CAM services. It can be presumed that private income from CAM could only be seen as beneficial for IHC endeavors, particularly in private health care systems. In publicly funded health care systems such as Canada’s, private CAM revenue could also be seen as aiding a public system overburdened by its social health expenses. However, the effects of private CAM revenue have multiple effects depending on each health care system and its complexity has not been well researched (D. Hollenberg, 2007).

In Hollenberg’s (2007) ethnographic report of three Integrative Health Care sites in Canada conducted between 2002 and 2003 found that patients could not consistently afford unfunded CAM treatments, resulting in the premature termination of an integrative care plan. The ramifications of this process (for patients, practitioners and care models) led to decreased health care access to CAM services in IHC settings. In addition, Hollenberg found that the health care insurance system in Canada, by relegating CAM practitioners to the private sector, also disrupts integrative clinical care by restricting activities of CAM practitioners, and restricting patient flow in IHC sites. He states, “Just as patients had to terminate an integrative care plan due to their inability to afford private treatments, CAM practitioners could not afford to work towards integration in a system where CAM is not funded—even with income from their

private practice, which although thought to be high, is substantially lower than biomedical practitioners (Shuval et. al., 2002). The fact that CAM practitioners could not attend group meetings can thus be viewed as a significant challenge to the development of integrative care models (p. 13)” (D. Hollenberg, 2007). Therefore the specific health system context is most crucial in shaping, enabling and/or disabling forms of IHC.

What can one expect in health insurance coverage for CAM in the future? The Landmark HealthCare survey found that 85% of the health maintenance organizations (HMOs) believe that the relationship between alternative and allopathic medical care will continue to grow stronger. Three-quarters of the HMOs also felt that consumer demand will be moderate to strong (National Market Measures, 1999). Since certain health conditions such as chronic pain, disabilities of various etiologies, and stress may be adequately treated with CAM modalities, consumers will demand greater CAM coverage within their health insurance plans (Cleary-Guida et al., 2001). An important priority for the future is to encourage the insurance system to insure IHC practices as more studies show efficacy, increased safety, and higher patient satisfaction. As insurance plans become more inclusive, an integrative model of health care will become more sustainable.

## **The Future of IHC in a University Based Healthcare System**

Little is known about policies governing the integration of CAM therapies and providers in conventional therapeutic settings. As noted previously, there are over 70 Integrative Health Care Academic Centers in the United States. However, also as stated, IHC is a newly emerging field and the findings from recent research suggest that IM as a non-traditional approach within US hospitals has faced difficulties in regards to credentialing, malpractice liability, and pharmacy policies governing the integration of CAM therapies and providers within

conventional medical settings. Coulter et al. document the issues that lead to the failure of a hospital-based IHC program (I.D. Coulter et al., 2008).

In many cases, policy and legal rules governing CAM providers and practices are new and evolving. The major challenge that confronts efforts to integrate CAM and biomedicine within a broader IM perspective in conventional medical setting is the complexity of practice models for different types of care. IHC policy and regulations depend largely on the CAM therapy(ies) or CAM modality(ies) being considered and on the specific clinical scenario in question (H. Boon, M. Verhoef, D. O'Hara, & B. Findlay, 2004; H. Boon, M. Verhoef, D. O'Hara, B. Findlay, et al., 2004; H. S. Boon et al., 2004).

As stated previously, NCCIH defines CAM as covering “a broad range of healing philosophies (schools of thought), approaches, and therapies that mainstream Western (conventional) medicine does not commonly use, accept, study, understand, or make available.” In offering this definition, NCCIH states, “a few of the many CAM practices include the use of acupuncture, herbs, homeopathy, therapeutic massage, and traditional oriental medicine to promote well-being or treat health conditions. People use CAM treatments and therapies in a variety of ways. Therapies may be used alone, as an alternative to conventional therapies, or in addition to conventional, mainstream therapies, in what is referred to as a complementary or an integrative approach... "Integrative medicine" combines treatments from conventional medicine and CAM for which there is some high-quality evidence of safety and effectiveness” (National Center for Complementary and Integrative Health, June 28, 2016).

In fact, by definition the term IHC implies an active effort to appropriately incorporate CAM into the continuum of health practice care (Boon et al., 2004). So what are the policy implications for medical providers, researchers, academics, regulators, and payers like

insurance? In addition, according to the NCCIH, combining a CAM modality in another system such as a conventional system to create an IHC practice model should only be used “when there is some high-quality evidence of safety and effectiveness”. Meeting this criterion will necessitate extensive research. At the least, researchers will need to identify which health needs are best met by each practice model and a comparison of health outcomes and costs associated with different practice models for similar patients (Boon et al., 2004). This is especially difficult since IHC delivery essentially needs to be flexible if patients are allowed to choose the type of care they believe best suits their needs. In short, policy makers will need to “consider a health care system that incorporates a number of different practice models for different types of care, rather than focusing on a single model (a "one size fits all" approach) (Boon et al, 2004).” This type of flexibility and breadth of therapeutic approaches can be a major policy challenge to operationalize in large systems and organizations such as hospitals.

For instance, studies in Israel of various IHC clinical settings found that there exists a dual process of simultaneous acceptance and marginalization of alternative practitioners in conventional health care settings (Mizrachi, Shuval, & Gross, 2005; Shuval & Mizrachi, 2004; Shuval, Mizrachi, & Smetannikov, 2002). “Although small numbers of alternative practitioners were allowed to practice and some of their techniques were absorbed by biomedical practitioners, they were seldom accepted as regular staff members; and their marginal status was marked by the use of structural, symbolic, and geographical cues in the clinical setting that helped redraw the borders between conventional medicine and CAM” (Adams et al., 2009 p. 796).

Similarly, Theberge's (2008) study of the integration of chiropractors into multidisciplinary health care teams in sport medicine is contingent on their acceptance of a



reduced scope of practice. Other discourse between conventional practitioners and CAM practitioners included the use of esoteric or professional knowledge; dominating patient charting, referrals, and diagnostic tests; to regulating alternative practitioners to specific domains of competence (Hollenberg, 2006; Adams et al., 2009). As a result, many CAM practitioners practice outside hospitals and avoid large multidisciplinary health care settings. Implications for policy and new research on integration are constantly emerging, as are federal and state legislative developments and judicial opinions resulting from litigation.

Recently there has been debate on physician incorporation of CAM therapies in conventional settings. This debate highlights the complexity of guidelines including recommendations for federal legislation and policy by the Federation of State Medical Boards to govern physician integration and Congress by the White House Commission on Complementary and Alternative Medicine (M. H. Cohen, 2003). An example of this is a conventionally trained medical physicians (M.D.) in general practice who becomes a licensed acupuncturist by taking a course with certification provided by a nationally recognized training organization and then becoming licensed in the state (Mann et al., 2004).

As more evidence accumulates showing the effectiveness and safety of specific CAM therapies in treating particular conditions, we should see greater inclusion of CAM therapies in larger insurance-based institutions such as academic health centers, major hospitals, VA hospitals and the DoD. Additionally, with greater CAM inclusion we would expect to see an increase in policy on IHC including appropriate use and utilization (M. H. Cohen, 2002a, 2002b). Therefore, policy research, legislation, and judicial precedent should clarify permissible boundaries of health care practices involving the new paradigm of IHC to gain greater coherence and integrity.

## **Evidence-Based IHC**

EBP requires that decisions about health care be based on the best available, current, valid, and relevant evidence. Major challenges facing IHC EBP include the delivery of efficient, adequate and high quality health services at affordable costs. These challenges include patient demographic changes, technological developments increasing the cost of health care provision, and lack of health care delivery and information. In addition, these challenges reduce the effectiveness, safety and efficacy of IHC overall. Clinicians and researchers in IHC need greater opportunities to secure improvements in individual and population health and increase knowledge of clinical advances to potentially enable more effective health care delivery. In addition to EBP, other health research approaches (i.e., Health Technology Assessment (HTA) and Clinical Practice Guidelines (CPGs)) are available to assist public health policy and IHC clinical decision making for the purpose of organizing and providing health services more effectively and efficiently (Perleth, Jakubowski, & Busse, 2001). “Activities, disciplines and methods that are available to identify, implement and monitor the available evidence in health care are called ‘best practice’ (Perleth et al., 2001)”. The definition of ‘activity’ is a set of actions that are related to the health care system or parts of it in terms of advice and recommendations developed through systematic research. According to Perleth et al., (2001) a more comprehensive definition of ‘best practice’ for health care systems clearly goes beyond quality issues. They define best practice in health care as the ‘best way’ to identify, collect, evaluate, disseminate, and implement information about as well as to monitor the outcomes of health care interventions for patients: population groups and defined indications or conditions. Information is required regarding the best available evidence on safety, efficacy, effectiveness, cost-effectiveness, appropriateness, and social and ethical values (Perleth et al., 2001, p 238).

In the case of IHC (safety, efficacy, effectiveness), has different regulatory requirements compared to conventional medical therapies. In fact, certain IHC therapies such as herbal remedies and nutritional and food supplements need not go through trials proving safety and efficacy and are not regulated by the United States Food and Drug Administration (FDA). (M. H. Cohen, 2003). Today, because herbal remedies are not considered drugs their regulation is implemented from the Office of Special Nutrition within the FDA's Center for Food Safety and Nutrition. However, the increasing urgency for EBP, especially in resource limited settings such as IHC has inspired many initiatives to conduct collaborative investigations on the EBP of IHC (D. I. Abrams et al., 2013; Dusek et al., 2016; B. J. Horrigan, 2013).

In a survey by Hadley, Hassan and Khan (Hadley, Hassan, & Khan, 2008) on allied health care professionals and CAM practitioners' basic knowledge, skills and beliefs concerning the main principles of EBP found that the majority of the respondents had not previously attended a literature appraisal skills workshop (87.3%) or received formal training in research methods (69.9%), epidemiology (91.2%) or statistics (80.8%). Furthermore, 67.1% of practitioners specified that they felt that they had not had adequate training in EBP and stated that they needed more training and education in the principles of EBP (86.7%). Differences in knowledge and beliefs concerning EBP amongst allied and CAM practitioners were found and length of time since qualification was also found to be an important factor in practitioner's beliefs. More CAM practitioners compared to allied health professionals accessed educational literature via the Internet (95.3% v 68.1%,  $p = 0.008$ ). Whilst, practitioners with more than 11 years of experience felt that original research papers were far more confusing ( $p = 0.02$ ) than their less experienced colleagues. The results demonstrate that practitioner's learning needs do vary according to the type of profession, time since graduation, and prior research experience.

Mark Tonelli criticized EBP approaches in integrating evidence into clinical practice. He states:

EBP has thus far failed to adequately account for the appropriate incorporation of other potential warrants for medical decision making into clinical practice. In particular, EBP has struggled with the value and integration of other kinds of medical knowledge, such as those derived from clinical experience or based on pathophysiologic rationale. The general priority given to empirical evidence derived from clinical research in all EBP approaches is not epistemically tenable. A casuistic alternative to EBP approaches recognizes that five distinct topics; (1) empirical evidence; (2) experiential evidence; (3) pathophysiologic rationale; (4) patient goals and values; and (5) system features are potentially relevant to any clinical decision. No single topic has a general priority over any other and the relative importance of a topic will depend upon the circumstances of the particular case. The skilled clinician must weigh these potentially conflicting evidentiary and non-evidentiary warrants for action, employing both practical and theoretical reasoning, in order to arrive at the best choice for an individual patient (Tonelli, 2006).

Tonelli's argument that clinical evidence (what he is referring to by "empirical" evidence above) is not, and should not be, the sole type of knowledge that is incorporated into clinical decision-making. That is that absence of clinical evidence on effectiveness/efficacy does not imply absence of effectiveness/efficacy. It is possible that EBP gives too much emphasis to clinical evidence. However, experiential evidence, pathophysiologic rationale, and patient goals and values are certainly part of clinical decision-making, even in a rigorously EBP. After all, IHC, Medicine and CAM are all treating patients and not diseases alone. It is important that quality of life measures and overall satisfaction to be incorporated as outcome measures in clinical trials. However, it can also be argued that these measures may blur the lines between empiricism and patient and practitioners' personal goals and values (Novella, 2011).

Tonelli and Callahan further state:

Proponents of EBP have argued that CAM modalities ought to be subjected to rigorous, controlled clinical trials in order to assess their efficacy. However, this does not represent a scientific necessity, but rather is a philosophical demand:

promoters of EBP seek to establish their particular epistemology as the primary arbiter of all medical knowledge. This claim is problematic. The methods for obtaining knowledge in a healing art must be coherent with that art's underlying understanding and theory of illness. Thus, the method of EBP and the knowledge gained from population-based studies may not be the best way to assess certain CAM practices, which view illness and healing within the context of a particular individual only. In addition, many alternative approaches center on the notion of non-measurable but perceptible aspects of illness and health (e.g., Qi) that preclude study within the current framework of controlled clinical trials. Still, the methods of developing knowledge within CAM currently have limitations and are subject to bias and varied interpretation. CAM must develop and defend a rational and coherent method for assessing causality and efficacy, though not necessarily one based on the results of controlled clinical trials. Orthodox medicine should consider abandoning demands that CAM become evidence-based, at least as "evidence" is currently narrowly defined, but insist instead upon a more complete and coherent description and defense of the alternative epistemic methods and tools of these disciplines (Tonelli & Callahan, 2001).

Tonelli and Callahan are correct that other forms of methodologies are needed to assess that empirical evidence of CAM. However they fail to state that EBP is not a method for solely determining clinical practice and efficacy but for also determining safety, which is another consideration that informs practice. In other words, evidence for treatment effectiveness or efficacy is a precautionary principle for safety, so that treatment is not considered safe or risk-free unless evidence suggests otherwise. It is difficult to systematically evaluate effectiveness, safety and efficacy. But as stated, EBP and best practice strategies are possible as long as researchers do not restrict themselves to narrow definitions of evidence and allow CAM modalities and IHC to be properly studied through multiple rigorous scientific methods (i.e., population and outcome studies) (Hadley et al., 2008).

## **Limitations**

As Barrett et al. (2003), state, "Healing systems are highly complex systems composed of diverse phenomena. Such complex human endeavors cannot be understood through

conventional quantitative methods, because these are based on the isolation and testing of limited sets of hypotheses (p. 938)”. Hence, this dissertation aimed to explore and to identify perceived barriers and facilitators of IHC and address potential models of successful integration using multiple methods such as qualitative interviews, quantitative data analyses, and a literature review.

One limitation of the present dissertation is participant selection. Participation in this study was based on a convenience sample whereby participants ‘opted’ to participate during the qualitative portion (including providers, patients, referring providers, leadership, and other key stakeholders). These sampling methods may have been skewed toward participants who felt strongly about IHC and therefore volunteered to be interviewed or surveyed. However, a wide range of participants interviewed systematically using semi-structured interview guides reduces this limitation. In fact, the purpose of qualitative sampling “is not to establish a random or representative sample drawn from a population but rather to identify specific groups of people who either possess characteristics or experience circumstances relevant to the social phenomena being studied. Informants were selected in part because they could enable exploration of a particular aspect of behavior relevant to the research. This approach to sampling allowed the researcher deliberately to include a wide range of informants and also select key informants with access to important sources of knowledge (p. 110)” (Mays & Pope, 1995). Also, the mixed-methods approach used in this dissertation has been implemented in other studies exploring similar research questions (Mc Hugh, O'Mullane, Perry, & Bradley, 2013).

A second weakness of this dissertation is the relatively small sample of participants. The findings do not reflect the diverse experiences of all IHC care professionals and that limits the basis for drawing firm, generalizable conclusions about the barriers and facilitators to

implementing IHC in other healthcare centers, clinics, jurisdictions or practitioner groups-- especially in non-academic settings.

Third, owing to the anonymous nature of the interviews and surveys, it was not possible to compare practitioner and professional demographics for those who agreed or did not agree to participate. Furthermore, IHC was an evolving concept over the course of this research. The definition was changing as this dissertation was being conducted. The data presented are from the years 2015–2017 and reflect many IHC definitions and practices that are still current in academic health care settings.

## **The Road Ahead**

Following the completion of this dissertation, on September 18, 2017, the University of California announced the Susan and Henry Samueli (founders of the Center and Clinic) contributed the largest endowment to the University in its history. A \$200 million endowment to name a new school “first-of-its-kind” the Susan and Henry Samueli College of Health Sciences (also known as the College of Health Sciences) as the focused on interdisciplinary IHC (UC Irvine Strategic Communications & Public Affairs, Sept 18, 2017). According to the article Chancellor Howard Gillman stated that “This gift catalyzes UCI’s belief that human health and well-being requires a science-based approach that engages all disciplines in caring for the whole person and total community.” In addition, “Susan and Henry Samueli’s dedication, their vision for what is possible and their deep generosity will help UCI set a standard that, over time, other medical centers in the U.S. can follow.”

Over the past year, University officials have been drafting a proposal to create this College of Health Sciences that includes in EBP in the fields of IHC (The Susan Samueli

Integrative Health Institute, also known as the Institute), conventional medicine (School of Medicine), population health (The School of Population Health), nursing (The Sue & Bill Gross School of Nursing) and pharmacy (The School of Pharmacy) (see Figure 4.2). It is proposed to “Reshape the campus and refashion healthcare in Orange County and beyond. It’s Western-meets-Eastern medicine, backed by scientific research and 21<sup>st</sup>-century technology” (p. 15) (Rivenburg, Fall 2017).

Following the announcement some members of U.S. media, “have pitted the assertions of advocates with lambasts from antagonists. ‘Quack,’ ‘fraud,’ and ‘snake-oil salesmen’ are among the memorable aspersions”(J. Weeks, November 2017). Indeed, those terms were used as to describe IHC following the announcement of the endowment by the *Los Angeles Times* (Hiltzik, September 22, 2017) and *STAT* (McFarling, September 20, 2017) and was picked up again at *Inside Higher Education* (Selzer, September 26, 2017) and *MedPage Today* (MedPage Today Staff, September 20, 2017). The article by the *Los Angeles Times* states, “Among the approaches with little or no scientific support that get ‘integrated’ are acupuncture, herbal concoctions, and homeopathy and naturopathy.” The problem with this *LA Times* article is that it conflates very different CAM interventions in a singular narrative. In addition, this narrative includes CAM practices that are not used at the Clinic such as homeopathy. It is unclear how “herbal concoctions” are defined. As noted earlier, natural product supplements costs Americans \$12.8 billion out-of-pocket, which was about one-quarter (24%) of what they spent out-of-pocket on prescription drugs (\$54.1 billion) (Nahin et al., 2016). In addition natural product supplements are used by a diverse population (Rashrash, Schommer, & Brown, 2017) and the safety of natural product supplements have been extensively studied (Timbo, Ross, McCarthy, & Lin, 2006; Woo, 2007) including in the inpatients population in hospitals (Levy, Attias, Ben-Arye, & Schiff,



2017; Levy, Attias, Ben-Arye, Goldstein, & Schiff, 2017) and pediatrics (Radossi et al., 2017). However, natural product supplements can also cause adverse events if unchecked by healthcare providers (Palmer et al., 2003). The Susan and Henry Samueli College of Health Sciences will provide \$145 million in research funds towards IHC research including natural product supplements use. In fact, the College will be the first of its kind to fund interdisciplinary research across biomedicine, IHC, nursing, pharmacy and population health disciplines. This model may eventually lead to a transdisciplinarity approach where researchers across these disciplines work jointly to develop and use a shared conceptual framework. Together the teams can synthesize and expand on discipline-specific theories, concepts, and methods. In essence, using all three (theories, concepts, and methods) to create new models and language to address a common research problem (Stokols et al., 2008; Vogel et al., 2014). In fact, each discipline contributes unique insights and methodologies to help broaden and strengthen future IHC initiatives. This transdisciplinary approach encompasses the training and mentoring of students in medicine, nursing and pharmacy on the use, efficacy, effectiveness, safety, costs, and patient satisfaction of IHC. As states by John Weeks, “The Samuelis’ investment at UC Irvine is precisely the kind of multi-disciplinary and interprofessional approach that can help guide us out of the damaging, drug-first, drug-dependent stupor that afflicts treatment not only pain but a myriad of other chronic conditions” (J. Weeks, Sept 28, 2017).

Over the past year, the Center joined other IHC academic clinics and centers across the United States to conduct the PRIMIER study. The PRIMIER study gathers data on IHC to provide a framework that can be used for EBP and quality improvement<sup>2</sup>. The Center like so

---

<sup>2</sup> Some members of the PRIMIER study include the Alliance Institute for Integrative Medicine (Cincinnati, OH), the Boston Medical Center at Boston University (Boston, MA), the Center for Integrative Medicine at University of Maryland School of Medicine (Baltimore, MA), the Duke Integrative Medicine at Duke University (Durham, NC), the Integrative Medicine at the University of Colorado Denver (Denver, CO), the Jefferson-Myrna Brind Center for

many of its counterparts seeks to advance patient care through research, education and community outreach. As stated in this dissertation, the history and potential strength of the Center was its decision to include conservative evidence based IHC therapies into its Clinic, For some commentators adding IHC to the university curriculum is not “quackademic medicine” (Hiltzik, September 22, 2017). There is a pressing need for more research on many IHC therapeutic modalities. In addition, many IHC therapies lack standard guidelines for use or established national standards. Therefore, strengthening the oversight of academic institutions to ensure rigorous certification requirements, competency testing, and legal licensure for some CAM modalities is essential going forward. Patients seeking IHC options are not necessarily dissatisfied with conventional medicine, but they want greater participation in and personal control of their care. Thus, UCI’s bold new IHC initiative is consistent with the growing trend nationwide toward patient-centered health care (Patient-Centered Outcomes Research Institute (PCORI), 2017).

As stated in this dissertation, there are growing lists of academic universities that house IHC centers and/or clinics throughout the United States. The University of California Irvine’s College of Health Sciences purposes to be the first to strategize a university wide parallel disciplinary approach (maybe even with a positional impact to transdisciplinary practices and research) that the entire health services disciplines adopts. This includes a better understanding of the biopsychosocial aspects of a patient’s life –“from genetics to emotions to environment –

---

Integrative Medicine at Thomas Jefferson Medical College (Philadelphia, PA), the Mount Sinai Beth Israel Center for Health and Healing (New York, NY), the Osher Center for Integrative Medicine at Northwestern University (Chicago, IL), the Osher Center for Integrative Medicine at University of California, San Francisco (San Francisco, CA) and the Osher Center for Integrative Medicine at Vanderbilt University (Nashville, TN), the Penny George Institute for Health and Healing at Allina Health (Minneapolis, MN), the Scripps Center for Integrative Medicine at Scripps Health (La Jolla, CA), the Simms/Mann Health and Wellness Center, Program in Integrative Medicine at Venice Family Clinic (Los Angeles, CA), and the University of Pittsburgh Center for Integrative Medicine (Pittsburgh, PA).

and then prescribing conventional as well as carefully vetted nonconventional therapies to promote wellness” (Rivenburg, Fall 2017).

The strategized parallel model (see Figure 4.3) was formulated by Dr. Howard Federoff, vice chancellor for health affairs and CEO of University of California Irvine Health. In addition to the \$200 million pledge by the Samueli’s, the University has matched \$50 million toward construction of the College of Health Science. This five-story, 100,000-square-foot building, will be constructed near the corner of Bison and California avenues on the University campus and is tentatively projected to open by 2021.

As stated by the University press, about one-third of that space will be occupied by the Institute, “a hub for educational programs and research on nonconventional and complementary treatments, such as acupuncture to relieve pain and meditation to control stress. Most of the remaining funds are pegged for an endowment to create integrative health scholarships and fellowships and 15 faculty research chairs. The new hires must devote at least half their time to the Institute and will conduct cross-disciplinary research” (Rivenburg, Fall 2017). According to Dr. Federoff, the College of Health Sciences can help “improve population health to levels never before seen” (Rivenburg, Fall 2017). As in most multiple purposes, large academic, origination, it is expected that some conflicts will occur. Especially when five unique disciplines (medicine, IHC, nursing, pharmacy, and population health) based on five paradigms merge on one road. In addition, all of the five disciplines are also embedded into the University mission to teach, research (discover), patient-care (heal), and service.

This model will require the university to prioritize staff and administration to manage and resolve intutional tasks within and between schools. In academic institutions, “the great

pleasure of the faculty experience is the rare privilege of leading a multivariate day and of having multiple roles (E. A. Stead, Jr. ) (p. 73)” (Smythe, Wilson, & Jones, 1977).

The School of Health Sciences is not the first or last progressive innovation by the University. In 2017, the University of California Irvine was the first of its kind scholarship program for students who are asylum seekers or have refugee or asylum status (Siddiqi, 2017). A year before the University was the first public research university in creating and implementing an official e-sports initiative (Funk, Pizzo, & Baker, 2017; UCI News, 2016). In the past, the University changed the trajectory for the field of osteopathy. And pushed the envelope with the controversial discovery of the chlorofluorocarbons that contribute to depleting ozone layer (Rowland, 1988).

From the development of the University in the early 1970’s, the University’s “founding mission, according to the President of the UC (Clark Kerr) at the time, was to be highly interdisciplinary and innovative—i.e., to grow novel departments and schools like psychobiology, information and computer sciences (which was very novel in the 1970s), comparative culture in the school of Social Sciences, earth system sciences, and the program in/school of Social Ecology”(Stokols, Dec 17, 2017). For example with the creation of the Program of Social Ecology (also known as the program; known today as the School of Social Ecology) the University looked to develop the first of its kind “cutting edge” academic unit “emphasizing interdisciplinary research and teaching, and the application of basic theory and research to community problem-solving (p. 2)” (Stokols, 1998). It was thought that the establishment of the Program at the University “was a highly improbable event (p. 2)” (Stokols, 1998). In fact, “The development of the Program was quite unexpected, given the strong emphasis on, and influence of, the natural sciences at the University (encouraged, along the way,

by the growth of the Irvine Industrial Complex--featuring biomedical and high tech research); and in view of the conservative political bent of Orange County during the 1970s and 80s. Also, in its efforts to combine the environmental, behavioral, legal, and health sciences within a single academic unit, the upstart Program in Social Ecology was viewed by many as inappropriately infringing on the academic turf of pre-existing schools and departments at UCI. In view of the many circumstances that were inimical to Social Ecology's development at UCI, its establishment and evolution on the Irvine Campus can only be explained by considering the influential role of powerful ideas and personalities<sup>3</sup>" (Stokols, 1998) of the leadership at the University.

Drs. Binder, Aldrich, and Catalano's visions<sup>3</sup> continue to influence the University's innovative academic environment. For example, a recent book by Dan Stokols (2018), outlines the University's historical interdisciplinary mission and its influence and impact on "a legacy of systems-oriented thinkers in arenas as diverse as criminology and law, urban planning and public policy, behavioral science, education and public health."(Stokols, 2018; UC Irvine School of Social Ecology, Oct 11, 2017). In that sense, the College of Health Sciences represents a new IHC initiative at the University representing another example of academic "trail blazing," innovative and "cutting edge" unit of the University. As Dr. Gillman states, "We see the intersection of Bison and California becoming a brilliant entry point to our growing campus, a physical and symbolic gateway to education, discovery, public service and health [...] Time and time again, we have learned as a university that you cannot copy your way to the top. Whether it

---

<sup>3</sup> "exemplified by:(1) Arnie Binder's dogged determinism and vision of an interdisciplinary academic unit, and his efforts to establish the Program in Social Ecology against all odds; (2) Chancellor Daniel Aldrich's openness to a new organizational concept and his commitment to the principles of land-grant universities that serve the needs of their surrounding communities and society as a whole; and (3) and Ray Catalano's (1982) commitment to publishing his book, *Health, Behavior, and the Community*, as the conceptual foundation for his *Principles of Social Ecology* (SE1) and *Introduction to Environmental Analysis* (E-8) core courses--both of which excited early generations of Social Ecology students during the 1970s and 80s" (Daniel Stokols, 1998).

was reorganizing the study of biology when UCI was founded or creating the first department of Earth system science, our creed has been to forge new paths and watch others follow us. The Samuelis' gift helps us continue that tradition, positioning UCI as a bold new leader in population health, patient care, education and research" (Rivenburg, Fall 2017).

In sum, the case study presented in this dissertation has revealed certain challenges and benefits of integrative approaches to medical care. With the creation of the School of Health Sciences and the collaborative opportunities at UCI afforded by the \$200M gift from the Samuel's ensures the financial commitment to IHC at the University. At least for a while, owing to Samueli's substantial gift, it is reasonable to expect that a variety of transdisciplinary team collaborations will rise to the fore. These will need to be confronted and navigated by the University's diverse medical faculty, clinical care providers, hospital administrators, etc.,

This dissertation will end with a quote from Dr. Eugene A. Stead, Jr., the founder of the physician assistant profession, who once said, "The doctor has to take care of patients, not just diseases" (E. Stead, 1993).

## REFERENCES

- Abrams, D., Dolor, R., Dusek, J., Horrigan, B., & Kligler, B. (2015). PRIMIER. Retrieved from [http://bravewell.org/content/2015\\_PRIMI ER\\_Rpt.pdf](http://bravewell.org/content/2015_PRIMI ER_Rpt.pdf)
- Abrams, D. I., Dolor, R., Roberts, R., Pechura, C., Dusek, J., Amoils, S., . . . Wolever, R. Q. (2013). The BraveNet prospective observational study on integrative medicine treatment approaches for pain. *BMC Complement Altern Med*, *13*, 146.
- Adams, J., Hollenberg, D., Lui, C. W., & Broom, A. (2009). Contextualizing integration: a critical social science approach to integrative health care. *J Manipulative Physiol Ther*, *32*(9), 792-798.
- Adams, K. E., Cohen, M. H., Eisenberg, D., & Jonsen, A. R. (2002). Ethical considerations of complementary and alternative medical therapies in conventional medical settings. *Ann Intern Med*, *137*(8), 660-664.
- Alsop, C. K. (2002). *Home and away: Self-reflexive auto-/ethnography*. Paper presented at the Forum Qualitative Sozialforschung/Forum: Qualitative Social Research.
- American Hospital Association and Samueli Institute. (Sept 2011). More Hospitals Offering Complementary and Alternative Medicine Services: press release. Retrieved from <http://www.aha.org/presscenter/pressrel/2011/110907-pr-camsurvey.pdf>
- Ananth, S. (2009). Applying integrative healthcare. *Explore (NY)*, *5*(2), 119-120.
- Ananth, S. (2012). Integrative healthcare for the military: a Samueli Institute/Department of Defense partnership. *Explore (NY)*, *8*(4), 256-257.
- Andersson, S., Sundberg, T., Johansson, E., & Falkenberg, T. (2012). Patients' experiences and perceptions of integrative care for back and neck pain. *Altern Ther Health Med*, *18*(3), 25-32.
- Artinian, B. M. (1998). Grounded theory research: its value for nursing. *Nurs Sci Q*, *11*(1), 5-6.
- Astin, J., Pelletier, K., Marie, A., & Haskell, W. (2000). Complementary and alternative medicine use among elderly persons: one-year analysis of a Blue Shield Medicare supplement. *Journals of Gerontology Series A: Biological and Medical Sciences*, *55*(1), 4.
- Astin, J. A., Marie, A., Pelletier, K. R., Hansen, E., & Haskell, W. L. (1998). A review of the incorporation of complementary and alternative medicine by mainstream physicians. *Arch Intern Med*, *158*(21), 2303-2310.

- Astin, J. A., Pelletier, K. R., Marie, A., & Haskell, W. L. (2000). Complementary and alternative medicine use among elderly persons: one-year analysis of a Blue Shield Medicare supplement. *J Gerontol A Biol Sci Med Sci*, 55(1), M4-9.
- Baer, H. A. (1981). The organizational rejuvenation of osteopathy: a reflection of the decline of professional dominance in medicine. *Soc Sci Med A*, 15(5), 701-711.
- Baer, H. A. (1992). The potential rejuvenation of American naturopathy as a consequence of the holistic health movement. *Med Anthropol*, 13(4), 369-383.
- Barbour, R. S. (2001). Checklists for improving rigour in qualitative research: a case of the tail wagging the dog? *BMJ: British Medical Journal*, 322(7294), 1115.
- Barnes, P. M., Bloom, B., & Nahin, R. L. (2008). Complementary and alternative medicine use among adults and children: United States, 2007. *Natl Health Stat Report*(12), 1-23.
- Barrett, B., Marchand, L., Scheder, J., Plane, M. B., Maberry, R., Appelbaum, D., . . . Rabago, D. (2003). Themes of holism, empowerment, access, and legitimacy define complementary, alternative, and integrative medicine in relation to conventional biomedicine. *J Altern Complement Med*, 9(6), 937-947.
- Bell, I. R., Caspi, O., Schwartz, G. E., Grant, K. L., Gaudet, T. W., Rychener, D., . . . Weil, A. (2002). Integrative medicine and systemic outcomes research: issues in the emergence of a new model for primary health care. *Arch Intern Med*, 162(2), 133-140.
- Berge, J. H., Hutcheson, J., Ward, R., Woodhouse, G. A., Pearson, H. L., & Jr. (1961). Osteopathy: Special report of the judicial council to the ama house of delegates. *JAMA*, 177(11), 774-776.
- Bigos, S. J., Bowyer, R. O. R., & Braen, G. R. (1994 ). Acute low back problems in adults. Clinical Practice Guidelines No 14. No 95-064. *AHCPR Publication*, 2(1), 160.
- Blackstone, E. (1977). The A.M.A. and the osteopaths: a study of the power of organized medicine. *Antitrust Bull*, 22, 420-421.
- Blackstone, E. (1977). The A.M.A. and the osteopaths: a study of the power of organized medicine *Antitrust Bull*, 22, 418-419.
- Blecher, M. B., & Douglass, K. (1997). Gold in goldenseal. *Hosp Health Netw*, 71(20), 50-52.
- Boon, H., Verhoef, M., O'Hara, D., & Findlay, B. (2004). From parallel practice to integrative health care: a conceptual framework. *BMC Health Serv Res*, 4(1), 15.
- Boon, H., Verhoef, M., O'Hara, D., Findlay, B., & Majid, N. (2004). Integrative healthcare: arriving at a working definition. *Altern Ther Health Med*, 10(5), 48-56.



- Boon, H. S., Cherkin, D. C., Erro, J., Sherman, K. J., Milliman, B., Booker, J., . . . Eisenberg, D. M. (2004). Practice patterns of naturopathic physicians: results from a random survey of licensed practitioners in two US States. *BMC Complement Altern Med*, 4, 14.
- Boon, H. S., & Kachan, N. (2008). Integrative medicine: a tale of two clinics. *BMC Complement Altern Med*, 8, 32.
- Brennan, A. J. (1982). Health promotion: what's in it for business and industry? *Health education quarterly*, 9 Spec Suppl, 9-19.
- Breslow, L. (2006). Public health aspects of weight control. *International Journal of Epidemiology*, 35(1), 10-12.
- Brooks, A. T., Silverman, L., & Wallen, G. R. (2013). Shared decision making: a fundamental tenet in a conceptual framework of integrative healthcare delivery. *Integr Med Insights*, 8, 29-36.
- Bruce, E., & Vodicka, J. D. (1975). Medical discipline. Part II. Constitutional consideration--the police power. *JAMA*, 233(13), 1427-1428.
- Budzynska, K., Gardner, Z. E., Low Dog, T., & Gardiner, P. (2013). Complementary, holistic, and integrative medicine: advice for clinicians on herbs and breastfeeding. *Pediatr Rev*, 34(8), 343-352; quiz 352-343.
- Burnand, B., Scala, E., Decosterd, I., Dubois, J., Faouzi, M., & Rodondi, P.-Y. (2017). Chronic low back pain patients' use of, level of knowledge of and perceived benefits of complementary medicine: a cross-sectional study at an academic pain center. *BMC complementary and alternative medicine*, 17(1), 193.
- Busse, J. W., Jacobs, C., Ngo, T., Rodine, R., Torrance, D., Jim, J., . . . Bhandari, M. (2009). Attitudes toward chiropractic: a survey of North American orthopedic surgeons. *Spine (Phila Pa 1976)*, 34(25), 2818-2825.
- Busse, J. W., Jim, J., Jacobs, C., Ngo, T., Rodine, R., Torrance, D., . . . Bhandari, M. (2011). Attitudes towards chiropractic: an analysis of written comments from a survey of north american orthopaedic surgeons. *Chiropr Man Therap*, 19(1), 25.
- Calhoun, C. (1995). *Critical social theory: culture, history, and the challenges of difference*. Oxford: Blackwell.
- Campbell, K., Schwier, R. A., & Kenny, R. F. (2005). Agency of the instructional designer: Moral coherence and transformative social practice.
- Caron, A., Gallo, W. T., Durbin, L. L., & Mielenz, T. J. (2017). Relationship between falls and complementary and alternative medicine use among community-dwelling older adults. *The Journal of Alternative and Complementary Medicine*, 23(1), 41-44.

- Central Intelligence Agency. (2017). The World Factbook 2017. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/index.html>
- Chassin, M. R., & Galvin, R. W. (1998). The urgent need to improve health care quality. Institute of Medicine National Roundtable on Health Care Quality. *JAMA*, *280*(11), 1000-1005.
- Cherkin, D. C., Sherman, K. J., Deyo, R. A., & Shekelle, P. G. (2003). A review of the evidence for the effectiveness, safety, and cost of acupuncture, massage therapy, and spinal manipulation for back pain. *Ann Intern Med*, *138*(11), 898-906.
- Chong, O. T. (2006). An integrative approach to addressing clinical issues in complementary and alternative medicine in an outpatient oncology center. *Clin J Oncol Nurs*, *10*(1), 83-88.
- Chung, V. C., Ma, P. H., Hong, L. C., & Griffiths, S. M. (2012). Organizational determinants of interprofessional collaboration in integrative health care: systematic review of qualitative studies. *PLoS One*, *7*(11), e50022.
- Cleary-Guida, M. B., Okvat, H. A., Oz, M. C., & Ting, W. (2001). A regional survey of health insurance coverage for complementary and alternative medicine: current status and future ramifications. *J Altern Complement Med*, *7*(3), 269-273.
- Cloninger, C. R. (2011). Person-centred integrative care. *J Eval Clin Pract*, *17*(2), 371-372.
- Cohen, E. M., Dossett, M. L., Mehta, D. H., Davis, R. B., & Lee, Y. C. (2017). Factors associated with complementary medicine use in pediatric musculoskeletal conditions: Results from a national survey. *Complement Ther Med*, *31*, 53-58.
- Cohen, M. H. (2002a). CAM regulation in the United States. *Complement Ther Med*, *10*(1), 3-7.
- Cohen, M. H. (2002b). Legal issues in complementary and integrative medicine. A guide for the clinician. *Med Clin North Am*, *86*(1), 185-196.
- Cohen, M. H. (2003). Complementary and integrative medical therapies, the FDA, and the NIH: definitions and regulation. *Dermatol Ther*, *16*(2), 77-84.
- Cohen, M. H., & Eisenberg, D. M. (2002). Potential physician malpractice liability associated with complementary and integrative medical therapies. *Ann Intern Med*, *136*(8), 596-603.
- Cohen, M. H., Hrbek, A., Davis, R. B., Schachter, S. C., Kemper, K. J., Boyer, E. W., & Eisenberg, D. M. (2005). Emerging credentialing practices, malpractice liability policies, and guidelines governing complementary and alternative medical practices and dietary supplement recommendations: a descriptive study of 19 integrative health care centers in the United States. *Arch Intern Med*, *165*(3), 289-295.

- Cohen, M. H., Natbony, S. R., & Abbott, R. B. (2013). Complementary and alternative medicine in child and adolescent psychiatry: legal considerations. *Child Adolesc Psychiatr Clin N Am*, 22(3), 493-507, vi.
- Conrad, S. F. (2013). Integrative nurse practitioner education. *Beginnings*, 33(4), 18-19.
- Cook, K. E. (2005). Using critical ethnography to explore issues in health promotion. *Qual Health Res*, 15(1), 129-138.
- Coulter, I. D. (1991). Sociological studies of the role of the chiropractor: an exercise in ideological hegemony? *J Manipulative Physiol Ther*, 14(1), 51-58.
- Coulter, I. D., Ellison, M. A., Hilton, L., Rhodes, H. J., & Ryan, G. W. (2007). Hospital-based integrative medicine: a case study of the barriers and factors facilitating the creation of a center. Rand Corporation.
- Coulter, I. D., Hays, R. D., & Danielson, C. D. (1994). The Chiropractic Satisfaction Questionnaire. *Topics in Clinical Chiropractic*, 1(4), 40-43.
- Coulter, I. D., Khorsan, R., Crawford, C., & Hsiao, A. F. (2010). Integrative health care under review: an emerging field. *J Manipulative Physiol Ther*, 33(9), 690-710.
- Coulter, I. D., Khorsan, R., Crawford, C., & Hsiao, A. F. (2013). Challenges of systematic reviewing integrative health care. *Integr Med Insights*, 8, 19-28.
- Coulter, I. D., & Willis, E. M. (2004). The rise and rise of complementary and alternative medicine: a sociological perspective. *Med J Aust*, 180(11), 587-589.
- Crawford, C., Lee, C., Buckenmaier, C., 3rd, Schoemaker, E., Petri, R., Jonas, W., & Active Self-Care Therapies for Pain Working, G. (2014). The current state of the science for active self-care complementary and integrative medicine therapies in the management of chronic pain symptoms: lessons learned, directions for the future. *Pain Med*, 15 Suppl 1, S104-113.
- Creswell, J. W., & Clark, V. L. P. (2007). Designing and conducting mixed methods research. Thousand Oaks, CA: Sage Publications.
- Dacher, E. S. (1995). A systems theory approach to an expanded medical model: a challenge for biomedicine. *J Altern Complement Med*, 1(2), 187-196.
- Davidson, P., Hancock, K., Leung, D., Ang, E., Chang, E., Thompson, D. R., & Daly, J. (2003). Traditional Chinese Medicine and heart disease: what does Western medicine and nursing science know about it? *Eur J Cardiovasc Nurs*, 2(3), 171-181.

- De Bacquer, D., De Backer, G., Cokkinos, D., Keil, U., Montaye, M., Ostor, E., . . . Sans, S. (2004). Overweight and obesity in patients with established coronary heart disease: are we meeting the challenge? *Eur Heart J*, 25(2), 121-128.
- Deber, R. B. (1994). Physicians in health care management: 7. The patient-physician partnership: changing roles and the desire for information. *CMAJ*, 151(2), 171-176.
- Deber, R. B., Kraetschmer, N., & Irvine, J. (1996). What role do patients wish to play in treatment decision making? *Arch Intern Med*, 156(13), 1414-1420.
- Denbow, C. (1977, May 19). Osteopathy: packing more professional punch. *Med. Opinions*.
- Deniston, O. L., & Rosenstock, I. M. (1970). Evaluating health programs. *Public Health Rep*, 85(9), 835-840.
- Deniston, O. L., Rosenstock, I. M., & Getting, V. A. (1968). Evaluation of program effectiveness. *Public Health Rep*, 83(4), 323-335.
- Deniston, O. L., Rosenstock, I. M., Welch, W., & Getting, V. A. (1968). Evaluation of program efficiency. *Public Health Rep*, 83(7), 603-610.
- Dicks, S., Ranse, K., van Haren, F., & Boer, D. (2017). In-hospital experiences of families of potential organ donors: A systematic review and qualitative synthesis. *Health Psychology Open*, 4(2), 2055102917709375.
- Diehl, V. (2009). The bridge between patient and doctor: the shift from CAM to integrative medicine. *Hematology Am Soc Hematol Educ Program*, 320-325.
- Dossey, B. M., & Guzzetta, C. E. (1994). Implications for bio-psycho-social-spiritual concerns in cardiovascular nursing. *J Cardiovasc Nurs*, 8(4), 72-88.
- Dunn, A. S., Green, B. N., & Gilford, S. (2009). An analysis of the integration of chiropractic services within the United States military and veterans' health care systems. *J Manipulative Physiol Ther*, 32(9), 749-757.
- Dusek, J. A., Abrams, D. I., Roberts, R., Griffin, K. H., Trebesch, D., Dolor, R. J., . . . Kligler, B. (2016). Patients Receiving Integrative Medicine Effectiveness Registry (PRIMIEM) of the BraveNet practice-based research network: study protocol. *BMC Complement Altern Med*, 16, 53.
- Eakin, J., Robertson, A., Poland, B., Coburn, D., & Edwards, R. (1996). Towards a critical social science perspective on health promotion research. *Health promotion international*, 11(2), 157-165.
- Ehrlich, G., Callender, T., & Gaster, B. (2013). Integrative medicine at academic health centers: a survey of clinicians' educational backgrounds and practices. *Fam Med*, 45(5), 330-334.

- Eisenberg, D. M., Davis, R. B., Ettner, S. L., Appel, S., Wilkey, S., Van Rompay, M., & Kessler, R. C. (1998). Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. *JAMA*, 280(18), 1569-1575.
- Eisenberg, D. M., Kessler, R. C., Foster, C., Norlock, F. E., Calkins, D. R., & Delbanco, T. L. (1993). Unconventional medicine in the United States. Prevalence, costs, and patterns of use. *N Engl J Med*, 328(4), 246-252.
- Emmerton, L., Fejzic, J., & Tett, S. E. (2012). Consumers' experiences and values in conventional and alternative medicine paradigms: a problem detection study (PDS). *BMC Complement Altern Med*, 12, 39.
- Engel, G. L. (1978). Biomedicine's failure to achieve Flexnerian standards of education. *J Med Educ*, 53(5), 387-392.
- Ernst, E. (2000). Prevalence of use of complementary/alternative medicine: a systematic review. *Bull World Health Organ*, 78(2), 252-257.
- Ernst, E. (2001). Research priorities in CAM. *Complement Ther Med*, 9(3), 186-187.
- Ernst, E. (2006). Acupuncture—a critical analysis. *Journal of internal medicine*, 259(2), 125-137.
- Ernst, E. (2009). Complementary and alternative medicine: between evidence and absurdity. *Perspect Biol Med*, 52(2), 289-303.
- Executive Office of the President. (September 22, 2009). *The Burden of Health Insurance Premium Increases on American Families* Washington DC Retrieved from [http://www.politico.com/pdf/PPM41\\_09-22-09\\_nec\\_premiums\\_report.pdf](http://www.politico.com/pdf/PPM41_09-22-09_nec_premiums_report.pdf).
- Fejzic, J., Emmerton, L., & Tett, S. E. (2010). Towards concordance in healthcare: perspectives of general practitioners, complementary and alternative medicine practitioners and pharmacists in Australia. *J Clin Pharm Ther*, 35(3), 309-321.
- Fenton, M. V., & Morris, D. L. (2003). The integration of holistic nursing practices and complementary and alternative modalities into curricula of schools of nursing. *Alternative Therapies in Health and Medicine*, 9(4), 62.
- Ferrer, J. N. (2003). Integral transformative practice: A participatory perspective. *Journal of Transpersonal Psychology*, 35(1), 21-42.
- Flood, R. L., & Jackson, M. C. (1989). Editorial. *Systems practice*, 2(2), 151-153.
- Franzel, B., Schwiengershausen, M., Heusser, P., & Berger, B. (2013). Individualised medicine from the perspectives of patients using complementary therapies: a meta-ethnography approach. *BMC Complement Altern Med*, 13, 124.

- Funk, D. C., Pizzo, A. D., & Baker, B. J. (2017). eSport management: Embracing eSport education and research opportunities. *Sport Management Review*.
- Gaudet, T. W. (1998). Integrative medicine: the evolution of a new approach to medicine and to medical education. *Integrative Med*, 1(2), 67-73.
- Gaylord, S., & Coeytaux, R. (2002). Complementary and alternative therapies in family practice. . In P. D. Sloane, L. M. Slatt, M. H. Ebell, & L. B. Jacques (Eds.), *Essentials of family practice* (pp. 97-113). Philadelphia: Lippincott Williams & Wilkins.
- Geffen, J. R. (2010). Integrative oncology for the whole person: a multidimensional approach to cancer care. *Integr Cancer Ther*, 9(1), 105-121.
- Gevitz, N. (1989). The chiropractors and the AMA: reflections on the history of the consultation clause. *Perspect Biol Med*, 32(2), 281-299.
- Gevitz, N. (2009). The transformation of osteopathic medical education. *Academic Medicine*, 84(6), 701-706.
- Goldblatt, E., Wiles, M., Schwartz, J., & Weeks, J. (2013). Competencies for optimal practice in integrated environments: examining attributes of a consensus interprofessional practice document from the licensed integrative health disciplines. *Explore (NY)*, 9(5), 285-291.
- Green, B. N., Johnson, C. D., & Lisi, A. J. (2009). Chiropractic in U.S. military and veterans' health care. *Mil Med*, 174(6), vi-vii.
- Green, B. N., Johnson, C. D., Lisi, A. J., & Tucker, J. (2009). Chiropractic practice in military and veterans health care: The state of the literature. *J Can Chiropr Assoc*, 53(3), 194-204.
- Green, R. R., Santoro, N., Allshouse, A. A., Neal-Perry, G., & Derby, C. (2017). Prevalence of Complementary and Alternative Medicine and Herbal Remedy Use in Hispanic and Non-Hispanic White Women: Results from the Study of Women's Health Across the Nation. *J Altern Complement Med*, 23(10), 805-811.
- Groden, S. R., Woodward, A. T., Chatters, L. M., & Taylor, R. J. (2017). Use of complementary and alternative medicine among older adults: differences between baby boomers and pre-boomers. *The American Journal of Geriatric Psychiatry*, 25(12), 1393-1401.
- Groenewald, C. B., Beals-Erickson, S. E., Ralston-Wilson, J., Rabbitts, J. A., & Palermo, T. M. (2017). Complementary and Alternative Medicine Use by Children With Pain in the United States. *Academic Pediatrics*.
- Hadley, J., Hassan, I., & Khan, K. S. (2008). Knowledge and beliefs concerning evidence-based practice amongst complementary and alternative medicine health care practitioners and allied health care professionals: a questionnaire survey. *BMC complementary and alternative medicine*, 8(1), 45.

- Harris, P., & Rees, R. (2000). The prevalence of complementary and alternative medicine use among the general population: a systematic review of the literature. *Complement Ther Med*, 8(2), 88-96.
- Heidemann, C., Schulze, M. B., Franco, O. H., van Dam, R. M., Mantzoros, C. S., & Hu, F. B. (2008). Dietary patterns and risk of mortality from cardiovascular disease, cancer, and all causes in a prospective cohort of women. *Circulation*, 118(3), 230-237.
- Held, D. (1980). *Introduction to critical theory: Horkheimer to Habermas*. New York: University of California Press.
- Herman, P. M., Sorbero, M. E., & Sims-Columbia, A. C. (2017). Complementary and Alternative Medicine Services in the Military Health System. *J Altern Complement Med*, 23(11), 837-843.
- Hiltzik, M. (September 22, 2017). Column: A \$200-million donation threatens to tar UC Irvine's medical school as a haven for quacks. Retrieved from [www.latimes.com/business/hiltzik/la-fi-hiltzik-uci-samueli-20170922-story.html](http://www.latimes.com/business/hiltzik/la-fi-hiltzik-uci-samueli-20170922-story.html)
- Hollenberg, D. (2006). Uncharted ground: patterns of professional interaction among complementary/alternative and biomedical practitioners in integrative health care settings. *Soc Sci Med*, 62(3), 731-744.
- Hollenberg, D. (2007). How do private CAM therapies affect integrative health care settings in a publicly funded health care system?. *Complement Integr Med*, 4, 1-16.
- Horrigan, B., Lewis, S., Abrams, D. I., & Pechura, C. (2012). Integrative Medicine in America—How Integrative Medicine Is Being Practiced in Clinical Centers Across the United States. *Global Advances in Health and Medicine*, 1(3), 18-94.
- Horrigan, B. J. (2013). Bravenet launches patient-reported outcomes registry. *Explore (NY)*, 9(3), 128-130.
- Houze, B., El-Khatib, H., & Arbour, C. (2017). Efficacy, tolerability, and safety of non-pharmacological therapies for chronic pain: An umbrella review on various CAM approaches. *Prog Neuropsychopharmacol Biol Psychiatry*, 79(Pt B), 192-205.
- Huff, J. W. (1974). Amalgamation of medicine and osteopathy. Some court sequelae. *J Med Assoc Ga*, 63(7), 317-318.
- Hurwitz, E. L., Coulter, I. D., Adams, A. H., Genovese, B. J., & Shekelle, P. G. (1998). Use of chiropractic services from 1985 through 1991 in the United States and Canada. *Am J Public Health*, 88(5), 771-776.
- Illich, I. (1995). Death undefeated. *BMJ*, 311(7021), 1652-1653.

Interprofessional Education Collaborative. (May 2011). Core Competencies for Interprofessional Collaborative Practice . Retrieved from [https://www.aamc.org/download/186750/data/core\\_competencies.pdf](https://www.aamc.org/download/186750/data/core_competencies.pdf)

Ivey, S. L., Brown, K. S., Teske, Y., & Silverman, D. (1988). A model for teaching about interdisciplinary practice in health care settings. *J Allied Health, 17*(3), 189-195.

Jamison, J., Sutton, S., Mant, J., & De Simoni, A. (2017). Barriers and facilitators to adherence to secondary stroke prevention medications after stroke: analysis of survivors and caregivers views from an online stroke forum. *BMJ Open, 7*(7), e016814.

Jenna, J. K. (1986). Toward the patient-driven hospital. *Healthc Forum, 29*(4), 52-59.

Jensen, G. A., Roychoudhury, C., & Cherkin, D. C. (1998). Employer-sponsored health insurance for chiropractic services. *Med Care, 36*(4), 544-553.

Jonas, W. B., & Chez, R. A. (2004). Toward optimal healing environments in health care. *Journal of Alternative & Complementary Medicine, 10*(Supplement 1), S-1-S-6.

Jonas, W. B., Eisenberg, D., Hufford, D., & Crawford, C. (2013). The evolution of complementary and alternative medicine (CAM) in the USA over the last 20 years. *Forsch Komplementmed, 20*(1), 65-72.

Kaiser, K. (2009). Protecting respondent confidentiality in qualitative research. *Qual Health Res, 19*(11), 1632-1641.

Kanherkar, R. R., Stair, S. E., Bhatia-Dey, N., Mills, P. J., Chopra, D., & Csoka, A. B. (2017). Epigenetic Mechanisms of Integrative Medicine. *Evid Based Complement Alternat Med, 2017*, 4365429.

Kanodia, A. K., Legedza, A. T., Davis, R. B., Eisenberg, D. M., & Phillips, R. S. (2010). Perceived benefit of Complementary and Alternative Medicine (CAM) for back pain: a national survey. *The Journal of the American Board of Family Medicine, 23*(3), 354-362.

Kaptchuk, T. J., & Eisenberg, D. M. (1998). Chiropractic: origins, controversies, and contributions. *Arch Intern Med, 158*(20), 2215-2224.

Kaptchuk, T. J., & Eisenberg, D. M. (2001). Varieties of healing. 1: Medical pluralism in the united states. *Annals of Internal Medicine, 135*(3), 189-195.

Kaptchuk, T. J., & Miller, F. G. (2005). Viewpoint: what is the best and most ethical model for the relationship between mainstream and alternative medicine: opposition, integration, or pluralism? *Acad Med, 80*(3), 286-290.

Kemppainen, L. M., Kemppainen, T. T., Reippainen, J. A., Salmenniemi, S. T., & Vuolanto, P. H. (2017). Use of complementary and alternative medicine in Europe: Health-related and



sociodemographic determinants. *Scandinavian journal of public health*, 1403494817733869.

- Khaw, K. T., Wareham, N., Bingham, S., Welch, A., Luben, R., & Day, N. (2008). Combined impact of health behaviours and mortality in men and women: the EPIC-Norfolk prospective population study. *PLoS Med*, 5(1), e12.
- Khorsan, R., Cohen, A. B., Lisi, A. J., Smith, M. M., Delevan, D., Armstrong, C., & Mittman, B. S. (2013). Mixed-Methods Research in a Complex Multisite VA Health Services Study: Variations in the Implementation and Characteristics of Chiropractic Services in VA. *Evid Based Complement Alternat Med*, 2013, 701280.
- Khorsan, R., Coulter, I. D., Crawford, C., & Hsiao, A. F. (2011). Systematic review of integrative health care research: randomized control trials, clinical controlled trials, and meta-analysis. *Evid Based Complement Alternat Med*, 2011.
- Kickbusch, I. (1989). Self-care in health promotion. *Soc Sci Med*, 29(2), 125-130.
- Kickbusch, I., & Payne, L. (2003). Twenty-first century health promotion: the public health revolution meets the wellness revolution. *Health Promot Int*, 18(4), 275-278.
- Knutson, L., Johnson, P. J., Sidebottom, A., & Fyfe-Johnson, A. (2013). Development of a hospital-based integrative healthcare program. *J Nurs Adm*, 43(2), 101-107.
- Koes, B. W., Assendelft, W. J., van der Heijden, G. J., & Bouter, L. M. (1996). Spinal manipulation for low back pain. An updated systematic review of randomized clinical trials. *Spine (Phila Pa 1976)*, 21(24), 2860-2871; discussion 2872-2863.
- Korobkin, R. (2014). Comparative effectiveness research as choice architecture: the behavioral law and economics solution to the health care cost crisis. *Mich Law Rev*, 112(4), 523-574.
- Kramlich, D. (2017). Complementary Health Practitioners in the Acute and Critical Care Setting: Nursing Considerations. *Crit Care Nurse*, 37(3), 60-65.
- Kreitzer, M. J. (2013). Nursing at the forefront of integrative health care. *Beginnings*, 33(4), 8-10.
- Kress, H. G., Aldington, D., Alon, E., Coaccioli, S., Collett, B., Coluzzi, F., . . . Sichere, P. (2015). A holistic approach to chronic pain management that involves all stakeholders: change is needed. *Curr Med Res Opin*, 31(9), 1743-1754.
- Kuhn, T. S. (1970). *The Structure of Scientific Revolutions*, 2nd enl. ed: University of Chicago Press.

- Lafferty, W. E., Tyree, P. T., Bellas, A. S., Watts, C. A., Lind, B. K., Sherman, K. J., . . . Grembowski, D. E. (2006). Insurance coverage and subsequent utilization of complementary and alternative medicine providers. *Am J Manag Care*, 12(7), 397-404.
- Larson, L. (2009). Integrating Integrative Medicine: A How -- To Guide Retrieved from [http://www.hospitalconnectsearch.com/trusteemag/jsp/articledisplay.jsp?dcrpath=TRUSTEEMAG/PubsNewsArticleGen/data/2005/0511TRU\\_FEA\\_CAM](http://www.hospitalconnectsearch.com/trusteemag/jsp/articledisplay.jsp?dcrpath=TRUSTEEMAG/PubsNewsArticleGen/data/2005/0511TRU_FEA_CAM)
- Leckridge, B. (2004). The future of complementary and alternative medicine--models of integration. *J Altern Complement Med*, 10(2), 413-416.
- Levy, I., Attias, S., Ben-Arye, E., & Schiff, E. (2017). Use and safety of dietary and herbal supplements among hospitalized patients: what have we learned and what can be learned?—A narrative review. *European Journal of Integrative Medicine*.
- Levy, I., Attias, S., Ben-Arye, E., Goldstein, L., & Schiff, E. (2017). Adverse events associated with interactions with dietary and herbal supplements among inpatients. *British journal of clinical pharmacology*, 83(4), 836-845.
- Lewith, G. T., & Bensoussan, A. (2004). Complementary and alternative medicine--with a difference. *Med J Aust*, 180(11), 585-586.
- Lim, E., Vardy, J. L., Oh, B., & Dhillon, H. M. (2017). Mixed Method Study to Investigate Models of Australian Integrative Oncology. *J Altern Complement Med*.
- Lim, E. J., Vardy, J. L., Oh, B. S., & Dhillon, H. M. (2017). A Scoping Review on Models of Integrative Medicine: What Is Known from the Existing Literature? *J Altern Complement Med*, 23(1), 8-17.
- Linde, K., Hondras, M., Vickers, A., ter Riet, G., & Melchart, D. (2001). Systematic reviews of complementary therapies - an annotated bibliography. Part 3: homeopathy. *BMC Complement Altern Med*, 1, 4.
- Linde, K., ter Riet, G., Hondras, M., Vickers, A., Saller, R., & Melchart, D. (2001). Systematic reviews of complementary therapies - an annotated bibliography. Part 2: herbal medicine. *BMC Complement Altern Med*, 1, 5.
- Linde, K., Vickers, A., Hondras, M., ter Riet, G., Thormahlen, J., Berman, B., & Melchart, D. (2001). Systematic reviews of complementary therapies - an annotated bibliography. Part 1: acupuncture. *BMC Complement Altern Med*, 1, 3.
- Lisi, A. J., & Brandt, C. A. (2016). Trends in the Use and Characteristics of Chiropractic Services in the Department of Veterans Affairs. *J Manipulative Physiol Ther*, 39(5), 381-386.

- Lisi, A. J., Goertz, C., Lawrence, D. J., & Satyanarayana, P. (2009). Characteristics of Veterans Health Administration chiropractors and chiropractic clinics. *J Rehabil Res Dev*, 46(8), 997-1002.
- Lisi, A. J., Khorsan, R., Smith, M. M., & Mittman, B. S. (2014). Variations in the implementation and characteristics of chiropractic services in VA. *Med Care*, 52(12 Suppl 5), S97-104.
- Macaulay, L. (Dec 14, 2017). [Personal Communication Regarding Clinic Growth].
- MacPherson, H., Vertosick, E., Foster, N., Lewith, G., Linde, K., Sherman, K., . . . Vickers, A. (2017). The persistence of the effects of acupuncture after a course of treatment: A meta-analysis of patients with chronic pain. *Pain*, 158(5), 784-793.
- Madsen, C., Vaughan, M., & Koehlmoos, T. P. (2017). Use of Integrative Medicine in the United States Military Health System. *Evidence-Based Complementary and Alternative Medicine*, 2017.
- Maizes, V., Koffler, K., & Fleishman, S. (2002). Revisiting the health history: an integrative medicine approach. *Adv Mind Body Med*, 18(2), 31-34.
- Maizes, V., Rakel, D., & Niemiec, C. (2009). Integrative medicine and patient-centered care. *Explore (NY)*, 5(5), 277-289.
- Maizes, V., Schneider, C., Bell, I., & Weil, A. (2002). Integrative medical education: development and implementation of a comprehensive curriculum at the University of Arizona. *Acad Med*, 77(9), 851-860.
- Mallonee, S. (2000). Evaluating Injury Prevention Programs: The Oklahoma City Smoke Alarm Project. *The Future of Children UNINTENTIONAL INJURIES IN CHILDHOOD*, 10(No. 1 - Spring/Summer ), 164-174.
- Mann, D., Gaylord, S., & Norton, S. (2004). Moving Toward Integrative Care: Rationales, Models, and Steps for Conventional-Care Providers. *Complementary health practice review*, 9(3), 155-172.
- Mariano, C. (2007). Holistic nursing as a specialty: holistic nursing - scope and standards of practice. *Nurs Clin North Am*, 42(2), 165-188, v.
- Mays, N., & Pope, C. (1995). Rigour and qualitative research. *BMJ: British Medical Journal*, 311(6997), 109.
- Mc Hugh, S., O'Mullane, M., Perry, I. J., & Bradley, C. (2013). Barriers to, and facilitators in, introducing integrated diabetes care in Ireland: a qualitative study of views in general practice. *BMJ Open*, 3(8), e003217.

- McFarling, U. L. (September 20, 2017). A \$200 million gift promotes alternative therapies at a California medical school-and critics recoil. Retrieved from [www.statnews.com/2017/09/20/uci-integrative-medicine-gift](http://www.statnews.com/2017/09/20/uci-integrative-medicine-gift)
- McLaughlin, J. A., & Jordan, G. B. (1999). Logic models: a tool for telling your programs performance story. *Evaluation and Program Planning*, 22(1), 65-72.
- MedPage Today Staff. (September 20, 2017). A massive failure of education accessed. Retrieved from [www.medpagetoday.com/PrimaryCare/AlternativeMedicine/68043](http://www.medpagetoday.com/PrimaryCare/AlternativeMedicine/68043)
- Meeker, W. C. (2001). "Integration" - The New Buzzword. *Dynamic Chiropractic*, 19(7).
- Meeker, W. C. (2002). Framing Integration in the Chiropractic Community. *Dynamic Chiropractic*, 20(8).
- Meeker, W. C., & Haldeman, S. (2002). Chiropractic: a profession at the crossroads of mainstream and alternative medicine. *Ann Intern Med*, 136(3), 216-227.
- Meuwly, C., Chowdhury, T., Sandu, N., Golanov, E., Erne, P., Rosemann, T., & Schaller, B. (2017). Definition and Diagnosis of the Trigemino-cardiac Reflex: A Grounded Theory Approach for an Update. *Frontiers in Neurology*, 8(533).
- Meyer, C. T., & Price, A. (1993). Osteopathic medicine: a call for reform. *J Am Osteopath Assoc*, 93(4), 473-485.
- Miller, W. L. (1988). Models of health, illness, and health care. In J. L. Buckingham, E. P. Donatelle, T. A. Johnson, & S. J. E. (Eds.), *Family Medicine: Principles and Practice*. 3rd ed. (pp. 35-42). New York, Berlin & London: Springer-Verlag.
- Mills, J., Bonner, A., & Francis, K. (2006). Adopting a constructivist approach to grounded theory: Implications for research design. *International Journal of Nursing Practice*, 12(1), 8-13.
- Mitchell, P., Wynia, M., Golden, R., McNellis, B., Okun, S., Webb, C. E., . . . Kohorn, I. V. (Oct 2012). Core Principles & Values of Effective Team-Based Health Care. *The National Academy of Sciences*. Retrieved from [http://micmrc.org/system/files/Core\\_Principles\\_%26\\_Values\\_of\\_Effective\\_Team-Based\\_Health\\_Care.pdf](http://micmrc.org/system/files/Core_Principles_%26_Values_of_Effective_Team-Based_Health_Care.pdf)
- Mizrachi, N., Shuval, J. T., & Gross, S. (2005). Boundary at work: alternative medicine in biomedical settings. *Sociol Health Illn*, 27(1), 20-43.
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & Group, P. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *BMJ*, 339, b2535.

- Montazemi, A. R., & Qahri-Saremi, H. (2015). Factors affecting adoption of online banking: A meta-analytic structural equation modeling study. *Information & Management*, 52(2), 210-226.
- Montross-Thomas, L. P., Meier, E. A., Reynolds-Norolahi, K., Raskin, E. E., Slater, D., Mills, P. J., . . . Kallenberg, G. (2017). Inpatients' Preferences, Beliefs, and Stated Willingness to Pay for Complementary and Alternative Medicine Treatments. *J Altern Complement Med*, 23(4), 259-263.
- Mruck, K., & Breuer, F. (2003). *Subjectivity and reflexivity in qualitative research—The FQS issues*. Paper presented at the Forum Qualitative Sozialforschung/Forum: Qualitative Social Research.
- Mulkins, A. L., Eng, J., & Verhoef, M. J. (2005). Working towards a model of integrative health care: critical elements for an effective team. *Complement Ther Med*, 13(2), 115-122.
- Nahin, R. L., Barnes, P. M., & Stussman, B. J. (2016). Expenditures on Complementary Health Approaches: United States, 2012. *Natl Health Stat Report*(95), 1-11.
- Nahin, R. L., Barnes, P. M., Stussman, B. J., & Bloom, B. (2009). Costs of complementary and alternative medicine (CAM) and frequency of visits to CAM practitioners: United States, 2007. *Natl Health Stat Report*(18), 1-14.
- Nahin, R. L., Dahlhamer, J. M., Taylor, B. L., Barnes, P. M., Stussman, B. J., Simile, C. M., . . . McFann, K. K. (2007). Health behaviors and risk factors in those who use complementary and alternative medicine. *BMC Public Health*, 7, 217.]
- National Center for Complementary and Integrative Health. (June 28, 2016, September 24, 2017). Complementary, Alternative, or Integrative Health: What's In a Name? Retrieved from <https://nccih.nih.gov/health/integrative-health>
- National Center for Health Statistics. (2013). *Health, United States, 2012: With Special Feature on Emergency Care*. Hyattsville, MD.
- National Institutes of Health National Center for Complementary and Integrative Health (NCCIH). (2017). Complementary, Alternative, or Integrative Health: What's In a Name? Retrieved from <https://nccih.nih.gov/health/integrative-health#cvsa>
- National Market Measures. (1999). *Landmark Report II*. Sacramento, Ca. .
- National Research Council. (2015). *Enhancing the effectiveness of team science*: National Academies Press.
- Nayer, C., Berger, J., & Mahoney, J. (2010). Wellness, hard to define, reduces trend up to 4 percent. *Population Health Management*, 13(2), 83-89.

- Novella, S. (2011). CAM and Evidenced-Based Medicine. *Science and Medicine*
- Ober, K. P. (1997). The pre-Flexnerian reports: Mark Twain's criticism of medicine in the United States. *Ann Intern Med*, 126(2), 157-163.
- Oldenburg, B., Sallis, J., Ffrench, M., & Owen, N. (1999). Health promotion research and the diffusion and institutionalization of interventions. *Health education research*, 14(1), 121-130.
- Osteopathic Physicians & Surgeons v. California Medical Association, 224 Cal. App. 2d 378 (Cal. App. 2d Dist. 1964).
- Palmer, M. E., Haller, C., McKinney, P. E., Klein-Schwartz, W., Tschirgi, A., Smolinske, S. C., . . . Everson, G. (2003). Adverse events associated with dietary supplements: an observational study. *The Lancet*, 361(9352), 101-106.
- Pandit, N. (1996). The creation of theory: a recent application of the grounded theory method. Retrieved from [www.nova.edu/ssss/OR/QR2-4/pandit.html](http://www.nova.edu/ssss/OR/QR2-4/pandit.html)
- Papadopoulos, I., & Lees, S. (2002). Developing culturally competent researchers. *Journal of advanced nursing*, 37(3), 258-264.
- Paterson, C., & Peacock, W. (1995). Complementary practitioners as part of the primary health care team: evaluation of one model. *Br J Gen Pract*, 45(394), 255-258.
- Patient-Centered Outcomes Research Institute (PCORI). (2017). Retrieved from <https://www.pcori.org/>
- Patterson, C., & Arthur, H. M. (2008). A Model for Implementing Integrative Practice in Health Care Agencies. *Integr Med Insights*, 3, 13-19.
- Patton, L. (2015). Incommensurability and the Bonfire of the Meta-Theories: Response to Mizrahi. *Social Epistemology Review and Reply Collective*, 4(7), 51-58.
- Pelletier, K. R. (1979). Holistic medicine: from pathology to prevention. *West J Med*, 131(6), 481-483.
- Pelletier, K. R., & Astin, J. A. (2002). Integration and reimbursement of complementary and alternative medicine by managed care and insurance providers: 2000 update and cohort analysis. *Altern Ther Health Med*, 8(1), 38-39, 42, 44 passim.
- Pelletier, K. R., Astin, J. A., & Haskell, W. L. (1999). Current trends in the integration and reimbursement of complementary and alternative medicine by managed care organizations (MCOs) and insurance providers: 1998 update and cohort analysis. *Am J Health Promot*, 14(2), 125-133.

- Pelletier, K. R., Marie, A., Krasner, M., & Haskell, W. L. (1997). Current trends in the integration and reimbursement of complementary and alternative medicine by managed care, insurance carriers, and hospital providers. *Am J Health Promot*, *12*(2), 112-122.
- Perard, M., Mittring, N., Schweiger, D., Kummer, C., & Witt, C. M. (2015). MERGING conventional and complementary medicine in a clinic department - a theoretical model and practical recommendations. *BMC Complement Altern Med*, *15*, 172.
- Perleth, M., Jakubowski, E., & Busse, R. (2001). What is 'best practice' in health care? State of the art and perspectives in improving the effectiveness and efficiency of the European health care systems. *Health Policy*, *56*(3), 235-250.
- Perry, R., Dowrick, C., & Ernst, E. (2014). Complementary medicine and general practice in an urban setting: a decade on. *Prim Health Care Res Dev*, *15*(3), 262-267.
- Poland, B., Coburn, D., Robertson, A., & Eakin, J. (1998). Wealth, equity and health care: a critique of a "population health" perspective on the determinants of health. Critical Social Science Group. *Soc Sci Med*, *46*(7), 785-798.
- Posey, K. G. (Sept 2016). Household Income: 2015. *American Community Survey Briefs*  
Retrieved from  
<https://www.census.gov/content/dam/Census/library/publications/2016/demo/acsbr15-02.pdf>
- Public Law 106-135 (Producer). (2012, October 15, 2012). Public Law 106-135. (2012, May 18). Department of Veterans Affairs Health Care Programs Enhancement Act of 2001; Sec. 204: Program for Provision of Chiropractic Care and Services to Veterans. Washington, DC. . Retrieved from <http://veterans.house.gov/legislation/107/hr3447b.html>
- Radossi, A. L., Taromina, K., Marjerrison, S., Diorio, C. J., Similio, R., Njuguna, F., . . . Ladas, E. J. (2017). A systematic review of integrative clinical trials for supportive care in pediatric oncology: a report from the International Society of Pediatric Oncology, T&CM collaborative. *Support Care Cancer*.
- Ramalho, R., Adams, P., Huggard, P., & Hoare, K. (2015). Literature Review and Constructivist Grounded Theory Methodology *Qualitative Social Research*, *16*(3).
- Rashrash, M., Schommer, J. C., & Brown, L. M. (2017). Prevalence and Predictors of Herbal Medicine Use Among Adults in the United States. *Journal of Patient Experience*, *4*(3), 108-113.
- Ray, M. D. (1998). Shared borders: achieving the goals of interdisciplinary patient care. *Am J Health Syst Pharm*, *55*(13), 1369-1374.
- Ray, P. H. (1983). Beyond the biomedical model: Integration of psychosocial and cultural orientations. In T. RB (Ed.), *Family Medicine: Principles and Practice*, 2nd ed. (pp. 88-97). New York, Berlin, & London.

- Ray, P. H., & Anderson, S. R. (Eds.). (2000). *The Cultural Creatives: How 50 Million People are Changing the World*. New York: Harmony Books.
- Ridic, G., Gleason, S., & Ridic, O. (2012). Comparisons of health care systems in the United States, Germany and Canada. *Mater Sociomed*, 24(2), 112-120.
- Rivenburg, R. (Fall 2017). Just What the Doctor Ordered: A \$200 million shot in the arm aims to transform healthcare and UCI. *UCI Magazine*, 14-19. Retrieved from <https://communications.uci.edu/magazine/2017/fall/just-what-the-doctor-ordered.php>
- Robles, B., Upchurch, D. M., & Kuo, T. (2017). Comparing Complementary and Alternative Medicine Use with or without Including Prayer as a Modality in a Local and Diverse United States Jurisdiction. *Front Public Health*, 5, 56.
- Rowland, F. S. (1988). Chlorofluorocarbons, stratospheric ozone, and the Antarctic 'Ozone hole'. *Environmental Conservation*, 15(2), 101-115.
- Saegert, S. (1987). Environmental Psychology and Social Change. In D. Stokols & T. Altman (Eds.), *Handbook of Environmental Psychology* (pp. 99-128). New York: Wiley.
- Salas, E., Dickinson, T. L., Converse, S., & Tannenbaum, S. I. (1992). Teams: Their training and performance. In R. W. Swezey & E. Salas (Eds.), *Toward an understanding of team performance and training* (pp. 3-29). Norwood, NJ: Ablex.
- Satcher, D. (2006). The prevention challenge and opportunity. *Health Aff (Millwood)*, 25(4), 1009-1011.
- Schroeder, S. A. (2007). Shattuck Lecture. We can do better--improving the health of the American people. *N Engl J Med*, 357(12), 1221-1228.
- Schuster, T. L., Dobson, M., Jauregui, M., & Blanks, R. H. (2004). Wellness lifestyles I: A theoretical framework linking wellness, health lifestyles, and complementary and alternative medicine. *J Altern Complement Med*, 10(2), 349-356.
- Selzer, R. (September 26, 2017). Does \$200-million quack? Retrieved from [www.insidehighered.com/news/2017/09/26/uc-irvine-under-scrutiny-taking-200-million-school-health-couple-some-say-back-junk](http://www.insidehighered.com/news/2017/09/26/uc-irvine-under-scrutiny-taking-200-million-school-health-couple-some-say-back-junk)
- Sherman, K. J., Cherkin, D. C., Deyo, R. A., Erro, J. H., Hrbek, A., Davis, R. B., & Eisenberg, D. M. (2006). The diagnosis and treatment of chronic back pain by acupuncturists, chiropractors, and massage therapists. *Clin J Pain*, 22(3), 227-234.
- Shirwaikar, A., Govindarajan, R., & Rawat, A. K. (2013). Integrating complementary and alternative medicine with primary health care. *Evid Based Complement Alternat Med*, 2013, 948308.



- Shortell, S. M., Gillies, R. R., Anderson, D. A., Erickson, K. M., & Mitchell, J. B. (2000). Integrating health care delivery. *Health Forum J*, 43(6), 35-39.
- Shuval, J. T., & Mizrachi, N. (2004). Changing boundaries: modes of coexistence of alternative and biomedicine. *Qual Health Res*, 14(5), 675-690.
- Shuval, J. T., Mizrachi, N., & Smetannikov, E. (2002). Entering the well-guarded fortress: alternative practitioners in hospital settings. *Soc Sci Med*, 55(10), 1745-1755.
- Siddiqi, I. (2017). UCI student creates first-of-its-kind scholarship program for refugees. Retrieved from <https://www.socsci.uci.edu/newsevents/news/2017/2017-11-28-siddiqi.php>
- Smythe, C., Wilson, M., & Jones, A. (1977). On the origins of perceived unmanageability of large academic medical units. *Transactions of the American Clinical and Climatological Association*, 88, 68.
- Somri, M., Vaida, S. J., Sabo, E., Yassain, G., Gankin, I., & Gaitini, L. A. (2001). Acupuncture versus ondansetron in the prevention of postoperative vomiting. A study of children undergoing dental surgery. *Anaesthesia*, 56(10), 927-932.
- Stead, E. (1993). Gene Stead Looks at Doctoring. *North Carolina medical journal*, 54, 645-645.
- Stead, E. A., Jr. ). [Personal Communication with Dr. Smythe].
- Stewart, M., & Roter, D. (1989). *Communicating with Medical Patients. Interpersonal Communication*. Newbury Park, CA: Sage Publications.
- Stokols, D. (1992). Establishing and maintaining healthy environments. Toward a social ecology of health promotion. *Am Psychol*, 47(1), 6-22.
- Stokols, D. (1996). Translating social ecological theory into guidelines for community health promotion. *Am J Health Promot*, 10(4), 282-298.
- Stokols, D. (1998). The future of interdisciplinarity in the School of Social Ecology. *Social Ecology Associates Annual Awards Reception, School of Social Ecology, University of California, Irvine*, 21.
- Stokols, D. (2000). The social ecological paradigm of wellness promotion. *Promoting human wellness: New frontiers for research, practice, and policy*, 21-37.
- Stokols, D. (2018). *Social Ecology in the Digital Age*. Cambridge, MA: Academic Press.
- Stokols, D. (Dec 17, 2017). [Personal Communication].

- Stokols, D., Hall, K. L., Taylor, B. K., & Moser, R. P. (2008). The science of team science: overview of the field and introduction to the supplement. *Am J Prev Med*, 35(2 Suppl), S77-89.
- Straus, R. (1957). The Nature and Status of Medical Sociology. *American Sociological Review*, 22(2), 200-204.
- Straus, S. E. (2000). Complementary and alternative medicine: challenges and opportunities for American medicine. *Acad Med*, 75(6), 572-573.
- Templeman, K., & Robinson, A. (2011). Integrative medicine models in contemporary primary health care. *Complement Ther Med*, 19(2), 84-92.
- The Academic Consortium for Integrative Medicine & Health (2017). Introduction. Retrieved from <https://www.imconsortium.org/about/about-us.cfm>
- Theberge, N. (2008). The integration of chiropractors into healthcare teams: a case study from sport medicine. *Sociol Health Illn*, 30(1), 19-34.
- Thompson, N. J., & McClintock, H. O. (1998). *Demonstrating your program's worth: A primer on evaluation for programs to prevent unintentional injury*. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.
- Thorburn, S., Faith, J., Keon, K. L., & Tippens, K. M. (2013). Discrimination in health care and CAM use in a representative sample of U.S. adults. *J Altern Complement Med*, 19(6), 577-581.
- Timbo, B. B., Ross, M. P., McCarthy, P. V., & Lin, C.-T. J. (2006). Dietary supplements in a national survey: prevalence of use and reports of adverse events. *Journal of the American Dietetic Association*, 106(12), 1966-1974.
- Tonelli, M. R. (2006). Integrating evidence into clinical practice: an alternative to evidence-based approaches. *J Eval Clin Pract*, 12(3), 248-256.
- Tonelli, M. R., & Callahan, T. C. (2001). Why alternative medicine cannot be evidence-based. *Acad Med*, 76(12), 1213-1220.
- Toupin April, K., & Gaboury, I. (2013). A survey of Canadian regulated complementary and alternative medicine schools about research, evidence-based health care and interprofessional training, as well as continuing education. *BMC Complement Altern Med*, 13, 374.
- Trotter, R. T., 2nd. (2012). Qualitative research sample design and sample size: resolving and unresolved issues and inferential imperatives. *Prev Med*, 55(5), 398-400.

- U.S. Census Bureau. (2016). American Community Survey 1-year estimates. Census Reporter Profile page for Orange County, CA. Retrieved from <https://censusreporter.org/profiles/05000US06059-orange-county-ca/>
- UC Irvine School of Social Ecology. (Oct 11, 2017). Social Ecology pioneered in Irvine's innovative academic environment. Retrieved from <https://socialecology.uci.edu/news/social-ecology-pioneered-irvines-innovative-academic-environment>
- UC Irvine Strategic Communications & Public Affairs. (Sept 18, 2017). UCI receives \$200 million gift to name College of Health Sciences and launch major integrative health initiative: Donation from Susan and Henry Samuelli to advance research, education and clinical practice for individual and population wellness. Retrieved from <https://news.uci.edu/2017/09/18/uci-receives-200-million-gift-to-name-college-of-health-sciences-and-launch-major-integrative-health-initiative/>
- UCI News. (2016). UCI to launch first-of-its-kind official e-sports initiative in the fall: Specially equipped gaming, competition site to be built at Student Center. Retrieved from <https://news.uci.edu/2016/03/30/uci-to-launch-first-of-its-kind-official-e-sports-initiative-in-the-fall/>
- Ventola, C. L. (2010). Current issues regarding complementary and alternative medicine (CAM) in the United States: Part 1: The widespread use of CAM and the need for better-informed health care professionals to provide patient counseling. *Pharmacy and Therapeutics*, 35(8), 461.
- Verbrugge, L. M. (1984). Longer Life but Worsening Health? Trends in Health and Mortality of Middle-Aged and Older Persons. *The Milbank Memorial Fund Quarterly. Health and Society*, 62(3), 475-519.
- Verhoef, M. J., Lewith, G., Ritenbaugh, C., Boon, H., Fleishman, S., & Leis, A. (2005). Complementary and alternative medicine whole systems research: beyond identification of inadequacies of the RCT. *Complement Ther Med*, 13(3), 206-212.
- Vogel, A. L., Stipelman, B. A., Hall, K. L., Nebeling, L., Stokols, D., & Spruijt-Metz, D. (2014). Pioneering the Transdisciplinary Team Science Approach: Lessons Learned from National Cancer Institute Grantees. *J Transl Med Epidemiol*, 2(2).
- Vohra, S., Feldman, K., Johnston, B., Waters, K., & Boon, H. (2005). Integrating complementary and alternative medicine into academic medical centers: experience and perceptions of nine leading centers in North America. *BMC health services research*, 5(1), 78.
- Weeks, J. (November 2017). Media Alert: Publicizing "Quackademic Medicine" Claims Is Science Denial and Fake News. *The Journal of Alternative and Complementary Medicine*, 11(23), 825-826.

- Weeks, J. (Sept 28, 2017). Shameful Media Response to the Samueli's Visionary \$200-Million Integrative Health Investment at UC Irvine. Retrieved from [https://www.huffingtonpost.com/entry/shameful-media-response-to-the-samuelis-visionary\\_us\\_59c7d9a0e4b0b7022a646b73](https://www.huffingtonpost.com/entry/shameful-media-response-to-the-samuelis-visionary_us_59c7d9a0e4b0b7022a646b73)
- Weeks, L., Balneaves, L. G., Paterson, C., & Verhoef, M. (2014). Decision-making about complementary and alternative medicine by cancer patients: integrative literature review. *Open Med*, 8(2), e54-66.
- Whedon, J., Tosteson, T. D., Kizhakkeveetil, A., & Kimura, M. N. (2017). Insurance Reimbursement for Complementary Healthcare Services. *J Altern Complement Med*, 23(4), 264-267.
- White, A., & Ernst, E. (2004). A brief history of acupuncture. *Rheumatology (Oxford)*, 43(5), 662-663.
- Whorton, J. C. (2006). The history of complementary and alternative medicine. *Conversations in Complementary And Alternative Medicine: Insights And Perspectives From Leading Practitioners*, 1-8.
- Wiese, M., Oster, C., & Pincombe, J. (2010). Understanding the emerging relationship between complementary medicine and mainstream health care: a review of the literature. *Health (London)*, 14(3), 326-342.
- Wilson, B. (2013). Metaphysics and medical education: taking holism seriously. *J Eval Clin Pract*, 19(3), 478-484.
- Wiseman, N. (2004). Designations of Medicines. *Evid Based Complement Alternat Med*, 1(3), 327-329.
- Witt, C. M., Perard, M., Berman, B., Berman, S., Birdsall, T. C., Defren, H., . . . Schweiger, D. (2015). Using the framework of corporate culture in "mergers" to support the development of a cultural basis for integrative medicine - guidance for building an integrative medicine department or service. *Patient Prefer Adherence*, 9, 113-120.
- Wolever, R. Q., Webber, D. M., Meunier, J. P., Greeson, J. M., Lausier, E. R., & Gaudet, T. W. (2011). Modifiable disease risk, readiness to change, and psychosocial functioning improve with integrative medicine immersion model. *Altern Ther Health Med*, 17(4), 38-47.
- Wolfswinkel, J., Furtmueller, E., & Wilderom, C. (2013). *Using Grounded Theory as a Method for Rigorously Reviewing Literature* (Vol. 22).
- Wolsko, P., Ware, L., Kutner, J., Lin, C. T., Albertson, G., Cyran, L., . . . Anderson, R. J. (2000). Alternative/complementary medicine: wider usage than generally appreciated. *J Altern Complement Med*, 6(4), 321-326.

- Woo, J. J. (2007). Adverse event monitoring and multivitamin-multimineral dietary supplements. *The American journal of clinical nutrition*, 85(1), 323S-324S.
- Woolf, S. H. (2009). A closer look at the economic argument for disease prevention. *JAMA*, 301(5), 536-538.
- World Health Organization. (2011). *Noncommunicable Diseases Country Profiles 2011*. Retrieved from [https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&ved=0CC8QFjAB&url=http%3A%2F%2Fwhqlibdoc.who.int%2Fpublications%2F2011%2F9789241502283\\_eng.pdf&ei=enltUq3NJ4Ls2wW\\_toHgBg&usg=AFQjCNG9VZKDuHO3zfzXe51SVH8Jg65DMA](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&ved=0CC8QFjAB&url=http%3A%2F%2Fwhqlibdoc.who.int%2Fpublications%2F2011%2F9789241502283_eng.pdf&ei=enltUq3NJ4Ls2wW_toHgBg&usg=AFQjCNG9VZKDuHO3zfzXe51SVH8Jg65DMA).
- World Health Organization. (2013). The impact of chronic disease in the United States. Retrieved from [http://www.who.int/chp/chronic\\_disease\\_report/usa.pdf](http://www.who.int/chp/chronic_disease_report/usa.pdf)
- Wu, S., Roychowdhury, I., & Khan, M. (2017). Evaluations of training programs to improve human resource capacity for HIV, malaria, and TB control: a systematic scoping review of methods applied and outcomes assessed. *Trop Med Health*, 45, 16.
- Yunus, M. B., Bennett, R. M., Romano, T. J., & Russell, I. J. (1997). Fibromyalgia consensus report: additional comments. *J Clin Rheumatol*, 3(6), 324-327.
- Yunus, M. B., Bennett, R. M., Romano, T. J., & Russell, I. J. (1998). Response to "fibromyalgia: the plot thickens". *J Clin Rheumatol*, 4(5), 291.
- Ziebarth, D. J. (2016). Wholistic Health Care: Evolutionary Conceptual Analysis. *J Relig Health*, 55(5), 1800-1823.