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Improving the Linkage to HIV Specialty Care: Referral and Authorization Process Redesign at the AIDS Healthcare Foundation

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Improving the Linkage to HIV Specialty Care:

Referral and Authorization Process Redesign at the AIDS Healthcare Foundation

A dissertation submitted in partial satisfaction

of the requirements for the degree Doctor of Public Health

by

Ashley Victoria Parks

2016

ABSTRACT OF THE DISSERTATION

Improving the Linkage to HIV Specialty Care:

Referral and Authorization Process Redesign at the AIDS Healthcare Foundation

by

Ashley Victoria Parks

Doctor of Public Health

University of California Los Angeles, 2016.

Professor Moira Inkelas, Chair

In September 2014 leadership of the AIDS Healthcare Foundation commissioned the formation of a multidisciplinary process improvement team to improve the timeliness, overall satisfaction, and specialty visit completion rate for the AHF California Managed Care Plans' outpatient referral and authorization processes. In addition to making targeted improvements in timeliness and satisfaction, the team was also tasked with developing a long-term monitoring strategy to support future improvement in the processing of referrals and authorizations. The Referral Improvement Task Force reviewed best practice models, created and analyzed performance data including turnaround time and patient grievances, and conducted a series of key informant interviews with staff and providers in order to develop and implement targeted strategies. Utilization Management staff in the Managed Care Division assumed additional responsibility for referral and authorization processing, allowing for the division to completely own and

streamline the referral and authorization processes for California managed care patients thus

addressing delays in the referral and authorization process.   Through this process improvement

effort, AHF drastically reduced the processing time for outpatient specialty care referrals from an

average of 12.5 days in the pre-intervention period, to an average turnaround time of 1.5 days

during the final phase of the process improvement. Both the mean number of days required to

generate an authorization and the mean number of days from physician order to specialty visit

decreased significantly with ANOVA and t-test p-values below .01. This reduction was

accomplished through the implementation of several process improvement efforts, including a

staff re-organization and process redesign as well as the development of opportunities for referral

and care coordination within the electronic medical record.

The dissertation of Ashley Victoria Parks is approved.

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2016

DEDICATION

I would like to dedicate this effort to my two wonderful children James Elijah Parks and LilyAnne Elizabeth Parks. Lily and Elijah – May you always be so curious and hungry for knowledge, and may you always be so understanding of mom and her work. I love you both so much. A special thank you to my partner in life and best friend, Matthew Lazari. I love you, and I appreciate all you do for us and our family. I am so excited for this next chapter in our lives.

I would also like to dedicate this effort to my late father, Peter Sicker. I wish you could be here with us now. I would also like to thank my parents, Bill and Elizabeth O'Dell. Without their constant inspiration and support, I would not have been able to complete this effort.

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LIST OF ACRONYMS

ACRONYM	FULL DESCRIPTION
AC	Authorization Coordinator
ADAP	AIDS Drug Assistance Program
AHCA	Agency for Healthcare Administration
AHF	AIDS Healthcare Foundation
AIDS	Autoimmune Deficiency Syndrome
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CHAIN	Community HIV AIDS Intervention Network
CM	Care Management
CMS	Centers for Medicare and Medicaid Services
CPS	Centricity Practice Solution (AHF Electronic Medical Record)
DHCS	California Department of Healthcare Services
DMAIC	Define, Measure, Analyze, Improve, Control (SS Methodology)
DoM	Department of Medicine
EMR	Electronic Medical Record
HAB	HIV AIDS Bureau
HCC	Healthcare Centers (AHF's 46 Outpatient Clinics)
HEDIS	Healthcare Effectiveness Data & Information Set
HOS	Health Outcomes Survey
HIV	Human Immunodeficiency Virus
HSAG	Health Services Advisory Group
MC	Managed Care

MCO	Managed Care Organization
NCQA	National Committee for Quality Assurance
NM	Nurse Manager
PDCA	Plan Do Check Act (Rapid Cycle PI Methodolgy)
PHC	Positive Health Care (Medi-Cal Health Plan)
PHP	Positive Healthcare Partners (Medicare Health Plan)
RC	Referral Coordinator
RW	Ryan White
SIPOC	Suppliers, Inputs, Processes, Outputs, Customers
SNP	Special Needs Plan (Medicare or Medicaid plan)
SQUIRE Guidelines	Standards for QUality Improvement and Reporting Excellence
SS	Six Sigma
UM	Utilization Management

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CHAPTER I: INTRODUCTION

Innovative systems, processes, and solutions that provide high quality healthcare service to at-risk populations are needed as American healthcare becomes more complex. Integrating full-spectrum healthcare documentation for diagnosis, testing and treatment may expedite payment, and facilitate clinical activities, care coordination and outreach for a target population. For example, AIDS Healthcare Foundation (AHF) coordinates and aligns care delivery and payment systems for a variety of services including: HIV testing, patient linkage to treatment, primary-care and HIV-specialty treatment services that are sometimes customized to provide additional supplemental benefits and disease management, often at low- or no-cost to the client. The aim of this project is to characterize the implementation and monitoring features of a targeted intervention aimed at increasing timeliness, patient satisfaction, and referral- and authorization-completion rates 10 Los Angeles area AHF healthcare centers and its (California) managed Medi-Cal and Medicare health plans.

Background Knowledge and Organizational Setting:

The AIDS Healthcare Foundation (AHF) is a Los Angeles based global non-profit organization which provides a variety of services to HIV positive individuals both in the United States and internationally. AHF functions as a nonprofit, tax-exempt, 501(c) (3) organization providing medical and advocacy services across the globe. The AIDS Healthcare Foundation is known for its advocacy efforts with a mission to provide cutting edge medicine and advocacy regardless of a client or member's ability to pay. AHF's core values are patient-centered, value employees, respect for diversity, nimble, and fight for what's right (AIDS Healthcare Foundation, 2014). The AIDS Healthcare Foundation (AHF) operates four special needs health

plans, two in California and two in Florida. The Medicare plan in California, known as Positive Healthcare Partners (PHP), is the first Chronic Care Management (C-SNP) Medicare plan in the nation to offer comprehensive and supplemental benefits specifically for people living with HIV (AIDS Healthcare Foundation, 2015). The Medi-Cal plan in California, known as Positive Healthcare (PHC), provides services to clients who have "a prior AIDS diagnosis, live in Los Angeles County and have Medi-Cal with no share of cost" (AIDS Healthcare Foundation, 2015). AHF's Managed Care plans are all accredited by the Accreditation Association for Ambulatory Health Care, Inc. (AAAHC) which sets standards for healthcare quality and safety.

While the AHF organization has a unique layout of divisions with services ranging from advocacy and global health to the provision of and payment for direct healthcare services, the majority of the financial resources come from donors, various grant programs, the Center for Medicare and Medicaid Services (CMS), and the operation of a profitable pharmacy division. In addition to providing public health services internationally in the form of free HIV testing and operating 316 global clinics providing free healthcare and testing services, the Aids Healthcare Foundation (AHF) also owns and operates 41 clinic sites domestically within 13 states and Washington, DC as well as 18 Men's Wellness Centers. AHF's operation includes approximately 3,355 employees and provides healthcare services to over 588,000 patients in 35 countries, including the US, Latin America, Africa, Asia, and Europe (AIDS Healthcare Foundation, 2014).

The management team at AHF is fortunate to have divisions with staff working in a variety of capacities to assist HIV-infected patients access preventive services and outpatient treatment; however, the system is not without issues and opportunities for improvement. One of the main areas of concern identified by AHF's executive leadership team and Healthcare Center

Executive Committee regarding the provision of care to AHF's specialized patient population is the need for improvement in the timeliness and effectiveness of the coordination of specialty referrals emanating from the local Los Angeles, CA health care centers.

The AHF organization has been growing rapidly including the addition of domestic and international locations. Over the course of the last five years, AHF's Department of Medicine and the health care centers (primary and specialty care clinics) division have expanded greatly necessitating the development of more standard processes and the creation of more deliberate and coordinated directives from management. In the last year alone (since early 2015), four healthcare centers in the United States have been added to the AHF organization. Expansion is continuing with a projected growth plan including three to five health care centers being acquisitioned from private practice physicians or being developed by AHF each year for the next several years. With the rapid expansion of the healthcare center business line and the growth in membership in the four managed care health plans as well as the grant funded care, both the regulatory requirements and the volume of referrals have greatly increased.

The 2015 and 2016 calendar years were uniquely challenging years for AHF leadership to implement any significant process improvement due to the following additional projects consuming a large amount of staff time and organizational resources:

1. ICD-10 Implementation – October 1, 2015

2. Introduction of new Core Administration and Claims System – January 1, 2016

3. Pilot Project for Potential new electronic medical record (EMR) at single Florida location – January 12, 2016

4. Risk Adjustment Initiative

5. Selection and implementation of a new electronic care management system

6. Meaningful Use Initiative

Despite the above pressing projects and initiatives, the AHF leadership team selected the referral process improvement effort as the singular most important performance improvement (PI) initiative for 2015 and 2016 and as such allocated clinical, technical, and administrative resources to address the issue.

Significance and Statement of the Local Problem

The outpatient specialty referral process was an area of concern for both the AHF Healthcare Centers and the Managed Care Division given the potential negative impacts on outpatient client and managed care member experience and coordination of care. The direct referral process was an important element of the direct interactions between the AHF healthcare centers and the AHF managed care health plans, including the Positive Healthcare Partners (PHP) Medicare plans and Positive Health Care (PHC) Medi-Cal plans in California and Florida. According to past meeting documentation, the referral process was by far the most common referenced organizational issue or concern discussed amongst AHF's major committees, including the Executive Oversight Committee, the Healthcare Center Executive Committee, the Managed Care Executive Committee, and the Quality Management Committee.

The core process and outcomes issues associated with the AHF referral and authorization processes included the following:

1. the use of a complicated multi-step referral process involving three to five staff members and multiple opportunities for failure and miscommunication,

2. irregularities in the timeliness of referral processing including the creation, physician sign off, managed care approval/authorization, and communication to the patient/member,

3. delays in the sending and receiving of specialty consult reports to the healthcare centers

after original referral and/or before subsequent referrals,

4. a poor client/member and patient perception of access to specialty care as illustrated in Consumer Assessment of Healthcare Providers and Systems (CAHPS®) Results,

5. a lack of defined policies and procedures, documentation resources, and training for referral coordinators and staff conducting direct and indirect referrals at each of the healthcare centers,

6. decreased staff satisfaction linked to a lack of current processes and instructions for dealing with referral processing issues,

7. a lack of clear productivity and accountability expectations for both healthcare center and Managed Care division staff.

In 2011, the leaders from managed care and health care center divisions collectively decided to delegate responsibility for routine referrals and authorizations directly to the healthcare centers. Approval of initial specialty consultations, initial optometry visits, and chest X-rays, echocardiogram, and mammography assessments were all shifted to the individual healthcare centers. Direct referrals were only made available in California for PHC, PHP, and Ryan White (RW) patients. Unfortunately, the shift toward decentralized decision-making made the referral system more complex and failed to improve efficiency. Healthcare-center Referral Coordinators experienced an increase in workload due to their receipt of basic referrals for all AHF health plan (PHP & PHC) and Ryan White patients. Since referral coordinator staff did not all have similar training nor an understanding of managed care requirements and process, healthcare center staff and providers reported in meetings and key informant interviews that often times communication issues and processing errors would occur. These issues would require utilization management staff in the Managed Care Division to have to research work done at the healthcare centers and

conduct a great deal of re-work. In some cases, a patient might need a direct referral for one

service and a general referral and authorization for another service. For example, a direct

referral could be processed by a referral coordinator for a simple service like an EKG or

laboratory testing, while another outpatient referral would need to be processed by the

authorization coordinator in Managed Care, thus causing two individuals to generate

authorization paperwork for the same patient in parallel.   Additional testing is required to

understand why the concept of the direct referral process could not be operationalized

successfully. Rapid cycle improvement involves implementing and studying deliberate changes

over time in order determine what issues might be preventing an appropriate theory from being

successfully implemented.

In addition to core issues with the direct referral process, there were several issues with

the CPS (Centricity Practice Solutions) electronic medical record workflows requiring multiple

individuals to be involved with the processing of referrals for the AHF health plan patients. The

main electronic medical record issues included:

1. Partially Functional Flagging System: Sharing of referral information involved the

   use of an inconsistent "flagging system" which required providers, referral

   coordinators at the healthcare centers, and managed care authorization coordinators to

   flag specific staff members and forward to those individuals

2. Staff Specific Referral Storage Locations: Once sent a referral flag, the referral entry

   would then be stored in a folder on a staff member's desktop. This could cause major

   delays when referral coordinator staff members were out of the office or didn't notice

   that additional referrals were waiting on their desktop. When employees were

   terminated, out on leave, or off for the day, referrals would wait on their desktop that

only they could access or edit.

3. No common location for entering notes on referral status: There was no location in the electronic medical record for entering referral notes or sharing information that could be viewed by both staff and providers.

Intended Improvement and Project Aim

The aim of the referral and authorization process redesign is to improve the timeliness, overall satisfaction, and completion rate for the AHF California Managed Care Plans' (PHP and PHC) referral and authorization process and develop a long-term control plan for monitoring the processing of referrals and authorizations going forward. These project aims are only one element of a greater mission to support access to specialty care for those diagnosed with HIV. The following five sub-aims represent the measurable improvement goals for this project:

1) Improve the timeliness of the processing of referrals and authorizations for AHF California Managed Care Plan's (PHP & PHC), as measured by:

a. Reducing the mean referral and authorization turn-around time (in days) for specialty referrals for California Managed Care (PHP & PHC) plan members as measured by the following three timeframes:

(A) Mean number of days from physician initiating order for referral to patient being seen by specialist, and

(B) Mean number of days from physician initiating order for referral to authorization being sent to specialist (phase 1 processing timeline).

b. Reducing the rate of defects per million opportunities (DPMO) for California Managed care (PHP & PHC) referrals as defined as referrals with phase 1 exceeding 14 calendar days (poor turnaround time performance- Six

Sigma (SS) Defect Type #1)

2)   Decrease incidences of voiced dissatisfaction in the processing of referrals and

authorizations for AHF California Managed Care Plan's (PHP & PHC), as

measured by:

a.   Reducing the rate of documented patient grievances per 1,000 clients from

California Managed Care (PHP & PHC) plan members received that reference

issues or delays with specialty referrals or authorizations.

b.   Reducing the rate of defects per million opportunities (DPMO) for

California Managed care (PHP & PHC) referrals defined as patient grievances

received that reference issues or delays with specialty referrals or authorizations

(unsatisfactory experiences with referrals – SS Defect Type #2).

3)   Increase the rate of completion of specialty visits for AHF California Managed

Care Plan's (PHP & PHC), as measured by:

a.   Reducing the rate of defects per million opportunities (DPMO) for

California Managed care (PHP & PHC) referrals defined as the number of

referrals which do not result in a specialty visit being completed (incomplete

referrals - SS Defect Type # 3).

4)   Improve the overall process capability for AHF''s referral process as measured by

a reduction in the cumulative rate of defects per million opportunities (DPMO) for

California Managed care (PHP & PHC) referrals for SS Defect Types 1,2, and 3).

5)   Develop a Long-term Monitoring Strategy to measure outcomes and

unanticipated potential effects of the referral process improvement efforts by

reviewing data annually from the following sources: CAHPS coordination of care

metrics, CMS Star Ratings, and viral load suppression rates for California PHP &
PHC members.

Study Question

The primary study question for the Referral Performance Improvement Team was whether or not
a focused process redesign effort could favorably decrease both the combined referral and
authorization turn-around times for outpatient specialty referrals and the time an AHF California
Managed Care patients waits to be seen by a specialist. Additional sub-questions explored in the
analysis included the following:

1. How will managed care member retention, as measured by at least two visits per year, be
   impacted by this focused performance improvement effort?

2. How will the annual incidence rate of patient grievances related to referrals be impacted
   by this focused performance improvement effort?

3. What key set-backs and delays do staff and providers experience when processing
   referrals and authorizations? (Question 8 on Staff Survey Tool)

CHAPTER 2: LITERATURE REVIEW

The cultural and organizational environment at the AIDS Healthcare Foundation (AHF) has a unique challenge of interfacing the role of provider and health insurer into the same organization and internal workflows. This effort presented an opportunity for alignment and partnership between AHF's Managed Care Division and the AHF Healthcare Centers. While AHF's structure, size, and scope make the organization a unique provider in the care of HIV and AIDS, there are still many lessons from outside research and practice which can be referenced and utilized as part of the rapid cycle improvement efforts.

Referrals and Authorizations as Key Processes in Healthcare

The workflows of Managed Care Organizations (MCOs) normally involve the generation of referrals by primary care providers followed by the processing of authorizations by the clients health plan prior to the provision of outpatient specialty care services. While these processes can be seen as integral to linking patients to specialty providers and assuring appropriate care is provided, concern has been raised that the use of a primary care physician as a gatekeeper can restrict access to medically necessary services (Cowen, Zodet, 1999).   The speed and accuracy of referral and authorization processes are crucial to generating positive patient outcomes (Gandhi, et.al., 2000). Managed Care authorization processes serve an essential function in assuring that scarce resources available for HIV treatment are used appropriately for the provision of medically necessary services.   A targeted review of Medi-Cal and Medicare claims data for HIV positive patients in California, revealed a mean cost of $33,720 for all HIV-infected beneficiaries. Depending on claims data source, mean costs ranged from $22,000 to $34,000 for Medi-Cal only beneficiaries and $45,000 – 48,000 for dual beneficiaries in 2007 (Leibowitz,

Desmond, 2015). A wide variety of factors impact cost; however, appropriate utilization

management is key to reducing cost and ensuring limited funds are spent on medically necessary

services.

Given the lack of universally recognized benchmarks for the quantity or rate of referrals

that should be generated per patient population, the true meaning of referral type and frequency

is understanding how referral patterns impact outcomes and patient satisfaction (Nutting, Franks,

& Clancy, 1992). Although there are no defined ratio benchmarks for expected volume of

referrals per patient, HIV patient specialty referral volumes do tend to be lower for providers

who either specialize in infectious disease or have an extended history of working with HIV

positive patients compared to general practitioners (Landon, et.al., 2002).

Referral Communication

While AHF physicians and staff shared their beliefs that improvements in the referral

process would be key to improving patient retention and patient adherence to HIV treatment

regimens, some outside research supports the theory that coordination of specialty care is

important for both patient and physician satisfaction. Specifically, improved coordination

between referring providers and specialty providers is linked to increased referring physician

satisfaction and the rate of referral completion (Forrest, et.al, 2000).

Coordination needs to occur along the following three communication elements involved

in the specialty referral process, including: the communication by the referring physician to the

specialist, the specialist successfully communicating clinical information and recommendations

back to the referring provider, and the referring provider, specialist, and patient successfully

negotiating treatment decisions and next steps (Forrest, et.al, 2000). One study revealed that

difficulties with referral processing are common in the United States healthcare system due to

provider time constraints, ambiguous information, communication challenges, self-referrals, unclear follow-up, and limitations imposed by managed care organizations (Gandhi, et.al., 2000). The study reviewed primary care provider (PCP) and specialist physician communication revealing that these communication elements often occur inconsistently resulting in major communication failures and decreased effectiveness of referrals. Although referring physicians provided patient background in approximately 98% of referrals reviewed, the justification and goal of the referral was only made clear in 76% of cases, while referring physicians only received follow-up communication from specialists in 55% of cases (Gandhi, et.al, 2000). The potential for referral communications to exclude the purpose of the referral and not include the complete feedback loop represents considerable risks to patient care coordination. Having AHF's Managed Care authorization coordinators shepherd the communication process by providing clear diagnosis information up front and requesting and collecting specialty consult reports could help mitigate these types of communication issues thus improving quality of care.

In addition to research surrounding the need and methods for improving referral processes, great deal of information is also available regarding the necessity of referrals and factors which impact a provider's likelihood to refer a patient. A study that reviewed the referral patterns of independent practice association (IPA) physicians revealed that satisfied primary care providers are less likely to refer their patients to specialists (Cowen, Zodet, 1999).   Another study suggested many psychological and behavioral factors were not related to physician referral patterns; however, physicians who self-identify as risk-averse are more likely to refer their patients to specialists (Franks, et.al., 2000).   Patient preference may also be a factor in specialty referrals with some studies showing pressure from patients to refer may explain a large amount of the variability in referral patterns between different providers (Armstrong, Armstrong, Fry,

1991). The likelihood of specialty referrals also can vary greatly in accordance with the burden of morbidity within a specified patient population (Cowen, Zodet, 1999). Given the clinicians at AHF are working with a large and diverse HIV+ population, AHF leadership anticipates that increased patient needs due to immunosuppression and co-morbidities, along with patient anxiety and stigma may all be factors influencing "patient preference" and thus potentially influencing communications with providers and the type and volume of patient referrals generated.

Value of Electronic and Technical Solutions

The struggle to improve referral processes and care coordination within electronic systems has been researched and discussed over the last 20 years. Numerous studies have been done to propose the use of or review the effectiveness of e-consultations and electronic medical record sharing as a method for improving the referral process. One study commenting on e-consultations also specifically stated that there is a great deal of evidence of clinician dissatisfaction with managed care referral and authorization processes. However, there is minimal research available on the impact communication failures and referral barriers have on patient health care outcomes. Patient surveys reviewed illustrated a lack of patient awareness of physician communication issues and the duplication of services occurring in some circumstances due to ineffective communication (Horner, Wagner, Tufano, 2011). This study cites the potential for electronic information sharing to serve as a technique for improving referral coordination, a key concept that will be referenced in the implementation strategies to follow.

Another study compared paper processes versus an electronic referral communication system and stated that an electronic system put in place to facilitate an organized specialty referral process was linked to improved provider communication and the appropriateness of referred specialty visits (Kim-Hwang, et al., 2010). This study appeared appropriately

generalizable to the AHF care setting given the study involved salaried physicians and an integrated EHR system, two components also present at AHF.

Specialty-Referral Process Conceptual Framework

The Specialty-Referral Process Conceptual Framework developed by Forrest (2009), Haggerty, and colleagues (2003) the interface between the referring provider and the specialist (Mehrotra, Forrest, Lin, 2011) and was used as a key resource for evaluating and re-designing AHF's specialty referral process. Figure 1 below outlines the steps in the specialty referral process according to Mehrota, Forrest, and Lin. Care Coordination steps 1-4 each represent an opportunity for AHF Managed Care's authorization coordinators to work with PCP's, healthcare center referral coordinators, and specialists to improve the referral process. Specifically, based on the improvements recommended, AHF's revised referral process involves AHF authorization coordinators assisting with the following crucial elements, including, the transfer of relevant information, such as pre-visit tests including laboratory and imaging results, to the specialist's office. Once the specialty visit is complete, the timely and accurate communication of findings and recommendations from the specialty provider to the patient and primary care provider is

crucial (Mehrotra, Forrest, Lin, 2011).

This narrative review of multiple studies concludes that many referral and authorization

processes do not involve an effective transfer of information bi-directionally between referring

providers and specialists. In cases where communication does occur, the information shared is

often insufficient to support effective clinical decision making and the application of evidence

based practices.   This study also emphasizes the importance of timely communication,

underscoring the findings of the Gandhi, et.al. study referenced previously.   Also,

Figure 1: Idealized Steps in Specialty-Referral Process and Potential Mechanisms for Improvement at Each Step

Referral decision

Feedback and training
Pre-screening of referrals
Referral guidelines
EMR-based disease support
Co-location
Bundled payments

Care Coordination Step 4
(care integration including role of specialist)

Referral guidelines
Medical home

Care Coordination Step 3
(information transfer on recommendations)

Communication training
Shared EMR
Co-location

Care Coordination Step 1
(referral tracking to insure patient visits specialist)

EMR and IT applications
Co-location
Medical-home

Entry into Specialty Care

Tele-referrals
Co-location
Multidisciplinary teams
Group visits

Care Coordination Step 2
(information transfer of reason for referral and prior work-up)

Communication training
Shared EMR and other IT applications
Co-location

Source: Mehrota, Forrest, Lin, 2011.

communication issues were found throughout the referral process. Research has shown that

somewhere between 25 to 50 percent of referring physicians were not even aware of whether or

not their patients had actually seen the specialist to which they had been referred (Mehrotra,

15

Forrest, Lin, 2011).

Patient-Provider Relationships and Adherence to Treatment

While effective referral and authorization processing is the focus of AHF's performance improvement efforts, the overall goal of the organization is to increase patient adherence to treatment and enhance and prolong the quality of life for HIV+ patients. Another key factor shown to be associated with successful HIV care coordination and adherence is patient centered care including a personalized approach by physicians and consistent follow-up by staff. The quality of the patient-provider relationship has been associated with both better adherence and better overall health outcomes for patients with HIV. Specifically, clients who report that providers connect with them on a personal level were more likely to receive and complete their course of HAART [highly active antiretroviral therapy] and have undetectable serum HIV viral loads (Beach, Keruly, & Moore, 2006). While this could be a difficult element to measure amongst a diverse outpatient population, understanding the elements that contribute to a positive patient provider relationship are crucial to improving any process designed to increase adherence and retention. The management of HIV positive patients and the referral to specialty care is a complex process requiring monitoring and follow-up on a frequent basis.

Studying a Process Using Statistical Process Control (SPC)

In addition to a wide array of resources on referral patterns and key factors, key resources on how to analyze complex process issues were reviewed. Statistical process control (SPC) is defined later in the methodology section as a learning-based approach to data analysis and a set of methods for ongoing improvement of systems, processes, and outcomes. Several sources in the literature outline the benefits and limitations of using statistical process control methods for

evaluating and improving a process. The use of SPC alone has not been shown to improve a process; however, the use of SPC can assist organizations with solving problems and implementing solutions first by determining where common cause and special cause variation exist (Thor, et.al., 2007). There has been different opinions voiced in the literature regarding where to draw the UCL and LCL as an important element in control chart construction. Shewhart and other SPC experts recommend control limits set at ¡3SD for detecting meaningful changes in process outcomes while achieving an appropriate balance between two types of risks, type I and type II errors (Benneyan, 2003).

CHAPTER 3: METHODOLOGY

The Referral Improvement Team was formed as a Six Sigma performance improvement team in September 2014 as one of four core projects under the Client Experience Improvement Initiative at the AIDS Healthcare Foundation. The staff focused and patient focused goals for improvement recommended by the Client Experience Improvement Initiative can be found in Appendix L. The goals outlined in Appendix L form the organization's greater strategy and priorities for improving patient and staff experience. One core element of this strategy was to deploy Six Sigma performance improvement methodologies to improve the patient experience with the referral and authorization processes.

As the Director of Managed Care Program Development, I have been responsible for several process improvement initiatives both within and outside of the Managed Care Division at AHF. I was responsible for leading the referral process improvement team as part of a greater goal to increase collaboration between divisions and provide support to the healthcare center operations team. Specifically, my responsibilities included leading all meetings and work group discussions, interviewing staff and providers, generating all process flow documentation, and completing all statistical analysis of the process and related data elements. With the input of our managed care and healthcare center operations teams, I created the documentation for all Six Sigma tools outlined below in Figure 6. AHF's Managed Care Division leadership assumed joint responsibility for the delays in referrals and authorizations, and the division provided billing, credentialing, and additional "back office" support for the healthcare centers.

Ethical Issues

Several ethical issues were discussed during the referral and authorization process improvement efforts. Specifically, the team spent a considerable amount of time discussing the

appropriate allocation of resources and division of labor between the Healthcare Center (HCC) and Managed Care (MC) Divisions of the organization. In most cases, managed care operations and provider responsibilities would be discrete and separate, but given AHF's integrated service approach, designating specific responsibilities and policies for sharing information was crucial to project success. Ethical considerations were also discussed regarding the sharing of information and deliberate design of the CPS combined referral inboxes in the electronic medical record to ensure Managed Care staff could access only Managed Care patient records and process authorizations quickly.

Ethical issues were also discussed during the review of staff and resources allocated to support referral volumes for each of the plans. This project is centralized around the ethical concepts of beneficence, justice, and respect for persons, and the intent of this effort is to improve the timeliness and satisfaction of care for all patients regardless of status, income, resources, etc. The AHF organization's nimble structure and creative environment could easily be prone to the potential offering of special arrangements, extensions, and different benefits to meet the needs of different clients which could potentially be unfair and would violate CMS regulations. Special consideration was taken to assure the workflow used and decision points provided were standardized for all patients and in alignment with CMS regulations.

Setting

AHF's California Medicare and Medi-Cal health plans and their 10 Southern California healthcare centers are the setting for this performance improvement effort. Under its *Positive Healthcare* brand, AHF operates managed care programs in California and Florida caring for more than 7,000 individuals. In California, the Positive Healthcare Partners (PHP) HMO special needs program (SNP) operates as both a Medicare Advantage plan and a prescription drug health

plan specifically tailored for Medicare beneficiaries who are living with HIV who reside in Los

Angeles County. Positive Health Care (PHC) functions as a Medi-Cal managed care plan for

Medi-Cal eligible individuals living with AIDS in Los Angeles County. Parallel health plans

exist in Florida including Positive Healthcare Partners (PHP) HMO special needs program (SNP)

which operates as a Medicare Advantage prescription drug health plan specifically tailored for

Medicare beneficiaries who are living with HIV who reside in Broward and Miami-Dade

Counties. Florida's Positive Health Care (PHC) plan functions as a Medi-Cal managed care plan

for HIV-positive individuals who are eligible for Medicaid and live in Broward, Miami-Dade

and Monroe Counties. Table 1 below provides the enrollment totals for the month of April 2015

along with projected numbers for May, June, and July 2015. Enrollment for the PHP Managed

Medicare California plan is at 849 for May 2015, while the Medi-Cal Plan enrollment was at 815

members (AIDS Healthcare Foundation, 2015).

Table 1: Managed Care Member Enrollment Totals for CA PHC and PHP Health Plans

CALIFORNIA PHC						
		PROSPECTIVE EFFECTIVE NEXT MONTH				
MONTH	CURRENT ROSTER	APPLICATIONS*	CONFIRMED BY DHCS	DROPS	REJECTED BY DHCS	CANCELLED BY MEMBER	NET
JAN 2015	836	11	11	11		0	-0.6%
FEB 2015	831	6	6	5		0	-0.6%
MAR 2015	842	16	16	8		0	1.3%
APR 2015	846	12	12	10		0	0.5%
MAY 2015	849	13	13	0		0	0.4%
JUN 2015	849	0	0	0		0	0.0%
JUL 2015	849	0	0	0		0	0.0%

CALIFORNIA PHP						
		PROSPECTIVE EFFECTIVE NEXT MONTH				
CURRENT ROSTER	APPLICATIONS	CONFIRMED BY CMS	DROPS	REJECTED BY CMS	CANCELLED BY MEMBER	NET
816	10	8	9	2	0	-0.6%
812	6	5	8	1	0	-0.5%
815	12	11	10	1	0	0.4%
818	14	13	10	1	0	0.4%
815	8	7	1	1	0	-0.4%
814	0	0	0	0	0	-0.1%
815	1	1	0	0	0	0.1%

Source: AHF EZCap Enrollment and Claims System, 2015.

While the AIDS Healthcare Foundation operates healthcare centers across the nation and managed care health plans in both California and Florida, a review of historical data illustrated the need for improvements in referral processing specifically for the California Medicare plan (PHP) and Medi-Cal plan (PHC) and in the California Healthcare Centers. Levels of satisfaction

in the ease of getting referrals is one element AHF monitors annually. The AIDS Healthcare

Foundation's (AHF) health plan members participate in the Consumer Assessment of Healthcare

Providers and Systems (CAHPS) survey every other year as required by the Centers for

Medicare and Medicaid Services (CMS). The CAHPS survey is the official Medicare patient

and member satisfaction survey in which the plan members document their levels of satisfaction

with different elements of their inpatient, outpatient, and prescription drug coverage.   Table 2

below outlines how California's Medicare plan (PHP) did not perform as well as the Florida PHP

plan.

Table 2: California vs. Florida - Key Star Ratings based on Composite Scores

Reporting composite or item	Estimated final stars CA	Estimated final stars FL
Ratings of Health Plan Responsiveness and Care		
Ease of Getting Needed Care and Seeing Specialists	★★	★★★
Getting Appointments and Care Quickly	★★★	★★★★
Overall Rating of Health Care Quality	★★★★	★★★★
Overall Rating of Health Plan	★★★	★★★★
Health Plan Provides Information/Help When Needed	★★	★★
Coordination of Health Care Services	★★	★★★★
Vaccines		
Flu Vaccination	★★★★★	★★★★★
Member Experience with Drug Plan		
Ease of Getting Prescriptions Filled	★★	★★
Overall Rating of Prescription Drug Plan	★★★★	★★★★

★★★★★ Excellent performance   ★★★★ Above average performance
★★★ Average performance   ★★ Below average performance ★ Poor performance

Data Source: Decision Support Systems (DSS) Research, 2014.

In addition to focusing on AHF's California Medicare and Medicaid plans, this effort also included the ten local AHF Healthcare Centers that provide primary care services to AHF patients and generate the referrals for California Managed Care patients. The Healthcare Center's included in this improvement effort are depicted below in Figure 2.

Figure 2: Map of AHF Healthcare Centers- Southern California

AHF Healthcare Centers:
AHF Healthcare Center - Valley
AHF Healthcare Center - Westside
AHF Healthcare Center - Hollywood
AHF Healthcare Center - West Adams Carl Bean House
AHF Healthcare Center Downtown
AHF Healthcare Center - Redondo Beach
AHF Healthcare Center El Monte
AHF Healthcare Center - Whittier
AHF Healthcare Center - Long Beach
AHF Healthcare Center - Upland
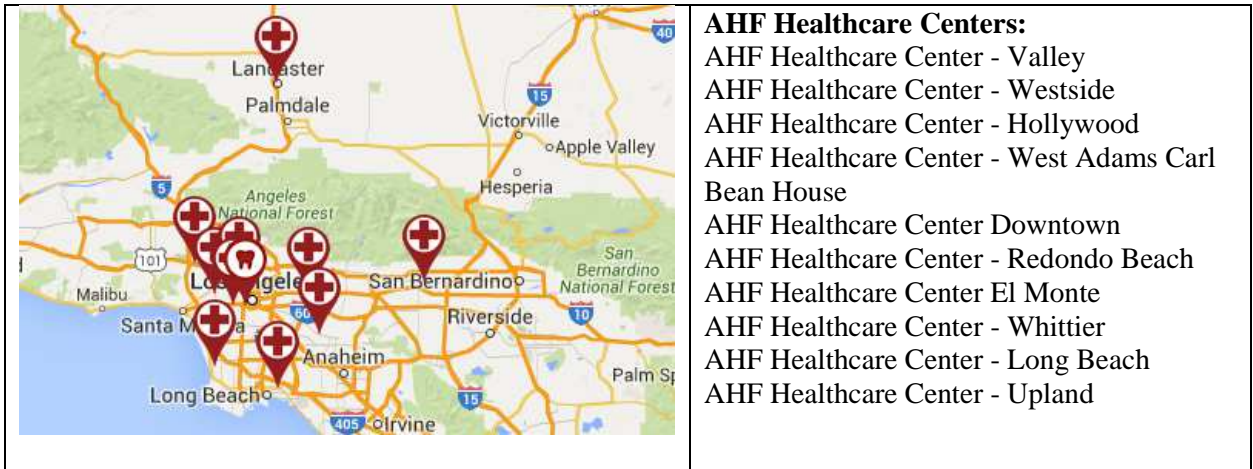
Source: AIDS Healthcare Foundation, 2014.

Only four of the above listed healthcare centers are open full-time five days a week. These include the Valley Healthcare Center, the Downtown Healthcare Center, the Westside Healthcare Center, and the Hollywood Healthcare Center. Below in Table 3 are the referral volumes currently being processed at each of these healthcare centers. These volumes include PHP and PHC patients along with Ryan White patients who are also seen at these locations.

Table 3: Referral Volumes (Specialty Outpatient and Ancillary) in Select Southern California Health Care Centers

Number of Referrals by Southern California Healthcare Center by Month September – November 2014				
HEALTHCARE CENTER	September 2014	October 2014	November 2014	Total Referrals by HCC	Referral FTE Coverage
Valley	158	153	162	473	0.5
Downtown	402	484	327	1,213	1.0
Westside	549	554	462	1,565	1.0
Hollywood	580	844	492	1,916	1.0
Totals by Month	1,689	2,035	1,443	5,167	3.5

Source: AIDS Healthcare Foundation, 2014.
Notes: The Valley HCC RC (Referral Coordinator) cross-functions as LVN providing telephone coverage, supports the service of walk-in patients, promotes the patient throughput, and cross-covering of other HCC referral staff. Downtown RC provides cross-coverage for Hollywood and Westside locations.

Planning the Intervention

The implementation of the referral process re-design involves a significant amount of commitment on behalf of the project team. Figure 3 below provides a layout of the project team at an executive level; however the Director of Managed Care Program Development engaged referral coordinators and front-line staff in working sessions, interviews, and site visits to inform the improvement process. In addition to re-allocating staff resources to centralize and standardize the referral and authorization processes, the re-design also required additional resources in the form of staff training time and information technology staff.

Initial planning efforts began in September 2014 when AHF hired a Director of Managed Care Program Development to oversee an evaluation of the current referral and authorization processes and the use of Six Sigma tools to assess the process and implement targeted

improvements.

Figure 3: Referral Performance Improvement Project Team

Ashley Parks, Dir. Prgm Dev
Project Manager

Project Team Members & Stakeholders Listing:

- Julie Booth, Director of Quality
- Sharon Matland, Director of Nursing
- Karen Haughey and Marie Alvarez (UM/CM)
- UM/CM Staff: Fred Pedersen, Cesar Mier
- Michael Allen, VP Business Analytics
- Glenda Hale (AHF Healthcare Centers)
- Regional Medical Directors
    - George Melikian, MD
- Wayne Chen, MD, MC Medical Director
- Michael Wohlfeiler, MD, Medical Director
- Mohandoss Tychicus (or IT dept. designee)

Six Sigma Performance Improvement Methodology

The AHF team utilized the Six Sigma performance improvement methodology as depicted below in Figures 4 and 5. Six Sigma performance methodologies use the DMAIC framework to define a problem, measure the current state, analyze the data and workflows, improve the process, and control the outcomes in the long term. There are several tools under different stages in the process which the team will leverage to better measure, analyze, and improve referral processes. Figure 3 illustrates how the phases of Six Sigma can be implemented as a part of rapid cycle improvement; while Figure 4 provides the key elements of each phase.

Figure 4: Six Sigma Performance Improvement Methodology and DMAIC
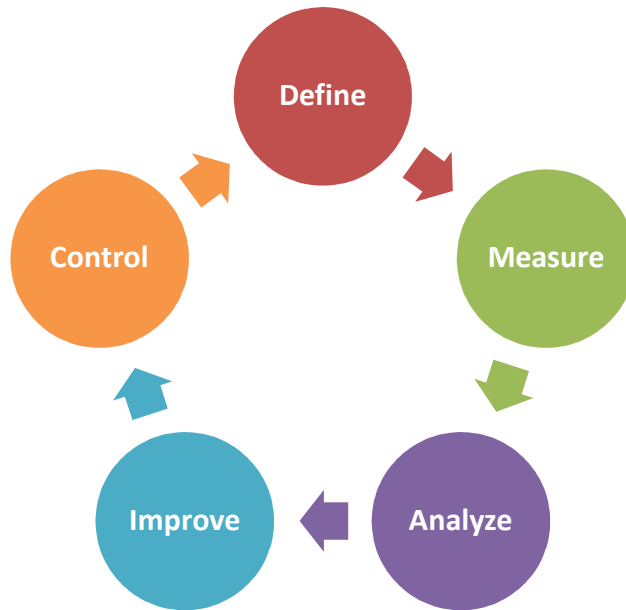
Figure 5: Six Sigma DMAIC Process

DEFINE	MEASURE	ANALYZE	IMPROVE	CONTROL
• Processes are identified with poor performance • Cost, Cycle Time, Delivery Performance require Improvement	• Waste • Non Value Added • Scrap • Cycle Time • On Time Performance • Order Fulfillment	• Procurement Best Practices • Value Stream Mapping • Kanban • Layout and Process Flow	• Kaizen • Set-Up Reduction • Poka-Yoke • Total Productive Maintenance • Layout and Process Flow • Kanban	• Process Standardized • 5 S • TPM • Kanban

Source: Six Sigma Institute, 2014.

Statistical Process Control (SPC)

Statistical process control (SPC) was also utilized in tandem with the Six Sigma methodology to further analyze and address issues within the referral and authorization process. SPC is a learning-based approach to data analysis and a set of methods for ongoing improvement of systems, processes, and outcomes. The SPC approach is centered on the core concepts of growth and learning through frequent review or relevant data and is based on the theory of variation and the importance of understanding common and special cause variation. Statistical process control involves process thinking, deliberate analytic study, stratification and phased analysis, process stability, process capability, and the prediction of future data trends. SPC also includes measurement as seen in Six Sigma methodology, data collection methods, and planned interventions. The primary tools of SPC include graphical representations such as Shewhart charts, commonly referred to as 'control charts', run charts, dot plots, histograms, Pareto analysis, scatter diagrams, and process flow diagrams (Carey, 2003). Statistical Process Control Charts, process flow diagrams, run charts, and dot plots were included in the analysis of this process.

The project team performed a thorough assessment of the current business processes in place and developed a revised future state workflow based on assessment findings. Figure 6 below contains each of the tools utilized by the project team throughout the Six Sigma process.

Figure 6: Six Sigma Tools Utilized by Phase

Define
- Review of Historic Data , Determine CTQ Element , Creation of SIPOC Diagram, Create House of Quality, Description of Target Population, Create Voice of Customer Table, Provider and Staff Interviews

Measure
- Current State Workflows (See Appendices B & C), Create Data Collection Plan (See Appendix J), Conduct Initial Process Measurements of Timeliness, Review of External Data Sources, Complete Failure Mode Effect Analysis (FMEA), Conduct Root Cause Analysis for Major Failures using Ishikawa Diagram (Fishbone), Calculate Initial Baseline Process Sigma, Prioritization Matrix, Develop Voice of Customer Translation Table with Key Outcome Variables

Analyze
- Complete Analysis of Pre-Implementation Data – Referral Timeliness and Member Grievance Trends, Update Data Collection Plan based on Interim Findings

Improve
- Develop and Implement Future State Workflow, Create targeted list and description of recommended and implemented improvements, Evaluate practicality/feasibility, Create Pugh Matrix, Analysis of Post Implementation data including trends over time, Create updated DPMO for all Metrics

Control
- Develop and implement Control Plan (long term outcomes monitoring- Appendix J), Summarize Project Outcome, Capture Lessons Learned

Define Phase: Initial Project Meeting and Discussions

In the Define phase of DMAIC, the key stakeholders met and conducted several introductory meetings which resulted in the development of two fairly complex current state referral process workflows for the direct and in-direct referral processes. During these conversations, the team also conducted a Failure Mode Effect Analysis (FMEA) in order to determine potential points of failure, issues, and risks for the full managed care referral process. The team also utilized the SIPOC (Suppliers, Inputs, Processes, Outputs, and Customers) and House of Quality tools to determine the requirements of the customers and the organization, and the relationships between these elements. The Failure Mode Effect Analysis (FMEA) resulted in the identification of the seven main problems with the referral process as outlined in the "Introduction" section and pointed towards a strong need to (1) correct/remove the failed direct referral process, and (2) implement several changes to the Centricity Practice Solutions (CPS) electronic medical record (EMR) to have the electronic system better support the practical workflow required for efficient processing of referrals.

The FMEA created by the team was updated throughout the course of the project to include changing organizational processes/controls and recommended actions. Appendix O contains the RPN (Risk Priority Number) Prioritization Matrix which is the final work produce of this analysis and lists the failure modes and project issues with the greatest associated risk. In addition to identifying the core issues and completing an FMEA, the team also conducted root cause analyses (RCA's) of three different examples of defective referral processing. In the course of defining the problem, the team determined there were multiple issues with the referral process requiring resolution and process improvements to assist with improving patient

experience and patient retention.   A clear plan for the initial project team was developed using a VOC (Voice of Customer) approach that resulted in the Initial Process Change Request (abbreviated project charter) provided in Appendix A.

Measurement Phase: Key Informant Interviews and Review of Timeliness and Referral and Authorization Completion Data

The define and measurement phases of the process improvement effort included the review of external and internal data sources. Specifically, the measurement phase included the review of both mean turn-around times for referrals as well as the calculation of a process sigma value. The measurement phase of the referral process improvement efforts included key informant interviews of referral coordinator staff, providers, and nurse managers at each of the Southern California Healthcare Centers. The key informant interview instrument was developed collectively by the PI team and edited following pilot testing with 8 staff members and 3 providers.

Interviews began in Fall 2014 with 47 interviews completed October 2014- January 2015, including 30 California Healthcare Center staff members and 17 healthcare providers. Staff and providers were asked about role and responsibilities, key barriers and challenges within the referral and authorization processes, and recommended process changes. The key informant interview instrument utilized for referral coordinator interviews can be found in Appendix G, while the tool for provider interviews is in Appendix H.

In addition to measuring the timeliness of referral processing by health plan, visit type, and healthcare center site, the team followed the Six Sigma methodology by calculating defects in the process and developing a process capability report along with a measure of defects per million opportunities (DPMO). For the purpose of Six Sigma efforts during the measurement

phase, defects were defined as any referrals taking longer than 14 days to result in an authorization sent to the specialty provider, any referrals associated with a patient complaint or grievance, as well as any referrals which did not ultimately result in a completed specialty physician visit.

The SQUIRRE Guidelines for Reporting Project Elements

In addition to utilizing the DMAIC process to outline process issues, identify waste, and design and implement improvements, the team also utilized the SQUIRRE Guidelines, referenced in Appendix I, to appropriately document and summarize the project process and outcomes (Ogrinc, et al., 2008). The SQUIRRE guidelines provide a clear and logical "framework for reporting formal, planned studies designed to assess the nature and effectiveness of interventions to improve the quality and safety of care" (Ogrinc, et al., 2008). The final summary of project results in this document is constructed according to the 19 categories outlined in the SQUIRRE Guidelines including elements such as ethical issues, possible reasons for differences between observed and expected outcomes, and comparisons of study results with relevant findings of others.

Planning the Study of the Intervention

Study Data Elements

The data elements outlined in Table 4 below were collected and reviewed to determine the effectiveness of the Referral Process Improvement team's efforts as trended over time.

Table 4: Data Variables Collected and Definitions

Measure of Success (Metric for Evaluation)	Definition/ Calculations
Mean Referral & Authorization Turn Around Time (in Days)	Mean number of days from physician initiating order for referral to patient being seen by specialist Trended by Month Over Time ANOVA and T-test
Mean Referral & Authorization Turn Around Time – Phase 1 (in Days)	Mean number of days from physician initiating order for referral to authorization being sent to specialist Trended by Month Over Time ANOVA and T-test
Number of patient complaints and grievances regarding referral process	Rate of patient grievances received which reference issues or delays with specialty referrals or authorizations. SS Defect Type # 2 Calculate DPMO
Number of referrals with Phase 1 exceeding 14 calendar days	Number of referrals with phase 1 exceeding 14 calendar days (poor turnaround time performance) SS Defect Type # 1 Calculate DPMO
Number of referrals without specialty visit	Number of referrals which do not result in a specialty visit being completed SS Defect Type # 3 Calculate DPMO
Patient Retention – minimum of 2 visits per year	Percent of AHF Plan Patients with at least 2 PCP visits per year
Patient No-Show Rate	Percent of Scheduled PCP Appointments which Result in No-Shows
Referral and Authorization Volumes (balancing measure)	Number of referrals and authorizations generated

Appendix J contains the complete data collection and analysis plan for this dissertation, while

Appendix K contains the proposed long-term control plan for reviewing both internal and

external measures.

Implementing the Improvements – Phase 1 and 2

Due to the pressing business needs and recent dissatisfaction voiced by both healthcare providers and patients seen in the AHF healthcare centers, the initial current state process evaluation and pilot phase began immediately upon the hiring of a Director of Managed Care Program Development in September 2014. The Referral Performance Improvement Team utilized the tools listed in Figure 6 to define the problem and complete a current state assessment. Following the assessment activities, the team created a Pugh Matrix to match key critical to quality (CTQ) items and other criteria against possible solution alternatives and options for change. The full Pugh Matrix is available in Appendix N. The Pugh Matrix illustrates the solution alternatives that are most likely to positively impact the key criteria identified by the organization. The first three solution alternatives listed were selected for implementation and include (1) the creation of a consolidated referral and authorization processing workflow, including the removal of the direct referral process, (2) the hiring of a full-time authorization coordinator to absorb the additional volume of authorizations handled by managed care, and (3) the development and implementation of combined referral inboxes and improved referral tracking in the Centricity Practice Solutions (CPS) electronic medical record. Additional alternatives explored but not selected included the addition of referral coordinator staff to allow for each healthcare center to have a full time referral coordinator and the relocation of referral coordinator staff to a designated central location.

Once the initial core issues were reviewed and discussed, the AHF leadership made a collective and thoughtful decision to combine the two current state workflows, located in Appendix B and Appendix C, into a single referral and authorization workflow for all outpatient referrals as outlined in Appendix D. Steps outlined in bold and red were removed from the referral process and combined into more concise steps in bold and green in the future state

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process flow. Instead of maintaining two separate workflows and different documentation requirements and forms, the team designed a combined future state process involving the same staff and technical resources available. This involved the removal of the direct referral process and bringing all PHP, PHC, and Ryan White referrals back to the Managed Care Division at the Linn House location effective 1/1/15. Key Informant interviews revealed the direct referral process was considered a major challenge for both staff and providers.   Prior to rolling out the new referral process in all 10 Los Angeles healthcare centers, the revised process was pilot tested in the LA Downtown Healthcare Center in November and December 2014. Pilot testing revealed a decrease in turn-around times and an increase in reported staff and provider satisfaction.

With the AHF health plan referral workload now under the oversight of an experienced team in Managed Care, the team then shifted its focus to technical EMR and workflow improvements both in and out of the healthcare centers. Appendix E provides a high level view of the implementation schedule including the 1/1/15 implementation of the move of all plan referral and authorization processing back to Linn House as well as the August 2015 changes including the updated CPS EMR referral inboxes and processing of all specialty consult reports by Managed Care staff. See Appendix E for a high level outline of the implementation schedule including the key milestones.

In January 2015, the first stage of the improvement began with the movement of all PHP, PHC, and Ryan White referrals and authorizations back to being handled by Managed Care utilization management staff. The AHF leadership team agreed moving the PHP and PHC direct referral process to Linn House would benefit the healthcare centers and allow for current staff to operate more effectively. Increases in 3rd party and commercial payers provided justification for

current staffing at the healthcare centers to remain the same.

The re-design of the CPS (Centricity Practice Solutions) referral system was the second and most detailed change in the referral process improvement effort. System changes launched in late July 2015 and included the development of authorization coordinator inboxes in the EMR, adding a combined location for viewing and shepherding a referral through the process. This functionality created a new location in the electronic medical record for documenting referral details and removed the need for referral coordinators to do any manual coordination work to move forward referrals for AHF Managed Care patients (PHP &PHC) from the provider to the UM staff. The creation of the combined referral inboxes created transparency between departments allowing for users on both the Managed Care and Healthcare Center Division teams to see those referrals that were still pending by site and for what reason. This change also included an electronic location for documenting referral and authorization follow-up to reduce the need for phone calls to check on the status or verify the processing of an authorization.

The CPS redesign effort also involved the reassignment of responsibility for reception and follow-up on specialty reports for California PHP and PHC members. Utilization Management staff assumed this additional responsibility effective August 2015, allowing for the Managed Care Division to completely own and streamline the referral and authorization processes for all PHP and PHC patients to address sub-problem #3 "delays in the sending and receiving of specialty consult reports to the healthcare centers after original referral and/or before subsequent referrals". In addition to reassigning the responsibilities for key care coordination functions, the technical improvements will result in UM authorization coordinators being able to handle all aspects of a patient referral and then scan and upload specialty reports and flag them for immediate PCP review.

The implementation of the AHF healthcare center referral and AHF health plan process re-design required both the use of a new resource for the re-direction of California direct referrals back to the Managed Care Division's Utilization Management Department as well as the reassignment of resource time from the healthcare center referral coordinator staff away from the processing of direct referrals back to customer service and patient communication.

Specifically, the team concluded the future state referral process needed to include the authorization coordinators at Linn House assuming responsibility for the complete referral and authorization process for PHP and PHC patients. This included the transition of one full-time staff member into a role processing referral and authorization paperwork for the Los Angeles area healthcare centers. The addition of one staff member to assist the other UM authorization coordinators would allow for the healthcare center referral coordinators to focus on provider and patient communication without having to deal with authorization details. In addition to having a current temporary staff member transition into a fulltime FTE role, the UM team also accepted the responsibility to receive and process specialty consult reports. The driver for this staff change was to support the healthcare centers by pulling the PHP and PHC direct referrals back into Managed Care. The team also implemented these changes in order to allow the healthcare centers utilize the additional staff time to perform additional patient retention activities and prescription and visit follow-up.

Methods of Analysis

The analysis of the referral and authorization process included analysis of referral, authorization, and claims data and processes as well as a review of key workflow deficiencies as identified through the thematic analysis of 47 staff and provider interviews. The analysis included both a review of the current state process and prioritization of failure modes and issues

as shown in Appendix O as well as a review of key metrics throughout the project life cycle. The Referral Process Improvement Team collected and analyzed data according to the data collection plan in Appendix J.   The team reviewed referral turn-around time data at PI meetings on a bi-weekly basis in addition to trending performance month over month for review by the Managed Care Executive Committee and the Healthcare Center Executive Committee.   The integrated electronic medical record system and claims processing systems allowed for the generation of real time reports for tracking the timeliness of internal processes and external member visits.

The main methods of analysis used for assessing the effectiveness of the authorization and referral process improvement team include the following:

1) Monthly trending, ANOVA, and t-test comparison of means for authorization timeliness data including:

   a. Mean Number of days from physician initiating order for referral to patient being seen by specialist, and

   b. Mean number of days from physician initiating order for referral to authorization being sent to specialist.

2) Calculation of the rate of defects per million opportunities (DPMO) for California Managed care (PHP & PHC) referrals defined as:

   a. Number of referrals with phase 1 exceeding 14 calendar days (poor turnaround time performance- SS Defect Type #1)

   b. Patient grievances received which reference issues or delays with specialty referrals or authorizations (unsatisfactory experiences with referrals – SS Defect Type #2).

c. Number of referrals which do not result in a specialty visit being completed (incomplete referrals - SS Defect Type # 3).

d. Cumulative rate of defects per million opportunities (DPMO) for California Managed care (PHP & PHC) referrals for SS Defect Types 1,2, and 3).

3) Calculation of the rate of documented patient grievances per 1,000 clients from California Managed Care (PHP & PHC) plan members received which reference issues or delays with specialty referrals or authorizations.

Four different data collection timeframes were used for comparison during the initial analysis. The timeframe from January 2012 through March 2014 was considered our pre-intervention timeline and first baseline data set given no interventions had yet occurred. The April 2014 to December 2014 timeframe was considered the first intervention timeframe. While no formal interventions were implemented during this timeframe, leadership did communicate expectations to staff beginning in April 2014 followed by the PI team forming and assessing the referral and authorization processes in September 2014. The second intervention timeframe was January 2015 to July 2015 and included the removal of the direct referral process and implementation of a new combined referral process. August 2015 to December 2015 was considered the third intervention timeframe given the development of the combined referral inbox system and new specialty consult report reception process were the last major process changes implemented in August 2015. The analysis of DPMO rates are depicted for each intervention period separately while all trended data was analyzed monthly. The pre-intervention baseline timeframe was defined as January 2012- March 2014, while the April 2014 – December 2015 timeframe was used as the intervention timeframe.

The mean turnaround time for processing authorizations and for having patients seen by

the specialist were trended over time and reviewed monthly by the performance improvement team and leadership using the format shown in Figures 7, 8, and 9 in the analysis and results section. The process changes were marked as milestones when plotting and trending referral and authorization data over time.

Additional analysis was completed using statistical process control (SPC) charts separated into phases according to the intervention timeframes. SPC was used to assist the team with identifying common cause and special cause variation, and understanding what factors contributed to variability in turn-around times. Nelson's rules for statistical process control were used to determine trends and interpret progress made over time. In line with Shewart's recommendations for statistical process control charts reviewed earlier, upper and lower control limits (UCL and LCL) were placed at three standard deviations away from the mean. A phased analysis was conducted in which the mean and upper and lower control limits were recalculated and adjusted based on the data points within each intervention phase.

In order to determine statistical significance of the change in processing timeframes over the course of the performance improvement project, the separate implementation timeframes were also analyzed using an analysis of variance (ANOVA) while the mean turn-around times for the pre-implementation and post-implementation timeframes were analyzed collectively using an independent t-test. Analysis of referral turn-around data, specialty visits, patient grievances, patient retention, and patient no-show rates occurred in SPSS, MiniTab and Microsoft Excel systems in order to allow for a wide array of techniques and tools to be used. The analysis of variance (ANOVA) across implementation phases and the independent t-tests comparing pre and post means were performed separately for each timeliness measure (1a and 1b listed above) in SPSS. Trended analysis, creation of statistical process control charts, secondary

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analysis of variance (ANOVA) across implementation phases, two sample t-tests, statistical process control charts, and review of individual cases was conducted in Microsoft Excel, while Minitab was utilized to create scatterplots, process capability reports, and to calculate the defects per million opportunities (DPMO) and sigma values.

Ongoing Methods of Evaluation – Control Plan

The short term summary assessment of the referral improvement effort's project outcomes began in January 2016 following the implementation of all technical changes and process improvement efforts in 2015. The AHF leadership team anticipated that the process and technical changes outlined above would improve referral turn-around times, patient experience, and retention for both the healthcare centers and health plans. However, following the initial analysis of the implementation of the referral process redesign and education efforts, data collection and analysis will extend beyond the completion of this dissertation by a full two years through Q4 2017. The Control Plan outlined in Appendix K lists outside metrics, including CAHPS measures and Ryan White In+care measures which will be evaluated annually as available. The ongoing monitoring strategy will also include monthly reporting of referral and authorization timeliness to physicians at Medical Staff meetings.

CHAPTER 4: DATA ANALYSIS AND RESULTS

The data analysis and results are separated into two different phases with key informant interviews and qualitative information gathering during the define and measurement phases as phase 1 and the analysis of referral turn-around time data and patient grievances as Phase 2.

Phase 1: Analysis of Referral and Authorization Process Barrier and Recommendations for Improvement

In order to identify key barriers and challenges within the referral and authorization processes and solicit front-line staff and provider input on potential process changes, the PI team members conducted 47 key informant interviews of referral coordinator staff, providers, authorization coordinators and nurse managers at the Southern California Healthcare Centers and managed care offices during the define phase from October 2014-December 2014. The interviews informed the PI team's decisions to remove the direct referral process and re-work the electronic processing of referrals. Thirty staff members were interviewed including seven nurse managers, eight benefit counselors, six front office staff members, three managed care authorization coordinators, and 6 referral coordinators. In addition to soliciting staff input, the team also interviewed 17 healthcare providers including 12 medical doctors (MDs) and 5 mid-level (PA/NP) providers.

The PI team members utilized the interview instruments in Appendix G and Appendix H to ask clerical staff, nursing staff, and providers to share their thoughts about the referral and authorization processes. During the course of the key informant interviews, the team determined a high level of variability existed in the timeliness and perceived importance of referral processing. One provider referred to the referral process as "the single most frustrating part of assisting patients", while another characterized the referral process as "the weak point in care

coordination" due to difficulty expediting referrals and an inability to track where in the process a referral is being delayed. While some referral coordinator staff reported processing referrals in an immediate manner, others reported batch processing of referrals on certain days or at the beginning or end of the day. These interviews informed the design of the physical and electronic workflows, updated referral forms for PHP and PHC members, creation of staff education materials and a referral process checklist, and the updating of the organization's referral and authorization policies for Medicare and Medi-Cal patients.

Several themes were identified during the staff and provider interviews including the shared perception of a broken current state process. Below is a listing of the common themes which were expressed by providers and staff and considered during the process re-design along with the resulting strategy(ies) utilized to address each concern:

Table 5: Major Themes Discussed During Key Informant Interviews

#	Key Theme	Frequency Referenced	Observations & Key Quotes	Resulting Strategy/ Action Plan
1	Communication Difficulties and Interpersonal Conflict	17 out of 17 (100%) of healthcare providers and 28 of the 30 (93%) staff members	"Our sites each have their own way of processing referrals and dealing with plan staff. The referral process is handled differently depending on site and referral coordinator. The way of doing things needs to be standardized between locations."	Implementation of new combined referral process workflow with standardized steps and decreased feedback loops or needs for re-work
2	Staff Commitment and People as an Organizational Strength	17 out of 17 (100%) of healthcare providers interviewed spoke to the commitment and support provided by staff.	All providers expressed satisfaction with internal staff interactions within the healthcare centers. None of the providers interviewed named specific staff members or departments as a barrier or challenge (Question 9).	Team building and institution of joint department operations meetings.
3	Inefficient Use of Technology	14 out of 17 (82%) of providers and 30 of 30 (100%) staff members described the referral processing steps in the electronic medical record as being cumbersome, difficult to navigate or unnecessarily complicated.	There was inconsistency in the overall interview respondents' description of the use of technology and systems in the referral and authorization processes with a total of four different understandings of how the electronic workflow should be used (Questions 5, 6, and 7).	Implementation of new combined referral inbox system to route referrals from providers directly to Linn House with all referrals transparently processed in a shared location.
4	Department Specific Interests & Bias	23 out of 23 (100%) of the front line staff members working in the HCCs expressed the desire to see Managed Care assume more responsibility	Five out of six referral coordinators interviewed listed the direct referral process as a key barrier and requested Managed Care own all authorization processes once the provider has signed off (Questions 9 and 12).	Managed Care will assume responsibility for all referral and authorization processing for PHP and PHC patients.
5	Negative and Exaggerated Perceptions of Referral Timeliness	14 out of 17 (82%) or providers commented that patients often wait more than one to two months for referrals to be processed and authorized	A review of the turnaround time data for these sites does not illustrate routine waits this long. Mean referral timeframes as outlined below in Table 6 were far shorter than the quoted timelines described by providers.	Sharing of monthly mean processing timeframes and outlier analysis involving providers and PI team members
6	Tools and Staff Education Needed	15 out of 17 providers interviewed cited a need for additional resources, tools, and training	Resources suggested included cheat sheets, guides, tools, or templates to enable staff members to perform consistently across healthcare center sites.	Updated PHC and PHP referral forms created in CPS. Referral process guide disseminated.

Phase 2: Analysis of Referral Turn-Around Trends over Time

A trended analysis of referral processing turn-around times indicated project success in the form of a decrease in the mean number of days from physician order to authorization completion from our pre-implementation timeframe in January 2012- March 2014 to the performance improvement timeframe beginning in April 2014. The number of days clients were required to wait from the physician generating an order to being seen by a specialist also decreased over time. Table 6 provides the mean turnaround times by intervention period from 2012 through 2015, while Appendix M includes additional summary statistics by month.

Table 6: Mean and Standard Deviation of Process Components by Intervention Timeframe, 2012 – 2015.				
Turn Around Time Analysis: Mean Days to Authorization and Mean Days to Seen by Intervention Phase				
	Timeframe 1: Baseline- Jan 2012- Mar 2014	Timeframe 2: Apr 2014 - Dec 2014	Timeframe 3: Jan 2015 - July 2015	Timeframe 4: Aug 2015 - Dec 2015
Mean Days to Authorization Complete	12.5	3.4	1.4	1.5
Std Dev of Days to Auth Complete	40.4	11.5	4.4	4.4
Mean Days to Specialty Visit	57.6	62.5	40.9	33.6
Std Dev of Days to Specialty Visit	7.8	4.8	1.8	6.8

Figure 7 provides the mean time from physician order to authorization for outpatient specialty visits compared to the number of authorizations processed for that month for California PHP and PHC clients. While the number of members and volume of authorizations has

increased over time from 2012 to 2015, the overall authorization process timeframes have

Figure 7: Number of Authorizations Processed vs. Mean Days from Primary Care Physician Order to Completed Specialty Visit Authorization, 2012-2015

Number of Authorizations Processed vs Mean Days to Authorization

Milestone 1 - 4/2014 - Leadership Communicates Need for Improvement to Staff
Milestone 2 - 9/2014 - Project Team Formed
Milestone 3 - 1/2015 - Referral Process Redesign
Milestone 4 – 8/2105 - EMR Changes

Number of Orders — Mean Days to Authorize

decreased greatly during this same timeframe. The performance improvement team analyzed

these metrics side by side, incorporating authorization volume as a balancing measure.

Figure 8 below provides the mean number of days from physician order to the member

being seen initially by the specialist to which they were referred compared to the number of

authorizations processed for that month for California PHP and PHC members. The mean

timeframe from physician order to member being seen decreased sharply in late 2014 during the

initial launch of this project and implementation of the new workflow seen in Appendix D and

continued to experience an overall decrease from February 2015 through December 2015.

Monthly fluctuations in variability can also be seen in statistical control charts and Appendix M.

Figure 8: Number of Authorizations Processed vs. Mean Days from Primary Care Physician Order to Client Seen by Specialist, 2012-2015

Number of Authorizations Processed vs Mean Days to Seen
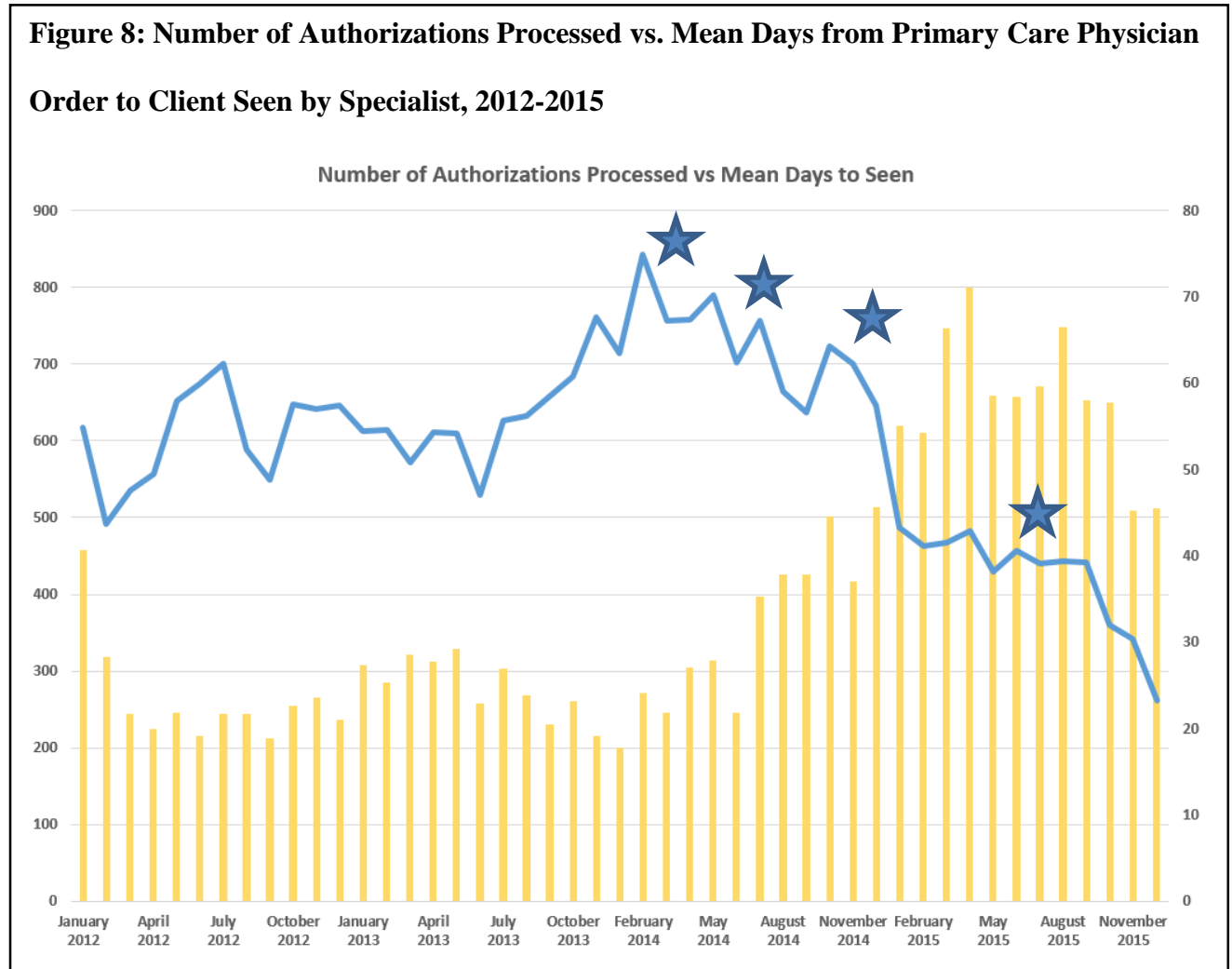
The shared decreases in mean days to authorization and mean days to specialist visit can be seen below in Figure 9. The overall aggregate decrease in turn-around times for authorizations resulted in clients seeing specialists more quickly. Even with notable increases in the volume of referrals and authorizations month over month, the AHF California Managed Care

team still favorably decreased turn-around times over the course of the project.

Figure 9: Decreases in Mean Days to Authorization and Mean Days to Specialist Visit, 2012 - 2015
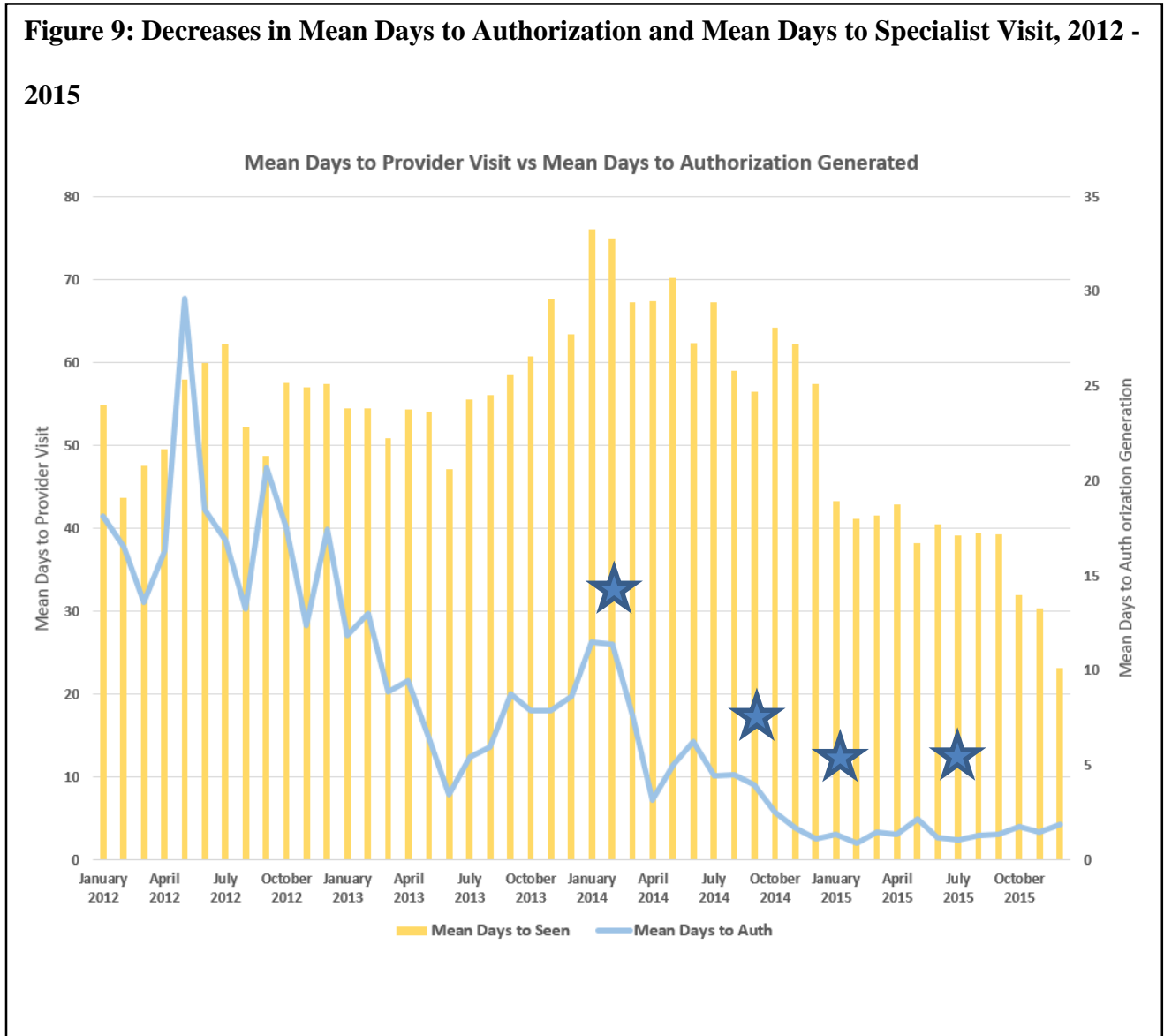
The statistical process control chart depicted in Figure 10 below illustrates the decrease in the

mean days and standard deviation from physician order to completed authorization by month and

by intervention timeframe.   While some degree of variation and noise is visible in Figure 10, the

sequence of 8 data points decreasing from June 2015 to December 2015 meets Nelson's 3rd rule requiring 6 consecutive points in a single direction to define a trend.

Figure 10: Statistical Process Control Chart of Mean Days from Primary Care Physician Order to Completed Authorization for Specialty Visit by Month and Project Phase
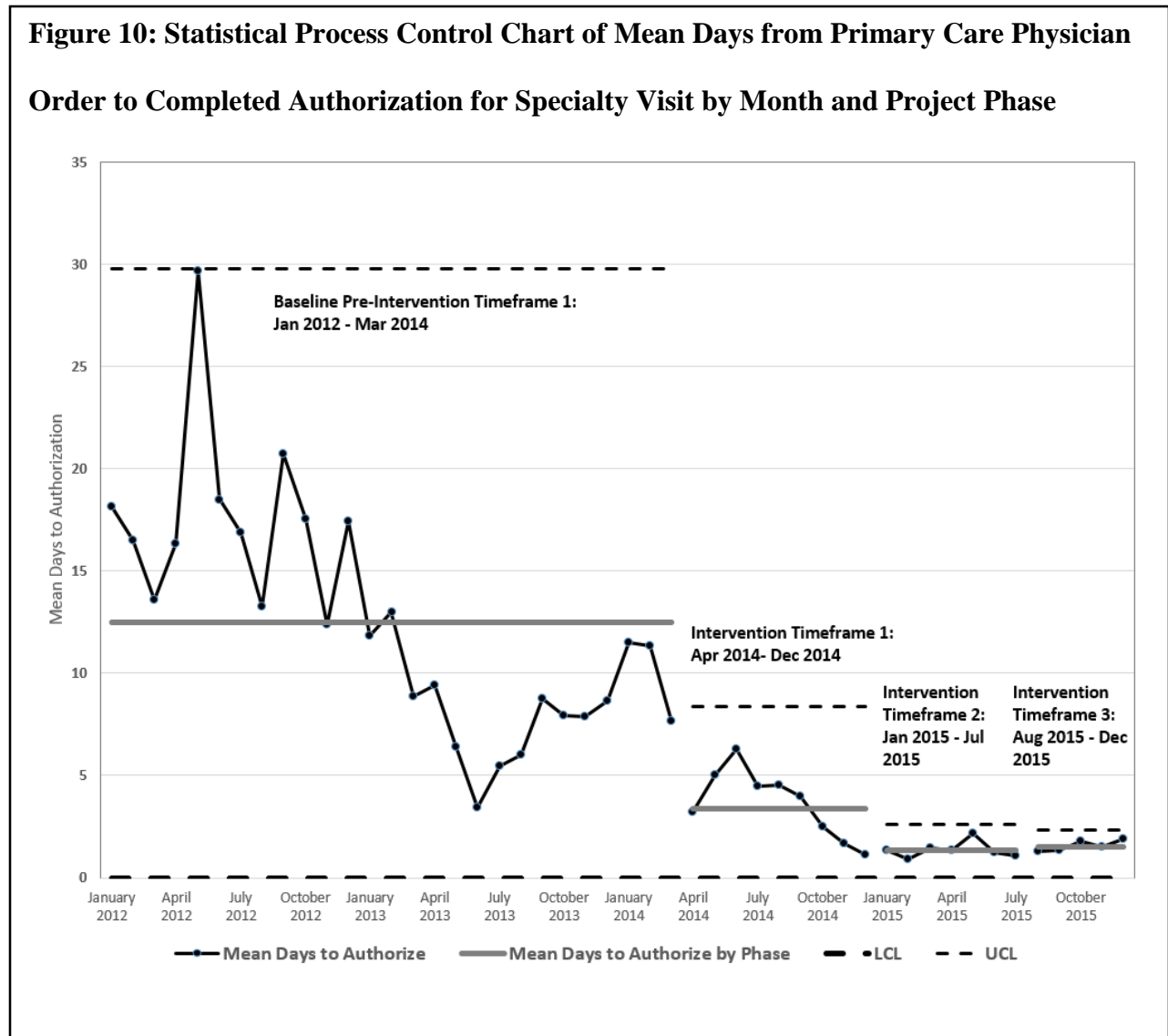
Figure 11 depicts the mean days from referral order to specialty physician visit and also exhibits a 6 month consecutive downward trend from July 2015 to December 2015. When applying Nelson's rules, an upward trend can also be detected from July 2013 to December 2013. This trend could be linked to the increase in organizational concern regarding the referral

process amongst leadership in early 2014.

Figure 11: Statistical Process Control Chart of Mean Days from Primary Care Physician Order to Completed Specialty Visit by Month and Project Phase
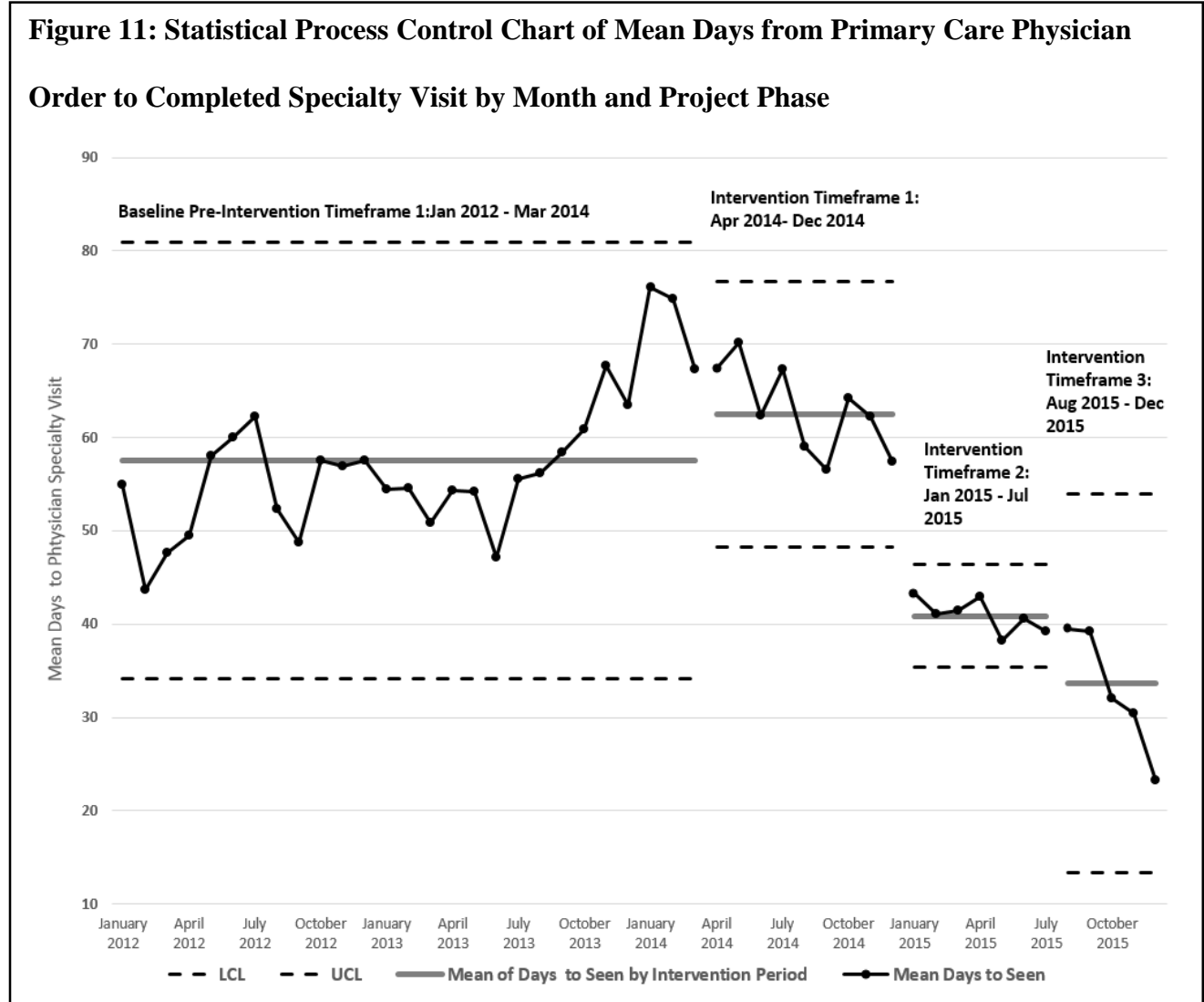
The variability in authorization processing timeliness is also portrayed below in Figures 12 and 13. Between the pre-intervention and intervention timeframes the standard deviation for days from order to authorization decreased from 40.4 to 4.4. Figure 12 provides a more detailed view of the spread in the timeframe for authorization processing by including each individual authorization including outliers. There were a number of outliers in the 2012-2014 sample in which referral processing was delayed for up to 8-12 months in cases where there were provider,

benefit, or scheduling issues.

Figure 12: Individual Value Plot of Days to Authorize by Year, 2014 vs. 2015
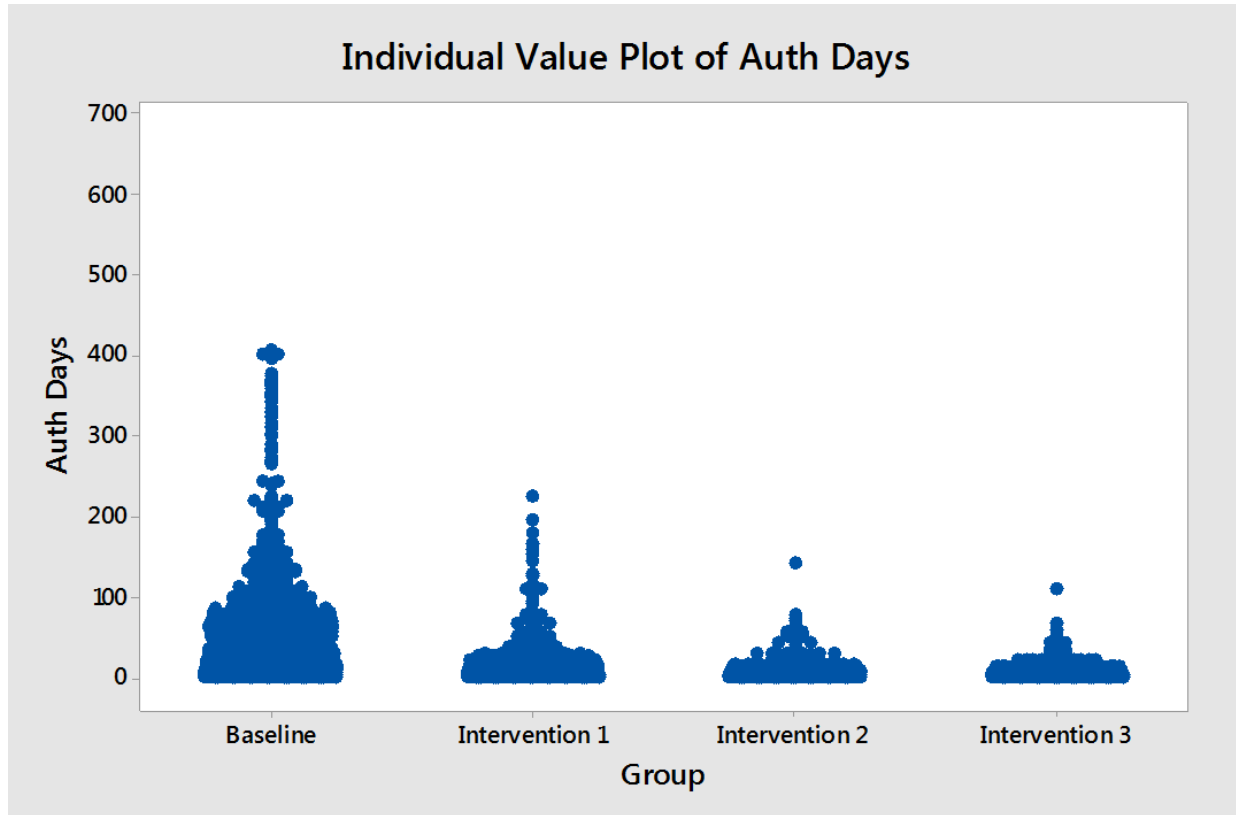
Note: Baseline = Jan 2012 – Mar 2014, Intervention Phase 1: Apr 2014 – Dec 2014, Intervention Phase 2: Jan 2015 - Jul 2015, Intervention Phase 3: Aug 2015 – Dec 2015.

Figure 13 provides the mean number of days from physician order to completed authorization and the 95% confidence intervals for each by intervention period. As the project progressed, the variability in authorization turn-around times decreased. The baseline mean and confidence interval are noticeably longer than the authorization turn-around times observed following the deployment of the combined referral process and electronic referral inbox system.

Figure 13: Interval Plot of Days to Authorize by Phase, 2012-2015.
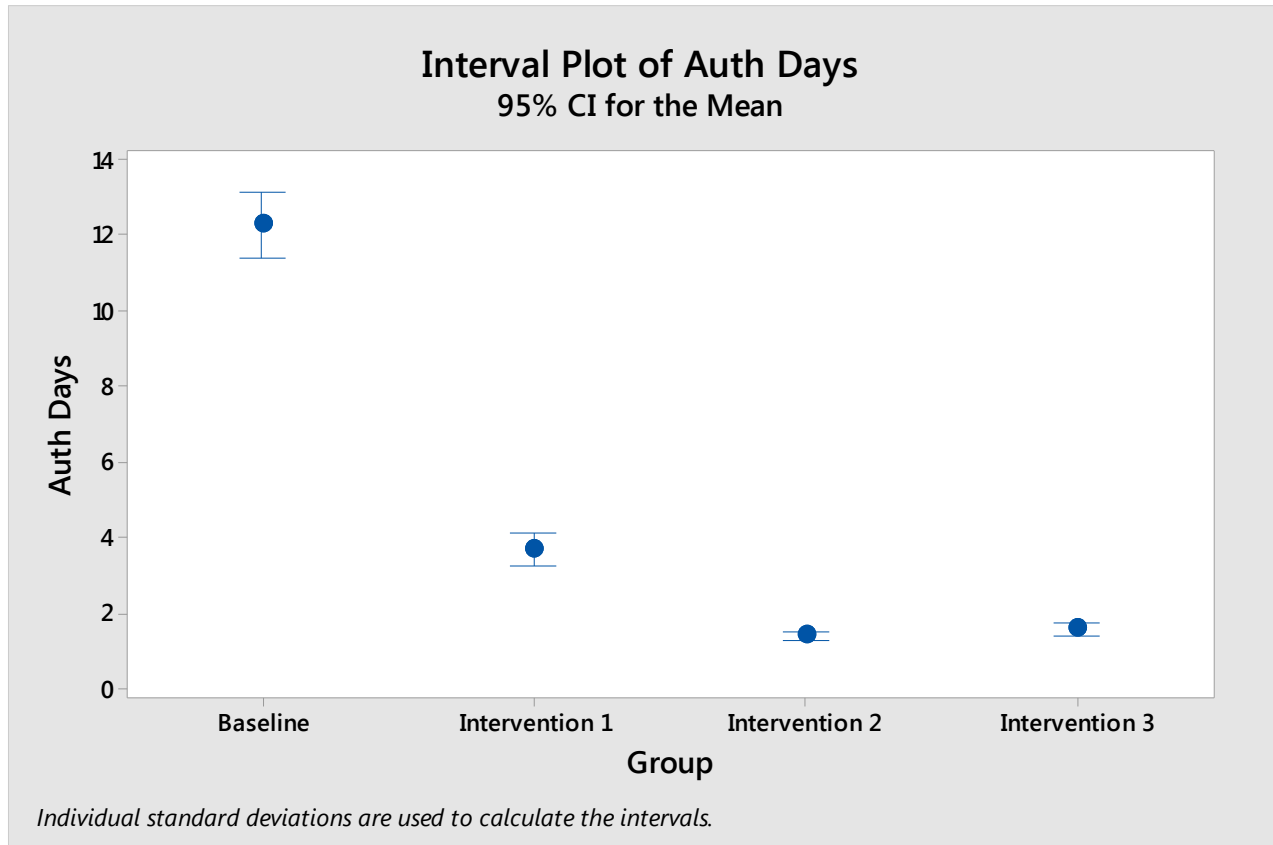
Interval Plot of Auth Days
95% CI for the Mean

Individual standard deviations are used to calculate the intervals.

Note: Baseline = Jan 2012 – Mar 2014, Intervention Phase 1: Apr 2014 – Dec 2014, Intervention Phase 2: Jan 2015 - Jul 2015, Intervention Phase 3: Aug 2015 – Dec 2015.

Table 7 below features the same decrease in days to authorization and days to seen by health plan. California Medi-Cal Members (PHC), California Medicare members (PHP), and dual members (PHP/PHC) all experienced decreases in the time needed to receive an authorization and the overall wait time to see a specialist.

Table 7: Mean Number of Days to Authorization and Days to Seen by Specialist by Plan

Health Plan	Members with Auths	Auth-orizations	Auths per Member	Days to Authorization		Days to Specialty Visit	
				Pre	Post	Pre	Post
PHC	617	7,698	12.5	12.48	2.07	57.04	46.66
PHP	298	4,059	13.6	13.03	2.12	56.73	45.77
PHP/PHC	376	6,798	18.1	12.13	1.98	58.92	44.81
Grand Total	**1,291**	**18,555**	**14.4**	**12.50**	**2.04**	**57.58**	**45.77**

Note: Pre= 2012 – Q1 2014, Post = Q2 2014 -2015.

Table 8 below illustrates how the frequency and types of referrals being generated did not change greatly, and a review of the individual providers utilized remained consistent.

Table 8: Mean Days to Authorization and Days to Seen by Specialist by Specialty

Specialty Description	# of Authorizations		Mean # of Days to Auth		Mean # Days to Visit	
	Pre	Post	Pre	Post	Pre	Post
GENERAL ACUTE CARE HOSPITAL	1,453	1,574	10.5	2.4	55.7	44.5
OPHTHALMOLOGY	607	692	9.1	1.8	56.6	42.3
DERMATOLOGY	408	755	12.6	1.9	49.9	43.6
DIAGNOSTIC IMAGING CENTER	443	651	8.7	1.9	49.2	38.6
CARDIOLOGY	299	601	11.6	2.1	57.6	41.5
UROLOGY	374	507	8.7	1.6	57.6	48.4
COLON & RECTAL SURGERY	348	492	13.2	1.6	51.1	41.9
GASTROENTEROLOGY	189	550	8.9	2.0	59.9	56.3
PODIATRY	192	340	16.3	2.8	66.4	42.8
Grand Total	**4,745**	**6,640**	**9.7**	**2.1**	**50.2**	**44.4**

Note: Pre= 2012 – O1 2014. Post = O2 2014 -2015.

In addition to viewing trends by health plan, the PI team also reviewed authorization and specialist visit timeliness by specialty in order to seek out any potential areas of concern. Table 8 below illustrates the mean days to authorization and days to specialty visit by specialty. The mean number of days to seen by specialist and days to authorization has decreased in all specialty categories; however, some areas, such as Gastroenterology, the mean days to seen is still much higher than other specialty areas.

DMPO and Sigma Calculations

In addition to trending data by month, the team reviewed the defect count and type as described in the data collection plan. Table 9 below outlines the number of defects, number of opportunities, DPMO, and sigma values by type of defect and overall. The number of defects decreased in each category and overall resulting in increases in the sigma value for the referral and authorization process from the baseline timeframe to the 3rd intervention phase. The DPMO for patients with authorizations who were not seen also decreased from 34,545 to 326 indicating an increase in access for AHF patients to specialty care. The overall sigma value based on all target areas identified increased from a baseline of 2.4 to 3.6 during the final intervention period.

Table 9: Defects per Million Opportunities (DPMO) and Sigma Calculations

Authorization Process Over 14 Days (SS Defect Type #1)			
	Timeframe 1: Baseline- Jan 2012- Mar 2014	**Timeframe 2: Apr 2014 - Dec 2014**	**Timeframe 3: Jan 2015 - July 2015**	**Timeframe 4: Aug 2015 - Dec 2015**

	Timeframe 1: Baseline- Jan 2012- Mar 2014	Timeframe 2: Apr 2014 - Dec 2014	Timeframe 3: Jan 2015 - July 2015	Timeframe 4: Aug 2015 - Dec 2015
Defects	1,075	239	76	49
Opportunities	7,179	3,542	4,764	3,070
Opportunities for defects	12	12	12	12
DPMO	12,479	5,623	1,329	1,330
Sigma	3.7	4.0	**4.5**	**4.5**

Patient not Seen by Specialist (SS Defect Type #3)

	Timeframe 1: Baseline- Jan 2012- Mar 2014	Timeframe 2: Apr 2014 - Dec 2014	Timeframe 3: Jan 2015 - July 2015	Timeframe 4: Aug 2015 - Dec 2015
Defects	248	30	6	1
Opportunities	7,179	3,542	4764	3070
Opp for defect	1	1	1	1
DPMO	34,545	8,470	1259	326
Sigma	1.9	3.9	**4.5**	**4.9**

Client Grievances (SS Defect Type #2)

	Timeframe 1: Baseline- Jan 2012- Mar 2014	Timeframe 2: Apr 2014 - Dec 2014	Timeframe 3: Jan 2015 - July 2015	Timeframe 4: Aug 2015 - Dec 2015
Defects	43	18	2	1
Opportunities	7,179	3,542	4764.0	3070.0
Opp for defect	1	1	1	1
DPMO	6,000	5000	400	326
Sigma	4.0	4.1	**4.8**	**4.9**

Total Defects

	Timeframe 1: Baseline- Jan 2012- Mar 2014	Timeframe 2: Apr 2014 - Dec 2014	Timeframe 3: Jan 2015 - July 2015	Timeframe 4: Aug 2015 - Dec 2015
Defects	1366	287	84	51
Opportunities	7,179	3,542	4764	3070
Opp for defect	3	3	3	3
DPMO	63429	26982	5871	5537
Sigma	2.4	2.9	**3.6**	**3.6**

Table 10 also showcases the decrease in client grievances associated with referrals or authorizations from 26 in 2014 to 3 in 2015. In addition to a decrease in the overall number of authorization related grievances, the rate of grievances per 1,000 authorizations also decreased from 6 per 1,000 in 2014 to 0.4 per 1,000 authorizations in 2015. The rate of grievances per 1,000 members with authorizations also decreased greatly from 31.6 in 2014 to 3.2 in 2015 as shown in Table 10 below. This decrease in grievance rate is the only short term measure available for gauging client satisfaction impacts; however, the project's control plan in Appendix K contains external long term measures for gauging satisfaction going forward.

Table 10: Grievances Related to Referral and Authorization Processes

Grievances Related to Referral and Authorization Processes

	Timeframe 1: Baseline- Jan 2012- Mar 2014	Timeframe 2: Apr 2014 - Dec 2014	Timeframe 3: Jan 2015 - July 2015	Timeframe 4: Aug 2015 - Dec 2015
# of Grievances	43	18	2	1
Grievances per 1,000 authorizations	6.0	5.0	.4	.3
Grievances per 1,000 authorized members	11.8	8.7	.8	.6

In order to test for true effectiveness of the interventions used, the team utilized ANOVA and independent t-test analyses. Tables 11 and 12 below illustrate the results of One Way ANOVA tests performed across intervention timeframes for both the turnaround time for processing authorizations as well as the turnaround time from physician order to patient being seen by the specialist.   A MANOVA analysis was not performed due to the turn-around time

data available including an unbalanced sample in which there were more baseline records compared to intervention timeframe records.

The ANOVA analysis illustrates a significant difference in the time from physician order to authorizations being generated across the baseline and three intervention groups with an F statistic of 237.076 and a p-value below .01.

Table 11: One Way ANOVA Results – Analysis of Variance in Authorization Turn Around Times across Baseline and Three Intervention Phases

One Way ANOVA

Days to Authorization

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	488562.991	3	162854.330	237.076	.000
Within Groups	13318156.727	19388	686.928		
Total	13806719.718	19391			

SUMMARY

Groups	Count	Sum	Average	Variance
Group1 (BASELINE)	7,649	94,421	12.34	1,629.56
Group2	3,765	14,028	3.73	178.22
Group3	4,854	6,910	1.42	24.24
Group4	3,124	5,008	1.60	21.40

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	488563	3	162854.3	237.0763	4.41E-151	2.605367
Within Groups	13318157	19388	686.9278			
Total	13806720	19391				

The ANOVA analysis in Table 12 illustrates a significant difference in the time from physician order to specialty visit across the baseline and three intervention groups with an F statistic of 262.024 and a p-value below .01.

Table 12: One Way ANOVA Results – Analysis of Variance in Time to Specialty Visit across Baseline and Three Intervention Phases

One Way ANOVA

Days to Seen

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1844774.823	3	614924.941	262.024	.000
Within Groups	38811884.838	16538	2346.831		
Total	40656659.661	16541			

SUMMARY

Groups	Count	Sum	Average	Variance
Group1 (BASELINE)	5,131	283,450	55.24	3,470.98
Group2	3,759	231,717	61.64	2,690.99
Group3	4,529	184,328	40.70	1,778.06
Group4	3,123	105,149	33.67	910.30

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1844775	3	614924.9	262.0236	3.798E-166	2.605446
Within Groups	38811885	16538	2346.831			
Total	40656660	16541				

While the ANOVA tests show significance in the difference across the baseline and intervention groups, independent t-tests were also used to answer the study question and determine if the referral performance improvement project made a statistically significant difference in authorization processing and patient specialty visit timeliness. Results of T-test results for both timeliness measures are depicted in Tables 13 and 14 below.

Table 13: Independent T-Test Comparison of Mean Days to Authorization for Pre-Intervention and Intervention Timeframes.

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Days to Author-ization	Equal variances assumed	1375.433	.000	26.306	19390	.000	10.13474	.38527	9.37959	10.88990
	Equal variances not assumed			21.640	8102.099	.000	10.13474	.46834	9.21668	11.05280

Independent Samples Test

The high F value and significance below .01 depicted in Table 13 illustrate a statistically significant difference in authorization processing timeframes pre and post intervention. The t-test comparison of pre and post intervention days to physician specialty visit also shows a statistically significant difference.

Table 14: Independent T-Test Comparison of Mean Days to Specialty Visit for Pre-Intervention and Intervention Timeframes.

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Days to Authorization	Equal variances assumed	55.871	.000	11.527	16540	.000	9.56794	.83003	7.94100	11.19488
	Equal variances not assumed			10.381	7858.552	.000	9.56794	.92168	7.76121	11.37467

Independent Samples Test

Additional Balancing Measures Monitored

Healthcare center patient retention rates and patient primary care no-show rates were also calculated and tracked over the course of the performance improvement project in order to evaluate for any unanticipated consequences or changes. Primary care no show rates in the Los Angeles area healthcare centers decreased favorably from 9% in 2012 - Q1 2014 to 6% in Q2 2014- 2015 (AIDS Healthcare Foundation, 2015) indicating fewer patients were missing their primary care appointments. California Managed Care retention rates increased slightly during the intervention period 79.4% of PHC Medi-Cal patients having at least 2 primary care visits in the year, and 84.3% of PHP Medicare compared to 74.7% and 82.1% respectively in from 2012 to Q1 2014. The PHP/PHC dual member population's member treatment retention rates increased slightly from 91.1% to 93.2%.

CHAPTER 5: SUMMARY & CONCLUSIONS

Summary

The implementation of the referral and authorization process redesign involved statistically significant improvements in the mean turnaround time of outpatient specialty referral and authorization processing and specialty visits along with decreases in the volume of patient grievances and number of members who waited more than 14 days to receive authorizations for outpatient specialty care. The overall defects per million opportunities decreased for the process overall and in each three areas evaluated. The decreases in mean turnaround time and in defects per million opportunities (DPMO) rates calculated provided an affirmative response to the original study question of whether or not a focused process improvement effort at AHF could result in measurable improvements. Table 15 below presents a summary of the outcomes for all metrics evaluated.

Table 15: Outcomes of Core Project Measurements	
Project Measures of Success	**Observed Changes from Baseline (Jan 2012-Mar 2014) to Intervention Phase 3 (Aug 2015-Dec 2015)**
Mean Referral & Authorization Turn Around Time to Specialty Visit (in Days)	**Favorable Outcome:** Mean number of days from physician order to authorization decreased from 57.6 to 33.6 from pre-intervention to the third intervention timeframe with monthly trends and trends by intervention phase reflecting the consistent decrease. ANOVA and T-test P-values under .01
Mean Referral & Authorization Turn Around Time – Phase 1 (in Days)	**Favorable Outcome:** Mean number of days from physician initiating order for referral to authorization being sent to specialist decreased from 12.5 to 1.5 from pre-intervention to the third intervention timeframe with monthly trends and trends by intervention phase reflecting the consistent decrease. ANOVA and T-test P-values under .01
Patient Grievances regarding referral process	**Favorable Outcome:** Rate of grievances per 1,000 authorizations and per 1,000 members both decreased. DPMO decreased, and sigma value increased from 4.0 to 4.9.
Referrals with Phase 1 exceeding 14 calendar days	**Favorable Outcome:** Number of referrals with phase 1 exceeding 14 calendar days decreased favorably (improved turnaround time performance) DPMO decreased, and sigma value increased from 3.7 to 4.5.
Referrals without specialty visit	**Favorable Outcome:** Number and rate of referrals without specialty visit decreased. DPMO decreased, and sigma value increased from 1.9 to 4.9.
Patient Retention	**Favorable Outcome:** California Managed Care retention rates increased in 2015 for PHP and PHC patients. PHC: Increased from 74.7 to 79.4% PHP: Increased from 82.1% to 84.3% of PHP Medicare compared DUALs: 91.1% to 93.2%.
Patient No-Show Rate	**Favorable Outcome:** PCP No-Show rates decreased from 9% during baseline to 6% in Q2 2014-2015.

While there were several real limitations to this study as outlined below, there were also

several strengths to the implementation of the referral process redesign. The ability of AHF's

Managed Care Division and individual Healthcare Centers to work together was a major asset to

the process redesign. AHF's nimble and agile nature allowed for leadership to have a combined

group of 32 primary care providers and over 80 staff members consulted, informed, trained and

integrated into the initial new current state process in less than three months.

Limitations

The referral process performance improvement project was implemented using rapid

cycle performance improvement methodologies, the strategies, tools, and referral forms were

modified several times throughout the process to meet the organization's needs and troubleshoot

any problems or issues as they arose. AHF's unique organizational structure also limits the

external validity and generalizability of any improvement strategies, analysis methods, or lessons

learned. The representativeness of the client population observed is limited to only HIV positive

patients within the state of California who qualify for public programs. Therefore the validity

and relevance of the referral process improvement performance improvement effort's lessons

learned are limited to future projects at AHF or in other similar special needs health plans.

As a phased implementation, changes occurred over time thus creating multiple intervention

points and potential sources of change. Given the team formed in late 2014 and implemented the

new future state workflow on January 1, 2015, the team chose to analyze the differences in turn-

around times and grievances for 2012 through the first quarter of 2014 in comparison with the

second quarter of 2014 through the end of 2015.   Since the new workflows, staff re-assignment,

and technological improvements were all a part of once collective change effort, the team opted

to use a t-test comparison of means and perform an analysis of variance in order to calculate

statistical significance of results. The team also choose to calculate DPMO and sigma levels both

before and after the implementation of the future state workflow in order to showcase the

reduction in the rate of defects. The referral and authorization turn-around time data was

portrayed and analyzed in dot plots, scatter plots, and statistical process control charts showing individual results as well as the summary of the decrease in the mean and standard deviation of turn-around times tracked monthly (full list available in Appendix M). The team also opted to use six sigma measures including defects per million opportunities, rates per member and per authorization, and sigma values as the primary methods of analysis.

A lack of consistent documentation on the time and date of specialty consult report reception following authorized patient visits was also a limiting factor preventing the performance improvement team from accurately measuring any changes in the timeline for receiving, scanning, and reviewing specialty consult reports. Another limitation is a lack of potential for improvement going forward given the mean authorization turn-around time has been reduced to a low of 1.5 days in intervention timeframe 3 from August 2015 to December 2015. Staff members may struggle to continue to operationalize success experienced during this project and sustain such short processing timeframes if the project team does not continue to examine and reinforce timeliness on a frequent basis.

Interpretation of Results

AHF leadership interpreted this targeted performance improvement effort as a success given the large sampling of over nineteen thousand authorizations available for analysis and the trended decreases in authorization and specialty visit turn-around times. The project defect rate (DPMO) for members not seen, members waiting more than 14 days for authorizations, and members filing grievances all decreased, indicating an increase in the capability of core referral and authorization processes. **The analysis of variance (ANOVA) and t-test results indicate statistically significant decreases in the mean timeframes for authorization processing and wait times for specialty provider visits. Overall, the referral process improvement effort**

produced a favorable improvement in timeliness for phase 1 and phase 2 of the referral

process. However, the implementation of a new future state workflow involving multiple

changes to electronic and physical workflow elements over time complicated any potential

attempt at determining causal mechanisms or eliminating confounding factors from the analysis.

The implementation of referral and authorization process changes across two separate health

plans and ten separate healthcare center sites also adds to the potential variability in the factors

contributing to the reduction in turn-around times. The reduction in referral processing

timeframes support a higher goal of improving access to specialty care.

One key factor which may have contributed to the reduction of turnaround times was the

transparent nature of the combined referral inboxes created within the CPS EMR. The inboxes

allowed for healthcare center staff to login and view the timeliness of Managed Care referrals as

well as referral notes and follow-up documented. This design was meant to decrease the need

for phone calls and confusion regarding the status of authorizations, but the design also held

individual staff members accountable to their peers. **The final interpretation of results**

involved an overall appraisal of the summary effects of the performance improvement

efforts as effective at increasing the timeliness and overall visit completion rate of the

outpatient specialty referral process.

Potential Explanation for Improved Specialty Visit Wait Times

The sizeable decreases in the wait time for specialty visits may be due to the increased

accountability and improved relationships between managed care authorization coordinators and

specialty physician offices. However, since none of the process changes addressed any elements

following the generation of an authorization and general follow-up process, the increase in the

speed of scheduling and completion of initial specialty physician consults may be due to

Hawthorne effect. The overall act of alerting staff to the fact that leadership was observing and evaluating the process may have contributed to improved performance overall.

Financial Implications

There were no direct financial costs realized as part of this intervention given the Managed Care Division was able to re-organize staff and move one key position to provide additional authorization services support without the hiring of any additional staff members. The changes made in the electronic medical record were coordinated through the use of salaried information technology staff resources and pre-existing support contracts with the electronic medical record and claim systems vendors. The project lead also served as a lead on several other information technology projects allowing for changes to be included in upgrades without incurring any additional direct cost. The project did involve program development and project management staff time incurring opportunity cost and a reduced ability for program development staff to work on additional performance improvement initiatives. While no financial metrics were included in this analysis, AHF leadership believes that the reduction in processing times and reduction in healthcare center staff workload may represent increased efficiencies and opportunities for staff to provide additional services to patients and members.

Conclusions

AHF's referral process improvement effort served as a practical example of a staff guided performance improvement initiative which experienced success in reducing measures of timeliness and expressed patient dissatisfaction. By assuming responsibility for the management of all outpatient pre-service authorizations, Managed Care staff deliberately executed a performance improvement project resulting in a measurable reduction in the mean amount of time required to generate an authorization and have a member be seen by a specialist. One key

lesson learned from this effort included the importance of striking a balance between implementing interventions in a scheduled manner that can be tracked and studied easily verses maintaining an adaptive and agile approach to rapid cycle improvement. While changing details of processes, forms, and electronic documentation elements might influence the outcome and analysis options available for a given study, AHF staff recommends the team remain flexible in implementing strategies to improve patient access to medically necessary services. The final outcome of the referral process improvement initiative on the member perception of access to services at AHF still needs to be determined through the review of external data sources as outlined in the project's control plan.

While issues with timeliness and patient grievances have been addressed throughout 2014 and 2015, additional improvements in the utilization management process are crucial to ensuring enhanced access to specialty services does not equate to substantially elevated costs. Given the access component for specialty referrals has been addressed, cost and quality of those referred visits also needs to be considered as part of the organization's monitoring plan going forward.

Funding

No outside funding was obtained or used for the completion of this project. This performance improvement effort was funded entirely through the operational budgets of the Managed Care and Healthcare Center divisions of the AIDS Healthcare Foundation. AHF leadership's ability to function nimbly and allocate funding for staffing and systems changes quickly played a key role in project success.

APPENDIX A: INITIAL PROCESS CHANGE REQUEST

DESCRIPTION OF PROPOSED CHANGE INITIATED JANUARY 2015
CA PHP & PHC REFERRAL PROCESS RE-DESIGN – *PHASE 1*

Goal:
Improve the PHP and PHC direct referral process in California in order to support the client experience through the provision of timely, accurate, and complete referrals and authorizations.

Objectives:
1. Provide timely, accurate, and complete referral and authorization services to all PHP and PHC clients.
2. Reduce technological and process related barriers to completing timely referrals.
3. Alleviate elevated workload of HCC referral coordinator staff.
4. Increase timeliness of the reception and scanning of reports and documentation received directly from specialty providers.

Proposed Change:
1. Movement of direct referral services for PHP and PHC CA patients out of the HCCs and back to Linn House. MC Plan staff will be responsible for MC referrals and authorizations, while HCC staff will be responsible for the referral process for other payer sources.
2. Improve the forms and tools utilized in the referral process, including the creation of a specific PHC referral form.
3. Perform an evaluation of the UM approval structure in order to reduce the number of unnecessary steps (waste/muda) in the current direct and non-direct referral processes.

***See stakeholder listing on organizational chart for complete listing.

Key Stakeholders:
 - Julie Booth, Director of Quality
- Sharon Matland, Director of Nursing
- Karen Haughey and Marie Alvarez (UM/CM)
- UM/CM Staff: Fred Pedersen, Cesar Mier
- Michael Allen, VP Business Analytics
- Glenda Hale (AHF Healthcare Centers)
- Regional Medical Directors
- George Melikian, MD
- Wayne Chen, MD, MC Medical Director
- Michael Wohlfeiler, MD, Medical Director
- Mohandoss Tychicus (or IT dept. designee)

Next Steps:
1. Gain consensus of team related to specific process changes and re-allocation of responsibilities for PHP & PHC direct referrals.
2. Develop a timeline, including the selection of a pilot site and/or degree of full roll-out within LA area AHF Healthcare centers.
3. Develop a plan/process for increasing communication and mitigating any perception of distance between patient and referral process.

Current State Direct Referral Process – California PHP & PHC Patients

Current State (Non-Direct) Referral & Authorization Process – California PHP & PHC Patients
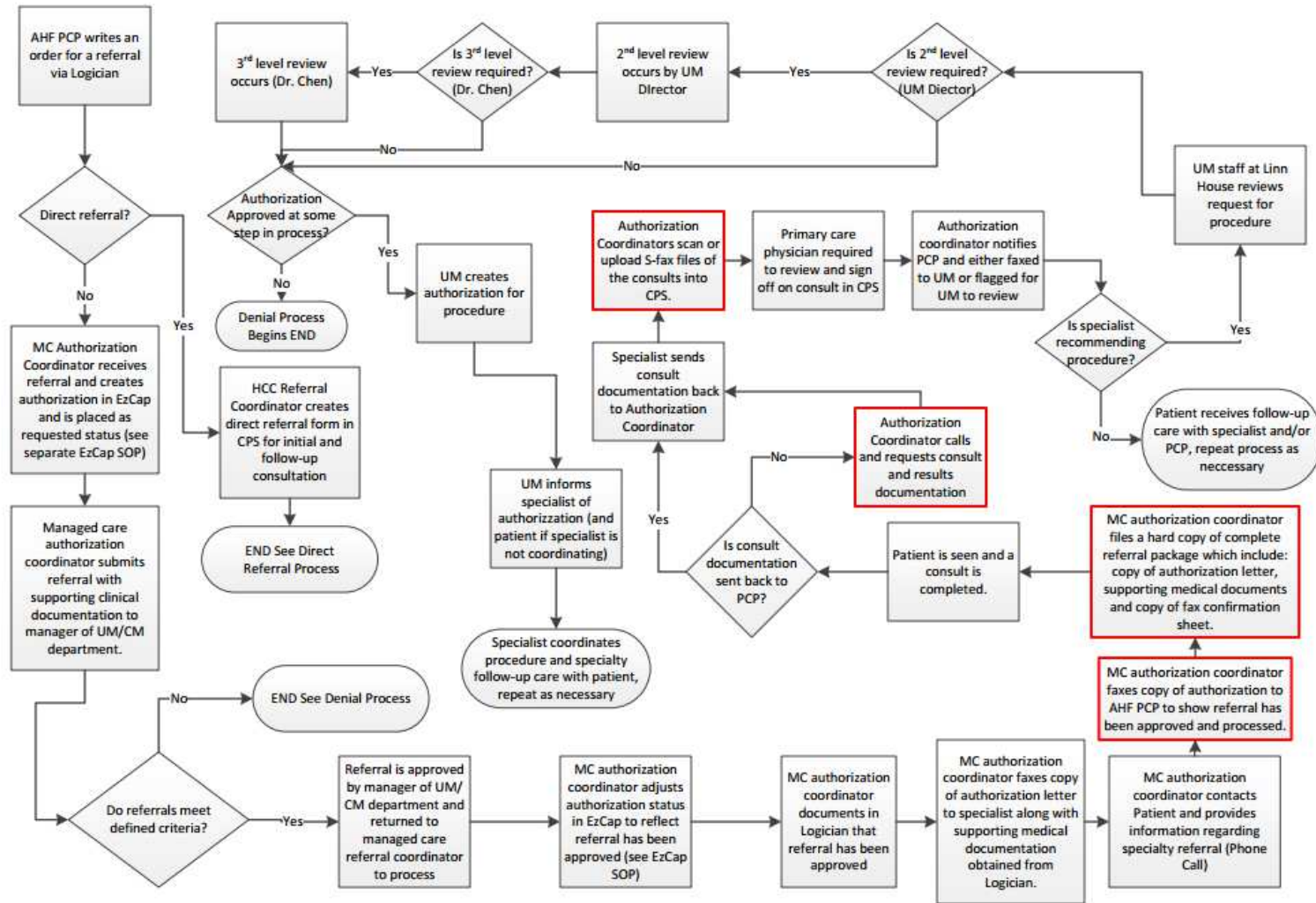
Future State Referral & Authorization Process – California PHP, PHC and CHAIN Patients
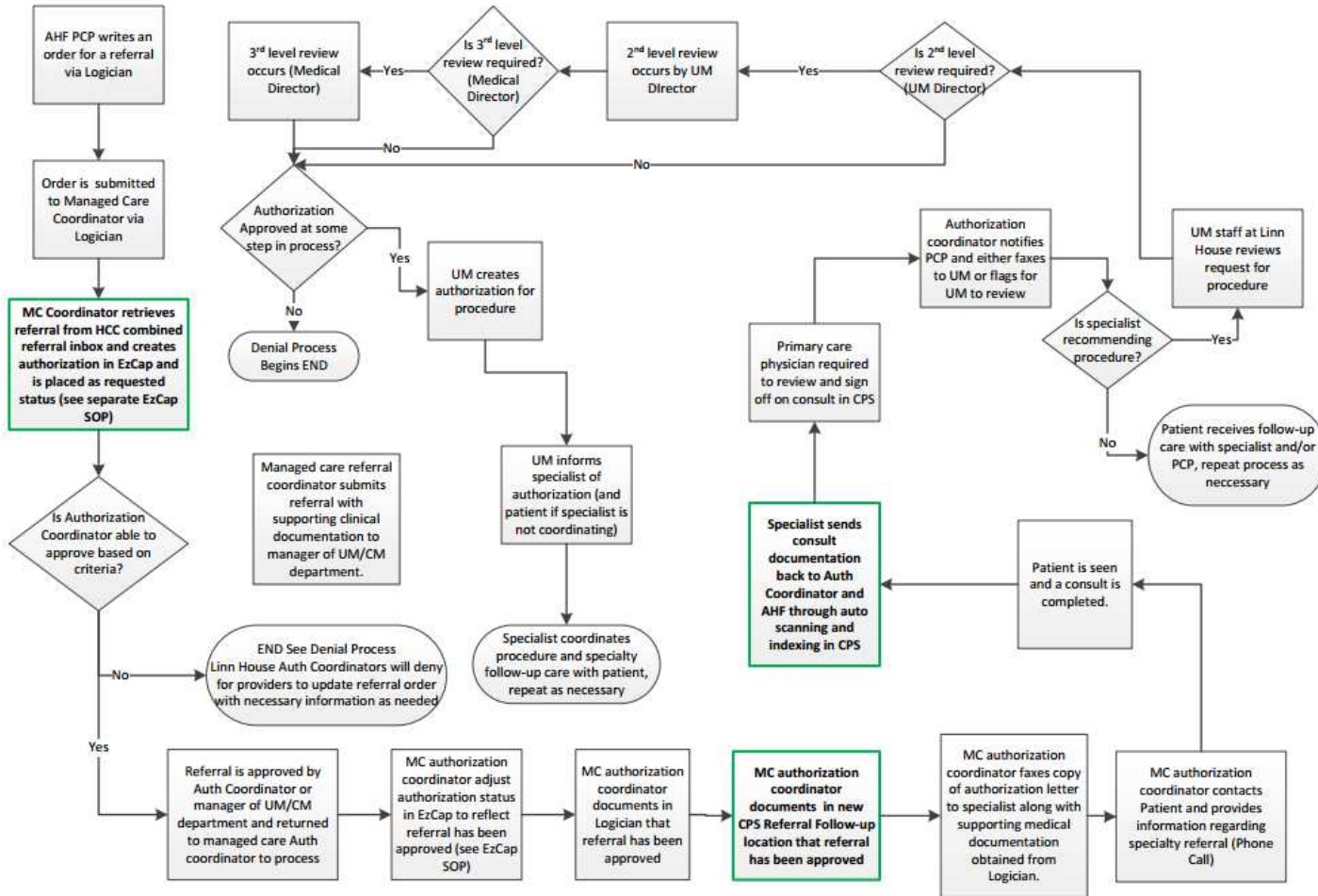
APPENDIX E: IMPLEMENTATION PLAN & KEY MILESTONES

	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16
DEFINE																					
Charter	█	█																			
SIPOC & FMEA		█	█																		
MEASURE																					
Process Map		█	█																		
Data Collection		█	█																		
Baseline Performance (Evaluate all of 2014)	█	█	█																		
ANALYZE																					
Data Analysis			█	█																	
Identify Root Cause – Update FMEA		█	█																		
IMPROVE																					
Select Solution			█																		
Pilot Testing			█																		
Implementation – Phase 1 (Managed Care Assumes Resp)				█	█	█	█	█	█	█											
Implementation – Phase 2 (CPS & Consult Reports)											█	█	█	█	█						
CONTROL																					
Control Plan													█	█							
Monitor Results															█	█	█	█	█	█	█

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AHF Referral Performance Improvement Team

Referral Operations (SMEs) In MC UM and HCCs

Referral Process Improvement Team Project Support

Donna Stidham, Executive Sponsor

Sharon Matland, Director of Nursing

Karen Haughey CA UM Director

Ashley Parks, Dir. Prgm Dev Project Manager

HCC Referral Coordinators

UM Manager and Authorization Coordinators

Project Team Members & Stakeholders Listing:

- Julie Booth, Director of Quality
- Sharon Matland, Director of Nursing
- Karen Haughey and Marie Alvarez (UM/CM)
- UM/CM Staff: Fred Pedersen, Cesar Mier
- Michael Allen, VP Business Analytics
- Glenda Hale (AHF Healthcare Centers)
- Regional Medical Directors
    - George Melikian, MD
- Wayne Chen, MD, MC Medical Director
- Michael Wohlfeiler, MD, Medical Director
- Mohandoss Tychicus (or IT dept. designee)

Organizational expertize and participation from our Subject Matter Experts will be requested as needed in the following areas:
- Finance/Revenue Cycle – Michael Allen
- Practice Management – Glenda Hale

V1- Last Updated 11.14.14

APPENDIX G: REFERRAL COORDINATOR & NURSING STAFF INTERVIEW TOOL

Note: We have data for some of these questions; however in this case we are as interested in hearing their perception as much as we are interested in capturing and understanding the actual data for timeframes and volume.

1.   HCC/Location: _____

2.   Staff Member(s) Name(s): _____

3.   Who handles patient referrals? What percentage of their/your time is spent on referrals?

4.   What types of referrals do you process? What do you process the most of during the day?

5.   When do you process referrals? All day vs. certain times of day or certain days of the week:

6.   Please describe the steps you take to process a referral and follow-up. How long does each step take?

7.   How do you know the patient has been seen by the specialty provider/referring service? How do you follow-up and capture the consulting report/results?

8.   What is the shortest and what is the longest timeframe it has taken to completely process a referral and have the patient seen? What are some of the usual delays or set-backs you experience?

9.   What are the key barriers and challenges in processing of referrals?

10.   Do you have all of the documentation you need from the provider on the first attempt? What additional information might you need in order to successfully process certain referrals?

11.   Which insurance companies or specialty provider groups are the most challenging to work with when processing referrals?

12.   What one change would you make to the referral process if you could change anything?

13.   What do you think could be done to make your work significantly faster or smoother?

14.   Additional Comments:

APPENDIX H: PHYSICIAN AND PROVIDER INTERVIEW TOOL

Note: We have data for some of these questions; however in this case we are as interested in hearing their perception as much as we are interested in capturing and understanding the actual data for timeframes and volume.

1.   HCC/Location: _____

2.   Provider(s) Name(s):_____

3.   Who handles patient referrals? What percentage of their/your time is spent on referrals?

4.   What types of specialty consults or referred services do you order?

5.   When do you review and sign off on specialty reports? All day vs. certain times of day or certain days of the week:

6.   Please describe the steps you take to participate in the specialty referral and care coordination processes. How long does each step take?

7.   How do you know the patient has been seen by the specialty provider/referring service? How do you follow-up and capture the consulting report/results?

8.   What is the shortest and what is the longest timeframe it has taken to completely process a referral and have the patient seen? What are some of the usual delays or set-backs you experience?

9.   What are the key barriers and challenges in processing of referrals?

10.   Which insurance companies or specialty provider groups are the most challenging to work with when sending patients for specialty treatment?

11.   What one change would you make to the referral process if you could change anything?

12.   What do you think could be done to make your work significantly faster or smoother?

13.   Additional Comments:

APPENDIX I: SQUIRE GUIDELINES - STANDARDS FOR QUALITY IMPROVEMENT REPORTING EXCELLENCE

SQUIRE Guidelines
(Standards for QUality Improvement Reporting Excellence)
Final revision – 4-29-08

- These guidelines provide a framework for reporting formal, planned studies designed to assess the nature and effectiveness of interventions to improve the quality and safety of care.

- It may not be possible to include information about every numbered guideline item in reports of original formal studies, but authors should at least consider every item in writing their reports.

- Although each major section (i.e., Introduction, Methods, Results, and Discussion) of a published original study generally contains some information about the numbered items within that section, information about items from one section (for example, the Introduction) is often also needed in other sections (for example, the Discussion).

Text section; Item number and name	Section or Item description
Title and abstract	*Did you provide clear and accurate information for finding, indexing, and scanning your paper?*
1. Title	a. Indicates the article concerns the improvement of quality (broadly defined to include the safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity of care) b. States the specific aim of the intervention c. Specifies the study method used (for example, "A qualitative study," or "A randomized cluster trial")
2. Abstract	Summarizes precisely all key information from various sections of the text using the abstract format of the intended publication
Introduction	*Why did you start?*
3. Background Knowledge	Provides a brief, non-selective summary of current knowledge of the care problem being addressed, and characteristics of organizations in which it occurs
4. Local problem	Describes the nature and severity of the specific local problem or system dysfunction that was addressed
5. Intended improvement	a. Describes the specific aim (changes/improvements in care processes and patient outcomes) of the proposed intervention b. Specifies who (champions, supporters) and what (events, observations) triggered the decision to make changes, and why now (timing)
6. Study question	States precisely the primary improvement-related question and any secondary questions that the study of the intervention was designed to answer
Methods	*What did you do?*
7. Ethical issues	Describes ethical aspects of implementing and studying the improvement, such as privacy concerns, protection of participants' physical well-being, and potential author conflicts of interest, and how ethical concerns were addressed
8. Setting	Specifies how elements of the local care environment considered most likely to influence change/improvement in the involved site or sites were identified and characterized
9. Planning the intervention	a. Describes the intervention and its component parts in sufficient detail that others could reproduce it b. Indicates main factors that contributed to choice of the specific intervention (for example, analysis of causes of dysfunction; matching relevant improvement experience of others with the local situation)

APPENDIX J: DATA COLLECTION PLAN

Data Collection and Analysis Plan - Project Measures of Success (Internal)

Measure of Success (Metric for Evaluation)	Definition/ Calculations	Stratification	Timeframe for Evaluation
Mean Referral & Authorization Turn Around Time (in Days)	Mean number of days from physician initiating order for referral to patient being seen by specialist	By Month By Payer/Insurance	Baseline 1 (Pre): 1/2012 – 12/2013 Milestone 1: Initial Leadership Communication: 4/2014 Milestone 2: Project Start: 9/2014 Milestone 3: Referrals Moved Back to Linn House 1/2015 Milestone 4: EMR Improvements 8/2015 Long-term Control Data Review Timeframe: 1/2016 – 12/2017 (outside of initial analysis)
Mean Referral & Authorization Turn Around Time – Phase 1 (in Days)	Mean number of days from physician initiating order for referral to authorization being sent to specialist Trended by Month Over Time, T-Test, ANOVA	By Month By Payer/Insurance	
Number of patient complaints and grievances regarding referral process	Rate of patient grievances received which reference issues or delays with specialty referrals or authorizations. SS Defect Type # 2 Calculate DPMO	By Month By Payer/Insurance & Per Member Per Month	
Number of referrals with Phase 1 exceeding 14 calendar days	Number of referrals with phase 1 exceeding 14 calendar days (poor turnaround time performance) SS Defect Type # 1 Calculate DPMO T-Test, ANOVA	By Month By Payer/Insurance & Per Member Per Month	
Number of referrals without specialty visit	Number of referrals which do not result in a specialty visit being completed SS Defect Type # 3 Calculate DPMO	By Month By Payer/Insurance & Per Member Per Month	
Patient Retention	Percent of Patients with At Least 2 Visits per year (Stabilizing Measure)	By Month By HCC Location By AHF Plan	
Patient No-Show Rate	Percent of Scheduled PCP Appointments which Result in No-Shows (Stabilizing Measure)	By Month By HCC Location By Payer/Insurance	
Volume of Referrals and Authorizations	Volume of referrals and authorizations (Stabilizing Measure)	By Month By HCC Location By Payer/Insurance	

APPENDIX K: CONTROL PLAN

Long Term Project Measures of Success (External)

Measure of Success (Metric for Evaluation)	Definition/ Calculations	Stratification	Timeframe for Evaluation
CAHPS Coordination of Care Metrics:			
Q10. Callback as soon as needed (% Always or Usually)	Medicare patient perception of call back timeliness	By Year By State	2012, 2013, 2014, 2015, 2016 Survey Years
Q22. Doctor's office followed up with test results	Medicare patient perception of follow-up on test results	By Year By State	
Q23. Got test results as soon as needed	Medicare patient perception of timeliness of follow-up on test results	By Year By State	
Q35. Ease of getting appointments with specialists	Medicare patient perception of ease of getting appointments with specialists	By Year By State	
Coordination of Health Care Services (% Always or Usually)	Medicare patient perception of effectiveness of coordination of Health Care Services (% Always or Usually)	By Year By State	
Q38. Dr. seemed informed and up-to-date about care from specialist	Medicare patient perception of PCP being informed regarding specialty care	By Year By State	
CMS Star Ratings - Two lowest ranked items in 2013			
Ease of Getting Needed Care and Seeing Specialists	Number of Stars from 1-5: Medicare patient perception of ease of getting care and seeing specialists	By Year By State	2014, 2015, 2016 Survey Years
Health Plan Provides Information/Help When Needed	Number of Stars from 1-5: Medicare patient perception of health plan helpfulness	By Year By State	
Ryan White In+Care Measures			
Viral Load Suppression	Percentage of patients with a viral load less than 200 copies/mL at last viral load test during the measurement year.	By Year By State	2014, 2015, 2016 Survey Years

APPENDIX L: AHF CLIENT EXPERIENCE INITIATIVE

Goals of the AHF Client Experience Improvement Initiative

* Goals to which the Referral Process Improvement Project could have a direct link are

in bold and italics.

PATIENT FOCUSED	STAFF FOCUSED
• ***Strengthen and promote Client Satisfaction levels***	• ***Support staff functioning at appropriate levels***
• ***Enhance quality of living with HIV/AIDS***	• Develop clinical care standards/critical pathways
• Provide patients with appropriate education- Ascertain personal health goals	• Develop differentiating staff performance program
• Engage patients as active contributory participants in treatment planning	• ***Improve provider and HCC staff satisfaction- emphasize individual staff contributions***
• ***Measure quality indicators and outcomes***	• Address staff attrition levels
• ***Improve the quality of referrals***	• ***Promote internal and external customer satisfaction***
• ***Strengthen relationships with patients***	• ***Positively impact outcomes of Revenue Cycle and Patient Retention***

APPENDIX M: PHASE 1 REFERRAL TURN-AROUND SUMMARY STATISTICS BY MONTH

Order Month	Mean of Days to Authorize	Std Dev of Days to Authorize	Mean Days to Seen	Std Dev of Days to Seen	Number of Orders
Jan-12	18.13	67.00	54.90	58.85	457
Feb-12	16.52	50.27	43.73	49.30	319
Mar-12	13.59	44.96	47.59	40.46	244
Apr-12	16.35	46.33	49.54	52.47	225
May-12	29.66	76.42	57.96	57.93	246
Jun-12	18.50	53.67	59.94	74.66	215
Jul-12	16.86	43.27	62.19	66.57	244
Aug-12	13.25	35.09	52.28	64.36	244
Sep-12	20.74	50.55	48.80	38.18	212
Oct-12	17.53	42.67	57.54	55.23	254
Nov-12	12.37	31.77	56.97	53.99	265
Dec-12	17.44	41.46	57.48	48.91	237
Jan-13	11.83	47.91	54.46	56.31	308
Feb-13	13.00	40.33	54.53	63.71	285
Mar-13	8.87	27.81	50.85	37.85	321
Apr-13	9.44	22.61	54.32	53.00	312
May-13	6.42	27.12	54.14	61.08	329
Jun-13	3.44	11.90	47.11	33.98	257
Jul-13	5.46	12.41	55.60	77.77	303
Aug-13	5.99	21.07	56.14	56.09	269
Sep-13	8.76	32.86	58.44	82.17	230
Oct-13	7.92	15.89	60.81	79.57	261
Nov-13	7.87	32.38	67.71	81.68	215
Dec-13	8.63	20.59	63.43	73.69	200
Jan-14	11.48	37.76	76.07	57.04	210
Feb-14	11.36	28.25	74.88	61.07	271
Mar-14	7.68	11.90	67.25	47.81	246
Apr-14	3.19	7.56	67.39	59.40	305
May-14	5.04	13.28	70.21	57.03	314
Jun-14	6.28	13.19	62.33	41.78	246
Jul-14	4.46	9.54	67.28	75.00	397
Aug-14	4.53	10.75	59.01	40.75	425
Sep-14	3.98	17.56	56.55	39.89	425
Oct-14	2.52	11.91	64.22	51.00	501
Nov-14	1.68	8.76	62.20	48.79	416
Dec-14	1.13	6.78	57.44	37.69	513
Jan-15	1.34	3.91	43.27	49.15	620
Feb-15	0.89	3.37	41.10	42.22	610
Mar-15	1.48	6.72	41.51	42.62	747
Apr-15	1.36	4.05	42.91	45.59	800

Order Month	Mean of Days to Authorize	Std Dev of Days to Authorize	Mean Days to Seen	Std Dev of Days to Seen	Number of Orders
May-15	2.18	3.79	38.25	38.72	659
Jun-15	1.21	4.62	40.55	38.16	657
Jul-15	1.05	3.02	39.17	39.89	671
Aug-15	1.28	5.60	39.42	33.70	748
Sep-15	1.35	3.67	39.24	36.97	652
Oct-15	1.77	3.69	32.01	26.07	649
Nov-15	1.49	4.75	30.41	23.96	509
Dec-15	1.90	3.69	23.23	20.17	512

APPENDIX N: PUGH MATRIX & POSSIBLE SOLUTION ALTERNATIVES

Pugh Matrix - Referral Process Improvement							
			Solution Alternatives				
Key Criteria	**Importance Rating**	Benchmark Option	Consolidate Referral Process (Remove Direct Ref)	Additional Authorization Coordinator (1 FTE)	Create Combined Referral Inboxes in CPS	Referral Coordinator Staffing Increase	Create Centralized Hub- Relocation of Referral and Auth Coordinators
Timeliness of Referral and Auth Processing	6		+	+	+	+	+
Successful Completion of Auths & Visits	5		+	+	+	+	+
Client Satisfaction	4		+	+	+	+	S
Provider Satisfaction	3		+	+	+	+	+
Staff Satisfaction - HCCs	2		+	+	+	+	-
Staff Satisfaction - Managed Care	2		+	+	+	-	-
Cost - Net Financial Impact	1		S	-	S	-	-
Sum of Positives			6	6	6	5	3
Sum of Negatives			0	1	0	2	3
Sum of Sames			1	0	1	0	1
Weighted Sum of Positives			22	22	22	20	14
Weighted Sum of Negatives			0	1	0	3	5
TOTALS			**22**	**21**	**22**	**17**	**9**

Concept Selection Legend
Better +
Same S
Worse -

APPENDIX O: FMEA PRIORITIZATION MATRIX

Item #	Category /Impacted Area	Potential Failure Mode (FM)- What can go wrong?	RPN	pSEV	pOCC	pDET	pRPN
1	Initial Referral Processing involving the use of a complicated multi-step referral process involving 3-5 staff members	- Miscommunication between Managed Care and HCC Divisions regarding referral details, - Irregularities may occur in the timeliness and accuracy of referral processing including the creation, physician sign off, managed care approval/authorization, and communication to the patient/member, - Delays can cause poor client/member and patient perception of access to specialty care - Patients may be unable to access or delayed in their access to medically necessary specialty services - Patients could suffer adverse health outcomes due to inability to access services or extended wait times.	400	10	10	4	400
2	Consult Report Processing	- Delays in the sending, receiving and processing of specialty consult reports to the healthcare centers after original referral and/or before subsequent referrals - Provider may also be unable to make an informed decision due to inaccessibility of information	280	10	7	4	280
3	Policies and Procedures/SOPs,	A lack of defined policies and procedures for referral coordinators and staff conducting direct and indirect referrals at each of the healthcare centers can result in multiple workflows.	160	4	10	4	160
4	Referral Coordinator Resources and Training	- Inaccurate or untimely processing - Decreased staff satisfaction can result from a lack of current processes and instructions for dealing with referral processing issues,	280	4	7	4	112
5	Staffing Plan and Management Expectations	Involving multiple departments and overlapping roles can result in a lack of clear productivity and accountability expectations for both healthcare center and Managed Care division staff.	112	4	7	4	112

FMEA Prioritization Elements:

Risk Priority Number (RPN): What is the measure of process risk related to the effects, causes & controls?
SEV * OCC *DET = RPN

Severity (SEV): How severe is the effect on the customer (1 = no patient impact, 4= Minor event, 7= Non-serious patient harm, 10= Serious patient harm or death.)

Probability (OCC): How often does the failure occur? (1=Never, 4-Has happened once within past 5 years, 7-happens 3-5 times per year, 10 -happens 6 or > times per year)

Detectability (DET): How well can you discover/prevent the failure with current controls? (10= Never, 7=Less than 50% of the time, 4=Over 50% of the time , 1=Always

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