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The Novel UC San Diego Research Immersion Certificate Program

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Background

It all started in 1984, working nights at a community hospital across town. There was a nine-year waiting list to get off the night shift but I was ready for a change. Giving report after having been up all night was a challenge, and the drive home in the morning was becoming dangerous. I found myself frequently falling asleep at stop lights, awakening to the horn of an inpatient driver behind me. The only way off nights sooner was to become a manager or an educator. Education seemed like the best option. There was, however, a fly in the ointment. At that time, these positions required a master's degree, which in turn required a research thesis. I had serious doubts about whether I could or wanted to conduct research, it seemed boring and unattainable. I was a clinician, an intensive care nurse, a doer. I didn't mind studying and reading, but the requirement of a research project at the end of an expensive two years of college seemed like a recipe for disaster. If I failed, it would be a waste of both time and money. So, as my first step into my future career path without even realizing it, I decided to test out the whole concept of going back to school by conducting a study.

One of the first nurse scientists in San Diego, Barbara Riegel PhD RN, worked at the same institution at that time. She held the philosophy that anyone could conduct a research project with the right mentorship. The trick was to surround yourself with people who had the skills and knowledge that you lacked, and lean on them for support. I also learned from her that a PhD is not required to conduct research, and with Dr. Riegel's guidance I completed my first experiment. The objective was to assess whether a special technique of feeding

tube insertion could successfully result in migrating the tube past the pylorus without the need of fleuroscopy, the current standard at the time. I had so much fun doing that study that I soon began another to examine whether pulsatile compression stockings generated enough pressure to increase intracranial pressure. The thought had crossed my mind because of the way military antishock trousers (MAST suits) were used to return blood flow to the core of the body. With those two studies under my belt, I had the confidence to go back to school,

enrolled in the San Diego State Intensive Care Clinical Nurse Specialist program and obtained a master's degree. The once dreaded thesis topic was a study to see if the patient could be saved from venipuncture by drawing aPTT samples after angioplasty from arterial or venous sheaths cleared from heparin contamination with seven times the deadspace volume from sampling port to catheter tip.

Following the thesis, I've conducted a steady stream of small [largely unfunded] projects with colleagues, now considered friends, publishing nearly every one. All of these studies were based on clinical or leadership questions generated from practice.

Now, nearly 40 years later, I serve in the nurse scientist role and find myself in the same position as my mentor was back then, carrying the legacy of her philosophy that no specific degree is necessary to conduct research. In 2021, though, despite active and ongoing mentorship I was challenged by Heather Warlan PhD RN to create a formal program for research. Her cogent undeniable argument was that we had the Evidence-Based Practice Institute to teach nurses how to conduct EBP change projects, and the Transformational Health series to teach nurses how to conduct performance improvement projects, but no formal program for how to conduct research. After some serious thought and introspection, the UCSDH Research Immersion Certificate Program was born. The program is intended to teach basic concepts to healthcare professionals conducting their first research studies. Though focusing on the novice, experts often join in the fun to serve as content experts or to learn a different form of research than they have done in the past.

The Method

Have you ever noticed how busy clinicians attend classes that they fit into their crowded schedules, often half-asleep or double tasking through the program (to the dismay of the instructor) and then fall short of applying what they learn later? An example, I once tried to hold a publication workshop. People signed up, and the class was quite full. They dutifully attended the series where all of the best techniques and processes for

publishing a paper were taught. They appeared to enjoy the class and scored the evaluations highly, but not a single participant published an article as planned. I was crushed, but learned a lesson. From there I created a training program for how to write test questions, noticing that tests used in the clinical setting often violate test-writing standards. Poor test question development cannot be relied upon to measure knowledge. The curriculum contains content delivered in what is hoped to be an engaging format either live or by video. At the end, participants are asked to write one test question using the evidence-based test-writing standards they just learned. The question is emailed to me to assess the student's understanding and application of the information taught. The biggest takeaway from this course? People who complete the program are not able to apply the standards taught when writing their own test questions. They need to be precepted with the skill. Further, in the 15 years serving as faculty in the Evidence-Based Practice Institute, I've witnessed what participants really need and want: proctored guidance at each step of the process in the moment when the skill is being used. Habits are hard to change if direct, continuous feedback and support are not provided. Translating the skill into practice requires active (not passive) mentorship.

With these lessons in mind, the new [UC San Diego Research Immersion](#)

[Certificate Program](#) is grounded in [Knowles Learning Theory](#); people learn best by doing. With that, there are no didactic classes; no classes and no pre-requisites. All are welcome.

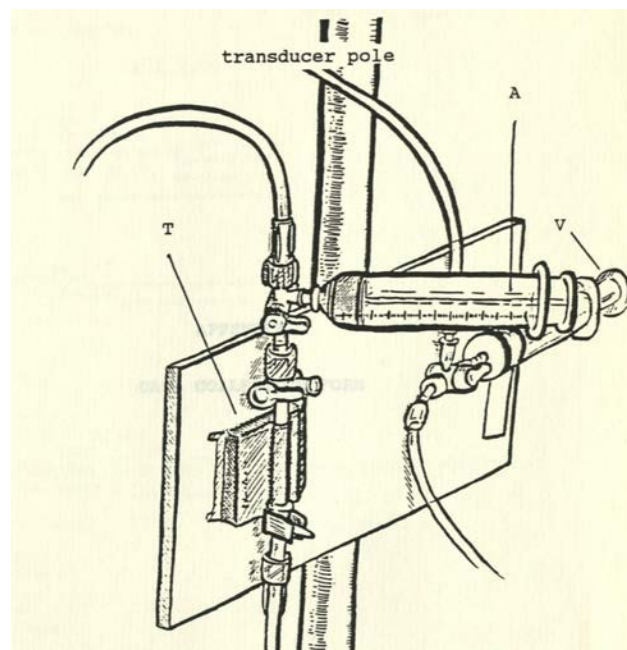
Formula for Success

The formula for success has been honed by many years experience. Enrollment into the Immersion Certificate Program is 'rolling', with no set start date. At any time that a team is formed they may begin the process. For further flexibility, the meetings are held virtually using Zoom. The team answers a research question they are personally interested in. Participants can bring the topic to the program and have support recruiting a team, participate with a team already assembled, or join a sub-study of a previously approved research project that is open to more team members. Students or clinicians of nursing, medicine, pharmacy or chaplaincy may be blended together to construct a team, enriching the experience and learning from the diversity of perspectives. Content experts are recruited as needed, whether within or outside of the organization. Content experts receive a certificate of honor for their mentorship activities. Participants with statistical expertise often volunteer their time in return for authorship as a part of the research team.

Once the team is formed, meetings are held weekly at a mutually agreed upon time and location. After the first

Figure 1:
Blood withdrawal assembly

Figure legend: Drawing of blood withdrawal assembly used in one of the first studies conducted in 1990 to test whether clean coagulation samples could be drawn from indwelling catheters containing heparin. T = transducer. A = arterial catheter. V = venous catheter. Drawing by Diane Moore RN.



meeting, a team leader is recruited. This point person will then meet with the program director to help set the group agenda, as well to provide the foundation of support and guidance throughout the process. It is the leader's responsibility to organize the meetings, make sure documents are easily accessible, and monitor progress to ensure milestones are achieved on-time. The team leader also edits the final paper to ensure a cohesive voice throughout. Many hands do make light work. In return for their hard work, the team leader receives a special certificate of honor for leadership and is designated first author on the manuscript.

A word is necessary about research and the intent of publication. Some people want to complete the project but are less enthusiastic about writing or publishing a paper. Those who were studied, interviewed or involved in experimentation deserve to have their time honored through attempted publication. Also, even if results of a study do not support the original or hoped for outcomes, it is equally important to report a technique tested that was not successful so that it can be improved upon or avoided in future studies. Participants gain the benefit of learning both sets of skills; how to conduct a research project and how to write a manuscript for publication. Given this, the certificate of completion for the Research Immersion Certificate Program is generated at the time the manuscript is submitted for publication. Since there are generally four to six people on a team, writing one section of a 10-15 page manuscript is definitely doable. The words on the paper become knowledge when published. Through participating in the program you will generate new knowledge.

Life Cycle and Time Commitment

The life cycle of the project varies depending on study complexity, usually three to six months from inception to submission of publication. Weekly meetings pause while the manuscript undergoes peer review. During this time social media blurbs are prepared in preparation for publication and the team organizes an approach to submitting abstracts for internal, local

and national conferences. Mentorship is also provided in presentation skills as abstracts are accepted. The project team will touch base as needed through the publication process. Two rounds of manuscript review and revision are anticipated with publication approximately one year to 18 months following the start of the process. By the end of this process where strangers once met to conduct a research project, lasting relationships have formed with like-minded colleagues.

Outcomes

Between 2021 and 2022, 18 projects were conducted by 52 participants; 11 completed with manuscripts submitted with 8 publications to date, 6 projects in progress. Ten participants repeated the program, expanding their role from team member to leader. When surveyed, all respondents would recommend the program to others, felt welcome, and reported feeling that their input was valued. Sense of belonging to the organization, a social justice measurement of inclusion, increased significantly (scale 0-10, mean pre 5.9, post 8.4, $p < 0.05$). Comments reflect that though novices may at first feel intimidated, the support through the process eased their fears. Blending disciplines created a sense of teamwork and comradery. Just as happened to me many years ago, I've witnessed those conducting their first studies build the confidence needed to further their education often at the doctoral level.

[Click here to hear an example of the report of a completed project.](#)



This project was conducted by Marcus Richardson RN, now a UC San Diego new graduate nurse, who led the project during his time assigned on rotation to UC San Diego for an externship. After conclusion of his first study he is now involved in a second study on another team.

Conclusion

The UCSDH Research Immersion Certificate Program is a novel concept designed successfully to cultivate nursing engagement in research and publication. Though created for nurses, the program is valued by participants of a variety of disciplines.

Contact jdavidson@health.ucsd.edu for more information

Project lifecycle:

- Identify: team, project leader, concept of study, study design, division of duties, meeting schedule, shared site for documents
- Conduct literature review, select target journal, write introduction
- Create manuscript outline and write introduction
- Write the research protocol, submit for approval
- Acquire data, analyze data, draft manuscript, submit for publication, revise
- Dissemination of findings through presentations
- Publication and social media marketing to announce the arrival of new evidence