DISCOVERY

Stanford HEALTH CARE

A newsletter brought to you by the Office of Research, PCS

VOL. 3, ISSUE 2 APRIL 26TH, 2019

Meet the Expert

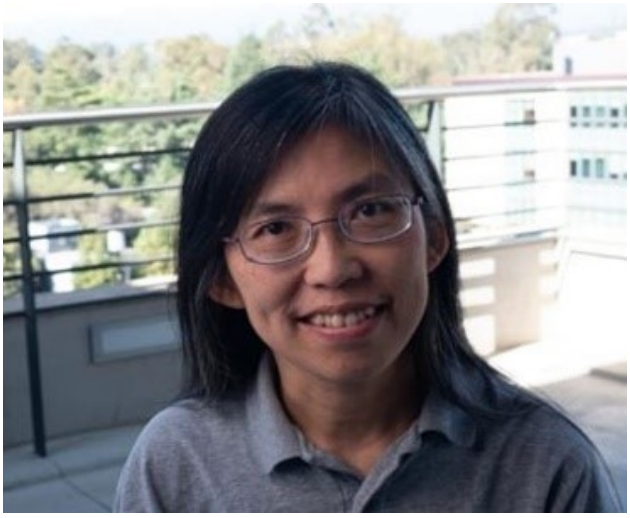

Image provided by Connie Wong.

Blurb:
Connie Wong is the new nursing liaison librarian at Stanford's Lane Medical Library. Connie brings a dynamic wealth of knowledge and experience to her role. She is the main point of contact if you are searching research articles, evidence-based practice (EBP) articles, or require the most up-to-date research on a specific topic. In this issue of Discovery, we interview Connie. Click here to learn more.

Web Article:
For this article in Discovery, we interviewed Connie Wong, the new nursing liaison at Stanford's Lane Medical Library. Connie has a diverse background of experience and looks forward to contributing her skills to support research. For any general questions, please e-mail her and include a brief description of your topic at hongnei@stanford.edu. If your request is more in-depth, please utilize the Literature Search Service form. Instructions on how to complete the form can be found on the ORPCS website, Literature Searching Strategies. Monique Bouvier shared the meet-and-greet interview with Connie.

Question: Can you tell me a little about your background and training?

Answer: My undergraduate was in business administration and accounting. I worked in credit card process re-engineering department for about 3 years before moving to the United States. I went back to school and got my Doctor of Veterinary Medicine and Master of Veterinary Preventive Medicine (like

MPH in human medicine) degrees from UC Davis. After practicing in a small animal practice for about 7 years, I was accepted as one of the recipients of San Jose State University “Librarians for Tomorrow" Program and finished my Master of Library and Information Science. I worked at the San Jose Public Library and later at the University of San Francisco before joining the Lane Medical Library in June 2018.

Question: Why did you choose to study librarian sciences?

Answer: I enjoy spending time in the library. So, I thought it would be fun to learn how it operates. When I started the library science program, I was fascinated about the complexity of library resources and information science. We integrate and apply the knowledge from various disciplines, like education theories, learning theories, data management, information technology, marketing, and even interior design.

Question: What brought you to Stanford Health Care?

Answer: I decided to become a full-time medical librarian at Stanford Health Care because of the positive and rewarding experience gained from working with the nursing and business graduate students at USF. Since SHC and Stanford Medicine are the leaders in medical research and ~~evidence based~~evidence-based medicine, I will have even more opportunities to learn from these experts, challenge myself, and contribute to the community.

Question: What departments do you assist here at Stanford Health Care?

Answer: I am the library liaison for the nursing, medicine, OBGYN, pathology and cancer institute. I am also the library liaison for the MD and MSPA students, as well as comparative medicine department.

Question: Can you describe some of your experiences in the past working with nursing students and nurses on research projects.

Answer: I took the JBI Comprehensive Systematic Review Training Program in early 2017. USF nursing graduate students are required to conduct ~~evidence based~~evidence-based projects and write up/present their papers in the student research symposium. I provided assistance with literature searches, academic writing and citation management.

Question: Is there anything else you want our nurses to know about you?

Answer: I am excited to have the opportunity to continue collaborating and learning from all the patient-centered and EBP-focused nurses at an organization, like Stanford Health Care.

Question: I have to ask, because you are a librarian, what is your favorite book?

Answer: Since I love animals and books, one of my favorite books is "Dewey: The Small-Town Library Cat Who Touched the World."

Article By: Monique Bouvier

Psychometric Research

Blurb:
It can be challenging to pick the right instrument to study the outcomes of patients. Taking the time to investigate if an instrument is valid and reliable will make your research or clinic findings stronger. In this issue of Discovery, we consider how instruments are psychometrically evaluated and the importance of it.

Web Article:

Valid and reliable instruments

"Definitions:
Validity refers to the degree to which an instrument accurately measures what it intends to measure.
Reliability refers to the degree to which an instrument yields consistent results."

While researching what instruments to use in a research study, we look for instruments that claim 'they are well validated' and 'have strong reliability.' But do we ever take the time to consider what 'well validated' and 'strong reliability' truly mean? Most people do not consider how an instrument's reliability and validity was assessed and proceed to use it in their research study or clinical site and reference it.

In 2018, Monique Bouvier, PhD, RN, PNP-BC from the SHC Office of Research collaborated with Ann Mayo, DNSc, RN, CNS, FAAN from the University of San Diego, was considering using the Canadian Acute Respiratory Illness and Flu Scale as an instrument in a research study, and were trying to determine if it was an instrument that could render reliable results for patient care. They took the time to investigate how the reliability and validity was assessed. They psychometrically evaluated the instrument prior to using it, and were surprised by the findings. They ended up writing an article about the psychometric evaluation process and published their results in the Journal of Pediatric Nursing.

The Canadian Acute Respiratory Illness and Flu Scale (CARIFS) was originally developed by Jacobs et al. (2001) for use in research to measure acute respiratory illness (ARI) disease severity in children, capturing the healthcare provider and parents' perspective about a child's ARI symptoms. A deep dive review of the literature showed that the CARIFS has been used in not only in the research setting, but also in the clinical setting and had been well disseminated and translated into several languages. When

considering any instruments to use in clinical practice, you also want to make sure they are truly valid and reliable for whatever it is they are measuring; because they may not be capturing what you think they are. For example, an instrument can say it is collecting information on anxiety, but it is capturing information on depression.

As stated earlier, the intent of the above-mentioned article was to assess how psychometric testing was performed on CARIFS, and issues found with the validity and reliability. Several limitations with reliability and validity were discovered after taking the time to investigate the origins of the instrument. For instance, the items on the instrument were characterized in three dimensions, but they seemed to be investigator developed dimensions; therefore, the dimensions do not hold much merit when someone may reference them. Additionally, the 18 items focused on physical symptoms only, and psychological or situational factors were not considered to have any influence with symptoms. Literature has shown that symptoms are multi-dimensional; therefore, to truly capture subjective symptoms, one should consider outside factors influencing them such as situational or environmental factors. For instance, it was not captured if cold medication was given before rating the physical symptoms, or what the mental health of the patient was like. Both the above situations can influence how symptoms present, but that information is not captured as part of the tool. In regards to reliability, test-retest reliability did not occur at the same times nor under standard conditions. Therefore, the reliability of the instrument is put into question because someone would want the same conditions to make sure the instrument is stable. Most people's symptoms differ from the morning when you just wake up to the late afternoon after a long day. Having test-retest by comparing a morning and an afternoon score makes it difficult to know if the instrument is stable for any specified timeframe.

This article highlights why you need to further investigate an instrument you plan to use in your clinic, hospital, unit, or research study. If the instrument is not psychometrically sound, then the results and merit of your study or even how your patients are doing will be questioned. Make sure you are choosing an instrument that is specific for your population, and if it isn't you can psychometrically evaluate properties of it yourself.

Tips:

- Every instrument was created to address a specific population and condition. If you intend to use the instrument in **a population outside** of what it was designed for, you should check into the validity and reliability of the instrument for that population. If it does not exist, you should perform validation studies first.
- If you **change the format** of an instrument, like from paper to electronic, the reliability and validity should be assessed for the instrument in the electronic format as it was created to be delivered on paper.
- If you **modify an instrument** to add or subtract questions or even slightly changing the wording of questions, the instrument is no longer the same; therefore, it is no longer valid or reliable. You must assess the validity and reliability of the new instrument you created from the original one.

- **Instrument creation is sometimes necessary** when you cannot find a specific tool out there for what you need. You should always go about the development of your tool utilizing a specific framework to minimize bias.

Article By: Monique Bouvier

Education

Blurb:
In April and October of each year, the Stanford University Nursing Alumnae provide funds for research studies that are conducted by nurses working at Standard Health Care and Stanford Children's Hospital. This article outlines some tips to write a winning Legacy Grant application. Click here for more details on the application process.

Web Article:

Tips to Writing a Successful Legacy Grant

What is the Legacy Grant?

In October and April of each year, the Stanford University School of Nursing Alumnae provide funds for research studies that are conducted by nurses working at Standard Health Care and Stanford Children's Hospital. The grant offers up to $10,000 per study. Nurses applying from Stanford Health Care may now also request paid hours from the Office of Research, for some of their project activities.

What is the application Like?

The application is a short 2-page summary of the project and its objectives. While it might sound easy to write for only 2 pages, the application needs to follow a specific format and include a justified budget. Getting all the information into 2 pages requires the research idea to be clear, succinct and measurable. The application form lists everything that is needed in 7 sections.

The application can be downloaded from: www.orpcs.org/research/legacygrants The next application deadline is April 30th, 2019.

Section 1: The Purpose

How do you start writing? The first section in any grant is either about the background or often "the aim" or "the purpose". In a small application, the purpose is often the first sentence: i.e. The purpose of this study is to ……. (fill in the blank). If you are not sure how to compress the study purpose into one sentence, a PICOT question format can be used to structure your idea.

- P. Population
- I. Intervention
- C. Comparison
- O. Outcome
- T. Timeline

The PICO question is a tool to help you format your research/project question. A search for PICO question on the internet will bring up lots of informative examples. The following is an example PICOT question: "Do surgical patients without a urinary catheter, get out of bed more frequently than patients with an indwelling urinary catheter, on their first postoperative day and thus have an earlier return of bowl sounds?"

- P. Population: Surgical patients without a urinary catheter (catheter taken out at end of surgery)
- I. Intervention Early mobility - Get out of bed (> 4 times on post-op day 1)
- C. Comparison Surgical patients with a urinary catheter (catheter remains in per protocol)
- O. Outcome Earlier return of bowel sounds associated with increased early mobility in catheter-free group.
- T. Timeline An observational study of 50 post-surgical patients over 3 months

Section 2: The background and significance

The background paragraph should be brief and refers to pertinent published literature. The focus of the background section is to show that the area of research is relevant to patient care and that the research is achievable. Using the PICOT example above, if a specific method has been used to measure return of bowel sounds, cite the reference here. Or if a specific method has been used to measure time out of bed (chart review, motion camera, self-report) cite the method here. The background should include examples of the tools or methods that are planned for the study.

Section 3: Pilot Work

If you have any data that is relevant to the proposed study explain the findings under "Pilot Work". The purpose of pilot work is to show feasibility and demonstrate that the project is doable.

Section 4: Methods

The application has questions to help you clearly describe the patient population and your methods. Describe how the study data will be collected and if the data contain patient health information (PHI) how you will maintain data security and safety. For example: using a secure database such as REDCap. In this section, you can refer reviewers to the background section, to describe how the intervention (your topic of interest) will be measured. It is not enough to write "we will compare". An explanation of how the data points will be measured should be included (see statistics points below). If you are using a survey instrument (email or in person) it is much better to use a validated and reliable tool, rather than make up your own.

Statistics (Descriptive or analytical)

- Describe in a short paragraph how the various data points will be analyzed to show differences between your groups. Options are descriptive statistics and inferential statistics.
- Descriptive statistics: Descriptive statistics simply describe the findings. For example, the difference in minutes from time out of the operating room (OR) until return of bowel sounds, auscultated by stethoscope between the two groups on post-op day 1. Percentages are often reported in descriptive statistics.
- Inferential statistics: Inferential statistics use a random sample of data from a population to make inferences about the population. It is usually not possible to study an entire population so

a random sample that is representative of the population is used. In this situation, patients could be randomized into two groups with different interventions and inferential statistics are used to examine the results. It is recommended that applicants consult with a statistician before submitting a Legacy application. The legacy grant can be used to fund statistical analysis, and for the grant it is important to explain how many patients are needed to show a difference using statistical analysis.

- Describe what you expect to find based on other studies (very brief). Add how your study outcomes will help patients and contribute to the clinical evidence base. Make sure your outcomes ARE MEASURABLE as described above.

Institutional Review Board (IRB)

- The Stanford Research Compliance Office's Institutional Review Board (IRB) reviews all Human Subjects research proposals. To submit an IRB proposal or letter of determination, you will need a SUNet ID. This can be obtained by calling 650-724-4357. Ask that the link be sent to your Stanford email and complete the online enrollment steps as soon as possible.
- If your project is classified as research, you will need a Stanford faculty member to be a Principal Investigator (PI) and all members of the research team will need to complete online ethics / research training. The ethics training can be accessed at this link: https://researchcompliance.stanford.edu/panels/hs/forms/training/citi

Section 5: Timeline

It can be difficult to estimate the timeline. In general, every research step takes double the time expected. Provide a list of the expected timeframes to include: IRB approval, enrollment and data collection (this will depend on the number of patients in your study), data analysis, writing up results, dissemination (abstract and paper).

Section 6: Budget

Budget is very important. To help the committee determine an appropriate level of funding, be sure to provide a description of each item that is being requested, and a justification – that is, *why is it needed?* Resources include supplies for your study, for example: gift cards to give to participants, rental or purchase of equipment. These are listed with expected prices. Include only tangible items directly related to your study.

Section 7: References

The reference list will be short because the Legacy Grant format is short. All references listed should be cited earlier in the application. It is helpful to number the references (versus using names) to save space.

What happens after the grant is submitted?

The grant is reviewed by a team of researchers and members of the Stanford Alumnae. It is rare to be approved outright. Often, clarification of the grant or the budget is requested. However, do not be deterred, just answer the questions and get the revised grant back to the reviewers ASAP.

Assistance Preparing the Legacy Grant,

It may be helpful to meet with a member of the Office of Research Patient Care Services (ORPCS) before submitting the grant. Please contact research@stanfordhealthcare.org for more information.

The Legacy grant application is available for download from the ORPCS website: http://orpcs.org/research/legacygrants

Article By: Mary E. Lough

Spotlight

Pictured from left to right: Heather Jenkins, Seung (Eli) Oh, Dana Shepherd, Amanda Giordano

Blurb:
The response team at Stanford Health Care consists of two teams - the Critical Care Response Team and

the Acute Care Response Team. This article will present how the teams were built on evidence demonstrating the need to deliver optimal care in a focused manner in hospitals.

Web Article:

Successful programs are built on a foundation of evidence taken from research in the literature. Stanford Health Care's Response Team truly highlights this ideal as it was structured based on the best available literature and continues to evolve with emerging research program. This article will highlight the development and evolution of the Rapid Response team at Stanford Health Care and how it utilized groundbreaking research to create a world class service. The Critical Care Response Team intervenes with patients whose condition deteriorates unexpectedly by drawing clinical experts quickly to the patient's bedside. The Acute Care Response Team primarily provides support to the Hematology and Oncology Departments and assists with the administration of chemotherapy, as well as provides education to patients and staff.

According to the publication by Winters and Devita (2017) Rapid Response Systems[i], the critical care response nurse (CCRN) concept was initially envisioned in the early 1990s as healthcare systems became more complex and a need for early trained intervention arose. The evolution of these teams started with groundbreaking research that identified early signs of deterioration prior to cardiopulmonary arrest. Schein et al. (1990)[ii] found that "…cardiopulmonary arrest is neither a sudden nor unpredictable event." This forever formalized what many health care providers had observed for years and established precedence for early intervention. This new knowledge triggered the formation of rapid response teams across the country as health care systems looked for new ways to reduce preventable deaths. Research after began to emerge focusing on the importance of having a multidisciplinary team of doctor, critical care nurses, pharmacists, and respiratory therapists intervene during those early signs and symptoms to prevent cardiopulmonary arrest. One of the pivotal publications by Bellomo et al. (2003)[iii] showed dramatic improvement in survival rates stating, "the incidence of in hospital cardiac arrest and death following cardiac arrest, bed occupancy related to cardiac arrest, and overall in hospital mortality decreased after introducing an intensive care based medical emergency team." This early research led to the creation of Stanford Health Care's Response Team in an effort to improve patient outcomes and reduce preventable deaths.

Stanford's response program started off more as a 'help-line' with only one response nurse available during the evening and night shifts in the early 1990s. This nurse was utilized to help start difficult IVs, provided wound care, and acted like a float nurse to 9 different units. In 1994, the role evolved when the critical care response nurse began to carry a pager to answer to all the Code Blues, major traumas in the ED, and give breaks in the PACU and all the ICUs. Another evolution to the role of the critical care response nurse occurred after research was published about the success of the Rapid Response Team to life threatening events. In the early 2000s, rapid response calls were now being initiated followed by CAPR bed activations (i.e. Stroke Interventional Radiology Patients) and sepsis patients. This shift in culture led to an ever-growing team, with their responsibilities continuing to expand utilizing a greater breath of nursing's scope of practice. Currently, they are a team of 26 critical care or emergency trained nursing professionals and 14 oncology certified acute care nurses. They are split into two teams, Critical

Care Response Team and Acute Care Response Team. Below is a list of some of the services the response team help facilitate here at Stanford Health Care.

<u>Critical Care Team</u> provides the following care:

- **Sepsis Care** (all units)
    - Manage alerts that bring additional resources to the bedside
    - Experts at differentiating potential causes of deterioration
    - Ability to implement sepsis protocols and activate Code Sepsis
    - Evaluate and facilitate appropriate level of care for new onset or worsening sepsis
- **Critical Care** (all ICU, ED, and step-down units)
    - First line emergency response during critical change in patient condition (i.e. Code Blue, Stroke Code, Rapid Response)
    - Emergency Department resource for major trauma and critical care areas
    - Deliver time sensitive critical care interventions for acute stroke patients
- **General Care** (all ICU and step-down units)
    - Insertion of **difficult** to place or specialized lines and/or tubes (i.e. IVs, NGs, Foleys, Feeding Tubes)
    - Assisting all the Intensive Care Units (i.e. helping when needed)
    - Real time education where care meets the patient at the bedside
    - Able to participate in challenging conversations with patients and families

<u>Acute Care Team</u> provides the following care for all non-ICU/ step-down units

- **Oncology** (applies to all NON-oncology units)
    - Manage alerts for patients admitted with an active oncology treatment plan
    - Administer chemotherapy agents to patients
    - Provide chemotherapy education to patients and their loved ones
    - Provide oncology and chemotherapy education to the nursing staff
    - Resource to nursing staff administering hazardous agents
    - Collaborative approach with heme/onc fellow and oncology pharmacist in the management of off-unit chemotherapy
- **General Care**
    - Insertion of **difficult** to place lines or tubes (i.e. two failed PIV attempts)
    - Insertion and maintenance of feeding tubes with electromagnetic guidance (i.e. Cortrak)
    - Experts in management of PICC line removal and ports (Mediport)
    - Able to participate in challenging conversations with patients and families
    - Acts as a resource to floor staff and offer input for problem solving

This diversified nursing team was created for the hospital, supported by evidence from the literature, to answer to all emergency response activations or other unpredictable situations requiring additional nursing care. The critical care response team and the acute care response team have grown substantially over the last 20 years with their continued mission: to support a collaborative and interdisciplinary approach that ensures quality patient care and clinical excellence across the hospital continuum.

Manager: Amanda Giordano 408-656-2872

Shared Leadership Council Members: Dana Shepard, Eli Oh, and Heather Jenkins

Voalte: SHC Critical Care RN 1-4 AND SHC Acute Care RN 1-2

References:

[i] Winters, B. and DeVita, M. (2017). Textbook of Rapid Response Systems. Switzerland: Springer International Publishing

[ii] Schein, R. M., Hazday, N., Pena, M., Ruben, B. H., & Sprung, C. L. (1990). Clinical antecedents to in-hospital cardiopulmonary arrest. Chest, 98(6), 1388-1392.

[iii] Bellomo, R., Goldsmith, D., Uchino, S., Buckmaster, J., Hart, G. K., Opdam, H., ... & Gutteridge, G. (2003). A prospective before-and-after trial of a medical emergency team. Medical Journal of Australia, 179(6), 283-287.

Article By: Dana Shepard & Heather Jenkins