Meet the Expert

Blurb:

The American Nurses Credentialing Center (ANCC) Magnet Recognition Program® is an important nursing recognition credential. Magnet status is conferred on healthcare organizations that achieve high-standards in quality outcomes, patient care, nursing excellence, and innovations in professional practice, with inspired and empowered nurses leading advances in health care.

Web Article:

The Magnet Recognition Program® is the highest national honor given for nursing excellence and quality patient care in the United States by the world's largest and most prestigious nurse credentialing organization, the American Nurses Credentialing Center (ANCC).

It is a tremendous honor for Stanford Health Care (SHC) to be among the 8% of all registered hospitals that achieve ANCC Magnet Recognition. There are 475 Magnet hospitals worldwide, with 34 in California. SHC initially received Magnet Recognition for Nursing Excellence in 2007 and was granted Magnet re-designation in April of 2012 and October of 2016. SHC will submit its 4th Magnet Re-designation application in August 2020.
A LITTLE MAGNET HISTORY
During the 1980s, when there was a terrible nursing shortage in the US, a group of nurse researchers from the American Nurses Association's (ANA) and the American Academy of Nursing (AAN) decided to study the elements of nursing work environments that contribute to nurse recruitment and retention. The term "Magnet" was established and an initial study of 163 hospitals was undertaken. The researchers found that 41 hospitals, which included Stanford University Hospital (now Stanford Health Care), possessed characteristics that supported the organization's ability to both attract and retain nurses despite the national nursing shortage. The nurse researchers identified a list of merits that set these 41 hospitals apart from the others. These distinguishable traits, initially known as "14 Forces of Magnetism" were later organized into the 5 Magnet Model components.

5 Magnet Model Components

- Transformational Leadership
- Structural Empowerment
- Exemplary Professional Practice
- New Knowledge, Innovations and Improvements
- Empirical Outcomes

WHY IS MAGNET RECOGNITION IMPORTANT?
There is an ongoing increase in independent research that supports multiple measurable benefits of the ANCC Magnet Recognition Program for nurses, patients, organizations and ultimately for the dynamic health care system. A high-level overview of these benefits are emphasized in the chart below and additional case studies take a deeper dive into the research.
## For the nurses
Higher Nursing Engagement, Collaborative Culture & Positive workforce outcomes:
- Lower nurse dissatisfaction and nurse burnout
- Higher nurse job satisfaction
- Lower registered nurse (RN) turnovers

## For the patients
Higher Quality & Clinical Outcomes:

### Quality and Safety
- Adoption of National Quality Forum safe practices
- Lower overall missed nursing care
- Higher support for evidence-based practice implementation
- Higher nurse-perceived quality of care
- Higher patient ratings of their hospital experience

### Patient Outcomes
- Lower mortality rates
- Lower failure-to-rescue
- Lower patient fall rates
- Lower nosocomial infections
- Lower hospital-acquired pressure ulcer rates
- Lower central line-associated bloodstream infection rates

## For the organization
- Lower RN turnover
- Lower length of stay
- Higher net inpatient income


### Stanford Health Care as a "Magnetic Hospital" -- Culture of Excellence

The Stanford Health Care (SHC) professional practice model was designed by Stanford nurses. The model encompasses the Jean Watson Theory of “Caring Integrated with Science,” and reflects SHC’s vision “to Care to Educate and to Discover”. The SHC model incorporates core concepts in sustaining a culture of interprofessional excellence and includes the domains of care delivery, clinical practice, professional role, professional development, shared leadership, collaborative environment, education and research. At the center is the person, the patient and/or the nurse.

### Stanford Health Care: The Path to 4th Magnet Re-designation

Achieving Magnet Re-designation is a rigorous and lengthy process that demands extensive participation from nurses and other healthcare professionals across the organization. The process begins with an application, followed by written documentation to support patient care outcomes with qualitative and quantitative evidence. 4th Magnet re-designation requirements expect hospitals to *provide strong documented evidence of how Magnet concepts, performance, and quality were sustained and*
Improved since the hospital received its most recent recognition. If the documentation meets ANCC’s standard of excellence, an on-site visit will occur to thoroughly validate the organization’s enculturation of the Magnet® Model components. After this meticulous on-site validation process, the Commission on Magnet assess the appraisal report to determine whether Magnet recognition will be granted.

MAGNET IS A JOURNEY
As the largest sector of the healthcare workforce serving on the front-lines of patient care, nursing plays a critical role in patient safety, quality outcomes, and the overall experience of our patients, families, and community. Magnet designation is one way nurses are recognized and validated for the tremendous contribution and impact created at all levels, especially on the front-lines of care.

At Stanford Health Care, our ongoing goal is to sustain a culture of interprofessional excellence where a positive and collaborative environment allows clinical nurses to influence the professional practice, structures, and standards of care. Our Magnet journey is about supporting and recognizing nursing’s contributions in achieving positive patient outcomes, enhancing recruitment and retention of outstanding healthcare professionals, expanding interdisciplinary collaborative relationships, and increasing involvement in the community and global partnerships.

ABOUT THE AUTHOR
Katie Stephens, DNP(c), RN, PCCN is the Director for Nursing Excellence and Magnet Programs. In addition to the oversight of our 4th ANCC Magnet Journey, the Nursing Excellence Department is responsible for a variety of special projects & programs, including but not limited to:

- Shared Leadership Council (SLC Day/Retreat, Leadership Development, Action Request Form);
- Nursing Communication (Annual Report, Looking Forward, Social Media, CNO Blog);
- Friends of Nursing Scholarships & Grants; Nursing Grand Rounds;
- Stanford Nursing Mentorship Program; International Visitors program;
- Specialty Events (Certified Nurses Week, Nurses Week, Gingerbread House Competition & Tree Lighting Ceremony);
- Nurse Manager Succession Planning; Nurse Manager Retreats;
- Nursing & Interprofessional Recognition Boards, as well as
- Biodesign & SMYSP Program pairing and leadership.
Katie started her nursing career at Stanford Health Care in 2008 as a travel nurse on B3/C3 and has worked in many roles since that time, including: Assistant Patient Care Manager for the B1, C1, ATIC and the VAST departments; Assistant Clinic Manager for Internal Medicine at Hoover Pavilion; and most recently as the Program Manager for Nursing Excellence. Always a champion of nursing excellence, Katie was one of the original Magnet Champions for the 2012 journey and playing an integral role in the success of the 2016 3rd ANCC Magnet designation.

Katie received her Bachelor of Mathematics degree from William Jewell College in Liberty, Missouri, a Bachelor of Science in Nursing from University of Missouri Sinclair School of Nursing, and a Master of Science in Nursing from the University of San Francisco, California. She is currently completing her Doctor of Nursing Practice in Executive Leadership at the University of San Francisco, California. Katie also holds a certification in Progressive Care Nursing and serves as the Association of California Nurse Leaders Statewide Membership Experience Committee Co-Chair.

In her free time, Katie loves to laugh, listen to music, workout, cook, play tennis, and DIY projects she finds on Pinterest. She also loves to watch classic 80’s TV shows and movies or anything sci-fi related.

If you’d like to get in touch with Katie, she can be reached at KStephens@stanfordhealthcare.org.

Article By: Katie Stephens

Research

**Blurb:**
Recently, a nurse-led randomized controlled trial was conducted in the Stanford Health Care Emergency Department and published in the Journal of Emergency Nursing in September 2019.

**Web Article:**
Stanford Health Care - Research Publication:
A nurse-led randomized control trial was used to examine whether urine culture contamination could be reduced by using silver colloidal wipes and a funnel collection designed for the clean-catch midstream
urine collection. A 2x2 factorial design was used as this method allows researchers to efficiently test two interventions in one study simultaneously.

**Background:**

The idea for this study came from Edward “Ed” Shradar in 2014 when he was the Clinical Nurse Specialist (CNS) in the Stanford Emergency Department (ED). Ed wanted to investigate novel methods to lower the rate of contaminated midstream clean-catch urine culture samples in the ED. Despite various quality improvement and education initiatives, the urine culture contamination rate remained at 40%. Ed partnered with Mary E. Lough, then a CNS in the ICU and now a Research Scientist in the Office of Research Patient Care Services (ORPCS), to study how urine contamination might be lowered. They developed a research protocol and secured funding to hire new graduate RNs as research associates for patient enrollment and data collection. Later, the team expanded to include Debbie Hsieh for data management and Haley Hedlin for statistical analysis.

Data collection took over 10 months between December 2015 and September 2016. Data analysis occurred in 2017 and 2018, and the study was published in September 2019.

As with many research studies, this one took longer than expected to complete!

**Abstract:**

**INTRODUCTION:** A midstream clean catch urine sample is recommended to obtain a urine culture in symptomatic adults with suspected urinary tract infection (UTI). The aim of this randomized controlled trial was to determine whether a novel funnel urine collection system combined with a silver-colloidal cleaning wipe would decrease mixed flora contamination in midstream clean-catch urine cultures from ambulatory adults in the Emergency Department.

**METHODS:** In a 2x2 factorial trial, adult participants were randomized to four groups. (A) sterile screw-top urine collection container paired with a castile-soap wipe (control group); (B) sterile screw-top urine collection container paired with a colloidal silver-impregnated wipe; (C) sterile urine collection funnel paired with a castile-soap wipe; (D) sterile urine collection funnel paired with a colloidal silver-impregnated wipe.

**RESULTS:** The trial was stopped after interim analysis, as the contamination rate in the control group (30%) was markedly lower than the historical ED contamination rate. From 1,112 urinalysis results, 223 urine culture results were analyzed (190 females and 33 males). Urine contamination rates were: Group A (control), n=67 (29.9 % contaminated); Group B, n=69 (34.8 % contaminated); Group C, n=51 (23.5 % contaminated); Group D, n=36 (22.2 % contaminated). Although some groups have lower percentage values, there was no statistical difference in contamination rates between any of the groups ($p=0.369$).

**DISCUSSION:** The use of a funnel urine collection system and silver-impregnated wipe did not reduce urine culture contamination in adult midstream clean-catch urine cultures in the Emergency Department.
If you’d like to read the published article in full, you may download a PDF copy by clicking here.

Reference:


Article By: Mary E. Lough

**Education**

![Image](image.png)

**Blurb:**

**What is a Power Analysis and Why is it Needed for a Quantitative Research Study Grant Application such as the Legacy Grant?**

There are several reasons to conduct a power analysis to determine sample size before applying for grant funding. This article describes how to conduct a simple power analysis using a free online tool for a study that compares two independent groups.

**Web Article:**

A power analysis is a statistical test that estimates the number of participants needed for a research study that compares two or more groups. A power analysis is often required for grant applications involving quantitative research studies and is highly recommended when applying for the Stanford Alumnae Legacy Grant.

It is helpful to have a statistician estimate the power analysis. This is because there are significant variations in study designs that alter the “power” to detect a significant difference between groups. If a study is “underpowered” there will not be enough patients to answer the research question. Conversely, if the study is “overpowered” the study will have more patients than are needed. Both issues are considered poor research design. The power analysis is designed to mirror the Goldilocks porridge test and find a sample size that is “just right” to answer the research question.

This article describes the information that is needed to conduct a simple power analysis. To find out the sample size for a study that compares a continuous outcome between two groups of
participants, a researcher would need to know two things: standard deviation and effect size. Detailed examples using a free online tool are provided below.

**Example:** A researcher plans to test the efficacy of a new non-pharmacologic intervention to shorten the duration of delirium in adults 65 years and older in the hospital. The research team wants to know how effective the new intervention will be, compared to standard treatment. This research study will enroll older patients with delirium and randomize them into 2 independent groups: intervention (non-pharmacological treatment) and control (standard care).

**Measurement:** First, the research team needs to decide what instrument will be used to measure delirium and check whether the tool has published validity and reliability data. In the case of delirium, there are several tools available and most score delirium as either positive (has delirium) or negative (no delirium). This is a binary yes/no metric. Next, the research team will need to measure the difference in duration of delirium between the “non-pharmacologic treatment” intervention compared to the “standard care.” In other words, they want to know how quickly the delirium resolved in one group compared to the other. This outcome time could be measured in minutes, hours or days, which is a good example of a continuous variable. In this study, the outcome is measured in hours.

**Standard Deviation:** The standard deviation (SD) is can be a difficult number to find unless there is prior data from other published studies or the researcher already has some pilot data. The standard deviation is used in the power analysis / effect size formula, and it represents the variability within the group. In this case, the different ranges of time in hours needed for older patients (over 65 years) with delirium to regain their normal baseline mental status following different treatments, with distance from the mean. For example: if the delirium group mean was 30 hours, with an SD of ± 15 hours, patients’ delirium could last anywhere from 15 to 45 hours.

**Effect Size:** Effect size reflects the magnitude of the hypothesized relationship, or in our case how important is the difference between intervention and control groups. In an environment where the goal is to generate new knowledge, the research team may not know beforehand how well the new non-pharmacologic treatment works. Therefore, they may use clinical data or similar prior publications to estimate the anticipated effect size.

- **Large Effect Size (0.8):** If the research team believes that the treatment is going to work well and that it will dramatically shorten the duration of delirium, compared to the control group, this is described as a large effect size, and is numerically described as 0.8.

- **Moderate Effect Size (0.5):** If the research team thinks the new intervention will shorten delirium duration by a moderate amount, they will select a moderate effect size, numerically described as 0.5.

- **Small Effect Size (0.2):** If the research team thinks that the new treatment will help slightly compared to the control group, they select a small effect size, numerically described as 0.2.
The effect size has a direct impact on sample size. With a large effect size, the impact is often described as “visible to the naked eye” or obvious, and only a small sample is needed. Whereas, a moderate effect size (0.5) or a small effect size (0.2) will require significantly larger samples to detect differences between groups.

The formula for the effect size is shown below:

\[
\text{Effect Size} = \frac{\text{Intervention group mean} - \text{Control group mean}}{\text{Standard Deviation (SD)}}
\]

Before approaching a statistician, a researcher might want to do some basic power calculations on their own. This is easier to do today because there are online tools that simplify the process – the tools hide the mathematical calculations in the background.


The examples below were created online with ClinCalc for two independent groups with a continuous variable.

**Suggestion:** Open ClinCalc online and plug-in the numbers below for 2 independent groups. (3)

For this hypothetical example, assume that delirium lasts 40 hours with standard treatment (Group 2 in ClinCalc). Additionally, assume there is some literature to suggest that the new treatment reduces delirium to 30 hours (Group 1 in ClinCalc). That sounds very promising for the new treatment. However, the researcher does not yet know how many patients with delirium will be needed to show statistical significance (alpha .05 in ClinCalc). The examples below compare different group effect sizes.

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**Large effect size example:**

This example has 2 independent study groups with a continuous variable metric (delirium duration in hours). Assume that the literature suggests that with the new non-pharmacologic intervention, the delirium will last an average of 30 hours with a standard deviation (SD) of 10 hours. This compares with a mean for standard care of 40 hours. In this example, the members of the two groups will have limited overlap so this is considered a large effect size.

- **Group 1:** 30 hours mean ± 10 hours SD  (intervention group)
- **Group 2:** 40 hours  (control group)
- set the alpha at .05
- set the power (Beta -1) at 0.8 (80%)
Group Size with a large effect size: 16 subjects in each group. Total 32 patients.

Moderate effect size example:

This example has 2 independent study groups with a continuous variable metric (delirium duration in hours). Now imagine that the literature indicates that with the new intervention delirium will still last an average of 30 hours, but with a larger standard deviation of 15 hours. In other words, there is potentially more overlap between patients in the two groups

- Group 1: 30 hours mean ± 15 hours SD (intervention group)
- Group 2: 40 hours (control group)

- set alpha at .05
- set power (Beta -1) at 0.8 (80%)

Group Size with a moderate effect size: 35 subjects in each group. Total 70 patients

Small effect size example:

This example has 2 independent study groups with a continuous variable metric (delirium duration in hours). Suppose that the literature says with the new intervention delirium will still last an average of 30 hours with a much wider standard deviation of 25 hours. In other words, there is a lot of overlap between patients in the two groups

- Group 1: 30 hours mean ± 25 hours SD (intervention group)
- Group 2: 40 hours (control group)

- set alpha at .05
- set power (Beta -1) at 0.8 (80%)

Group Size with a small effect size: 98 subjects in each group. Total 196 patients

Summary of Effect Size and Sample Size Example

Using the examples above, it appears that the researchers could use a total sample size as low as 32, 70, or as high as 196 for this delirium study.

Effect Size, Sample Size and Grant Funding
The use of an online tool such as ClinCalc can be helpful when designing a quantitative research study because it allows the researcher to play with some “what if” scenarios that will be helpful when applying for funding. For example, the Stanford Alumnae Legacy Grant awards a maximum of $10,000. Using the examples above, this award may provide adequate funding for a sample size of 32 (large effect size), or 70 (moderate effect size), but it may be insufficient for the sample size of 196 (small effect size). This also depends on the methodology and other resources that will be used. However, it is important to understand that grant reviewers expect sample size issues to be presented with rationales in the application.

Other Resources for Estimating Sample Size

There are many software programs that can be used to estimate sample size, but most have a purchase or subscription cost. The most well-known free program is G-Power.(2) A different option is ‘PS: Power and Sample Size Calculation’ from Vanderbilt University.(3) Also, IBM SPSS has a program named ‘SamplePower’ designed to calculate sample size as an add-on to their SPSS statistics program.(4)

Conclusion

While a consultation with a statistician is optimal to calculate a sample size, this opportunity is not always available. Alternatively, before meeting with a statistician, an online tool such as ClinCalc can be used to calculate a potential sample size that will meet study objectives and good research design.

In summary, establishing a population mean and standard deviation for the variable of interest, determining effect size and calculating power analysis for sample size is highly recommended before applying for grant funding. This process will ensure that the sample size requirements match the grant award.

References

Spotlight

RITE Cohort 15 – Nurses from SHC and RITE Coach
Pictured from Left to Right: Terri Wieske, Sandy Mobley, Luci Parker, Elia Hernandez, Monique Bouvier, Erick Baechle, Hannah Wetmore
(Not pictured: Darren Bates – Cohort 14)

Blurb:
Stanford Medicine’s RITE Program Cohort 14 and 15 completed their final presentations during their graduations on September 11th and 12th. Congratulations to the all the graduates and the four SHC bedside nurses who participated in these cohorts! Click here to read more about the graduating nurses’ experience with the RITE program.

Web Article:
Congratulations to RITE Program Graduates! (Cohort 14 & 15)

The RITE Program participants recently completed their final presentations and graduation from the RITE Program’s second annual cohort in mid-September. RITE Cohorts 14 & 15 included four bedside SHC nurses whose time was sponsored by the Office of Research, Patient Care Services (ORPCS). They participated on interprofessional project teams aiming to design and implement solutions for quality improvement initiatives across the organization. All SHC staff who participated dedicated their time and efforts to realizing the project goals through team meetings, in-person instruction, and outside project work in just 5 months. Congratulations to all participants for completing your final presentation and graduating from the RITE Program!

The RITE Program is managed by Stanford Medicine and open to all interdisciplinary staff affiliated within Stanford. RITE stands for Realizing Improvement through Team Empowerment. The program combines an interdisciplinary team and project-based training program focused on achieving meaningful quality improvement initiatives. Encompassing a 5-month program with instructor led sessions every other week, participants will gain practical knowledge in quality improvement, project management, and participate in an approved enterprise-wide QI project.

Bedside SHC nurses describe their recent experiences working on project teams, attending lectures, and learning about quality improvement practices below:

**Erick J. Baechle, BSN, SCRN, PCCN, MISM (H1 - Neurology)**

I joined the RITE program because I was looking for a personal development tool.

The idea to be an active participant on a project was also very appealing to me, especially as a night nurse as you are away from the daily ‘Hustle and Bustle.’ This project was to provide me with an opportunity to meet some “new faces” who were involved with the same patient population and hopefully together, come up with a solution to improve our patients’ outcome.

Each member of our team had a specific role and I felt privileged to be able to represent my unit. It is undeniably a time commitment which requires frequent communication between RITE meetings, team member meetings, and unit staff/management meetings. Once we delineated the problem with our process flow, solutions presented themselves.

The biggest challenge is to find solution(s) that can be sustained through time and hopefully what we implemented will do that.

The experience was very positive and educative. I was provided with tools that should assist me in the future, not only for project management but also for personal growth.

**Darren Bates, RN (Acute Dialysis)**

I had a very positive experience with the Stanford RITE program. The lectures were exceptionally well presented with passionate and engaging speakers who had a great depth of knowledge regarding healthcare quality improvement and the complexities of organizational change. The background
readings and online slide presentations allowed me to be fully prepared to participate and engage with other RITE program members during discussions.

My specific involvement in the RITE project included chart review and data collection which allowed our team to deeply dissect our current state, workflows and look at where delays in care and patient discharge occurred. This then allowed us to develop and test more streamlined pathways to discharge for new start dialysis patients.

Most importantly, it allowed me to look beyond the focused and detailed work of providing renal replacement therapies to clinically complex patients and engage with other professionals and the wider members across the organization. This has led me to a deeper understanding of the patients’ journey and patients’ experience at Stanford Health Care.

Our coach - Angela, was essential in keeping our project moving forward. She gave great advice on how to analyze and interpret our data, and she presented them in meaningful and impactful ways.

The skills and knowledge I gained through the RITE program are now allowing me to examine other areas of my work through a lens of quality improvement.

Elia Hernandez, RN, BSN, CCRN, SCRN, CNRN, TCRN (E2-ICU)

My experience in the RITE Program was great. I enjoyed learning about the quality improvement process. The RITE Program gave me the tools to approach problem-solving with a structured process to maximize the success of the project.

The best part of the program was attending the classes. David Larson is passionate about the material, and he did a great job of keeping the class engaged. I particularly enjoyed learning to translate and apply statistical data into our project.

With the time commitment and expectations of the program, there were some expected obstacles. Working at the bedside and having a limited amount of time and resources was difficult. For example, I work the night shift, while most of my teammates work day shift, therefore attending team meetings was not always convenient for my schedule.

An important tip I’d like to share for future nurses looking to participate: Come into the RITE Project with an open mind, because while working on your project, you may discover the problem you are solving is more complicated than you initially believed. At the beginning, you may come into the team thinking you know what is causing a problem and already thought of some solutions. However, you should be objective and use the tools you learn in the class, because you may discover that the cause of the problem stemmed from somewhere else entirely.

Therese Wieske, RN, BSN, MBA, CEN (Emergency Department)

When I joined the RITE project, I didn’t know what I was getting myself into. In our daily huddle, on our unit, my manager said they were still looking for someone to work on a project for dysphagia. In a weak
moment, I raised my hand and said I would be interested. Not knowing what I was really going to be
doing or what I would be working on. My manager said, “really, you would really be willing to do it?” I
said, “yes.” I figured, it would probably be involved in something that would change how I do things, so I
might as well be part of the change rather than just being told I have to change.

When I walked in to the meeting that 1st day, to my surprise, I was going to be working with someone I
have previously worked with on another project years ago, and also with someone who I knew well, but
had never worked with before.

While it was a lot of work, I liked how the project team leader broke down each step of the process and
explained what we were doing and why. As a nurse, we tend to just jump in and fix the issue at hand.
The process enabled nurses to slow down and collect the information we need to make a more accurate
assessment of the problem and come up with a more appropriate “fix.” This process can also be applied
for any type of project we do in the future.

**Congratulations to our RITE Program Nurse Graduates!**
For more information on sponsorship and to participate in the RITE Program, [click here](#).

Article By: RITE Program Graduates/Monique Bouvier