As a SWAT RN I proactively round with the nurses in the hospital to identify patients who have signs of early deterioration before serious conditions occur. I was rounding on an Oncology floor when I came upon a patient in the red on the Rothman Index (which generate a graph based on 26 observations and allows physicians and nurses to identify conditions that cause deterioration in the patient’s condition). I further evaluated the patient who was at that time being transported to an ultrasound exam. The patient was found to have a very elevated and shallow respiratory rate and ashen skin color. Out of concern I asked the physician assistant to obtain an Arterial Blood Gas. When the SWAT RN evaluated the ABG it showed the patient was septic and needed to be intubated. As I spoke to his wife they did not want aggressive care as per discussion they had on previous admissions (patient was currently a full code). The physician assistant contacted the attending who spoke to the wife to make the patients and DNR/DNI followed by a comfort care order with a morphine infusion. He later died two days later.

If the SWAT RN had not examined the patient data through a patient data index/analytics tool would have gone for a test and possibly coded. He would have been intubated and brought to the ICU, an outcome that was not consistent with their wishes. This use of this technology avoided potential patient and family suffering.
The Electronic Medical Record, Up Front and Center

The Nurse Managed Health Center (NMHC) was opened in August of 2010 on the University of Delaware campus. The NMHC is in congruence with the mission of the School of Nursing, reflecting commitment to research excellence, academic leadership and community service. The NMHC strives to enhance opportunities for education, scholarship and research for nursing faculty and students through studying and using best practices and innovative approaches to healthcare and service delivery.

To achieve its mission, the NMHC identified early on in the planning process that an EHR must be incorporated into the NMHC operational framework. The rational for this decision was that an EHR is capable of integrating the various parts of an office practice. Patient scheduling, clinical documentation, and billing processes would all benefit from integration, thus providing office efficiency. Other capabilities that are equally as important are the ability for an EHR to capture clinical data that can be analyzed in both individual patient and aggregate formats. The results of the data analysis are then used to help the NMHC identify and respond to individual patient needs as well as the overall needs of the practice.

The NMHC strives to be a leader in primary healthcare, which requires the use of cutting edge technology and embraces the use of the EHR into the primary healthcare environment. We are using the EHR in the NMHC to provide an academically intensive real world clinical learning environment for nurse practitioner graduate students. Providing hands-on experience with an EHR in the NMHC makes the transition to the clinical environment smoother for nurse practitioner students. Because of all the benefits for nurse practitioner students and practice operations, the EHR will continue to be kept up front and center as a clear example of how information technology can promote healthcare excellence in the NMHC.
In November 2007 Princeton Healthcare System’s Emergency Department (ED) implemented a new ED software application. Once the contract was signed the hospital was required to appoint a System Administrator. The requirement of the position was simple: they wanted a clinical resource that knew the department backwards and forwards, and could speak to “How it’s done in Princeton.” At the time I was working in the ED as an Assistant Nurse Manager, so between my role and the fact that I had worked in that ED for 28 years, I was offered the position. An IT background wasn’t even considered—the vendor would supply the expertise and teach me what I needed to know; which was fortunate for me, because I was about as far from being a ‘computer whiz’ as you could get! I had been to several demos for the application, and was both excited and flattered to be entrusted with what would, for all intents and purposes, help to reshape the way we worked. Another thing that gave me confidence that I’d succeed. I knew one of the implementation managers on the project: an RN, he had worked in the ED with us before he got his current position. Seeing that he had made a successful transition to the land of computers helped to ease my doubts. I remained on staff in the Emergency Department through the 16 months (4 phases) of our implementation, then, after our IT consultant was reassigned to another location, I was transferred to the IT department, where I currently work as a clinical analyst: still the System Admin for our ED application, but now helping to support the other clinical systems in the hospital, as well.

As the clinical lead on the EDIS implementation, I saw firsthand how this technology revitalized the department, streamlining documentation and patient management, implementing a tracking board, and reducing overall length of stay by an average of 30 minutes.

Triage is a process where the ED nurse meets and assesses the patient to quickly obtain background information and determine acuity. Effective and accurate triage is both a skill and an art, and should be performed by nurses with a high level of clinical expertise. A slowdown in triage creates a patient safety issue in that it delays identification of serious health issues. In addition, it can bottleneck your ED and bring patient flow to a standstill.

The department management wanted a way to evaluate triage times. By utilizing analytic reports, I was able to select a time frame and document for each nurse the number of patients triaged and the average triage time. The department was able to establish a ‘target’ triage time, and evaluate their progress towards the target through ongoing data review. Patients waiting for triage were clearly visible on the
tracking board, and processes were established to enlist an additional triage nurse as necessary. Now triage backups are rare, the average door-to-triage time is 9 minutes, and the average triage time is 6 minutes.

Simple fixes, made possible through informatics.
NEW YORK

Michele Gilbert RN, MSN, NP-C, CCRN
Nurse Practitioner, Heart Failure Program
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I am the Nurse Practitioner for the Heart Failure Program for Bon Secours Charity Health System. I came from a nationally acclaimed heart failure program at a university medical center that was widely known as one of the three most “wired hospitals” in the United States. We had enormous resources at that medical center yet they were never able to accomplish the task creating a database or registry of our heart failure patients. A registry is defined as an organized program for the collection, storage and dissemination of data collected on identifiable individuals for a specific purpose. The creation of an institutional heart failure registry is an Institute of Healthcare Improvement (IHI) recommendation because registries provide clinical support, aid in decision-making, promote the use of evidence-based practice and improve patient care delivery.

Within days of arriving at my new job at Bon Secours Charity Health System, I met Kathy McDonough MSN, RN-BC, Director of Clinical Informatics and within two weeks I had a methodology devised to identify heart failure patients, an alert system and a registry. Kathy identified a person in the lab who created a program to send me a daily list of all patients receiving a B-type natriuretic peptide assay (a blood test which helps identify heart failure patients). This coupled with the admission list and a report that Kathy created for me from a product bridge of all patients receiving intravenous furosemide allows me to identify all patients who have heart failure in the hospital. Kathy then created a way for me to “tag” a heart failure patient’s electronic medical record with an alert. This alert has a feature that allows me to input comments regarding the patient’s history, comorbidities, and use of evidence-based therapies. Once an electronic record has been “tagged” the alert is shown up any time the patient is in the hospital, so if the patient is readmitted, they are quickly identified as having a history of heart failure. Kathy then had a custom report created for me so that I can send out a report of all the patients in the hospital who have primary or secondary heart failure.

The benefits of this alert system are myriad. I send out a daily list of heart failure patients to all medical-surgical and critical care nurse-managers, lead nurses and charge nurses, the Pharmacist who is responsible for patient education, the diabetic educator, our heart failure dietician, and members of the quality assurance team. Any nurse logging in to our electronic medical record for a specific patient will get an alert that must be acknowledged informing them that this is a heart failure patient and giving them pertinent information. Our Admissions Logistics team uses the heart failure alert to help make decisions about where to place patients. To date
more than a thousand heart failure alerts have been created at Good Samaritan Hospital. This has translated to improvement in process indicators, such as early education and daily weights. In example, in 2010, when the heart failure alert was created the compliance with daily weights on heart failure patients was at 16%. On 3North, one of our telemetry units, the compliance has been 100% for the past 3 months, in part due to improved recognition of heart failure patients via the alert system. Recently the Heart Failure Program received a grant to purchase 500 scales. Kathy helped us use Cerner Bridge in a novel way so that we track who we are giving scales to.

Nursing informatics standards of practice challenge clinicians to use innovation and creativity in their practice as a means of improving patient care and care delivery. This can be an especially arduous task in a setting where the information technology platform is not as advanced as the need to capture and retrieve meaningful information and data. Despite these challenges, the contribution of Kathy and nursing informatics has been integral to the success of the heart failure program.

*Kathy McDonough, MSN, RN-BC:* I am the Director of Nursing Informatics for Bon Secours Charity Health System. I have been in this role for approximately one year and prior to that was the Informatics Nurse for this health system. I originally started in IT in 1998 following my participation in the implementation of our legacy hospital information system that captured patient registration and financial data and included order management and result retrieval modules. At that time, I was a Staff Development Educator that volunteered to work full-time on this project. At the culmination of this project, I moved permanently to the IT Department as the IT Site Manager and realized my true passion for this type of work.

I returned to school and completed my MSN Collaborative Nursing Informatics Program at Pace University and have also achieved ANCC Informatics Nurse Certification. I have been involved in the implementation of a bar-coding medication administration system and emergency department information system for our three hospitals. I am also starting to become involved in the planning and pre-implementation activities associated with our upcoming full hospital electronic medical record project. Aside from formal projects, I find true gratification when working with individual users to assist them in using technology to improve their processes and workflow which ultimately can have a positive effect on patient care and patient outcomes.

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When I was working as a staff nurse in the Neonatal ICU, I was asked to complete chart reviews to monitor compliance and identify key areas to improvement documentation. Chart reviews were part of the performance improvement initiative of the hospital and routinely, nurses and or managers scan random charts. I collected data and decided to organize the information I’ve gathered through a database. I developed a database and generated reports based on the information gathered. The first month’s report showed where the deficiencies and we were able to identify key areas of improvement. With the information on hand, I began to educate coworkers who needed to improve their charting and set up one-on-one training for those who needed it. The next month’s results were a big improvement from where we had started. Through informatics, we were able improve compliance in charting.
I walked down the hallway helping nurses with scanning as we went live with medication scanning. It was all new and nursing had not made the decision if it really was a “life saver”. I stopped to help a nurse who was really busy, had lots of medications on his med cart and lots of different insulin bottles. He was frequently interrupted during the med pass and there I was standing watching him. When I saw that he did not scan, I went up to him to review the procedure. He drew up the insulin, and I asked him to go through the procedure so I could sign him off for medication scanning. He went through the process and when he scanned the insulin bottle, he had drawn up the wrong insulin. A potential error to the patient was caught by scanning. He stepped back, moved the cart back into the hallway, reorganized his cart and then followed the steps to give the right insulin. He then shared with the rest of the staff what had happened and that really proved that scanning can save lives! Informatics nurses have used this story to make it real to the floor nurse that technology is only good if it is used and then we offer to work directly with them at the bedside. Informatics nurses bring the education to the bedside nurses and take their ideas back to the builders to continue to make the electronic record a tool for patient safety.
I received my baccalaureate degree in nursing in 1990 and master’s degree in 1994. While my practice was primarily clinically-based, database management and computer systems were becoming crucial to healthcare. I was fortunate to work for a physician who encouraged the advancement of computer skills. In my role as coordinator of a hereditary cancer risk evaluation program, I became more proficient in computer skills – working with more involved databases to assist in patient management and software to assist in the graphic illustration of a pedigree (family tree). Informatics became a critical element of my practice. Later, I began to work for Eviti, Inc. as a case manager, eventually moving into my current role as a knowledge base manager.

As a Knowledge Base Manager and Advanced Oncology Certified Clinical Nurse Specialist, I evaluate evidence-based oncology research and enter data specific to evidence-based treatment into an oncology decision support tool, called Eviti. I’ve seen first-hand how informatics through point-of-care decision-support can improve oncology care for large populations of patients.

In working with a health plan client, a care manager indicated that their company had experienced a 40% noncompliance rate with evidence-based treatment. In other words, 40% of their cancer patients were not receiving treatments that met evidence-based standards of care. To address this issue, their physician network began to use Eviti’s web-based, independent oncology decision-support platform to glean insight into appropriate treatment options that also include health plan coverage information. Within 120 days, noncompliance rates dropped to less than 9%, resulting in improved patient care and lower costs.

Positive outcomes of using informatics to assist in the selection of evidence-based treatments, along with health plan language, include the following:

- Patients receive appropriate treatment for their disease, minimizing the risk for unnecessary side effects and toxicities or worsened prognosis.
- Patients can be assured that treatment is covered under their health plan, minimizing the risk of financial hardship.

As an oncology nurse and oncology patient advocate, I am excited to see such a dramatic improvement in oncology patient care. Through my work with informatics and clinical decision-support systems, I feel I’m making a positive impact on patient care for a large population of oncology patients.
I have had the opportunity to be a notable leader in the acute healthcare setting, serving as a Healthcare Leader for over 10 years advancing through the ranks in Nursing and Administration. Currently, I am the Clinical Informatics Officer for Mercy Health System, Pennsylvania. As the Chief Nurse Officer at Mercy Suburban Hospital for two years, I had the opportunity to design, develop and implement several automated systems leveraging nursing quality care. I enhanced and implemented the Emergency Department electronic health record in four acute care hospitals, automated nursing care plans, implemented barcoding medication administration as well as electronic staffing, scheduling and productivity system. Based on this experience, I decided to complete the Post Master’s Health Care Informatics Course at Drexel University. Upon completion, I had the opportunity to work with my organization to develop a nurse lead Clinical Informatics Role to assist with leading the organization into a full electronic health record, computerized provider order entry, and meaningful use. I was then promoted to the corporate level Clinical Informatics Officer for Mercy Health System.

As a Nursing Informatics Leader, I partner with Chief Nurse Officers, Chief Medical Officers, Chief Executive Officers and other Executive Leaders to lead the healthcare transformation in embracing technology that is interoperable, patient-centric, user friendly and focused on quality outcomes. I have led efforts to increase information literacy and use of evidence in the delivery of healthcare through order set development, CPOE implementations and development of various electronic health record platforms. At Mercy Health System, I have developed and worked with multi-disciplinary teams to redesign clinical workflow and processes essential for the adoption of new technology. She guided EHR and health IT implementations from system selection through the project lifecycle, including implementation, evaluation, optimization and practice transformation. The Clinical Informatics Officer role requires a knowledge base, which is evidence based, current, and meets standards related to policy initiatives focused around meaningful use with an in-depth skill set in translating the impact of public policy initiatives into practice and care delivery.
As an Informatics Nurse working for a healthcare software vendor I have the opportunity to advance better, affordable care and healthier communities through the development of electronic health record software and clinical content which are used to manage patients’ health. I work in a highly collaborative environment with a multi-disciplinary team which includes physicians, business analysts, technical resources, developers and quality engineers; my training and experience in nursing, public health, computer and information science allow me to “bridge the gaps” that often exist in such a diverse team. Those caring for patients on the front lines must have the most current information and tools available at the point of care in order to provide quality, cost-effective care to individuals and populations. My work facilitates this by bringing an essential nursing perspective to the development of evidenced-based guidelines and documentation tools; as well the design of software that is easy to use and complies with frequently changing requirements such as Meaningful Use and ICD-10.

I am fortunate to work in an environment where my contributions as an informatics nurse are valued and ultimately impact the care of hundreds of thousands of patients through the course of millions of encounters every year.