

FOCUS

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Focusing on the people and initiatives that distinguish Christiana Care Health System

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Clinical pathways promise to make great care even better



Through its COPD clinical pathway, Christiana Care's Acute Medicine service line will help patients with COPD to experience more seamless care with enhanced support, education and connection to services in the community.

New tools that help to coordinate care and reduce unnecessary variation will improve health, create better experiences for patients and reduce health care costs.

Christiana Care Health System is poised to roll out new clinical pathways designed to reduce unnecessary variation in care and optimize the health and experience of patients with certain conditions and diseases. Pathways will help doctors, nurses and other care providers to implement comprehensive, individualized care plans for their patients using the most up-to-date information and connections to resources in the community.

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Clinical pathways are like the familiar recipes you've made time and again from memory — but it takes just that once to forget a step, said Kenneth Silverstein, M.D., MBA, chief clinical officer.



“**We don't have the luxury to fail in this business. In a high-stakes environment, you want to have prompts so that you're not missing anything. You don't want to rely on memory.**”

KENNETH SILVERSTEIN, M.D., MBA

“Even if you're sure, if every time you made those chocolate chip cookies you used a checklist, you would never fail,” Dr. Silverstein said. “We don't have the luxury to fail in this business. In a high-stakes environment, you want to have prompts so that you're not missing anything. You don't want to rely on memory.”

Each clinical pathway provides a roadmap to guide patients to an optimal health outcome, engage them as partners in their care and connect them with the follow-up services they need to manage their condition. A typical pathway might include algorithms for screening, evaluation, diagnosis and treatment, answers to common questions or concerns that patients might have, recommendations for appropriate patient-education materials, information about services and resources available to patients and their families, and recommendations for follow-up and preventive care.

Christiana Care's nine service lines will each launch one clinical pathway this year. Development of additional clinical pathways is planned to develop exponentially in coming years, with new pathways added and existing pathways updated on a continual basis. This effort is a key component of Christiana Care's strategy to achieve its aims of Optimal Health, Exceptional Experience and Organizational Vitality.

Development of the pathways has been the work of Christiana Care's nine service lines: Acute Medicine, Behavioral Health, Cancer, Heart and Vascular, Musculoskeletal Health,

Neurosciences, Primary Care & Community Medicine, Surgical Services and Women's & Children's.

The initial guidelines set the stage for development of an ever-expanding library of pathways that will enable consistent, evidence-based care across the continuum for a diverse variety of conditions.

The first nine pathways will initially be rolled out internally, but the goal is to quickly make them available to clinicians and care providers throughout the community on an easily accessible website. An implementation team is coordinating education, communication and IT efforts to support the rollout.

Although a care delivery model may be standardized as a clinical pathway, the way it is applied to each patient is personalized.

“This is simply about embracing patients and being a better partner with them. It's about taking care of people — the pathways are just a tool for this,” Dr. Silverstein said.

The diseases chosen by the service lines range from Stage 2 non-small-cell lung cancer, which affects about 35 patients per year, to Type 2 diabetes, for which Christiana Care sees about 25,000 people annually.

What the pathways have in common is their potential to make a positive impact on people's lives — and to inform the development of future clinical pathways.



“**Being able to give patients a more predictable pathway and engaging them as partners in their care will improve overall patient experience because they'll understand what's happening, what's happening next and what their role is.**”

MIKE EPPEHIMER, MHA, FACHE

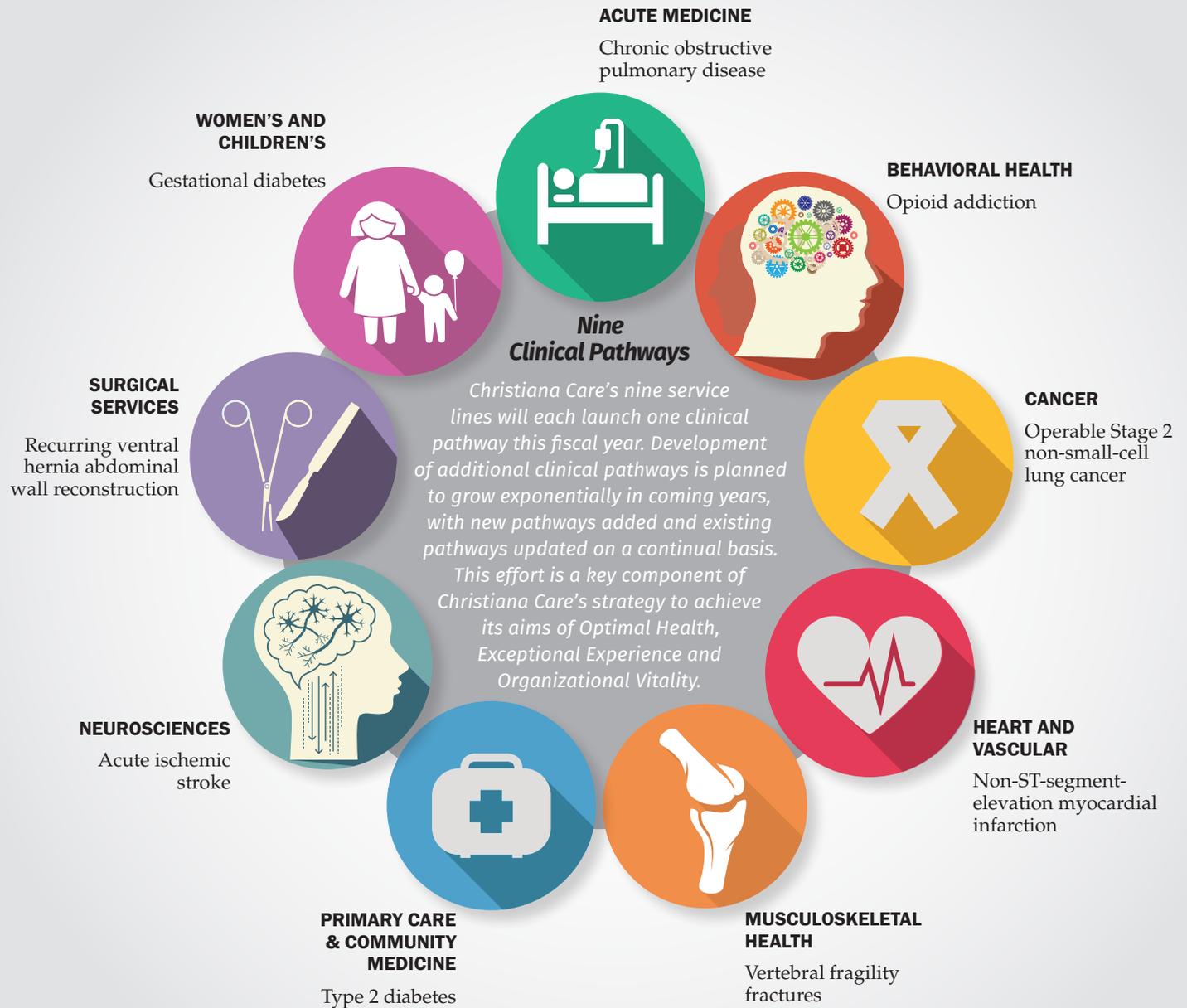
“When you reduce variation, you achieve better outcomes for your patients,” said Mike Eppehimer, MHSA, FACHE, senior vice president for service line operations. “Being able to give patients a more predictable pathway and engaging them as partners in their care will improve overall patient experience because they’ll understand what’s happening now, what’s happening next and what their role is.

“The final piece is the value equation. Organizations that reduce variation and improve their outcomes also save costs. We’re not doing it for the financial incentive, but it does benefit organizational vitality.”

The service lines have begun rolling out pieces of the first nine pathways, with full pathway implementation to continue through the end of June. After that, new pathways will be developed each year and existing pathways will be continually updated.

“It’s amazing how much work the teams have gotten done. We are doing this very rapidly,” Eppehimer said. “There’s a tremendous amount of momentum around these pathways — an energy around it that makes it different from anything we’ve done in the past.”

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ACUTE MEDICINE:

Chronic obstructive pulmonary disease

For patients with COPD, Christiana Care's Acute Medicine service line aims to fill in gaps in care and improve care coordination beyond hospital walls.

Chronic obstructive pulmonary disease, or COPD, is the fourth-leading diagnosis among patients admitted to Christiana Care, accounting for about 1,200 hospital admissions each year. While the number of people who smoke — the main risk factor — is stable, the prevalence, how many people have COPD, is increasing, said Vinay Maheshwari, M.D., FCCP, associate chair for specialty medicine for the Department of Medicine and associate operations leader for the Acute Medicine service line.



This prevalence was one of the reasons the Acute Medicine service line chose COPD as its initial clinical pathway. In addition, the health system has had ongoing initiatives for the past few years to reduce the length of stay and readmissions related to the disease.

“We realized there were a lot of gaps in care and an opportunity to improve care coordination inside and beyond the hospital walls,” said Fran Gott, MBA, RRT, administrative director of pulmonary services and medical critical care. “Our 30-day readmission rate showed we had room to improve compared with the national standard.”

The first step is building a care coordination team that will optimize the multidisciplinary care of patients in the hospital and provide a standardized pathway for their follow-up after discharge. The team will be a resource for providers outside of the hospital to ensure that all the elements of care are being delivered.

“In today’s world we work in silos, all aimed at doing the right thing, but not always in the most coordinated fashion,” said Dr. Maheshwari. “We need to become really good at, while the patient is here in front of us, connecting the patient with all the services beyond the hospital walls, like

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VINAY MAHESHWARI, M.D., FCCP

smoking-cessation classes. We also need to assess other areas, such as the availability of home health care and making sure they can afford their medications. The biggest piece is post-acute-care hospitalization follow-up.”

Patients who meet certain criteria will be followed 90 days after leaving the hospital through Christiana Care’s Care Link service, Gott said. The service line is also considering creating a post-discharge clinic as a one-stop shop for COPD patients to get follow-up in the immediate post-hospitalization period.

“Those who check on patients can see if they’re having new or different symptoms and address them in a proactive way at home instead of waiting for the patients to show up in the emergency room,” he said. “Our hope is that, for example, if we have a patient and there are five things that need to happen, Care Link can check in and say, ‘Did you do X? Did you see Y?’ Then Care Link can tie the patient in to a provider so things don’t snowball.”

At the core of the effort is education — of patients and providers.

“The level of engagement we want from patients themselves is increasing,” Dr. Maheshwari said. “Patients will be getting literature that mirrors that of the providers: Here’s what you should be doing on day one. You should feel better by this time. Here’s where you should be making changes in medication.”

Said Gott: “It’s really standardizing evidence-based best practices. By embedding the GOLD guidelines (Global Initiative for Chronic Obstructive Lung Disease) in our pathway, we should be providing the latest and greatest care for COPD patients.

“Having a standardized focus around COPD will make it a better experience for patients. While they’re here they’ll be educated and, more importantly, they will be connected to the services that hopefully will make their daily lives more enjoyable. The ultimate goal is to improve their quality of life.”



BEHAVIORAL HEALTH: Opioid addiction

The focus of Behavioral Health’s clinical pathway reflects a state and national epidemic: opioid addiction.

Specifically, the service line is working to standardize the screening, identification and treatment of patients at risk of opioid withdrawal.

“It’s really part of a bigger effort to integrate behavioral health into health care,” said Terry L. Horton, M.D., FACP, chief of the Division of Addiction Medicine, medical director of Project Engage and associate physician leader for the Behavioral Health service line.

“There’s no standardized method to identify or care for these individuals, and there’s not a standardized care pathway,” he said. “You can have a lot of variations, some of which are not clinically sound or effective. It creates a terrific opportunity for improvement.”

That variation in care, as well as untreated withdrawal, increases the number of patients who sign themselves out against medical advice (AMA). It also increases the length of hospital stays, readmissions and the cost of care. And it results in poor patient experience, low staff morale — and even safety issues when patients engage in illicit drug use while hospitalized.

At the heart of the challenge is that such patients generally show up at the Emergency Department for other medical issues, like pneumonia or infections, and don’t self-identify their opioid use.

The first step, then, will be to implement a screening tool, which is being developed in partnership with the Christiana Care Value Institute.

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“We will need to assess this with rigorous science,” he said.

The effort, Dr. Horton said, is directly analogous to Christiana Care’s adoption of Alcohol Withdrawal Risk Evaluation and Treatment Guidelines, which in 2012 were recognized by the Agency for Healthcare Research and Quality.

“There’s a lot of mythology out there that opioid withdrawal is not life-threatening, as opposed to alcohol withdrawal,” Dr. Horton said. “The reality is it can be as lethal.”

Just as patients at risk for alcohol withdrawal undergo the Clinical Institute Withdrawal Assessment, those identified as opioid users will be monitored using the Clinical Opiate Withdrawal Scale.

That monitoring will be linked with a computerized order entry system to help manage their symptoms.

“One thing we’d like to see is that more individuals are being identified with opioid dependence or opioid withdrawal,” said Dr. Horton, noting that today there are no firm statistics of opioid use in Delaware. The Centers for Disease Control and Prevention estimate that nearly 1 percent of any population is opioid-dependent, which could mean 8,000 Delawareans. Generally, fewer than 10 percent of those afflicted are in treatment. That could translate to anywhere from 2 percent to 10 percent of hospital admissions, said Dr. Horton, adding that the pathway should help to quantify the population.

“We appreciate that opioid use is a worsening epidemic,” he said. “Fatal overdoses have gone through the ceiling.”

THE CDC ESTIMATES THAT AS MANY AS 8,000 DELAWAREANS COULD BE OPIOID-DEPENDENT.

The pathway aims to optimize health care outcomes and patient experience by treating at-risk patients effectively with medicine, reducing the AMA rate and readmissions, enabling patients to complete treatment and subsequently connecting them to proper community-based care.

“I’m very encouraged that we’re going to work on these issues, which are part of our community and haven’t been actively addressed,” he said. “We’re going to be pioneering efforts that can be replicated throughout the country.”

“
There’s a lot of mythology out there that opioid withdrawal is not life-threatening, as opposed to alcohol withdrawal. The reality is it can be as lethal.”
TERRY L. HORTON, M.D., FACP



The clinical pathway for Behavioral Health will be to standardize the screening, identification and treatment of patients at risk of opioid withdrawal, reducing variations in care.



CANCER:

Operable Stage 2 non-small-cell lung cancer

Clinical pathways aren't a new concept in cancer care, which has been following standardized guidelines for more than three decades, according to Nicholas Petrelli, M.D., Bank of America endowed medical director of the Helen F. Graham Cancer Center & Research Institute and physician leader for the Cancer Care service line.

He expects that his thoracic team already is 80 percent compliant with the clinical pathway the group has developed to focus on operable Stage 2 non-small-cell lung cancer.

In Delaware and the United States, lung cancer is the most frequently diagnosed form of cancer, and it's the most common cause of death from cancer. The Helen F. Graham Cancer Center & Research Institute sees about 35 patients with Stage 2 non-small-cell lung cancer each year.

to follow, and we will be focusing intensely on the guidelines. We may find opportunities to improve processes of care."

Dr. Khatri added that while they are addressing a narrow population, there is still some variation in care that the group will be measuring — for example, in tests ordered, surgical procedures done and follow-up care.

It will be critical to monitor compliance only in those areas of the pathway for which we can collect accurate data, according to Christopher D. Koprowski, M.D., associate service line leader and chair of the Patient Quality & Safety Committee of the Graham Cancer Center.

Among the pathway's goals are decreasing the number of imaging procedures from diagnosis through survivorship and reducing the cost of care by standardizing chemotherapy protocols.

Because survival improves with early diagnosis, the group also will be increasing screening to find earlier-stage cancers. And because 85 to 90 percent of lung cancer is caused by tobacco use, they will be encouraging smoking-cessation programs.

One of the biggest efforts within the pathway will be increasing communication with primary care physicians.

"That will be one of the key elements: How do we bring the primary care provider into the pathway? Where do we bring them in, and how do we improve communication?" Dr. Petrelli said.

The service line also is developing a roadmap for patients that will mirror the clinical pathway so they can become engaged in the process of their own care.

Once this first clinical pathway is up and running, Dr. Petrelli said, the group will be replicating the effort with breast, colorectal, pancreas and prostate cancers.

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The Thoracic, Esophageal and Lung Cancer Multidisciplinary Center team meets weekly and is helping to guide the development of the clinical pathway for operable Stage 2 non-small-cell lung cancer.

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Now they have a defined pathway to follow, and we will be focusing intensely on the guidelines. We may find opportunities to improve processes of care.”

NICHOLAS PETRELLI, M.D.

“This gives us an opportunity to take a hard look at the treatment of those patients,” Dr. Petrelli said. “We started with a clinical pathway where we weren't going to be overwhelmed with a lot of patients and an inability to monitor compliance.”

The patients are a homogeneous population, said Jamil Khatri, M.D., Quality Partners leader for the service line. Stage 2 non-small-cell lung cancer has more of a defined treatment protocol for the condition than for other stages of the disease, he said.

Dr. Petrelli said the providers will be following patients as they normally do. But, he said, “Now they have a defined pathway



HEART AND VASCULAR:

Non-ST-segment-elevation myocardial infarction

The clinical pathway for the Heart and Vascular service line usually starts in the Emergency Department, where patterns on an electrocardiogram indicate a non-ST-segment-elevation myocardial infarction.



Patients suffering the most common type of heart attack will be the beneficiaries of the clinical pathway developed by the Heart and Vascular service line.

“Our group chose the non-ST-segment-elevation myocardial infarction, or NSTEMI, in part because of the large number of patients it affects,” said Henry Weiner, M.D., FACC, associate section chief for quality and safety, Cardiology, at Christiana Care. “There are well recognized guidelines for therapy, but we have noticed a lot of variability in how we care for these patients. We thought there was an opportunity to improve care in this very large patient population.”

This year, Christiana Care has seen more than 850 heart attacks, and of those, 530 were NSTEMIs, as categorized by the patterns on an electrocardiogram.

“That’s about 50 a month,” Dr. Weiner said. “This clinical pathway is going to be used every day routinely at Christiana Care.”

Patients and providers first will experience the new pathway in the emergency room, where it is designed to expedite and improve diagnoses by increasing the amount of information provided to physicians early on.

In addition to administering an EKG, techs will be expected to employ a scoring system that predicts who is at a high risk to die or bleed and therefore should be taken first to the catheterization lab. The scoring system — known as thrombolysis in myocardial infarction, or TIMI — is classic, Dr. Weiner said, but hasn’t been used systematically because it is up to the provider. The process also will front-load the drawing of blood so that it is in the lab being tested for elevated troponins before a doctor consults with a patient.

Once a patient is diagnosed, the provider will be guided through the computerized drug ordering system by “hard” and “soft” stops.

“For example, if you don’t order a beta blocker, you won’t be able to proceed until you right-click on a contraindication,” Dr. Weiner explained. “It’s not a forcing function. If a doctor doesn’t want to start Mrs. Jones on a beta blocker, he doesn’t have to — but he has to explain his decision.”

The pathway also aims to improve patients’ experience and health outcomes by increasing their engagement in their own care. That will start in the hospital with education and sharing expectations.

“

What we hope is that patients will spend less time in the emergency room, have a more coherent educational experience, and become more engaged in secondary prevention and the lifestyle modifications they need to make.”

HENRY WEINER, M.D., FACC

“When I care for patients in general I try to orient them in terms of the course that they’re on and what the expected things are,” he said. “For example, I tell patients on day one or two after bypass surgery that they’ll turn the corner on day three or four.” The pathway will make it easier to help patients understand their individual plan of care.

Patients who follow up with cardiac rehabilitation fare better, but today only about two-thirds of patients do. A key post-discharge piece of the pathway will be trying to get patients engaged in rehab. At the suggestion of a patient adviser, the group also plans to start a support group for NSTEMI patients.

Currently, the pathway is planned to track patients for seven days post-discharge; ultimately the hope is to have enough resources in place to stretch that to a year.

The pathway’s success also will be gauged by the rate of utilization of the care pathway, readmission rates, mortality, length of stay and patient engagement.

MORE THAN 850 HEART ATTACKS ARE SEEN AT CHRISTIANA CARE EACH YEAR. MORE THAN HALF ARE NSTEMIS.

One of the challenging pieces for providers will be getting used to the new computer programs.

“The system is going to be more directive, and that’s going to require some teaching and communication with providers so everybody understands where these changes have come from and how well they are grounded in therapy,” he said.

Ultimately, Dr. Weiner said, “What we hope is that patients will spend less time in the emergency room, have a more coherent educational experience, and become more engaged in secondary prevention and the lifestyle modifications they need to make.”



MUSCULOSKELETAL HEALTH:

Vertebral fragility fractures

The Musculoskeletal Health service line is using the clinical pathway effort to build on Christiana Care’s Strong Bones program, an initiative that already provides a system-based, consistent approach to evidence-based osteoporosis care.

The pathway will extend the program’s focus from hip and proximal humeral fractures to include vertebral fragility fractures.

“There’s a lot of variability in how vertebral fractures are managed,” said Eric Russell, D.O., a rheumatologist and associate physician leader for the service line. “There’s also inconsistent follow-up for post-fracture osteoporosis care. These are all things the pathway can help address by reducing variability in care and putting a focus on osteoporosis treatment to prevent further fractures.”

The pathway consists of two main components. The first is enhancing follow-up to ensure that patients are connected with an appropriate osteoporosis provider who can guide them through treatment to prevent future fractures. The second is to focus spine surgery consults to the minority who might benefit from it. Most patients will heal on their own and don’t require procedural intervention, he said, yet most are referred to a spine surgeon for an evaluation.

The pathway aims to enable optimal health and exceptional experience for patients by putting a new focus on outpatient

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400 PATIENTS EACH YEAR ARE EXPECTED TO BE REACHED BY THE PATHWAY — BRINGING AWARENESS TO BONE HEALTH.



The Musculoskeletal Health service line is leveraging Christiana Care’s Strong Bones program to improve the health of people with osteoporosis, helping them to prevent future bone fractures.

osteoporosis treatment, including screenings and treatments to build up bone strength.

The program offers three resources to help patients meet that goal: a nurse navigator, a nurse practitioner and the Strong Bones network of osteoporosis providers.

The nurse navigator will be in touch with any patient who presents at Christiana Care with a vertebral fragility fracture to coordinate outpatient follow-up and bone-density scanning in preparation for seeing an osteoporosis doctor who ultimately will manage the patient’s care. For those admitted to the hospital, a nurse practitioner will consult with the patient to provide education, order appropriate lab testing and evaluate fall risks in concert with physical therapy. Together, they will help the patient navigate outpatient care.

“The pathway creates a new focus,” Dr. Russell said. “It gets our Strong Bones providers involved right upfront.”

Through the Strong Bones referral network, primary care physicians may refer patients to osteoporosis providers for outpatient bone health management. Sports medicine,

women’s health, rheumatology and endocrinology are all participating specialists in this program.

“We hope to see increased rates of early bone-density screening and treatment, and appropriate utilization of spine surgery consults,” Dr. Russell said. “The nurse navigator is really going to be a powerful tool in helping the patient navigate what needs to be done — anything from how to get a scan ordered, how soon to follow up with the doctor, to what to expect with treatment.”

The pathway has a technological component, too: Each patient will receive an automated discharge referral to the Strong Bones program along with a checklist of tasks to complete so that the patient becomes a partner in his own care. Russell said primary care doctors and osteoporosis specialists should experience improved coordination, with patients already having undergone fall precautions and appropriate lab work before they even show up for an office visit.

The pathway is expected to reach about 400 patients each year, and it will create a greater awareness of the importance of bone health.

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The nurse navigator is really going to be a powerful tool in helping the patient navigate what needs to be done — anything from how to get a scan ordered, how soon to follow up with the doctor, to what to expect with treatment.”
ERIC RUSSELL, D.O.



NEUROSCIENCES:

Acute ischemic stroke

Early focus of the Neurosciences clinical pathway for acute ischemic stroke will be on making sure the interdisciplinary team is engaged throughout a patient's stay, and that occupational and speech therapy is employed when appropriate.

As the only comprehensive stroke center in Delaware, Christiana Care ranks in the top 10 for stroke admissions in the country. Of those patients, about 80 percent have experienced an acute ischemic stroke, caused by an obstruction in a blood vessel supplying blood to the brain.

The prevalence of the condition, coupled with the robust resources Neurosciences already dedicates to strokes, made it a natural choice for the service line's first clinical pathway.

"Since we serve a large and complex group of stroke patients, we have a large opportunity to streamline care," said Valerie Dechant, M.D., associate service line leader and medical director of Neuro Critical Care. In addition, the regulatory requirements the center already follows to earn accreditation provide existing data on the care of approximately 1,400 acute ischemic stroke patients served each year.

which physician is treating them or what nursing unit they're on," Dr. Dechant said.

The early focus of the effort will be on core clinical markers for which they have the best evidence, such as making sure the interdisciplinary team is engaged throughout a patient's stay, and occupational and speech therapy is employed as appropriate. On discharge, that includes ensuring the patients are on the correct blood thinner and medicine to address risk factors like high cholesterol, and ensuring that case managers have devised a follow-up plan.

A core component to optimizing patients' health outcomes and experience is heightening the level of patient education.

"We really want to involve them in their care," said Melissa Bollinger, RN, BSN, MBA, operations leader for the service line and administrative director of Neurosciences.

That will involve communicating expectations and milestones to patients — and their family — that they can bring back to the provider.

"For example, they can say, 'I should have had my CAT scan today.' The key is that you incorporate the patient in the decision-making," she said. "We want to make sure we communicate that we are standardizing the care but still providing individualized care."

The team is rolling out the pathway and will ramp up in the spring and summer. They will assemble a patient and family focus group to help evaluate whether the effort is meeting patients' needs.

"This is really a cultural change in the way we think of providing care to patients," Bollinger said. "The clinical pathways are just the first step."



“

Since we serve a large and complex group of stroke patients, we have a large opportunity to streamline care.”

VALERIE DECHANT, M.D.

Like all of the clinical pathways, this one aims to reduce unnecessary variation in care, which also cuts down on avoidable costs.

"Every stroke patient who comes to Christiana Care will receive the same standard and quality of care, regardless of

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PRIMARY CARE & COMMUNITY MEDICINE:

Type 2 diabetes

Type 2 diabetes afflicts 70,000 people in Delaware. Primary Care & Community Medicine’s clinical pathway will help to increase consistency of evidence-based care and coordination among Christiana Care’s primary care and specialty practices, with enormous potential to help this population to achieve optimal health.

Primary Care & Community Medicine has chosen the farthest-reaching clinical pathway of all the service lines: the treatment of adults with Type 2 diabetes.



“

Our hope is you won’t feel like you’ve lost anything, but that you’ve gained a team. It should feel like care wrapped around and supporting the patient.”

MARGOT SAVOY, M.D., MPH,
FAAFP, FABC, CPE

Choosing such a broad clinical pathway has several benefits, according to Omar Khan, M.D., MHS, FAAFP, physician leader for the Primary Care & Community Medicine service line. “One, it allows us to make a significant impact not only on this condition, but several associated chronic diseases,” he said. “As we build innovative ways to care for diabetics, the care of all patients is expected to improve. Second, it aligns many components of our large service line, which includes primary care specialties such as family medicine and internal medicine, medical subspecialties such as endocrinology and related support services such as nutrition services and diabetes education.”

Type 2 diabetes afflicts 70,000 people in Delaware, 25,000 of whom are seen at Christiana Care annually, said Amanda Klockars-McMullen, Ph.D., RN, CPHQ,

program director for quality and performance improvement for Christiana Care Quality Partners and the Medical Group of Christiana Care, and project lead for the diabetes clinical pathway. More than 6 percent of Christiana Care’s own employees or their dependents are diabetic.

“The scope of this population is very broad. We also know it impacts not only health and well-being, but our utilization and costs,” she said. “In looking at our own data of how we care for patients, there was a wide variation. That’s why we wanted to create this pathway to standardize some of the delivery components.”

At the same time, the pathway will retain flexibility, particularly in educational materials for patients.

“For example, if you’re teaching what would be a healthy meal for Thanksgiving, it might look different from one culture or ethnicity to another,” she said. “We want to create the experience that’s most meaningful to patients.”

Also in that vein, the team plans to implement a variety of platforms for patients to choose to engage with their providers, including virtual visits, telehealth and shared appointments that provide education and a chance for peer bonding.

The innovation is being driven by the input of two focus groups of patient and family advisers.

“The feedback we heard very clearly was they wanted a peer support group so they would have somebody to call with questions,” Klockars-McMullen said.

The goal of the pathway will be to have the primary care and endocrinology practices work toward improving compliance and outcomes within the diabetes “metrics bundle,” which includes nine key care elements for diabetics, such as eye and foot exams, and HgA1c monitoring. In the longer term, it aims to reduce Emergency Department visits and hospital readmissions.

“We want to make sure patients have their diabetes well controlled outside of the hospital,” she said.

The intent is to reduce variation among the practices in such areas as blood glucose control, medication management and office-visit expectations. One simple adjustment was to make sure each practice had the equipment to perform an A1C test, used to gauge how a patient is managing the disease, said Margot Savoy, M.D., MPH, FAAFP, FABC, CPE, medical director, Department of Family & Community Medicine.

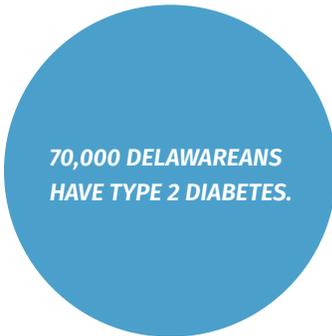
“There are disconnects between what providers know is available in the health system and how to access it,” Dr. Savoy said. “For example, some of the satellite practices didn’t know diabetes care coordinators were even an option.”

Staff will see the pathway reflected in a greater focus on teamwork. Each person who touches these patients will be provided a certain level of education about the disease so that everyone in the practice will be able to provide information, not just the physician.

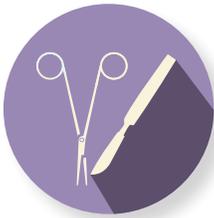
Dr. Savoy said another shift will be toward employees working at the “top of their license” so they are playing a more valuable role than wasting time on inefficiencies below their skill set. From the patient’s perspective, that might mean seeing a change in who provides your care.

“Right now we have a lot of people doing work that they don’t need to be doing,” she said. For example, it’s appropriate for an endocrinologist to see a patient with difficulty controlling his diabetes. But the vast majority of patients with diabetes should be getting their diabetes care from their primary care physician.

“If the patient is truly stable, maybe they need to be seeing the nurse practitioner for the routine visits and checking in with the physician annually,” she said. “Our hope is you won’t feel like you’ve lost anything, but that you’ve gained a team. It should feel like care wrapped around and supporting the patient.”



70,000 DELAWAREANS
HAVE TYPE 2 DIABETES.



SURGICAL SERVICES:

Recurring ventral hernia abdominal wall reconstruction

Mark Schneider, M.D., MBA, has a whiteboard in his office where he is beginning to track the roughly 120 patients affected by recurring ventral hernia abdominal wall reconstruction, the focus of the Surgical Services clinical pathway.

“One of the reasons we chose this pathway is we are tracking every step these patients take,” said Dr. Schneider, chair of anesthesiology and associate service line leader for the Surgical Services service line. “Because of the complexity of these cases, we feel better tracking them end-to-end, and we’re learning from each patient.”

Patients undergoing this procedure have had multiple abdominal operations, Dr. Schneider explained. They have several incisions that don’t heal properly — perhaps due to diet, obesity, prior infection or recurrent hernias. The abdominal wall is so unhealthy it requires extensive repair.

The patients often are living with other health conditions such as sleep apnea or diabetes. They have a long length of hospital stay, about 7.5 days on average, and a prolonged recovery.

“It hit all the buttons of what we’re trying to do for all surgical patients,” Dr. Schneider said. “How do we optimize the co-morbidities? What can we do to standardize, where possible, the procedure itself? Is there any opportunity to provide more coordinated care that will result in a shorter hospital stay for the patient? And how can patients get back to work and daily activities?”

This clinical pathway will go far toward surfacing issues in coordination of care, he said. “We’re interested in taking this pathway and building a pathway for all surgical operations. Depending on the operation, it would use all or portions of it; it would be modified for each patient.”

One process the clinical pathway aims to change is how soon the care team becomes engaged with a patient.

“We are trying to stray from the idea that we only become aware of the patient when they become scheduled for surgery. We’re shifting that to when the surgeon says, ‘We think you are a candidate for surgery,’” he said. “As soon as they’re thinking about surgery, we can start looking at their health status, what resources they have at home and their level of awareness of what they need to do.”

That will require ongoing dialogue with patients, pre-op and post-op.

The Surgical Services clinical pathway calls for engaging the care team earlier in each patient’s case, improving coordination of care, and ultimately building new pathways for all surgical operations.



Because of the complexity of these cases, we feel better tracking them end-to-end, and we’re learning from each patient.”

MARK SCHNEIDER, M.D., MBA

“The most interesting part is there will be better tracking of how patients recover, what things impact that recovery, so we can learn from that, and the next patient entering the system will have a better experience,” he said.

If the clinical pathway performs as designed, patients will be better prepared for surgery, experience fewer complications and be able to be released to a skilled nursing facility or return home.

Its success will be measured by a number of data points, including length of hospital stay, intensity of hospital resources required, complications, co-morbid conditions like deep-vein thrombosis or the development of hyper- or hypoglycemia, and return visits to the Emergency Department.

“We noticed that some patients are returning within 30 days, and we’re looking into the reasons for that,” he said.

The pathway’s effectiveness also will be tracked on the patients’ end through surveys: How do they rate the level of care? Do they understand what they’re going through?

Do they feel there is good communication with their providers?

As with the other service lines, this clinical pathway will rely on a multidisciplinary approach.

“We need everybody aware,” Dr. Schneider said. “These sorts of changes will take time.”

That includes the patient and his family, who must become partners in their health care.

“We’ll be giving them a checklist: This is what we need to accomplish,” he said. “We want the patient to own this checklist as much as the provider.”

That model has been shown to enhance recovery after surgery in the United States and Europe, he said.

“They literally give the patient a timeline and checklist: Look, if the nurse hasn’t come in and pulled out your drain by Thursday, you need to ask about it,” he said. “The pathway is laid out so everyone understands what’s supposed to be happening.”



WOMEN’S AND CHILDREN’S:

Gestational diabetes

Nearly one-third of Delaware adults are classified as obese, the 17th highest ranking in the nation. With those statistics, it’s little surprise that Christiana Care is seeing more women with gestational diabetes, said Elizabeth Zadzielski, M.D., MBA, FACOG, medical director for ambulatory women’s health and associate Women’s and Children’s service line leader.

That’s one of the reasons the Women’s and Children’s service line chose the disease as the focus of its first clinical pathway.

“We also saw it as a way of bridging with our partners in Primary Care & Community Medicine,” who are addressing Type 2 diabetes in their pathway, she said.

Equally as important as early diagnosis and treatment in pregnancy is the follow-up care of patients with gestational diabetes.

“These women have a significantly increased risk of becoming Type 2 diabetics within

five years and are at a lifetime risk,” said Dr. Zadzielski. “We want to keep them informed after they’ve delivered and manage them appropriately, so should they become pregnant again, they’re in better shape.”

By reducing variations in care for women with gestational diabetes, the Women’s and Children’s service line also hopes to effect healthier outcomes for babies. Currently, 27 percent of children born to women with gestational diabetes need care in the neonatal intensive care unit.

CONTINUED

By guiding women with gestational diabetes through every stage of the process, from diagnosis through follow-up care and education, the Women's and Children's service line aims to improve the health of mothers during pregnancy and throughout their lives, and reduce the likelihood that their babies will need NICU care.

"We want to see if by implementing a different model, we can have an impact on the NICU admission rate," she said.

Like the other service lines, Women's and Children's will roll out its pathway gradually as the pieces come together. For example, down the road Dr. Zadzielski hopes to be able to equip patients with Bluetooth-enabled devices to record their blood sugar in real time.

at all. Only about 75 percent of those who receive an abnormal result are following up with the longer test, Dr. Zadzielski said.

Instead, the service line will begin implementing a two-hour diagnostic test that will deliver results earlier in pregnancy.

"The patient goes in once, and they have to fast, and they have to be there for two hours, but you immediately get the diagnostic test," she said.

Dr. Zadzielski expects the earlier diagnoses to double the patient population to about 400 women.

The clinical pathway also will focus on postpartum care. Only about 12 percent of women with gestational diabetes are following up with a screening test. The handoff to primary care partners will be critical, she said. That's why she expects to join forces with endocrinologists and Family Medicine to create a more robust, coordinated educational system.

Also on the drawing board is the development of a gestational diabetes prenatal care group that could be offered in Spanish as well as English.

"That's where we can really help educate a very vulnerable patient population," she said.

Staff working with these patients can expect some re-education around the switch to the two-hour initial diagnostic test. Dr. Zadzielski will be looking for support to Care Link workers, who will make sure patients schedule the test and follow up with them if the results aren't returned in a timely manner.

"Our goal is to improve outcomes for both mother and baby by working in closer collaboration with all of the members of our care delivery team," she said. ●



“

We want to see if by implementing a different model, we can have an impact on the NICU admission rate.”

ELIZABETH ZADZIELSKI, M.D.,
MBA

"We've been relying on a paper-based record from patients. They do finger sticks and they write them down — it's a very retrospective view," she said. "What I would like to see happen is a device automatically feeding the blood sugar reading into the record."

Patients and staff will see more immediate changes as the service line rethinks its model for delivering care. The current diagnostic process will be one of the first to be tweaked. Today, pregnant women who are not deemed to be at high risk for gestational diabetes are screened at 28 weeks with a one-hour test. If there is an abnormal result, they are sent for a three-hour diagnostic test. Sometimes, that means a lag of one or two months, if they go

Organizational Excellence advances The Christiana Care Way

By Vernon Alders, MHCDS, MBA, MSW, corporate director, Organizational Excellence



At a time of sweeping reform in health care, we are being asked to think differently about how we work.

Our role at the Center for Organizational Excellence is to provide expert support and resources to help leaders solve their most challenging problems. Each day, we ask ourselves: How

can we partner with service lines and essential services leaders to help them reach their goals? How can we improve patient care, patient satisfaction and our financial performance?

It's a true reflection of The Christiana Care Way. As part of the Value Institute, our focus is on creating innovative, effective, affordable systems of care that our neighbors value.

The Center for Organizational Excellence offers expertise in operations research, engineering, change management and process improvement, as well as techniques and methods that increase value through enhancing efficiency, effectiveness and affordability in health care.

Creating value is our primary goal. That starts with understanding what waste truly is. Waste isn't just money, products or medications. Time is an indicator of waste. Waiting is an element of waste. Not using staff time appropriately is wasteful.

All our improvement efforts begin with the voice of the patient and the health care provider in mind. What are patients and providers telling us about what works and what doesn't?

We work closely with the Patient and Family Advisory Council in designing pilot programs and systems of care that they value. We recently met with them to gather their insights on aligning our new ambulatory electronic medical record into the care delivery process and the patient experience. We want to know what issues outpatients are experiencing when they visit their providers so we can fix those problems.

Our change-management and process-improvement experts partner with colleagues in essential services and all nine service lines on projects that are strategically linked to the goals of their department and Christiana Care as a health system — including the clinical pathways.

We help to identify gaps in performance and strategically align activities that will drive results. We help leaders to improve the way people work together. Through our Lean Six Sigma training program we develop qualified people to drive performance improvement within their areas.

No matter what our roles are, we share a common goal: improving performance. As teammates, we align leadership, organizational structure, people, workflow and decision making to achieve that goal.

Recently, we worked on two major projects within Laboratory Services that not only improved their efficiency, but also improved the patient experience in the Emergency Department and on the floors. But we also tackle smaller, very specific issues that are identified by leaders. Often, we are able to find simple, low-tech, low-cost solutions to seemingly complex problems by involving teams and staff at the front lines.

In the Neonatal Intensive Care Unit, for example, we partnered with our Women's and Children's leadership to initiate a Lean Six Sigma project to create a model of care that would ensure that newborns receive antibiotics within 60 minutes. The solution was placing an inexpensive timer in the NICU. Once the doctor writes the order, the timer is set. When it gets down to 45 minutes, the timer turns yellow, a visible reminder that the clock is ticking.

In another Lean Six Sigma project, we looked at the higher contamination rates associated with drawing blood in the ED, compared to drawing blood on the floor. An obvious difference was that most draws in the ED are done by nurses, while phlebotomists, whose sole job is it to draw blood, provide care on the floor. So, do we need to provide enhanced training for nurses? Do we need to incur the expense of hiring phlebotomists in the ED?

When we drilled down into the issue, we learned that the problem was not the performance of the ED nurses. It was their supplies. Specifically, the size of the packaged antiseptic used to swab the site in the ED was half the size of the packaged antiseptic used on the floor.

All we had to do was replace the ampules in the ED. Contamination rates declined immediately.

At its very heart, organizational excellence is about being creative and collaborative. Together, we can identify what isn't working and design a way to do our work better. ●

Medical Group forum sets tone for future care delivery

The health care practitioners in The Medical Group of Christiana Care are vital partners in delivering integrated health care that is high-quality, patient-centered and affordable, said Janice E. Nevin, M.D., MPH, at The Medical Group Practice Forum in December.



“We’re a health system, not just a hospital system. We reach out across the continuum of care, and you play a critical role in developing affordable models of care that patients value.”

KENNETH SILVERSTEIN, M.D., MBA
CHRISTIANA CARE CHIEF CLINICAL OFFICER

The Medical Group’s role in delivering seamless, personalized care, informed by the needs of the community we serve, will have a positive impact on outcomes and can inspire more meaningful ways to care for our neighbors, Dr. Nevin said to the group of 135 Medical Group clinicians, administrators and staff at the John H. Ammon Medical Education Center. “It’s about us coming together as a health system to create new and different ways to take care of people,” she said.

The Medical Group community practices are essential to supporting Delaware’s goal of being one of the five healthiest states in America, she said. “It’s about our integration — doing what we need to do going forward to take care of our community. We need to meet patients where they are rather than wait for them to come to us when they need care.”

In the emerging model of population health, a health system is accountable for the health outcomes of a defined group of individuals. Starting in 2016, Christiana Care is responsible for positively affecting the health outcomes of assigned Medicare and Medicaid patients in the community, which will affect reimbursements to clinicians.

“To successfully get to that next level — to help the community we serve achieve optimal health — we must go outside the walls of the hospital,” she said. The Medical Group — with more than 50 locations in Delaware, Pennsylvania and New Jersey — are essential partners and innovators in this endeavor.

“We’re a health system, not just a hospital system,” said Chief Clinical Officer Kenneth Silverstein, M.D., MBA. “We reach out across the continuum of care, and you play a critical role in developing affordable models of care that patients value.”

During group discussion at the forum, Medical Group clinicians and staff considered how to best support the population health model.

“We talked about the need for training in population health and about building on our good reputation through schools and community centers,” said Margot Savoy, M.D., MPH, FAAFP, FABC, CPE, medical director, Department of Family & Community Medicine. “We agreed that in Delaware we have the opportunity to truly get our arms around these issues.” This is especially important at a time when payment for health care is in transition, as Medicare and Medicaid are asking health systems to do more at a time when reimbursements are not increasing and high-deductible health plans are on the rise in Delaware and other states.

“Old models of care don’t work,” Dr. Nevin said. “We’re not just redesigning patient care, we are redefining patient care.”



Thinking creatively about redefining care, said Dr. Nevin, means pushing the boundaries of technology and out-of-the-box thinking. Examples include exploring the potential of telehealth and even asking how to eliminate a long-time hallmark of a doctor's visit: the waiting room.

At the same time, new models of care are best supported by the unique relationship between doctors and their patients. "We need to preserve and ensure that special connection," she said. "I receive letters from grateful patients every day, and so often they mention your names. You make a difference in our community by what you do." ●



**"Old models of care don't work.
We're not just redesigning patient
care, we are redefining patient care."**

JANICE E. NEVIN, M.D., MPH
CHRISTIANA CARE PRESIDENT AND CEO



At the December forum, Medical Group clinicians, administrators and staff talked about how to innovate and transform the way that people in our community experience health care.



Four established medical aid units became part of Christiana Care Health System this year.



Christiana Care adds medical aid units

Christiana Care Health System in December added four established medical aid units to the array of services it offers under the Christiana Care brand. These are in addition to Christiana Care's existing Medical Aid Unit at Smyrna.

The medical aid units offer timely care when you need the prompt attention of a physician and your family doctor is not available.

"Our Medical Aid Units are important points of access to care for the people in our community," said Patrick A. Grusenmeyer, Sc.D., FACHE, president, Health Initiatives, and senior vice president, strategic business development. "These practices are vital links in the continuum of care for our patients, and they are key to our goals of achieving optimal health and an exceptional health care experience for everyone we serve."

Christiana Care's medical aid units provide care for a wide variety of conditions and ailments, including:

- Cuts and lacerations.
- Flu-like symptoms.
- Eye and ear problems.
- Sports injuries.
- Colds, coughs and sore throats.
- Sprains and strains.
- Work-related injuries.
- Minor burns.
- Physical examinations for work, sports and school. ●

GLASGOW MEDICAL AID UNIT

Glasgow Medical Center
2600 Glasgow Ave., Newark, DE 19702
302-836-8350

Open 7 days a week: 8 a.m. – 8 p.m.

Holidays: 9 a.m. – 5 p.m.

MEDICAL AID UNIT AT CHRISTIANA

HealthCare Center at Christiana
200 Hygeia Drive, Newark, DE 19713
302-623-0444

Open 7 days a week: 8 a.m. – 8 p.m.,

Holidays: 9 a.m. – 5 p.m.

MEDICAL AID UNIT AT MIDDLETOWN

Middletown CareCenter
124 Sleepy Hollow Drive,
Middletown, DE 19709
302-449-3100

Open 7 days a week: 8 a.m. – 8 p.m.,

Holidays: 9 a.m. – 5 p.m.

MEDICAL AID UNIT AT SMYRNA

Smyrna Health & Wellness Center
100 S. Main St., Smyrna, DE 19977
302-659-4444

Open Monday through Friday: 8 a.m. – 6:30 p.m.

Weekends & Holidays: 8 a.m. – 4 p.m.

MEDICAL AID UNIT AT STAR

550 South College Avenue, suite 115
Newark, DE 19713
302-533-7148

Open 7 Days a Week: 8 a.m. – 8 p.m.

Holidays: 9 a.m. – 5 p.m.

Christiana Care provides free joint replacements through Operation Walk

Christiana Care Health System's Department of Orthopaedic Surgery provided free knee and hip replacements to three people in November and December as part of Operation Walk USA 2015.

Operation Walk USA 2015 is a collaborative effort between the American Academy of Orthopaedic Surgeons and participating hospitals and health systems, including Christiana Care. Through this effort, all aspects of treatment — surgery, hospitalization, and pre-and post-operative care — are provided at no cost to participating patients who cannot afford joint replacement surgery on their own.

As part of Operation Walk USA 2015, an estimated 80 patients nationwide will receive free hip or knee replacements from 55 volunteer orthopaedic surgeons across the nation.

"We are grateful for the opportunity to provide expert care so our neighbors can experience more active and productive lives," said Andrew Gelman, D.O., local physician leader for Operation Walk USA. "By alleviating the disabling arthritis in their knees and hips, we give our patients the gift of mobility so they can return to employment and enjoyment of life."

As part of Operation Walk USA 2015, Drew Brady, M.D., Steven Dellose, M.D., and James Rubano, M.D., orthopaedic surgeons at Christiana Care, will perform the surgeries at Christiana Care's Center for Advanced Joint Replacement,

which is among the most advanced, comprehensive programs for hip and knee replacement in the country. The center performs more than 2,600 total hip and knee replacements annually, using the latest minimally invasive techniques, with clinical outcomes that are among the best in the nation. Annually, Christiana Care performs about 100 orthopaedic surgeries for patients who cannot afford orthopaedic surgery on their own.

Patients seen through Operation Walk suffer from arthritic disease, which limits the abilities of 52.5 million Americans and is the most common cause of disability in the United States, according to the U.S. Centers for Disease Control and Prevention. The debilitating pain of end-stage hip or knee degenerative disease often makes working or completing even the simplest of daily tasks excruciatingly painful or impossible. Hip and knee replacement surgeries are among the most cost-effective and successful of all orthopaedic procedures.

Operation Walk USA began in 2010 following the tremendous success of Operation Walk, an international volunteer medical service organization that provides treatment for patients with arthritis and joint conditions throughout the world. To date, nearly 600 patients have received free total joint replacements through Operation Walk USA. ●



Orthopaedic surgeon James J. Rubano, M.D., performed a total hip replacement for patient Tom Keith as part of Operation Walk USA 2015.

Christiana Care and COURAGE: Findings from a 15-year study of patients with stable ischemic heart disease

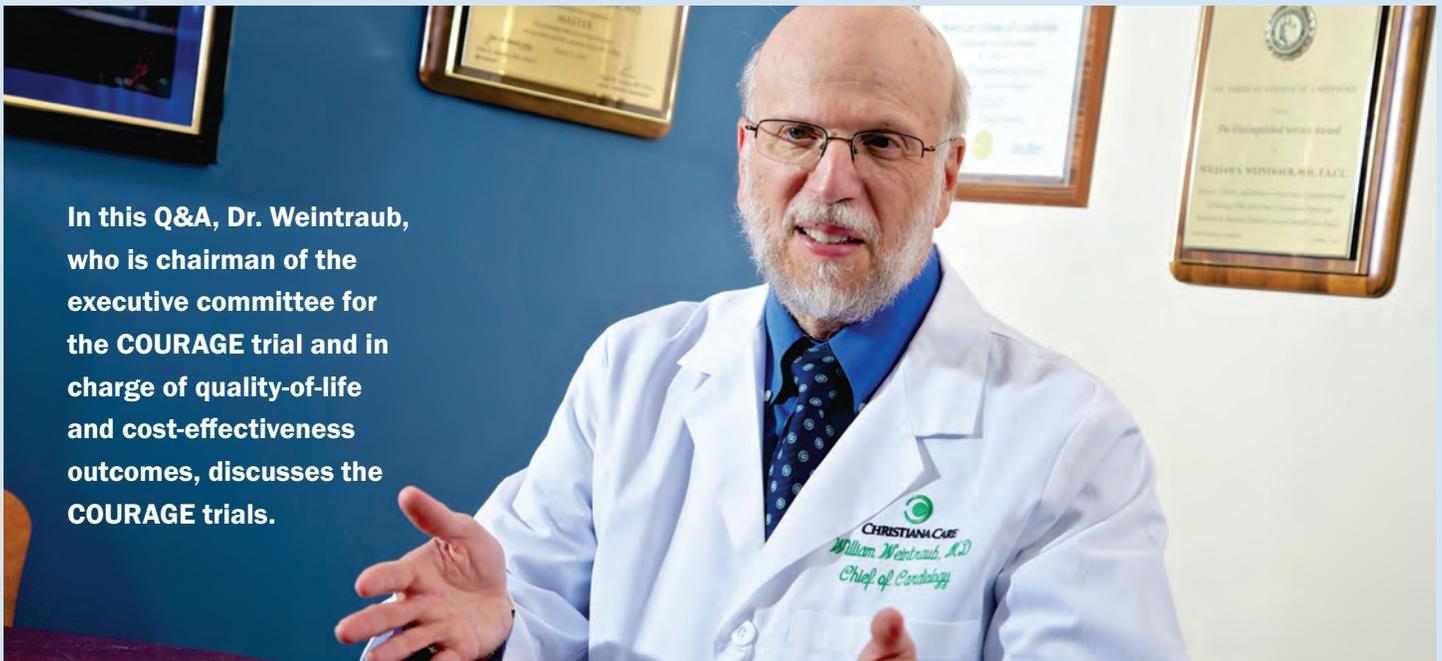
The use of Percutaneous Coronary Intervention (PCI), a procedure to open narrowed arteries that is also known as angioplasty with stent, relieves angina in patients with stable ischemic heart disease but does not extend the life of these patients. That is a major finding of a 15-year study of such patients in the COURAGE trial. The results were published in the Nov. 12 issue of *The New England Journal of Medicine*.

William S. Weintraub, M.D., MACC, FAHA, FESC, John H. Ammon Chair of Cardiology and director of the Center for Outcomes Research at the Christiana Care Value Institute, is a co-principal investigator in the trial. An international leader in his field, Dr. Weintraub has authored more than 800 scholarly articles and sits on the editorial boards of many publications in cardiovascular medicine, including the *Journal of the American College of Cardiology*, the *Journal of Invasive Cardiology* and *Circulation*.

The new COURAGE study is a follow-up to an earlier trial, run between 1999 and 2004, where 2,287 stable ischemic patients were randomly assigned to two groups. One group managed their heart disease with the strategy of optimal medical therapy (medication and lifestyle changes) while a second group employed optimal medical therapy plus PCI.

To get a larger data sample of end points, the study stretched to 15 years. The results strengthened the original findings that PCI treatments do not extend survival rates in stable ischemic heart patients, said Dr. Weintraub.

The research is particularly important, given that ischemic heart disease is the leading cause of death and disability affecting more than 17 million Americans.



In this Q&A, Dr. Weintraub, who is chairman of the executive committee for the COURAGE trial and in charge of quality-of-life and cost-effectiveness outcomes, discusses the COURAGE trials.

How did this COURAGE study begin?

Dr. William Boden, a professor of medicine at Albany Medical College, and I essentially put this trial together in mid 1990s. We recognized that cardiologists were doing hundreds of thousands of the PCI procedures without adequate trial data to support what was being done. Today a large part of the reason we do more stenting for acute coronary syndromes and less in stable ischemic heart patients is because of the COURAGE trial.

How was Christiana Care involved in the trials?

This was an enrollment site before I came to Christiana Care in October 2005. There was also an analysis of two major components — quality of life and cost effectiveness — that was done at the Value Institute. Our biostatisticians did original work on this at the highest level. Their report on the quality of life data was published in the *New England Journal* in 2008, a year after the paper on the original study. The cost effectiveness analysis

was published as the first article in the very first issue of the journal *Circulation: Cardiovascular Quality and Outcomes*. In fact, we've had about 30 papers on the COURAGE trial, and we're still publishing.

What did the study show about quality of life and PCI?

We looked at quality of life and found that stable heart patients having angioplasty had better quality of life (at least for a couple of years) but not overwhelmingly so. We also looked at cost and we found that angioplasty was not very cost-effective for these patients. That's not surprising, in that we found no clinical benefits. If you don't find clinical benefits, it's hard to find economic benefits.

Aren't there several threads in the treatment of stable ischemic heart disease that have come forward over the decades?

Yes, there is treatment with medications and revascularization, where we try in one way or another to fix or bypass blocked vessels. There is coronary artery bypass surgery, invented in the late 1960s, and coronary angioplasty, invented in the late 1970s. And there have been multiple improvements particularly with the introduction of the intracoronary stent. Also in 2004, we had the introduction of drug-eluting stents. Meanwhile, medical treatments have improved dramatically. We treat risk-factors aggressively for cholesterol and blood pressure. We also encourage exercise, smoking cessation and better diet.

What have we learned about medical therapy?

Medical therapy has been shown to prolong life, and we coined the term "optimal medical therapy" as part of the COURAGE trial. We know that control of blood pressure is very important, and SPRINT is an ongoing trial looking at the potential benefits of more intensive management of systolic blood-pressure. SPRINT is a major NIH trial in year two, and we will be doing an economic analysis for SPRINT at Christiana Care. As researchers, we know that lowering cholesterol extends life, along with not smoking. Better treatment for diabetes probably prolongs life, too. So there are many things that we can do to that add quality to the lives of our patients with heart disease.

What's next for this type of heart research?

There is a follow-up to the COURAGE trial called ISCHEMIA looking at some of our new treatment methods for patients with moderate and severe ischemia. I am on the steering committee for ISCHEMIA. At Christiana Care, we are also doing a lot of implementation research on how to put into place what we are learning in clinical trials. By developing these ideas we are better at implementing positive change. ●

ACCEL call for research abstracts

The ACCEL clinical and translational research program invites abstracts for its Community Research Exchange, May 23 at Nemours/Alfred I. duPont Hospital for Children. Projects should demonstrate community engagement. Oral and platform presentations at the conference will be reserved for research projects that demonstrate the principles of community engagement and at least one community partner must give a portion of the talk. Research that is not clearly community engaged may be accepted for poster presentation. All accepted projects may present at this conference, regardless of whether the project has received ACCEL support.

The deadline for submissions is Feb. 26 at 5 p.m. Learn more and submit online at <https://de-ctr.org>. Contact conference coordinator Iman Sharif, M.D., MPH, at isharif@nemours.org with any questions. ●



**Submission
deadline:
February 26th
5 p.m.**



By providing an additional layer of monitoring in the intensive-care units, eCare helps to ensure the optimal health and safety of hospital patients.

Christiana Care's eCare team staffs a virtual ICU, provides extra layer of safety

For 10 years, eCare has been providing the most seriously ill patients with an extra layer of safety as physicians and nurses who telemonitor patients collaborate with clinicians at the bedside.

A virtual Intensive Care Unit, eCare supports patients in the Emergency Department at Christiana and Wilmington hospitals, as well as in four ICUs: Wilmington ICU (WICU); Medical ICU (MICU), Cardiovascular ICU (CVCCC), and Neuro ICU (NCCU).

"We have the capability to virtually round on our patients by reviewing their care plans and orders in the electronic medical record and visualizing them via a camera," said Ann Brobst, MSN, RN, PCCN, nurse manager of eCare, Heart & Vascular Float Pool and Flex Monitoring. "This is beneficial to the bedside nurse, patients and families of these critically ill patients."

When telemonitoring was first introduced, there was an initial dose of skepticism, said Donna Casey, MA, BSN, RN, NE-BC, FABC, vice president, Patient Care Services, Cardiovascular and Critical Care, who was nurse-manager at WICU when eCare was rolled out in 2005.

"Then, it was viewed as Big Brother watching. Today, it's a collaborative effort between the bedside and eCare," Casey said. "Our patients and families view eCare as a guardian angel, knowing that someone is watching over them."

Telemonitoring also contributes to cost savings. Interventions by eCare physicians and nurses added an estimated \$9.74 million in value to Christiana Care between October 2014 and October 2015.

Christiana Care's eCare nurses are highly experienced, having between five and 40 years of ICU experience. Their partnership with bedside nurses includes tracking data and monitoring line usage in the Cardiovascular and Neuro ICUs. eCare uses an electronic database for patient information including diagnosis, history, continuous infusions, active problems and items concerning follow-up and hand-offs.

"In addition, we have the support of Chicago Advocate physicians who virtually round on our ICU patients and are available to prescribe medications, contribute to patient care through medical management, care progression and emergency response from 7 p.m. to 7 a.m.," said Albert Rizzo, M.D., eCare medical director. In addition to providing real-time monitoring of the critical care patients overnight on both

the Christiana and Wilmington Campuses via eCare's remote capabilities, our partnership with Chicago-based Advocate Health Care enables our physicians and nurses to collaborate with their physicians and promote exchange of ideas about critical care protocols and best practices to benefit the care of critically ill patients at both institutions.

Telemedicine is an evolving modality for medicine in the U.S. and will continue to develop as health systems harness technology to add value to care, said Virginia U. Collier, M.D., MACP, Hugh R. Sharp Jr. Chair of Medicine.

"We have among the best outcomes in the nation in our ICUs, and eCare is an integral part of our successful ICU model," Dr. Collier said. "Our eCare nurses and physicians provide a backup layer of support to ensure best practices in the ICU. There are multiple examples in which eCare has picked up opportunities to improve care. The eCare nurses, who round with ICU Value Improvement Teams, are always on the lookout for ways in which they can partner with the unit teams to take better care of our patients."

Casey notes that in the past year eCare helped to identify and correct 416 errors in medication administration, and eCare physicians contributed to the active management of medical problems 616 times.

"We also partner with the units we serve to help them meet project initiatives that align with organizational goals outlined for their patient population," Brobst said. "Our nurses collaborate with the residents and nursing staff regarding the needs of the patients and have the expertise to help make comprehensive decisions with the bedside."

Based on its successes, eCare has become an effective tool in caring for critically ill patients.

"Think of eCare as Extra Care," she said. •

"We have among the best outcomes in the nation in our ICUs, and eCare is an integral part of our successful ICU model. Our eCare nurses and physicians provide a backup layer of support to ensure best practices in the ICU. There are multiple examples in which eCare has picked up opportunities to improve care."

VIRGINIA U. COLLIER, M.D., MACP
HUGH R. SHARP JR. CHAIR OF MEDICINE



Albert Rizzo, M.D., medical director of eCare, and Virginia U. Collier, M.D., MACP, Hugh R. Sharp Jr. Chair of Medicine, joined the eCare team for a 10th anniversary photo, including: Gemma Lowery, administrative assistant VIII; Lori Draper, database coordinator; Nancy Galbreath BSN, RN, CCRN; Michelle Zechman BSN, RN, CCRN; Nancy Courchaine RN; Cheri Morrow RN CCRN; Sharon Finnegan BSN, RN, CCRN; and Ann Brobst MSN, RN, PCCN, nurse manager.

Achieving Competency Today teams present latest performance improvement projects

The Value Institute Academy celebrated the completion of the 20th ACT course on Dec. 2 at the John H. Ammon Medical Education Center with four teams of interprofessional learners reporting on their performance-improvement projects.

ACT (Achieving Competency Today) is a graduate-level interdisciplinary approach to the science of improvement through experiential learning. Over the years, more than 70 ACT project teams have been taught a framework for identifying and analyzing opportunities for improvement in health care settings.

“What started in 2005 as an experiment has continued to grow and has become one of the livliest, most enriching and — in my opinion — the best professional education and development programs at Christiana Care,” said Neil Jasani, M.D., MBA, FACEP, chief learning officer, vice president of Medical Affairs and designated institutional official. “Hats off to this year’s team of course facilitators, including Carol Moore, Christine Sowinski, Thea Eckman, Teri Foy and Loretta Consiglio-Ward.”

The program is offered twice a year. As part of the 12-week curriculum, ACT team members tackle a medical problem by gathering data, talking with stakeholders, designing a test intervention and then measuring the effect.

“The way you have done this work on issues of health care quality, cost, systems and safety is exemplary,” said Janice E. Nevin, M.D., MPH, president and chief executive officer of Christiana Care. “Congratulations to all of you, particularly those of you who have been involved in teaching this important work for so many years.”

“What started in 2005 as an experiment has continued to grow and has become one of the livliest, most enriching and — in my opinion — the best professional education and development programs at Christiana Care.”

NEIL JASANI, M.D., MBA, FACEP

CHIEF LEARNING OFFICER, VICE PRESIDENT OF MEDICAL AFFAIRS AND DIO

For the ACT teams — and the 29 learners — the most recent projects had an overarching theme of improving communication in targeted medical areas. Each of the investigations was given a catchy title, with the projects exploring how to:

- Improve the medication order clarification process for internal medicine residents and the Department of Pharmacy (“Is There a Doctor in the House?”).
- Improve the consultation process between providers and consultants within a specific medical teaching team. (“Who You Gonna Call?”).
- Increase the number of documented “goals of care” discussions on two Christiana Care medical units, 5A and 6A. (“Tackle the Bear – Discuss Goals of Care”).
- Evaluate a National Early Warning System (NEWS) as a way to detect early clinical deterioration of patients and prevent the need for acute resuscitation. (“News Flash! Extra Extra: Early Detection System to Achieve Higher Standards”).

Participants in the projects included resident physicians, as well as pharmacists, nurses and other health professionals who came together around the common purpose of learning and applying the techniques of improvement science.

“When this happens, we get extraordinary moments of discovery that can really make a difference in the health of our community,” said Dr. Nevin. ●





Team One

“Is There a Doctor in the House?”

Front row: Alexis Gross, PharmD., Doreen Mankus, BSN, RN III, Jenny Fagel, D.O. Back row: Max Oran, M.D., Elizabeth O'Donnell, M.D., Tam Dang, M.D. Missing: Mumtaheena Miah, M.D.



Team Two

“Who You Gonna Call?”

Front row: Elizabeth Sargent, BSN, RN III, Shannon Barrow, M.D., Alyssa Mathew, D.O. Back row: Matthew Painter, M.D., Isha Misra, M.D., Jennifer Murray, PharmD., Jason Koch, D.O.



Team Three

“Tackle the Bear - Discuss Goals of Care.”

Front row: Laura Quint, MBBS, Jhenette Lauder, M.D., LeeAnn Tanaka, D.O., Leah Milton, PharmD. Back row: Anthony Tascone, M.D., Bridget Ryan, BSN, RN III, Pamela Bailey, D.O., and Mark LaSorda, D.O.



Team Four

“News Flash! Extra Extra: Early Detection System to Achieve Higher Standards.”

Front row: Caroline Snowberger, D.O., Kevin Patel, M.D., Hasan Alhasani, PharmD. Back row: Lindsey Hoosty, BSN, RN III, Linda Bernard, D.O., Megan Madrigal, M.D., Kaitlin McLean, M.D.

Prepaid tuition program supports pursuit of nursing academic degrees

Rebecca Robertson and Denise Sipala have more than 60 years of combined experience as registered nurses.

Last year, they added Bachelor of Science in Nursing (BSN) to their credentials through Christiana Care's pre-paid tuition program, which supports the health system's nurses as they earn additional academic degrees in nursing.

Currently, 67 percent of the more than 2,500 nurses at Christiana Care have a BSN degree or higher. That number is expected to grow as new nurses hired at are now committing to obtain their degree within three years. Nurses already employed at Christiana Care who wish to transfer to another department now also commit to earning a BSN degree.

"Our goal is to have 80 percent of our nurses BSN-prepared by 2020," said Michelle L. Collins, MSN, APRN, CNS, RN-BC, ACNS-BC, director of Nursing Professional Development and Education. "This is in keeping with our standards as a Magnet organization and aligns with the educational goal endorsed by the Institute of Medicine's Future of Nursing report." Research demonstrates that care provided by nurses with a BSN contributes to better outcomes for patients.

Nurses Robertson and Sipala both work in the open-heart stepdown unit at Christiana Hospital. They enrolled in an accelerated RN-to-BSN program at Immaculata University, where tuition is prepaid by Christiana Care. Classes were conveniently located at a hotel in Newark.

"I have four children, and I waited until my youngest hit high school," Robertson said. She joined classmates ranging in age from 27 to 60. "I told my family that they were going to have to do their own laundry and cook their own meals one night a week while I was earning my degree."



Becky Robertson, BSN, RN, and Denise Sipala, BSN, RN, last year added Bachelor of Science in Nursing (BSN) to their credentials through Christiana Care's pre-paid tuition program.

Sipala was inspired by coworkers who already had obtained degrees.

"When I heard my nursing colleagues talk about the ease with which they did it and how much it enhanced their careers, I wanted to do it," she said. "I have always enjoyed being a bedside nurse, and getting my degree gives me a better view of patient-centered care and evidence-based practice."

In addition to nursing courses, the curriculum included such electives as Spanish and history. Both nurses gained a deep sense of satisfaction from achieving their goals and valued the tuition benefit that supported them.

Christiana Care offers a prepay program for nurses pursuing bachelor's, master's and doctoral degrees in nursing at Drexel University, Immaculata University, University of Delaware and Wilmington University. Christiana Care pays full tuition for qualified nurses enrolled at these schools. If nurses choose to go to another school, Christiana Care provides tuition reimbursement.

"When nurses contact us about continuing their education, we partner with them every step of the way — from outlining a plan to reach their academic goals to help arranging precepted experiences," said Staff Education Specialist Jennifer Painter, MSN, APRN, CNS, OCN, AOCNS. "We are here to support our nurses in their professional development. It's the best thing to do — the right thing to do."

Promoting education and advancement supports the exceptional people who work at Christiana Care and the patients they serve, said Audrey C. Van Luven, senior vice president and chief human resources officer. "We are committed to advancing our nurses' professional development in their pivotal roles as partners with patients and their families," she said.

"When other nurses ask me about this. I encourage them to go for it," Sipala said. "No matter what your career intentions are, it's well worth it." ●

Electronic nurse screening assessment goes live

Helps detect early signs of physiologically deteriorating patients

Nurses in 25 units across Christiana and Wilmington hospitals are using an innovative electronic Nurse Screening Assessment to help identify patients at risk of physiologic deterioration.

The electronic Nurse Screening Assessment was tested during a three-month pilot of the Christiana Care Early Warning System (CEWS) that took place in early 2015. The CEWS study, a collaboration between the Value Institute and the Department of Quality, Patient Safety and Population Health, uses the electronic Nurse Screening Assessment to augment traditional vital-sign monitoring included in electronic health records to identify declining patients earlier and more reliably. The assessments collect nurses' firsthand observations of various clinical symptoms that may be indicative of a patient's health, rather than depending solely on clinical interpretation of vital signs to flag patients who are deteriorating physiologically.

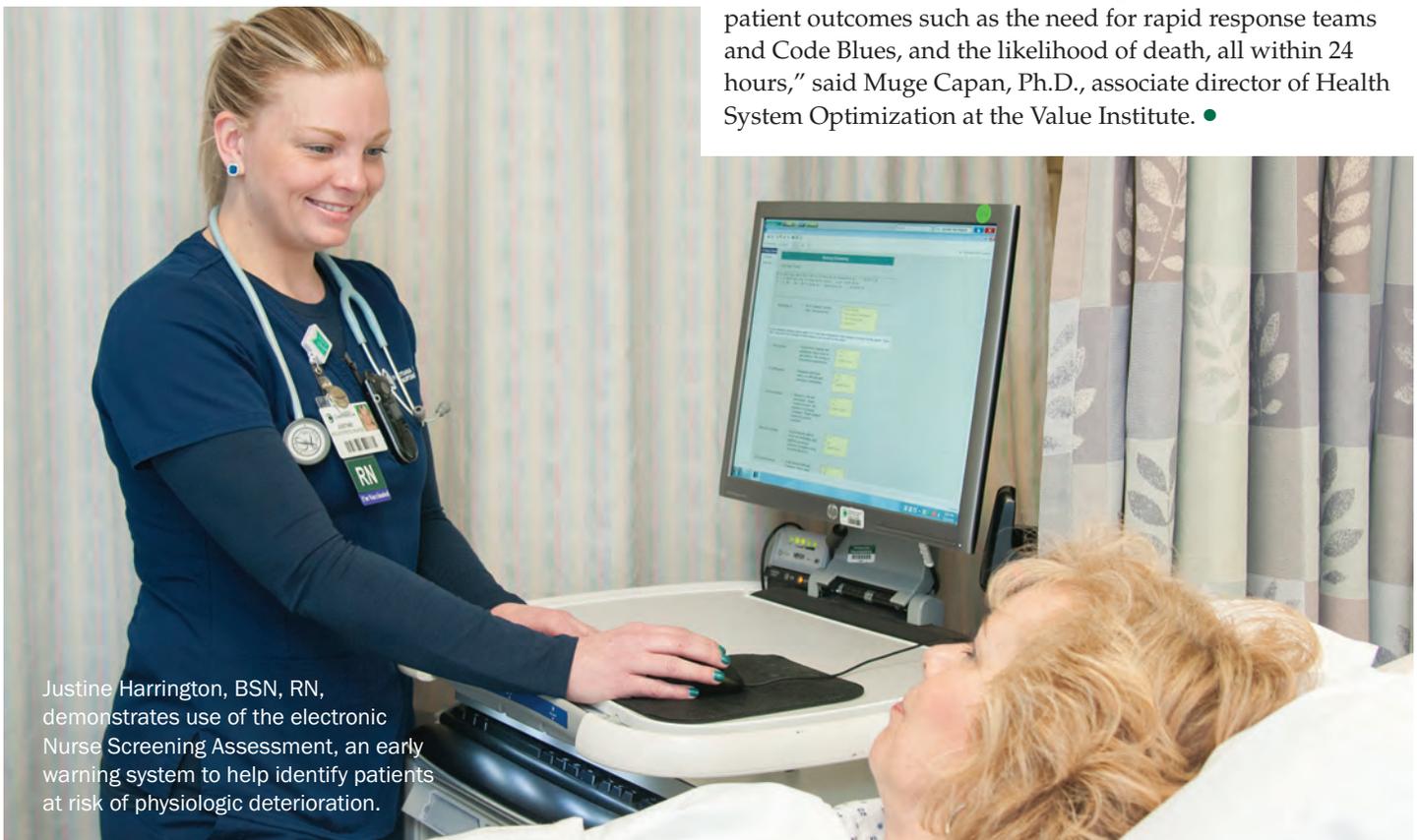
The Nurse Screening Assessment targets various health assessment categories and integration into the nursing workflow. The nursing assessments, which are updated regularly during a hospital stay, go beyond vital signs to focus on clinical variables in patients' electronic health records

that are reflective of their health condition. For example, the assessments show whether a patient has adequate nutritional intake or is chewing and swallowing without difficulty. Such characteristics make the nursing assessment data particularly important in detecting early signals of physiologic deterioration in hospital settings.

The form was developed by a team of critical care experts, nurses, respiratory therapists, industrial engineers and health information technology experts. It includes multiple-choice statements that focus on food, respiratory, neurological, musculoskeletal, gastrointestinal, genitourinary and electronically pulled elements. The form was integrated into the institutional electronic health records system and activated for the pilot units during the study period. Nurses are required to complete the forms three times daily.

During the CEWS pilot, nurses in four units were asked to use the new electronic Nurse Screening Assessment form. Based on the success of the pilot, the electronic Nurse Screening Assessment went live Dec. 1.

"Our findings showed that adding each Nurse Screening Assessment category separately improved the performance of the Christiana Care Early Warning System in predicting patient outcomes such as the need for rapid response teams and Code Blues, and the likelihood of death, all within 24 hours," said Muge Capan, Ph.D., associate director of Health System Optimization at the Value Institute. ●



Justine Harrington, BSN, RN, demonstrates use of the electronic Nurse Screening Assessment, an early warning system to help identify patients at risk of physiologic deterioration.

Trustees present Harrington Award for Distinguished Service and Leadership to Patricia M. Curtin, M.D.

Patricia M. Curtin, M.D., FACP, CMD, received the 2015 Harrington Award for Distinguished Service and Leadership from the Christiana Care Trustees.

Dr. Curtin has been a part of Christiana Care for nearly 30 years, as an intern, resident, chief resident and attending physician. She has been the chief of Geriatric Medicine since 2000.

Under Dr. Curtin's leadership, in conjunction with nursing leadership and geriatric clinical nurse specialists, Christiana Care in 2001 established the We Improve Senior Health Program (WISH), a new, interdisciplinary approach to senior health services, adapted from the NYU/John Hartford Foundation NICHE Program (Nurses Improving Care for Health System Elders).

Early on, the WISH program earned the 2005 John A. Hartford Foundation Institute for Geriatric Nursing Award for Best Practices for Older Adults from the American Organization of Nurse Executives and the John Hartford Foundation. Continuing this trend, in 2015, Christiana Care earned Exemplar Status from the national NICHE program for the third consecutive year for the care it provides to older adults.

Dr. Curtin serves in multiple leadership positions, including medical director of WISH and the Acute Care for the Elderly (ACE) patient care units at Wilmington and Christiana hospitals, director of clinical strategy and community affairs for the Swank Memory Care Center, medical director of

Christiana Care's Adult Day Program and Stonegates Health Center, and vice chair of Christiana Care's Visiting Nurse Association.

She is a graduate and devoted alumna of the University of Notre Dame who exemplifies the spirit of service. Since the 2010 earthquake struck the island nation of Haiti, the health needs of the Haitian people have multiplied. Dr. Curtin travels to Haiti regularly with other Notre Dame physician alumni and others for ongoing relief efforts, bringing her trademark compassion, along with donated supplies and medicines from Christiana Care, to provide care in remote villages.

"Dr. Curtin's three children are following in those footsteps, using their talents and gifts in ministry to others," said Carroll M. Carpenter, chair of Trustees, in presenting the award.

Carpenter read comments from Dr. Curtin's mentor and colleague, Virginia U. Collier, M.D., MACP, Hugh R. Sharp Jr. Chair of Medicine, who wrote: "When I think of Trish, the words 'compassionate,' 'thoughtful,' 'teacher,' 'connector' and 'doer' come to mind. There is not a minute in the day when she does not think about others. As a loyal and consistent champion for outstanding patient care, she is most deserving of the Harrington Award."

Dr. Curtin recently returned from her 10th trip to Haiti. "I come back from Haiti each time a better physician and person, because of what the Haitian people teach me," Dr. Curtin said. "I feel very blessed to be able to serve them." ●

Patricia M. Curtin, M.D., FACP, CMD, thanks Carroll M. Carpenter and the Christiana Care Trustees for honoring her with the Harrington Award for Distinguished Service and Leadership.



Doug Azar, MHA, appointed senior vice president of The Medical Group and executive director Quality Partners and Quality Partners ACO

Douglas Azar, MHA, has been promoted to senior vice president of The Medical Group of Christiana Care and also maintains his executive director role with Christiana Care Quality Partners and Christiana Care Quality Partners Accountable Care Organization (ACO). His new role includes operational leadership of Christiana Care Health System's employed physician practices. The Medical Group now includes over 40 practices and performs nearly half a million patient encounters every year. Azar will work with the clinical and operations leadership of The Medical Group to continually enhance the value of the care and services provided to these community members.

"I am very excited to join The Medical Group team," Azar said. "Leadership across the team, in partnership with others throughout Christiana Care Health System, has been

working tirelessly to advance our performance. I look forward to positively contributing to this good work."

Azar joined Christiana Care in 2012. He has over 20 years of health care leadership experience, including senior operations roles with WellSpan Health in York, Pa., and the University of Pittsburgh Medical Center.

He received his Master of Health Administration from Duke University and undergraduate degree from Shippensburg University. ●



Frederick Giberson, M.D., MACM, appointed vice chair of surgical education



Frederick Giberson, M.D., MACM, has been appointed vice chair of surgical education for Christiana Care.

Dr. Giberson has served as program director of Christiana Care's surgical residency program since 2004. Prior to that he served as the associate program director for several years.

He completed his surgical residency at Christiana Care, served a year as administrative chief resident, and then received a fellowship in surgical critical care/traumatology at the University of Maryland R. Adams Cowley Shock-Trauma Center.

He returned to Christiana Care in 1997 as a member of the faculty within the Department of Surgery.

Dr. Giberson received his medical degree from Rutgers University Medical School, New Jersey. After residency training he earned a Master of Science in academic medicine (graduate medical education) at the University of Southern

California in 2011. He received a bachelor's degree in chemistry from King's College, Wilkes-Barre, Pa.

He has participated in more than 50 multicenter research studies and has presented on graduate medical education topics nationally at the Accreditation Council for Graduate Medical Education, American College of Surgeons, Association of Program Directors for Surgery, and Innovations in Medical Education annual conferences as well as other national, regional and local venues. He has more than 35 presentations to his credit, including 35 invited presentations and seven poster presentations.

He has served as an associate examiner for the American Board of Surgery.

Dr. Giberson has received numerous prizes, awards and honors during his professional career, including a Level III Master Educator Award and Rising Star Award in 2012, and numerous Physician Ambassador and Teaching Attending of the Year awards at Christiana Care.

Dr. Giberson remains clinically active and is board-certified in general surgery, surgical critical care and neurological critical care. ●

Adam Raben, M.D., to head Department of Radiation Oncology



Adam Raben, M.D., is the newly appointed chair of Radiation Oncology at Christiana Care Health System and the Helen F Graham Cancer Center & Research Institute, succeeding Chris Koprowski, M.D.

Dr. Raben was instrumental in establishing the Intensity Modulated Radiation Therapy program at Christiana Care when

IMRT technology was still new.

He succeeded Dr. Koprowski as principal investigator for the National Cancer Institute Radiation Therapy Oncology Group and now serves as the principal investigator for NCI NRG while continuing to have the Radiation Oncology Department recognized for research excellence.

Dr. Raben has a strong commitment to translational research and serves on the NCI Head and Neck Committee.

“Adam recently established the Workflow Enhancement Committee, which has fostered a new respect for the culture of safety and improved communication within the Department of Radiation Oncology,” said Nicholas J. Petrelli, M.D., Bank of America Endowed Medical Director of the Helen F. Graham Cancer Center & Research Institute. “His commitment to quality patient care together with his experience in clinical and translational cancer research will keep the Department of Radiation Oncology on the cutting edge of cancer care.”

Dr. Raben is a graduate of Duke University and received his medical degree from the Bowman Gray School of Medicine at Wake Forest University.

He completed his residency in Radiation Oncology at Memorial Sloan-Kettering Cancer Center, New York, N.Y., where he also served as residency program director.

Dr. Raben is a USSF National B Licensed Coach in Soccer and has coached high school and club soccer teams for more than 10 years in Delaware. ●

Paula Smallwood, MSN, RN, appointed nurse manager of SCCC



Paula Smallwood, MSN, RN, has been appointed nurse manager of the Surgical Critical Care Complex.

Smallwood received her MSN from Wesley College and an associate’s degree in nursing from Delaware Technical and Community College.

She completed the Advisory Board Fellowship program and currently

is certified as a nurse executive through the American Nurses Credentialing Center. She is a member of the Delaware Organization of Nurse Leaders and was a DNA Nursing Excellence finalist in 2011.

Smallwood has over 20 years of nursing leadership experience. She began her career as a staff nurse on 5E/5W at Wilmington Hospital. She briefly worked at St. Francis Hospital as the director of Critical Care and Emergency Nursing before returning to Christiana Care in 2004 as the nurse manager of the GI Labs.

She was promoted to a senior nurse manager, responsible for the GI Labs, Hemodialysis, Vascular Access Nursing, and Radiology Nursing. Most recently she has served as the interim nurse manager for the Surgical Critical Care Complex. ●

Bettina Tweardy Riveros, Esq., joins Christiana Care as chief health equity officer



Bettina Tweardy Riveros, Esq., joined Christiana Care Health System in November as chief health equity officer.

Prior to joining Christiana Care, since 2010, Riveros served as senior adviser for health policy in the office of Delaware Gov. Jack Markell and as chair of the Delaware Health Care Commission.

Riveros will have responsibility “for furthering our work in diversity and inclusion and strategically engaging community stakeholders in partnerships that advance our strategic aims and our vision for a healthy Delaware,” said Janice E. Nevin, M.D., MPH, Christiana Care president and CEO. “With her strong background in the public health sector and state government, she will have a leadership role in guiding Christiana Care’s health policy agenda.”

Among her many accomplishments, Riveros was responsible for developing the strategy to implement the Affordable Care Act in Delaware, including the Health Insurance Exchange

partnership model and Medicaid expansion that expanded access to health care for thousands of Delawareans.

She has been a board member and served on the executive committee of the Delaware Health Information Network since 2010.

She also was involved in the development of the State Innovation Model that supports Delaware’s transition to new health care delivery and payment models and an increased focus on population health, and was a founding member of the Delaware Center for Health Innovation.

A Delaware attorney with an extensive business executive background in technology, strategy and policy, prior to serving the governor she was director of product development and in-house counsel for Corporation Service Company, a legal technology and services company, and an attorney at the Delaware law firm of Morris James. She also served as deputy counsel to Sen. Thomas R. Carper during his terms as governor.

Riveros received her law degree from Villanova University in 1988 and her undergraduate degree from Juniata College in 1985. ●

Wendi Rader named Breast Center interim administrative director

Wendi Rader, AS, RT (R)(M)(BS), has been named interim administrative director for the Christiana Care Breast Center at the Helen F. Graham Cancer Center & Research Institute.

Rader is a 1990 graduate of the Christiana Care-Delaware Technical Community College Radiologic Science Program. She completed breast ultrasound training at Thomas Jefferson University. She is certified in mammography and breast ultrasound by the American Registry of Radiologic Technologists (ARRT) and served a three-year term as a member of the ARRT Breast Ultrasound Committee. She was actively involved in implementation of the Breast MRI Program at the Breast Center.

She completed Christiana Care’s Frontline Leadership and Working courses and is pursuing a Bachelor of Science in the Allied Health Management Program at Wilmington University. ●



Michael Knorr, MSN, RN, PCCN, appointed nurse manager of 6S and WICU

Michael Knorr, MSN, RN, PCCN, has been appointed nurse manager of 6S and the Wilmington Hospital Intensive Care Unit.

Knorr began his career at Christiana Care in 1995. He worked in various capacities on 5EW Medical Stepdown at Wilmington Hospital prior to his current promotion. He received his MSN in health care administration in 2014 from the University of Delaware and his BSN in 1995, also from UD.

He is certified in progressive care nursing (PCCN) and has served on several councils at the Wilmington and Christiana campuses. He is the nurse leader of the Acute Medicine service line operations team. ●



PUBLISHING, PRESENTATIONS, APPOINTMENTS & AWARDS

Publishing

Andrew Ellefson, M.D., Robert Locke, M.D., Amy Mackley, David A. Paul, M.D. et al. Increased Monocytes and Bands Following a Red Blood Cell Transfusion. "Journal of Perinatology." (2016) 36, 57-60.

Jennifer C. Goldsack, MChem, MA, MS, MBA, Christine DeRitter, BSN, RN-BC, Michelle Power, BSMT(ASCP), CIC, Amy Spencer, MSN, RN-BC, Cynthia L. Taylor, MS, BSN, RN, CRN, Christine J. Manta, BS, MS(c), Ryan Kirk, Marci Drees, M.D., MS. "Increasing the efficiency of a targeted methicillin-resistant Staphylococcus aureus screening program." American Journal of Infection Control. January 2016.

Matthew K. Hoffman, M.D., MPH, FACOG, et al. "Prior Ultrasound-Indicated Cerclage: Comparison of Cervical Length Screening or History-Indicated Cerclage in the Next Pregnancy." Obstetrics & Gynecol. 2015 Nov;126(5):962-8.

Nima R. Patel, M.D., Gretchen E. Makai, M.D., Nancy L. Sloan, DrPHa, et al. "Traditional versus Simulation Resident Surgical Laparoscopic Salpingectomy Training: A Randomized Controlled Trial." Journal of Minimally Invasive Gynecology. Nov. 14 2015. pii: S1553-4650(15)01664-7.

Presentations

Mark Cipolle, M.D., Ph.D., Joan Pirrung, MSN, RN, ACNS-BC, Erin Meyer, D.O., Glen Tinkoff, M.D., Baily Ingraham, MS, Edmondo Robinson, M.D., MBA. "Embedding a Hospitalist on the Trauma Service Reduces Mortality and Readmissions." EAST Conference. San Antonio, Texas. January 2016.

Stephen A. Pearlman, M.D., MSHQS, gave a breakout session on "How to Publish a QI Paper" and was the course director for the Quality Day of Hot Topics in Neonatology. Washington, D.C. December 2016.

Appointments

The Professional Advancement Council congratulates the following new RN III nurses: **Nancy Galbreath,** eCare; **Lauren Vivolo,** CED; **Thomas Otto,** CED; **Joana Lapinid,** TCU; **Katharine Potter,** 5B; **Melissa VanTwyver,** 4D; **Elizabeth Papaleo,** CED; **Sidonie Salmon,** 3D; and **Erin Brennan,** NCCU.

Awards

Dana Stanitski, BSN, RN II, of 2C, received a DAISY Award for Extraordinary Nurses for September 2015.

Margaret Bloom, RN II, of the VNA, received a DAISY Award for Extraordinary Nurses for October 2015.

Charles Evans, RN II, of 6S, Wilmington Hospital, received a DAISY Award for Extraordinary Nurses for November 2015.

Brooke Tadlock, RN, 3E MICU, received a DAISY Award for Extraordinary Nurses for December 2015.

Megan Smakulski, RN, 3D Pulmonary, received a Daisy Award for Extraordinary Nurses for January 2016.

Terri Steinberg, M.D., was named one of the top 50 Healthcare IT experts by Health Data Management magazine.

Robert Witt, M.D., was named Top Peer Reviewer for the journal The Laryngoscope. ●

National Science Foundation Smart and Connected Health Program funds “SEPSIS: Sepsis Early Prediction Support Implementation System”

The National Science Foundation has awarded Christiana Care a prestigious grant so the health system can build on its intensive efforts to improve early identification and intervention of sepsis.

The National Science Foundation, which is an independent federal agency that promotes the advancement of national health, awarded Christiana Care a three-year grant for “SEPSIS: Sepsis Early Prediction Support Implementation System.” This \$1.2 million initiative is part of a research collaboration between the Christiana Care Value Institute, Mayo Clinic and North Carolina State University.

The grant includes funding for four computer science and industrial engineering Ph.D. candidates from NC State and summer students from Delaware to work with Christiana Care and Mayo Clinic to develop machine-learning, predictive analytics and systems-optimization algorithms to detect patients at risk for sepsis.

Sepsis, a deadly combination of infection and inflammation, is a considerable burden on health care services throughout the world, with far-reaching human and economic costs. The disease is present or develops in approximately one of every 23 hospital admissions and, with increasing incidence and a high case-fatality rate, accounts for nearly half of all hospital deaths, according to the U.S. Agency for Healthcare Research and Quality.

Muge Capan, Ph.D., associate director of Health Systems Optimization at the Value Institute, will serve as principal investigator for the project, funded by the National Science Foundation’s Smart and Connected Health program to accelerate the development and use of innovative approaches that are person-centered and proactive.

The initiative builds on current efforts to integrate electronic health records and clinical expertise to provide an evidence-based framework to diagnose and accurately risk-stratify patients within the sepsis spectrum. In addition, the initiative develops and validates intervention policies that inform sepsis treatment decisions.

“Sepsis often goes undiagnosed in its early stages, when aggressive antibiotic treatment has the potential to reverse the course of infection; this project seeks to address that issue,” Capan said. “For every one-hour delay in antibiotic treatment of severe sepsis or septic shock, there is an incremental decrease in patient survival — a five-hour delay decreases survival by 50 percent.”

“For every one-hour delay in antibiotic treatment of severe sepsis or septic shock, there is an incremental decrease in patient survival — a five-hour delay decreases survival by 50 percent.”



MUGE CAPAN, PH.D.

Early diagnostic and therapeutic response to sepsis has the potential to significantly improve the patients’ health trajectory. Specifically, the ability to determine the risk of sepsis-related deterioration due to delayed intervention “is crucial to ensuring high-level patient care and safety,” she said.

The goals of the SEPSIS project are to:

- Develop data-driven models to classify patients according to their clinical progression to diagnose sepsis and predict the risk of deterioration, thus informing therapeutic actions.
- Develop personalized intervention policies for patients within the sepsis spectrum.
- Develop decision-support systems for personalized interventions focused on resource implications and usability within a real hospital setting.

Researchers propose to achieve these goals by analyzing patient records across two large-scale health systems — Christiana Care and Mayo Clinic — in two geographically and demographically different study populations in order to inform clinical decision-making while simultaneously advancing engineering knowledge and educating care providers.

“The establishment of these models of disease can be discovered from electronic health records,” Capan said. “The statistical model of competing discovery algorithms promises to shed new light on the nature of sepsis.” ●



A sweet celebration for a Magnet team

Christiana Care Health System invited all employees to a sweet celebration of our Magnet redesignation. To say congratulations and thank you, special Build-Your-Own-Sundae parties in December featured the University of Delaware's UDairy Creamery ice cream at Christiana Hospital, Middletown Emergency Department and Wilmington Hospital. Employees from all shifts put the cherry on top of this national recognition of excellence in nursing and patient care. •



Knowing your numbers multiplies your odds for good health

You know your phone number — and likely your employee number and Social Security number. It's also important to know your blood pressure, cholesterol, body mass index (BMI) and blood sugar numbers, because these are indicators for serious conditions, including hypertension, cardiovascular disease and diabetes.

Knowing your numbers gives you the power to partner with your primary care provider to improve your health through lifestyle changes or medications, if needed.

As an employee, you can learn your numbers through your Christiana Care Health System biometric screening. So, if you haven't yet had your screening, sign up now!

This is what you will learn:

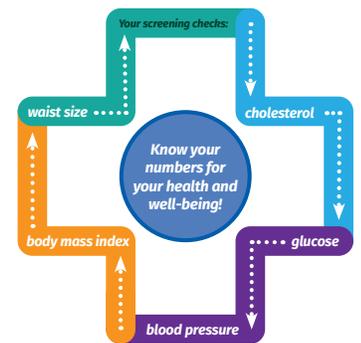
- **Total cholesterol:** This measures HDL (good cholesterol), LDL (bad cholesterol), and total cholesterol to HDL ratio. The optimal range for HDL cholesterol is more than 60 mg/dL; men with a score of less than 40 and women with a score of less than 50 have low HDL, meaning they don't have enough good cholesterol. Ideally, LDL cholesterol should be less than 100; more than 160 is high. The normal range for total cholesterol is 180 or less.
- **Fasting glucose and or A1c, triglycerides:** The test measures your average blood glucose for the past two to three months. The advantages of this test is that you don't have to fast or

drink anything before the screening. The number you want to see is 100 or less; 101-125 is considered pre-diabetic. A reading above that requires your doctor's immediate attention.

- **Blood pressure:** You can't feel high blood pressure, yet it can damage your arteries, brain and eyes. A reading below 120/80 is optimum. Between 121/81 and 139/89 is considered pre-hypertensive. If you have consistent readings of 140/90 and above your doctor will talk to you about treatment options.
- **BMI:** This is a ratio of your height and weight. A number of 25 or above is high and more than 30 is cause for immediate concern. Conversely, you can be too thin. If your number is 18.5 or less, you are underweight.

Biometric screenings end March 4, so don't miss this important deadline. To receive the premium credit for the 2016 benefit year, employees must also complete the Health Assessment.

You will learn your numbers and save money on your medical benefits at the same time. A Wellness credit of \$15 will be awarded for completing the Biometric Testing and Health Assessment (one for the employee and one for benefited spouse). ●



Nursing scholarships applications accepted Feb. 8 - May 6

Christiana Care Health System is committed to supporting the growth and development of individuals wishing to pursue careers in health care. The Ruth Shaw Junior Board Scholarship program provides the financial assistance necessary to enable individuals to pursue their dreams of becoming a nurse. New scholarship recipients can now receive scholarships for multiple years.

Scholarship criteria:

- Christiana Care employees who demonstrate The Christiana Care Way Behaviors and a commitment to pursue a career in nursing and ultimately earn a BSN.
- College students currently enrolled in an accredited, nursing program.
- High school graduates accepted into a college-level nursing program.

Scholarship funds are available to offset the cost of tuition and textbooks. As a condition of receiving this financial assistance, students are required to commit to employment with Christiana Care. Scholarship recipients are selected based on academic achievement (2.8 minimum GPA) and a proven commitment to serving others.

Completed applications include:

- Application for admission.
- Resume.
- A minimum two-paragraph essay outlining why you desire to be a nurse and the role of nursing in health care.
- Unofficial transcripts from your most recent academic program (college/high school).

- Two letters of recommendation in a sealed envelope from individuals able to directly comment on applicant's community, volunteer or work experience. Instructor or supervisor preferred. One of the two letters of reference for a Christiana Care employee must be from the employee's supervisor.

Successful applicants will be invited to interview before the nurse scholarship selection committee. ●

Applications will be accepted Feb. 8 - May 6. For more information, contact Patti Bjorklund at PBjorklund@Christianacare.org.

The Choosing Wisely initiative seeks to ensure that lab tests are only ordered for patients when they are clinically indicated.



Changes to provider order entry support Choosing Wisely for blood tests

Since Jan. 18, doctors no longer have the option to order QD blood tests or “daily labs” on an automatically recurrent basis in PowerChart.

A provider order-entry (CPOE) update has enhanced one-time ordering of labs, requiring less time and fewer clicks for doctors to order the lab tests their patients need.

Under the auspices of the Clinical Value Council, with direction from the Acute Medicine Service Line, a multidisciplinary Choosing Wisely committee, led by Academic and Medical Affairs Quality and Safety Officer Robert Dressler, M.D., MBA, conducted a comprehensive analysis. The result of their work is a systemwide implementation of the Choosing Wisely recommendation to avoid automatically recurring daily blood tests.

According to Dr. Dressler, this recommended Choosing Wisely initiative was an opportunity waiting to happen.

“In the literature and across our own health system, we find ample examples of how daily labs continue to document stable biochemical parameters and do not alter daily clinical decision making,” he said. “The IT solution we have adopted prevents potential patient harm, reduces waste and improves efficiency by creating an environment to allow for daily decision making regarding each individual patient’s clinical need for lab tests.”

“Just as our clinicians decide on a daily basis, based upon a patient’s clinical condition, which diagnostic studies and consultations are indicated, this Choosing Wisely recommendation encourages clinicians to do the same for blood studies,” said Virginia Collier M.D., MACP, Hugh R. Sharp Jr. chair of Medicine. “Eliminating automatically recurring daily labs is one of many ways we continue to integrate “Choosing Wisely” concepts into our collaborative effort to improve the quality, safety and value of the care we provide to our patients.”

“Just as our clinicians decide on a daily basis, based upon a patient’s clinical condition, which diagnostic studies and consultations are indicated, this Choosing Wisely recommendation encourages clinicians to do the same for blood studies.”

VIRGINIA U. COLLIER M.D., MACP

Better care and added value

Hospitalized patients who are regularly subjected to multiple blood draws over a short period of time can acquire a condition called iatrogenic anemia. Loss of blood can cause significant health consequences for those who are seriously ill. Eliminating automatically recurrent lab orders will help lower the risks of iatrogenic anemia and improve the overall phlebotomy experience, given the early times for blood draws, discomfort and bruising.

Early morning blood collection rounds at Wilmington and Christiana hospitals are the busiest times for the phlebotomy teams. Verifying and filling orders will be more efficient for the entire team (phlebotomy and nursing), and lab turnaround time should diminish.

“Simple blood collection takes a minimum of 10 minutes each for some 450 patients, and timing is important so that fasting patients can eat, patients awaiting discharge can be evaluated before leaving, and medications can be adjusted to ensure appropriate treatment,” said Cheryl Katz, MS, MLS(ASCP)SH, vice president, Pathology and Laboratory Services. “Assuring that all blood tests ordered are clinically indicated supports patient safety by eliminating unnecessary venipuncture. In addition, it becomes more efficient for the phlebotomists to move throughout the hospitals during the time of greatest need.”

A newly designed Quick Orders MPage in the PowerChart Provider Workflow will make it even faster and easier to place lab orders. The Quick Orders MPage content was designed by acute care physicians and facilitates the quick entry of multiple orders (fewer clicks) using common tests with preselected values.

For a short transition period, active recurrent lab orders will remain in the system until patient discharge, which for most patients is three to five days. Automatically recurring orders extending beyond that time will be managed on an individual basis to ensure that clinician’s orders are followed.

In making its recommendation to change CPOE lab orders, the Choosing Wisely committee canvassed a board coalition of stakeholders across specialties. The group garnered strong support, particularly from hospitalists and ICU providers who are high-volume users.

“The intensive-care units are ideal for demonstrating the value of more careful scrutiny of the diagnostic tests we order,” said Acute Medicine Associate Operations Lead Vinay Maheshwari, M.D., FCCP, director, Intensive Care, and associate chair of Specialty Medicine. “The teams have evolved to engage in a standardized multidisciplinary review of all the elements of care for a patient, including the assessment of appropriateness of diagnostic test ordering. With a more patient targeted approach, we can work to better align the needs of the patient with the care delivered.”

Members of the Choosing Wisely Committee are Adrian Fedyk; Erin Grady, M.D.; Stephanie Guarino, M.D. (graduated resident); Jennifer Henry, Matt Hoffman, M.D.; Cheryl Katz; Kathy Linarducci; Josh Myers; Elizabeth Muth, M.D., Emily Penman M.D.; Ei Phyu; Brenda Rabeno; Kate Rudolph; and Kim Taylor. ●

Read more about Choosing Wisely at <http://www.choosingwisely.org>.

“Assuring that all blood tests ordered are clinically indicated supports patient safety by eliminating unnecessary venipuncture. In addition, it becomes more efficient for the phlebotomists to move throughout the hospitals during the time of greatest need.”

CHERYL KATZ, MS, MLS(ASCP)SH

FEBRUARY

ACCEL Innovative Discoveries Series

Fridays, noon – 1 p.m. (lunch served)

Value Institute, 2E56

John H. Ammon Medical Education Center

Feb. 5: Cognitive Assessment and Aging Physicians:

Are Patients or Doctors the Ones at Risk? James M.

Ellison, M.D., MPH, The Swank Foundation Endowed Chair in Memory Care and Geriatrics.

Feb. 12: Improving Assisted Reproductive Technologies Through Identification of Oviductal Components.

Patricia Martin-DeLeon, Ph.D., Trustees Distinguished Professor of Biological Sciences at the University of Delaware.

Feb. 19: Qualitative Methods: Tools for Understanding Patient, Provider and Community Experiences.

Rosemary Frasso, Ph.D., MSc, MSc, CPH, director of education for the Master of Public Health Program and Center for Public Health Initiatives at the University of Pennsylvania.



Perioperative Perspectives: Latest Trends & Practices

Saturday, Feb. 20, 7 a.m. – 3:15 p.m.

John H. Ammon Medical Education Center

Sponsored by Christiana Care's Perioperative Professional Nurse Council. Featured speakers include Willy Wilkinson, MPH, and Bobbie Staten, BSN, RN, MPH. For more information, contact Starr Fields, sfields@christianacare.org.

Heart Month Community Lecture

Tuesday, Feb. 23, registration begins at 6:30 p.m., lecture at 7.

John H. Ammon Medical Education Center

Take the first step to a heart-healthy life at Christiana Care's free annual Heart Month lecture. Specialists from the Christiana Care Center for Heart & Vascular Health will discuss cardiac rehabilitation and secondary prevention and share tips for keeping your heart healthy. Seating is limited, register at <http://christianacare.org/heartlecture> or call 302-623-2273.

Film Screening: "The American Nurse"

Thursday, Feb. 25, 3:30 – 5:30 p.m.

John H. Ammon Medical Education Center

Join the Professional Nurse Council for a screening of a moving documentary on nursing in the U.S. Providing an insider's look at the nursing profession, the film, based on the 2012 book *The American Nurse Project*, follows five nurses and their patients: Tonia Faust with maximum-security prison inmates; Jason Short with home health patients in Appalachia; Brian McMillion with soldiers returning from war; Naomi Cross with mothers giving birth; and Sister Stephen with nursing home patients at the end of life.

Two CNE contact hours are available to Christiana Care nurses through the Education Center. For questions, contact Starr Fields at sfields@christianacare.org or 302-733-2701.



Celebrate **Wear Red Day!**



Dine-in Feb. 5, wear red and your heart will thank you

Area restaurants are joining Christiana Care Health System to celebrate **Wear Red Day, Friday, February 5**. Dine-in at one of the participating restaurants and receive a free heart-healthy menu item of the restaurant's choice. All you need to do is wear red. The promotion is open to men and women.

Visit www.christianacare.org/wearredday for details on **Wear Red Day**.

FIREBIRDS

POTSTICKERS

BISTRO JACQUES



Applies to lunch or dinner for restaurants.



Save the date

4th Annual Neurovascular Symposium

Friday, April 8

John H. Ammon Medical Education Center

MARCH

Update in Cardiology

Friday, March 4, 7:30 a.m. – 4 p.m.

(Registration and exhibits begin at 7:30 a.m.)

John H. Ammon Medical Education Center

This innovative and provocative presentation will examine many long-held practices in the management of diseases of the heart and circulatory system. Directed at primary care physicians as well as specialists in cardiac care, a nationally recognized faculty will address controversial issues and long-held paradigms, as well as practical issues across the broad spectrum of cardiology. Register online by Feb. 25 at: <https://cchs.cloud-cme.com/cardiology2016>. Pre-registration is required. Questions: E-mail rpugh@christianacare.org.

2016 Focus on Hypertension Symposium

Thursday, March 10, 7:30 a.m. – 1 p.m.

John H. Ammon Medical Education Center

This year's program will provide the most up-to-date strategies and therapeutic goals for the prevention, diagnosis and control of hypertension and cardiovascular co-morbidities. Register online at <http://www.delamed.org/hypertension>.

Managing Dementia – A Multidisciplinary Approach

Friday, March 11, 8 a.m. – noon

John H. Ammon Medical Education Center

Presented by the Swank Memory Care Center, this symposium is appropriate for primary care physicians, nurses and other practitioners and will focus on the importance of treating the geriatric, memory-impaired patient. This will be a

multidisciplinary conference including geriatric psychiatrists, geriatricians, nurse practitioners, occupational therapy and social work. All participants must register at <https://cchs.cloud-cme.com/dementia2016>. There is no charge to attend.

20th Annual Diabetes Update

Saturday, March 12, 8 a.m. – 4 p.m.

John H. Ammon Medical Education Center

Videoconferencing available at the Virden Retreat Center, University of Delaware Campus, Lewes, Del. Preregistration is required. Register at <https://cchs.cloud-cme.com/diabetes2016>. ●



Junior Board spreads holiday cheer

For more than 50 years, the Junior Board of Christiana Care Health System has followed a tradition of presenting hospitalized patients with poinsettias during the December holidays. This year was no exception, as hundreds of the bright red flowering plants were delivered personally by Christiana Care Junior Board members, assisted by Christiana Care volunteers.



Oral anticoagulant reversal guideline review

By: Nicki Patel, PharmD, BCPS

Urgent reversal of bleeding is a common concern with the use of oral anticoagulants. Warfarin (Coumadin®) is the most commonly used oral anticoagulant. However, the use of newer agents such as dabigatran (Pradaxa®), rivaroxaban (Xarelto®), and apixaban (Eliquis®) are on the rise. The Christiana Care Oral Anticoagulant Reversal Guidelines are intended to assist providers with management of bleeding in routine patients on these agents or modified for patient specific clinical indications. The guidelines are located on the Physician Portal under CMGs (Heart & Vascular) or can be launched via the Reference Link in PowerChart.

Warfarin works by inhibiting the production of vitamin K dependent clotting factors- II, VII, IX, X, and proteins C and S. Phytonadione (Vitamin K) is used to reverse the effects of warfarin and works by promoting liver synthesis of clotting factors (II, VII, IX, X). Christiana Care guidelines recommend administration of intravenous phytonadione when a patient requires urgent reversal (ex: CNS bleed, trauma...). PCC4 can also be used for urgent warfarin reversal as it contains human factors II, VII, IX, X, and proteins C and S. It is important to note that PCC4 contains heparin; therefore it is contraindicated in patients with heparin-

induced thrombocytopenia. If PCC4 is given, phytonadione should be administered concurrently to help maintain factor levels once the effects of PCC4 have diminished. Oral phytonadione can be used for non-urgent reversal of warfarin. Other options include withholding medication, lowering doses, or fresh frozen plasma.

Direct reversal agents are not available for the newer anticoagulants. For non-urgent reversal, Christiana Care guidelines recommend to hold the medication and consider administration of activated charcoal if the last dose was given within 2 hours. PCC4 can be considered for off-label use for emergent reversal of all three agents. Unlike warfarin, the dose for reversal with PCC4 is not dependent on INR, but is dependent on body weight. In addition, phytonadione does not play a role in reversal of these agents therefore co-administration with PCC4 is not recommended. Prolonged dialysis is an option for the urgent reversal of dabigatran however dialysis is not an effective reversal method for apixaban or rivaroxaban as these agents are not as highly dialyzable. When reversing anticoagulation, it is imperative to consider the patient's thromboembolic risk versus the benefit of reversal. ●

REVERSAL AGENT	ROUTE	ADMINISTRATION	ONSET	MONITORING
Phytonadione	PO	5mg or 10mg- oral tablet Doses <5mg- use parenteral formulation for oral dose	6-10 hours (Full effect on INR 24-48 hours)	INR
	IV	Dilute in 50mL sodium chloride Do not exceed rate of 1mg/min	1-2 hours (Full effect on INR 12-14 hours)	INR, anaphylaxis
PCC4 (KCentra®)*	IV	0.12 mL/kg/minute Do not exceed 8.4 mL/min (~210 units/min)	Significant INR decline within 10 minutes	INR, hypotension, tachycardia, hypertension, thrombosis, pulmonary edema, headache
Activated charcoal	PO	50-100g orally or via OGT/NGT	Variable	INR, vomiting, diarrhea, constipation

*KCentra is provided by blood bank

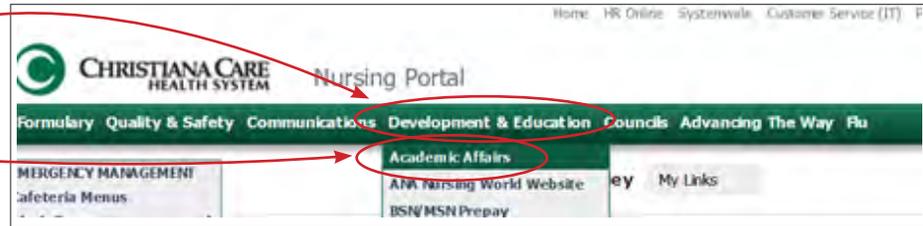
References:

1. Coumadin® (warfarin sodium) [package insert]. Bristol-Myers Squibb Company. Princeton, NJ. Revised 2011.
2. Vitamin K1 Injection (phytonadione injectable emulsion) [package insert]. Hospira. Lake Forest, IL.
3. Kcentra® (prothrombin complex concentrate). [package insert]. CSL Behring LLC. Kankakee, IL.

Q. HOW CAN I VERIFY THAT A RESIDENT/FELLOW IS APPROVED TO PERFORM A PROCEDURE AT CHRISTIANA CARE?

A. Information about approved procedures for a specific resident or fellow can be found on the Nursing Portal.

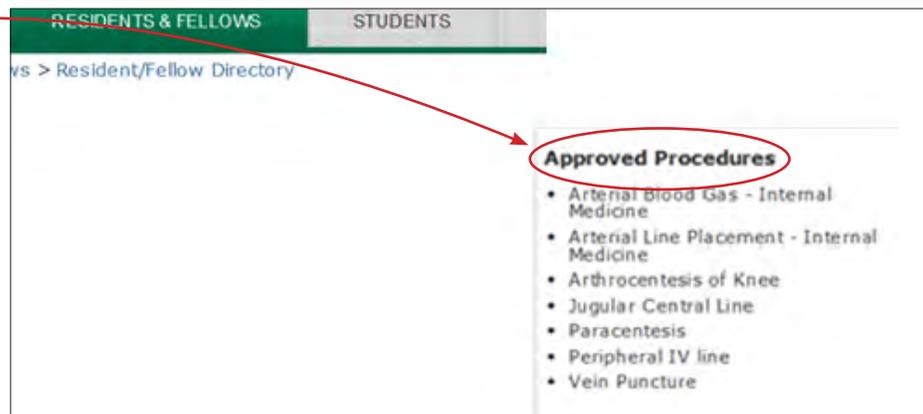
1. Go to **Development & Education** located on the green tool bar at the top of the portal; select **Academic Affairs**.



2. Select **Residents & Fellows** located at the top of the tool bar and then select **Resident/Fellow Directory** on the left side of the page.



3. Select a Resident or Fellow from the alphabetical listing.



4. A list of approved procedures will be on the right side of the page for the selected Resident or Fellow.

If you have questions about this Best Practice Review, please contact the content experts: Academic Affairs: 733-1042; or Safety Hotline: dial 7233 (SAFE) from within Christiana or Wilmington hospital, or 623-7233 from outside.



CHRISTIANA CARE COMPLIANCE HOTLINE

Christiana Care's Compliance Hotline can be used to report a violation of any regulation, law or legal requirement as it relates to billing or documentation, 24 hours a day, 7 days a week. Callers may remain anonymous. The toll-free number is: 877-REPORT-0 (877-737-6780).

✓ To learn more about Corporate Compliance, review the Corporate Compliance Policy online or contact Christine Babenko at 302-623-4693.

External Affairs
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Christiana Care is a private, not-for-profit regional health care system that relies in part on the generosity of individuals, foundations and corporations to fulfill its mission. To learn more about our mission, please visit christianacare.org/donors.



Is that a giant fishbowl?

This bubbly undersea environment is actually a wall projection in the atrium at Wilmington Hospital. As Deckard, Holt and Brooke demonstrate, the fish move and the coral sway as patients and visitors interact with the wall on their way to appointments and to visit loved ones. The display is supported by a gift from the Niziolek family in memory of a long-time Wilmington nurse "Miss Jean" Niziolek, BSN, RN. "It can make going to the doctor a little more fun," said Christiana Care Chief Transformation Officer Edmondo J. Robinson, M.D., MBA, FACP. See video of the interactive wall in action at <http://news.christianacare.org>. •