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These days, when Elizabeth Zadzielski, M.D., MBA, FACOG, helps a mother deliver her first child, she’s also thinking ahead. In a few years, if that mom comes to deliver her second child, the baby will be born in Christiana Care’s new Center for Women & Children’s Health—an expanded, state-of-the-art facility opening in 2020 and designed for the whole family.

The planned 400,000 square-foot, family-focused Center for Women & Children’s Health includes an eight-story building and state-of-the-art renovations to current space. Much more than bricks and mortar, this $260 million initiative signals a transformation of women’s and children’s care at Christiana Care, where generations of families in Delaware and the region have gotten their start.

“The Center for Women & Children’s Health will bring the whole family together,” said Dr. Zadzielski, clinical director for ambulatory women’s health and associate leader of the Women & Children’s Service Line. The center will feature private patient rooms—perfect for bonding, breastfeeding and learning to care for a newborn—larger labor and delivery suites, an innovative neonatal intensive care unit (NICU), a family-friendly rooftop garden and the respectful, expert care that is Christiana Care’s hallmark.

“Everyone wants an exceptional experience in the place they start their families, and this new center at Christiana Care represents the future of women’s and children’s health in Delaware,” said Amanda Sleeper, co-chair of Christiana Care’s volunteer Women & Children’s Patient and Family Advisory Committee. Representatives from the committee were part of the design team for the new facility. Their input helped to shape the final blueprints.

“For many years, Christiana Care has been committed to incorporating patient and family feedback, but this was a unique partnership that took our collaboration to the next level,” Sleeper said. “We are thrilled that it will result in a family-focused, engaging and community-friendly health care experience for women and children.”

The Center for Women & Children’s Health will continue to serve with the excellence that earned Christiana Care recognition from the U.S. Department of Health & Human Services as the region’s only National Community Center of Excellence in Women’s Health. Christiana Care is also the recipient of the John M. Eisenberg Patient Safety and

“We are bringing the full range of the health system’s expertise to women, babies and children. This significant initiative is part of our commitment to the healthy future of our community and our state.”

Janice E. Nevin, M.D., MPH
Quality Award and is No. 1 in Delaware and No. 3 in the greater Philadelphia region in U.S. News & World Report’s Best Hospitals national rankings.

“How people seek care where they feel safest and have the best outcomes,” said David A. Paul, M.D., chair of the Department of Pediatrics and clinical leader of the Women & Children’s Service Line. “The Center for Women & Children’s Health is not about just the building. It’s the foundation of our promise that babies can get the healthiest start and women can get the care they need to live healthy lives. The physical structure will complement the care inside.”

Much of that care will be focused on maternity. More than 6,300 babies are born at Christiana Care each year — more than anyplace else in Delaware. Christiana Care is also the state’s sole high-risk delivering hospital with a Level III NICU. All of that experience helps to create an outstanding care team.

“All of us want the very best for the newest members of our community and for their families,” said President and CEO Janice E. Nevin, M.D., MPH. “We are bringing the full range of the health system’s expertise to women, babies and children. This significant initiative is part of our commitment to the healthy future of our community and our state.”

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Integrated, family-focused care

Christiana Care’s next generation of women’s and children’s health focuses on patients and families, and also on population health. Designed by the architectural firm HKS, the Center for Women & Children’s Health will feature:

- **A welcoming, family-friendly main lobby** with soothing tones and patterns that will carry throughout the building.
- **Larger labor and delivery suites** and a new labor lounge, with waiting and visiting areas closer to labor and delivery areas.
- **Spacious private rooms for mother, baby and family after birth.**
- **A tranquil family rooftop garden** with welcoming outdoor seating and walking space.
- **Open community spaces** for health education and programs.
- **A leading-edge NICU** with private rooms offering sleep-in spaces for families.
- **Expanded continuing-care nursery** for babies with special needs.
- **Vibrant, playful spaces** with interactive displays and artwork.

The new building will adjoin the present-day two-story Women & Children’s building, which is being renovated to create a seamless experience.

“As we are designing the building, we are attuned to the changing needs of women across generations and how to engage women before, during and after they walk through our doors,” said Matthew Hoffman, M.D., MPH, FACOG, Marie E. Pinizzotto, M.D., Endowed Chair of Obstetrics and Gynecology.

One area of transformation is the approach to neonatal intensive care. The new NICU design is based on extensive evidence showing the health of premature babies improves faster when they have regular close contact with their mothers and family.
The original Delaware Hospital, which opened in 1890, became a pioneer in neonatal care, establishing a children’s ward in 1910 and the Mother’s Milk Bank, one of the first in the nation. A floor for maternity patients followed in 1924. An early adopter of the family-centered model in maternal care, the hospital opened a maternity unit in 1938. Next came private labor and birthing rooms in 1965. Maternity care moved to the new Christiana Hospital in 1985. And in 1995, the hospital opened the current Women & Children’s building.

members, said Dr. Paul. The new NICU will offer quiet, spacious private rooms for babies, with enough space for long visits and overnight stays for moms and dads — a dedicated investment in keeping babies and parents together that is rare across the country.

**Ready for the next chapter**

Christiana Care is building on a long history of leadership in women’s and children’s health care in Delaware, Dr. Hoffman said. “For more than a century, Christiana Care has been the premier choice for Delaware families to bring new lives into the world,” he said. “That is a sacred trust that we take deeply to heart.”

Christiana Care offers extensive support services through all stages of the maternity experience, from before conception through the first years of motherhood. These include a range of educational classes that prepare families for life with a newborn.

“I learned so much — from what I should eat to what changes I should expect in my body,” said Patricia Hall of Wilmington, who participated in Christiana Care classes and support programs for expectant mothers. She’s now the mother of three. “The classes were informative and interactive and really fun. I loved meeting women in the same shoes as me. By the time I had my first child, all of my questions had been answered. It was everything I needed.”

To make moms comfortable while they’re in the hospital, Christiana Care’s At Your Service provides concierge-like arrangements for in-room services like massages, manicures and pedicures, and food delivery from local restaurants. Other examples of supportive services for families include on-site car seat checks so babies can go home safely, and the Kitty Esterly, M.D., NICU Special Needs Fund that helps families stay close to their baby in the NICU and transition safely to home.

Christiana Care also guides women through the emotional experience of motherhood. As many as 20 percent of women develop postpartum depression or a related disorder, and the Christiana Care Center for Women’s Emotional Wellness provides much-needed behavioral health support services before, during and after pregnancy, including counseling, group therapy, medication and support groups.

**Healthy babies, healthy Delaware**

With attention to prenatal care, patient education and partnerships with community health organizations, Christiana Care makes significant contributions to the health of women and children in our community.
In the past year, Christiana Care has reduced NICU admissions of babies born at term and has reduced its primary C-section rate, which is a C-section for a first birth, often an indicator for subsequent C-sections.

To ensure continued positive outcomes, Christiana Care partners with community organizations, including Brandywine Counseling Services in Wilmington and Connections in Delaware, on primary and preventive care programs and services to set moms and babies on the path to good health.

Similarly, Christiana Care has made breastfeeding a priority. Evidence shows that breastfeeding exclusively for at least the first six months of life improves health outcomes for women and their babies, and lowers infant mortality rates. Christiana Care’s Breastfeeding Education and Resource Center provides emotional support, advice, tips and breastfeeding supplies to help moms who want to breastfeed.

“Breastfeeding can be daunting for mothers, and we want to help them be successful,” said Mona Liza Hamlin, MSN, RN, IBCLC, manager of Parent Education and Lactation Services and chair of the United States Breastfeeding Committee. “Education is important, and so are opportunities to connect with other moms and access to equipment like breast pumps. We’re making sure we provide all of the resources possible to help moms breastfeed well.”

For its dedication to promoting breastfeeding practices, Christiana Care earned a Baby Friendly designation, part of a global program of the World Health Organization and the United Nations Children’s Fund. And, according to a survey on maternity practices in infant nutrition and care by the U.S. Centers for Disease Control and Prevention, Christiana Care is a national leader in best practices in infant feeding.

Serving women across the course of life

Beyond healthy beginnings for families, Christiana Care provides a full spectrum of services for women of every age, from the teen years to the senior years.

To advance this nationally recognized care across the lifespan, Dr. Zadzielski is forming a committee of specialists from different service lines to explore ways of using the new Center for Women & Children’s Health to improve service for all women.

“Most of gynecology and non-obstetric women’s health care is provided in an outpatient setting and is specific to a health concern or need,” said Dr. Zadzielski. “We will look at how we can tie together all our services to make a more focused and comprehensive program that addresses a woman’s health along her lifespan.”

Innovative uses of technology offer opportunities to engage women, even when they are well and at home, in their gynecological health and other areas like bone health, mental health and heart health.

“Along with expanding our physical space, we’re developing online resources for women and children’s services,” said Dr. Hoffman. “We’re working to provide women with easy-to-access health information that will help them understand their own health and well-being and find resources to meet their needs.”

As the full transformation takes shape and construction advances on the Center for Women & Children’s Health, Christiana Care is poised for an exciting new chapter in the health system’s remarkable history.

“Come 2020, the Center for Women & Children’s Health will be the physical manifestation of a bold vision shared by Christiana Care and the community we serve,” said Dr. Paul. “This is where families are born.”
CHRISTIANA CARE RESEARCHERS MAKE A DIFFERENCE IN THE HEALTH OF WOMEN AND CHILDREN AROUND THE GLOBE

In addition to outstanding care for women and children, Christiana Care also has a strong reputation for education and research. More than 500 medical students apply each year to Christiana Care’s highly competitive OB-GYN residency program. And a robust clinical and health services research program is committed to improving health outcomes for women and children nationwide.

IN A LARGE NATIONAL STUDY, Anthony C. Sciscione, D.O., director of Maternal-Fetal Medicine at Christiana Care, is investigating this far-reaching question: Can children’s earliest experiences provide a window into their future?

To help answer it, the U.S. National Institutes of Health has awarded Christiana Care and a cohort of other health organizations $157 million in grants for the first year of the seven-year study “Environmental Influences on Child Health Outcomes,” or ECHO.

Christiana Care is part of a team from 40 states, the District of Columbia and Puerto Rico tracking more than 50,000 children to learn how a broad range of exposures, including air pollution and chemicals in our neighborhoods, societal factors such as stress, and individual behaviors like sleep and diet in the womb can affect health later in life and inform answers to long-asked questions about genetic and environmental factors on a child’s health.

In his portion of the study, Dr. Sciscione is investigating how more accurate ultrasounds may spot potential health complications for babies in the womb.
“We conduct research that really benefits our patients, that’s practical and broadly applicable and absolutely allows us to always be learning and improving,” said David Paul, M.D., chair of Pediatrics and clinical leader of the Women and Children’s Service Line. Christiana Care’s role as both a community hospital and a research institution makes it possible to shorten the length from publication of a finding to its clinical implementation — the so-called “bench-to-bedside” delay, typically reported to last more than a decade.

“The fact we participate in clinical research means we’re much quicker to adopt these practices,” said Matthew Hoffman, M.D., MPH, FACOG, Marie E. Pinizzotto, M.D., Endowed Chair of Obstetrics and Gynecology at Christiana Care. The difference between participating in a study and reading about it in a journal is comparable to the difference between learning to drive behind the wheel and learning to drive from a driver’s manual.

Research makes an impact

CHRISTIANA CARE RESEARCH ON WOMEN’S AND CHILDREN’S HEALTH has led to new approaches at the health system and beyond. “Once it’s in the medical literature, it allows health centers in the U.S. and internationally to apply it and build on it,” Dr. Hoffman said.

Based on research co-conducted at Christiana Care, mothers delivering late preterm infants, between 34 to 36 weeks, now receive corticosteroids before birth to reduce the incidence and severity of respiratory distress syndrome and mortality.


In addition to helping patients achieve optimal health, an institutional focus on research attracts staff who want to incorporate the latest evidence-based practices in their care.

“It’s attractive and important to both providers and patients that we advance the most current and innovative approaches to optimal health,” Dr. Hoffman said.

PEDIATRICIAN URSULA GUILLEN, M.D., is nationally known for her research on counseling parents facing an extremely premature childbirth. With Dr. Paul, Dr. Guillen is conducting a six-hospital study on informational cards she and her research team developed after more than five years of research and input from clinicians and parents of extremely premature babies. The study compares the effectiveness of consultations using the standardized decision tool to that of traditional consultations.

Looking ahead, Dr. Paul said the greatest opportunity for gains in good health will come from research done outside the hospital. He said most models show that only about 20 percent of health is determined by what happens in a health care setting. In the effort to reduce Delaware’s above-average infant mortality rate, the focus should be as much on the social determinants of health as the medical ones.

AN IMPORTANT ELEMENT OF OPTIMAL HEALTH IS HEALTH LITERACY, which combines the ability to read words and understand numbers. A Christiana Care team, with principal investigator Amy Mackley, MSN, RNC-NIC, CCRC, examined health literacy among mothers and fathers in the neonatal intensive care unit using a six-question quiz about a nutrition label. As reported in Advances in Neonatal Care last year, they found 43 percent of new parents may have limited health literacy. They recommended the “teach-back” method where patients teach back a procedure or explanation to the doctor or nurse who explained it to them. This process helps to ensure that the patients understood what they were taught.

RECENTLY, DR. PAUL AND DR. HOFFMAN were part of a Christiana Care team that found a link between a mother’s mental illness and the likelihood that her newborn will be hospitalized or need emergency care. They discovered that infants born to mothers with a diagnosed mental illness other than bipolar disorder or depression were about four times as likely to be hospitalized than babies born to mothers without mental illness.

Around the world

THE RESEARCH TEAM IS ALSO PARTICIPATING IN A NUMBER OF INTERNATIONAL STUDIES, including:

• Lowering vaginal infections to prevent preterm births.
• Training birth attendants in developing nations to administer life-saving corticosteroids.
• Using aspirin to prevent preterm births.

Dr. Hoffman is lead investigator in the aspirin study, which involves nearly 12,000 women in Guatemala, Zambia, Pakistan, India, Kenya and the Democratic Republic of the Congo.

The research should readily translate to Delaware, he said. “It’s a low-cost intervention that, if positive, would have profound population health effects here.”

Reducing premature birth, which has health implications echoing long past childhood, would improve health in virtually every way.

“This is where it begins,” Dr. Hoffman said. “If we can help children achieve optimal health from birth, health opportunities throughout the lifespan grow tremendously.”
For generations of Delawareans, their family story starts at Christiana Care. Serving as respectful, expert, caring partners in the health of our neighbors calls us to constantly ask what more we can do for them. Are we doing our best — the best — and where can we do better?

Our women and children’s health transformation project, launched in 2015, is a direct response to these questions. The project’s cornerstone is a new building, opening in 2020, and renovations to our 22-year-old current building.

When completed, the Center for Women & Children’s Health will integrate OB-GYN, maternity and pediatric care in an eight-floor tower. Having these distinct yet interconnected areas co-located will make us better able to care for women, babies and children with efficient clinical interactions and effective care practices.

Even as we are designing the building, we are establishing new systems of care. The new Center for Women & Children’s Health, designed for high operational efficiency and peak clinical performance, will promote optimal care and prepare new and growing families for success.

One area of transformation is in our Neonatal Intensive Care Unit (NICU). Overwhelmingly, research-based evidence tells us that premature babies have better health outcomes when they have close regular physical contact with their mothers and families.

Ours is the only high-risk delivering hospital in Delaware offering a Level III NICU. Although one of the highest levels of care available, the current NICU is a traditional open bay concept — multiple incubators in one space. Though families can visit, the layout isn’t conducive to quiet, intimate, skin-to-skin bonding.

The new NICU will feature private rooms for babies and mothers with enough space for long, comfortable visits and for parents to “room in.”

According to a Cornell University study published earlier this year in the Journal of Intensive Care Medicine, a private room-NICU not only has positive effects on a baby’s health, it promises cost savings for health systems implementing such design. The research found even though initial construction and ongoing operations costs for private rooms are higher than an open-bay plan, the health of babies in private rooms improves faster, lowering the long-term cost of care. On average, hospitals can gain $1.30 to $1.80 for every dollar invested in private rooms by saving on the costs of longer hospitalizations, medications, personnel and other services and supplies.

This design is a synergistic transformation in both where we administer care for at-risk babies and how we administer this care. It will enable us to fulfill the health system’s promise to create innovative and effective systems of care that our neighbors value. Note my emphasis on the word value. Value includes quality, safety, accessibility, affordability, efficiency and effectiveness.

Beyond the NICU upgrade, we are also exploring ways of shaping our systems of care to meet the evolving needs of patients and communities.

On-site, as a start, we believe creating a positive experience during prenatal care and on our maternity floors ignites engagement. And because many of our families have children, our new building will be a child-friendly place to visit — a place to which they want to return.

We believe that this experience will translate to an active partnership throughout a woman’s life. We will do this through comfortable common areas, a clinical shared space that will support women’s health programs and by expanding our virtual approach to women’s health care. We believe that this approach will help us to better understand women’s health issues as well as provide trusted resources throughout the community.

With this approach we hope to connect with patients in the ways that they want to be engaged and make them aware of the many resources that are available through our community partners. Women’s health care and the resources to meet the needs of women extend beyond any building. By virtually partnering with trusted resources we will be able to deliver high value accessible care even beyond our walls.

These are only some of the foundational Women & Children’s Service Line transformations to come by 2020.

Every day, research, observation and patient input provide new insights into population health and women and children’s care. Once the last brick is laid on our new building, the space will spark conversations and equip us to explore and advance cutting-edge approaches to nurturing healthy women, children and communities.
Christiana Care Early Warning System shows promise in impacting quality, safety

Just a few months into a phased rollout of the Christiana Care Early Warning System, its developers within the Value Institute are receiving positive feedback from frontline health care providers.

CEWS, an innovative system designed by Christiana Care, provides a standardized measure of patient acuity that helps proactively identify patients who are at risk of deteriorating physiologically, to support their timely care and improve outcomes. The system, developed by the Christiana Care Value Institute in collaboration with the Acute Medicine Service Line, Nursing, Information Technology and the Office of Quality and Patient Safety, captures real-time

“CEWS is the second pair of eyes watching out for our patients.”

Sherry Zurlo, MSN, RN, PCCN
electronic patient information and visualizes acuity by using CEWS values and trends. CEWS triggers real-time alerts then gives care providers relevant information about patients’ current CEWS values, including 24-hour score trends and clinical recommendations.

“CEWS is the second pair of eyes watching out for our patients,” said Sherry Zurlo, MSN, RN, PCCN, from the 6S stepdown unit at Wilmington Hospital. “It’s been great to have that added layer of protection for them, sometimes picking up on subtle changes I might have missed otherwise.”

CEWS has been operational since May 30 in five inpatient units at Christiana and Wilmington hospitals.

“The feedback we’ve received from frontline providers is positive,” said Muge Capan, Ph.D., associate director of health systems optimization for the Value Institute. “Nursing and providers use CEWS in their communication and utilize it as a clinical decision support tool.”

Although data analysis still is under way, anecdotal evidence from pilot units using CEWS is positive.

For example, frontline providers have shared that they like seeing the CEWS value as an additional piece of clinical information that can help to alert the team when a patient might need increased observation.

The rollout also has identified some opportunities to improve the system, Capan said, including adjusting alert frequency, modifying the system for chronically ill patients and educating staff outside the pilot units about CEWS.

Ensuring the effectiveness of alerts while guarding against “alarm fatigue” — the desensitization and reduced response that can happen when alarms are too frequent — has been an important area of focus throughout the project’s design.

A multidisciplinary team of clinicians including the Evidence Based Nursing Practice Council, health information technology experts, industrial engineers and human factors experts assessed this issue by developing and evaluating three different alert frameworks based on historic data.

Additionally, the team identified opportunities to clarify and standardize some nurse screening assessment elements to potentially enhance their usability and interpretation to better predict patient deterioration.

The team also identified opportunities for staff education about CEWS in relevant areas outside the pilot units to enhance awareness. For example, the team identified the need for expanding distribution of CEWS education to raise awareness in certain procedure-based locations, such as dialysis. Since a patient’s location does not change in the electronic health record when he or she is temporarily off their unit due to dialysis procedures, CEWS alerts and tasks can fire while the patient is outside of the CEWS pilot unit receiving dialysis.

The team is collecting and analyzing feedback and patient data, including outcomes from the pilot units, which will inform the next steps in the phased rollout. CEWS will gradually be expanded to medical, surgical, stepdown and rehabilitation units.

Four interdisciplinary working groups comprised of clinicians, investigators and employees in information technology, education, nursing, and quality and safety, are working on CEWS implementation under the guidance of the Committee for Acute Medicine and Early Recognition of Adverse Events (CAMERA) and executive sponsorship of the Clinical Value Council Executive Committee.

“The feedback we’ve received from frontline providers is positive. Nursing and providers use CEWS in their communication and utilize it as a clinical decision support tool.”

Muge Capan, Ph.D.
Paired kidney exchange draws Christiana Care patients to special meeting

A deep sense of gratitude for the life-changing gifts they’d exchanged brought four people from around the country to a northern California restaurant on June 19. Two had received kidneys and the other two had given them in a series of operations in early 2013. Among them were donor and recipient Ed and Mary Coyle, a Pike Creek couple whose surgery took place at Christiana Care.

Because Ed couldn’t give Mary a kidney directly, he instead gave one to a stranger. In exchange, Mary received a compatible kidney from another person she didn’t know.

“I needed this man to understand how critical he was to saving my life,” Mary Coyle, a school librarian, said of Jason Klobchar, the San Diego man who donated a kidney to Mary.

Jody Campbell, the Modesto, California woman who received Ed’s kidney, brought her three children and four grandchildren to the June 19 meeting.

“I wanted Ed and Mary to see the gift that Ed had given me and how it had allowed me to see my daughters be married and my grandchildren be born,” said Campbell, whose relative donated a kidney, enabling her to join the paired donation exchange.

“I probably wouldn’t have been here without that gift.” It was, Mary Coyle said, a meeting of “chicken fingers and crying.”

The Christiana Care Kidney Transplant Program has participated in several of these paired kidney transplants since it began in 2007. Without these exchanges, Mary Coyle could have spent years waiting, in pain and frailty, for a kidney from a deceased donor.

“I remember not being able to get into church without taking a deep breath and being so tired,” she said.

Meetings like the one Mary helped organize in June are rare. Some donors are reluctant to form a relationship with the strangers who received their kidney. Many prefer to think of their donation as a gift to the loved one who received a kidney as a result. But this connection was driven by an abiding desire from both Mary Coyle and Jody Campbell to look their donors in the face and thank them.

A curated connection

Mary Coyle received her kidney at Christiana Hospital on Jan. 22. About 10 days would elapse before Campbell was ready for Ed’s kidney, so his operation had to wait. The fact that he went through with the donation, even after his wife received a kidney, speaks volumes about his character, Campbell said.

Though these four chose to meet, protecting the privacy of donors and recipients is of paramount importance to the Christiana Care team. As is typical in transplants at Christiana Care, Mary Coyle’s first contact with her donor was mediated by a social worker. Often, a recipient will mail a thank-you card, though it cannot include details that would identify the recipient or include contact information. Then, if a donor wants to have a conversation, a return card can be mailed through the hospitals.

“It’s like a stepping stone to regular communication,” said Emily Pruitt, MSN, RN, living donor coordinator at the Christiana Care Kidney Transplant Program.

After time has passed, the parties can communicate on their own. Campbell, who was curious from the start about her donor, reached out to Ed about a year after their surgery. Jason Klobchar, of San Diego, likewise sent Mary Coyle an e-mail about six months after their surgeries. Eventually, they decided to meet.

“All the kidneys were in the same room,” Mary Coyle said. “It was four of us in a room laughing, talking, taking pictures and marveling at our journey. I won’t say I didn’t cry, because I had been waiting for this for a long time.”

Klobchar, the San Diego man whose kidney was transplanted in Mary Coyle, said the transplant led him to eat better and exercise more.

“You’re more aware of your health,” he said. “You don’t have that second kidney, your insurance policy kidney,” he added, laughing.

He donated his kidney so that his sister, to whom he could not donate directly, could receive a kidney. Klobchar said his sister, who could not make the June rendezvous, does not know who donated her kidney because that person wishes to remain anonymous.

Linked by kidney

Because it is simpler and quicker, a direct kidney donation is a patient’s first choice. But incompatible blood types are not the only potential barriers to direct donation, Pruitt said.

Pregnancy, blood transfusions and previous transplants expose potential recipients to foreign factors called human leukocyte
antigen (HLA) that are found on human cells. Recipients may respond by producing antibodies to HLA that are harmful to their new transplant if the antibodies match the HLA factors of the kidney donor. A test called a crossmatch is done to prove that each donor is safe for the recipient. Ms. Coyle had all three risks for antibody formation and developed many HLA antibodies that prevented her eldest son, her sister and her husband from directly donating to her based on this crossmatch.

Mary Coyle already knew about paired kidney donation, and immediately considered it as an option. Many other prospective recipients resign themselves to years of waiting if they are not a match for a loved one. That’s why Christiana Care’s Kidney Program discusses paired kidney donation from the very start, so that patients have it as an option if direct donation isn’t an option.

“What we’ve started to do is place education on paired kidney donation in the first packet patients receive and our first discussion after compatibility,” Pruitt said.

So, in late 2012, Mary Coyle’s medical information — her blood type, antibodies, and more — was placed in a database of potential donors and recipients. The computer compiled a list of potential donors, which was then screened by her Christiana Care medical team to find the best possible match.

Then, one day, a match offer arrived via e-mail. And events moved quickly, as medical centers from across the country compiled information and reserved space in their operating rooms.

Managing match offers is multidisciplinary and multidepartmental work, Pruitt said, with a tight deadline attached. It’s all the more pressing because if even one match is rejected, the whole chain of transplants is at risk of falling apart.

If each transplant program accepts, they send blood samples to each other’s labs. A few days later, if the match holds, the kidneys are removed from their donors, flown across the country and are transplanted into their respective hosts.

The operations can happen simultaneously but, as in the Coyles’ case, don’t always. Delays between a couple’s transplants can work out for the best, Pruitt said, because one partner can recuperate, then care for the other.

After Mary Coyle’s operation, she awakened to the sight of one of her surgeons, Velma P. Scantlebury, M.D., FACS, associate chief of transplant surgery, waiting.

“That’s dedication, and you can’t get that anywhere else,” Mary Coyle said. “I don’t feel at all that I’m a patient there as much as part of the family.”

Finding a champion

Finding a kidney from a living donor should always be the first choice for a potential recipient. Since they’re taken from healthy adults, kidneys from living donors tend to last years longer than those from deceased donors. Even more daunting is the waiting — someone on a kidney donation list can expect to wait between six and eight years on average.

However, searching for someone to donate on your behalf requires difficult conversations.

The transplant program holds training sessions to help people find living donors, as well as what it calls a “Living Donor Champion.” This is a person who does not donate their kidney, but who can advocate on the patient’s behalf and spread the word.

“There’s somebody in your life who’s willing to do it,” said S. John Swanson III, M.D., FACS, chief of transplantation surgery at Christiana Care.

Getting yourself back

After months of using the elevator to get around her school, Downes Elementary in Newark, Coyle relished the chance to use the steps.

“Having that energy back and feeling like myself again was so awesome,” she said.

It was only after she returned that her colleagues told her how grey she’d looked before her surgery. Medically, she lives a normal life, which is all she really wanted, but still has one serious responsibility — being a steward of her gift.

“I work extremely hard to take care of it,” she said.
Christiana Care Health System is harnessing its information technology expertise to engage patients in their care, streamline the services they receive and tailor care to suit each individual’s needs. Christiana Care has again been recognized by the American Hospital Association, in its 19th annual Health Care’s Most Wired Survey, as a health system on the forefront of adoption and effective use of technology.

“Technological innovation helps us orient ourselves toward providing value-based care,” said Randall Gaboriault, MS, chief information officer and senior vice president of Innovation and Strategic Development. “We’re investing in the resources to engage our patients in their care by giving them the ability to take ownership over their health records and communicate with providers on their own terms.”

Most Wired award recognizes Christiana Care’s leadership in tech innovation
Christiana Care is one of only about 425 hospitals, out of more than 5,000 in the country, recognized for its information technology adoption with the Most Wired designation.

“One of our biggest strengths is that we are working closely with our electronic health record system supplier, Cerner, to make the system better, not just for us, but for our entire industry,” said Timothy Shih, M.D., Christiana Care’s chief medical information officer.

For example, Christiana Care was the first health system in the country to pioneer a new, multidisciplinary discharge workflow it developed with Cerner. The effort grew out of the realization that existing discharge instructions were confusing to patients. A clinical team improved the appearance and design of the new instructions, which were standardized across departments. Meanwhile, a Cerner team used that process to help roll out the enhanced system functionality for all of its clients.

“We have furthered our investment in our integrated electronic health record system through a recently signed multiyear strategic alignment with Cerner, one of the premiere health information technology suppliers,” said Lynne McCon, vice president of IT Application Services for Christiana Care. With this unique alignment with Cerner, Christiana Care is finding new ways to apply the judicious use of technology to meet its strategic goals — especially improving the coordination and delivery of care while reducing its cost.

One way to lower costs is to consolidate all of a patient’s records in one place, so that a clinician quickly and easily can see what’s been done before. For example, the integrated Cerner electronic health record system captures health information at Christiana Care’s Center for Heart & Vascular Health and Medical Aid Units. During the coming months, Christiana Care’s primary care practices and specialty practices will merge under the new Cerner electronic health record system.

Convenient access to a patient’s medical records is one way to avoid duplication of care, according to John T. Powell, M.D., associate chair of Emergency Medicine. When he scans a patient’s records, he can study previous orders and results. Dr. Powell also can click an icon in the Cerner tool that opens the patient’s chart in the Delaware Health Information Network. He then can choose to pull forward information from care delivered in non-Christiana Care settings into the patient’s Christiana Care electronic medical record.

“I don’t have to leave the health record and use a different login,” he said. “They’ve eliminated that barrier.”

For example, if a patient enters the emergency department with a severe headache, Dr. Powell may decide to order a CT scan. But if he notices the patient already had such a scan in the past few days, he may decide it’s not necessary to do another.

“If I can see what other people have done in the past, that might allow me to streamline their care,” he said.

Technology improvement is repetitious, Dr. Powell said, and Christiana Care’s partnership with Cerner allows it to keep improving.

In one case, when lab reports were pulled into patients’ records, there was no way to tell at a glance if the readings were within normal ranges. Because Christiana Care works with Cerner, it was able to make the small but meaningful change of color-coding these values in patients’ charts, just as they are in the original lab data. | CONTINUED
Data security means patient safety

Anahi Santiago, chief information security officer for Christiana Care, said data security is, at its core, more about patient safety than technology.

“Everything we do, day in and day out, is to protect our patients and their safety,” Santiago said. “Just as clinicians worry about patient safety, so do we.”

The No. 1 threat to systems continues to be phishing — fraudulent e-mails to employees that trick them into clicking an innocuous link that is meant to steal sensitive information.

To help employees remain vigilant, Christiana Care uses a tool that sends out quarterly e-mails to its users that are designed to resemble fraudulent messages.

“We don’t make the e-mails look very good,” Santiago said. “We still make it a little bit obvious that they’re not legitimate.” If users click the link — to, perhaps, claim their package from “EdFex” — they receive a message about the deception and are given information on how to detect fraudulent e-mails.

“Hackers are going after people,” Santiago said, “they’re not going after the technology.”

Christiana Care also prepares its employees for what happens when the technology doesn’t work, as in a mass Internet outage or network unavailability.

Paving a digital path

Tasked with decreasing unnecessary variation in care, Christiana Care’s service lines and information technology professionals are collaborating to embed logic into the electronic health record system to guide clinicians toward optimal care using clinical pathways. These pathways can be tailored to each patient’s needs and respond to their individual circumstances. It is, Dr. Shiu said, the next level of advanced decision support.

Another effort uses the patient’s real-time data to predict clinical deterioration and reduce preventable death. It starts with an algorithm created by the Christiana Care Value Institute to predict hospital patients at risk of a medical emergency. That algorithm is at the heart of the Christiana Care Early Warning System, which harnesses vital signs, nursing documentation and other patient data to alert physicians when a patient is at risk and may require a higher level of observation or care.

Soon, a patient’s health records will be communicating directly with their IV pumps, Dr. Shiu said. As it happens today, a nurse programs the pumps based on a patient’s health records. Later this fall, this process will be automated so that the health record software can communicate directly with the IV pump and “order” drug administration.

On the agenda for the coming year are new ways to help patients participate in their care.

The team is creating new ways for patients communicate with their providers, schedule appointments and manage their health records. That way, they can validate the information in those records and upload data they collect, such as readings from a blood glucose monitor.

It’s part of the drive toward a value-based approach that measures success by maintaining health instead of by counting visits, tests and procedures.
CareRef app streamlines Christiana Care clinicians’ access to evidence-based guidelines

CareRef, a cloud-based application created by Christiana Care, is an innovative resource that allows clinicians providing direct care to patients to readily access the latest evidence-based guidelines and pathways of care specific to Christiana Care Health System.

The iOS and web app was developed completely in-house by the Health & Technology Innovation Center at Christiana Care and is available in Apple’s App Store.

CareRef provides effective, efficient, secure communication of clinical pathway guidelines and serves as the single source of truth for physicians, with governance over how the content is managed and updated over time. The app is the result of a two-year collaboration between the Innovation Center and clinical leaders, who examined how they reference clinical guidelines at the point of care.

“It’s a model for best practice when you develop a new technology to partner with the end user,” said Neil Jasani, M.D., MBA, FACEP, chief people officer. “You want the end user to drive the design process because the end user is the person at the bedside with the patient.”

The mobile reference tool can be accessed anywhere via iPhone, iPad, laptop or desktop computer. Having ready access to guidelines supports the health system’s commitment to excellence through evidence-based pathways of care.

“CareRef supports Christiana Care’s efforts to ensure the right care, with the right people involved, at the right time, for every patient,” said Randall Gaboriault, chief information officer and senior vice president of Innovation and Strategic Development.

Developing the content and feel of the app was a creative, collaborative process.

“We met with clinical leaders from different areas of the health system, led by Dr. Jasani,” said Catherine Burch, Innovation Center director. “We spent a lot of time with physicians. We shadowed; we surveyed; we talked.”

During the process, the teammates learned that doctors were relying on their personal reference systems.

“Clinicians were carrying all kinds of references, including pieces of paper, or storing information in their e-mail,” said Lisa Maxwell, M.D., associate chief learning officer. “Sometimes, they weren’t the most up-to-date guidelines or the guidelines we already have at Christiana Care.”

Developing the app also required input from the IT Governance Council, the IT staff, iLEAD and service lines across the system. More than 100 clinicians participated in a proof-of-concept trial.

“It was homegrown, so we were able to develop the app successfully and at a much lower cost,” Dr. Maxwell said. Because the app was developed in-house, there were no licensing or developing fees.

“Because it is a source of truth, there is very strict governance as to what goes on it,” Dr. Jasani said. “It could be the cornerstone for how we deliver clinical information.”

The app will continue to be updated with new information, and new features and design enhancements are already being planned.

CareRef is available to any user with a Christiana Care login, said Lori Dell’Oso, project manager at iLEAD. CareRef can be accessed onsite and remotely from the app or the intranet portals.●
Kind to Kids honors Christiana Care for service to youngest, most vulnerable neighbors

The Wilmington-based Kind to Kids Foundation, which provides emergency support for Delaware children transitioning to foster care and community-based life skills programs for at-risk youth, honored Christiana Care Health System with its 2017 Corporate Service Award. The award recognizes Christiana Care’s commitment to the health and wellness of children throughout our community.

“Christiana Care is deeply committed to caring for our community at every age and stage of life,” said President and Chief Executive Officer Janice E. Nevin, M.D., MPH. “The inspiring ways Kind to Kids serves our community helps us do our work better in caring for our youngest, most vulnerable neighbors.”

Christiana Care is a leader in health and wellness services and outreach for children of all ages, economic and social circumstances. Among its services are prenatal care and neonatal support, well-baby services, pediatric-ready emergency care and inpatient pediatric care, and community and school-based care for chronic illnesses, physical disabilities, and psychological and neurological disorders.

Christiana Care offers a Healthy Beginnings program to reduce Delaware’s premature birth and infant mortality rates, reading encouragement programs, the Camp FRESH youth program, school-based health centers and First State School for chronically ill students. Christiana Care also serves youth in partnership with community partners including the Delaware Division of Public Health, University of Delaware, New Castle County Public Schools, Safe Kids Delaware, Sunday Breakfast Mission, Arsht Cannon Foundation, United Way, Hope Commission and the Healthy Neighborhoods Committee of the Delaware Center for Health Innovation.

Through a $260 million enhancement project, Christiana Care is transforming health care for women, children and infants throughout the state. A new eight-story Women and Children’s building, expected to open on the Christiana Hospital campus in 2020, will feature a new neonatal intensive care unit and continuing care nursery specializing in care for infants exposed to opioid drugs during pregnancy.

Accepting the award on behalf of Christiana Care was Douglas P. Azar, MHA, senior vice president, strategic clinical integration.

“Christiana Care recognizes the complexity of the childhood and adolescent years, and we are committed to providing our youngest neighbors with the high-quality, diverse array of programs and services that offer a needed helping hand while respecting their unique needs,” Azar said. “Working with dedicated community partners, such as Kind to Kids, is a powerful way for us to serve and support Delaware’s children with excellence and love.”
On Aug. 24, Janice Nevin, M.D., MPH, president and CEO of Christiana Care Health System, along with Delaware Gov. John Carney, attended a kickoff event at Highlands Elementary School in Wilmington for the Basic Needs Closets Initiative. Christiana Care is a partner in this vital program that helped to stock closets in 45 schools throughout Delaware with school supplies, hygiene products and clothing for high-needs elementary and middle school students.

“Christiana Care is proud to support the Basic Needs Closets Initiative, and we appreciate this opportunity to partner with Gov. Carney to support students and families at schools across our community,” said Dr. Nevin. “Our commitment to serving our neighbors includes making sure students have what they need to succeed in school so they can get a good education and lead healthy lives.”

The Basic Needs Closets Initiative is a program led by Gov. Carney and the state of Delaware in partnership with Delaware educators, businesses, health care institutions and nonprofit organizations.
Outreach events help more than 300 children with back-to-school needs

More than 300 children went back to school with a healthier outlook, thanks to two outreach events where Christiana Care partnered with community groups.

At Wilmington Hospital, Christiana Care Health Ambassadors helped kids get ready for the classroom. About 175 children and their parents turned out for the Healthy+Cool = Back2School event Aug. 19 at the hospital annex at 14th and Washington streets.

“We’re devoted to helping to raise healthy families and this was a great opportunity to focus on children and their developmental milestones,” said Carla Aponte, MS, Health Ambassadors program manager.

By taking care, education and other resources directly to the community, Christiana Care helps neighbors become active partners in their health.

The event also was a chance for kids age 13 and younger to gather supplies from Christiana Care and community partners. Youngsters took crayons, pencils, erasers, markers, notebooks, paper and rulers home in new backpacks.

Families enjoyed hotdogs, ice cream and bottled water. There were free blood pressure screenings, and representatives from New Castle County Libraries helped parents sign up for library cards. Young adults from Camp FRESH, a Christiana Care program that teaches teens to make healthy choices, played games with the kids.

“We’re devoted to helping to raise healthy families, and this was a great opportunity to focus on children and their developmental milestones.”

Carla Aponte, MS
That same day, two first-year dental residents from Christiana Care, Ryan Graham, D.D.S., and Andrew Gschweng, D.M.D., volunteered to give exams to children at a back-to-school rally at the Sunday Breakfast Mission, a shelter for homeless people in Wilmington.

“These residents realize the importance of doing community work and are generous in giving their time,” said Susan Pugliese, D.D.S., general practice dentistry residency program director. “In addition to providing quality care, they are bringing an awareness that dental health is as important as medical care.”

In all, 149 children were screened. Kids also got a lesson in proper brushing and the importance of dental hygiene.

Of the youngsters who were examined, 91 had no problems, 41 were in need of routine care and 17 had urgent problems, such as multiple areas of decay or infection in the gums.

Christiana Care Social Worker Linda Brennan-Jones followed up with parents to ensure kids get the care they need, connecting them with dentists who can help, including the Edwin L. Granite, D.M.D., Oral and Maxillofacial Surgery & Hospital Dentistry Clinic at Wilmington Hospital, which offers discounted or free treatment to patients who qualify.

“One child came into our clinic last week, and we expect there will be others,” she said. “It’s our hope that this will result in these children getting regular dental checkups.”
At Conrad Schools of Science, students can now conveniently receive immunizations, mental health care, nutrition counseling and other health services, all within the walls of their school. Conrad is the latest school-based health center operated by Christiana Care.

“It’s a great program and a wonderful addition to the school,” said Dr. Mervin Daugherty at the official ribbon cutting for the center, Sept. 7.

Wellness centers help students age 12 and older to overcome obstacles to receiving quality health care, such as lack of transportation, inconvenient appointment times and worries about cost and confidentiality. Working with each student’s health care provider, parents and school nurse, wellness centers provide comprehensive medical care, mental health care, treatment and health education.

Conrad Schools of Science, a life-science magnet school in Newport, educates students in grades six through 12. It’s the third school in which a Christiana Care school-based health center serves middle-school students in addition to high school students. The others are John Dickinson School and Cab Calloway School of the Arts. In all, Christiana Care operates 16 school-based health centers in six school districts.

The health center at Conrad began serving students on April 3. During the 2016-17 school year, 109 of Conrad’s 1,195 students were registered to receive care at the center — 9 percent of the student body. The center logged 84 visits for medical care, mental health care and nutrition counseling.

For the 2017-18 school year, 202 out of 1,174 students are registered, 17.2 percent of the student body.

“The more the students see us, the more comfortable they will be,” said Michael Peyton, LCSW, the coordinator and senior social worker at the center. He expects that number will grow.

A number of students have come to the center to receive physical exams for school sports programs. Students can consult a nurse practitioner for such services as health screenings, reproductive health care, weight management and minor injuries and illnesses. Services also include crisis intervention and suicide prevention, drug and alcohol counseling, and individual, family and group counseling.

The centers are operated by a partnership between Christiana Care, the school districts and the Delaware Division of Public Health, Department of Health and Social Services.
Ryan Kowash knew he wanted to be a doctor. Through the skills and insights he gained in an innovative partnership at Christiana Care, he learned that research also should be part of his future.

"Before this program, I had an interest in research, however, I did not see it as being a piece of my career," said Kowash, a biochemistry and molecular biology major at Dickinson College in Pennsylvania "But now I hope to combine my work in medicine along with research."

Kowash is one of 21 Delaware IDeA Network of Biomedical Research Excellence (INBRE) affiliated scholars who assisted their mentors, Christiana Care health professionals, in researching such important topics as team communications in the cardiac catheterization lab and ensuring that outpatients who have uncomplicated seizures receive follow-up care.

On Aug. 11, the undergrads took part in oral and poster presentations at the 2017 Scholars Research Day & Luncheon at the John H. Ammon Medical Education Center.

The event was the culmination of their work over the summer. The results of the scholars’ research has the potential to be published and make an important impact on care, said Delaware INBRE site principal investigator Scott Siegel, Ph.D., who is also the director of Population Health Psychology with the Office of Transformation at Christiana Care.

"We have a whole range of projects that are clinical in nature," Siegel said. "The types of research that these students and their mentors are doing are completely in line with our core mission of improving health, using resources wisely."

21 Delaware IDeA Network of Biomedical Research Excellence (INBRE) affiliated scholars participated in the summer research program.

Scott Siegel, Ph.D., director of Population Health Psychology with the Office of Transformation at Christiana Care, opens the 2017 Scholars Research Day & Luncheon at the John H. Ammon Medical Education Center.
Seema Sonnad Young Researchers Award 3rd place winner Merwah Shinwari, 1st place winner Malia Green, and 2nd place winner Umma Fatema.

Malia Green worked with her mentor, neurologist John Pollard, M.D., on a study analyzing the impact of a follow up clinic for patients with uncomplicated seizures initially seen in the emergency department.

Ryan Kowash and Gabriel Masters were mentored by Drs. Shirin Modarai, Lynn Opdenaker and Bruce Boman (not in picture) of the Center for Translational Cancer Research (CTCR) at the Helen F. Graham Cancer Center & Research Institute.

“The types of research that these students and their mentors are doing are completely in line with our core mission of improving health, using resources wisely and effectively, and always improving our clinical enterprise.” — Scott Siegel, Ph.D.
and effectively, and always improving our clinical enterprise.”

Reflecting Christiana Care’s values of Excellence and Love, program leaders worked to ensure diversity and inclusion among the scholars to reflect the population of Delaware and under-represented groups. For the first time, the majority of students come from under-represented groups.

“This is probably the strongest group of scholars we have had,” Dr. Siegel said. “We also have great volunteer mentors who are members of our clinical faculty.”

INBRE and The Value Institute collaborate to present the annual luncheon and networking event, where student researchers provide their findings on research topics aimed at improving the delivery of health care in partnership with their Christiana Care mentors.

The summer scholar’s program is funded by INBRE and the Delaware Economic Development Office, said Lauren Pigeon, CPhT, DE INBRE research project manager. Fifteen of the 21 scholars were funded through the INBRE program in collaboration with the Value Institute. Two students participated through the Value Institute’s Harrington Fund Student Summer Research Scholarship. One student was funded through the Seema Sonnad Research Fund. One student was a voluntary research intern, and two students were funded by an INBRE pilot grant.

Kowash and Gabe Masters worked with Shirin Modarai, Ph.D., Bruce Boman, M.D., Ph.D., and Lynn Opdenaker, Ph.D., of the Center for Translational Cancer Research at the Helen F. Graham Cancer Center & Research Institute. They studied the impact of various isoforms of a cancer stem cell marker for colon cancer growth.

Masters, a molecular biology major at Hamilton University, was impressed with the opportunity to perform hands-on research. He learned the importance of building a strong relationship between the researchers at the bench and the doctors at the bedside.

“Communicating the findings to others who may not work in a lab setting is critical because not everyone knows the terminology and techniques used in the lab,” he said. “Working with scientists in the lab and meeting with doctors in the clinical setting helped me understand the need for proper communication between these two.”

Kowash experienced firsthand how doctors use research discoveries to develop a plan of care for patients.

“I was able to attend the weekly tumor board at the Graham Cancer Center, as well as shadow physicians,” he said. “My work has taught me just how frustrating research can be but also how rewarding it is when your results, especially as an undergraduate student, do matter.”

Malia Green, a biosciences major at Delaware State University, worked with John Pollard, M.D., a neurologist, on a retrospective study analyzing the impact of a follow-up clinic for patients with uncomplicated seizures who were initially seen in the emergency department.

Their analysis showed that patients entered into the Uncomplicated Seizure Clinical Pathway were more likely to follow up with a neurologist, allowing for continuation of care and anti-seizure medication therapy. The clinical pathway could prove useful in other health systems, they concluded. Her abstract, titled “Implementation of a Pathway to Transition Uncomplicated Seizure Patients Seen in the Emergency Department to Outpatient Care,” has been accepted for a poster presentation at the 2017 Annual Meeting of the American Epilepsy Society, to take place Dec. 1-5 in Washington, D.C.

Malia was named the winner of the Seema Sonnad Young Investigators Award. Umma Fatema of the University of Delaware took second-place honors. Merwah Shinwari, also a UD student, was third.

Erika Gabrielle Mendoza’s mentor was interventional cardiologist Andrew Doorey, M.D. She shadowed him and other doctors in the catheterization lab. Their goal was to improve communication between physicians and staff to improve safety, as well as reduce wasted sterile equipment.

“He allowed me to observe all aspects of the cath lab. He let me into heart codes, other complicated PCI (percutaneous coronary intervention) cases, and normal diagnostic cases,” said Mendoza, a biological sciences major at Delaware State. “He demonstrated how the stents, balloons, catheters and wires work and why they are used. He also allowed me to grow independently.”

The Delaware INBRE program is funded through the National Institute of General Medical Sciences, part of the U.S. National Institutes of Health. The broad aims of Delaware INBRE are to foster a statewide network of biomedical research, develop individual researchers and research institutions and cultivate biomedical initiatives while enhancing the state’s knowledge base and collaborations within the field.

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**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.
A great coach inspires people to maximize their potential. Think of a health coach as a support system who guides and motivates individuals to reach optimal health. Christiana Care’s healthy lifestyle coaching program is committed to working with members to achieve individualized goals that will improve overall well-being and chronic disease status.

Christine Ingargiola and Casey Brinker are Carelink CareNow’s on-site healthy lifestyle coordinators for Christiana Care employees. They partner with employees and dependents to manage concerns including weight, stress, smoking cessation, fitness and work-life balance. They also address evidence-based lifestyle behaviors to manage hypertension, Type 2 diabetes, high cholesterol and other conditions.

The coaching program is free, confidential and readily accessible. The program can be delivered face-to-face or telephonically, depending on the client’s preference.

“I look forward to building relationships and helping clients reach their wellness goals,” Ingargiola said.

Each person’s unique life circumstances and priorities are considered during the program. Coaching is tailored to each individual’s personal requests. The program does not set a limit on the number of sessions, but focuses on when the individual is empowered to self-manage without a coach.

“Some clients require six months of interventions, while others only need a few sessions to uncover their potential,” Brinker said.

One client confirmed that coaching made a significant difference in her efforts to lose weight. She learned to replace unhealthy habits with new behaviors, making wellness a priority in her life. “Having a health coach has helped me establish goals and provide inspiration and motivation to help achieve those goals,” she said.

Ingargiola holds a bachelor’s degree in exercise science and health promotion with a concentration in health wellness management from Cabrini University and is working on her master’s degree. Brinker holds a bachelor’s degree in health behavior science from the University of Delaware and is working on her master’s degree.

To learn more or to schedule an appointment, contact christine.ingargiola@christianacare.org or casey.l.brinker@christianacare.org.

Christiana Care on-site Weight Watchers group acts ‘just like a family’

Each Tuesday, Cindy Maser joins Christiana Care colleagues at a Weight Watchers meeting, a brief walk from her job as administrative assistant for the OB-GYN Research and Healthy Beginnings programs.

“We are like a family,” she says. “We talk about our challenges, like stress and eating or what to do when you go to a party.”

She first participated in the program in 1979, after the birth of her daughter. She lost 25 pounds but gained it back over the years.

In 2015, at 61, Maser was ready to give it another try. “I wasn’t happy with the way I looked,” she said. “Weight Watchers had worked for me before, and I knew it would again.”
Q. WHAT IS A PATIENT OR FAMILY INITIATED RAPID RESPONSE TEAM (RRT)?
A. The Patient or Family Initiated RRT provides access to a nursing coordinator who responds in person to assess and evaluate the immediate patient needs.

Q. WHY WOULD THE FAMILY OR PATIENT INITIATE THE RRT?
A. The patient or family may initiate the RRT if the patient is experiencing a serious change in condition and the patient or family feel that this change is not being recognized or addressed by their caregiver.

Q. HOW WILL THE PATIENT OR FAMILY ACTIVATE THE RRT?
A. The patient or family will activate the RRT by dialing extension 6385 at both Christiana and Wilmington hospitals.

Q. HOW ARE THE PATIENT AND FAMILY INFORMED ABOUT THE RRT PROCESS?
A. Signage placed in patient rooms and patient care areas provides information and the extension to dial when the patient/family feel that caregivers are not recognizing a serious change in the patient condition. Signs can be ordered through Smartworks using form #13NURS36EA.

Q. WHAT ACTIONS WILL THE NURSING COORDINATOR TAKE WHEN RESPONDING TO A PATIENT OR FAMILY INITIATED RRT?
A. The Nursing Coordinator will:
- Respond in person to assess and evaluate immediate patient needs.
- Activate the web page to notify the RRT if one of the RRT triggers is met.
- Collaborate with the staff to meet the patient’s immediate needs if RRT is not indicated.

Q. CAN A PATIENT OR FAMILY INITIATED RRT BE CALLED FOR A PEDIATRIC PATIENT?
A. Yes, a patient or family initiated RRT can be called for a patient of any age. A pediatric RRT would be called for those patients under the age of 16.

If you have questions about this Best Practice Review, contact content experts Dannette Mitchell at 320-2798 or Bridget Ryan at 733-3475, or call the Safety Hotline, 623-7233 (SAFE).
**Vernon L. Alders receives prestigious award from The Juran Institute**

Vernon L. Alders, MHCDS, MBA, MSW, corporate director, Organizational Excellence, has received the Juran Executive Master Black Belt award for 2017.

Juran is an international training, certification and consulting company that provides training and consulting services in quality management, Lean manufacturing management and business process management, as well as Six Sigma certification.

Each year Juran recognizes one executive who has been the internal champion of continuous improvement and transformational change in their organization, demonstrating customer satisfaction and transformation through the utilization of operational excellence methods.

Organizational Excellence has helped hundreds of leaders across Christiana Care Health System learn and apply the principles of Lean, Six Sigma and continuous improvement to drive better outcomes in processes that matter most to our patients. Bringing organizational excellence to Christiana Care means creating an environment where frontline staff are engaged and empowered to improve by making problems visible and applying the scientific method to eliminate waste and errors and ensure we provide the highest quality to our patients.

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**Marybeth Lahey appointed vice president of Patient Care Services, Women and Children’s Services**

Marybeth Lahey, MSN, RN, NE-BC, joined Christiana Care in August as vice president of Patient Care Services for the Women’s and Children’s Service Line.

Lahey has 16 years of progressive health care leadership experience, specializing in the development and administration of programs across the continuum of care.

In her new role at Christiana Care she will serve as the nursing leader of the Women and Children’s Service Line, where she will ensure the delivery of safe, high-quality, patient-centric care and continually evaluate care delivery against Christiana Care’s strategic aims of Optimal Health, Exceptional Experience and Organizational Vitality.

Lahey comes to Christiana Care from Einstein Medical Center in Philadelphia, where she was director of Women’s and Children’s Services – an area of focus throughout her career. Previously she had been a nurse manager of the mother-baby units at the University of Pennsylvania Health System and served in clinical leadership positions at Lourdes Health System in New Jersey.

She has a Master of Science in nursing leadership and management from Walden University in Minnesota and a Bachelor of Science in nursing from Drexel University in Philadelphia.

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**Frank MacPherson appointed director of marketing communications**

Frank MacPherson has joined Christiana Care as the director of marketing communications. As a member of the External Affairs team, he reports to Karen Browne, vice president of communications.

MacPherson will focus on a strategic approach to marketing communications to help shape the external awareness and branding of Christiana Care. This effort also includes the creation of a comprehensive strategy for data-driven market research. Additionally, he is charged with developing strong partnerships between External Affairs, Christiana Care service lines, essential services and other programs, and the community at large.

Prior to joining Christiana Care, he worked most immediately in the education sector, leading the marketing team for a digital technology company focused on early childhood education. He has also led marketing efforts through private consulting and through in-house positions at non-profit organizations and a publicly-traded company.

A native of the Delaware Valley, MacPherson returned to the area after 13 years in Washington, D.C. He received his undergraduate degree from Wake Forest University in Winston-Salem, North Carolina. ●
UPCOMING EVENTS

October

MOVING FREELY WITHOUT PAIN LECTURE SERIES
John H. Ammon Medical Education Center
This popular series continues throughout the month with the following dates and topics:
• Oct. 10, 6 – 7 p.m. Hand & Wrist Health
• Oct. 12, 6 – 7 p.m. Foot & Ankle Health
• Oct. 17, 6 – 7 p.m. Preventing & Treating Sports Injuries
• Oct. 24, 6:30 – 8 p.m. Hip & Knee Health
Register at events.christianacare.org/moving-freely.

EVERY WOMAN MATTERS
8 a.m. – 3 p.m.
John H. Ammon Medical Education Center
This breast health and wellness conference is for all women, including breast cancer survivors who would like to learn more about breast health, breast cancer, genetics, hormone receptors, diabetes and survivorship. The conference is free and includes continental breakfast and lunch. Register today, www.christianacare.org/every-woman-matters.

8TH ANNUAL KIDNEY TRANSPLANT SYMPOSIUM FOR NURSES AND DIALYSIS TECHNICIANS
7:30 a.m. – 3:45 p.m.
Executive Banquet & Conference Center
205 Executive Drive, Newark Delaware
This year’s symposium provides a wide variety of information about adult and pediatric kidney transplant candidates. Register at https://events.christianacare.org/event/kidneysymposium2017/.

CANCER SYMPOSIUM — EMBRACING PALLIATIVE CARE: A PHYSICIAN’S ROLE
6 – 8:30 p.m.
John H. Ammon Medical Education Center
This year’s symposium and dinner program will help to advance the knowledge and practice of health care professionals who impact the quality of life for their patients and families who are experiencing life threatening illnesses. A panel discussion including local experts will follow. Register today: www.planetreg.com/cancersymposium2017.

October 27

DR. MARGARET I. HANDY ANNUAL MEMORIAL LECTURESHIP
7:30 a.m. – 3 p.m., John H. Ammon Medical Education Center
The Dr. Margaret I. Handy Memorial Lectureship is a dynamic series designed to provide insight into cutting edge topics in Neonatal/Perinatal Medicine. Registration deadline for this free event is Oct. 13. Pre-registration is required. Register at http://www.planetReg.com/MargaretHandyLectureship2017. Contact Lisa Allen (Lisa.L.Allen@christianacare.org) with any questions.

October 28

10TH ANNUAL DELAWARE ORTHOPAEDIC SYMPOSIUM
7:30 a.m. – 12:30 p.m., John H. Ammon Medical Education Center
Presented by the Department of Orthopaedic Surgery at Christiana Care Health System and the Delaware Society of Orthopaedic Surgeons, the 10th Annual Delaware conference on bone and joint health features guest speakers from the Geisel School of Medicine at Dartmouth and NASA.
Three educational tracks focus on orthopaedic surgery, primary care orthopaedic medicine and physical therapy lower extremity. To register, call 302-366-1020 or visit http://www.DelawareOrthopaedicSymposium.org.

November 4

HEART & VASCULAR INTERVENTIONAL SERVICES CONFERENCE
7:30 a.m. – 3 p.m., John H. Ammon Medical Education Center
Informational sessions to discuss the technological advances and trends in the Heart & Vascular Interventional Department will be presented by expert heart and vascular physicians. Registration deadline is Oct. 20. Register at https://events.christianacare.org/hvisconference. A $25 registration fee is payable by check to Christiana Care Health System, mailed to Alison Purner, Christiana Hospital Heart & Vascular Interventional Services, Prep & Hold Room 2579B, 4755 Ogletown-Stanton Road, Newark, DE 19718.

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Presentations

At CHEST Annual Meeting, Toronto, Ontario, Canada in October-November 2017.

• Shivdeep Deo, M.D., Michael Vest, D.O., David Manoff, M.D., Michael Sneider, M.D., Alberto Iaia, M.D., Timothy Roedder, D.O. “An Unusual Case of Horner Syndrome.”

• Fahmida Khan, D.O., Christa Fistler, M.D., Patty McGraw, MSN, RN, Jefferson Mixell, BS, RRT, Michael Vest, D.O. “Prone Positioning in Moderate-Severe ARDS: Preliminary Data from a Community Based Teaching Hospital.”

• Susan Coffey, M.D., William Marshall, Michael Vest, D.O. “Impact of a Simulation Based Team Leader Training on Resident Performance in Mock Codes.”

At INFORMS 2017 Annual Meeting. Houston, Texas, October 2017:


• Stephen Hoover, MS, Muge Capan, Ph.D., Ryan Arnold, M.D., MA, et al. “Data-driven Approach to Early Warning System Implementation.”

At International Sepsis Forum. Paris, France in September 2017:

• Muge Capan, Ph.D., Ryan Arnold, M.D., MA, et al. “So You Think You Have Data — An Operational Framework for an HER-based Sepsis Solution.”


• Muge Capan, Ph.D., Ryan Arnold, M.D., MA, et al. “The Ability of Heparin-Binding Protein to Identify Delayed Shock in Emergency Department Sepsis Patients is Impacted by Age and Source of Infection.”

• Muge Capan, Ph.D., Paul Kolm, Ph.D., Ryan Arnold, M.D., MA, et al. “Severity of Illness Scoring Systems for Prognosis and Risk Stratification of Sepsis: A Systematic Review and Comparative Analysis.”

• Muge Capan, Ph.D., Ryan Arnold, M.D., MA, et al. “Signaling Sepsis: Understanding Clinician Mental Models for Sepsis Diagnosis.”


Awards & Achievements

Tracy Bell, MSN, RNC, NNP, graduated from Thomas Jefferson University’s School of Nursing with her Masters of Science in Nursing. She also received the College’s Outstanding Capstone Award.

Microbiology Medical Lab Scientist Alexa Pierce-Matlack, BSN, was named in the American Society for Clinical Laboratory Scientists’ (ASCLS) ‘Voices Under 40’ list at the annual national meeting held in San Diego, for exceptional commitment to ASCLS, the laboratory profession, and the community at large at a young age in their professional careers. Pierce-Matlack serves as the president of the American Society of Clinical Laboratory Science Delaware State Society and as a liaison to the national organization. She graduated from University of Delaware and began working in the Microbiology Section of the Laboratory in June 2015.

Michele Savin, MSN, APRN-NPN-BC, graduated from Thomas Jefferson University’s School of Nursing with her doctorate in nursing practice. She also received the Susan Schrand Award for Professionalism, Leadership and Advocacy.
Drug administration via enteral feeding tubes
Kesha Wright, Pharm.D.

Drug administration through a feeding tube can be a complex process and be prone to errors. It should not be assumed that medications intended to be taken by mouth also have the capability to be safely administered through a feeding tube. Incorrect administration can result in clogged tubes, decreased drug effectiveness, or increased adverse effects, potentially leading to patient harm. Adhering to and maintaining proper measures can help prevent these issues.

With regard to administration technique, medications must not be mixed together for administration down a feeding tube. Each medication must be given separately and the feeding tube flushed before and after each drug. Furthermore, medications must never be mixed with enteral feeding formula, as this could lead to interactions and changes in chemical properties that may cause reduced effectiveness of the drugs.

Consideration of feeding tube exit site is integral as most medications are dissolved in the stomach and absorbed in the small intestines. Drug administration via sites distal to the stomach, particularly the jejunum, may cause reduced effectiveness due to pH differences (e.g., ferrous sulfate, warfarin, ketoconazole, itraconazole, antacids, and sucralfate) or increase the risk of side effects (e.g., opioids, beta blocker, nitrates, triyclic antidepressants) due to medication “dumping” directly into the small bowel. Thus medication selection, including formulation, must be carefully considered.

Immediate release tablets may be crushed into a fine powder, capsule contents may be opened, and liquid preparations can all be administered safely down feeding tubes. Liquid preparations tend to be preferred as they are readily absorbed and less likely to cause occlusions. It should be noted that liquid preparations do have the potential to cause gastrointestinal irritation and diarrhea due to increased sorbitol content and hyperosmolality. Thus liquid medications should be diluted prior to administration. Table 1 provides examples of common medications with high osmolality and sorbitol that could create such issues especially if administered directly via the small bowel.

Extended and delayed release formulations are not to be crushed; crushing these formulations will destroy the release mechanism and may result in toxic or subtherapeutic levels. Some extended release capsules may be opened; however, contents of the capsule should not be crushed. Enteric coated tablets are designed to allow the medication to be released into the intestine instead of the stomach which in turn causes less gastrointestinal irritation. When crushed, clumping may occur. Sublingual and buccal medications may be ineffective when given enterally. In these cases, a change to an immediate release formulation may be required or product substituted with a therapeutic alternative.

It is imperative that prescribers ensure routes of medication orders accurately reflect how the medication is to be administered to a patient. If there is a discrepancy, nurses should contact prescribers for order clarification. Doing so prevents medications from being administered via an incorrect route that may not be suitable for a patient. It also allows pharmacy to dispense the most appropriate dosage form or recommend alternate therapy.

Ensuring medication routes are changed once an enteral feeding tube is discontinued is just as important. Resources to help guide medication selection for use down enteral feeding tubes include CCHS formulary, ISMP “Do Not Crush” list, as well as pharmacy services. A recent safety first alert was issued by the Medication Safety Department in response to an increase in patient harm from incorrect enteral route medication administration. The safety first alert can be viewed at: http://intranet/sites/QualityAndSafety/PatientSafety/SafetyAlerts/SafetyAlertEnteralMedRoutes.pdf.

Table 1

<table>
<thead>
<tr>
<th>HIGH SORBITOL LIQUID MEDICATIONS</th>
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</thead>
<tbody>
<tr>
<td>Acetaminophen elixir</td>
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<tr>
<td>Amantadine solution</td>
</tr>
<tr>
<td>Guaiifenesin/DM syrup</td>
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</table>

<table>
<thead>
<tr>
<th>HIGH OSMOLALITY LIQUID MEDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium chloride liquid</td>
</tr>
<tr>
<td>Ferrous sulfate liquid</td>
</tr>
<tr>
<td>Acetaminophen with codeine elixir</td>
</tr>
<tr>
<td>Acetaminophen elixir</td>
</tr>
<tr>
<td>Dexamethasone solution</td>
</tr>
<tr>
<td>Amantadine solution</td>
</tr>
<tr>
<td>Metoclopramide syrup</td>
</tr>
<tr>
<td>Lactulose syrup</td>
</tr>
</tbody>
</table>

References
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.

For the 14th consecutive year, Christiana Care has been recognized as one of the top places to work in Delaware, according to Workplace Dynamics, Inc., a leading research firm that specializes in organizational health and workplace improvement.

The News Journal uses Workplace Dynamics to conduct its annual assessment of Top Workplaces in Delaware. The state’s winners are listed online at delawareonline.com.

“Earning top workplace honors for so many years underscores the exceptional caliber of our workforce,” said Chris Cowan, M.Ed., senior vice president, Human Resources. “Our results reflect the new values and behaviors we launched this past year that help guide us as we advance The Christiana Care Way in our community. “For the competition, surveyors evaluated Christiana Care based on employee responses earlier this year to 30 different questions on topics about leadership, work environment, connection to the organization and its direction, productivity, pay and benefits. According to survey results, employees are proud to be part of Christiana Care’s values and direction, and were especially positive about our ability to do things efficiently and well, while encouraging differing points of view.”