



**HEART YOUR LIFE**

**FEBRUARY IS AMERICAN HEART MONTH**

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Chester County Hospital



## HEART HEALTH

# Reducing heart failure readmission rates

## Chester County Hospital launches Outpatient Diuretic Clinic Program

By Diana Walker

It's a Friday — the last day of the work week — and you're behind. You have a major deadline due first thing Monday morning. You've had meeting after meeting throughout the week, and when you finally get to your desk, something else pops up to take your attention. In an ideal world, you'd work through the weekend to complete your project but — babies, and family reunions, and house repairs — there is just not enough time to get ahead of your workload.

Heart failure, a chronic, progressive condition that affects more than 6.7 million American adults, is a lot like not being able to keep up with your day-to-day tasks. A healthy heart pumps blood continuously through the circulatory system, delivering key nutrients and oxygen to the body. While the term heart failure makes it sound like the heart is no longer working, it actually means that the organ simply cannot keep up with its workload. As a result, the body may not get the oxygen it needs. This can lead to many symptoms, including fluid buildup and water retention.

Patients living with congestive heart failure have a higher rate of hospitalization and readmission to the hospital.



Dr. W. Clay Warnick

“These patients are very sick and have other cardiovascular and pulmonary diseases that cause them to have a weakened immune system, so when they experience an illness — like the flu or a virus — their bodies don't have the reserve to fight off the stressors, and they are admitted to the hospital on a recurrent basis,” explained W. Clay Warnick, MD, director of the Cardiovascular Program and director of the Heart Failure Program at Chester County Hospital (CCH).

Reducing hospital readmission rates across all care areas, including heart failure, has become a national priority. As a result, the National Quality Forum has endorsed hospital risk-standardized readmission rates as performance measures, and the Centers for Medicare and Medicaid Services publicly reports these statistics.

Knowing the fragility of the heart failure population and the push to reduce readmissions, how does a health care facility continue to provide life-saving quality care to these vulnerable

individuals?

In an effort to answer that question, CCH launched an Outpatient Diuretic Program in November 2017.

“This outpatient treatment solution was introduced to help prevent hospital readmissions and to also keep patients in their own environment while recovering,” Kristy Panichelli, MSN, CRNP, said. She went on to explain that this approach to heart failure care benefits the patient in more ways than one. “It is safer for these individuals if they are able to stay in their homes while recuperating because there are fewer risks for infections and falls.”

The nurse and pharmacy-driven program is for individuals who have a known history of congestive heart failure and are frequently admitted to the hospital.

“We see these patients in the office and they're just not doing well. They're not responding to their oral diuretic medication, have a buildup of fluid in the legs, abdomen and lungs and are decompensating,” Warnick shared.

In the past, these patients would be admitted to the hospital and given a round of intravenous diuretic therapy. This treatment method uses a furosemide infusion, which is commonly used to help remove the buildup of extra fluid that can accumulate when the heart is not working properly. With the ability to perform this treatment in an outpatient setting now in place, patients are able



to receive this therapy the day after an office visit within a three- to four-hour time frame. Once a patient has lost the additional fluid weight that was accumulated and is able to ambulate back to his or her baseline, the individual is released to go home. A follow-up visit with the patient's cardiologist is scheduled within 24 hours to see if the treatment was effective. Additionally, each of the participants are set up with a visiting care nurse to continue monitoring the individual's progress.

“The program is a win-win. Patients don't have to spend the night in the hospital, and CCH is still able to administer high-quality care for these vulnerable individuals while reducing readmissions,” Warnick said.

Spearheaded by Warnick, Panichelli and Tina Maher, BSN, MA, RN,

NE-BC, director of Telemetry Services, the program is a testament to the collaboration of a multidisciplinary group at CCH.

“The staff has really embraced this initiative. There is a lot to accomplish in a short amount of time with this population, but the team recognized the benefits overall, and every department has come together to make this a success,” Maher said.

“Out of the three patients we've had go through this program, there have been no readmissions,” Maher shared. “Two of the participants have cleared the 30-day hurdle. It is too soon to make that judgment with our most recent patient.”

The program is a result of the health system's collegiality. Justin Roberts, DO, Heart Failure section chief, and Lisa Rathman, CRNP,

Heart Failure program manager, at Lancaster General Hospital (LGH) — which achieved the nation's lowest 30-day readmission rate for heart failure — helped their CCH colleagues launch this initiative by sharing protocols already in place within its own clinic.

LGH's one-day diuretic infusion treatment program began in 2016. By May of 2017, the hospital had seen such a high rate of success that they presented their findings to all University of Pennsylvania Health System entities. Warnick took that concept, with their permission, and began the groundwork to put CCH's program in place.

“It's a great example of how each of the institutions work in partnership and how we're all communicating together and learning as a system,” said Warnick.

## HEART HEALTH

# Sudden cardiac arrest: Marjorie's story

By Barbara Curtis

For the past 30 years, Marjorie Riley has been an active volunteer at The Encore Shop, an upscale consignment boutique benefiting patients of Chester County Hospital. She works behind the scenes processing merchandise and pricing items as a consigner.

"We see beautiful items brought into the store with tags still on them. I think to myself, 'Wow, this has never been worn.' The proceeds provide services for the hospital," said Riley.

Although she has had a long-standing connection with Chester County Hospital, she did not expect to require the life-saving care that she has always supported through her volunteer work.

On Feb. 10, 2017, Riley was getting ready to run some errands. As she was about to leave her home, she turned back to grab her scarf when she started to feel uncomfortable.

"I sat down at my kitchen table and just didn't feel right. I was a little nauseous but overall okay. I didn't realize how serious it would become," she explained.

Once she was sit-

ting down, she suddenly couldn't breathe. She was gasping for air and tried to cry out for help before she passed out completely.

"I don't know how my husband heard me, but I'm thankful he did," she added.

Her husband, Clement Riley, rushed to her aid and called 9-1-1. The responders dispatched emergency services and instructed him on how to perform hands-only CPR so that he could begin the chain of survival.

Once EMTs arrived, they transported Riley to the Emergency Department (ED) at Chester County Hospital, where a team of physicians were waiting to treat her. As part of protocol, EMTs announce specific codes so that hospital staff are immediately available to tend to emergent patients.

Riley's call was a "code blue" — she had experienced sudden cardiac arrest.

Sudden cardiac arrest (SCA) is a condition in which the heart suddenly and unexpectedly stops beating. When this happens, blood stops flowing to the brain and other vital organs. If not treated within minutes, SCA may

cause death.

While in the ED, Riley required additional CPR to be revived. This time by Christopher Ware, MD, an emergency physician at the hospital. She was whisked up to the catheterization lab where cardiologist Zainal Hussain, MD, implanted an intra-aortic balloon pump to help increase blood flow through the coronary arteries, reducing the workload on the heart.

Riley spent the next few days in the critical care unit, where she underwent a cooling process to help protect against organ failure until she was stabilized. Despite her improvement, she continued to have persistent atrial fibrillation. A series of echocardiograms revealed that she had severe mitral regurgitation, a condition where the mitral valve does not properly close, allowing blood to flow backward into the heart. A clot was also discovered in the upper left chamber of her heart.

She was scheduled for a mitral valve repair and a left atrial appendage excision with Steven Weiss, MD, chief of Cardiac Surgery.

"Dr. Weiss told me the stars were aligned when I had my cardiac episode," Riley said.

Dr. Weiss added, "Many things had to go right for Mrs. Riley to have such an incredible outcome — from her husband successfully performing CPR, to urgent cath lab resuscitation, excellent intensive care management and thorough investigation to find the cause of her event. All the members of her care team, including her husband, are to be congratulated."

In less than a week after



Marjorie Riley with her husband, Clement, at The Encore Shop where she volunteers each week.

her valve repair, Riley had a pacemaker and implantable cardioverter-defibrillator (ICD) combination put in by electrophysiologist Hope Helfeld, DO. An ICD continuously monitors heart rhythms. If it detects a dangerous rhythm, such as ventricular tachycardia or ventricular fibrillation, which can cause sudden cardiac arrest, it delivers a life-saving shock, preventing the patient from experiencing another arrest.

All Chester County Hospital patients who have cardiac surgery receive a red pillow in the shape of a heart. It is designed to provide sternum support when coughing after surgery. Riley's is signed by her nurses, physicians and surgeons.

She pointed out one of her favorite notes from a nurse named Mary Fe, "Dear Ms. Marjorie — Please do take care. May the good Lord bless you

and your family." Her husband Clement also signed her pillow with a sweet and simple message, "Love ya."

When discussing her experience, it brings a tear to her eye.

"Once I realized I was in the hospital, everybody I came in contact with was wonderful. I was so impressed with how concerned and caring the team was. The nurses visited with me and told me who they were and what they did. The entire team was exceptional, and it showed in the way they interacted with me. My husband attributes it as an example of leadership, and I couldn't agree more," she said.

After she was cleared to go home, Riley began cardiac rehabilitation for 18 weeks to help regain her strength so she could return to an active lifestyle. For regular exercise,

she joined a SilverSneakers program — a free fitness membership that provides physical activities for seniors as a way to maintain good health.

She is also looking forward to continuing to play golf once the weather warms up.

"I play at the Kennett Country Club. My contemporaries took good care of me once I recovered from surgery last season. I never had to pick up the ball — just hit it," she said with a laugh. "Clem and I will be heading to Florida soon, and we will play a few rounds down there. And once the season starts, I'll be back in full swing at Kennett."

*Hope Helfeld, DO, FACC, and Zainal Hussain, MD, FSCAI, are on the medical staff at Chester County Hospital and see patients at West Chester Cardiology.*



## HEART HEALTH

# Cardiac rehabilitation – a key component to heart disease recovery

When a person suffers a heart attack, has heart surgery or undergoes a procedure like stenting or angioplasty, cardiac rehabilitation plays an important role in reducing their odds of having a future cardiac event.

At Chester County Hospital's Department of Cardiopulmonary Rehabilitation, patients begin the program with a two-hour evaluation where clinicians review their health history, perform a physical assessment, gauge exercise capacity through a six-minute walk test and discuss personal goals. After the evaluation, patients participate in a class where they learn risk factors associated with heart disease and how to live a heart-healthy lifestyle. Once they've completed onboarding, they're ready to begin the physical activity portion of their rehabilitation.

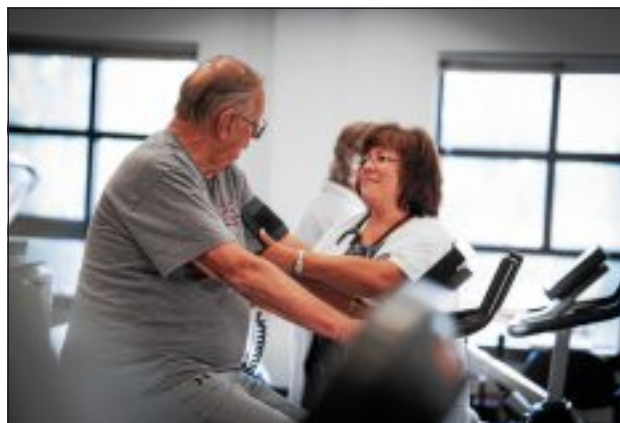
Each patient receives an individualized safe exercise plan supervised by a nurse and exercise physiologist. The center provides continuous heart monitoring while individuals work out, putting those who may have been apprehensive to begin physical activity at ease. The nationally certified program also provides a cardiologist on site at all times.

Participants remain in the program between six and 12 weeks, which includes between 18 and 36 visits, depending on individual needs.

Those who complete the program experience significant health benefits, including reduced blood pressure, healthier cholesterol levels and weight loss.



Shawn M. Hoch, MS



Patients are actively monitored while exercising during the physical activity portion of their rehabilitation.

"Patients gain a significantly better quality of life without restrictions. They learn how to control their symptoms, reduce emotional stress caused by the disease and are able to return to their daily activities," said Shawn M. Hoch, MS, clinical manager of Cardiopulmonary Rehabilitation at Chester County Hospital.

According to the American Heart Association (AHA), studies have shown a 45 to 47 percent reduction in mortality rates for patients who have participated in a cardiac rehabilitation program after a per-

cutaneous coronary intervention – a non-surgical, catheter-based procedure that opens up a blood vessel in the heart.

Additionally, cardiac rehabilitation reduces national hospital readmission rates by 31 percent.

"Since we see patients two to three times a week, we have the opportunity to follow up with them during their visit. We ask them if they are taking their medication, how they feel physically and emotionally and how their lifestyle is at home. If there is a concern, such as a question on medication, we can address it

quickly before it becomes a serious problem that leads to hospitalization," added Hoch.

Although there are clear benefits to cardiac rehabilitation, it is estimated that only 19 to 34 percent of cardiac patients utilize the service nationally.

"At Chester County Hospital, we have a much higher capture rate. Nearly 50 percent of our heart patients participate in our cardiac rehab program," said Hoch.

He attributes this to the clinical team's outreach.

"In addition to having very supportive physicians, we have an exercise physiologist who rounds the hospital to educate eligible patients about the program. And as part of discharge planning, our nurse navigator calls each patient to answer any questions and can even schedule their time in cardiac rehabilitation."

The center continuously aims to improve the patient experience, including adding services such as on-site nutrition counseling with a registered dietitian, pet therapy and, most recently, aromatherapy for stress reduction.

"We try new things and perform studies to see what is effective. We're always open to new ideas to help our patients," said Hoch.

Chester County Hospital provides cardiac rehabilitation services at its outpatient locations in West Chester and Kennett Square. To learn more about cardiac rehabilitation, call the nurse navigator line at 610.220.0432 or email [cch@uphs.upenn.edu](mailto:cch@uphs.upenn.edu).

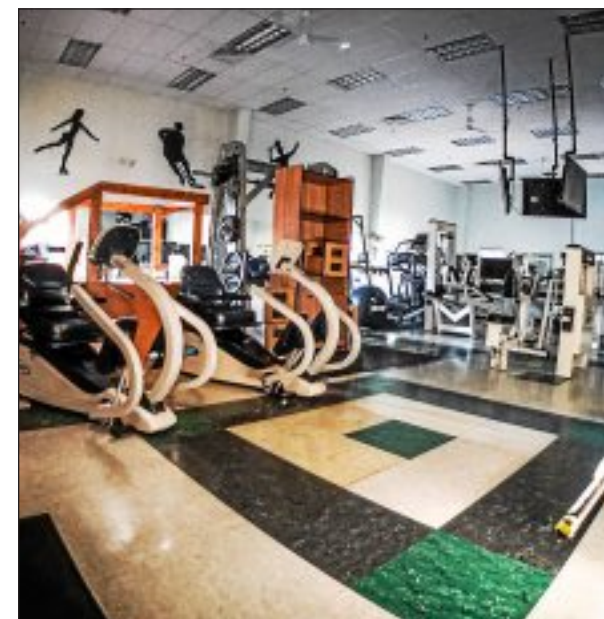
## HEART HEALTH

## Cardiac Rehabilitation vs. Fitness Center

### Cardiac Rehabilitation Traditional Fitness Centers

- National certified program with supervising physician on site
  - Education and support to make healthy lifestyle changes
  - Assessment of your risk factors for heart disease
  - Provides continuous monitoring of your heart
  - Patient receives individualized safe exercise program supervised by a nurse and exercise physiologist
  - Monitoring of blood pressure and blood sugar (if you are diabetic)
  - All staff are trained in advanced emergency cardiac care (ACLS) with immediate access to life-saving equipment and supplies
  - Ongoing communication with physician regarding health issues
  - Access to a Registered Dietitian included in program
  - Completion of a cardiac rehabilitation program reduces your risk for another cardiac event such as a heart attack
- No national standard for physical fitness or on-site physician
  - Does not include education on prevention
  - No assessment done
  - Does not monitor heart rhythm
  - Exercise at your own risk
  - No routine monitoring of blood pressure and blood sugar
  - Staff has minimal training and limited resources for emergency care on site
  - No communication with physicians
  - May have a dietitian or nutritionist for additional cost
  - Exercise is only one of the recommended lifestyle changes for the prevention of another cardiac event

*For more information about cardiac rehabilitation, call the nurse navigator line at 610.220.0432.*



The physical therapy and cardiac rehabilitation facility in West Chester.



**February is American Heart Month**, a time to take charge of your heart health. Today heart disease continues to be our nation's #1 cause of death in both men and women. That's why it's so important to understand your risk and know your heart health. Start by taking our Heart Tracks Risk Assessment at [PennCCHear.org](http://PennCCHear.org).

Find a Cardiologist who's right for you.  
800.789.PENN | [ChesterCountyHospital.org](http://ChesterCountyHospital.org)



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Chester County Hospital

## HEART HEALTH

# Bicuspid aortic valve repair — Bryan's story

By Barbara Curtis

A collegiate athlete turned physical education teacher, Bryan Tingle has been physically active his entire life.

He was an accomplished lacrosse player and even tried out for professional teams, like the New York Titans. At 34 years old, he continued his fit lifestyle, completing triathlons while keeping up with three young children at home — until one day he experienced an uncomfortable sensation.

“I was running over the summer and could feel my heart beating differently. It was a strange feeling — it didn't hurt, but I knew something wasn't right,” said Tingle.

He was a young, healthy guy with no known medical issues, other than a heart murmur he was diagnosed with at the age of 11.

“The murmur never had an impact on my life, so I figured the palpitation was from everyday stress,” added Tingle.

Five days later, he continued to feel palpitations along with chest pressure. His wife insisted he go to an urgent care facility for peace of mind. The clinicians detected unusually high blood pressure and his electrocardiogram (EKG) was abnormal — they immediately called an ambulance in fear he was having a heart attack.

Tingle was rushed to Chester County Hospital's Emergency Department, where a team of doctors and nurse practitioners evaluated his condition. Multiple tests were per-



Bryan Tingle with his wife, Becky, and their four children: Tristan, Tatum, Tessa and Teagan.

formed, and Tingle was relieved to learn he had not experienced a heart attack. His lab work was good, a second EKG was normal and the test results determined he had not suffered any damage to his heart. He was released and told to schedule an appointment with a cardiologist.

With this good news, he went on a family vacation to the Outer Banks, N.C., with his three children and wife, who was expecting their fourth child. But once he was there, he began feeling chest pain and immediately went to the local emergency room. Their diagnosis: a panic attack.

Having two emergency room visits within weeks of each other was concerning for Tingle, especially with a fourth baby on the way. As soon as he returned home, he made an appointment with his cardiologist, Dr. Mian Jan at West Chester Cardiology. Jan ordered a Transesophageal Echocardiogram (TEE).

A TEE is a special type of echocardiogram that produces detailed images of the heart's structure by using a thin tube that goes down the esophagus. Since the esophagus is close to the upper chambers of the heart, physicians have a clearer, more detailed view of these chambers than from a traditional echocardiogram.

The results confirmed Tingle was not experiencing symptoms of a panic attack but, in fact, had a congenital heart condition (from birth). Tingle had a bicuspid aortic valve, meaning his aortic valve only had two leaflets instead of three and was leaking severely.

A healthy aortic valve has three cusps or leaflets — known as a tricuspid valve — which open and close to regulate blood flow. Oftentimes, a bicuspid valve will work well for many years, only beginning to show symptoms later in adulthood.

In Tingle's case, the TEE showed that the

symptoms he was experiencing were a result of the leaky aortic valve, which caused blood to flow back into the heart instead of flowing forward. When this occurs, the heart muscle weakens since it must work harder to pump blood throughout the body. If left untreated, it can lead to dilation of the aortic valve and left ventricle, causing irreversible damage and heart failure.

Jan referred him to the Heart Valve Center at Chester County Hospital. For Tingle's consultation, Steven Weiss, MD, chief of Cardiac Surgery, invited Nimesh Desai, MD, PhD, director of the Thoracic Aortic Surgery Research Program at the Hospital of the University of Pennsylvania (HUP), to join him in evaluating this complex case.

“It was a scary experience knowing I had a heart condition that was causing my symptoms. But when I met with Dr. Weiss and Dr. Desai, I knew I was in good

hands. They were very reassuring and made me comfortable,” says Tingle.

Depending on each patient's unique situation, there are a few surgical procedures available to correct a valve condition. The first is a mechanical aortic valve replacement, which provides a durable, long-lasting solution but requires patients to take Coumadin, a blood thinner, for the remainder of their life. The second option is a tissue aortic valve replacement, which does not require long-term use of medication but at Tingle's age could only be expected to last between 10 and 15 years.

The third and best option is an aortic valve repair. Patients who have a valve repair do not require lifelong medication or future surgeries. Fortunately for Tingle, his surgeons were confident they could successfully repair his aortic valve.

“We performed an advanced repair that only a few places in the country are doing. It's called a bicuspid aortic valve repair with Lansac ring. The ring sits outside of the aorta, underneath the coronary arteries, and prevents the repaired aortic valve from ever dilating. It's a new refinement of the leaflet repair procedure intended to provide lifetime durability, which was a perfect fit for a young individual like Mr. Tingle,” said Weiss.

As the surgery was being finished, Tingle was taken off of the heart and lung machine, often called “the pump,” and was in excellent condition. But shortly after, his aorta developed a tear, resulting in blood

loss.

The issue was detected immediately and his care team worked together to cool his body, get him back on the pump and fix the tear. After living with a heart condition for over 30 years, his aorta had become very thin and prone to a complication.

“What makes a program great is not the absence of complication but eliminating failure to rescue. Detecting and correcting a problem early, so that no harm occurs to the patient, is what makes a hospital have great outcomes,” added Weiss.

Typically only available at HUP, along with a few other facilities in the U.S., the procedure was successfully performed by Weiss and Desai at Chester County Hospital.

Today, Tingle is in better physical condition than ever before and is able to live a life without restrictions just 12 weeks after his surgery.

“I can't say enough positive things about my experience. The surgeons, nurses and the team at cardiac rehabilitation all took great care of me. My priorities have changed since the surgery because I've been given another chance to live without fear of my heart condition. I'm looking forward to spending more time with my family, my students ... and living an active life with them again. God has a lot in store for me,” added Tingle.

*Mian Jan, MD, FACC is also chairman of Chester County Hospital's Department of Medicine.*

## HEART HEALTH

# Chester County Hospital offers cardiac support group

Open to all cardiac patients and their families, Chester County Hospital's cardiac support group includes presentations by health care professionals, followed by networking and discussion on issues of personal interest to those with heart disease.

Led by a former cardiac patient and facilitated by heart and vascular nurse navigators, the support group has been available to the community for over 15 years.

New topics are presented each month and include discussions on healthy eating, stress reduction, heart rhythm, heart failure, fitness and

others.

For more information about this free support group, call the nurse navigator line at 610.220.0432 or email [cch@uphs.upenn.edu](mailto:cch@uphs.upenn.edu).

## Meeting Times

Date: First Thursday of each month

Time: 1 to 2:30 p.m.

Location: Chester County Hospital  
701 E. Marshall St., West Chester

4 Lasko Tower Conference Room

## Upcoming Topic

Thursday, March 1: Advance Directive Care Planning — Begin the Conver-

sation.

Don't leave your medical wishes to chance. Learn how to ensure that the health care treatment you may receive is consistent with your wishes and preferences should you be unable to make your own decisions or speak for yourself.

Presented by Linda Antonowich.

Antonowich is a member of the Steering and Education Committees of Community Care Coalition of Chester County and is a community consumer representative. She is also a retired Department of Education administrator and a private consultant.



## HEART HEALTH

# Penn Medicine — No. 1 fundraiser for 2017 Heart Walk

On Nov. 4, 2017, Good Shepherd Penn friends, family and employees of Penn Medicine joined together for the Philadelphia Heart Walk to help raise funds for the American Heart Association.

The health system exceeded its ambitious fundraising goal of \$200,000 with \$201,975 raised, making Penn the No. 1 fundraising organization for this year's walk. These funds will go directly into cardiovascular research and education to help fight the nation's No. 1 and No. 5 leading causes of death — heart disease and stroke.

More than 1,800 registered walkers represented different departments, service lines and entities throughout Penn Medicine including Chester County Hospital, Clinical Care Associates, Corporate, Friends of Penn,

Good Shepherd Penn Partners, Hospital of the University of Pennsylvania, Penn Home Care, Penn Presbyterian Medical Center and Pennsylvania Hospital.

Locally, Chester County Hospital exceeded its goal of \$15,000 by raising \$17,395. The hospital formed 22 teams and included 216 walkers. The top fundraising team was The Heart Beats, who raised \$3,697 for the cause.

The Heart Walk is the American Heart Association's premiere community-based event to promote physical activity while raising funds and awareness to help save lives. Interested in participating? Visit [HeartWalk.org](http://HeartWalk.org) to sign up for an event near you or visit [PennMedicine.org](http://PennMedicine.org) to stay updated on signups for 2018.



HEART HEALTH

# *Chester County Hospital kicks off Heart Month by showing their many shades of red*

