BUILT FOR EVERYONE
FROM THE KNOWLEDGE OF MANY
TO BRING HEALTH TO ALL
Dear Friends and Colleagues:

We are pleased to share with you our 2014 Value Report, a summary of the quality care delivered across Carolinas HealthCare System in 2013. As one of the largest comprehensive networks of care in the country, our goal is to provide seamless access to coordinated, high-quality services closer to where our patients work and live.

Our integrated system of 40-plus hospitals and 900-plus care locations enables continual sharing of expertise and experiences; clinical teams implement healthcare solutions to meet the needs of our patients and of the organization. Through care networks and virtual solutions in areas like behavioral health, critical care, stroke and cancer care, we are helping lead the way. Providers and administrators work together to set bold aims that enhance our performance across the continuum. And with support from our collaborative structures and advanced analytics capabilities, we are meeting and exceeding our goals.

Our work through the national Partnership for Patients Hospital Engagement Network is one example. Between 2012 and 2013, our teams helped prevent more than 4,400 patient safety events, avoiding more than $17 million in related healthcare costs. These outstanding achievements are the result of our ongoing commitment to one day reduce patient harm to zero using sustainable, models of care that can be applied in varying healthcare settings.

At every encounter and at the point of care, both in our facilities and in the community, Carolinas HealthCare System strives to engage patients and their families, helping them become more active participants in their health. Our increasing focus on preventive care and population health is helping us transform the well-being of entire communities, identifying gaps in care and delivering quality services where they are needed most.

We are excited to enter another year of excellence in patient care and safety, and to continue our long-standing commitment to the health of communities near and far.

Sincerely,

Michael C. Tarwater

CHIEF EXECUTIVE OFFICER

Joseph G. Piemont

PRESIDENT AND CHIEF OPERATING OFFICER

Roger A. Ray, MD, MBA, FACPE

EXECUTIVE VICE PRESIDENT AND CHIEF MEDICAL OFFICER
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WHO WE ARE

Carolinas HealthCare System is one of the largest, most innovative public, not-for-profit healthcare systems in the country, providing a full spectrum of care and wellness programs throughout North and South Carolina and Georgia. Operating as a fully integrated system and connecting care delivery throughout the Carolinas, our overarching goal is to provide seamless access to coordinated, high-quality healthcare closer to where our patients live.

With more than 40 hospitals and 900 care locations, the depth and breadth of services results in:

- Prevention and general wellness
- Primary care at more than 180 locations
- Specialty care via several nationally recognized specialty service lines
- Critical care with one of the largest virtual programs in the nation
- Continuing care including home health, skilled nursing, hospice, palliative care centers, inpatient/outpatient rehabilitation and long-term acute care hospitals

WE HAVE MORE THAN:

- 61,000 employees
- 3,000 physicians and advanced clinical practitioners, and 15,000 nurses
- 7,800 licensed beds
- 11 million patient encounters per year
- 1 million actively managed patients in our primary care network
DElIVERiNG VALuE: iNTEGRATED SYSTEM OF CARE
The healthcare landscape is changing, and Carolinas HealthCare System is quickly adapting to the demands of the industry and the needs of our patients. Among the most pressing challenges facing the industry today are affordability of, access to and quality of care.

As one of the largest integrated healthcare networks in the country, we can leverage knowledge, scale and capabilities to drive better outcomes and increase value and efficiency, covering the continuum of care. This, along with commitment to leverage virtual care, provides the opportunity to deliver care nimbly and create value for our patients.

iMPROViNG HEAl TH OUTCOMES AND EFFiCiENCY THROUGH DATA AND ANAlyTiCS
Carolinas HealthCare System is enhancing our ability to integrate and analyze data with the goal of enhancing the health of our patients and our communities.

Our team started by better collecting and analyzing critical data needed to improve the transition for patients that have been hospitalized to help keep them healthier when they go home. We are creating and implementing new data models that allow providers in physician offices, clinics, and other outpatient locations to more accurately predict the medical needs and health-related behaviors of their patients.

The basis of this work depends upon data captured automatically within our electronic medical records system. The data is then run through a predictive algorithm that notifies our health providers about each patient’s risk in real-time, ensuring appropriate measures are taken before and even after a patient leaves the hospital. Interventions include: scheduling a home follow-up visit, advanced medication management processes, and additional education time with dietitians or trainers. This use of data will have the potential to reduce readmission rates of patients and has led to more efficient and personalized care plans for our patients.

SUPERiOR PATiENT ExPERiENCE
At Carolinas HealthCare System, we believe the experience of patients and their families is a crucial component of the healing process and is the responsibility of every team member. With every interaction across the continuum of care, we strive to elevate the level of world-class, personalized care we deliver.

We are working to enhance the way we communicate with patients and to help them feel included, informed and inspired. In everything we do, our goal is to provide seamless access to coordinated, high-quality healthcare.
PATIENT SAFETY EVENTS AVOIDED THROUGH OUR Hospital Engagement Network IN 2013

- 3,547 Patient Safety Events Avoided
- 1,621 Cancer Patients enrolled in clinical trials
- 954 Readmissions have been avoided
- 175 Home Health Transfers to acute care have been avoided
25,614 patients received documented appropriate care.

26,000 pounds were lost by our employees through a healthy weight rewards program.

28,094 more patients were discharged from emergency departments in fewer than 180 minutes than in 2012.
In 2011, Carolinas HealthCare System was one of only 27 healthcare organizations in the nation selected by the Centers for Medicare & Medicaid Services (CMS) to participate in the national Partnership for Patients Hospital Engagement Network (HEN) project focused on reducing patient harm by 40 percent and preventable readmissions by 20 percent by December 2014.

Carolinas HealthCare System’s HEN has met the 40/20 goals and also exceeded national benchmarks in several key focus areas, including pressure ulcers, venous thromboembolism and early elective deliveries.

During the two-year HEN project, System care teams prevented 4,400 patient safety issues, AVOIDING $17 MILLION in related healthcare costs.

Patient Safety Organization
One of the first healthcare systems in the nation to form its own Patient Safety Organization (PSO), Carolinas HealthCare System uses the protections of the federal PSO designation to share information across the System. Use of our vast data resources allows providers to collaborate in a coordinated harm prevention program that drives measurable, lasting improvement.
PRESSURE ULCERS
In 2013, System hospitals achieved a 49.3 percent reduction rate relative to baseline in pressure ulcer numbers, reducing rates in care locations across the System. Our entire network’s performance rate (0.48) was better than the national benchmark identified by CMS for high-performing hospitals (3.21).

A pressure ulcer team was organized to ensure hospitals complied with implementing moisture reduction and mobility interventions and delivering prevention education for all patients identified at risk for pressure ulcers. The team performs monthly audits of these efforts to ensure they continue.

VENOUS THROMBOEMBOLISM
The performance of hospitals in our network over the two-year HEN project demonstrates a 35.7 percent reduction relative to our baseline rate, which is 41.96, related to venous thromboembolism (VTE). Our measures capture all surgical and medical patients, tracking a significant portion of our acute care patient volume.

In 2013, Carolinas HealthCare System incorporated VTE as a corporate goal, making the reduction of VTE rates one of three primary nursing goals. The implementation of a VTE electronic hard stop risk assessment tool in July 2013 helped accelerate our performance for the year. To ensure ongoing progress in this area, a VTE team meets regularly to review data and best practices in our hospitals.
EARLY ELECTIVE DELIVERIES
Carolinas HealthCare System’s HEN performance related to early elective deliveries has shown progress reflecting a 72.4 percent reduction relative to our 2011 baseline of 9.6 percent. Our performance during 2013 exceeds the CMS national benchmark level of less than 2.0 percent.

The perinatal team focused on the following primary initiatives:
• Identify common components across the System for scheduling deliveries and identify opportunities to standardize
• Implement a System-wide pledge to adopt a hard stop and reduce early elective deliveries in conjunction with the North Carolina Hospital Association initiative
• Create the physician-led Perinatal Safety Collaborative
• Resolve challenges with the data collection parameters and collection process

LEADING EDGE ADVANCED PRACTICE TOPICS
Carolinas HealthCare System was one of only six healthcare organizations and one of only two healthcare systems in the HEN to receive the Leading Edge Advanced Practice Topics contract modification by the Centers for Medicare & Medicaid Services. The contract allows a subset of System hospitals to more aggressively reduce harm in five clinical areas by December 2014:
• Severe Sepsis and Septic Shock
• Antibiotic Stewardship and C. Difficile
• Procedural Patient Harm
• Healthcare Acquired Conditions Cost Reporting
• Readmissions and Community Care
SYSTEM-WIDE READMISSIONS
Carolinas HealthCare System is committed to providing the highest quality of care for patients when they must be hospitalized, while also preparing them for success when they go home and preventing future hospitalization.

READMISSION RISK ANALYTICS
The System’s informatics strategy for reducing readmissions uses an algorithm to calculate a readmission risk score for each patient that is admitted to the hospital. This scoring system was built using data from hundreds of thousands of patients that have been hospitalized at one of Carolinas HealthCare System’s 40+ hospitals over the past two years, and was designed to identify which patients have the highest risk for being readmitted within 30 days after discharge.

This new risk analytics tool uses a predictive model designed from the ground-up to help providers make more informed decisions about the patient discharge planning process. The algorithm allows the care team to rapidly identify high-risk patients at the time of admission and focus the team’s efforts appropriately during the patient’s hospital stay to better organize the delivery of care and to create optimal transition plans for patients. This is designed to improve efficiency of care delivery, lowers costs for hospitals, and maximize the care the patient receives.

The risk model has a 79 percent accuracy rate and clusters patients into one of five population segments. Each segment has a set of suggested interventions for discharge planning, to guide the discharge care manager to better prepare the patient for the transition home or to another care setting.

### Population Segments by Readmission Risk Level

<table>
<thead>
<tr>
<th>Population Segments</th>
<th>Low Risk</th>
<th>Medium Risk</th>
<th>High Risk</th>
<th>Very High Risk</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insured Healthy Adult</td>
<td>14.4%</td>
<td>10.9%</td>
<td>6.0%</td>
<td>4.2%</td>
<td>35.5%</td>
</tr>
<tr>
<td>Medicaid Pediatric</td>
<td>4.1%</td>
<td>2.5%</td>
<td>1.2%</td>
<td>0.4%</td>
<td>8.2%</td>
</tr>
<tr>
<td>Medicare Independent</td>
<td>5.1%</td>
<td>6.6%</td>
<td>6.1%</td>
<td>5.1%</td>
<td>22.9%</td>
</tr>
<tr>
<td>Medicare w/Frequent Visits</td>
<td>0.8%</td>
<td>2.7%</td>
<td>5.6%</td>
<td>5.2%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Middle Age w/Frequent Visits</td>
<td>0.6%</td>
<td>2.3%</td>
<td>6.0%</td>
<td>10.3%</td>
<td>19.1%</td>
</tr>
<tr>
<td>Total</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>100%</td>
</tr>
</tbody>
</table>
HEART SUCCESS
Congestive heart failure is a common diagnosis across System hospitals, with volume growing consistently year over year. These patients are at particular risk of readmission, with all-cause 30-day readmission rates at approximately 25 percent. More than 2,200 hospitals nationwide are penalized nearly $280 million a year for these readmissions – that’s an average loss of $1,500 per congestive heart failure readmission.

Carolinas Healthcare System developed the Heart Success program in 2013 which helped the System’s largest medical center see a drop in all-cause congestive heart failure readmission rates by 3.5 percent to 13.89 percent, nearly half the national average.

To test the program’s success in other regions, the System’s Sanger Heart & Vascular Institute extended the program virtually to a hospital outside of Charlotte. By using home health and telemedicine, providers at these hospitals have observed readmission rates half of those expected.

Heart Success Model

Heart Failure (HF) Inpatient Coordinator
- Executes discharge protocol
- Data collection for appropriate heart failure measures

Patient Discharged to Sanger Clinic or Myers Park HF Clinic within 1 to 3 days

Campus-Based Transition Clinic
- Risk assessment
- Confirm guideline management
- Determine patient is compensated or decompensated
- Contacts primary care physician with patient update
- Maximum 4 visits

Services Available
- Pharmacist
- Social Worker
- Nutritionist
- Rehabilitation Referral
- Educational Material
- Home Care Referral
- Hospice/Palliative Care

Primary Care Provider

Telehealth/Home Connect
Follow-up call to patient each week for 3 weeks after transition clinic

Co-Management of Heart Failure Patient

Care Coordination with Primary Care Provider
BEGIN PLANNING FOR DISCHARGE AT TIME OF ADMISSION

Assess patient’s clinical and social needs including primary diagnosis, history of hospitalization.

Comply with evidence-based guidelines and ensure order sets are utilized.

Refer to appropriate consults (e.g., specialists, palliative care, pastoral care).

Tie up loose ends, such as discharge summary, schedule follow-up appointments and telephone calls.

Patient Admission

Hospitalization

Discharge

Reconcile patient’s medications with list of home medications.

Provide thorough disease-specific patient education.

Make follow-up appointments within 1 to 3 days.

Refer patient to appropriate post-acute care setting (e.g., long term care, home care, hospice).

Services often not provided until day of discharge.

Congestive Heart Failure 30-Day All-Cause Readmission Rates

Readmission Observed

Readmission Expected

Readmission Observed/Expected
COMMUNITY TREATMENT PROGRAM FOR BEHAVIORAL HEALTH

Our Assertive Community Treatment (ACT) program uses an evidenced-based model designed to provide comprehensive treatment, rehabilitation and support to adults who suffer from severe and persistent mental illness, primarily chronic schizophrenia. ACT patients typically have experienced homelessness, criminal justice involvement and unemployment.

The average length of inpatient psychiatric stay for patients at one of our behavioral health hospitals, Carolinas Medical Center (CMC)-Randolph, is eight days. The total average cost for this stay is $20,000. The average cost of ACT treatment per month is $696, representing a large cost differential if patients who were enrolled in the program avoided hospital admissions.

Our System’s ACT team emphasizes home visitation and other out-of-office interventions, in “real world” settings, to reduce the potential for hospitalization and relapse. Research shows that, after one year, relapse rates were 64 percent for patients with schizophrenia not taking medication. In February 2014, only 3 percent of ACT patients at CMC-Randolph experienced re-hospitalization.

With the annual cost of schizophrenia estimated at nearly $63 billion nationwide, ACT programs demonstrate cost effectiveness. Studies indicate that ACT patients show:

- Reduced hospital stays by 78 percent, compared to outpatient clinic care
- A 104 percent further reduction in homelessness
- Reduced arrests and time spent in jail

The ACT program located at CMC-Randolph is one of four in Mecklenburg County. A long-standing member of the North Carolina Assertive Community Treatment Coalition, our program is unique, as it is embedded in a larger system of care, allowing more seamless communication across departments.
I experienced trauma at a young age, as I lost my mother to her battle with breast cancer. I was 13. It was then I began to fall into the dark, colorless void that is depression. By age 20, I’d begun to hear voices and auditory hallucinations. I was terrified and suicidal for many years. Then the voices turned to delusions.

My first experience with CMC-Randolph was in 2007. I was taken to our region’s only 24-hour psychiatric emergency department, where I was found to be a danger to my own life. I was hospitalized in the intensive psychiatric inpatient unit. To date, I’ve spent over 100 days of my life in an inpatient psych unit, spread over dozens of stays across the state.

While in search of a real companion to comfort me, I found myself in a domestically violent relationship with an alcoholic man twice my age. But it was also then that I discovered the first light and hope I’d felt in many years. Growing within me was my daughter. Unfortunately, the abuse continued. Our last altercation resulted in my being incarcerated on an assault charge after I decided to fight back. I spent months in jail, pregnant and alone. From jail, I was taken back to a place I knew well – the inpatient unit at CMC-Randolph. After treatment, I was referred to the Assertive Community Treatment (ACT) team.

In 2012, I began to see glimpses of color for the first time.

Since being with the ACT team, I have not experienced any more inpatient stays. Now, I still experience the highs of being in manic states, and most often depression and anxiety. The voices are still there, always beckoning me to return to a darker place. I’ve learned to channel them and use them as inspiration to create works of art – I am an artist.

Whether bold color or lackluster, whether conveying pain or a sense of yearning for the life I dream about, my art is how I help people see me; how I connect to reality. It is how I give to others. Today, I’m the proud parent of a two-year-old daughter, I remain hospital-free and I’m able to co-exist within the community. I owe much of that to the ACT team. My name is Jessica. I am 28 years old. And I suffer from a form of schizophrenia referred to as schizoaffective disorder. And this is my story.
“A significant percentage of people with diabetes are unaware of it. In fact, the vast majority of people with prediabetes don’t know they are at increased risk for developing Type 2 diabetes. Fortunately, the progression to diabetes can be halted or even reversed if interventions begin early enough. By helping identify and treat people with prediabetes, we’re taking a proactive step to prevent diabetes and protect our community’s health.”

– Zeev Neuwirth, MD, Chief Clinical Executive of Carolinas HealthCare System Medical Group
IMPROVED HEALTH AMONG PATIENTS WITH DIABETES

North and South Carolina have some of the highest diabetes rates in the country, and Carolinas HealthCare System providers manage more than 100,000 known patients with diabetes in or near the Charlotte region and has five Advanced Inpatient Diabetes Certifications from The Joint Commission.

In 2013, System providers targeted hemoglobin A1c (blood sugar) levels more aggressively, with a goal of having no more than 10.8 percent of patients’ blood glucose levels above 9 percent. In 2014, our goal is to reduce that number to 10.5 percent. The number of patients with diabetes at Carolinas HealthCare System who have taken a hemoglobin A1c test in a recent 12-month period is consistently at 93 percent.

Through our use of a Diabetes Registry and Decision support within our electronic medical record, more of our patients have received appropriate testing and screening, including A1c testing, lipid testing and screening for kidney disease, than ever before. Our A1c control puts Carolinas HealthCare System in the top decile of performance across the country which ultimately leads to lower complications including, blindness, heart disease, stroke and kidney failure.

North Carolina ranks 10th highest in the nation in the prevalence of diabetes:

- Approximately 1 out of every 10 people in North Carolina has diabetes
- Approximately 1 out of every 4 people in North Carolina has prediabetes
- Approximately 1 out of every 3 patients admitted to Carolinas Medical Center has diabetes
Asthma is a chronic disease that is difficult to manage and associated with poor health outcomes, low medication adherence and high costs. Currently, asthma affects more than 29 million people in the United States, including more than 10 million children. And the number of people with asthma continues to increase. Offering evidence-based care for asthma improves quality of care while increasing patient engagement and satisfaction. Also, improving asthma control has the potential to save as much as $4,000 per patient every year related to the medical expenses incurred from uncontrolled asthma. This does not include lost productivity and missed school days that occur when patients have poorly controlled asthma.

In North Carolina, lifetime prevalence of asthma is 13.2 percent for adults and 17.5 percent for children. Our goal was to increase appropriate care delivery and reduce asthma exacerbations resulting in emergency department (ED) visits, inpatient stays and use of oral steroids. In 2013, Carolinas HealthCare System’s advanced analytics research team (Dickson Advanced Analytics) completed a three-year study that trained providers at six practices on ways to engage patients in a shared decision-making about their asthma treatment. Patients were invited to a specialized asthma clinic where health coaches and providers used a toolkit to solicit health goals and treatment preferences and to prescribe appropriate therapy using evidence-based guidelines.
Results showed that 212 participants in these clinics decreased asthma-related ED visits by 42 percent, from 15.6 to 9 percent in the six months following their first shared decision-making visit. Similarly, use of oral steroids declined 24 percent, while the combined exacerbation outcome decreased by 28 percent. Nearly 90 percent of patients reported being part of the decision-making process about their treatment plans.

Through funding from the Patient Centered Outcomes Research Institute, the Shared Decision Making Toolkit developed at Carolinas HealthCare System is being disseminated to practices across North Carolina. Additionally, an electronic Asthma Action Plan (eAAP) decision support tool developed as part of this research effort has been deployed to more than 90 primary care practices within Carolinas HealthCare System. The new eAAP tool is embedded within the electronic medical record system to provide guideline decision support for providers and an individualized asthma action plan handout for the patient to guide their asthma self-management at home.

As of December 2013, more than 4,000 Carolinas HealthCare System patients have an electronic asthma action plan, 84 percent are children, and early results show a decrease in asthma exacerbations for eAAP users.

“I feel great because I’m doing a lot better than I was before. All the medicine that wasn’t helping me … it was just a waste of time … I feel good being a part of my decision around my medications.”

**PATIENT QUOTE**
PALLIATIVE CARE
Care teams from the Carolinas Palliative Care and Hospice Network, established in January 2011, provide consultations to patients with serious illnesses among nine System facilities, including Levine Children’s Hospital. Palliative care is delivered using a patient- and family-centered approach that includes symptom management, care goal-setting, increased communication, emotional support and continuity of care across settings.

Since 2010, there has been a 91 percent increase in the number of palliative care team consultations provided at our hospitals. These consults also have been happening earlier in the patient’s stay.

From 2012-2013, Carolinas HealthCare System observed fewer readmissions and a lower hospital mortality than expected among patients receiving a palliative care consult, avoiding nearly $3 million dollars in hospital costs. In addition, the readmission observed to expected ratio (O/E) – that is, the number of actual readmissions divided by the number of expected readmissions – was 35 percent lower and the mortality O/E was 27 percent lower among the consulted inpatients compared with other inpatients who did not receive a palliative care consult among the same facilities in the same timeframe.

Results suggest that the longer the days from admission to consult, the higher the length of stay O/E ratio. Further, when providing a palliative care consult before day two of a patient’s stay, the length of stay O/E and cost per case O/E were estimated to be less than 1.0, avoiding excess days and costs.
Interventions to Reduce Acute Care Transfers (INTERACT™) is a quality enhancement program designed to improve early identification, assessment, documentation and communication about changes in the status of residents in skilled nursing facilities. Its overall goal is to reduce potentially avoidable transfers to the hospital.

The program and related tools were developed with the support of a Centers for Medicare & Medicaid Services special study conducted by the Georgia Medical Care Foundation in 2007-2008. A follow-up project supported by the Common Wealth Fund included 30 nursing homes in three states and focused refining the tools with input from nursing home providers and national experts.

There are four basic types of tools: communication (SBAR, Stop and Watch); clinical, which includes nine care paths for specific conditions; advance care planning; and quality assurance.

The success of INTERACT is directly related to the engagement of a facility, which can be done by identifying a facility champion to drive implementation, and support culture change, and process improvement. Carolinas HealthCare System’s skilled nursing facilities developed a strategic plan to implement the INTERACT program and tools over an extended period of time, allowing the best opportunity for success.

With the implementation of each new tool, we identified the current process, introduced the new process around tools and monitored sustainability. The System rollout of INTERACT began the second half of 2013 and, by December 2013, Carolinas HealthCare System-owned facilities and Quality and Safety Operations Council (QSOC) participants saw a significant decrease in their readmissions and Emergency Medical Services utilization and resident transfers to the emergency department.

### Overview of the INTERACT Quality Improvement Program

#### Commonwealth Fund Project Results

<table>
<thead>
<tr>
<th>FACILITIES</th>
<th>RELATIVE REDUCTION IN ALL-CAUSE HOSPITALIZATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>All INTERACT Facilities (N=25)</td>
<td>17%</td>
</tr>
<tr>
<td>Engaged Facilities (N=17)</td>
<td>24%</td>
</tr>
<tr>
<td>Not engaged Facilities (N=8)</td>
<td>5%</td>
</tr>
</tbody>
</table>

Quality and Safety Operations Council (QSOC™)

Carolinas HealthCare System has developed an organized approach to drive and integrate quality and patient safety across the System through this Council. The Council’s 25 QSOC teams focus on functional areas and provide a vehicle for development and rapid replication of best practices. They build on the clinical experiences and achievements of all care environments. The methodology includes systematic improvement approaches and methods to develop durable, long-term solutions to existing gaps in care.

### 35 More Readmissions Were Avoided in 2013 Compared to 2012 for a Cost Avoidance of $322,000
IMMUNIZATIONS AND UNPLANNED TRANSFERS FROM HOME HEALTH

During 2013, Home Health QSOC (see sidebar on pg. 22) members were consistently reporting respiratory issues among home health patients as challenges to reducing unplanned transfers. A deeper dive into the data raised questions in regards to immunization rates and their impact on unplanned transfers. We evaluated the association between pneumococcal vaccination (PPV) status, influenza vaccination status and unplanned transfers to acute care among home health patients.

The results revealed that the greatest odds of unplanned transfers happened among patients who did not receive either vaccination and patients who only received the flu vaccine, compared with patients who received both vaccinations. There was no significant difference in unplanned transfers between patients that only received the PPV and those that received both vaccinations, suggesting PPV may have a stronger protective impact on unplanned transfers.

A return-on-investment analysis showed a potential cost savings to Carolinas HealthCare System among Medicare home health patients. Among Medicare home health patients, the System could gain $2.14 for every $1 spent on administering the PPV by the home health agencies. (Gain is defined as potential dollars saved by preventing unplanned transfers due to PPV administration.)

Given these results, Home Health QSOC members decided to focus greater attention on improving pneumonia administration rates among home health agencies and added a Pneumonia Vaccination metric to their quality scorecard for 2014. This learning has also been shared with our acute care and ambulatory partners who are also focusing efforts to increase immunization rates.
The Patients First: Primary Care initiative began in early 2013 with two key objectives: (1) Develop an ideal state for an integrated primary care organization that reflects the shift to value-based care, and (2) Build enthusiasm and momentum with a critical mass of System thought leaders and clinical leaders to ensure sustainability of the transformation.

We have more than 80 Carolinas HealthCare System physicians participating in five project work groups to design a new patient care delivery framework from the ground up. These groups include a range of clinicians, including advanced care practitioners and other healthcare experts. We believe that changing our care model is the right thing to do for our patients and will help close care gaps. Multidisciplinary teams led by the primary care physician will offer patient coaching as needed and will further increase the number of options for patients, including employer-based clinics, retail clinics, online options and more.

The care model is assessed on the improvement of quality outcomes such as appropriate care scores and prevention metrics, reduction in readmissions and emergency department utilization, improved same-day access, decreased wait times, and decreased medication and lab errors.
NEW MODELS OF CARE

Value-Laden Encounter
- New Care Team model with each team member working at top of skill level
- Standardized workflows and roles
- Provide leverage for physicians (i.e., flow manager)

Convenient Access
- Broader incorporation of Advanced Clinical Practitioners
- New types of encounters: e-visits, telephone visits, virtual medicine
- Schedules with open (same day) access

Customized Coordinated Care
- Integration of care and case management
- Integration of big analytics to identify high-needs patients
- Integration of behavioral health

Reliable Clinical Care
- Easy access to evidence-based medicine in practice and EMR
- Timely access to performance information
- Non-punitive monitoring of performance

BEHAVIORAL HEALTH – VIRTUAL CARE
North Carolina has double the national rate of behavioral health emergency department (ED) visits, combined with one of the lowest per capita rates of inpatient psychiatric beds. To address the continuing behavioral health crisis, Carolinas HealthCare System has been implementing virtual care across our behavioral health care locations over the past decade. We expect virtual visits to help the System achieve lower costs, improved access and a better patient experience.

ED consults through telepsychiatry were the System’s first foray into virtual care, starting 10 years ago. We now conduct at least 350 consultations per month just in the greater Charlotte area and expect that number to double in the next year. These sessions are conducted through dedicated videoconferencing equipment or laptop-based applications. The benefit is lowering the ED length of stay, providing accurate diagnosis and initiating effective treatment as quickly as possible.

A pilot program providing teleconsult services in acute care hospitals began in January 2014. In this program, an attending physician can seek a psychiatric consult for an inpatient (e.g., a heart attack patient experiencing depression or a drug overdose patient in the ICU) via telepsychiatry, which is particularly critical in areas with little or no psychiatric coverage.

Virtual care will play a major role in our plan to integrate behavioral health into our 180-plus primary care offices. Instead of embedding a single behavioral health provider in a primary care setting, Carolinas HealthCare System will deploy a team of providers – social workers, nurses, pharmacists, care navigators and psychiatrists – through virtual platforms and working at the top of their licenses to meet patient needs at the time of the visit rather than delaying diagnosis and treatment.
DECENTRALIZED CANCER CARE

Despite recent advances within cancer treatments, access to cancer care remains a critical issue that will prevent many people from receiving the best possible care. This calls for a new approach to fighting cancer. Through an integrated model that extends across the Carolinas and leverages cancer experts and resources across Carolinas HealthCare System, we are creating a first-of-its-kind, decentralized approach to cancer care through the Levine Cancer Institute.

This unique approach encompasses more than a dozen facilities throughout the region and enables physicians and specialists to collaborate, share best practices and tap into the ever-growing number of internationally renowned specialists that have been attracted to this new model of care. These experts are developing standard treatment protocols to accelerate efficient, effective therapy and improve patient access to clinical research. The Institute also developed robust patient survivorship support programs like patient navigation, integrative medicine and fertility preservation, and it is piloting programs to reduce disparities and provide improved access to care.

A prime example of Levine Cancer Institute’s decentralized model of care and the reach of Carolinas HealthCare System is a Phase 1 clinical trials unit being opened at three integrated centers in Charlotte, NC, Charleston, SC and Concord, NC, which allows physicians to enroll patients in the newest and most promising trials without the need for long-distance travel. This approach helps reduce costs and can lead to better outcomes by reducing travel and keeping patients closer to home.
Three years after Levine Cancer Institute opened with a unique, integrated approach to cancer care, more than 11,000 patients a year now access world-class physicians and the newest treatments regardless of whether they live in a large city or rural community.

**LEVINE CANCER INSTITUTE Locations**

1. Albemarle, NC  
   Stanly Regional Medical Center
2. Indian Land, SC  
   Levine Cancer Institute-Carolina Lakes
3. Concord, NC  
   Batte Cancer Center at Carolinas Medical Center-NorthEast  
   CMC-NorthEast Radiation Oncology
4. Cornelius, NC  
   Levine Cancer Institute-Cornelius
5. Lincolnton, NC  
   Carolinas Medical Center-Lincoln
6. Monroe, NC  
   Edwards Cancer Center at Carolinas Medical Center-Union  
   CMC-Union Radiation Oncology
7. Anderson, SC  
   AnMed Health Medical Center
8. Shelby, NC  
   Cleveland Regional Medical Center
9. Morganton, NC  
   Carolinas HealthCare System Blue Ridge-Morganton Campus
10. Mount Pleasant, SC  
    Roper St. Francis Mount Pleasant Hospital
11. Valdese, NC  
    Carolinas HealthCare System Blue Ridge-Valdese Campus
12. Rock Hill, SC  
    Levine Cancer Institute-Rock Hill; Rock Hill Radiation Therapy Center
13. Forest City, NC  
    Rutherford Internal Medicine Associates-Lancaster Radiation Therapy Center
14. Lancaster, SC  
    Lancaster Radiation Therapy Center

**LEVINE CANCER INSTITUTE Charlotte Locations**

A. Research and Administrative Headquarters  
   Carolinas Medical Center Radiation Therapy Center
B. Ballantyne
C. Carolinas Medical Center-Mercy
D. Mallard Creek
E. Matthews
F. Pineville  
   Carolinas Medical Center-Pineville  
   Pineville Radiation Therapy Center
G. SouthPark
H. Tryon
I. University  
   Carolinas Medical Center-University  
   University Radiation Therapy Center
CHEST PAIN NETWORK

Each year, about 715,000 Americans have a heart attack. Approximately 525,000 of these are a patient’s first heart attack while about 190,000 occur in people who have had a previous heart attack.

Carolinas HealthCare System’s Sanger Heart & Vascular Institute provides experienced and comprehensive cardiovascular care at more than 25 care locations in the Carolinas through a team of more than 90 physicians. According to the national ACTION Registry®–GWTG™, Sanger is 18 minutes faster than the national average at treating heart attacks.* Carolinas HealthCare System has nine facilities accredited by the Society of Chest Pain Centers for our higher level of expertise in treating patients with heart attack symptoms.

Door-to-balloon time is one of the vital process measures the Chest Pain Centers monitor. This measure tracks from the time the patient arrives in the ED to the time the patient receives a percutaneous coronary intervention, such as angioplasty. By reducing delays in treating a myocardial infarction, there is a lower chance of cardiac muscle damage due to lack of oxygen. The American Heart Association recommends a door-to-balloon time of no more than 90 minutes, and the Joint Commission has adopted this as a core measure.

Carolinas HealthCare System’s performance for median door-to-balloon time has been well below 90 minutes since 2012 and continues to decline.

Door-to-Balloon Time 2013

* The ACTION Registry is a risk-adjusted, outcomes-based quality improvement program that focuses exclusively on high-risk STEMI/NSTEMI patients.
CAROLINAS STROKE NETWORK

Stroke kills more than 133,000 people each year and is a leading cause of long-term disability. Carolinas Stroke Network is an integrated system of care that offers evidence-based standards of care for acute stroke diagnosis and treatment to patients across the System.

Our team consists of neurologists, neurosurgeons, neurointerventionalists and neuroradiologists, in addition to specialists in emergency medicine, rehabilitation and nursing. The Network now includes more than sixteen hospitals and free standing emergency departments (EDs), including five hospitals that have achieved certification as Primary Stroke Centers by The Joint Commission. Our two comprehensive stroke centers have also received the Stroke Gold Plus Quality Achievement Award by the American Heart Association and American Stroke Association. We have ten Advanced Primary Stroke Certifications from The Joint Commission.

One of the most important measures collected by these hospitals is Target: Stroke. This measure tracks the time from when the patient arrives in the emergency department to the time the patient receives intravenous thrombolysis. Reducing this time improves the odds of a good outcome following a stroke. A hospital meets this measure if 50 percent or more of its cases receive thrombolysis within 60 minutes of arrival to the ED.

CODE STROKE

The Code Stroke process was developed to standardize to best practice and minimize delays in the treatment of acute stroke patients. This process begins in the ED, where the patient’s stroke symptoms are assessed. If the patient has displayed stroke symptoms in the past six hours, a Code Stroke page is sent out to the stroke team (emergency medicine, neurology and radiology) and the process is initiated. The patient is seen by a neurologist who determines the appropriate plan of care.

To continually improve the code stroke process, the ED tracks specific data set by The Joint Commission for each patient, such as “door-to-physician,” “door-to-CT,” and “door-to-CT interpretation completed,” and they meet each month to review each case. By improving these times, the stroke team can potentially decrease the time to intravenous thrombolysis, which is known to improve a patient’s overall outcome.

The Carolinas Stroke Network helps facilities with implementing and improving their Code Stroke process by performing staff trainings and collaborating with them in the development of specific hospital code protocols. They also provide additional resources the facilities may need and assist them with applying for Joint Commission Certifications.
A dangerous stroke almost changed Christopher Stancil’s life forever. Stancil, 51, was enjoying lunch with his family when suddenly his left leg and arm gave out. At the same time, he realized he couldn’t speak. “It was definitely a scary thing,” Stancil said. Stancil’s wife knew what was happening and quickly called 911, and Stancil was rushed to a hospital in Concord, NC, nationally certified as a primary stroke center by The Joint Commission.

Doctors knew there was only a small window of time to treat Stancil before he suffered permanent damage. They quickly discovered the cause: a blood clot blocking blood flow to his brain. And while the clot-busting medicine he needed – tissue plasminogen activator, or tPA – can only be given within three hours of the onset of his symptoms, he made the cutoff.

“For stroke patients, every minute that passes increases the risk of permanent brain damage,” said neurologist Arvind Vasudevan, MD, who treated Stancil. “In these situations, it’s imperative that we act as quickly as possible.”

Doctors quickly administered the tPA through an IV. Soon, however, it became clear that the clot in Stancil’s brain was too large to be dissolved by medication. That’s when doctors turned to a rare, highly specialized procedure to remove the clot. Called intra-arterial clot removal, the process involves finding the exact location of the blood clot in the brain and retrieving it.

Even when patients arrive at the hospital in enough time for the method to be performed, many hospitals simply don’t have the resources or capabilities to perform it. On that day, interventional radiologist Michael Meuse, MD, performed the procedure and removed the clot from Stancil’s brain.

With the clot successfully out, they needed to unblock the artery in Stancil’s neck that had caused the clot. Neurosurgeon Wilson Daugherty, MD, PhD, stepped in. He opened Stancil’s carotid artery and placed a stent to restore blood flow through the vessel.

“Everyone helped bring him to a full recovery,” said Dr. Vasudevan. “He’s a poster child for how seamless stroke care should work. He could have easily ended up in a nursing home, but instead, he was able to walk out of here with no problems.”

After two weeks of physical therapy, Stancil says he is “back to 100 percent.” He returned to work in only a week and was able to resume his daily workout routine. Stancil knows his outcome makes him one of the lucky ones, and he’s grateful for the care that made it happen.
Carolinas Medical Center
Carolinas Medical Center-Pineville
Carolinas Medical Center-NorthEast*
Carolinas Medical Center-Mercy
Stanley Regional Medical Center
Carolinas Medical Center-University
Carolinas Medical Center-Lincoln
Scotland Memorial Hospital
Carolinas HealthCare System Blue Ridge-Morganton Campus
Carolinas Medical Center-Steele Creek
Kings Mountain Hospital
Cleveland Regional Medical Center
Carolinas Medical Center-Union
Anson Community Hospital
Carolinas Medical Center-Waxhaw
Carolinas Medical Center-Morrocroft

CAROLINAS STROKE NETWORK

EXPERTISE:
- Stroke-trained neurology
- Advanced stroke services

INFORMATION:
- Clinical information
- Imaging

24/7 ACCESS:
- Telephone access to stroke specialists
- Ambulance and air transport

SUPPORT:
- Code stroke protocol
- Education and training

* Gold Plus Target Stroke Honor Roll by the American Heart Association and American Stroke Association, Get With The Guidelines®-Stroke
CAROLINAS TRAUMA NETWORK
Through the Carolinas Trauma Network, clinicians and administrative leaders across the System are collaborating to develop and implement evidence-based best practices in several key areas.

CONCUSSION/MILD TRAUMATIC BRAIN INJURY
Key program components include:
- Coordination with area school systems on concussion and mild traumatic brain injury prevention and early recognition efforts
- Evidence-based clinical protocols for appropriate use of head CTs in urgent care and emergency departments
- Patient education
- Coordinated follow-up care with concussion-trained providers

Early outcomes indicate decrease in head CT utilization and increase in post-concussive follow-up care with our providers.

FRAGILITY FRACTURE
Key program components include:
- Recommendations for fall prevention and bone health screening
- Acute care co-management with medicine and orthopedic surgery
- Patient education
- Coordinated transition with primary care and continuing care team

Early outcomes demonstrate earlier surgical intervention, decrease in overall inpatient length of stay, decrease in 30-day readmission and increase in coordinated continuing care in a Carolinas HealthCare System care location.

UNINTENTIONAL POISONINGS
In 2009, unintentional poisonings surpassed motor vehicle deaths as the leading cause of injury related death in the nation. The Carolinas Trauma Network is developing a coordinated approach with the following key components:
- Prevention programs
- Engagement with Carolinas Poison Center through emergency medical services
- Streamlined access for providers to state prescription databases
- Evidence-based care protocols driven by Carolinas Poison Center

2009
Unintentional poisonings surpassed motor vehicle deaths as the leading cause of injury-related death in the nation.
DURING 2013, the mild traumatic brain injury/concussion program demonstrated improvements throughout the System.

DURING 2013, the fragility fracture program demonstrated improvements throughout the System.

- Reduction of head CT utilization in the emergency department from 80 percent to 69 percent
- Increase in participating providers in Carolinas Concussion Network from 77 to more than 150
- Telehealth solutions call volume related to Carolinas Concussion Network calls from 56 to 1,289 calls
- Increased concussion follow-up appointments with Carolinas HealthCare System providers (versus non-System providers) from 6 percent up to 71 percent

- Increase in number of patients who had surgery (when indicated) within 24 hours of admission – from 41 percent to 74 percent
- Decrease in overall length of stay for osteoporosis-related hip fractures – from 6.48 days down to 5.26 days
- Decrease in 30-day readmissions for osteoporosis-related hip fractures – from 13.9 percent to 7 percent
- Increase in number of osteoporosis-related hip fractures that were retained at Carolinas HealthCare System post-acute care setting – from 18 percent to 27 percent
Current Designated System Trauma Centers

North Carolina
Carolinas Medical Center (Level 1)
The Moses. H. Cone Memorial Hospital (Level 2)
Carolinas Medical Center-NorthEast (Level 3)
Cleveland Regional Medical Center (Level 3)

South Carolina
AnMed Health (Level 2)
Roper St. Francis Healthcare (2, Level 3)

Every System care location meets the needs of trauma patients who have experienced accident or injury, including:

- Designated Trauma Centers
- Acute care and urgent care locations and physician offices
- A diverse network of more than 900 care locations
VIRTUAL CRITICAL CARE

Carolinas HealthCare System has 552 intensive care unit (ICU) beds, with a limited number of physicians who are board certified in critical care. There is a growing need to reduce care variability by tracking inter- and intra-facility comparative, standardized outcomes. The goal of virtual critical care is to support the best evidence-based practice to allow every ICU patient the level of care provided by an intensivist physician.

The virtual critical care model enables Carolinas HealthCare System to:

• Leverage scarce resources
• Provide real-time oversight of ICU patient care via 24/7 monitoring and two-way audio/video connectivity
• Provide earlier recognition of subtle changes in patient condition
• Assure adherence to evidence-based standards of care
• Facilitate quality data collection, reporting and benchmarking
• Support care of critically ill patients at community hospitals

Through an ideal blend of medicine and technology, this care model leverages clinical expertise, patented processes and cutting-edge technology to improve critical care delivery.

VIRTUAL CRITICAL CARE PROVIDES

• Earlier recognition and intervention in changes in patient condition
• Real-time workflow and clinical support for bedside clinicians
• Proactive management of patient care (e.g., ventilation management, sedation)
• Ability to identify variability and opportunities for improvement
• Ability to track outcomes related to performance improvement initiatives (e.g., sepsis care)
• Ability to implement and prove benefit of new evidence-based interventions across the System
• Standardized, risk-adjusted data collection and reporting to track and compare facility outcomes
• Monitor and manage critical care bed utilization across the System
• Decrease unnecessary inter-facility transports
REMOTE INTENSIVIST VIRTUAL REVIEW
Since the first Carolinas HealthCare System care locations went live with virtual critical care in 2013, we have implemented the remote intensivist review for all ICU admissions and demonstrated the value in this practice in terms of both ICU and hospital length of stay reduction. Since the third quarter of 2013, the overall percentage of patients with an intensivist review has gone from 21 percent to 69 percent in the first quarter of 2014.

Data collected through virtual care is facilitating risk-adjusted location-specific reporting and standardization of practice around sepsis identification and treatment, mechanical ventilation, and primary outcomes such as mortality, length of stay and ICU readmissions. Hospital length of stay for ICU patients that are monitored by virtual critical care is measured as a risk-adjusted outcome using the APACHE methodology and presented as an O/E ratio, where an O/E under 1.0 is considered better than expected (or average).

VIRTUAL VISITS AND SUPPORT GROUPS
Carolinas HealthCare System’s Levine Cancer Institute launched a first-of-its-kind virtual support group for bladder cancer patients in June 2013. This innovative pilot program provides patients in rural communities access to high-quality, multi-disciplinary care and physician expertise. It enables patients to share their concerns with and receive support from other patients and caregivers located throughout the Institute’s network of cancer centers in North and South Carolina. Usually, this kind of support is only available for patients living in metropolitan areas because of a lack of resources in rural communities. Since piloting the virtual support groups for bladder cancer, the model has expanded to include head and neck cancer, and eventually it will include breast and lung cancer patients.

By offering support groups virtually, through its advanced videoconferencing capabilities, the Institute continues to overcome the geographical barriers that exist between patients and high-quality care. The virtual bladder support groups are held once a month, at nine of the Institute’s locations, including in Charleston, SC. Bladder cancer patients and their spouses or caregivers are able to attend the group, regardless of where they are in the treatment or survivorship continuum.

*Strong evidence (p = .04) that hospital length of stay O/E for ICU patients monitored by virtual critical care is decreasing as a function of time since the virtual critical care program was implemented.
Effectively managing a community’s health and wellness means identifying tomorrow’s healthcare challenges, today. Our System’s focus on population health management includes total data integration. Managing a large population requires an integrated network of care locations that effectively communicate with one another through data. It also requires a medical and data team capable of leveraging these data to redesign our point-of-care model in a way that reaches the community and moves the needle toward patient engagement. Our vision for the future of population health management includes the ability to predict high-risk patients and populations, to intervene and to provide an effective care plan.

PRE-D CHALLENGE: REVERSE THE RISK

In 2013, Carolinas HealthCare System developed and implemented a community health initiative to tackle the public health epidemic of Type 2 diabetes, a disease that affects more than 29 million Americans and over 1 million people across the Carolinas.

Through a multi-pronged effort dubbed the Pre-D Challenge: Reverse the Risk, Carolinas HealthCare System is aiming to reduce the prevalence of Type 2 diabetes in the region by preventing it before it starts.

The Pre-D Challenge allows us to identify those at higher risk for developing Type 2 diabetes and offer them preventive services and treatments.

This includes an initial diabetes risk assessment, a free blood glucose test and, for at-risk individuals, the opportunity to enroll in an evidence-based prevention lifestyle-change program recognized by the Centers for Disease Control and Prevention and proven to reduce the risk of developing Type 2 diabetes.

“If not for this work, I’m convinced I wouldn’t have found out I was prediabetic – or I would have found out too late. I won’t allow this disease to be a part of my life now that I have this knowledge.”

- Pre-D Challenge participant
LIVEWELL HEALTH CENTERS – A COMMUNITY WELLNESS PARTNERSHIP

Carolinas HealthCare System and the YMCA of Greater Charlotte have developed a partnership that provides community members with a direct link to our System. The partnership allows us to maintain the well-being of already-healthy individuals, manage and improve the health of “at risk” populations and decrease the level of acuity of our sickest patients. YMCA members and non-members can access our program located at 12 health centers, which have more than 68,000 patient encounters each year.

Our 12-week Lifestyle Management & Medical Referral Program promotes wellness and chronic disease management through an extension of the patient’s “medical-centered home.” A team of experts, including exercise specialists, registered nurses and dietitians, provides personalized support. Together, they empower patients with the tools, education and accountability needed to develop healthier lifestyles.

In 2013, 824 participants enrolled in the program, and in 2014 year-to-date, 473 participants have enrolled. Health measures show these patients have improved their hemoglobin A1c, LDL and blood pressure. About 55 percent saw a reduction in blood pressure range from baseline by at least one unit, as outlined by the American Heart Association. Our electronic medical records are used to provide a direct link in communication between physicians and System LiveWELL Health Centers.

THE PARTNERSHIP OFFERS SEVEN PROGRAM TRACKS:

- Weight Management
- Diabetes Management
- Medical Management
- RENEW
- Cancer Wellness
- Cardiac Fitness
- Post Rehabilitation

EMPLOYER HEALTH PROGRAMS

Carolinas HealthCare System recognized the need to partner with employers to identify solutions that improve employee health, enhance productivity and reduce healthcare costs. In 2013, the System began redefining its corporate health line of business. Corporate health, known as HEALTHWORKS by Carolinas HealthCare System, offers employers evidence-based health programs and wellness initiatives, including:

- on-site clinics
- biometric screenings
- health coaching
- chronic condition management
- occupational health
- smoking cessation classes
- health fairs
- executive physicals
- physician referral services

Employer clients range in size from 50 to 14,000 employees and span a wide array of industries – from manufacturing, municipalities and educational systems to retailers, legal and financial services.
MEDICAL AND CONTINUING EDUCATION
At Carolinas HealthCare System, our education departments strive to support current and prospective care providers and prepare them for the medical challenges of the future. We offer real-world training using the best technologies and practices in healthcare, and we offer different provider groups opportunities to participate in continuous professional development that improve patient safety, quality of care and the patient experience.

The organization’s academic programs include undergraduate and graduate medical education, nursing and allied health programs, continuing medical education, and advanced clinical practitioner fellowships.

CENTER FOR ADVANCED PRACTICE
The Center for Advanced Practice was launched in 2013 by Carolinas HealthCare System as a way to train and support advanced clinical practitioners, including nurse practitioners, physician assistants, certified registered nurse anesthetists, clinical nurse specialists and nurse midwives.

Carolinas HealthCare System is one of the first healthcare organizations in the nation to create a comprehensive, three-tiered approach for optimizing the role of advanced clinical practitioners and creating more efficient, effective care delivery models that enhance the health and experience of patients and their families. The center offers:

- A centralized coordinating location to optimize core services related to advanced clinical practice
- A graduate acute care nurse practitioner program in partnership with the University of North Carolina at Charlotte
- A paid, post-graduate one-year fellowship program for nurse practitioners and physician assistants

The program admits 28 fellows every six months and covers all academic-related expenses, in addition to paying fellows a competitive stipend. Thanks to the center’s access to Carolinas HealthCare System’s unique, comprehensive resources, fellows are offered opportunities to participate in cutting-edge research, including ones that integrate behavioral health and primary care. The vast majority of fellows who graduate from the program accept positions at Carolinas HealthCare System.

Carolinas HealthCare System received Multi-Specialty Maintenance of Certification (MOC) portfolio status in June of 2013. This allows the System to grant MOC Part IV on behalf of a provider’s member board. Our program supports physician involvement in quality improvement and MOC across 18 American Board of Medical Specialties.
Simulation is playing an increasingly important role in medical education and provider skills training. Such training is shown to have superior results for skill acquisition and retention, compared to learning by reading, listening or observing alone.

At Carolinas HealthCare System, we offer simulation-based programs to students and providers in ambulatory, acute and skilled nursing care locations. Our programs are offered in several locations across the region, with our most comprehensive center located at Carolinas Medical Center.

**CAROLINAS SIMULATION CENTER**

Opened in 2007, Carolinas HealthCare System’s Carolinas Simulation Center is the only facility in the region to be both an American College of Surgeons-accredited Level I Education Institute and a Society for Simulation in Healthcare-accredited simulation center.

Several of the simulators offer metrics to deliver a more objective assessment of performance. With the advantages of simulation-based education, Carolinas Simulation Center has seen tremendous growth in the number of its learners since 2007. In 2013, the center saw more than 5,600 learners, totaling 19,525 contact hours – a 42 percent increase from 2012.

More than a quarter of those hours were allocated to training students from the Carolinas College of Health Sciences, and another 25 percent was dedicated to training students in graduate medical education. Seventeen percent was dedicated to training and re-educating employees in nursing departments across the System, including new graduate nurses, pediatric intensive care unit nurses and other registered nurses.

**UNDERGRADUATE MEDICAL EDUCATION**

For more than 40 years, Carolinas HealthCare System has played an active role in providing clinical education for University of North Carolina (UNC) at Chapel Hill medical students. In a pioneering move, UNC partnered with the System as a satellite campus, formally naming it UNC School of Medicine-Charlotte Campus, housed at Carolinas Medical Center.

The expansion of the UNC School of Medicine is intended to help combat the expected shortage of physicians in coming years. Expanding the medical school role of regional campuses is part of a strategy to increase the number of physicians overall and to encourage graduates to practice in small towns and in urban and rural areas.
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*ADDiTiONAL SYSTeM iNiTiATiVES*
## ADDITIONAL SYSTEM INITIATIVES

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<th>Patient Safety</th>
<th>Clinical Outcomes</th>
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In 2013, Carolinas HealthCare System was recognized locally and nationally for our commitment to delivering efficient, quality care across our continuum. Year after year, we are recognized by many of the top opinions in the industry, including U.S. News & World Report, Truven (formerly Thomson Reuters) and the Society of Thoracic Surgeons, which awarded our Cardiothoracic Surgery Program a three-star rating.

Our System continues being spotlighted for delivering high levels of patient safety and quality care across categories, ranging from best children’s hospital to excellent patient experience. From System-wide HIMSS and Stage 6 status to facility-specific Magnet and Truven recognitions, care teams across our 900+ care locations are recognized for their incredible achievements and contributions to the advancement of medicine and healthcare.

To learn more about our many earned recognitions, visit CarolinasHealthCare.org/Awards-and-Accolades.
AWARDS AND RECOGNITIONS

CONSUMER CHOICE #1
National Research Corporation

MAGNET RECOGNIZED
American Nurses Credentialing Center

STAGE 7

15 TOP HEALTH SYSTEMS
2013

TRUVENT HEALTH ANALYTICS

HealthCare’s most Wired WINNER 2013
CELEBRATING 15 YEARS

Commission on Cancer
2013 OUTSTANDING ACHIEVEMENT AWARD

TRUVENT HEALTH ANALYTICS

100 TOP HOSPITALS
2013

RECOGNITIONS