Achieving Excellent Patient Care in a Rural Hospital with Limited Resources

Based in Brookhaven, Miss., a rural town within Lincoln County, King’s Daughters Medical Center (KDMC) is a non-profit, 99-bed hospital. Although small, KDMC has been nationally recognized for quality care, including a CMS five-star rating for patient experience and outstanding patient care and safety awards from HealthGrades.

With close to 29,000 ER admissions each year, KDMC’s team of 39 physicians was often stretched thin. And without neurologists or pulmonologists onsite, KDMC had to transfer many patients to St. Dominic Hospital in Jackson, Miss. – approximately an hour away. As a result, care was delayed for transferred patients, which was especially problematic for patients needing time-sensitive care – such as ischemic stroke patients.

These lengthy transfers also created challenges for patients and their families: lengthy travels (sometimes upward of 100 miles a day), hotel costs, childcare needs and the potential of lost wages.

Additionally, the KDMC-owned ambulance service uses two or three ambulances (depending on the time of day) to serve all of Lincoln County. Transferring a patient to St. Dominic thus occupied one-third to one-half of the available fleet for roughly three hours, placing other emergency patients at risk.

In 2014, KDMC was approached by St. Dominic to join its growing telehealth network. At first, the focus of the partnership was to provide KDMC with remote access to St. Dominic’s neurologists, who could diagnose and recommend treatment for stroke patients quickly without automatically transporting them to Jackson. The highly successful telestroke program resulted in shorter treatment times and reduced transfer rates for stroke patients.

Building on the demonstrated success of telestroke, KDMC expanded its telemedicine services to include pulmonology. In this case study, you’ll learn how KDMC established its tele-pulmonology program - and the benefits it brought to the hospital, patients and community.
The Evolution of Tele-Pulmonology at KDMC

With the highest rate of adult obesity in the U.S. and third highest smoking rate in the country, Mississippi has a large number of people with respiratory disease. In particular, Chronic Obstructive Pulmonary Disease (COPD), the third leading cause of death in the country and a major cause of disability, is common among ER patients in the state. Due to its patient population with respiratory issues, in addition to complications that sometimes accompany mechanical ventilation in hospitals, the team at KDMC had sought a tele-pulmonology solution for close to 10 years. According to Cherri Walker, KDMC’s chief nursing officer, the team looked at expensive, large, hardware-based solutions that were simply not a fit for the organization.

When St. Dominic introduced its telemedicine system, which was powered by REACH Health’s software-based technology, KDMC was impressed by the solution’s flexibility, cost-effectiveness and scalability. REACH Health’s approach was not based on hardware, like most telemedicine systems, but rather an enterprise software platform that supports expansion into multiple service lines. KDMC joined the St. Dominic telestroke network, with the goal of eventually expanding the telemedicine program to include pulmonology.

By the summer of 2014, KDMC had incorporated telemedicine into its pulmonology rounds so it could retain more ICU patients and provide more comprehensive care by remotely consulting with Dr. Timothy Cannon, one of St. Dominic’s board-certified pulmonologists.

A Closer Look at Tele-Pulmonology:

How It Works at KDMC

Before launching its tele-pulmonology program, Walker, along with a team of clinicians and hospital administrators, developed a set of criteria to help identify patients that qualified for remote pulmonology consultations (see Figure 1). This not only included those with COPD, but other respiratory ailments (asthma, pneumonia, congestive heart failure, etc.) and patients on ventilators.

Today, their telemedicine cart is used bi-weekly with an e-stethoscope during pulmonology rounds.

“On the current iterative model of getting the entire KDMC staff onboard, we began educating our staff on the telemedicine program early into the hospital’s telemedicine program,” said Heard. “As noted before, KDMC recognized the importance of telemedicine – especially for pulmonology – for many years before joining St. Dominic’s program. Internal champions, including Heard and Dr. Jeffrey Ross, the director of inpatient medicine and chief medical officer, diligently looked for the best telemedicine solution and didn’t settle until they found it within the St. Dominic network.

These champions also secured approval from the KDMC medical executive team, which included the chiefs of surgery, medicine and pediatrics. Senior-level support and buy-in for the tele-pulmonology program and subsequent protocol was a critical part of getting the entire KDMC staff onboard.

Determine Where the Need is the Greatest

When first adopting telemedicine, rather than implement the solution for multiple service lines, KDMC determined that the need was greatest for stroke patients in the emergency room. By taking the time to carefully establish its telestroke program, KDMC was able to show powerful benefits and proactively build support among frontline staff and decision makers to eventually expand telemedicine into other service lines.

Establish a Specific Protocol and Educate the Staff

At the start of the tele-pulmonology program, Heard noticed that they lacked uniformity among physicians writing orders for consultations – some doctors were using the protocol, others were not.

With the support of Dr. Jeff Ross, Heard set out to empower the nursing staff to drive telemedicine consultations and encourage doctors to do the same. By the patients’ sides more than anyone else in the hospital, the nurses had a unique vantage point to identify tele-pulmonology patients early and ensure consultations are initiated in a timely manner.

“I am counting on my nurses to know when the protocol is appropriate and to advocate for it,” said Heard.

Promote It Early and Often

KDMC began educating its staff on the telemedicine program early into the integration, ensuring employees were “in the know” about the solution, its anticipated benefits and how, if at all, it would impact their jobs. KDMC also invested in promoting telemedicine throughout the Lincoln County community.

“Whatever modest investment we made in promoting the program to the community, was greatly outweighed by the good it did for patient outcomes,” said Dr. Ross. “Also, frankly, it’s good public relations for the hospital – showing how progressive we are and that we’re extending all avenues to get the best possible care for our patients.”

What the Future Holds

Due to the success of both the telestroke and tele-pulmonology programs, KDMC’s board of directors, made up of many long-time Lincoln County residents, gave its blessing to expand telemedicine into other specialties.

KDMC has already started to use telemedicine for nephrology consults. It also plans to explore the use of telemedicine for psychiatry, specifically evaluations and referrals. For many hospitals based in rural areas, performing timely evaluations and treatment options for psychiatric patients is a major challenge.

Dr. Ross believes that the expansion of telemedicine to multiple service lines – especially in smaller hospitals – will be more common in the U.S. in the not-so-distant future. He said, “In smaller healthcare settings, we can’t have the physical presence of every type of specialist onsite. To provide high levels of patient care seamlessly, telemedicine must become the standard of care.”

The Benefits of Tele-Pulmonology

Since implementing tele-pulmonology, KDMC and the Lincoln County community have experienced many benefits. Most notably, KDMC has seen a reduction in the transfer of pulmonology patients to St. Dominic. Due to the timeline close to 10 years it would take with Dr. Cannon, KDMC now keeps patients it would have previously transferred.

Even in rare instances where a KDMC pulmonology patient is later readmitted, KDMC believes tele-pulmonology provides great value. In one case, a female ventilator patient at KDMC was transferred to St. Dominic and treated by Dr. Cannon during a lengthy hospital stay. A few months after her discharge, she returned to KDMC presenting similar respiratory issues. A remote consult was done with Dr. Cannon, the patient and her family, and the decision was made to transfer her again to St. Dominic due to her specific history. Telemedicine helped to reacre the bedside experience for the doctor, patient and family, which enabled prompt decision-making.

With tele-pulmonology there are still times when patients need to be transferred to larger hospitals. In the case of the young woman, she was able to remotely consult with Dr. Cannon, the doctor that previously treated her, and KDMC was able to get her to Jackson quickly. Without tele-pulmonology, KDMC may have initiated treatment onsite, with little knowledge of her medical history.

KDMC has also experienced shorter length of stays for patients in the ICU – allowing the hospital to treat more people at lower costs. The ability to remove patients from ventilators, thus reducing the likelihood of complications, has also improved due to Dr. Cannon’s involvement.

Previously, when a pulmonology patient had to be transferred to Jackson, KDMC lost the use of an ambulance for three hours or more. Being driven by one ambulance was problematic due to the small fleet covering a large county. Today, with fewer patients being transferred, EMS has greater availability to cover the county’s needs. A similar benefit has also been realized in the REACH stroke program because Mississippi law requires EMS to bypass hospitals without neurologists or telestroke programs.

“Cost-wise, joining St. Dominic’s telemedicine network made sense. We spent years looking at telemedicine options that were just too expensive. REACH Health is extremely cost effective – so much so that I didn’t need the board of director’s approval to purchase the solution.” — Cherri Walker, CNO, King’s Daughters Medical Center

Tele-Pulmonology Best Practices

Here are some of the specific keys to success for KDMC’s tele-pulmonology program.

Find Internal Champions and Have Senior-Level Support

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<table>
<thead>
<tr>
<th>Diagnosis:</th>
<th>When to refer:</th>
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<tr>
<td>COPD</td>
<td>• Supplemental oxygen requirement/High Pressure Bi-PAP&lt;br&gt;• Unstable respiratory status&lt;br&gt;• Unable to wean oxygen or other medications</td>
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<tr>
<td>Sepsis with Multiple Organ Failure</td>
<td>• Not responding to conventional therapy&lt;br&gt;• Unable to wean oxygen</td>
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<tr>
<td>Ventilator Support</td>
<td>• Requiring PEEP of 30 or more&lt;br&gt;• Requiring FIO2 greater than 80% to maintain O2 Sat &gt;90&lt;br&gt;• Requiring one or more pressor drugs to keep SBP&gt;90&lt;br&gt;• Bi-PAP</td>
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