



The VIP Program





How Methodist Hospital improved the care of its very immunocompromised patients

After chemotherapy and/or bone marrow transplants, patients have very low blood counts and are at risk of developing febrile neutropenia, a “condition marked by fever and a lower-than-normal number of neutrophils (white blood cells), which help fight infection.”¹ When white blood cells go below 500 neutrophils per cubic millimeter of blood, these patients are at very high risk of life-threatening infections. Clinicians are most concerned about the clinically important infections, such as the gram-negative bacteria. While these infections are fairly uncommon, they can progress rapidly, causing sepsis and even death if not treated very quickly—sometimes within hours. Even the more common infections, such as gram-positive bacteria from skin infections or catheter and port infections, can be quite problematic and turn into serious infections. For these reasons, febrile neutropenia is an important oncologic emergency.

To help improve the care of these patients, Methodist Hospital developed and implemented a VIP (Very Immunocompromised Patient) Program in 2012. Methodist Hospital’s VIP Program received a 2013 ACCC Innovator Award. For cancer programs across the country looking to implement a similar quality improvement project, here’s how it was done.

The VIP Program

As with many quality improvement initiatives, the journey started with an index (primary) case where a patient presented in the emergency department (ED) with febrile neutropenia. The ED physicians did not yet know the patient was neutropenic and because the patient looked okay, care was delayed. Bottom line:

this patient (and several others) was not properly triaged and sat for too long in the emergency room.

Recognizing that improvements were necessary, Methodist Hospital brought together a physician-led team that included:

- Community oncologists and hematologists
- Oncology nurses
- Bone marrow transplant physicians
- Infectious disease physicians
- ED physicians and nurses
- Representatives from the hospital’s marketing, administration, and business development departments.

This multidisciplinary team met several times to brainstorm ways to improve the care of patients with febrile neutropenia. These brainstorming sessions identified:

- Barriers to change
- Ideas to help improve assessment and decrease time to evaluation
- Ways to elevate the issue and make staff understand the importance of the condition and the necessary changes
- A process to coordinate efforts between different disciplines across multiple sites of service and programs.

The end result was the VIP Program, specifically geared towards patients undergoing chemotherapy or a bone marrow transplant in an outpatient setting. In brief, this program would function similar to existing cardiac or stroke alerts. When these patients—who are instructed to report to an ED if they experience fevers and/or chills outside of normal office hours—present at the ED,

an “Onc Alert” would immediately trigger a VIP Protocol. The VIP team knew that buy-in from ED physicians and nurses was critical to the successful implementation of the VIP Program, and that staff and patient education was key.

Developing the Onc Alert & VIP Protocol

One of the main components of the VIP Program is the Onc Alert Protocol (Figure 1, below). In this protocol, the VIP team identified the steps they wanted to see happen when a patient with febrile neutropenia showed up in an emergency room. These included:

- Triage patient
- Identify patient as an oncology patient with fever
- Immediately bring patient back for blood cultures and an assessment to make sure patient is stable
- Rapidly start the patient on antibiotics.

To help in the first step of the Onc Alert Protocol (Patient Registration), the VIP team developed an identification card for patients called the VIP Card (Figure 2, right). The card includes the name and contact information of the treating oncologist(s) so that the ED physician can easily update them about the patient’s status. The VIP Card is one component in what ultimately became the VIP Kit, which also includes a thermometer and hand sanitizer. Methodist Hospital pays for the cost of making these kits; the

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hospital’s business development department is responsible for educating community oncology practices about the VIP Kit. When kits are delivered to practices, hospital staff also provide education on what patients should do if they have a fever after office hours—namely present their VIP Card at the ED as soon as they arrive. If patients do not have their VIP Card or if they lose their VIP Card, they are instructed to tell ED staff that they are an oncology patient with a fever, which will also trigger the Onc Alert.

The VIP team then developed a VIP Protocol, or standing order set (Figure 3, page 42), that it wanted to implement at Methodist Hospital. One of the first challenges encountered during implementation involved the name of the identification card. The ED nurses did not want to go into the waiting room and ask for the “VIP” patient. It was an easy fix. Instead the ED nurses ask for the patient with the Onc Alert. And once that Onc Alert is triggered, the following steps are supposed to happen:

- The patient’s vital signs are taken
- The patient is triaged
- The necessary labs are ordered
- The patient is started on the appropriate antibiotic
- The ED physician calls the oncologist and gets the patient admitted.

All of these steps are on the standing order set and the protocol is designed to move very rapidly.

Evaluating the VIP Program

Methodist Hospital implemented the Onc Alert and VIP Protocol in June 2012. By May 2013 the hospital had more than one year of data to analyze. A retrospective review identified 206 patients who met the criteria for being an oncology patient with neutropenic fever. A little more than half of these patients (116) had the VIP Protocol initiated in the ED; the other patients did not. The VIP team had already learned its first lesson: the VIP Protocol was not being implemented uniformly. Data did reveal that rates were improving over time. For example, first quarter data showed that out of the 33 patients with febrile neutropenia only 8 were started on the VIP Protocol. By the fourth quarter, that number had reversed; out of the 32 patients that presented at the ED with febrile neutropenia, the protocol was initiated for 28 patients (see Figure 4, page 43).

Figure 1. Onc Alert Protocol

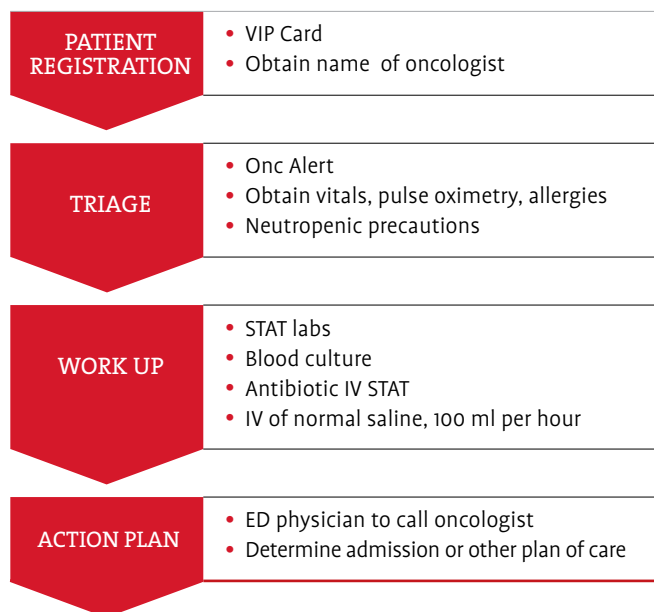
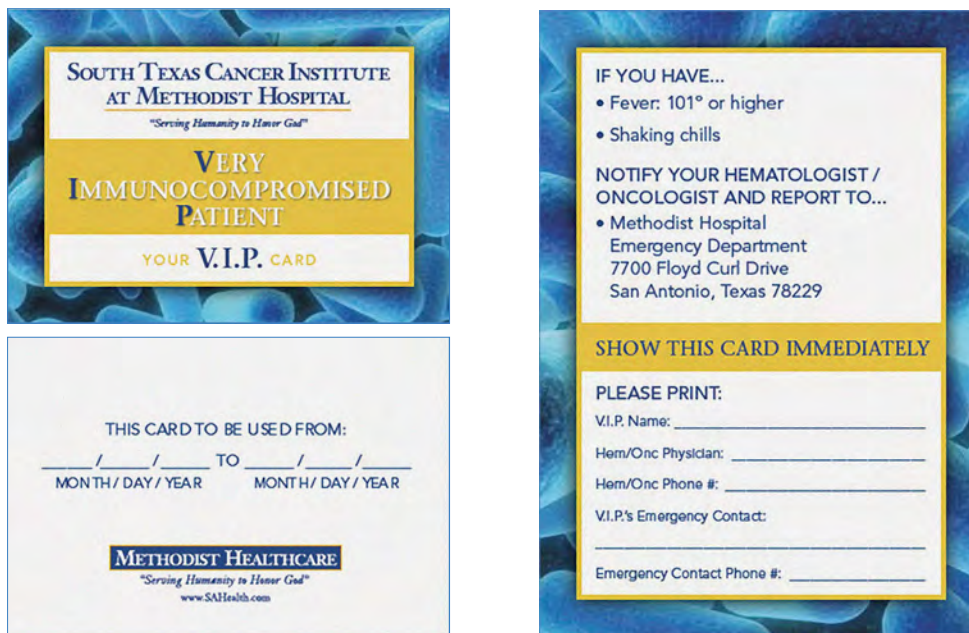


Figure 2. VIP Card



Methodist Hospital also looked at time-to-start patients on antibiotics—the measure that sparked this quality improvement project. Data showed that the median door-to-antibiotic time had decreased from an average of 120 minutes (2 hours) in the first quarter to less than an hour in the last quarter. It was a significant improvement in initiating patients on antibiotics. Even better, data showed that the time-to-antibiotics was decreased even when the VIP Protocol was not ordered. In other words, just by implementing the VIP Protocol and educating the ED nurses and physicians about the protocol, the hospital was able to change behavior, culture, and the thought process behind how to treat these patients. Regardless of whether or not the Onc Alert was called, emergency departments were analyzing and triaging these patients more rapidly than before.

When the VIP team made the VIP Protocol into a pre-printed order set, the hospital realized additional improvements. Now, triage nurses and physician assistants in the ED were empowered to treat patients with febrile neutropenia. Making the VIP Protocol a pre-printed, standing order set is what really reduced and kept the time-to-antibiotics down. Figure 5, page 44, shows how the VIP team was able to increase the percentage of patients receiving antibiotics within 60 minutes from 10 percent to 45 percent. Of course, the team would like to see this number at 100 percent, so work must still be done.

The VIP Program has resulted in success for numerous stakeholders. For example, the ED nurses and physicians have found the program successful because they are now able to appropriately

triage and diagnose patients with febrile neutropenia when they come into the ED. The oncologists and the transplant physicians find the program successful because it provides an additional level of support for individuals undergoing treatment in an outpatient setting. Most important, patients and families are very satisfied with the VIP Program because it provides them with a level of assurance about what to do after hours (or at any time) and where they can be connected to appropriate care in case of an emergency.

Lessons Learned

When Methodist Hospital first implemented the VIP Protocol in June 2012, it did not see an immediate decrease in the time-to-antibiotics and the VIP team wanted to understand why. So members of the VIP team went back to the ED nurses and physicians. They attended their staff meetings and communicated to them that the VIP Protocol was not being initiated consistently and that the time-to-antibiotic was not being reduced as much as the VIP team wanted. These clinicians asked the ED nurses and physicians how to improve. This is what they learned.

First, the ED clinicians had concerns that the VIP Protocol was not an appropriate use of their resources. From their perspective, many of these patients looked fine when they presented at the ED with a fever. If patients were not hemodynamically unstable, the ED physicians did not want to start them on an antibiotic. And that's good practice: physicians do not want to

(continued on page 43)

Figure 3. Onc Alert Order Set

EMERGENT FEVER IN THE PATIENT WITH BONE MARROW SUPPRESSION HEMATOLOGY AND ONCOLOGY VIP PROGRAM

PRESENTING CHIEF COMPLAINT

Fever (101° or greater), shaking chills, and 1 or more of the following:

- Chemotherapy treatment within the past 6 weeks.
- History of allogeneic bone marrow transplant.
- Patient presents hematology and oncology VIP Card.

TARGET WITHIN 10 MINUTES OF PATIENT ARRIVAL TO THE ED

Patient registration:

1. Request Methodist Healthcare VIP Card.
2. Obtain name of treating hematologist or oncologist.

Triage:

3. Confirm name of treating hematologist or oncologist.
4. Triage to Level II and page Onc Alert.
5. Obtain vitals, pulse oximetry, and allergies.
6. Take neutropenic precautions.

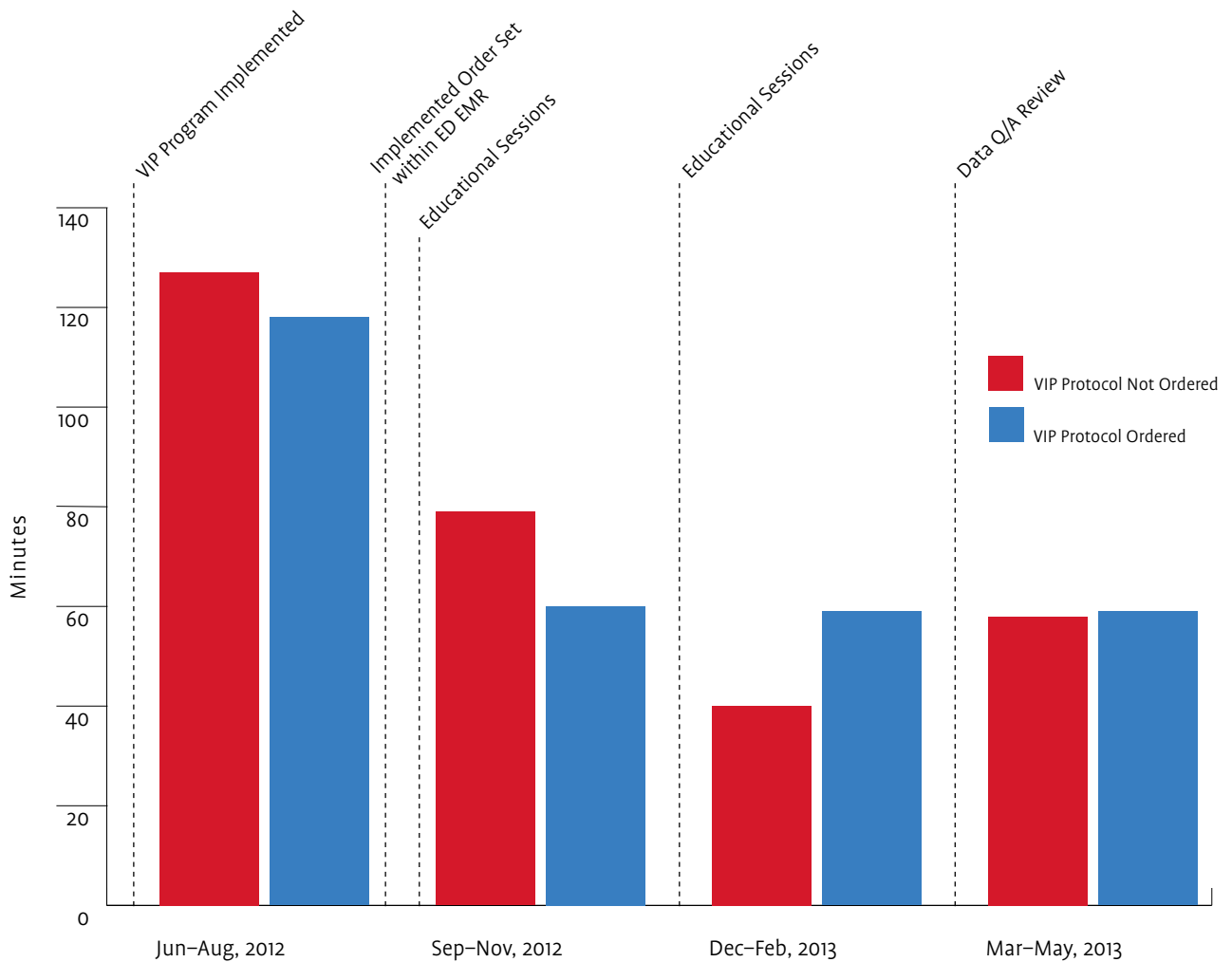
TARGET WITHIN 30 MINUTES OF PATIENT ARRIVAL TO THE ED

7. Weight and allergies.
8. STAT point of care venous lactate.
9. STAT lab: CBC with automated differential and basic metabolic panel; blood culture X 2 (if patient has a central line, obtain 1 central line BC and 1 peripheral line BC; label each correctly); LFT, LDH, Magnesium, PT, PTT.
10. If able to void, UA (urinary analysis) with micro and culture.
11. Give cefepime/maipime, 1 gram IV STAT (after blood cultures are drawn). Admitting MD to re-order on admit for every 8 hours. If allergic to cefepime/maipime and penicillin, give merrem, 1 gram IV STAT (after blood cultures are drawn). Admitting MD to re-order on admit for every 8 hours. If allergic to cefepime/maipime, but not penicillin, give zosyn, 3.375 grams IV STAT (after blood cultures are drawn). Admitting MD to re-order on admit for every 6 hours.
12. Start IV if normal saline, 100 mL per hour.

TARGET WITHIN 60 MINUTES OF PATIENT ARRIVAL TO THE ED

13. Review STAT labs.
14. Call hematologist or oncologist after patient is evaluated to discuss treatment plan.
15. If patient is to be admitted, communicate that patient is a VIP patient and request 8S or BMT bed. If ANC (absolute neutrophil count) less than 1,000, request private room.
16. Target to transport patient within 30 minutes of obtaining MD order to admit. If IP bed not available within 30 minutes, transfer to ED Clinical Admitting.

Figure 4. Mean Time from ED Presentation to Antibiotics



Notes: Patients with FN, n=206. 116 Patients (or 56%) had VIP Protocol initiated, 90 patients (or 44%) did not have the VIP Protocol initiated (p=0.03)

(continued from page 41)
use antibiotics unnecessarily.

This feedback was useful for the VIP team, signaling that more education was needed. Accordingly, VIP team members went back to the ED nurses and physicians and provided additional education on how patients with febrile neutropenia were an “oncologic emergency.” For these patients the standard of care

is to start the patient on the antibiotic first—before the labs come back. This was a different mindset for the ED physicians. They had to understand that there were probably some cancer patients who came to the ED with fever and who were fine. Maybe these patients weren’t neutropenic. Maybe some of these patients did not even have a fever. But the ED physicians needed to err on the side of over-treating, so that they did not miss those patients who

Figure 5. Percent of Patients Receiving Antibiotics within 60 Minutes

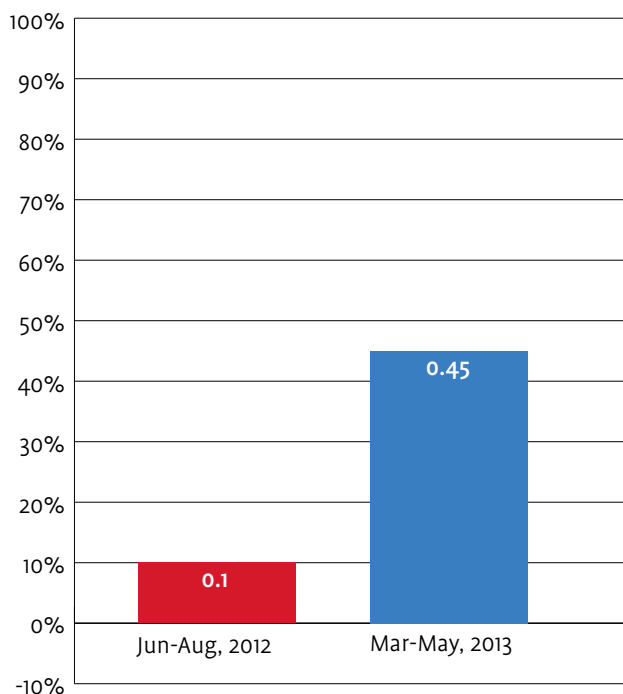


Table 1. Seven-Step Action Plan

1. Bring together a multidisciplinary team spearheaded by a physician champion
2. Establish metrics to measure and a process to capture the necessary data
3. Outline the process map of the VIP Protocol
4. Develop a VIP Kit
5. Market and promote the VIP Program and the VIP Kit to the community
6. Educate (and re-educate) community oncologists, ED physicians, and ED nurses.
7. Review data and evaluate outcomes for programmatic improvements.

were truly febrile neutropenic and about to become septic. When the oncologists explained their standard of care and the logic behind the treatment decisions to the ED nurses and physicians, change started to happen.

Second, the VIP team learned that education on the VIP Program would have to be ongoing—not a one-time event at each emergency department. Because of issues, such as staff turnover, the VIP team would need to educate and re-educate ED nurses, physicians, and administrators, as well as staff at the community oncology practices, about the VIP Program.

Third, the VIP team learned that implementing the VIP Protocol would be different at every hospital. Take, for example, the issue of electronic medical records (EMRs), which can vary from hospital to hospital. The VIP team even ran into a situation where an emergency department used a different EMR from the rest of the hospital departments. So embedding the VIP Protocol as a pre-printed order into each of these EMRs was not a simple task. The VIP team had to work with each ED—the physicians and the IT staff—to put the VIP Protocol into their template as a pre-printed set order. The VIP Program has now been rolled out to five emergency departments within the Methodist Healthcare System; there is one more hospital to go. In addition, Methodist Hospital has leveraged best practices and its relationship with the Sarah Cannon Network to assist in implementing the VIP Program at hospitals in Austin, Denver, Oklahoma City, and Nashville.

Finally, the VIP team found that the process in one emergency department was not necessarily the same process in another. So it's important to be able to adapt and to show how the VIP Program fits into each specific care setting. The VIP team uses its data to show how improving the care of patients with febrile neutropenia fits into each hospital's overarching plans of treating patients. Today, with the Affordable Care Act (ACA) and other payer-driven efforts, hospitals want to measure quality. So, the VIP team feeds the data about this quality improvement program back to the EDs and hospitals, so they can use it to show patients and payers that they are indeed providing quality care. The VIP Program is a great measure of quality as it is based on national standards and guidelines on how to provide appropriate outpatient care for patients with neutropenia.

The Challenges Ahead

The biggest challenge facing the VIP team is to understand why the VIP Protocol is still not being ordered for some patients. Recognizing that stakeholders and physician champions are the driving force behind this quality improvement initiative, the VIP team is asking community oncologists to take time away from their clinic to meet with hospital administration, hospital-based physicians, and ED nurses and physicians and provide consistent education for these clinicians about the importance of the VIP Program. The most important reason: it is the best care for patients.

Another challenge is how to expand the VIP Program outside of the Methodist Healthcare System. How does the VIP team take this program and implement it at other hospitals in the community? As stated previously, every hospital is different. Every hospital has a different way of communicating with its physicians and nurses. Every hospital has a different process for admitting patients. And the VIP team believes the key to resolving these challenges is constant (and repeated) communication and education.

Implementing a Similar Program

Methodist Hospital has had great success in implementing the VIP Program in San Antonio and would like other communities to be able to achieve similar successes. For cancer programs looking to implement a similar quality improvement program, the VIP team developed a seven-step plan (see Table 1, left).


First, bring together a multidisciplinary team that includes all key stakeholders—especially a physician champion.

Second, begin the VIP Program with an end goal in mind. What is the objective? What metrics does the program want to measure? For Methodist Hospital, the key metric was the time of entry to the ED department to antibiotic. And develop and implement a process for capturing that information.

Next, outline the process map for the ED so that hospitals understand how the VIP Program fits into their overarching plans of treating patients.

Consider developing a VIP Kit. It is a tangible education tool that community oncologists can give to their patients. Then get the marketing department involved to promote the VIP Program (and VIP Kits) to the community.

Reserve time for education and re-education. There is turnover within emergency departments and community oncology practices. Continuing to educate all stakeholders is key.

Finally, review the data from the quality improvement program and continually seek ways to improve. 

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References

1. National Cancer Institute. *NCI Dictionary of Cancer Terms*. Available online at: www.cancer.gov. Last accessed Oct. 11, 2013.

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The authors of this article were part of the initial multidisciplinary team that developed and implemented the VIP Program. They would like to thank their fellow VIP team members: Fred LeMaistre, MD, physician chief Hematology, Sarah Cannon; Carlos Bachier, MD, director Stem Cell Transplant, Methodist Hospital; Roger Lyons, MD, Cancer Care Centers of South Texas/US Oncology; Joseph Holahan, MD, The START Center for Cancer Care; Dale Crockett, MD, chairman, Emergency Department, Methodist Hospital; Roberta Tremper, RN, ED director Methodist Hospital; Hannah Sowell, RN, clinical nurse; Carole Elledge, RN, MSN, AOCN, nurse educator; Ann Kelley, RN, BSN, Quality/Risk Management ED nurse, Methodist Hospital; Jill MacPherson, RN, clinical nurse; JoDee Kerestes, director Physician Initiatives; JoAnn King, director Marketing and Public Relations; Daniele Passatieri, RN, administrator, BMT Program, Methodist Hospital; Mary Krivoy, RN, director, BMT Program, Methodist Hospital; Marla Brady, RN, VP, Nursing, Methodist Hospital; and Charlotte Stambaugh, RN, BMT coordinator, Methodist Hospital.

About Methodist Healthcare

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