This project was researched and written to fulfill the specific research request of a single member of the Health Care Advisory Board and as a result may not satisfy the information needs of other members. In its short answer research, the Health Care Advisory Board refrains from endorsing or recommending a particular product, service or program in any respect. Sources are contacted at random within the parameters set by the requesting member, and the resulting sample is rarely of statistically significant size. That said, it is the goal of the Health Care Advisory Board to provide a balanced review of the study topic within the parameters of this project. The Health Care Advisory Board encourages members who have additional questions about this topic to assign custom research projects of their own design.
FACT BRIEF

PICC Line Programs
February 10, 1999

RESEARCH METHODOLOGY

During the course of research, staff members of the Health Care Advisory Board contacted peripherally inserted central catheter (PICC) units and intravenous (IV) therapy units at health systems and hospitals throughout the United States to obtain information regarding PICC line programs. To identify the aforementioned health systems and hospitals, members of the staff consulted the following resources:

- Advisory Board’s internal library of previously completed reports and secondary resources
- Internet via the Infoseek and Alta Vista search engines
- Lexis/Nexis on-line database

In addition, staff members contacted the following organization and consulting group to obtain information pertinent to developing PICC line programs:

- Intravenous Nurses Society (INS), Cambridge, Massachusetts, www.ins1.org/welcome.html
- PICC Concepts, Durham, North Carolina

EXECUTIVE SUMMARY

All of the profiled hospitals established their PICC line programs within the last seven years as the use of PICCs became more common and state health boards approved the device. Sources contacted stated that their hospitals do not conduct their programs within the radiology department for the following reasons:

- Overhead costs and physicians fees cost the hospital at least $1000 more if the PICC line insertion is conducted within the radiology department
- Radiology staff members are often under severe time constraints to perform both their normal duties and PICC line procedures; as a result, poor follow up care is provided

Profiled hospitals encountered few problems in developing a successful PICC line program, as the programs improved patient outcomes, generated significant cost savings and reduced the heavy workloads of radiologists.

According to sources contacted, hospitals are responsible for developing training curricula to certify staff members in PICC line insertion. These courses must be in concordance with INS guidelines and state boards of health legislation and typically involve an 8-16 hour class as well as clinical training.
At three of the four profiled hospitals, registered nurses (RNs) insert PICC lines at patients’ bedsides. Follow-up care, including education, dressing changes and maintenance, is then provided by that RN or a floor nurse. RNs maintaining extensive experience in IV procedures are typically selected to perform the PICC line procedures.

Only one profiled hospital employs physicians dedicated to inserting catheters; patients at this hospital receive PICC line inserts in the procedures unit. Nurses from the PICC line program provide follow up care in the patients’ rooms. PICC nurses, rather than floor personnel, change all dressings for PICC patients at this hospital.

Common among all of the programs is that PICC services are not billed through the radiology department. When physicians perform the procedure, the PICC line insertion is billed as its own service, as current Medicare and Medicaid legislation mandates reimbursement for this procedure only to physicians. Hospitals who employ nurses to perform PICC line insertions may only gain reimbursement for supplies used. In these cases, the PICC line service is billed as a nursing or pharmaceutical service.

**SOURCE INFORMATION**

Information concerning the hospitals profiled within this report is outlined, in pseudonym form, below.

- **Hospital A** is a 700-bed, not-for-profit hospital located in a small city in the Northeast. In 1994, a PICC line team was established to provide a continuum of care to patients requiring PICC line inserts. Currently, PICC line inserts are performed by RNs in patients’ rooms.

- **Hospital B** is a 800-bed, not-for-profit hospital located in a large city in the West. The hospital is part of an academic medical center (AMC). Hospital administrators developed the PICC line program in 1992. Physicians dedicated to catheter inserts perform the PICC line insertions in the procedural unit. RNs dedicated to PICC follow-up care are distributed across the patient floors to care for individuals who have received a PICC insertion.

- **Hospital C** is a 700-bed, not-for-profit hospital located in a small city in the South. The hospital is part of an AMC. For more than four years, the IV therapy team has staffed RNs responsible for PICC line insertions and follow-up care. PICC line insertions are currently performed in patients’ rooms.

- **Hospital D** is a 300-bed, not-for-profit hospital located in a small city in the South. In 1992, hospital personnel began to provide PICC line insertions. The service shortly thereafter became a responsibility of the IV therapy team’s RNs. PICC line insertions currently are performed at patients’ bedsides.
PROGRAM DEVELOPMENT

*When did the hospital first develop a PICC line program? Why? How were staff members trained? Were there any obstacles to development of a service line? How were they overcome?*

**BACKGROUND**

Within the last seven years, the use of PICC lines has increased for the following reasons:

- The majority of state boards approved the use of PICC lines.
- Studies showed that PICC lines may be an effective and less expensive alternative to Porticath and Hicman catheters, as the risk of infection and thrombosis with PICC lines is typically less than three percent.

All of the hospitals profiled in this report established their programs in response to the increased demand for PICC lines, as well as the potential cost savings involved in maintaining such a program.

Sources from Hospitals A, C and D noted that administrators encouraged the development of their programs, as they have generated significant cost savings for their hospitals. Sources explained that although radiologists have performed PICC inserts in the radiology department in the past, physicians’ fees and overhead expenses involved with reserving a room in radiology costs the hospital between $1,500 and $3,000 per insert.

With the infiltration of managed care and capitated payment agreements, hospital administrators have encouraged the development of PICC line programs involving personnel who are able to perform inserts and provide follow-up care at significantly lower costs to the hospital. Sources from the aforementioned hospitals stated that by employing nurses to insert PICC lines at the patient’s bedside, their respective hospitals have saved at least $1,000 per procedure, as physicians fees and overhead costs have been avoided.

An RN from the PICC team at Hospital A noted that in 1994 the hospital established a PICC line team of RNs to provide a continuum of care solely to PICC line patients at the bedside for two reasons:

- A patient presented to the emergency department (ED) with a PICC line and staff members were not knowledgeable in the use or care of this device.
- Administrators believed that the PICC was the access device of the future and would help decrease costs as well as increase the comfort of the patient who no longer needed to be transported to a department to receive a PICC.

In 1991, physicians at Hospital B’s procedure center began to insert PICCs in addition to other catheters. A formal PICC line program was established in the spring of 1991 to provide a better continuum of care to patients requiring PICCs. According to the medical director of the procedure center, prior to establishing the PICC line program, patient outcomes were not easily monitored after the insert and hospital administrators could not effectively evaluate the value of the PICC line service.
In Hospital B’s current program, the majority of patients requiring PICCs are transported to the procedures center where a physician dedicated to inserting catheters performs the PICC line insert. The patient is then transported to the floor where an RN from the PICC line program monitors the patient, provides educational services and changes dressings until the patient is discharged. Each staff member carries a hand-held computer to record the following data:

- Date of insertion and removal
- Method of insertion
- Patient demographics
- Patient diagnosis
- Patient location in the hospital
- Physician who referred the case
- Type of catheter used
- Vein used to insert PICC line

According to the medical director, in the current program, data on patient outcomes is more easily collected, and hospital administrators have determined that the program generates revenues and improves patient outcomes.

More than four years ago, administrators at Hospital C established an IV therapy team to conduct a mid-line insertion program. Once the state board approved the use of PICC lines, a PICC line program was added to the responsibilities of RNs on the IV team. The supervisor of the IV therapy team stated that having a nurse on the IV team perform PICC inserts at the bedside costs the hospital approximately $200 per procedure, while if a physician performs the procedure in the radiology department, the hospital spends approximately $3,000. Hospital administrators have therefore encouraged her program, as it generates significant cost savings per PICC procedure.

Similar to Hospital C, Hospital D established a PICC line program administered by RNs on the IV therapy team. The program was developed in 1992, shortly after the state board approved PICC use and a staff member who could perform the inserts was employed. According to an RN on the IV team, Hospital D was the first hospital in the state to perform PICC inserts. She noted that if a physician performs a PICC insert in the radiology department, the procedure costs approximately $1,500, while if an RN from the IV team inserts the PICC at the patient’s bedside, the procedure costs approximately $150. Hospital administrators have therefore supported the program, as it has generated significant cost savings for the hospital.

**TRAINING**

All of the hospitals profiled maintain strict training protocols for certifying staff members to perform PICC line inserts. To become certified, staff members typically must complete the following three steps successfully:

1. Attend a PICC line insertion training class between 8 and 16 hours in length
2. Receive clinical instruction from a staff member, typically a radiologist, other physician or nurse certified in PICC line procedures
3. Demonstrate clinical proficiency by successfully performing a set number of PICC procedures determined to be adequate by hospital administrators
At Hospitals A, C and D staff members must conduct at least three successful insertions in order to become certified. To become certified at Hospital B, staff members must perform 200 insertions with a success rate similar to that of the hospital physicians who currently conduct PICC line insertions. The medical director of the procedures unit at this hospital explained that the large number of insertions required for certification ensures that staff members obtain experience with at least one difficult case.

**OBSTACLES ENCOUNTERED**

All of the sources contacted stated that there were surprisingly few obstacles to developing a PICC line program. The following factors were cited as helping to ease the PICC line program development process at the profiled hospitals:

- Administration support
- Board of nursing approval
- Physician support
- PICC education programs for staff members, which detailed the proper use of PICCs and when PICCs should be ordered by physicians

**Physician territoriality**

When asked if there were any issues regarding physician territoriality over this service, sources from Hospitals A, C and D stated that radiologists were relieved to have other staff members perform the 45- to 90-minute procedure, as it reduced their workloads and enabled them to perform other duties.

The medical director at Hospital B stated that when the program was established, physician groups in the community viewed the program competitively, as these groups inserted PICCs in their own offices. However, the medical director stated that the 24-hour availability of their staff members, as well as the continuum of care provided by their program has helped their PICC program overcome this competition with community physicians who typically only perform insertions on weekdays and provide minimal follow-up care.

**Staff turnaround and training**

None of the sources contacted reported difficulties attracting staff to their PICC programs. Reasons cited for staff enthusiasm for the program are listed below.

- Nurses on IV or PICC teams are given more autonomy and independence, as they treat patients in different units and assume most of the care for PICC patients
- Staff members who are proficient in IV therapy and PICC line inserts appreciate the creation of specialist positions recognizing their abilities

An RN from the PICC team at Hospital A stated that both high staff turnover rates and ensuring staff members are knowledgeable in the latest techniques have posed problems for the PICC line program. The PICC team has coped with the problem of staff turnover by communicating with directors of different units to help identify personnel with extensive experience and proficiency in IV therapy and then recruiting these staff members to the PICC team. Nurse facilitators have also been employed to train potential members of the PICC team as well as update existing members of new techniques and advances in PICC care.
PROGRAM LOGISTICS

What kind of services and follow up care are provided? What is the PICC line programs relationship to the radiology department? What are program staffing levels and patient volumes? How are PICC insertions scheduled and billed?

SERVICES PROVIDED

All of the sources contacted stated that staff members from their PICC line programs perform insertions and follow-up care. Common among all of the hospitals is that once a patient is discharged, a home health agency assumes most of the care for the PICC line patient. The table below lists where insertions, and follow-up care typically are provided at each hospital.

<table>
<thead>
<tr>
<th>LOCATION OF SERVICES PROVIDED AT EACH HOSPITAL</th>
<th>Insertion</th>
<th>Follow-up Care Including Dressing Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>Patient’s room</td>
<td>Patient’s room</td>
</tr>
<tr>
<td>A</td>
<td>Procedures unit</td>
<td>Patient’s room</td>
</tr>
<tr>
<td>B</td>
<td>Patient’s room</td>
<td>Patient’s room</td>
</tr>
<tr>
<td>C</td>
<td>Patient’s room</td>
<td>Patient’s room</td>
</tr>
<tr>
<td>D</td>
<td>Patient’s room</td>
<td>Patient’s room</td>
</tr>
</tbody>
</table>

The majority of insertions at Hospitals A, C and D are performed at the patients’ bedside by registered nurses. Those insertions that are particularly difficult are performed by radiologists or operating room physicians (OR) in their departments at significant costs to the hospital. In addition to insertions, RNs at the aforementioned hospitals perform the following duties:

- Educate patients about PICC lines and care by providing pamphlets before insertion and upon discharge
- Ensure sterile conditions in the patients’ rooms for insertion process
- Monitor patients after insert
- Prepare patients for home care
- Replace or fix broken or clogged PICC lines
- Review PICC procedures, permit and agreement forms with the patient prior to insertion

The PICC nurses at Hospitals A and D also perform dressing changes within the first 24 hours after the PICC insert. After the first 24 hours, floor nurses assume this responsibility. Floor nurses at Hospital C perform all dressing changes after the PICC line insert; the PICC program nurse ensures that these staff members are performing their duties appropriately.

Hospital A’s PICC team is also responsible for training nurses from other hospitals to insert PICCs. Unlike PICC personnel at Hospitals C and D, the staff members at Hospital A’s PICC team provide extensive follow-up care after discharge. This care involves including tracking the number of days the line is in the patient, mailing PICC educational materials and calling patients to ensure that they are having no major problems with their PICC lines after discharge.
Physicians dedicated to catheter insertion perform PICC line insertions at Hospital B’s procedure center. Nurses from the PICC program then monitor the PICC patients on the floors and perform all dressing changes. According to the medical director of the procedures center, the majority of the PICC line education is performed by the home health agency after the patient has been discharged. He noted that upon discharge, all PICC patients receive a card providing the phone number of the PICC program. Patients are told to call if they have any problems with their PICC lines.

**RELATIONSHIP WITH RADIOLOGY DEPARTMENT**

All of the profiled PICC line programs confer with radiologists if the insertion is a particularly difficult case. The radiologists provide ultrasound and imaging services that help identify the best location to insert the PICC line. Radiologists typically perform difficult insertions at Hospitals A, C and D.

The supervisor of the IV therapy team at Hospital C noted that as the RN responsible for PICC line insertions only works during the week, radiologists perform the PICC inserts on the weekend at significant costs to the hospital. This is one reason why she is currently trying to establish a PICC line team so that nurses may insert PICC lines throughout the week and weekend.

The PICC line program at Hospital D is the only program profiled where every patient who receives a PICC line from a nurse also obtains a chest x-ray to confirm that the procedure was performed correctly. At this hospital, a portable x-ray machine is brought to the patient’s room shortly after the insertion so that the patient is not transported to the radiology department.

Sources contacted from the other three PICC line programs stated that their staff members do not automatically order x-rays for the following reasons:

- Patients often receive chest x-rays eventually for other diagnostic procedures; PICC staff members therefore try to avoid duplicating services and exposing patients to unnecessary doses of radiation
- PICC lines tend to move in the chest, and therefore chest x-rays may not always provide an accurate picture of the PICC line placement
- Unnecessary x-rays increase patient and hospital costs

According to the medical director of the procedures unit at Hospital B, physicians order chest x-rays for approximately 55 percent of all PICC patients to confirm that the line has been inserted correctly. He noted that 80 percent of the patients at his hospital receive a chest x-ray without a member of the PICC program ordering it. Therefore, in not ordering chest x-rays for all PICC patients, the PICC line physicians lower patients’ costs, prevent unnecessary radiation exposure and decrease patient time spent in radiology.
STAFFING LEVELS AND NUMBER OF PATIENTS SERVED

The table below contains each PICC line program’s staffing levels and the number of patients served.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Department Responsible for PICC Line Program</th>
<th>Staff Members Responsible for PICC Line Program</th>
<th>Number of Patients Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital A</td>
<td>PICC Team(^1)</td>
<td>• 2 full time equivalent (FTE) RNs&lt;br&gt;• 2 part time RNs</td>
<td>• 6-8 PICC insertions per day</td>
</tr>
<tr>
<td>Hospital B</td>
<td>Procedure Center</td>
<td>• 2 FTE physicians dedicated to inserting catheters in the center&lt;br&gt;• 8 FTE RNs dedicated to follow-up care on the patient floors</td>
<td>• More than 100 PICCs inserted per month&lt;br&gt;• Nurses care for more than 60 PICC patients per day&lt;br&gt;• In 1998, inserted 1200 PICCs</td>
</tr>
<tr>
<td>Hospital C</td>
<td>IV Therapy Team</td>
<td>• 1 FTE RN</td>
<td>• 4-6 PICC insertions per day</td>
</tr>
<tr>
<td>Hospital D</td>
<td>IV Therapy Team</td>
<td>• 4 FTE RN&lt;br&gt;• 1 part time RN</td>
<td>• 1-2 PICC insertions per week</td>
</tr>
</tbody>
</table>

\(^1\) Three of the RNs on the team are certified registered nurses of intravenous (CRNI) therapy.

The staff RN from the IV team at Hospital D was the only contact who categorized staffing levels in the PICC line program as adequate. She noted that as only one to two patients require PICC inserts in a given week, maintaining 4 FTE RNs and 1 part time RN, all certified to perform PICC inserts, is sufficient for their patient loads. In addition to PICC inserts, these staff members also perform general IV therapy duties.

Sources contacted from Hospitals A, B and C stated that their PICC line program staffing levels are not adequate for the number of patients served. An RN from the PICC team at Hospital A stated that although staffing levels are not sufficient, the PICC team does manage the workload efficiently. Two RNs are staffed at any one time Monday through Friday. One PICC RN is staffed on the weekends.

The medical director from the PICC program at Hospital B stated that the number of patients requiring PICCs is continuing to grow and the staffing levels are not adequate at his hospital. He hoped to employ more physicians and nurses to help with the growing demand for PICC line insertions and care.

Hospital C’s IV therapy team supervisor stated that staffing levels are currently significantly inadequate; she is therefore in the process of applying to hospital administrators for approval of a PICC team. This team would be devoted strictly to PICC line insertion and care. Currently, one FTE RN from the IV therapy team places all PICC lines during the week. This RN does not work on the weekends.
In her proposal to administrators, the IV therapy team supervisor has asked to remove three RNs from the IV team to place them on a PICC team along with the RN who currently performs all PICC line insertions. Three qualified licensed practical nurses (LPNs) would then be employed to replace the three RNs on the IV team. According to the supervisor, a PICC team could better serve the 12-15 patients per day which require PICC insertions and care during the week and on the weekends. The current program is capable of serving only 4-6 patients per day.

SCHEDULING PICC INSERTIONS

Federal regulations mandate that physicians must order a PICC insertion. Generally, a technician, nurse or ward clerk will then call the department in charge of PICC line insertions to schedule an appointment. The PICC line programs at two profiled hospital maintain sufficient staff to provide same-day service to the majority of patients. Sources contacted at the other two profiled hospitals stated that they typically provide next-day service and require 24 hour advance notice of a PICC so that they may schedule enough time, typically 45 to 90 minutes, for the insertion.

PICC team members at Hospital A carry pagers so that they may be reached immediately by department personnel requesting PICC line inserts for patients. An RN from the team stated that she believes the system is generally effective, as the needs of most patients are addressed immediately. However, she suggested that the system could be improved by being more proactive. The RN believed that obtaining a list of patient admissions and diagnosis every morning would help PICC team members predict which patients may require PICC inserts and help staff members to schedule their days more efficiently. However, she noted that the PICC team’s workload is already so large that such a practice would prove to be difficult.

The procedures unit at Hospital B is called when patients need PICC insertions. A same-day appointment is scheduled, and the majority of patients are transported to the unit for insertion. Patients in isolation or in severe pain are not transported, and physicians insert PICCs at their bedside. The medical director of the procedures unit stated that this is an effective method for scheduling patients, as staff members communicate well and most patients receive PICC line inserts immediately.

As Hospital C is an academic medical center, interns, residents or medical students typically call the IV therapy office to schedule an appointment for patients requiring a PICC and provide a medical history. Six patients are scheduled per weekday for PICC inserts conducted by an RN on the IV team. Surplus patients are placed on a list for service the next day. As the PICC program only employs one RN to insert PICCs, same day service is rare. Generally, patients receive a PICC insert one day after it has been requested. PICC line inserts that need to be conducted on the weekends are performed by physicians in the vascular radiology department at significant costs to the hospital.

The supervisor of the IV therapy team stated that given her staffing levels, she has established an effective method for scheduling PICC patients, as PICC line inserts are generally not emergency procedures. She also reported that at the inception of the PICC line program, she told physicians and staff members at her hospital that PICC line insertions were not going to be a same-day service, and thereby effectively managed physicians’ expectations.
The staff RN on the IV therapy team at **Hospital D** stated that PICC staff members must be given 24 hours advance notice of a PICC line insert. A nurse will call the IV therapy team to alert them to a physician’s order for PICC line insert. A member of the team will then assess the patient, provide patient education about PICCs and obtain a signed permit form for the procedure. The actual PICC line procedure is typically conducted the following morning.

The RN noted the following reasons why this is an effective method for scheduling PICC line insertions at her hospital:

- PICC line insertions are generally not emergency procedures.
- Staff members perform only 1-2 PICC line insertions per week.
- Physicians are aware that their patients will receive PICC lines 24 hours after they have ordered the procedure.
- IV therapy team members are able to schedule their other duties around the PICC line insertion more efficiently.

**BILLING**

Current Medicare and Medicaid regulations stipulate that only physicians may be reimbursed for PICC insertions. Thus, nurses who perform this service do not receive additional compensation for inserting PICC lines. None of the sources contacted bill their PICC line inserts as a radiology service. Sources contacted revealed the following three methods used to bill for PICC services at their hospitals:

- **Bill as a nursing service** – Administrators at Hospitals A and D bill patients only for supplies. The insertion and follow-up care is considered part of the general nursing services provided to all patients. At Hospital D, an IV team member will generate the charge slip and then notify central supply personnel who then ensure that supplies are included in patients’ bills.

- **Bill as a pharmacy service** – Administrators at Hospital C bill patients for supplies and service through the pharmacy. The RN who inserts the PICC will fill out a voucher that is then sent to the pharmacy. The patient is then billed for the procedure and supplies through the pharmacy. The supervisor of IV therapy stated that PICC lines are considered a pharmaceutical service because they are often used for the administration of medication.

- **Bill as a PICC line service** – Due to Hospital B’s current policy of employing physicians to insert PICC lines, hospital administrators are able to bill and receive reimbursement for PICC line inserts as its own service. According to the medical director of the procedures unit, a package fee is charged each patient. The fee includes nursing time, physicians’ fees and the cost of supplies.
PROGRAM EVALUATION

Is the program successful? What are the advantages and disadvantages of each PICC line program?

All of the sources contacted stated that their programs are successful for the following reasons:

- Cost savings are generated for the hospital
- Infection and thrombosis rates are below three percent
- Patient satisfaction rates are high, as evidenced by the return of many patients to the PICC program

Sources contacted from Hospitals A, C and D stated that providing the PICC line inserts in patients’ rooms increases the comfort of patients, who no longer need to leave their rooms to receive a PICC line, while lying on an uncomfortable table in the radiology department. These contacts also reported a decreased length of stay for patients receiving PICCs from the PICC program, as their cases are more closely monitored and patients conditions are more accurately assessed, often resulting in more timely patient discharge.

Sources contacted at Hospitals B and D stated that an additional indication of their program’s success is that it generates revenues for the hospital. The medical director at Hospital B also noted that one further factor explaining the success of his PICC line program is the high insertion success rate of 99.6 percent at his hospital.

ADVANTAGES AND DISADVANTAGES

All of the profiled PICC line programs are maintained separately from the radiology department. Sources contacted listed several advantages and disadvantages of this model, which are listed in the table below.

| ADVANTAGES AND DISADVANTAGES OF PICC LINE PROGRAMS EXTERNAL TO THE RADILOGY DEPARTMENT |
|------------------------------------------|---------------------------------|
| **Advantages**                           | **Disadvantages**               |
| Decreased costs for hospital and patient, as the procedure costs at least $1000 more if a radiologist performs the insertion in the radiology department | Increased responsibility of hospital administrators to keep staff members abreast of latest techniques and advances in PICC care |
| Decreased risk of infections, as conditions are more closely monitored by a dedicated staff | |
| Improved continuity of care provided to PICC patients | |
| Improved method of accountability for procedures and care | |
| Increased patient satisfaction, resulting from greater comfort levels in patients undergoing the procedure | |
An RN from the PICC team at Hospital A stated that one further advantage of her model of maintaining staff dedicated to PICC line insertions is that it ensures there is enough time allotted to each insertion. The RN suggested that if staff members in the radiology department conducted PICC insertions in addition to other radiology duties, their workloads would be difficult to manage.

The supervisor of the IV therapy team at Hospital C explained that an additional advantage of inserting PICC lines at the patient’s bedside is increased patient comfort. She noted that a large number of patients at her hospital have cystic fibrosis and inserting PICC lines in this patient population can be particularly difficult. According to the supervisor, inserting the PICC lines at these patients’ bedsides has eased the process significantly for both staff members and patients.

Hospital B’s medical director of the procedures unit stated that one advantage of the model at his hospital is that physicians perform catheter insertions. He noted that while RNs are typically certified to insert three, four and five single or double French PICC lines, physicians are the only staff members certified to insert larger catheters, up to eight French triple PICC lines, which require incisions. As 20 to 25 percent of all patients at Hospital B are ICU, transplant or special patients requiring large catheters, employing physicians to insert catheters is a necessity according to the medical director. Furthermore, when staff members in the procedures unit do not place catheters correctly, a surgeon must replace the catheter at an expense to the hospital of approximately $1,600. The medical director believes it is important to employ physicians dedicated to inserting catheters, as they maintain experience inserting catheters of all sizes and are therefore likely to experience lower failure rates of insertion.

RECOMMENDATIONS

What recommendations do PICC line program staff members offer to administrators considering developing a program?

Staff members contacted from the profiled hospitals suggested the following recommendations for administrators developing a PICC line program:

- Assess the number of patients typically needing PICC lines and determine if a program is warranted; if there are few patients, then consider offering the PICC line service to the community external to the hospital
- Choose top critical care IV nurses to insert PICCs if nurses are used for the procedure
- Consult the Cambridge, Massachusetts-based Intravenous Nursing Society’s (INS) guidelines for PICC line programs and insertion procedures
- Determine whether there is enough volume to warrant dedicating a room to PICC line insertions or whether the insertions may be performed at the patients’ bedside
- Educate hospital and staff members about proper PICC line procedures prior to establishing the program
- Gain physician and administration support for the program through open communication about expectations
- Separate the PICC line program from radiology if there is enough patient volume, as it will generate significant cost savings for the hospital
- Track outcomes; collect data including date of insertion and removal, physician who referred the case, diagnosis, patient demographics and vein used for insertion, as it may be used to justify the program’s existence to hospital administrators
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