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Home infusion industry still fighting

Industry groups pressing for more favorable reimbursement

As usual, it's a mixed bag of news coming out of Washington, DC, for home infusion providers. Depending on your main concerns, your legislative glass is either half full or half empty.

Alan Parver, JD, president of the Washington, DC-based National Alliance for Infusion Therapy (NAIT), says one of the main issues concerning home infusion providers is prescription drug coverage.

President Clinton did not ask for prescription drug coverage in his budget request, says Parver. "He's waiting to see what the Medicare Commission asks for. There is some fairly strong sentiment on the commission to have some form of an outpatient drug benefit, but there's the question of how to pay for it."

Parver notes such coverage would be expensive — to the tune of $20 billion or more each year. That said, don't expect the discussion to lead instantaneously to sweeping legislation.

"There probably will be a fair amount of discussion about a drug benefit, but it is unlikely that one will be enacted this year," he says.

Clinton's budget proposal did call for a reduction in the payment for drug coverage though. At average wholesale price (AWP) minus 5%, the president's budget proposal calls for a reduction to AWP minus 17%. Parver says it's too early to tell if such a reduction will fly.

"There is a big issue as to whether Medicare should pay more than acquisition cost, and for a lot of drugs, [AWP minus 17%] would be the actual acquisition cost."

There's more

While these issues will affect home infusion providers directly, other issues could have an impact as well. Most alarming is where inherent reasonableness could be headed.

"The administration is looking at so-called enhanced inherent reasonableness authority," says Parver. "It's not clear what that is, but what we think that might mean is the removal of the 15% reduction cap."

On the inherent reasonableness front, the Health Care Financing Administration (HCFA) already has its eyes on using inherent

reasonableness to reduce reimbursement for Category 1 enteral nutrition.

"That process has been delayed, but they may do something this summer," says Parver. "We have filed comments showing that the process is flawed, and the inclusion of enteral formulas in the inherent reasonableness initiative was flawed, as well as having met with HCFA since that time. It is a bit early to offer an opinion on how this is going to turn out."

Parver notes the NAIT is continuing to speak to HCFA and Congress on that issue.

There's also word the Florida Association of Medical Equipment Dealers brought a lawsuit against Medicare's competitive bidding for medical equipment and supplies. No word on when the demonstration project will be fully up and running. ■

A tale of two catheters

Study compares antimicrobial-impregnated CVCs

A study recently published in *The New England Journal of Medicine* shows a dramatic benefit of using central venous catheters (CVCs) impregnated with the antimicrobials minocycline and rifampin over CVCs impregnated with chlorhexidine and silver sulfadiazine.[1]

The study, conducted at 12 university-affiliated hospitals in the United States, evaluated 865 catheters, with 738 (85%) producing evaluable culture results.

It found the catheters impregnated with minocycline and rifampin (Cook Spectrum catheter) were one-third as likely to be colonized as catheters impregnated with chlorhexidine and silver sulfadiazine (the Arrow Gardblue catheter).

Just 28 of 356 catheters (7.9%) of the minocycline and rifampin impregnated catheters had been colonized, compared to 87 of 382 (22.8%) of catheters impregnated with chlorhexidine and silver sulfadiazine. Also, catheter-bloodstream infection was one-half as likely in catheters impregnated with minocycline and rifampin 1 of 356 [0.3%], compared those impregnated with chlorhexidine and silver sulfadiazine 13 of 382 [3.4%].

Rabih Darouiche, MD, associate professor of medicine, physical medicine, and rehabilitation at Baylor College of Medicine and the Veterans Administration Medical Center, and the lead researcher in the study, says the results are dramatic but not surprising.

"*In vitro* and animal studies have shown the superiority of one catheter vs. another," Darouiche told *Home Infusion Therapy Management*. "Not only that, but on a theoretical basis it was expected for three main reasons."

1. The minocycline and rifampin-coated catheter had antimicrobial activity on both the external and internal surfaces of the catheter. However, only the external surface of the catheter coated with chlorhexidine and silver sulfadiazine was treated with the antimicrobial agents.
2. The combination of minocycline and rifampin have shown in previous studies to be much more powerful against potential pathogens that cause catheter-related infection when compared to chlorhexidine and silver sulfadiazine.
3. "Although we did not mention it in the article, we think that the durability of antimicrobial protection is longer in the minocycline and rifampin vs. the chlorhexidine and silver sulfadiazine," says Darouiche.

The study focused on at-risk patients, such as ICU patients, patients with underlying malignancy or immunocompromised patients. CVCs were expected to remain in place for at least three days, and catheters inserted were polyurethane, triple-lumen catheters impregnated with one of the two coatings under investigation. Once the catheters were removed, the tips as well as subcutaneous segments of the catheters were cultured by the roll-plate method and the sonication methods.

Darouiche says more studies are necessary before further expectations of either catheter can be deduced.

"The same considerations would probably apply to TPN [total parenteral nutrition] because those patients are considered high risk. I don't know if you use low-risk patients — particularly if you leave the catheters in for a short duration — you would have similar results," he says. "Only studies can show that."

Darouiche notes he and his colleagues may undertake a study in the future as to the long-term use of such catheters.

While antimicrobial-treated catheters are typically more expensive than their non-treated counterparts, Darouiche says they are worth the investment. And in the instance of this study, the minocycline and rifampin-coated catheters are clearly worth the additional $9 per tray set than their chlorhexidine and silver

sulfadiazine treated counterparts.

Darouiche notes the minocycline and rifampin-coated catheters cost $70 for a tray, while the chlorhexidine and silver sulfadiazine treated catheters cost $61.

"If you have 100 patients, you will pay $9 times 100 extra to obtain one form of catheter than the other," he says. "Of these 100 patients, the rate of catheter-related bloodstream infection goes down from 3.4% to .3%, so you decrease the number of patients with catheter-related infection by three among each 100 patients who receive it. So you spend $900 more, but you save three times $29,000, or about $87,000 per 100 patients."[2]

References

1. Darouiche R, Raad I, Heard S, et al. A comparison of two antimicrobial-impregnated central venous catheters. *N Engl J Med* 1999; 340:1-8.

2. Pittet, et al. Nosocomial bloodstream infection in critically ill patients: Excess length of stay, extra costs, and attributable mortality. *JAMA* 1994; 271:1,598-1,601. ■

Creating competency standards that work

A real-world approach to measure staff competency

It's easy to create competency standards to satisfy some accrediting body's requirements, but establishing a competency program that creates knowledgeable and qualified staff, improves outcomes and increases patient satisfaction is another beast altogether. While they may seem like lofty goals, they're readily achievable if you know how to go about it.

The first step in any competency program is actually a two-step process, according to **Lynn Hadaway**, MEd, RNC, CRNI, of Hadaway & Associations, an infusion therapy consulting firm in Milner, GA.

"First, you need to write your competency statement and then choose the performance criteria that you are going to include underneath that competency statement that measures whether the nurse met the competency," she says.

When producing a competency assessment program, consider all the resources available to you. Hadaway says this should include Centers for Disease Control and Prevention guidelines, Intravenous Nurses Society standards of practice, League of Intravenous Therapy Educators guidelines, recently published studies and manufacturers' guidelines.

"Then the individual provider looks at their particular patient populations and their particular needs, and writes their own internal standards based on that assessment and research," says Hadaway.

Initial competency

There are two parts of any competency program: initial competency evaluation and ongoing. The key to the initial competency is evaluating where your staff or new hire is, and giving that individual whatever training is necessary to cover all the necessary information.

"You expect nurses to come in with basic knowledge of the nursing practice, and you would have to orient them to the way things are done in that facility or by that provider," says Hadaway. "You're not going to be able to cover everything and educate them from the ground up, but you have to provide all the resources for them and do so in an organized manner.

"In an ideal world, it will be specific to each person's needs," says Hadaway of the initial competency evaluation and training. "If you have someone who has been doing home infusion for 10 years and is simply coming to another provider, they could go through orientation very quickly vs. someone who is new to home infusion."

It is for that very reason that Ritzman Infusion, an Akron, OH-based alternate site infusion pharmacy that provides consulting services to infusion providers, uses an up-front assessment of nurses when consulting with home infusion providers regarding competency.

"Ideally, we like to start by establishing where they are with their knowledge level," says **Brenda Lance**, RN, MSN, the nurse coordinator for Ritzman Infusion. "There is a written test, but we also talk with nurses and ask infusion-related questions."

Deb Riley, RN, CRNI, and an infusion liaison nurse for Ritzman, says the provider she is working with is a prime example of the need to customize a competency program.

"We have tried two different avenues with the agency I am working with now," she explains. "We started off trying to get all of the nurses competent and that proved to be an impossibility."

The number of referrals for home infusions coming in to the home care provider were sporadic at best. As a result, it was impossible to keep all the nurses' skills at an optimum level.

"It's one thing to say, 'We do infusion therapy because we have nurses that have done an IV at one time or another,' as opposed to saying, 'We do infusion therapy well and we have a trained staff always available,'" says Riley.

It is that line of reasoning that led Riley to institute an infusion team for her current client.

"Now all the nurses come through a basic-level infusion class so they can have an intelligent conversation with someone, assess what the needs are and triage that call," says Riley.

The basic-level class is a 4.5-hour class that addresses the different types of lines, terminology, drug interactions, telephone triage, and legal aspects of providing infusion therapy.

"We train all nurses to use our telephone triage sheet we use that can calm the patient down. The nurse gets the patient's name and address, finds out what medications they are on, and determines if we need to send them straight to the hospital without wasting any time on the phone or triage a little more and send out an on-call nurse," says Riley.

She adds that legal liability is an area often overlooked.

"As a profession, nurses have been notoriously neglectful in identifying our legal roles," she says. "A lot of providers don't realize what they don't know. In a nutshell, we look at what standards of practice they are held accountable to, such as the INS and the state and agency standards, in a court of law."

Once all nurses go through the basic-level class, members of the infusion team then go on to an eight-hour second-level class, which is more in-depth and complex than the basic-level class.

"This class deals with pain management, actual management of the lines, dressing changes and working with the different types of pumps," says Riley.

The class is broken into two sessions, and followed by a written test the nurse must score 80 or above, as well as a skills competency class in which they insert a peripheral IV, access a port, do change dressing, flush a Hickman catheter and change a subcutaneous site on an anatomical body.

Hadaway points out clinical competencies should be a part of orientation.

"Orientation is getting somebody comfortable with the structure and the function of the organization," she says. "Orientation will include things such as personnel policies, where and how things are stored, and how you function within the organization, so orientation is much broader than the clinical competency."

Ongoing competency

Once staff and new hires are deemed competent according to the initial competency training and evaluation, there is the ongoing competency training to consider.

"The Joint Commission [on Accreditation of Healthcare Organizations] doesn't tell you that you have to do procedure X with Y frequency," says Hadaway.

"Every company has its own policy as to how often it will assess competency," says Lance, "but we feel comfortable doing that assessment annually."

While most providers assess competency on an annual basis, the competency assessment and training should vary according to its subject matter.

"This should change based on quality improvement, performance improvement data, where your problems are and what your patients' outcomes are," says Hadaway. "If you notice that you have a problem with phlebitis after you are putting in PICCs or midlines, you would look at competency as far as catheter advancement techniques, but if you have a problem with catheter-related infections you may look at something totally different."

This is an area Hadaway says many providers overlook.

"Some providers set up a program and say, 'We're going to do X, Y, and Z procedure initially and then again every year,'" she says. "But nurses who perform PICC or midline procedures on a regular basis and have good outcomes really have no need to go through that evaluation again. You need to address competencies where you've got problems."

That's exactly how Ritzman Infusion works with its clients.

"Each year we change the hands-on competency by tracking our infections and reports and looking at what volume we are doing," says Riley.

Ken Speidel, PharmD, and the director of pharmacy for Ritzman, says the ongoing competency should change regularly based on the latest provider data.

"The point needs to be made that home infusion

is so dynamic in terms of specific demographics of the patients that you must look at what the volume of need is," says Speidel. "We look at statistics on a monthly basis and it can be surprising how your volume can change from X% of your patients on TPN [total parenteral nutrition] and shift to Y% the next month."

Speidel adds that another potential scenario could result in a dramatic change in your service offering.

"For example, your inotropic volume may increase dramatically because a new physician has come into the area with a more aggressive treatment approach towards heart failure. Home infusion can be a very fluid type of business in that you have to assess your therapy volume on a regular basis."

When considering areas to address in your ongoing competency standard, Hadaway suggest looking at three areas:

1. Problem areas in common procedures.
2. High-risk procedures.
3. Low-frequency procedures.

"If you have a high-risk procedure that is done infrequently, that may be something you want to target," she says.

Real-world evaluation

Speidel and Hadaway both agree clinical knowledge and classroom observation should not be the only assessment of nurses.

"When you assess competency with a written test or lab situations, you're not really assessing competency," says Hadaway. "You're saying that person has the capacity to act professionally, but you really don't know if in the real world of work they can pull it all together. If you are doing a peripheral venipuncture on an anatomical model or even on a real person in a classroom, it is a simulated situation.

"You can see that the individual holds the catheter correctly, makes the venipuncture, advances it correctly and tapes it down," Hadaway continues, "but will that person be able to look at all the patient criteria, make the right choice about the catheter gauge and site, use appropriate infection control methods, properly insert the catheter, secure it, answer the patient's questions, and do all this while their pager is going off, and they are 10 minutes late for a meeting back at the office?"

Speidel agrees any competency program should in some way include the measurement of an associate's interpersonal abilities, whether it be by observation in the field or some other method.

"The traditional home care company may only consider whether the nurse can access a port, but overlook whether the nurse has the interpersonal skills to deal with a chronically ill patient," he says. ■

The argument for transparent dressings

A look at gauze vs. transparent dressings

While transparent dressings are relatively new kids on the block, they have yet to fully supplant gauze as the standard for covering catheter sites.

According to the industry standard-setters, there's good reason to consider both gauze and transparent dressings.

Elise Jochimsen, MD, a medical epidemiologist for the Centers for Disease Control and Prevention (CDC) in Atlanta, notes that there isn't a body of evidence that suggests one dressing is preferable to another.

"There has not been enough research, and the studies that have been done have been controversial because there have been contradictory findings," she says.

As a result, the CDC's *Guideline for Prevention of Intravascular Device-related Infections* recommends either gauze and tape or transparent dressings for catheter sites.

"It basically leaves it up to the individual whether they use gauze and tape or transparent dressing, and dressings should be changed when they become damp, loosened or soiled," she says.

The benefits of transparent dressings

Jochimsen notes there is a clear benefit of using transparent dressings.

"You can observe the insertion site without necessarily removing it, whereas if you have a gauze dressing, in order to inspect the catheter site you're going to have to replace the dressing so it may take more personnel time and more effort," she says. "The patient may feel more comfortable with the transparent dressing so they

can see the site. You need to consider what is going to help the patient more, and that may be a transparent dressing."

This is in line with the Cambridge, MA-based Intravenous Nurses Society (INS) Standards of Practice, which recommends that a site covered with gauze and tape "should be visually inspected and palpitated for tenderness daily through the intact dressing. If there is tenderness at site, fever without obvious source, or symptoms of local or bloodstream infection develop, the dressing should be removed and site inspected directly."

Noreen Meanor, RN, OCN, president of the League of Intravenous Therapy Educators (LITE), based in Pittsburgh, says most providers have switched to transparent dressings, but such dressings are not appropriate for all patients.

"There are patients who are allergic to the transparent dressings and in that case you would use some type of gauze dressing," she says.

In addition to the benefit of visual site inspection, Jochimsen notes transparent dressings allow patients to bathe and shower without saturating the dressing, and require less frequent dressing changes than standard gauze and tape.

Debbie Benvenuto, CRNI, nurse educator for INS, says the INS prefers transparent dressings. "We prefer transparent dressings because you can do visualization of a site, site assessment, and hopefully pick up early signs of complications," she says. "Our standards are based on research material and the recommendations of the CDC."

Home infusion nurses who may be visiting a patient for the first time are at a disadvantage when it comes to gauze.

"If you have a gauze-and-tape dressing and I'm the nurse coming in, I'm going to have to take that tape off to inspect the site and that is interrupting the integrity of that system," says Meanor.

Benvenuto says in addition to the transparent dressings being beneficial barriers to contamination, they can be cost effective because it is a one-time dressing that allows visual inspection of the site without removing the dressing.

Although there are benefits for transparent dressings, Jochimsen says there is no immediate need to switch if you are using gauze and achieving desirable outcomes.

"Some are more comfortable with the gauze because that is what they are used to, and that's fine," she says. "There is no evidence that that is wrong."

Benvenuto agrees gauze has its place in today's high-tech world.

"We would like to use gauze on some of the big dressings, like chest dressings, especially right after insertion, because the gauze is a wick to move material away from the infection site so you don't have bloody sites and medium to grow bacteria," she says.

But she cautions using gauze on a long-term site.

"With too much continual taping and retaping, after a time you start to worry about eroding the catheter material," she says.

Looking for a standard

Unfortunately, studies conducted until now present conflicting data on the gauze vs. transparent dressing debate.

According to the CDC's *Guideline for Prevention of Intravascular Device-related Infections,* some studies have shown an increase in microbial colonization of the catheter site and the risk of subsequent catheter-related infection, while other studies have shown no difference in catheter colonization and infection rates between the use of transparent dressings and of gauze and tape dressings.

The report notes, "The potential risk of infection posed by transparent dressings appears to vary with the type of catheter (peripheral or central venous catheter) they are used to dress and, perhaps, with the season of the year."

However, one of the largest controlled trials of dressing regimens to date examined the infectious morbidity associated with the use of transparent dressings on more than 2,000 peripheral catheters.[1]

The findings suggested no significant difference in that rate of catheter colonization between catheters dressing with transparent dressings (5.7%) and gauze (4.6%).

There also was no significant difference in either the incidences of catheter site colonization or phlebitis.

The study did suggest transparent dressings left on peripheral venous catheters for the duration of catheter insertion did not increase the risk of thrombophlebitis.

The CDC report notes studies of transparent dressings on central venous catheters have yielded conflicting data. Some report an increased risk of catheter-related infection among central venous catheters with a transparent dressing compared with those covered with gauze, while other studies

report comparable risk of infection.

However, most of the collected data concerns short-term, non-tunneled central venous catheters, with limited data available on the use of transparent dressings on long-term, tunneled CVCs.

Also noted in the report is a meta-analysis of catheter dressing regimens, which CVCs covered with a transparent dressing "had a significantly higher incidence of catheter-tip colonization, but a non-significant increase in the incidence of catheter-related bloodstream infections.

"Preliminary data suggest newer transparent dressings that permit the escape of moisture from beneath the dressing may be associated with lower rates of skin colonization and catheter-related infection, but the length of time that a transparent dressing can be safely left on a CVC catheter site is unknown."

A pair of controlled studies addressed in the CDC report also notes, with adherence to strict infection control protocols, semipermeable, transparent dressings can be used as an alternative to gauze and tape for dressing total parenteral nutrition catheter insertion sites and can be changed safely at seven-day intervals.

Other alternatives

The CDC report notes collodion has been evaluated for use as a potential dressing for catheter sites. In a retrospective study of 34 central venous catheters, a low incidence of catheter-related infections was reported despite catheters remaining in place an average of 16.5 days.

The report notes the need for more randomized trials comparing collodion with existing dressings before collodion can be recommended for routine use as a catheter site-dressing. There is also limited evidence of the benefit of using no dressing at all in certain instances. **(See related story, at right.)**

For a copy of the CDC report and citations for numerous studies on the use of transparent vs. gauze dressings, a copy is available on the Web at www.cdc.gov/ncidod/hip/iv/iv.htm or call the CDC at (404) 639-3311.

Reference

1. Maki DG, Ringer M. Evaluation of dressing regimens for prevention of infection with peripheral intravenous catheters: Gauze, a transparent polyurethane dressing, and an iodophor-transparent dressing. *JAMA* 1987; 258:2,396-2,403. ■

A peek at the 'no-dressing' technique

It may have a place in certain situations

Following a high rate of exit site infections in patients, the Immunodeficiency Clinic at the Toronto Hospital began evaluating the use of no dressing on HIV patients with percutaneous central venous catheters.

Before, the hospital initially changed a transparent dressing weekly. However, patients complained of itching and burning under the dressing, dressing adherence, and not being able to shower. After reviewing certain literature and finding documented evidence of a higher incidence of infection rates when using transparent dressings compared to gauze dressings in medical, surgical, and pediatric patients with central venous catheters both plastic and silicone.

As a result of the literature, the hospital followed a group of HIV patients who had central venous catheters inserted for long term intravenous treatment of cytomegalovirus retinitis from April 30, 1993, to April 30, 1994.

This is only a test

In the study, a gauze dressing was used and changed three times over the first week, after which the line was left uncovered. Patients received their therapy through the hospital's medical day unit, coming to the unit once each week for blood work and line assessment.

The "no-dressing" patients were permitted to shower daily, using soap and water to cleanse around the exit site, beginning one week after insertion. An additional 15 patients had central venous catheters inserted over the same time and were cared for by the home care program's visiting nurses. Home care patients were assessed once weekly to twice daily, with the home care program's protocol consisting of transparent dressings on all central venous catheters with weekly change.

For study purposes, a culture swab was deemed positive if it had a moderate to high growth of *S. aureus* or other potential pathogen as these were the only patients who received treatment. The no dressing group had a 15.7% local infection rate, consisting of three patients: one positive for *K. pneumoniae* and two for *S. aureus.*

The home care group had a 20% local infection rate with three positive exit-site swabs: All three exhibited heavy growth of *S. aureus.*

The hospital concluded there was no increase in exit site infection rates for central lines in patients without dressings when compared to lines covered with a transparent dressing. Benefits of no dressing consist of considerable cost savings, as well as time saved by the nurse and home patient who is not required to do dressing changes. The hospital has not done a randomized control trial to confirm its observations. ■

GUEST COLUMN

Usage is key in IV catheter selection, tip termination

A guide to making the proper choice

By **Nancy Moureau**, CRNI
President, PICC Excellence
Orange Park, FL

Early selection of the most appropriate IV catheter can lead to a safer, more efficient administration of IV therapy with the best possible outcome.

Catheter selection made early in the course of a patient's IV therapy can lead to greater patient satisfaction, reduced overall nursing time for IV maintenance, fewer supplies, reduced risk of complications and a greater chance that the therapy will complete the prescribed length of treatment.

The positive aspects of early selection are overwhelming, in addition to the cost savings with enhanced efficiency. When the initial order for intravenous therapy is given while the patient is in the hospital, doctor's office, or in the home care setting, the first thought is often to start a peripheral device. A peripheral catheter, while being the most common device, is not always the best choice for the therapy.

Information for the determination of IV catheter use is available through the Intravenous Nurses Society (INS) Standards of Practice, the National Association of Vascular Access Network's (NAVAN) "Tip Termination Position Paper," and to a lesser degree, the CDC's *Guideline for the Prevention of Intravascular Device-related Infections.* These documents aid the practitioner in deciding the best IV catheter to use for each patient situation. Each case is different and catheter selection is not easy. Factors that need to be considered for IV catheter selection include:

- type of medication to be used;
- osmolarity and pH of the solution to be infused;
- duration of therapy;
- diagnosis of the patient;
- secondary risk factors, chronic diseases, or problems that may affect the incidence of complications;
- patient preference, activities, job and lifestyle;
- financial resources to cover required therapies;
- future intravenous needs and long-term prognosis;
- current availability and status of peripheral veins;
- history of neurologic impairments, surgeries affecting the veins or lymphatic system, blood dyscrasias, thrombosis, or previous threading problems. **(See chart, p. 45. The catheter choices are listed in the table with emphasis given on concerns, confirmation, deciding factors, and dwell-time for each device.)**

Short peripheral catheters are chosen when therapy is not expected to exceed five days. When therapy will extend beyond five days, but not more than four weeks, a midline catheter is considered.

Short peripheral or midline catheters should not be considered if the osmolarity of a solution is greater than 500 mOsm, or has a pH less than five or greater than nine. Solutions with high osmolarity or a pH beyond 5-9 are considered irritants or vesicants based on the response of the tissue to the solution.

Irritants, vesicants, and lines

Other medications not governed by osmolarity or pH variations can also be considered irritants, such as nafcillin. Check with your pharmacist for the current list of irritants and vesicants.

Midclavicular lines are another option. Inserted through the antecubital fossa, terminating in the subclavian region, midclavicular lines

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Choosing the Correct Catheter

Intravenous Catheters	Terminal Tip	Uses	Form of Confirmation	Concerns	Deciding Factors	Dwelltime
Peripheral Catheters ½" to 3"	Ends peripherally	Non-irritating solutions. Should be isotonic.	Flushing, appearance of the site, blood return checks.	Irritating or hyperosmolar solutions may cause phlebitis, scaring or sloughing of tissue.	• Consider other line if therapy longer than 5 days • Sites not lasting 24 hours • Fewer than two sites left	According to INS 48-hour site rotation. May extend to 72 hours if certain conditions exist.
Midline greater than 3"	Proximal portion of the extremity	Isotonic only, not over 500mOsm, pH between 5-9	Not into chest, no X-ray required.	Thrombosis and phlebitis short-term only	• Consider deeper placement if phlebitis occurs • Leakage at the site may indicate thrombosis; need deeper placement	INS states 2-4 weeks optimal.
Midclavicular	Subclavian or Innominate	Isotonic only, not over 500mOsm, pH between 5-9	Recommended, but optional	Thrombosis risk may be as high as 60%-68%	• Consider deeper placement if phlebitis occurs • Leakage at the site may indicate thrombosis; need deeper placement	INS states 2-3 months optimal.
PICC	SVC/IVC	Any drug or solution	X-ray required	None	• Consider another catheter if breakage or other complications occur • Diagnosis or therapy changes require duration greater than 1 year	INS states up to 1 year. Duration longer than 1 year depends on certain conditions.
Non-tunneled Subclavian Catheter	SVC			Risk of pneumothorax; infection risk may be as high as 20%	• Short-term therapy only • Large-volume infusions	Up to 2 weeks optimal.
Tunneled Groshong, Hickman or Broviac Catheters	SVC			Risk of pneumothorax, etc.	• Permanent type catheters • For long-term use	Long-term, may be greater than years.
Subcutaneous Implanted Ports	SVC				• Permanent type catheters • For long-term use	Long-term, may be greater than years.

Source: PICC Excellence, Orange Park, FL.

are beginning to receive careful scrutiny following the connection between subclavian (suboptimal) placement and thrombosis occurrence.

Literature has indicated an incidence of thrombosis between 58% and 68% with suboptimal tip placement, defined as anything other than superior vena cava (SVC) placement. INS considers midclavicular line peripheral placement as carrying the same osmolarity, pH limitations as peripheral and midline catheters.

Midclavicular lines have been widely used in home care to avoid the costs and time of confirming by X-ray. NAVAN published "A Position Paper on Tip Location" in the summer 1988 issue of the *JVAD* (NAVAN can be reached by calling [888] 57-NAVAN).

In that issue, the NAVAN board recommended all catheters advanced into the chest should terminate in the lower one-third of the superior vena cava, close to the junction of the SVC and the right atrium. According to NAVAN, terminal tips should not advance into the right atrium. NAVAN is recommending the use of peripherally inserted central catheters (PICCs) with tip termination in the SVC, over midclavicular placement, as the safest option for IV therapy.

Timing is everything

PICC lines can be used for patients receiving IV therapy over periods greater than five days, but less than one year. PICC lines have been shown in numerous studies to be safe and cost effective. PICC lines can be used to administer any type of IV therapy and have much less risk with peripheral insertion. X-ray placement check is always required after insertion and prior to use.

The final choice for catheter placement are non-tunneled and tunneled catheters, with subclavians, Groshong chest lines, Hohn, Hickman, Broviac, and other dialysis catheters and subcutaneous ports.

All of these catheters, with the exception of the subclavian non-tunneled type, can be used for long-term therapy. Cost is frequently an issue with these lines. Patients requiring therapies exceeding three months, with estimated duration of years, benefit from tunneled or implanted catheters / ports.

Decision trees, algorithms, and other types of flow charts can be instituted to aid in the decision process for IV catheter selection. A pair of articles, one appearing in *Nursing Clinics of North America* and the other in *Surgical Oncology Clinics of North America,* list peripheral and central algorithms to enhance proper catheter selection.[1,2]

The most important factor in determining the best catheter for the patient is to consider the usage early in the therapy. If outcomes are the key, then usage-based catheter selection can help to identify the best means of administering IV therapy resulting in a win-win situation for the patient, the facility, and the medical team.

Nancy Moureau, CRNI, is the president of PICC Excellence, a PICC and IV education company. Call (888) 714-1951.for information about classes across the United States. PICC insertion videos are available for purchase, along with a PICC PACK quick reference guide, tourniquet, and educational manuals.

References

1. Ryder MA. Peripherally Inserted Central Venous Catheters. *Nursing Clinics of North America* 1993; 28:937-971.
2. Ryder MA. Peripheral Access Options. *Surgical Oncology Clinics of North America* 1995; 4:395-427.

Suggested reading

1. NAVAN Position Statement. *JVAD* Summer 1998; pp. 8-10. Call (888) 714-1951 for more information.
2. Intravenous Nurses Society. *INS Revised Standards* 1998; 21(suppl):No. 15.
3. Kearns PJ, Coleman S, Wehner JH. Complications of long arm catheters: A randomized trial of central vs. peripheral tip location. *JPEN* 1996; 20:20-24.
4. Prian GW, Way CWV. The long arm silastic catheter: A critical look at complications. *JPEN* 1978; 2:124-128. ■

COMING IN FUTURE MONTHS

- ■ Malpractice measure: How to gauge your liability
- ■ Protect yourself: Are you getting PICC consent forms?
- ■ Teacher, teacher: Designing quality patient education materials
- ■ Marketing: Golfing your way to awareness
- ■ Team approach: One home care agency s move to an IV team

NEWS BRIEFS

The Cancer Center pays $283,000 settlement

The Cancer Center in Boston recently agreed to pay $283,000 to settle civil charges under the False Claims Act that the center caused false reimbursement claims for the home infusion of intravenous chemotherapy services to be submitted to the Medicare program.

Civil charges claimed The Cancer Center billed taxpayers for each day a portable pump provided chemotherapy to a patient instead of the one time the patient had the pump installed by the doctor. The government contended after the initial visit to the doctor for the portable or implantable pump, no service was performed for the patients unless a problem arose, yet The Cancer Center generated bills during the period of Jan. 1, 1991, through Dec. 31, 1995.

The charges were investigated by the Department of Health and Human Services and the Office of Inspector General. ▼

New HIV drug shows promise as last resort

Durham, NC-based Trimeris recently released the preliminary results of a Phase II clinical trial of T-20, a fusion inhibitor that attacks HIV in an entirely different way than agents currently in use.

In the trial, T-20 was administered for via subcutaneous infusion or subcutaneous injection for 28 days to 78 HIV-infected adults who on average failed nine anti-HIV medications and an average of three protease inhibitors. The average baseline viral load was 100,000 copies / mL. T-20 reduced HIV in the blood by more than 90% in the higher dose groups without significant side effects. Mild to moderate local skin irritation at the site of infusion or injection was observed in most patients, and only 3% of patients discontinued T-20 due to side effects.

Indications are that both continuous subcutaneous infusion and twice-daily subcutaneous injections result in consistent plasma concentrations of T-20. ▼

Advanced Accreditation available through ACHC

The Accreditation Commission for Home Care, based in Raleigh, NC, recently announced Advanced Accreditation status availability to a variety of organizations in various disease-state management specialties. The organization must

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Subscription rates: U.S.A., one year (12 issues), $369. Approximately 18 nursing contact hours annually, $419. Outside U.S.A., add $30 per year, total prepaid in U.S. funds. One to nine additional copies, $221 per year; 10-20 additional copies, $148 per year. Call for more details. Missing issues will be fulfilled by customer service free of charge when contacted within 1 month of the missing issue date. **Back issues**, when available, are $62 each. (GST registration number R128870672.)

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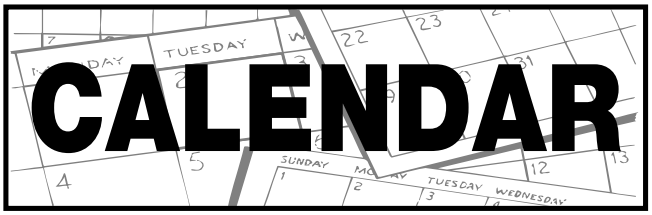
Editorial Questions

For questions or comments, call **Lee Landenberger** at (404) 262-5483.

demonstrate, through a special survey process, that superior clinical patient outcomes can be expected when compared to other organizations providing similar services in the designated area of specialty. The first provider to receive Advanced Accreditation status is Nutrishare, a nationwide provider of home parenteral nutrition. ■



• **American Society for Parenteral and Enteral Nutrition teleconference on Nutrition Support in Critical Care** — March 18. For more information, call (301) 587-6315, e-mail aspen@nutr.org, or go to ASPEN's Web site at www.clinnutr.org.

• **Health Industry Distributor's Association Home Care Washington Conference** — April 20-21, Washington Court Hotel, Washington, DC. For more information, contact HIDA at (703) 549-4432.

• **INS Annual Meeting and Industrial Exhibition** — May 1-6, Charlotte, NC. For more information, call INS at (800) 694-0298.

• **Center for Healthcare Environmental Management certification seminar** — May 17-21, Plymouth Meeting, PA. For more information, call (610) 825-6000, ext. 145.

• **National Home Infusion Association Eighth Annual Conference** — May 19-22, Fort Lauderdale, FL. For more information, call (703) 549-3740.

• **INS Advanced Concepts in the Management of Central Venous Access Devices in the Alternate Care Setting** — July 31, Hyatt Regency Hotel, Chicago. For more information, call the INS at (800) 694-0298.

• **HIDA/99 Trade Show** — Oct. 9-11, Navy Pier Convention Center, Chicago. For more information, call (703) 549-4432.

• **Medtrade 1999** — Nov. 3-6, 1999, Ernest N. Morial Convention Center, New Orleans. For more information, call (770) 641-8181.

• **Medtrade 2000** — Oct. 3-6, 2000, Orange County Convention Center, Orlando, FL. For more information, call (770) 641-8181. ■

CE objectives

After reading the April issue of *Home Infusion Therapy Management*, CE participants will be able to:

1. Identify areas to consider when developing ongoing competency standards.
2. Identify the most-often overlooked area in home infusion competency standards.
3. Identify the primary benefit of using transparent dressings rather than gauze.
4. List the four most important factors, among others, in choosing a catheter for a patient. ■