

## WOMEN'S HEALTH

### Looking for the Ideal Mammogram Reminder

Until recently, the goal of most mammography interventions was to encourage women to undergo screening for the first time or to get “lapsed” women back on schedule. Now that most women in the United States have had at least 1 mammogram, the emphasis should be on sustained adherence, say researchers from Duke University in Durham, North Carolina, the University of North Carolina at Chapel Hill, and the University of Texas in Dallas.

Reminders are simple and effective for increasing mammography adherence and, as the reminders become more intensive and patient-directed (such as tailored messages and telephone counseling), they also become more effective. However, as these more intensive reminders are typically more expensive, the researchers designed a study to determine both the maximal and the minimal prompt. In essence, what's the least that can be done to produce the best results?

Their study, Personally Relevant Information on Screening Mammography (PRISM), was a 2-step adaptively designed intervention, which culminated in 9 strategies. The first step consisted of yearly mammography reminders—enhanced usual care reminders (letters reminding women they were due for their next mammogram), enhanced letter reminders (printed booklets, reminder stickers, and theory-guided information), and automated telephone reminders. All the reminders provided information to the women about when they were due for their next mammogram, along

with motivational messages.

After the reminders were delivered, women who went “off schedule” during the 4-year study received a second step of supplemental interventions. These included tailored letters that prepared women for counseling calls, followed by calls to address women's barriers to staying on schedule. One call type focused on barriers only, while others emphasized the positive results of having regular mammograms, or the negative consequences of not having regular mammograms.

All of the reminders performed equally well in reducing the number of days of nonadherence. However, the women who received supplemental interventions had significantly fewer days of nonadherence. The type of barrier-addressing call did not significantly affect adherence. The researchers say that once barriers are addressed, the incremental benefit of adding counseling components may be small.

Although the study supports previous findings that showed the effectiveness of simple mammography reminders, it also extends those findings to longer-term outcomes. There were averages of 198 to 222 days nonadherent per woman over the 4-year study when women solely received reminders. Those numbers translate to an average of about 50 to 60 days nonadherent per woman-year of the study, the researchers say, suggesting that most women in PRISM received regular, on-schedule mammograms after the reminders were delivered. They note, however, that the study did not include a no-intervention control group, so they could not determine how much of the effects were due to reminder efficacy.

Therefore, the minimal interven-

tion needed for sustained mammography use, the researchers conclude, is a combination of a reminder followed by a priming letter and barrier-specific telephone counseling.

Source: *Am J Prev Med.* 2010;39(4):334–344.  
doi:10.1016/j.amepre.2010.05.020.

## PATIENT SAFETY

### Catheter-Related Bloodstream Infections a Still-Growing Problem

Bloodstream infections due to intravenous (IV) catheters are still on the rise, according to researchers from Duke University, Durham VA Medical Center, both in Durham, North Carolina, and Robert Wood Johnson Medical School in New Brunswick, New Jersey. Their retrospective assessment of positive blood cultures from 1,706 patients at 3 academic medical centers revealed that intravenous catheters are now the single most common source of bacteremia and fungemia.

Of 2,669 isolates, 8% represented unknown clinical significance, 41% represented contamination, and 51% represented true infection—of which, about 71% had an identifiable source. IV catheters were the leading identifiable source (23% of episodes), a higher representation than the 3% found in a 1975 study and the 19% found in a 1992 study.

Most (81%) of the infections were acquired while patients were in the hospital (46%) or in other health care settings (35%). It seems that infection control practices in hospitals are having some effect—in-hospital case-fatality ratios have dropped compared with previous studies. The researchers

suggest extending such practices to all health care facilities, saying health care-associated infections “occur in diverse settings and not only during inpatient stays.” In addition to the acquisition of infection in health care settings other than hospitals, the researchers believe that bloodstream infections should be reassessed periodically due to increased antibiotic resistance, more patients receiving immunomodulatory therapy, and improved antiretroviral therapy.

Source: *Am J Med.* 2010;123(9):819–828.  
doi:10.1016/j.amjmed.2010.03.021.

## INFECTION CONTROL

### Masking the Issue of Inhaling Contaminated Particles

Just how effective is that mask against exposure to airborne particles? A study by researchers from Stony Brook University Medical Center, New York, suggests that a mask on the patient is far more effective than one on the health care practitioner.

They constructed a chamber designed to produce radiolabeled wet aerosols simulating contaminated particles inhaled during tidal breathing. Aerosols were exhaled via a ventilated mannequin head (the “source”). A similar ventilated head (the “receiver”) in the chamber assessed recipient exposure. A filter in the receiver quantified exposure. Two types of masks, an N95 respirator and a surgical mask, were tested.

Applying a mask to the source (primarily deflection) resulted in significant reduction in exposure to the receiver. Masks on the receiver (filtration) did not significantly reduce exposure compared with no mask, except when the mask was sealed to the head with Vaseline. With 0 air exchanges/hour, only a Vaseline seal

was effective in reducing exposure.

The researchers say their study demonstrates the value of manipulating the source rather than trying to simply protect the receiver. The most important factor in reducing exposure was deflection of exhaled particles at the source. This process involved 6 air exchanges per hour, comparable with the flows routinely found in public environments.

Deflection and dilution appear to be the dominant factors affecting aerosol transmission, the researchers say. In their model, filtration protection at the receiver appeared to play a “minor role.” Dilution alone reduced exposure to the receiver 100-fold. Placing a surgical mask on the source further reduced exposure by an additional 250-fold. By comparison, sealing an N95 respirator on the receiver provided less protection and, if left unsealed, no protection.

The study also pointed to the importance of fit. The investigators cite another study, for example, which found that only 4 of 21 tested masks fit more than 50% of the study participants.

Interestingly, applying mask simultaneously to both the source and the receiver paradoxically reduced protection in repeated experiments. The researchers believe those results were due to the direction of the deflected particles. When a surgical mask was tightly fitted on the source, direct visualization revealed that particles leaked around the mask in front of the face and, therefore, were deflected forward toward the receiver. When the surgical mask was loosely fitted, particles were instead deflected laterally.

Mere breathing may provide the unmasked receiver some degree of protection, the researchers say. Exhaling a positive air current may change the ambient air in the immediate vicinity of the face and direct



harmful particles away. When a mask is used, the ambient velocity of the exhaled breath is reduced, preventing the dilution of harmful particles available for inhalation.

Source: *Am J Infect Control.* 2010;38(7):501–508.  
doi:10.1016/j.ajic.2010.06.002.

## ENDOCRINOLOGY

### Pancreatic Pseudocysts: No Surgery Needed?

Pancreatic pseudocysts (PPC) are common complications in patients with pancreatic disease—affecting as many as 40% of patients with chronic pancreatitis. Although many PPC resolve spontaneously, some require treatment to prevent infection, rupture, hemorrhage, and obstruction of the gastrointestinal tract. Surgery has long been the treatment for symptomatic PPC, but other methods have recently been developed, including percutaneous catheter drainage (PCD).

Researchers from University Clinical Center Tuzla, General Hospital Mostar, and University of Tuzla, all in Bosnia and Herzegovina, say managing PPC with PCD is an effective and safe alternative to surgery, without the potential complications of surgi-

cal trauma and general anesthesia. In fact, they say, surgery may represent “overtreatment” for many patients. The researchers performed a retrospective analysis of 128 patients with 140 PPC treated by PCD. Surgery was performed only when PCD was unsuccessful. Follow-up time was 12 months, with the patients being followed monthly with sonography.

More than 80% of the time, cysts resolved after the first procedure or, if they recurred, were small and did not require additional treatment. During the follow-up period, 30% of cysts recurred. Continuous PCD (up to 3 drainages) was a successful and definitive treatment for more than

90% of patients. Nine patients (7%) had surgery during the study period.

The continuous vacuum drainage system is more effective than the single-step needle aspiration because the content of the cyst (pancreatic fluid) is evacuated continuously, the researchers say, thereby avoiding pancreatic-enzyme lytic action and obliterating the cyst cavity. The complete removal of liquid and air, which is necessary to keep the cyst walls in close contact, constitutes the mechanical aspect of obliteration.

The procedure was well tolerated; no major complications were observed. Ten patients reported mild abdominal pain and 6 felt dizzy dur-

ing or after the procedure.

Source: *Eur J Intern Med.* 2010;21(5):393–397.  
doi:10.1016/j.ejim.2010.06.015.