FOR MORE THAN 20 YEARS

DRUG FORMULARY R•E•V•I•E•W™

Utilization, Criteria and Outcomes

AHC Media LLC

IN THIS ISSUE

MARCH 2009
VOL. 25, NO. 3 • (pages 25-36)

Focus on QI for antimicrobial therapy to improve pneumonia treatment

Identify risks, treat aggressively, then pull back

Old habits in antibiotic prescribing add nothing to patient safety and health, while costing hospitals thousands of dollars each year, according to recent research involving health care-associated pneumonia (HCAP) and ventilator-associated pneumonia (VAP).

While improvements have been made in initial therapies and vaccinations, there remain some problems, experts say.

Hospitals have had lower mortality and improved outcomes among patients with pneumonia since the late 1990s, according to data from the National Pneumonia Project.[1]

"In 1995, the standard of care for management of pneumonia was to give patients a third-generation cephalosporin as monotherapy," says **Dale Bratzler**, DO, MPH, president and chief executive officer of the Oklahoma Foundation for Medical Quality in Oklahoma City, OK.

"But a variety of studies demonstrated that additional coverage of atypical organisms, such as legionella or mycoplasma, led to reduced mortality rates," Bratzler says.

In the 1998-2004 period, the 30-day mortality among pneumonia patients treated in hospitals dropped from 15.3% to 12.9%, Bratzler says.[2]

So now guidelines recommend that hospitals initially treat pneumonia patients with a cephalosporin plus a macrolide or provide fluoroquinolone therapy.[3]

This is why it's also important that hospital emergency department physicians screen patients for potential antibiotic resistance so they can be treated with an antibiotic drug cocktail rather than ineffective monotherapy, research suggests.[1,4]

Summary points

- Hospitals have improved pneumonia outcomes since late 1990s.
- Antibiotic cocktail is now standard of care rather than monotherapy.
- A good antimicrobial stewardship program can save thousands of dollars each year.

But these therapies should not be prolonged past the recommended one-week time period unless there are clear medical reasons for doing so, additional research indicates.[3]

"The most important thing is to identify the risk factors that predispose patients to infection with unusual or multidrug-resistant pathogens," says **Fredrick M. Abrahamian**, DO, an associate professor of medicine at the University of California, Los Angeles, School of Medicine.

"These risk factors include, but are not limited to, immunocompromised patients and those with a recent history of hospitalization or prolonged intravenous antimicrobial therapy," Abrahamian says.

Other risk factors can include residence in a nursing home or history of ongoing hemodialysis.[4]

"Knowledge of these risk factors is important in the selection of initial empiric antimicrobial therapy," Abrahamian adds.

Patients should respond to treatment within three days and multiple-antibiotic therapy could continue for one week, but not for 2-3 weeks, the latest research suggests.

But what often happens is that physicians will keep patients on several antibiotics for weeks, even when lab results suggest that one or more of the initial treatments will provide no additional health benefit, says **Rob Owens**, PharmD, co-director of the antimicrobial stewardship program at Maine Medical Center.

"Instead of continuing the antibiotics for 14-21 days for infections such as hospital-acquired pneumonia [HAP], HCAP, or community-acquired pneumonia, which is excessive, we can continue for eight days or shorter," Owens says. "Good research shows it's as effective as 15 days in treatment for pneumonia."

By reducing the amount of time HCAP patients receive antibiotic treatment, clinicians are improving their outcomes by cutting the risk of adverse events, such as *Clostridium difficile* infection, as well as reducing resistance patterns, Owens adds.

The problem is that research demonstrating the benefits of a shorter treatment course is only a few years old, and many providers haven't changed their old habits, he notes.

"A lot of people don't know the research, and they feel comfortable with some other duration," Owens says. "The problem is that ignoring the data because you feel comfortable with some other duration ignores the harm that we're doing to our patients."

Also, the national guidelines provide no clear recommendation on how long antibiotics should be given, Bratzler says.

"I completely agree that appropriate antimicrobial stewardship calls for shortening the length of time for what is appropriate treatment for that patient," he says. "The guidelines address this concept, but don't provide formal recommendations that this is something you should measure as a measure of quality."

So the key is for hospital pharmacists to take the lead in a de-escalation of antibiotic use.

"It's critically important in the United States to reduce antibiotic resistance," Bratzler says. "And one factor is having patients on antibiotics for too long."

Also, clinicians need to use culture results to narrow the spectrum of antibiotics prescribed, as much as is possible, he adds.

The key to making these changes is to make antimicrobial stewardship a priority, the experts say.

Drug Formulary Review (ISSN#1548-2790) is published monthly by AHC Media LLC, 3525 Piedmont Road, Building Six, Suite 400, Atlanta, GA 30305. Telephone: (404) 262-7436. Periodicals Postage Paid at Atlanta, GA 30304 and at additional mailing offices.

POSTMASTER: Send address changes to Drug Formulary Review, P.O. Box 740059, Atlanta, GA 30374.

Subscriber Information

Customer Service: (800) 688-2421 or fax (800) 284-3291, (customerservice@ahcmedia.com) **Hours of operation:** 8:30 a.m.-6 p.m. Monday-Thursday; 8:30 a.m.-4:30 p.m. Friday.

Subscription rates: One year (12 issues), $499. Add $17.95 for shipping & handling. Outside U.S., add $30 per year, total prepaid in U.S. funds. Discounts are available for group subscriptions, multiple copies, site-licenses or electronic distribution. For pricing information, call Tria Kreutzer at 404-262-5482. Missing issues will be fulfilled by customer service free of charge when contacted within one month of the missing issue date. **Back issues**, when available, are $83 each. (GST registration number R128870672.)

Editor: **Melinda Young**.
Associate Publisher: **Coles McKagen**, (404) 262-5420, (coles.mckagen@ahcmedia.com).
Senior Managing Editor: **Paula Cousins**, (404) 262-5468, (paula.cousins@ahcmedia.com).
Director of Marketing: **Schandale Kornegay**
Production Editor: **Ami Sutaria**.

Editorial Questions

Questions or comments? Call **Paula Cousins** at (404) 262-5468.

Nationally, this can be done by holding providers accountable for various outcomes and sharing providers' results publicly, Bratzler says.

This has already been a chief reason why hospitals have vastly improved their vaccination programs for influenza and pneumonia, with numbers rising from 7.7% for pneumococcal vaccine in 1998 to 86.5% in 2008, Bratzler adds.

"We have lots of data now that when you nationally hold physicians and hospitals accountable for publicly reported standards of quality, it clearly drives performance and drives what they do," he adds.

Another way to improve antimicrobial stewardship is to start programs and dedicate staff and resources to these efforts.

For instance, Maine Medical Center's antimicrobial stewardship program has Owens and an infectious diseases (ID) physician team up to improve antibiotic use and safety.

"We each take a pile of antibiotic cases, collaborate, and talk about them," Owens says. "It's a fun thing to do because we each bring something different to the table."

When Owens and the ID physician first became a team, they went on rounds at the hospital to learn each other's habits and thought processes, he notes.

"It was less efficient, but we got on the same page about things, and now we've been doing it so long together that I know what she's going to say and she knows what I'm going to say, and we can act as one," Owens adds.

This synergistic antimicrobial stewardship team has helped Maine Medical Center improve patient care and save money.

"If you do the right thing, the cost savings is a side effect," Owens says. "These programs are in the worst-case scenario cost-neutral, and in the best case, you're saving lots of money."

The program saved between $100,000 and $200,000 in its antibiotic drug budget within one year of initiating the program, Owens says.

"When we benchmark ourselves to other hospitals of the same size, and look at antibiotic use per adjusted day, the antibiotic cost per day, and hospitalization rate, adjusted for census, then we fall within the top 5-10% among large organizations," Owens says. "We're a top performer."

And one compelling outcome of a particular study conducted at Maine Medical Center in patients with HAP and HCAP was the reduction of 124 unnecessary antibiotic days in a short, three-month period, according to outcomes from a QI project, Owens adds. **(See how antimicrobial stewardship program works, below.)**

"Our post-antimicrobial stewardship program group needed a lot less antibiotics, and the outcomes were all the same," Owens explains. "So it showed that you can use less antibiotics effectively and safely."

References

1. Bratzler DW, Ma A, Nsa W. Initial antibiotic selection and patient outcomes: Observations from the National Pneumonia Project. *Clin Infect Dis* 2008;47(Suppl 3): S193-S201.
2. Bratzler DW, Nsa W, Houck PM. Performance measures for pneumonia: Are they valuable, and are process measures adequate? *Curr Opin Infect Dis* 2007;20:182-189.
3. American Thoracic Society; Infectious Disease Society of America. Guidelines for the management of adults with hospital-acquired, ventilator-associated, and healthcare-associated pneumonia. *Am J Respir Crit Care Med* 2005;171:388-416.
4. Abrahamian FM, Deblieux PM, Emerman CL, et al. Health care-associated pneumonia: Identification and initial management in the ED. *Am J Emerg Med* 2008;26(6 Suppl): 1-11. ■

Follow these tips to start an antimicrobial stewardship program

Go for low-hanging fruit first

Hospitals that invest in an antimicrobial stewardship program might expect to see some safety, health care quality, and even long-term financial benefits from their staffing investment.

But what would be the best way to operate such a program? An expert offers these suggestions:

1. Go for low-hanging fruit first. When hospitals hire a pharmacist to help lead an antimicrobial stewardship program, there are several initiatives that would bring about the most efficient changes first.

One such initiative is to focus on patients who are transferred to the hospital with health care-acquired pneumonia (HCAP) or ventilator-associated pneumonia (VAP), suggests **Rob Owens**, PharmD, co-director of the antimicrobial stewardship program at Maine Medical Center.

"The typical patient might come in sick and be put on three antibiotics," Owens says.

The goal is to hit the disease quickly and potently because it takes several days to find out precisely what the infecting pathogen is via culture and susceptibility results.

But the problem is that once the lab results return, clinicians often continue treating the patient with the three antibiotics, which tend to cause the potential for greater adverse drug events as well as not being cost-effective. And they often will continue the costly regimen for several extra days or even weeks, despite recent national guidelines calling for shorter treatment courses, Owens explains.

A pharmacist who specializes in antimicrobials can play a role in reviewing these cases and making a recommendation to the physician about which antimicrobials should be discontinued after a few days because they will provide the patient no additional medical benefit and might produce unnecessary adverse effects, Owens says.

Also, it is the role of the pharmacist to educate physicians about the latest research and how it emphasizes the need to stop antibiotics when they are no longer needed, as well as to offer dosing suggestions to optimize the pharmacokinetics/pharmacodynamics of the antimicrobials.

"If you continue all those antibiotics in the face of having a culture result on day 3, suggesting that only one is necessary, then that's a good example of having excess antibiotic use," Owens says.

Owens, along with an infectious diseases physician, review antibiotic use in a hospital that has more than 150 patients on antibiotics on any single day.

When they find cases where antibiotics are continuing to be used unnecessarily, they'll point this out and assist physicians in changing prescriptions. This oversight has helped to save the hospital a documented hundreds of thousands of dollars, Owens says.

"Doctors don't put people on antibiotics just to put them on antibiotics," Owens says. "They typically have some suspicion of infection, but that suspicion may go away sometimes, and the antibiotics do not."

Plus, physicians often have a dozen or more medical issues to review with any given patient, and antibiotic use is at the bottom of their priority list, he adds.

"My job is to elevate that problem to No. 1 and put antibiotics on our radar screen," Owens says.

2. Be the antibiotic point person. Hospitals continually need to be on the lookout for development of drug-resistant bacteria, and this is another area where an antimicrobial steward can take the lead.

Although it's a good policy for hospitals to follow guidelines and discontinue antibiotics at eight days, it's also important to be mindful of the handful of cases when antibiotics need to be continued.

"You need to know the patient is clinically responding before you tap the doctor on the shoulder and say, 'We should consider stopping therapy because we have reached the antibiotic duration that is recommended, and the patient has clearly responded to therapy,'" Owens says.

The goal is to emphasize short-course treatment, optimize the dose according to the patient's renal function or according to the pathogen that's been isolated, and keep patient safety as the chief goal at all times, Owens explains.

An infectious diseases-trained pharmacist can be the person physicians turn to when they have questions about drug interactions, antibiotic resistance, and side effects, Owens adds.

Antimicrobial stewards also need to be physicians' teachers and reminders about antibiotic use. There might not be time to make recommendations for every single patient receiving antibiotics, but if the pharmacist spends time to educate clinicians and emphasize the most recent guidelines on the subject, then the hospital's overall antibiotic use will improve.

Reminding physicians and teaching them how to improve antibiotic use extends the antimicrobial steward's reach, Owens notes.

"My job is to help educate people so they can do this for themselves and we don't have to intervene," he adds.

3. Help reduce antibiotic initiations when treatment isn't medically necessary. Residents and other physicians sometimes will start patients on antibiotics solely because of a culture finding, and it's the job of the infectious diseases-trained pharmacist to suggest a different course of action.

For example, sometimes patients have asymptomatic bacteriuria — a symptomless patient with a positive urine culture, Owens says.

Physicians might ask Owens what they should use to treat those cases.

"I back up and say, 'Does the patient have

symptoms? Does the patient have a temperature and white blood cell count or dysuria?'" Owens says.

He also asks the doctor why the urine culture was obtained.

Often he finds that the bacteria are present but the patient is asymptomatic, and so there is no need for treatment at all, Owens explains.

"The lab result comes back, and they say 'We should treat this because there are lots of organisms in there,' and it's a reflex where clinicians forget to ask if the patient has symptoms," Owens says.

"You shouldn't be treating asymptomatic bacteriuria," Owens adds. "There are a few exceptions, but for the most part there are very minor numbers of people who need to be treated for it."

Unfortunately, many hospitals and physicians do treat patients with asymptomatic bacteriuria, and this can become a safety issue.

Owens has heard of a cautionary tale where a patient was treated unnecessarily with an antibiotic and developed a very rare side effect that led to renal failure.

"This is an area where we need to start making an improvement," Owens says.

4. Provide continuous attention and education. Since Maine Medical Center started its antimicrobial stewardship program, there have been periods where Owens' intervention in cases occurred infrequently, and there have been periods when he's had to assist with many cases.

"If you're not there doing it every day and reminding people about antibiotic stewardship, they regress to their normal practice," Owens says.

"With our approach, we find that people like our advice and learn from it, but if you're not there doing it for a period of time, it's human nature to go back to their old style of doing things," Owens adds. ■

Non-traditional schedules may improve staff retention

Demographic changes make this imperative

Every hospital pharmacy manager struggles to attract and retain the best pharmacy staff to provide full coverage.

As the work culture and pharmacy career demands change, so must the manager's expectations and style if they are to succeed in maintaining the best possible staff.

This challenge will be more important than ever as demographic changes are expected to increase the demand for pharmacy services within the next decade, while at the same time a significant percentage of hospital pharmacists will retire, according to a 2007 report by the American Society of Health-System Pharmacists (ASHP) Task Force on Pharmacy's Changing Demographics.[1]

According to a 2004 survey of more than 1,000 pharmacy directors and middle managers, more than 75% indicated they planned to retire by 2014.[1]

One possible solution to recruiting and retaining pharmacy staff is to provide flexible work schedules that recognize the desire many pharmacy professionals have to achieve a better work-life balance, says **Lynnae M. Mahaney**, RPh, MBA, FASHP, chief of pharmacy at William S. Middleton Memorial Veterans Hospital in Madison, WI. Mahaney is president-elect of ASHP.

Mahaney has researched solutions to pharmacy staff retention, and her findings were that compressed workweeks, job-sharing, and team scheduling were alternative work schedules that could work for hospital pharmacies.[2]

"All generations want life-work balance, and different generations need it for different reasons," Mahaney says.

"I have 40 pharmacists and 70 people on staff," she notes. "The concept is that you have to be open to anything or everything because there isn't one model where we can put it in place and it works for everyone."

The key is to find out what your staff's needs are and to try to accommodate those in the staffing schedule, Mahaney says.

Summary points

- Managers need to develop flexible work schedules to better retain staff.
- Employees of different generations have different goals and needs.
- Pharmacist workforce shortage necessitates thinking outside the box.

"Secondly, you try to meet the needs of all of your staff members," she says.

Mahaney offers these tips on meeting pharmacy staff's scheduling needs:

- **Be open to a single**

request. It's a traditional management belief that it is unfair to give one employee a choice schedule if others cannot also have that option.

But Mahaney found through her own experience that this isn't always true.

"I hired one pharmacist who previously worked nights, and he didn't want to work nights anymore," she says.

The standard night pharmacist schedule in the community was working one week of nights for 70 hours and having one week off, Mahaney notes.

The pharmacist loved the one week off and one week on schedule, but no longer wanted to work nights. He works seven days in a row and, thus, every other weekend, Mahaney adds.

"My manager and I talked about it and said, 'If he's working every other weekend, we'll accommodate that,'" Mahaney recalls. "So he works seven days in a row, and he works every other weekend, which is more than any other pharmacist."

So the pharmacist is off of work by 3:30 p.m., which lets him return home early enough to take care of his kids as they return home from school, she notes.

"It fits his personal lifestyle," she adds.

• **Think outside the box.** "Managers have to stop thinking inside the box because life has changed," Mahaney says. "The generations have changed, and what worked before is gone — so we as managers need to get over it."

Mahaney refers specifically to how the Baby Boom generation, roughly born between 1946 and 1964, approached the workplace in a very different way than the generation of people who followed. **(See suggestions for dealing with different generations, p. 31.)**

"The Generation Xers were the first generation that said, 'No, I'm not working 60 hours per week at this job — this is what I'll work and then I'll go home to my family and my life,'" Mahaney says.

"They don't want to do things the way the Boomers did," she adds. "Then the Millennials come along behind them, and they were raised differently."

The Generation Xers witnessed first-hand how their Boomer parents would toil many hours for employers who thought nothing of letting them go, and so they feel no particular loyalty to their own employers.

"The Xers say, 'If you're not loyal to me, then I'll not be loyal to you,'" Mahaney says. "Generation X people remember coming home to empty homes and having parents miss their soccer games because of work, so that left a bad taste in their mouths, and they don't want to be that way."

This is why managers have to think differently about how they treat and what they expect from their employees who are in their 30s and 20s.

"These generations have demanded workplace balance," Mahaney says.

And the managers who are able to provide them with that balance will be the ones who succeed in retaining staff.

• **Look at the fairness issue differently.** "Fairness is a common concern and a legitimate concern," Mahaney says.

The way to address it is this way: "If the solution makes sense for patient care and if you're still providing the correct and high-quality level of patient care and it doesn't adversely affect another staff member, then go for it," she says.

"When an employee has an idea for a change in scheduling, then have them show you how this might work, selling their story," Mahaney explains. "Then it's the manager's job to do the assessment and say whether or not this looks reasonable and whether we should try it."

You could try it out for a trial period and if it works, great, and if doesn't then it's time to go to plan B or plan C, she adds.

"Generally, if it doesn't have an adverse effect, then go with it," Mahaney says.

• **Create integrated positions.** "I'm a firm believer in integrating direct patient care with what was originally called staff pharmacist duties," Mahaney says.

"So all of our newer pharmacists have some integrated, inpatient/outpatient staffing component," she explains. "This way you don't have various levels of pharmacists with one working only a clinical job and another one only in a staff job."

Many people believe this is where the pharmacy profession is moving with pharmacy service staff operating as one team and not out of silos, she adds.

The advantages to a hospital pharmacy are notable:

• It provides staffing flexibility so that a staff opening in an anticoagulation clinic can be filled by someone from a medication management area.

• And this approach gives residency-trained pharmacists direct patient care duties and variety in their work, Mahaney says.

"The majority of pharmacists who work in our

outpatient anticoagulation area can also do inpatient anticoagulation and work de-centrally in inpatient," Mahaney notes. "They have a specialty, but that's not all they do."

References

1. Report of the ASHP Task Force on Pharmacy's Changing Demographics. *Am J Health Syst Pharm* 2007;64;1311-1319.

2. Mahaney L, Sanborn M, Alexander E. Nontraditional work schedules for pharmacists. *Am J Health Syst Pharm* 2008;65:2144-2149. ■

Different generations approach work-life balance with diverse goals

Here are some tips on handling staff

One of the chief findings of the Task Force on Changing Demographics, established by the American Society of Health-System Pharmacists (ASHP) was that changes in the demographics of the pharmacy work force could exacerbate a pharmacist shortage nationwide.[1]

The task force made a number of recommendations to help prevent this from becoming a workforce crisis, including the suggestion that ASHP should develop a strategy to assist practitioners who are pursuing alternative career patterns and that pharmacy managers should examine their staffing practices in light of changing demographics.[1]

Here are some more tips on how pharmacy managers can better deal with employees who come to the profession with different generational expectations and goals:

1. Learn what the different generations are like. "Do a little reading about the different generations, because if you can learn about the various generations, then that gives you a clue about how to talk with them and listen to them," says **Lynnae M. Mahaney**, RPh, MBA, FASHP, chief of pharmacy at William S. Middleton Memorial Veterans Hospital in Madison, WI. Mahaney is the president-elect of ASHP for 2009-2010.

For example, the generations can be divided into the following:

- *Silent generation or traditionals:* Those born before 1946 are now of retirement age, but some will continue to work on a part-time basis. These workers tend to be very loyal to employers, are career-oriented, and are motivated by salary and professional recognition.[1]
- *Baby Boomers:* The generation born between 1946 and 1964 are good mentors and the employees who tend to exhibit strong professional commitment. They are less likely to change jobs than are younger employees, and they appreciate flexible work schedules so they can care for elderly parents or children.[1]
- *Generation Xers:* Those born between 1965 and the late 1970s value a balance between work and their personal lives. For some of this generation, spending time with their friends, families, and extracurricular activities takes priority. And they are willing to switch jobs to better meet their professional and personal life-work balance goals.[1]
- *Millennials:* The youngest generation, born after 1980, is optimistic, accepting of diversity and authority, community-oriented, and loyal. They might be more willing to stay with an organization for longer periods than previous generations, and they're also technologically advanced and skilled at multitasking. They have high expectations of managers and seek creative challenges on the job, but need continual feedback. They also seek alternative work arrangements, such as telecommuting, flexible hours, and temporary family leaves.[1]

2. Develop flexible work schedules. "Be open to developing flexible work schedules," Mahaney says. "This is key, and unless you can restructure the work, you'll have staffing problems."

It's important to develop alternative work schedules that will help the Baby Boomer pharmacist handle elder parent care and give the Generation Xer some flexibility in balancing family-work.

Pharmacists listed their work schedule as the most important factor in deciding whether to stay or leave a job within the next year, according to the National Pharmacist Workforce Survey.[1]

Flexible scheduling gives a hospital pharmacy an advantage when recruiting top candidates, and it encourages staff loyalty and retention.

3. Facilitate pharmacist re-entry. As a pharmacist shortage becomes a nationwide issue, it'll be important to develop programs and procedures for hiring pharmacists who have been out of the workforce for various reasons, including childbirth and retirement, Mahaney says.

"If a trained professional leaves the workforce for some amount of time and wants to come back, we need to have methodologies for managing that re-entry," she says.

"For pharmacists who may have worked in a community and chain setting for a large part of their career and then want to go back into the hospital and health system, then we need to accommodate them and create a training program for them," Mahaney adds. "If you have a good pharmacist, you want to hire and bring them back."

Pharmacy managers should invest in their 50-year-plus workers because they'll need the older pharmacists to stay in the workforce, Mahaney adds.

This group might also include the "silent generation" of older workers who decide that their retirement years should include some part-time work.

Reference

1. Report of the ASHP Task Force on Pharmacy's Changing Demographics. *Am J Health Syst Pharm* 2007;64;1311-1319. ■

Improve medication reconciliation process to eliminate discrepancies

Match medications with disease condition

It's a given in 21st century United States that many patients are caught up in polypharmacy; they're taking a variety of medications, prescribed by various providers, and fulfilled at any number of pharmacies.

This is why it's so challenging for nurses, physicians, and pharmacists to find out precisely which drugs each patient has been taking at home.

The medication reconciliation process is laden with problems, notes **Douglas Slain**, PharmD, BCPS, FCCP, an associate professor in the department of clinical pharmacy at West Virginia University School of Pharmacy in Morgantown, WV.

"Patients go to a lot of practitioners and start on a lot of drugs," Slain says. "They might be started on a drug for a short-term reason, and then they'll stay on the drug without a critical need for it."

Slain co-authored a study about medication discrepancies that showed that nearly 70% of patients admitted to a hospital had at least one unspecified medication listed in the admission note. Unspecified medications were those where an indicated disease state or condition for the medication was not reported.[1]

So as part of the medication reconciliation process, it's important to have a pharmacist match the patient's medications to the patient's disease condition and symptoms.

"Oftentimes patients are on drugs for which we never hear that they have a disease that requires those drugs," Slain says.

This could result from the patient using a drug for a short-term problem and then staying on it, or it could be that the patient does have a condition that might require the medication, but no one has documented this diagnosis.

For example, Slain's research has demonstrated that patients sometimes are taking selective serotonin reuptake inhibitors (SSRIs), although the patient doesn't mention having depression or anxiety when the medical history is taken, Slain says. **(See story about common medication discrepancies, p. 33.)**

"What I advocate is probing when something is not clear-cut, or when there's not a definite match," he adds. "If there isn't a disease that is directly stated, then you should ask direct questions like, 'Why are you taking this medication?'"

Slain and co-investigators have developed a simple algorithm that a pharmacist could use to help clarify why a patient is taking a particular drug.

"When there is a drug that has no specified indication in the medical history, then there's this algorithm a person could go through to clarify why the person is on the drug," Slain explains. "If it couldn't

Summary points

- Pharmacists should match patient's disease condition to the medication prescribed.
- A new study showed that nearly 70% of patients admitted to a hospital had at least one unspecified medication listed in the admission note.
- When pharmacists directly question patients or families they are able to fill in medication gaps most of the time.

be clarified, then the pharmacist would notify the hospital physician and recommend discontinuing the medication."

Besides clearing up discrepancies and alerting physicians to unnecessary prescriptions, this process will improve safety, Slain notes.

For instance, the Beer's Criteria contains a list of drugs that are potentially inappropriate in elderly patients. Some of the medications on that list appeared in the medication reports of elderly patients included in Slain's studies, he says.[2]

When patients are admitted to the hospital, it's a good time to evaluate the patient as a whole and figure out if the patient's home medication regimen is good for them, Slain says.

"We have so much knowledge at the hospital, and we could evaluate what the patient truly needs," he says. "We might be able to decrease some of these medications."

This approach makes sense, and it's time that hospital physicians move beyond their reluctance to discontinue medications that were started by primary care physicians in the community, Slain adds.

Also, pharmacists must rely on direct questioning to fill in the medication and diagnosis blanks.

In Slain's medication discrepancy research, direct questioning of either the patient or a family member has been the best way to fill in gaps.

"Sometimes we had to go through previous on-line clinic notes to find out more about medication we didn't have a disease to match," Slain says. "But most of the time we did this through direct questioning."

In a second study, they were able to clarify the medications and diagnoses 92% of the time, Slain adds.

"We concluded that if you had a pharmacist working in the emergency room or involved in medication reconciliation, you could have enhanced the rate," Slain says.

Although putting pharmacists in this role is expensive for a hospital, there are ways to make it more affordable, including assigning pharmacy residents or students to the job of medication reconciliation, Slain suggests.

With training, they can conduct these reconciliations fairly quickly, he says.

"It took us 9 minutes per patient to evaluate the medications and get clarity when performed within several hours of admission," Slain says. "The range was from 2 minutes to 25 minutes, and it could have been less time if the medication reconciliation was done at the front end at admission."

Also, most of these were cleared up through conversations with the patient.

"The percent clarified at the patient level was 80%," Slain says "So 80% of unspecified medications were clarified by the patient or caregiver."

References

1. Slain D, Kincaid SE, Dunsworth TS. Discrepancies between home medications listed at hospital admission and reported medical conditions. *Am J Geriatr Pharmacother* 2008;6:161-166.

2. Fick DM, Cooper JW, Wade WE, et al. Updating the Beers Criteria for potentially inappropriate medication use in older adults: Results of a US consensus panel of experts. *Arch Intern Med* 2003;163:2716-2724. ■

Lookout for these common medication discrepancies

Missing these could impact safety

Hospitals sometimes miss potential medication safety problems because the medication reconciliation did not note discrepancies in the patient's diagnosis and prescribed medications.

A researcher who has studied medication discrepancies among hospitalized patients highlights some of the more common discrepancies that may occur:

- **Proton pump inhibitors (PPI):** Hospital patients often will report taking a PPI, but they fail to mention they have an ulcer or gastroesophageal reflux disease (GERD), says **Douglas Slain**, PharmD, BCPS, FCCP, an associate professor in the department of clinical pharmacy at West Virginia University School of Pharmacy in Morgantown, WV.

"Maybe their condition isn't serious enough to call a condition," Slain suggests. "But when we ask people through direct questioning, 'Why are you taking this pill?' they'll say they have reflux."

So a hospital pharmacist should ask this question of the health care team: "Does the patient need to stay on the treatment indefinitely?" Slain says.

"I think patients always should be evaluated to see if they can discontinue certain medications," he says.

There are several reasons why patients taking

PPIs might no longer need the treatment.

For instance, when patients are admitted to the hospital for an acute illness or for surgery, some are placed on PPIs to prevent stress-related mucosal disease, Slain says.

"Then when they are discharged the physician will write a discharge prescription," Slain explains. "It's been shown the patients will continue as outpatients on these drugs although they were prescribed the medication for the purpose of stress ulcer prophylaxis and there was no long-term intent for their using these drugs."

In Slain's recent research on medication discrepancies, there were numerous instances of patients taking PPIs when there were not medical indications initially reported for the treatment.[1]

"There were cases where we could not clarify why they were on that drug," Slain says.

• **Selective serotonin reuptake inhibitors (SSRIs):** In the study on medication discrepancies, there were so many patients who omitted why they were taking SSRIs that investigators wondered if it was a deliberate omission because of a perceived stigma if they were to admit to having depression, Slain notes.

The other possibility is that patients are prescribed SSRIs by primary care physicians instead of by psychiatrists, and they might not always be told that they're being treated for depression or anxiety, Slain says.

"Are they being told this drug might help your nerves or your mood?" he says. "There might be something about this interaction that makes it difficult for the patient to tell us at a later point why they're taking the medication."

So pharmacists conducting medication reconciliations might need to ask specifically about SSRIs, or they might need to inquire about depression or anxiety when they see that a patient is taking an SSRI.

• **Benzodiazepines:** This class of psychoactive drugs can be used for treating anxiety, sleep disorders, seizures, or neuropathy.

Patients who are being treated for a neuropathy might not say why they're taking the drug, so pharmacists would need to clarify the diagnosis through direct questioning, Slain says.

For example, pharmacists conducting the medication reconciliation might note that a patient taking a benzodiazepine is a diabetic, which could suggest the patient has a neuropathy, Slain says.

• **Sedative-hypnotics:** Slain suggests that pharmacists watch for cases where elderly patients are taking sleeping pills and other sedative-hypnotics because some of these drugs are on the Beers Criterias for potentially inappropriate medication use in older adults.[2]

References

1. Slain D, Kincaid SE, Dunsworth TS. Discrepancies between home medications listed at hospital admission and reported medical conditions. *Am J Geriatr Pharmacother* 2008;6:161-166.
2. Fick DM, Cooper JW, Wade WE, et al. Updating the Beers Criteria for potentially inappropriate medication use in older adults: Results of a US consensus panel of experts. *Arch Intern Med*. 2003;163:2716-2724. ■

Best Practices Spotlight

Follow best practice guidelines to improve your pharmacy's performance

Expert points to 8 domains

Hospital pharmacies continually search for ways to improve quality, safety, and develop best practices. But they might not be going about this as efficiently and effectively as they can.

A first step is to establish your institution's priorities, an expert advises.

"We look at the industry as a whole and decide from our perspective what is the best practice," says **Robert Sobolik**, RPh, quality advisor for McKesson Health Systems of Great Falls, MT.

The first step in developing your own best practices is to decide how big your focus will be, Sobolik says.

"If you're talking about best practices with medication safety, then you have to decide whether you'll focus on medi-

Summary points

- Develop a reference document with readable sections to show hospital leaders.
- Create a spreadsheet, including an action plan, for each section or domain.
- Focus on "low-hanging fruit" first and then tackle more costly projects.

cation administration only," Sobolik says.

"But we think medication safety best practices are a whole lot more than that," he notes.

A more effective focus might be to work toward becoming a high performance pharmacy, Sobolik says.

High performance pharmacies focus on how to maximize what's spent on drugs and quality outcomes, he says.

As part of the quality outcomes focus, McKesson Health Systems does an assessment of hospitals' medication safety, how the system works, and how it can be improved, Sobolik says.

"Everything the pharmacy does can reflect on the leadership," Sobolik says. "That's one of the hardest ones to quantify and get your arms around."

So it's a good idea to create a reference document, which can run more than 30 pages, to show to what Sobolik calls the C-fleet: the CEO, CFO, etc.

"You can set it up in sections so they don't have to read it all at once," he explains. "It breaks up the information so someone doesn't have to spend an hour or so to read everything at one time."

Next, develop an assessment tool, using Excel spreadsheet software, to create a spreadsheet for each area or domain. The last area is an action plan. Each spreadsheet has columns for when a pharmacy is in full compliance or whether this compliance is occasional, never, or not addressed, Sobolik says.

Sometimes a particular area of compliance is not addressed because no one has thought about that issue, he adds.

"Then, if the compliance is sometimes or never, you move it to an action plan page along with a comment," Sobolik explains. "And you create a macro to collapse the blank lines so that all you have is the action plan there."

The action plan includes priorities.

"I recommend that you look at that action plan for potential sentinel events and other major areas that would strongly impact patient safety, and those become your high priority items," Sobolik says. "Then you share the action plan with the C-fleet because a lot of those things are high ticket budget items, and you can gauge where their priorities are too."

Once the hospital's top leaders buy in to the plan, then implementation can begin.

Keep in mind that it's wise to shoot for the low-hanging fruit first because these early successes will foster an attitude among staff that the organization is moving in the right direction, and it can create momentum for future successes, Sobolik advises.

"Then work through the plan," he says. "Nothing in the world is stagnant, so you'll have to look at this regularly — we look at our documents every year — to see what new technologies are out there and what other hospitals have reported that they're doing."

Pharmacy directors should look at peer's best practices as reported in management studies and at sessions held during mid-year meetings.

And they need to keep in mind that their job is only half done if they research all of the regulatory and accreditation standards, implement those, and stop there.

"Our belief is that because these are either regulations or used as regulations, those are not best practices," Sobolik says. "Those become the minimum standard if they're regulations because you have to do that at the very least."

Best practices are when organizations go beyond what's required.

For example, hospitals are recommended to vent their chemotherapy hoods outside, but it's not a requirement, Sobolik says.

"So that's a best practice because you have to vent that hood somewhere, and the best practice is to vent it outside," he adds. "This is above and beyond."

Although it's common these days to hear that hospitals do not have the financial resources to spend on practices and items that are not absolutely necessary, it's still important to focus on providing patients with the best care possible, Sobolik adds.

"I still think the best care we can provide our patients is the only way to go," he says. ■

COMING IN FUTURE MONTHS

- Hospital pharmacy technology is increasing, but has room to grow
- Rural hospital has mixed success with barcode verification system
- Here's a look at medication budgeting for next couple of years
- Address need for ED antidote medications
- Medication reconciliation should be 2009 focus

NEWS BRIEF

Increase in sudden cardiac death

Antipsychotics, both typical and atypical, are associated with a dose-related increase in sudden cardiac death according to a new study. Typical antipsychotics such as thioridazine (Mellaril®) and haloperidol (Haldol®) block repolarizing potassium currents and prolong QT intervals. Multiple studies have shown a dose-related increased risk of sudden cardiac death associated with these drugs. Less is known about the atypical antipsychotic drugs although many have similar cardiovascular effects. Researchers from Nashville reviewed the records of Medicaid enrollees in Tennessee including the records of 44,218 and 46,089 baseline users of a single typical and atypical antipsychotic, respectively. These were matched with 186,600 nonusers of antipsychotic drugs. Thioridazine and haloperidol were the most frequently prescribed typical agents, while clozapine (Clozaril®), quetiapine (Seroquel®), olanzapine (Zyprexa®), and risperidone (Risperdal®) were the most commonly used atypical agents. Both users of typical and atypical antipsychotic drugs had higher rates of sudden cardiac death than nonusers with adjusted incident rate ratios of 1.99 (95% CI, 1.68-2.34) and 2.26 (95% CI, 1.8-2.72), respectively. There was a higher rate for users of atypical antipsychotic drugs vs typical antipsychotics with an incident rate of 1.14 for the comparison (95% CI, 0.93-1.39). For both classes of drugs, the risk for current users increased significantly with increasing dose. The authors conclude that current users of typical and of atypical antipsychotic drugs had similar, dose-related increased risk of sudden cardiac death and that atypical antipsychotic drugs are no safer than the older drugs (Ray WA, et al. *N Engl J Med* 2009;360:225-235). An accompanying editorial suggests that children and the elderly are particularly vulnerable to these drugs and their use in these populations should be "sharply reduced" (Schneeweiss S, Avorn J. *N Engl J Med* 2009;360:294-296). ■