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Professional Pharmacy Focus: Antimicrobial Stewardship

IN THIS ISSUE

- Expert shows why hospitals need to invest heavily in antimicrobial stewardship 100
- Here's an example of antimicrobial stewardship best practices 101
- Hospital's decentralized model serves as best practice..... 103
- Here's how to move pharmacists into clinical roles 105
- 21st century medication management requires patient-centered approach..... 106

Increasing drug resistance, decreasing drug pipeline create microbial storm

Pharmacists should lead in stewardship

Antimicrobial stewardship programs are on everyone's minds, and the latest guidelines from national organizations have placed pharmacists at the helm of such programs in hospitals.

There are financial and reputation incentives now for focusing on these programs. For instance, The Joint Commission recently posted new requirements regarding antimicrobial stewardship, and the Centers for Medicare and Medicaid Services (CMS) has included certain health care-acquired infections as diagnoses that are no longer covered for reimbursement.

Experts who've developed, studied, and written about creating antimicrobial stewardship programs in hospital systems say the process is time-consuming and challenging, especially given the shortage of infectious disease (ID) pharmacists nationwide. But stewardship is essential since we've entered an era with increasingly drug-resistant microbes, and the antimicrobial drug development pipeline is depleted.

And there's one more problem too: Experts say pharmacists should lead the way with these programs, but there aren't enough pharmacists trained in infectious diseases to meet the increasing need.

"There are not enough pharmacists trained to fill all the positions available in the United States," says **Debra A. Goff**, PharmD, FCCP, a clinical associate professor at the

Summary points

- Hospitals now have financial incentives to focus on antimicrobial stewardship.
- A shortage of infectious diseases pharmacists makes starting a program challenging.
- Programs should have collaboration with MDs, RNs, labs, etc.

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Ohio State University College of Pharmacy in Columbus, OH, and an infectious diseases specialist at the Ohio State University Medical Center.

Goff is the program director for the infectious disease residency program at Ohio State.

"We've trained several people who now have a stewardship program," she says.

But schools like OSU are able to train only a few residents a year, Goff says.

"It's really one-on-one training," she adds. "It's an advanced post-doctorate specialty, and most programs take one year."

If a hospital is unable to hire an ID pharmacist, then another model that will work is to have a non-ID pharmacist partner with an ID physician who can mentor the pharmacist in infectious diseases issues, Goff suggests.

Another issue is that hospitals that start a stewardship program often will hire or move only one pharmacist, who may or may not be trained in infectious diseases, over to that role, leaving the

program understaffed.

"It's not realistic to expect a pharmacist to add this role on to his or her already-existing job and do it well," Goff says. "The goal is to improve patient care."

Also, there should be other clinicians on the stewardship team. While pharmacists are knowledgeable about drug therapy, they need to collaborate and share knowledge with other hospital experts to create the optimal antimicrobial stewardship program, she says.

"The most important point, whether you're in a small or large hospital, is to have a collaboration with the department of pharmacy, the medical staff, infectious disease physicians, microbiology, infection control, hospital epidemiology, and what we call the information warehouse — computer and data storage of patient information," Goff explains. (See story about **state-of-the-art antimicrobial stewardship program**, p. 101.)

At the very least, an antimicrobial stewardship program needs an infectious diseases pharmacist, an infectious diseases physician, and an information services technician to help with generating reports, says **Robert C. Owens, Jr.**, PharmD, co-director of the antimicrobial stewardship program at Maine Medical Center in Portland, ME. Owens also is a clinical assistant professor at the University of Vermont, College of Medicine in Burlington, VT. Owens published a paper recently on antimicrobial stewardship.¹

"Those are critical resources that need to be in place and should be used in a programmatic approach," Owens says. "It's no longer acceptable to have an antibiotic subcommittee that meets once a month."

Even hospital systems that have had some kind of antimicrobial stewardship program for a number of years likely will need to make changes, mostly to ramp up the program.

For instance, The Medical Center, which is part of Columbus Regional Healthcare System in Columbus, GA, has had an antimicrobial stewardship team for 10 years, but it had less stature than what the organization now has developed, says **Deanne Tabb**, PharmD, MT (ASCP), infectious disease specialist.

"Unless you have a very good rapport with senior leaders and you can get them on board and show the program's benefits to patients and benefits from an economic perspective, a lot of institutions weren't able to start stewardship teams," Tabb explains.

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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**.

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Editorial Questions

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

Tabb came to the pharmacy field, starting over with her college education, after working as a microbiologist. After she received her pharmacy degree, she received post-doctoral pharmacy training in infectious diseases from the Mayo Clinic.

"The whole reason I went back to pharmacy school was for training in the therapeutic aspects," Tabb says.

Bench microbiologists see only part of the microbial organism puzzle, but as an infectious diseases pharmacist she can see how all the pieces fit together, Tabb notes. **(See story on how The Medical Center conducted an antimicrobial stewardship education campaign for hospital employees, p. 101.)**

The big challenge for health care systems now is finding trained pharmacists who can help lead an antimicrobial stewardship program, says **Richard Drew**, PharmD, MS, BCPS, a professor of pharmacy at the Campbell University School of Pharmacy in Buies Creek, NC.

"So the issue here is there are clear gaps in the availability and, ultimately, the need for training for people to meet these demands," Drew says. "There are not enough infectious disease training programs to go around."

Some professional societies are trying to identify how they can assist in training people for stewardship positions, he notes.

"The current discussion as I understand it is to take competent pharmacists and train them in the stewardship process," Drew explains. "It wouldn't be full infectious disease training, but there'd be a minimum educational requirement and perhaps certification programs in stewardship."

Lacking formal ID training, most pharmacists working in antimicrobial stewardship are learning through on-the-job training, Drew says.

It's better than nothing, but far from the ideal of having ID-trained pharmacists in charge of the programs, he adds.

Health care organizations planning to improve or initiate stewardship programs should first review professional guidelines, including those from the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America.²

"The guidelines establish a solid review and subsequent recommendation of evidence-based procedures that deal with not only improved outcomes, but improved safety of antimicrobial use," Drew explains. "The intent was for a multidisciplinary body to examine evidence-based studies,

look at interventions, and then turn around and make recommendations of what they as a group felt had established a significant body of evidence of what the guidelines were."

The guidelines establish precedence for advocacy, Drew says.

Pharmacists can meet with hospital administrators with the guidelines in hand and ask for the support and resources they'll need to establish or improve an antimicrobial stewardship program, he adds. **(See story on beginning an antimicrobial stewardship program, p. 100.)**

Each health care organization will have to select its own best strategy for protecting antimicrobials. Smaller hospitals may need to share infectious diseases physicians with other medical centers, and they might need to rely on larger hospitals for other resources, Owens says.

What likely will happen as a result of the new national focus on antimicrobial stewardship is that hospitals will no longer put one person in charge of the program and leave it at that, Owens notes.

"We're in an era when most people are speaking of a programmatic strategy that really involves resources," he says.

And the information systems or technology professional is an integral part of this strategy since this is the person who will provide better informatics and better reports, helping other members of the team to use their time more efficiently, Owens says.

A 600-bed hospital like Maine Medical Center might have 160 people on antibiotics each day, he says.

"An infectious diseases service might see 20 patients a day, and it's our task to see 160 patients," Owens adds. "ID consultation services are different from antimicrobial stewardship, and, really, the ID service at any hospital will see a much smaller number of patients."

The antimicrobial stewardship team might not see each patient each day, but they're able to identify those who most need attention. **(See story on improving efficiency of antimicrobial stewardship program, p. 101.)**

Overuse and inappropriate use of antimicrobials, combined with a depleted new antibiotics drug research pipeline, has led to a crisis situation in the United States, the experts say.

"In Switzerland, their rate of resistance to staph is 2%," Goff says.

"Our rate of resistance to staph in the United States is 70%," Goff says. "One of the causes is

decades of a very cavalier approach to antimicrobials, and we've paid a huge price because of it."

Clinicians also have become accustomed to newer, more potent drugs regularly coming on the market, and that simply isn't happening with antimicrobials anymore.

"In the drug discovery pipeline there are no new classes of antimicrobials for gram-negative organisms," Goff says. "The timeline from drug discovery to approval for the market is 10 years, so this is a real crisis."

The Infectious Diseases Society of America (IDSA) of Arlington, VA, has been lobbying for increased investment in antimicrobial drug development and has called for the end of non-therapeutic antimicrobial use in animals. The IDSA also has criticized the FDA for not providing clear guidance on study design for new drugs against community-acquired pneumonia (CAP).

The private sector has not given as much attention to antimicrobial development because the organisms mutate and become resistant so quickly that any profits realized from a new drug might be short-lived, Goff notes.

"And antimicrobials are drugs we only use for a few days," she adds. "They're not lifetime drugs like Lipitor®, so from a business perspective they're not a smart drug for a company to invest in."

For some areas, the crisis of drug resistance has grown so severe that providers are prescribing an antimicrobial drug that was discovered in the 1940s and used for decades in intravenous formulations until a high incidence of nephrotoxicity led to its being abandoned more than 20 years ago.³

Colistin, a polymyxin drug, is a cyclic basic polypeptide that until recently had been restricted to use for the treatment of lung infections due to multidrug resistant, gram-negative bacteria in cystic fibrosis patients.³

Now colistin use has made a comeback because of the prevalence of multidrug resistant bacteria that have defeated the current arsenal of antimicrobials. **(See story about showing need for stewardship program, right.)**

"We're now using colistin because we have no other effective therapy for *Pseudomonas aeruginosa* and *Acinetobacter baumannii*," Goff says. "We're running out of effective drugs."

References

1. Owens RC Jr., Shorr AF, Deschambeault AL.

Antimicrobial stewardship: Shepherding precious resources. *Am J Health Syst Pharm* 2009;66(12 Suppl 4):515-522.

2. Drew RH, White R, MacDougall C, et al. Insights from the Society of Infectious Diseases Pharmacists on antimicrobial stewardship guidelines from the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America. *Pharmacotherapy* 2009;29:593-607.

3. Conly JM, Johnston BL. Colistin: The phoenix arises. *Can J Infect Dis Med Microbiol* 2006;17:267-269. ■

Make the case for investing staff, resources in antimicrobial stewardship

Emphasize saving lives more than cost savings

Hospital pharmacists should push their organizations to initiate the strongest antimicrobial stewardship programs possible because the alternative is to see an increase in patients with bacterial infections that cannot be cured.

By collecting some data about antimicrobial use and the rates of drug resistance, it should be easy to demonstrate the need for such a program, says **Debra A. Goff**, PharmD, FCCP, a clinical associate professor at the Ohio State University College of Pharmacy in Columbus, OH, and an infectious diseases specialist at the Ohio State University Medical Center.

For instance, a pharmacist at a hospital that because of the prevalence of multidrug-resistant infections has begun to use the old antimicrobial colistin could make an easy case for the need of a strong and proactive antimicrobial stewardship program, Goff says.

The antimicrobial colistin fell out of favor decades ago because of toxic side effects.

"The best surrogate marker for having a drug resistance problem is how much colistin you've been using at your hospital," Goff says. "If you've never used it, and then this

Summary points

- Stewardship programs help prevent increases in antimicrobial resistance.
- Colistin use in the hospital is a good surrogate marker for resistance trouble.
- The Iraq War bug is causing resistance problems for hospitals nationwide.

year you've had to use it, then there's a problem."

The Ohio State University Medical Center receives many patients with multidrug-resistant infections from other hospitals, which increases need for antimicrobial stewardship, Goff says.

"I've tracked our colistin use for the past three years, and it's increasing year by year," Goff says.

"That's what made our administration receptive to funding our program," she adds. "When you have no effective therapy except a drug from the 1960s, then they clearly understand there's a big problem."

Even worse, in countries where colistin has continued to be used for years, there is a high rate of resistance to this treatment.

"In Korea, there is 30% resistance to colistin," Goff says. "Once we lose that drug, then we will have no effective therapy for some patients."

U.S. hospitals in large urban areas or that are located near military bases also need a strong antimicrobial stewardship program because of increases in cases of *Acinetobacter baumannii*, which has been called the Iraq War bug. The soil-borne pathogen with inherent drug resistance has been brought back to the states by soldiers who suffered bombing and other injuries while serving duty in Iraq, Goff says.

"It's an organism you rarely saw in a hospital, and now it's a frequent occurrence," she says. "American soldiers get it in their wounds, and then they come back to the United States for long-term care, and they bring the organism into our hospitals."

The pathogen can cause pneumonia, blood poisoning, and other infections, and it can go undetected in hospitals, while spreading easily from one patient to the next.

These are the kinds of problems that hospitals could not have anticipated or prevented, Goff notes.

But with an antimicrobial stewardship program that has ample resources, unforeseen emergencies can be contained.

"These things walk in your door, and it's up to you to quickly identify a multidrug-resistant pathogen," Goff says. "Then we make sure everyone understands this is a virulent, multidrug-resistant organism and they need to make sure hand hygiene is taking place and make sure housekeeping is aware."

When hospitals begin an antimicrobial stewardship program that includes a pharmacist reviewing antibiotic use, there often is a financial benefit initially.

"We're nine months into our program, and we've seen a cost savings in antimicrobial use by de-escalating broad-spectrum antibiotics," Goff says. "Our pharmacists make daily interventions, and we monitor specific antibiotics daily."

Pharmacists make recommendations and then track the acceptance rate of their recommendations, she adds.

"Our annualized savings for the first year was \$296,000," Goff says. "We exceeded our expectations."

However, pharmacists need to make certain hospital leaders do not expect an antimicrobial stewardship program to produce those cost savings every year, she notes.

"That's not something that you can sustain from year to year, and the administration needs to have a clear understanding of that," Goff explains. "The reality in 2009 is that if you have multidrug resistance, then you have to use two or three antibiotics to treat a patient, instead of only one, so the cost-savings as a long-term goal is not a realistic goal."

Hospital administrators often will say they'll start an antimicrobial stewardship program and hire new staff for it, so long as the program's new salaries are offset by cost savings, Goff says.

"But that's not realistic long term," she adds. "You'll be using new antibiotics when the old ones don't work."

The true value of a stewardship program is its ability to improve patients' quality of life and to decrease the incidence of multidrug resistance in the hospital and community, Goff adds. ■

Hospital's antimicrobial stewardship program serves as best practice model

Collaboration with multidisciplines is crucial

The Ohio State University Medical Center of Columbus, OH, has revamped its antimicrobial stewardship program into a state-of-the-art, collaborative, well-staffed initiative that has both saved money and increased quality of care of patients with infections.

The program has grown from having one part-time infectious diseases (ID) pharmacist and one infectious diseases physician to approval for four

Summary points

- OSU stewardship program presents best practice model.
- Antimicrobial stewardship pharmacists should work closely with ID staff.
- Collecting antimicrobial resistance data is crucial.

full-time pharmacists. Also, the ID physician's role has expanded.

Here's how the program works:

- **Form a collaboration with multiple disciplines:**

"You need to collaborate and share the knowledge of each expert in your hospital," says **Debra A. Goff**, PharmD, FCCP, a clinical associate professor at the Ohio State University College of Pharmacy and an infectious diseases specialist at the Ohio State University Medical Center.

For instance, an antimicrobial stewardship program should have a clinical microbiologist on board.

"A clinical microbiologist provides antibiotics-specific susceptibility data for our hospital," Goff says. "Each antibiotic has its own percentage of susceptibility at our hospital."

With the microbiologist's data, Goff can see which antibiotic is most potent for a particular organism seen at the OSU medical center.

"You need your own hospital-specific data, so you need to collaborate with microbiology, which holds that piece of data," Goff adds.

Infection control practitioners also need to be part of the collaboration.

"We can prescribe the best antibiotics, but if no one is enforcing hand-washing then it won't make a difference," Goff says. "You need to advocate for good infection control practices in your hospital."

Larger urban hospitals could have an infectious diseases physician on staff as part of the stewardship program. Hospitals that can't afford or find a full-time ID physician could at least share an ID doctor with other hospitals in the region, Goff says.

"Usually the infectious diseases physician will be the director or co-director of the stewardship program, along with the ID pharmacist," she says. "But the reality in smaller hospitals is there usually is no infectious diseases pharmacist, and you have an ID physician who rotates between all hospitals in town."

At OSU Medical Center there are 25 infectious diseases physicians, including physicians who conduct research, she notes.

Another member of the collaborative team is a data manager, who identifies the necessary information in the hospital's data warehouse, Goff says.

- **Work closely with infection control staff:** Particularly with increasing rates of multidrug-resistant infections, hospital pharmacists need to work with infection control staff to make sure they are aware of the problem and have an action plan in the event of an outbreak, Goff suggests.

"This includes good hygiene control, cleaning hospital rooms properly and not cutting corners, because if they don't wipe down the handrail of a patient with a multidrug-resistant infection, then the next person in bed will touch that handrail and become infected," she says. "Your emphasis on tiny details is critical to the success of the problem."

An antimicrobial stewardship program could help with staff education about infection control practices and help convince health system management to invest resources and make changes that will help reduce the likelihood of spreading infections from one patient to another.

For instance, some hospitals have cut costs by outsourcing cleaning jobs. This might work fine, but it could create major infection control problems if the outsourced cleaning crew has high turnover rates, cuts corners, and has a lack of adequate training and education about infection control practices.

"It could increase the probability of sloppy work, of less than optimal cleaning," Goff says.

"So in the big picture, when you're trying to have cost containment in hospitals, and you outsource housecleaning, you will need to regroup when you have an outbreak," Goff adds. "You'll need to ask why the outbreak occurred, and if outsourced housecleaning is the problem, then it causes an increase in costs and decreases quality."

- **Collect timely data:** At OSU Medical Center, a PhD-level microbiologist oversees having every culture taken from patients tested for antibiotic susceptibility in the lab, Goff says.

"As a pharmacist, what I'm trying to do is recommend an empiric antibiotic," she says.

"Patients come to our hospital, and we send their cultures to the microbiology lab, but we don't get results for two days."

This means pharmacists have to wait to make a recommendation for a hospital-specific drug based on susceptibility data, Goff says.

For some organisms, the process is getting faster.

"Our microbiology lab is doing a rapid *Staphylococcus* blood test," Goff says. "In two

hours I know if an organism is *Staphylococcus aureus*, and it used to take two days to get the results."

The hospital's data manager assists the antimicrobial stewardship team with researching information that provides clues about new infectious disease trends and that help with quality improvement projects.

"We can look up patients' length of stay (LOS), our antimicrobial costs per patient day, and other markers," Goff says. "We can see if the program is making an impact in the hospital, and we can see the resistance rate of antimicrobials."

The hospital's microbiologist produces a quarterly or an annual hospital antibiogram that shows which drug-resistant organisms are most common in the hospital, she says.

"We have intensive care unit-specific antibiograms that show us the sickest patients with the highest rates of drug-resistant organisms," Goff says. "We run those at least once a year, but we will also run those quarterly to look at them."

ID physicians oversee epidemiological data that identify all of the hospitals' infections and their underlying causes, Goff says.

"They're responsible for identifying the cause of an outbreak, checking our compliance with hand hygiene, and identifying the rates of nosocomial-acquired infections," she adds.

These data also can be used to track the hospital's compliance with regulations. For instance, the Centers for Medicare and Medicaid (CMS) will no longer reimburse hospitals for several nosocomial-acquired infections, a change that took place in October, 2008, Goff says.

"Now that we're not being reimbursed, there's a whole different interest level in antimicrobial stewardship," Goff says.

• **ID pharmacist serves central role:**

Antimicrobial stewardship programs rely heavily on pharmacist support. At OSU Medical Center, the ID pharmacist plays a key role in making certain all information about infectious diseases are reviewed and analyzed centrally.

For instance, sometimes infection control departments do not communicate with antimicrobial stewardship programs, and this can provide an obstacle to the ID pharmacist spending his or her time as effectively as possible.

"The way the infection control practitioner helps me is by telling me which patients are in isolation with multidrug resistance," Goff says.

"I have a list of everyone on antibiotics, and they have a list of everyone with multidrug-resis-

tant infections," Goff says. "The infection control practitioners get a list from microbiology every morning about who has multidrug-resistant organisms so they can put those patients in isolation."

Goff needs that same list, and now she receives it. "That's more effective communication when we can work as a team," Goff says.

"We each have knowledge in different areas, and if you pool your knowledge, then you have a much more effective program," she adds. "I have all the antibiotics, and they have information, and the microbiologist has susceptibility data, and it does us no good if they each keep that information in their own departments."

So now the antimicrobial stewardship pharmacists receive the same multidrug resistance report that the infection control department receives.

"I can look at the same patients to see what kind of antibiotic therapy they're on," she says.

The ID pharmacist also documents when patients arrive in the hospital with a drug-resistant infection, such as a catheter-related urinary tract infection or a catheter-associated bloodstream infection, Goff says.

Another change was to have the lab call the antimicrobial stewardship pharmacist directly with drug-resistance results.

With the old method, the lab would call the nurse or physician with the results; now the phone calls come to the antimicrobial stewardship pharmacist, Goff says.

"Then we'll recommend the most effective antimicrobial therapy," Goff says. "Our role is to coordinate the efforts between all the departments and take the data from the microbiology lab, infection control practitioners, and come up with the best antibiotic regimen for patients." ■

Pharmacist evolution: From basement to bedside

[Editor's note: This is the second part of a series of articles about the major changes underway in hospital pharmacy practice in the 21st century. In this issue are stories about a hospital that serves as a model for transitioning to clinical pharmacy care and about how pharmacists increasingly are becoming involved with medication therapy management (MTM). In the August issue of Drug Formulary Review, there were stories on hospital pharmacists participating in patient

care teams, a look at how one hospital prepared for a transition to a decentralized pharmacy, and suggestions on how to prepare staff for the change.]

Hospital pharmacy's move to clinical pharmacy serves as best practice model

Decentralization began in the 1980s

Consensus has grown nationwide for national health care reform, and hospitals increasingly are seeing the benefits of including pharmacists in patient care teams. But the question many hospital pharmacy leaders are asking is how they can make a smooth and successful transition to more clinical pharmacy roles or a decentralized pharmacy model.

There is at least one hospital pharmacy that has two decades of experience in making such a transition, and this organization's experience could serve as a best practice model: The Medical Center of Columbus, GA, first began to use a decentralized pharmacy strategy in the 1980s and now has developed many clinical pharmacy roles for hospital pharmacists.

The hospital pharmacy has about 55 full-time employees, including more than 20 pharmacists. Also there are outpatient pharmacies in clinic buildings and a cancer center so the total full-time equivalency (FTEs) is close to 100, says **Burnis Breland**, MS, PharmD, FASHP, director of pharmacy for The Medical Center, which is part of the Columbus Regional Healthcare System.

The hospital has pharmacists working directly in patient care and on the patient floors. They plan drug therapy and stay close to patients in a patient care team approach from 7 a.m. to 11 p.m., seven days a week, Breland says.

"We have pharmacists in the long-term acute care hospital on the ninth floor, and we provide all pharmacy services to that separate hospital," he adds. "We have pharmacists who cover the emergency department, the intensive care unit, the neonatal intensive care unit, and the medical surgical unit."

One pharmacist might handle two floors of a particular unit, but there at least is pharmacy coverage, he notes.

Also, the hospital has two clinical specialists,

Summary points

- Georgia hospital shows others how to decentralize pharmacy.
- Pharmacist has to be integral part of patient care team.
- Pharmacy residency program is key to its success.

including one who works with infectious diseases and microbial stewardship. "Another specialist is a nutrition pharmacist who does all of the

adult IV nutrition," Breland says.

Breland was instrumental in the hospital pharmacy's evolution to a decentralized model over the years. He received a PharmD diploma when the degree still was very new.

"I was the third person in Mississippi to have that degree," he says. "Then I moved to Georgia and started implementing this pharmacy program, and we've worked very hard at it with still more work to do."

The Medical Center's pharmacy residency program was key to the hospital's success with moving to clinical pharmacy care, Breland says.

"It was especially important when there was a shortage of pharmacists," he notes. "You get the cream of the crop students, train them for a year, keep the cream of residency crop, and recruit from within."

This gives the hospital a great recruiting pool of pharmacists.

Now that the pharmacist shortage has eased a little, hospitals should be able to find good clinical practitioners with less investment in training than was necessary in the past, Breland notes.

Another issue pharmacy leaders have to address is the cost of moving pharmacists into clinical roles.

"It's more difficult today than ever to justify new positions," Breland says. "The financial times are so stressful to us now, and hospitals are pressed to provide essential patient care and maintain a positive margin."

Also, hospitals are facing higher-than-ever indigent care loads.

So in this environment, pharmacy has to demonstrate value and return on investment, Breland says.

"Show you can deliver value to the institution through a decentralized clinical pharmacy program," he says. "It's not easy to do that, so start with one to three positions and move up from there, growing the program."

The pharmacy department might even need to

carve out pharmacist time from existing positions initially, Breland says.

"Make it happen where you can put one or more pharmacists in patient care areas, and let them build up relationships," he adds.

Once the pharmacists have the support of physicians and nurses, it will be easier to approach the hospital leadership to ask for funding to create full-time pharmacist roles on patient floors.

"Pharmacy managers often think they can't do anything because they don't have positions open, but don't rely on that," Breland advises.

Another selling point for clinical pharmacy positions would be showing how the hospital can save money, at least at first, with increasing antimicrobial involvement and medication management services, he says.

"We have been very successful in reducing drug costs or maintaining costs," Breland says. "We do this by optimizing drug therapy, reducing waste, and eliminating needless drug therapy."

As momentum continues for national health care reform, Breland hopes it will keep the pharmacist's role front and center.

"We need to make sure the pharmacist is an integral part of the patient care team and that we utilize the knowledge, expertise, and skills of clinical pharmacists to improve therapy," Breland says.

"The pharmacist has to stay focused on the patient to optimize medication therapy and maximize medication safety in the delivery of care," he adds. "The closer we can keep the pharmacist to the patient's bedside and involved in drug therapy planning and monitoring to improve the safety and effectiveness of drug therapy, the better off we'll be in providing quality care and more effective care, as well." ■

Want to start moving pharmacists into clinical roles? Here's how....

Learn from this pharmacy's experiences

The Medical Center of Columbus, GA, has a decentralized pharmacy that could serve as a best practice model for other health care systems nationwide.

Here's how the hospital pharmacy moved from centralized pharmacy to a decentralized

pharmacy:

- **Train staff yourself as needed.**

The long-term pharmacist shortage is a chief obstacle to hospitals that wish to enhance the role of pharmacists in clinical care. But it's not insurmountable, says **Burnis Breland**, MS, PharmD, FASHP, director of pharmacy for The Medical Center, which is part of the Columbus Regional Healthcare System.

"We trained our own practitioners when we couldn't find them in the marketplace," he adds. "We hired a few good [PharmD] pharmacists and then matched them up with existing [RPh] pharmacists so they could teach each other."

Staff pharmacists taught the new PharmD pharmacists about drug distribution and practical issues of monitoring patients' profiles and monitoring orders, and the PharmDs helped everyone move toward more clinical care, he says.

As the pharmacy became increasingly decentralized, pharmacists were given the option of staying in the central pharmacy area or moving to patient floors.

"We enabled people to do things they were excited about, which helped make them great pharmacists," Breland says.

A good strategy is to hire people who have the skills you desire, even if they lack experience and then to help experienced pharmacists on staff to upgrade their skills, he adds.

"Over time, as you improve the quality of your staff, you will wind up with staff where all of them can do many things," Breland explains. "We call all of our pharmacists clinical pharmacists now because they're all involved in patient care somehow."

Even the hospital's pharmacists in the central pharmacy are involved in medication management, adjusting doses, and doing things that in the past were considered the work of a clinical practitioner on the floors, he says.

"We've trained our folks so they're quite capable of doing antibiotic dosing and anticoagulant therapy, as well," he adds.

Some training was through staff inservices.

"Fifteen years ago we had PharmDs train RPhs, and

Summary points

- Train staff carefully to improve clinical pharmacy program.
- Physician and nurse buy-in is important to ultimate success.
- Find ways to use pharmacists' time efficiently.

that's how we got enough people to practice on the floor," Breland says. "If you take people out of central pharmacy and put them on a floor without additional training and monitoring, then they'll do the same thing they did in central pharmacy because they won't know how to apply drug management."

There should be a good strategic plan for directing pharmacists on the floor and showing them what clinical pharmacy practice is, he says.

On the other hand, a well-rounded hospital pharmacy program also has some pharmacists who work primarily in the central pharmacy.

"I do have a core of people who spend more time in central pharmacy than anywhere else," Breland says. "Those are people who are very effective, efficient, and proficient in drug dispensing, compounding, and making chemotherapy, and it takes some real expertise to do all that."

- **Obtain physician buy-in for a new role for clinical pharmacists.**

This takes patience and demonstrating the benefits of having pharmacists on the clinical care team, Breland says.

"You can't elbow your way in and say, 'I'm here to do what you've always wanted done,'" he says. "You need to work with physicians and find out what they need and in which areas they want support."

As clinical pharmacists work with physicians, providing them with information, and providing patient care services for them, they'll gain their confidence, Breland says.

"They'll start expecting pharmacists' help and actually demanding it, in fact," he adds.

"It's very beneficial to have the medical staff say they want a pharmacist in the intensive care unit or emergency room to provide care," Breland says. "Testimonials from the medical staff go a long way."

The same strategy should be employed with nurses.

"When nurses see the benefits, they'll say good things to the physicians," Breland says.

"Pharmacists on the floor have skills that are needed and useful to the team, and they help support the medical staff."

This buy-in process is a gradual one, but a well-trained clinical pharmacist who is on the floor helping out consistently could be accepted very quickly in the clinical care team, he adds.

- **Utilize clinical pharmacist services as efficiently as possible.**

Clinical pharmacists can make automatic drug

dosing conversions and order labs to ensure medication safety.

When The Medical Center's patients are prescribed one of more than a dozen different medications, there are rules in the pharmacy computer system to identify them and to automatically change an outlier dose to a recommended level, Breland says.

"This does not require a physician's signature, nor does the ordering of lab tests," Breland says.

"It's routine for physicians to ask the pharmacy to manage antibiotic or anticoagulant therapy," he adds.

Also, the pharmacy has technicians in patient care areas to help clinical pharmacists take care of problems that don't require a pharmacist-level of expertise, Breland says.

For instance, if a medication is missing, the pharmacy technician will help find it. Or if pharmacy is asked to make sure medication is directed to the right location, the technicians will assist.

"They'll help pharmacists by entering orders in the computer system and having the pharmacist verify it," Breland says. "They do a lot to help with logistics and help save the pharmacist's time."

Another strategy for ensuring efficiency is to continually revamp the hospital pharmacy program to implement different technologies that will make medication distribution more efficient. As technology improves, it helps to free staffing needs in the distribution area and enables more focus to be put on clinical pharmacy efforts.

"It's very challenging to implement new technologies," Breland notes. "But you can't lose sight of the goal to provide quality pharmacy services, providing the right drugs and having a clinical program in place so that it's functioning optimally, as well." ■

21st century medication management requires patient-centered approach

Think comprehensive, holistic

The medication therapy management (MTM) for the 21st century hospital pharmacy is one that is comprehensive and keeps the patient at the center of its goals and planning, an expert says.

The hospital pharmacist who solely focuses on a patient's diabetes will not be as successful at managing the patient's therapy as the pharmacist who looks at everything that might be impacting the patient's health, including all of his or her medications, says **Jon Schommer**, PhD, a professor in the College of Pharmacy at the University of Minnesota in Minneapolis, MN. Schommer has researched pharmacist-provided medication therapy management.

For example, when a patient is admitted to the hospital for kidney stone surgery, most of the patient's health care providers are focused on the surgery, Schommer explains.

"But having the pharmacist involved as the patient is admitted is a more comprehensive approach that can help identify risks and drugs that need to be discontinued or added," Schommer says. "Good patient care is identifying the specific needs of the patient and giving the patient the care he needs to meet those needs."

Having pharmacists on rounds and on hospital interdisciplinary teams helps to improve overall care, he adds.

Hospital pharmacists also should have access to electronic health records (EHRs) that list patients' medications and their reasons for being prescribed, Schommer notes.

"Sometimes a pharmacist will look at the list of drugs and ask why the patient is using that medication," he says. "The pharmacist is key when it comes to medication therapy."

MTM is especially important at the time of hospital discharge, he says.

Often patients are discharged with a list of medications, and they might not know how the new list fits in with the medications they were taking before being admitted to the hospital, Schommer adds.

Schommer once had an experience where a patient was discharged with a list of generic names for his medications. He had been prescribed the same medications earlier, but only knew them by the brand names. So the man incorrectly thought he was supposed to take 20 medications instead of 10.

Summary points

- Medication therapy management (MTM) should keep patient at center of goals.
- Pharmacists' drug distribution time is decreasing.
- Outsourcing behind-the-scenes pharmacy work could help with limited resources.

"Having a pharmacist intervene at that critical moment at discharge to make sure the patient is on track when self-administering medication is hugely important,"

Schommer says.

"We find that when you have a pharmacist provide comprehensive medication management services, it really does lead to a desired outcome," Schommer explains.

"It's expensive because just using phone calls and letters isn't as effective," he adds. "You can do some [MTM] over the web or telephone, but face-to-face works best."

MTM services provided by pharmacists are on the rise, at least in Minnesota, where nearly one-third of pharmacies provide medication management services, Schommer says.¹

While it's important to have pharmacists involved with MTM, this shouldn't take away from the pharmacist's traditional role in the drug distribution process, Schommer says.

"Our argument is you need a certain number of expert pharmacists to maintain that control and understanding of the drug distribution process," he says. "However when we start looking at the percentage of time devoted to drug distribution, only 50% of the hours pharmacists devote to their work is related to drug distribution."

About 30% of their time is spent in patient care, and 20% is used in business management, education, research, etc., he adds.

This is a recent phenomenon, as pharmacists' time spent in distribution has decreased over the years, Schommer notes.

"We've been tracking this trend for a number of years, and the hours spent dispensing and controlling medications is going down," he says.

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"We have more PharmD-trained pharmacists, and more pharmacists move to residencies and advanced training."

It's likely that the future will see this trend continue, he adds.

"Pharmacists will devote more and more of their time to direct patient care and also to indirect patient care, which is removed from the medication itself," Schommer says.

There might even be a future trend of outsourcing the distribution work so pharmacists can spend more time in patient care.

"We have made a grant proposal to see how pharmacists can work face-to-face with patients in a clinic or pharmacy and outsource their behind-the-scenes work," Schommer says.

Some pharmacists will work in indirect patient care, reviewing patient's medical records and making recommendations. But then they'll work with a primary practitioner, who also is a pharmacist, and who will meet with the patient, he suggests.

"Our model is to have the [support] pharmacist work out of his or her home and collaborate with other pharmacists, using secure Internet access or software," Schommer explains. "The pharmacist is working behind the scenes."

This is a way to provide value-added service to

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pharmacy practice by having clinical pharmacists focus more on patient-centered care and outsourcing behind-the-scenes work.

It might also be a way to mitigate pharmacist shortage issues that have made it difficult for hospitals to find trained pharmacists for MTM and other clinical work when they begin new programs.

"The colleges of pharmacy have expanded from 80 some colleges to now over 110, and they're moving toward 120 in the near future," Schommer says. "They have expanded class sizes so the number of graduates has increased, and it's helping with the shortage."

However, the evidence suggests a pharmacist shortage remains, he adds.

So hospital pharmacies will need to provide the best MTM they can within their given resources.

Reference

1. Schommer JC, Planas LG, Johnson KA, et al. Pharmacist-provided medication therapy management (Part 1): Provider perspectives in 2007. *J Am Pharm Assoc* 2008;48:354-363. ■