



Reducing Risks for Patients Receiving Warfarin

These practices built safety into their systems for managing oral anticoagulation therapy.

Jennifer Bush

What's wrong with telling a patient, "If you don't hear from us with your lab results in a few days, give us a call"? The answer is plenty, if that patient is receiving warfarin therapy. Because warfarin has a narrow therapeutic index and complex pharmacology, insufficient monitoring or errors in dosing can lead to severe and possibly life-threatening bleeding and clotting in patients receiving it.

A growing number of physicians are finding they can do better than making their patients ultimately responsible for follow-up. Whether you're managing two patients on warfarin or 200, their suggestions may help you to shore up your systems.

KEY POINTS

- Much of the current literature about patient safety and error prevention is geared toward hospital systems and large practices.
- But smaller changes can also affect patient safety, especially for warfarin patients who require systematic follow-up to prevent complications.
- System changes, such as those that diminish miscommunication and prevent patients from getting lost in the shuffle, can be inexpensive to make and have a big impact.

Think small

Samantha Pozner, MD, a family physician in Springfield, N.J., cares for only a handful of patients on warfarin at any one time in her two-physician practice, so expensive, high-tech solutions weren't viable options. Instead, she created her own low-cost tracking system using a flow sheet and reminder notes. The flow sheet tracks a patient's prothrombin time (PT), International Normalized Ratio (INR), recommended dosage and the date for rechecking the PT. "When I get a new INR I have everything I need on one page to adjust the patient's dosage. I know exactly what they were on last week and I'm not constantly flipping through the chart," she says. To make sure the flow sheet can't be overlooked in the patient's file, she has it printed on green paper.

Pozner also used her scheduling software to create a reminder system for following up with patients. "When patients have their PT/INR drawn, we enter their names in lime green into the next day's schedule as a reminder that we have to check the INR result. It used to be that we would draw an INR and two days later, if it hadn't come back from the lab, the patient would call and ask 'What dose of Coumadin

Jennifer Bush is a senior associate editor for Family Practice Management. Conflicts of interest: none reported.



Covered in FPM Quiz

What's wrong with telling a patient, "If you don't hear from us in a few days, give us a call"?



A system that makes patients receiving warfarin ultimately responsible for following up on test results invites errors.



Some physicians, even those managing only a handful of patients on warfarin, have found safer, low-cost alternatives.



One physician added reminder notes to existing scheduling software to ensure that lab results were received and patients were notified in a timely manner.



Another physician, concerned that the 24-hour wait for lab results increased the risk of complications, purchased a point-of-care anticoagulation device to test patients' PT/INR.

should I be on?' Meanwhile, they haven't been taking any for two days. Since we started adding these little notes to the computer, we haven't forgotten to check with the lab if we don't get the results when expected."

Pozner designed her system so there would be as few hands in the mix as possible. This kind of simplicity is important, she says. "Don't have three different doctors involved or a nurse trying to guess. If you're the patient's physician, you're the one that reads the lab results and you're the one that calls the patient."

Test at the point of care

Pottstown (Penn.) Family Care manages approximately 50 patients on warfarin in two practice locations and, just a year ago, was using an outside lab and an outdated system to monitor them. Blood draws were sent to the local lab and staff pulled patient charts for physician review when lab results came back. Phone nurses then conveyed physician instructions, including any medication changes, to the patient and scheduled follow-up.

"I wasn't happy with the 24-hour turnaround from the lab," says Lee Buttz, MD, Pottstown's medical director. "If a patient is overcoagulated and still taking the same dosage because we don't have the PT/INR results back, it increases the risk of complication."

Buttz's concern that "slower feedback leads to either lower therapeutic benefit or higher risk" prompted him to begin investigating hand-held point-of-care anticoagulation devices. He chose CoaguChek (www.coaguchek.com) and built a new care process around it. The CLIA-waived testing system uses thromboplastin reagents to measure patients' PT/INR levels. The test, which requires a fingerstick instead of a blood draw, is performed in the office. Results are available in about two minutes.

"From a physician standpoint, it's always great to get immediate results," says Buttz. "Knowing there was a device that could give us results comparable in accuracy to that of a reference lab, but with a much faster turnaround time, was key." Although CoaguChek lists for \$1,295, Pottstown Family Practice buys so much of the reagent (approximately \$6 per test strip) that the manufacturer "basically gave us the machine," Buttz says.

The new tracking system is paper-based like

the old one, but that's where the similarities end. Patients come in to the office lab to have their PT/INR measured. Once the test is performed, the results are added to the patient's chart, which is then placed in the chart box along with the chart for the physician's next

"By doing something different, we are able to take better care of our patients and get better reimbursed for doing it."

scheduled appointment. The doctor sees that there's a blood test that needs evaluation, looks at the chart and then, depending on the results, either talks to the nurse or the patient before greeting his next patient. The entire process takes about three minutes.

Buttz sees many advantages to the new system, especially its emphasis on patient safety. If a dosage needs adjusting, the patient receives instructions and education face-to-face from the nurse or physician before leaving the office. This reduces confusion or the potential for misinformation. "Patient visits may be a few minutes longer this way, but then they're out the door and don't have to wait for a phone call the next day," he says, "which means they aren't sitting around in a potentially higher risk situation."

Patient and staff satisfaction also seems to be increasing. "Patients get more warm fuzzies because we're talking to them in the office instead of on the phone or leaving a message on an answering machine," says Buttz. "It's a little more work for the lab because they're running the test in-house as opposed to sending it out, but on the other hand, they're doing a fingerstick instead of a blood draw. The phone nurses no longer have to call with test results, so it's taken a lot of work off them and our medical records staff. So no one is doing much more work and most people are doing the same or less."

Another welcome change with the new system is better reimbursement. "When we sent the lab work out, we lost the opportunity to charge for E/M services," says Buttz. "I almost never charged for a 99211, and on my recent productivity statements there are several of them." (For more information about billing for visits like these, see "Improving Anticoagulation Management at the Point

of Care,” *FPM*, February 2002, page 35.) In addition to increasing revenue, the practice saves money because less staff time is spent pulling charts and making phone calls.

“This is just one of those situations that doesn’t happen often,” says Buttz. “By doing something different, we are able to take better care of our patients and, at the same time, get better reimbursed for doing it.”

Learn from anticoagulation clinics

The Everett Clinic, a multispecialty organization with 11 sites and 200 physicians, manages 800 patients at its anticoagulation clinic in Everett, Wash. Patients are referred to the anticoagulation clinic after being diagnosed by their physicians. The clinic, run by Jennifer Wilson-Norton, RPh, MBA, and staffed by three nurses and a medical assistant, uses established protocols to assess whether patients are within the targeted range for their diagnoses. “If they’re not within their targeted range, we use the protocols as guidelines to adjust dosages and schedule follow-up care,” Wilson-Norton explains, adding that the protocols are signed off by the clinic’s medical director. “Our combination of bleeding and embolic events runs in the 1.5 percent range. If you look at the literature for patients receiving traditional office-based care, the number runs from 12 to 20 percent.”

Despite research that shows patients treated at anticoagulation clinics spend more time within their therapeutic range and have fewer adverse outcomes than patients receiving “usual care,”¹ Wilson-Norton admits, an anticoagulation clinic like the one she runs isn’t financially feasible for smaller-volume practices. But she says there are elements of her clinic’s system that smaller practices can adopt, such as using dosing protocols and hiring staff who are passionate about patient education.

“Warfarin interacts with a lot of different foods and drugs, so we always have the challenge of trying to educate people,” she says, citing a recent example of vitamin K “sneaking into products like green tea.”

Wilson-Norton also suggests having one staff member be the “point person” for making sure patients come in as scheduled and tracking down no-shows. “Someone with

patience for this kind of work ultimately helps an organization reduce adverse outcomes.” Visiting anticoagulation clinics may also give physicians ideas for improving systems in their own practices. “Learn from the folks who’ve already taken this journey,” Wilson-Norton advises.

The best of both worlds

Had they not collaborated, none of the 12 sites that make up Family Care Network, a group practice without walls in northwest Washington, could have afforded the anticoagulation clinic that now serves their organization. “Some of us have rural, one-physician practices,” says David Lynch, MD, director of clinical process improvement for the group. Yet knowledge that patients were falling through the cracks, that recommended care guidelines weren’t always being followed and that physicians were spending a lot of time on tasks they could have delegated to staff made improving anticoagulation management a priority when the physicians decided to work together to improve systems of care.

“We recognized that we were making errors of omission,” says Lynch. “We were relying on our 43 doctors to remember to do things correctly when they’re busy doing other things. We pinpointed areas where physician involvement adds the most value, for example, making the correct diagnosis, assigning the length of therapy and determining the warfarin dosage. Then we designed our system with these things in mind.”

One of the unique features of Family Care Network’s anticoagulation service is that it’s mobile. A support team, consisting of a medical assistant and a nurse, visits at least two practice sites each day, seeing 20 to 30 patients. Patients’ INR levels are measured with a point-of-care device and results are entered on their computerized flow sheets, which are stored on an intranet connecting the practice locations. “That way,” says Lynch, “any doctor in our network can access the information wherever the patient is or whenever it’s needed.” (A copy of the flow sheet is also printed out and put in each patient’s paper chart.) Protocols, such as guidelines for adjusting warfarin doses at routine visits, are also posted on the

SPEEDBAR®



Moving INR testing into the office increased patient safety. Test results are available almost immediately, usually in about two minutes.



As a result, instructions about dosage adjustments can be given before the patient leaves the office, instead of the next day over the telephone.



Smaller practices can also improve their systems for managing warfarin patients by adopting ideas used in larger anticoagulation clinics.



These may include using dosing protocols and hiring staff who are enthusiastic about educating patients and committed to tracking down no-shows.

“We recognized that we were making errors of omission.”

Smaller practices may also want to consider collaborating with other practices in their communities to improve systems of care for warfarin patients.

A group of 43 physicians in northwest Washington did exactly that and created a mobile anticoagulation clinic that visits several practice sites a day.

The support staff at the mobile clinic uses a point-of-care device and detailed protocols developed by the physicians to monitor patients' INR levels.

Test results are posted on an intranet connecting the practice locations. That way, any doctor in the network can access the information whenever it's needed.

intranet. "We wanted to be explicit so everyone has a common understanding of what's going on," explains Lynch. "The anticoagulation clinician's responsibilities and those of the physicians and patients are all spelled out, so there are no misunderstandings and patients don't get lost in the handoff."

It is the physician's responsibility to notify the anticoagulation service coordinator when enrolling a new patient in the service. He or she must provide the patient's name, diagnosis, INR range, expected duration of therapy and/or co-existing conditions and list any medications the patient is taking that may cause drug interactions. The patient's physician must also affix a sticker on the problem list in the paper chart, indicating the patient is receiving anticoagulation therapy. The anticoagulation service monitors the patient's INR using protocols developed by the physicians, performs dosage adjustments, documentation, follow-up, quality control, maintenance of the point-of-care testing device and patient education duties, including sending a monthly newsletter to warfarin patients.

Protocols also outline what to do if a patient misses an appointment (attempt follow-up and flag the chart), if the patient cannot be contacted (notify the patient's physician for further follow-up) or if he or she fails to respond after three "delinquent" notices (report to the prescribing physician who will decide whether the patient should be dismissed from care).

Each member of the support team at the anticoagulation clinic completed a five-week online course to become certified in anticoagulation therapy management. According to Lynch, the course, offered by the University of Southern Indiana School of Nursing and Health Professions (www.health1.usi.edu/anticoag/), had the added benefit of increasing physician confidence in the support team's ability to monitor their patients.

Feedback about the new system has been positive overall, although some patients did

question having to pay a co-pay for a service they'd previously received at an outside lab, where no co-pay was required. But, according to Lynch, once patients learned that the practice was unhappy with the quality and the results of the old way of doing things, they began to understand and appreciate the difference between the care they now receive and the care they were given before.

Another benefit is that patients have begun to take their therapy more seriously. "When the care was more casual, patient attitudes were more casual," says Lynch. "Because we now attach more importance and more attention to factors such as diet and herbal supplements, our patients pay more attention to these things. Questions get asked that never got asked before."

Little things do matter

Safer patient care doesn't necessarily require large budgets and high-tech solutions. Until bigger solutions such as computerized tracking systems become more affordable, don't hesitate to implement simpler risk-reduction strategies. They can do just as much to keep patients taking warfarin out of harm's way. **FPM**

Send comments to fpm@afp.org.

1. Chiquette E, Amato MG, Bussey HI. Comparison of an anticoagulation clinic with usual medical care. *Arch Intern Med.* 1998;158:1641-1647.

PATIENT SELF-MANAGEMENT

In January 2001, the Agency for Healthcare Research and Quality (AHRQ) commissioned the University of California at San Francisco – Stanford University Evidence-Based Practice Center to review the scientific literature to identify practices likely to improve patient safety. Of the 79 potential safety improvement efforts reviewed, patient self-management of warfarin therapy was identified as one of 11 interventions with strong evidence supporting more widespread implementation.¹ Currently, patient self-management of anticoagulation therapy is unusual in the United States because many payers, including Medicare, do not cover the home-testing technology or provide only partial coverage.

1. Shojania KG, Duncan BW, McDonald KM, et al, eds. *Making Health Care Safer: A Critical Analysis of Patient Safety Practices.* AHRQ Publication No. 01-E058. Rockville, MD: Agency for Healthcare Research and Quality. July 2001.