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A monthly advisory for occupational health programs

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Nursing shortage: It's likely to get worse before it gets better

Experienced, specialized nurses in very short supply

The numbers don't lie; the nursing shortage is real. According to a recent Washington, DC-based American Hospital Association (AHA) poll, there is an 11% vacancy rate among registered nurses in the United States. **(For more on the AHA report, see related article, p. 89.)** And the problem is even more pressing for managers of occupational health facilities, who require the help of nurses with specialized experience.

"When we look to place nurses, it's becoming more and more of a challenge to find experienced occupational health nurses who can go on-site independently," explains **Ginny Lepping**, RN, MBA, COHNS, executive vice president of Providence Occupational Health Services in Granite City, IL. Providence Occupational Health Services is a for-profit hospital-affiliated occupational health program.

In addition to its clinic environment, it provides prevention and rehab services, work conditioning, job site analysis, employee assistance programs, and it operates a wellness center, as well as placing nurses on-site.

"Typically, our nurses must have a very strong clinical background as well as management and financial skills," says Lepping. "The challenge has been to find someone with that expertise, especially when there are fewer people coming into the profession in general."

"There are simply not enough nurses to go around," explains **Rachelle Rolshoven**, RN,

Continued from cover page

FMLA taking its toll on 'oc-med' nurses

The Family Medical Leave Act (FMLA) was intended to make life easier for employees, but it's made it more difficult for one specific class of employees: occupational health nurses. Seems that hospitals have not deemed it necessary to create a separate department to handle FMLA administration and compliance, and more often than not these burdensome tasks have fallen to occupational health nurses by default 91

Mercury fillings pose health threat to workers

Millions of us walk around with mercury amalgam fillings in our mouths and think nothing of it. But we should, in fact, think long and hard about the potential health risks posed by mercury poisoning, insists one Connecticut dentist. In fact, he says, occupational health professionals would do well to encourage the removal of these fillings, or at the very least, be on guard for telltale signs of mercury poisoning 93

Recommended articles on dangers of mercury fillings 93

OHR offering electronic workers' comp billing

For years now, electronic billing has become increasingly prevalent for Medicare and Medicaid, while workers' comp has continued to muddle along in an all-paper environment. Now, Occupational Health Research (OHR) and eStellarNet Inc. have joined forces to enable electronic workers' comp billing using OHR's SYSTOC system software 95

COMING IN FUTURE ISSUES

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- How to select, recruit, and train occupational medicine physicians

director of YOH Health Care in Sherman Oaks, CA, which provides contract and relief occupational health nurses to business and industry. Rolshoven also is president of the Southern California Chapter of the American Association of Occupational Health Nurses (AAOHN).

The shortage, she says, stems from two separate dichotomies:

"First, occupational health has been around for some 50-plus years," she says. "A lot of nurses who originally started out in 'oc health' are now retiring, leaving a big void in the availability of qualified nurses. [Second], there are not a lot of nursing programs that teach occupational health, so if you're a nurse trying to get into the field, it is sometimes difficult, depending on your background. An emergency room or emergent care background sometimes makes it a little easier, but there are big gaps in workers' comp and [Occupational Safety and Health Administration] expertise.

"Some of these nurses can be pulled in and trained quickly, while others take more time," Rolshoven adds. **(For the American Organization of Nurse Executives' recommendations on combating the nursing shortage, see related article, p. 89.)**

The situation will get worse

As bad as things are, they are going to get even worse. Experts agree that the demographic changes ahead will exacerbate the lack of experienced nurses for occupational health facilities.

Deborah V. DiBenedetto, president of the Atlanta-based AAOHN, is emphatic about focusing on the future.

"No. 1, there's a lot more publicity about the shortage than the current situation might warrant," she notes. "The shortage is not that dire now, but it is projected that by 2008 and beyond, there will be a severe shortage as Boomers start to attrition out and people continue to leave the profession. There is increased difficulty in hiring bedside nurses, and the negative press offers an additional disincentive."

Also, she points out, women today have more job options, many of which offer better pay, more job satisfaction, and perceived better working conditions.

Rolshoven suggests that the shortage is "probably not as apparent in occupational health as it is in other areas of nursing, only because we are such a small portion — perhaps somewhere between one-fifth and one-tenth —

of the total nursing population."

The current situation has significantly affected the hiring practices at occupation health clinics, and placed upward pressure on salaries, note observers.

"Instead of using registered nurses, we're going to LVNs [licensed vocational nurses] and LPNs [licensed practical nurses]," says Rolshoven. "Some clients have gone to using paramedics, so we're moving down the ladder, so to speak, as to the educational background of people.

Paying for quality

"In the long run, I assume it's cheaper for them to do that, since we pay LVNs about 75% of what we pay RNs, but I don't know that the quality of care is quite the same. I don't think that someone with four to six months' training as a medical assistant can provide the same quality of care as someone with two to four years of nursing education; it's a totally different knowledge base," she says.

"One of the things companies are doing now is hiring EMTs and paramedical people," Lepping adds. "Certainly from an occupational health nursing standpoint, these people are not equally prepared to provide the same quality of care or breadth of service."

Some ED nurses are interested in picking up additional time, she notes, and will do weekend or evening occupational health work, but that resource will dry up soon because the medical centers will ask them to do the same thing. "We're all going after the same resources, which will also drive up salaries," she predicts.

Salaries already are on the rise, says **Janie Blackman**, vice president of Park Med Occupational Health in Knoxville, TN. Park Med has two lines of occupational health services. The company provides nurses at construction sites and in business and industry, and it also operates an occupational health medical call center that is staffed by registered nurses around the clock. Park Med also owns several walk-in clinics that combine occupational health and general health services.

"Nurses are getting harder to find, and they are demanding more money," Blackman says. "If I have a contract with a company to provide on-site nursing, I am limited by that contract as to how much I can pay the nurses. If I have a 10% profit built in and have to pay a nurse 20% more than I projected, I not only do not break even, but I go in the hole. And, basically, that's my problem."

From her perspective, she has things tougher than managers of hospital-based clinics. "They are not affected to the same extent we are," she asserts. "They have a larger pool of nurses who want 'off' the floor. In fact, some nurses might even be willing to take a cut in pay just to get off the floor!"

"I went through [a nursing shortage] in the '70s, and salaries did go up," recalls DiBenedetto, "But what happened was they got rid of ancillaries like nurses aides. For every two hands that disappeared, we only had one left. But the demand for quality in health care demands a better qualified individual, so you have a Catch-22. Salaries will go up."

What's also a growing trend, and perhaps of greater concern, is the limited ability of nurses to make changes in their job tasks." This is causing a lot of dissatisfaction and burnout," DiBenedetto notes.

"The biggest issue is that we've moved to 12-hour shifts when nurses were plentiful, but there's a decrease in patient continuity and lack of morale because we're finding perceived patient safety issues. Stress levels are high; absenteeism is high," she says.

Solutions, anyone?

So, what's to be done? Are there any short-term solutions to the problem? And if not, how can we help the nurses who remain on the job?

"We can help mitigate these effects," suggests DiBenedetto. "For one thing, we have to have employee health services available to nurses, or programs from an occupational health and wellness perspective that screen for changes in behavior and effects of high stress levels. We should also have [employee assistance programs] available; they can be our best friend in terms managing employee health and safety."

Unfortunately, she says, the penetration rate of such programs in hospitals is just 2% to 3%. "There is a severe curtailing of access to emotional health benefits," she says.

To directly address the shortage in California, "We are trying to use some mentoring programs," says Rolshoven. "Our association is trying to reach out to student nurses throughout the state, to try to educate them about the field of occupational health.

"There are a couple of certificate programs in occupational health we refer people to frequently. UCI [University of California-Irvine] and UCSD [San Diego] are very helpful in getting the basic information. There also are programs for nurse practitioners at UCLA [Los Angeles] and UCSF [San Francisco]," she continues, "But that's a step above the RN. They will get higher salaries, as they can write prescriptions, do physical exams, and work independently."

"In the past, we have had a mentorship program with a local university," says Lepping. "Nurses who had gone back for their BSNs would be part of our program for a semester. This was an opportunity to groom people to use on call or hire in as part- or full-time employees, but with fewer people coming into the school of nursing we have fewer people to draw from.

"One of the things we've thought about doing was offering mentorships within our own program if nurses outside the nursing school environment were interested in it," she continues. "But so far, we've not had the need to do that."

"The key for occupational medicine clinics is to hire non-RNs and train them for other tasks," offers **Bill Patterson**, MD, MPH, FACOEM, chair of the medical policy board at OH+R in Wilmington, MA.

"Often, the most valuable person is an respiratory therapist, who can then be trained to do pulmonary function tests, audios, phlebotomy, drug and alcohol testing and collection, and other routine tasks. Cross-training is a key in the efficient management of an oc med clinic."

Patterson adds that his organization is finding that "[certified occupational health nurses] are best at on-site activities, where their broader knowledge of the principles of occupational health, prevention, public health, and ability to work independently are valuable assets."

Will the solutions work?

To combat the financial crunch, Blackman says she's gone back to some of her long-term contractors to try to renegotiate fees. "We try to make them see that financially we can't continue like this," she says. "No. 2, we're trying to point out to nurses the benefits of working with us, even though it may be at a lower rate of pay. But that's tough; one nurse, for example, was making $19 [an hour] with us, while a hospital could hire her at $28 an hour. I can't compete with that."

The experts are not particularly sanguine about the prospects of overcoming these problems anytime soon. "We may be able to satisfy some of the needs through EMTs, and we see some of the acute care organizations looking to foreign-trained nurses as a short-term solution," says Lepping. "But that's not an immediate answer for us, because our nurses need to have a very good command of the language. Many actually work as employee advocates, and they need to be aware of the benefits program. The learning curve will be greater than it would from an acute care standpoint."

More job options available to women

"I don't know if there's an immediate answer to the problem," says Rolshoven. "Women have so many options now compared to when I went into nursing 20 to 25 years ago. They can do bedside nursing, but they don't have to. Even with the numbers of nurses available, there are never going to be enough because of all the other career options. You can bring in all the foreign nurses you want and not make up the difference."

Rolshoven points out that as employers, occupational health clinics are a breed apart. "[Hiring foreign nurses] may be alright in the hospital setting, but those nurses don't know any of the workers' comp or safety issues. Occupational health will not be seeing relief coming from that area," she asserts.

"I would say that in terms of our employers, if we can do something in our profession to help employers recognize the broader value in occupational health nurses, they may see some more wisdom in hiring them," says Lepping, offering one note of optimism.

But Blackman puts the whole situation into perspective. "I'm an old nurse; I've been in the profession for 25 years, and it has cycled before," she says. "Over the years, we have had an overabundance of nurses, and then a shortage. But this time, they're really getting into trouble because of the aging population; we've never had to contend with that before.

"Then there are other issues: Why should I go to nursing school, spend four years working at one of the hardest curricula around, and make $32,000, when I could spend the same amount of money and brainpower to become an engineer and make $50,000 or $60,000? Women have options now. The nursing profession may be starting to catch up in terms of pay, but it will be a while before it totally catches up."

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AHA confirms nursing shortage

A new poll by the Washington, DC-based American Hospital Association (AHA) confirms what many health care professionals already knew: The health care work force shortage is a growing problem for hospitals across the country, and the nursing shortage accounts for the lion's share of that shortfall.

The survey of more than 700 hospitals found:

• Hospitals have up to 168,000 open positions; 126,000 of those positions are for registered nurses.

• The work force shortage is getting worse and is affecting access to care.

• Both urban and rural hospitals are feeling the effects of the staff shortages, although in general, rural hospitals have a larger percentage of open positions.

• A breakdown of hospital vacancy rates shows the following:

— pharmacists, 21%;
— radiological technologists, 18%;
— laboratory technologists, 12%;
— registered nurses, 11%.

"What this new survey shows is the astounding shortfall of workers that hospitals are already coping with today across the health care field," says **Dick Davidson**, AHA president. "America needs up to 126,000 nurses now. We need immediate action to help alleviate this situation."

Davidson notes that Congress has already held three hearings this year on the future nursing shortage. ■

Publication paints a bleak picture

Unlike the current nursing shortage, the future nursing shortage — demographic in nature — will be driven by a reduction in the aging work force and fewer younger nurses replacing those who retire. At the same time, the demand for nurses will increase substantially as both the total population increases and the baby-boom generation reaches age 65, using more health care resources.

That's the bleak picture painted by a publication issued recently by the American Organization of Nurse Executives (AONE), a Washington, DC-based subsidiary of the American Hospital Association.

But the publication, *Perspective on the Nursing Shortage: A Blueprint for Action*, does more than just portray a stark reality: It offers a framework for concrete solutions.

"We believe that it is critical for all levels of the public and private sectors to focus immediately on this future nursing shortage," says **Louis L. Kercher**, DNSc, RN, AONE president. "If we do not begin to address these issues at their root causes, then the nursing profession will continue toward a shortage of unmatched proportions."

Here are some of AONE's recommendations:

• **Establish ongoing collaborative partnerships** between educators, employers, and regulatory bodies that monitor and implement responses to changing demand for nursing services;

• **Advocate for increased state and federal support** of nursing education programs, partnerships with employers to provide clinical training, and tuition assistance for students;

• **Cultivate work environments** that improve work-life quality and support the changing demands of an older work force;

• **Convene a forum for discussion and mentoring of new graduates** with organizational leaders to enhance sensitivity to the demands of their respective roles;

• **Improve data collection efforts** to evaluate

patient care outcomes as they are related to delivery models and staffing patterns;

• **Maximize the use of technology** to increase the efficiency of nursing personnel;

• **Provide incentives and access to degree-granting education** in order to retain maturing staff and ensure an adequate pool of nurses to move into education, management and community-based, advanced practice roles.

[Copies of the Perspective on the Nursing Shortage: A Blueprint for Action, *(item #154195) are available for $45 for AONE members and $80 for nonmembers from AHA Order Services at (800) AHA-2626. World Wide Web: www.ahaonlinestore.com.]* ■

Job insecurity can have an impact on worker safety

Ever since downsizing became a reality in corporate America, researchers have spent a great deal of time studying job insecurity and its effects on job satisfaction, employee turnover, and employee health. It wasn't until recently, however, that anyone took a look at the relationship between job insecurity and employee safety.

Now that's changed, with the publication of a recent study in the *Journal of Occupational Health Psychology*.[1]

The researchers examined 237 employees in two food-processing plants, assessing attitudinal outcomes such as job satisfaction, employee knowledge regarding appropriate safety behaviors, and employee motivation to comply with organizational safety policies, in conjunction with self-reported safety violations, on-the-job accidents and workplace injuries.

In one plant, an entire shift had been laid off, and focus-group interviews showed employees expected the plant to be entirely phased out. In the other, the swing shift was being eliminated in favor of a night shift, and employees who could not make the change were expected to lose their jobs. Overall plant production was expected to remain the same in both facilities, however.

The workers first responded to survey instruments immediately after the shift changes and layoffs were announced, and then again six months later. The results were disconcerting for professionals concerned with employee safety.

"This study produced important initial evidence that job security is related to meaningful safety outcome measures, such as safety knowledge, safety motivation, and to a lesser degree, by safety knowledge and compliance,"[1] the authors write.

A direct relationship

"The thing that really struck me the most was the relationship between being dissatisfied with your job security and how that affected your levels of safety policy knowledge — and your motivation to comply," notes **Tahira M. Probst**, PhD, assistant professor of psychology at Washington State University in Vancouver, and the study's lead author.

"That was the biggest contribution of this study — showing the direct relationship." This study, she notes, was the first to link together perceptions of security and these outcomes.

Probst built upon several theories that had been advanced in earlier research, including the following:

• Employees tend to focus their attention on performance rather than on safety during times of stress.

• Employees perceive that safety is subordinated to the demands of production.

• Unsafe behavior may actually be perceived to be rewarding if it allows the employee to perform work tasks more quickly.

This has particular significance for managers of occupational health clinics — as well as for employers, says Probst, noting that employees have a finite amount of "cognitive resources" available to them at any given time.

This may make it difficult, if not impossible, for workers to pay attention to quality when their attention is so strongly focused on how much they produce. "Many of the employees we talked with said they were taking shortcuts just to keep production numbers up," recalls Probst. "The emphasis was on doing just as much with fewer resources."

This harsh reality calls for a two-pronged approach for occupational health professionals, Probst suggests.

"When dealing with employees, they must be made aware that your job shouldn't put your health and safety at risk. They need to know that if they're insecure about their jobs, their mind may be elsewhere -— like thinking about productivity. They need to be equally concerned about

safety and health, and to not underestimate the impact of job insecurity."

The best place to start focusing on this issue may be before workers start the job — during the training process — suggests Probst.

"One of the things I have taken away from this study is that it implies organizations have to consider the effects job insecurity may have," she observes. "Often companies have incentives for being good producers, but if you look at their safety programs you will most likely see that the only 'recognition' they receive is a disincentive, such as a citation or a letter in their files when they do something wrong.

"In my mind, if people are insecure about their jobs, companies need to provide rewards for employees to comply with the safety policy. They also need to think strongly about the message they send to workers about how vital safety is. Otherwise, all the employee will be worried about is what he can do to convince his employer to keep him on the job."

Letting employees know they're valued

It's not that organizations don't care about employee safety, says Probst: they just need to communicate that value more effectively. "Employees can't perceive that management is just paying lip service to safety," she asserts. "Companies must be concerned about the message they are sending employees."

To demonstrate that commitment to safety, Probst suggests the introduction of incentives. "Basically, companies should offer the same kinds of incentives they use to increase production."

"Make safety considerations an integral part of whether an employee gets a raise or a promotion, as important as whether or not they show up on time. Companies could offer an 'Employee-of-the-Month safety award,' for example," she says.

What's important, she emphasizes, is a clear, consistent message — through in-house marketing vehicles, signs, and posters in prominent places. "Does the company have supervisors walking around and patting people on the back when they exhibit proper safety practices, or do they just let them know when they're out of line?" Probst posits.

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Reference

1. Probst TM, Brubaker TL. The Effects of Job Insecurity on Employee Safety Outcomes: Cross-Sectional and Longitudinal Explorations. *Journal of Occupational Health Psychology* 2001; 6:139-159. ■

FMLA taking its toll on 'oc-med' nurses

As if dealing with an unprecedented nursing shortage weren't enough, occupational health nurses have an additional — and no less heavy — burden to bear: the Family Medical Leave Act (FMLA). **(For more on the nursing shortage, see cover story.)**

According to executives at CORE Inc., an Irvine, CA-based national provider of employee absence management services, the considerable administrative responsibility FMLA calls for has fallen to occupational medicine nurses by default.

"The FMLA doesn't have its own specific in-house structure within the hospital, like you do with risk management," explains **Becky Auerbach**, CORE's vice president of research.

"The responsibility often falls on the shoulders of oc-med nurses, who do not necessarily have the requisite expertise," she says. "The FMLA needs a full-blown department, but no one has been able to demonstrate its impact on the organization, which would raise it to the level of human resources or risk management."

It's not that industry organizations haven't taken notice. Auerbach has attended the last two conferences of the American Association of Occupational Health Nurses, which included sessions on the FMLA. "The first year [the organization] held a half-day session, and this year it was a full day," she notes. "The focus was on productivity; people seem to be at their wits' end."

They have good reason for concern, based on CORE's most recent survey of 400,000 FMLA absence records collected since CORE launched its own FMLA product in 1995.

Here are some of the key findings:

• Employers can expect to add the equivalent of one full-time employee to administer FMLA absences for every 3,500 to 5,000 employees.

• 30% of the intermittent FMLA leaves studied were for absences of less than eight hours, adding to the administrative burden on employers, and

those administering the program.

• FMLA utilization ranges from 30 to 40 workdays per year for every 100 active employees.

• Employers can expect to spend $50 to $170 per employee per year due to the FMLA.

• Employers who do not track FMLA absences correctly with paid disability leave (which counts against FMLA days) may experience 50% more FMLA days.

These administrative burdens can truly be onerous, says Auerbach. "Let's say an employee is out with migraine headaches, and she is absent six times a month, for three hours each day," she posits. "The employer — read: occupational health nurse — has to do the paperwork that many times; that's six hits of administration. Also, you have to figure out how to cover three hours of somebody's time.

Buried under the paperwork

"Occupational medicine nurses are handing out the paperwork; they are responsible for file drawers of all the various pieces of administration, filing, certification, and so on," she adds.

What's worse, failure to administer the program properly can leave the company open to an employee lawsuit, or to an audit and fines by the Department of Labor. "The scary part is it's not being done consistently, but because it's a federal law, it should be," says Auerbach. "The nurses are just trying their best to keep their heads above water."

Then there's another twist: Although there is a federal FMLA, approximately 20 states have their own family leave laws, which in some cases are more generous — and thus supercede — the federal law. "In California, for example, on top of the 12 weeks the federal FMLA gives you for pregnancy, you have 12 additional weeks for bonding time," she explains. "Employees are beginning to figure out how to maximize their time off using both laws."

What's worse, employees also can take off more time than they're entitled to, if the individual administrating the program has not read the fine print.

"Time off from work for workers' comp or short-term disability count against FMLA time, explains **Jim Franklin**, CORE's vice president of strategic partnerships. "So, if you have 12 weeks of FMLA time and you are out for nine weeks for workers' comp, you only have three weeks left. However, if the employer does not calculate this correctly, the employee can literally take another 12 weeks."

In short, many employees may understand the loopholes of the FMLA better than their employers. That is certainly true of some unions, notes Auerbach. "FMLA leave is protected leave; it was not intended to cover casual absence, just serious illness," she notes. "But the definition of 'serious medical condition' can be interpreted very loosely, and unionized populations have figured out how to characterize it to their benefit."

Productivity costs are great

In addition to the considerable administrative challenges, the FMLA has taken a toll in productivity as well. "We can demonstrate significant productivity loss due to FML absences," says Auerbach. "Even though it's unpaid leave, you have the ramifications of people not being at work; a lost day is a lost day. You pay indirectly for their overhead, their benefits, and for someone to replace them — often at a higher rate of pay, either through a temp or overtime."

This, in turn, puts more stress on employees, which can heighten the risk of physical or emotional health problems. "You've got more stress, certainly from the perspective of more overtime — sometimes whether the employee likes it or not, like having to work extra workdays or weekends," notes Franklin.

"Also, you have more stress on management. This message came out loud and clear on Capitol Hill [where CORE recently hosted a visit by staff from the Committee on Education and Workforce of the U.S. House of Representatives and the national FMLA Technical Corrections Coalition, to discuss the impact of FMLA on employers]. Basically, you have eliminated the employer's ability to incentivize employees' coming to work through an attendance program," he says.

You can't count FML time as time off, Franklin explains. "If you give an attendance award, the winners could be people with perfect attendance records, or they would be workers who had actually been out of work for 12 weeks."

For those occupational health professionals overwhelmed by the ins and outs of the FMLA, there are resources available, and more on the way. "We currently do FML administration for six companies, which represents about 150,000 covered lives," says Franklin.

"Later this year we will introduce a web-enabled FML administration product that will

help employers and employees initiate the absence and get their certification correctly administered."

At present, Franklin notes, a large number of employers don't even know about the FMLA. "When they don't, it's incumbent on them to do something about it — or they'll be at much higher liability," he warns.

"They need to understand that the FMLA is here, and that it's not a benefit; it's a law. If you are audited by the [Department of Labor], you have to show you have a plan in place to administer that law, or you will be subject to fines or grievance awards to employees," Franklin adds.

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Mercury fillings pose health threat to workers

While literally millions of us are walking around with mercury amalgam fillings in our mouths, most of us are unaware they could pose a serious health threat.

But **Mark Breiner**, DDS, a practicing dentist in Orange, CT, is trying to change all that, and he wants occupational health professionals to sit up and take notice.

"The mercury in your employees' mouths can affect their day-to-day activities, how well they can concentrate at work, and how well they can perform and get job the done," says Breiner. "Millions of people have these fillings; there could be even 200 million Americans who have at least one mercury filling."

There have been numerous studies showing that mercury causes increased incidences of depression, and affects memory and concentration, notes Breiner, who spells out his concerns in his book, *Whole-Body Dentistry*.[1] **(See suggested reading list, above right.)**

"People can't think as clearly; they tend to be depressed and have mood swings. It clearly affects how they work," Breiner emphasizes. But while mercury has been linked to diseases as dramatic as Alzheimer's, not all of its effects are so readily apparent.

Recommended Reading

- ✔ Eggleston, Nylander. **Correlation of dental amalgam with mercury in brain tissue.** *J Prosthet Dent* 1987; 58:704-707.
- ✔ Lorscheider, et al. **Toxicity or ionic mercury and elemental mercury vapor on brain neuronal protein metabolism.** Presented at the 12th Annual Neurotoxicology Conference. Hot Springs, AK; November 1994.
- ✔ Danscher, et al. **Traces of mercury in organs from primates with amalgam fillings.** *Exp Mol Pathol* 1990; 52:291-299.
- ✔ Cognitive performance of children pre-natally exposed to 'Safe' levels of methyl mercury. *Environ Res* 1998; 72:165-172.
- ✔ Silberud R, et. al. **Evidence that mercury from silver dental filling may be an etiological factor in multiple sclerosis.** Sci Total Environ 1994; 142:191-205.
- ✔ Hock C, Drasch G, Golombowski S, et al. **Increased blood mercury levels in patients with Alzheimer's disease.** *J Neural Transm* 1998; 105:59-68.
- ✔ Ehmann WD, Markesbery WR, Alauddin M, et al. **Brain trace elements in Alzheimer's disease.** *Neurotoxicology* 1986; 7(1):195-206.
- ✔ Boyd ND, Benediktsson H, Vimy MJ, Hooper DE, et al. **Mercury from dental 'silver' tooth fillings impairs kidney function.** *Am J Physiol* 1991; 261:1,010-1,014.

"Anybody who has an amalgam filling is going to have a negative impact at some point," he explains. "They may not be at the point where they manifest symptoms overtly; the effects may be at the cellular level. We have great compensatory mechanisms and redundancies built in; our bodies can put up with a certain amount of insult."

Mercury fillings have been the subject of controversy for years, Breiner notes in his book. When the process was first introduced in the United States in 1833, many dentists were concerned such a highly toxic substance was being introduced into patients' mouths; in Germany, it was dubbed "Quacksilber," a play on the word "Quicksilver," often used to describe mercury. Proponents insisted it was safe, however, because it was stabilized in the amalgam compound.

Controversy erupted again in the 1930s when a German physician showed that mercury escaped from fillings in the form of dangerous vapor. Interestingly, notes Breiner, while the U.S. Food

and Drug Administration (FDA) approved mercury and alloy powder for dental use, the amalgam mixture never has been approved as a dental device.

In 1986, when the third controversy arose, the American Dental Association (ADA) in Chicago conceded that mercury vapor does escape from an amalgam filling, but still insisted that mercury in the mouth is safe.

"But mercury in the mouth is not safe," writes Breiner. "Mercury is unquestionably a toxic substance, and it does indeed escape from amalgam fillings, continuously vaporizing in amounts that are frequently in the hazardous range."

Breiner notes that a four-foot fluorescent bulb, which should be disposed of as hazardous waste, has approximately 22 mg of mercury, while the average dental amalgam filling contains about 1,000 mg of mercury.

Why does the ADA continue to support mercury fillings? "I really don't know," says Breiner. "In my opinion, they've lied for so long [that] they can't retreat any longer. But lawsuits are going to eventually surface that will make the tobacco issue look like kid's play. Among health care professionals, dentists have the highest suicide rate, and that's due to exposure to mercury vapor."

Difficult to recognize

Unfortunately, there aren't two or three key signs and symptoms that would indicate to an occupational health professional that a worker might be suffering from mercury poisoning. However, says Breiner, when many are seen in combination, this should arouse suspicion. Early symptoms include:

- fatigue;
- headache;
- forgetfulness;
- inability to concentrate;
- apathy;
- depression;
- outbursts of anger;
- decline of intellect.

Later problems can include:

- numbness and tingling of hands, feet, and lips;
- muscle weakness progressing to paralysis;
- dim or restricted vision;
- hearing difficulty;
- speech disorders;
- loss of memory;
- lack of coordination;
- emotional instability;
- dermatitis;
- renal damage;
- general central nervous system dysfunction.

"Mercury can cause almost all of these symptoms," says Breiner. "I have a health form that lists most of them, and very often we will see patients who have a multiplicity of symptoms. When several of them are checked off, especially symptoms that are irritating but do not overtly compromise quality of life, you have a pretty good clue."

Breiner warns, however, that health care professionals should not wait until more dire symptoms appear. "My personal opinion is that no one should have mercury in their mouths," he says.

There is a technique for removal of mercury fillings, says Breiner, but this must be approached with great care. "You don't want to injudiciously remove the fillings, because that might make the worker sick [from vapor exposure]. There are specific things that must be done prior to, during, and post-removal."

It's important, therefore, to conduct careful research to find dental professionals who are certified to perform such removal. One resource is the International Academy of Oral Medicine and Toxicology in Orlando, FL, (www.iaomt.org) a certifying organization.

When mercury fillings are removed, they can be replaced with superior materials such as plastic glass, used in a process commonly known as "bonding." This material actually strengthens the tooth, says Breiner, while amalgam weakens it. "Ideally, blood testing should be done for compatibility, to find which materials are least offensive to your immune system," he advises.

The bottom line, says Breiner, is that employees should think twice about the mercury in their mouths. "Mercury is the most toxic natural substance known to man, next to plutonium," notes Breiner. "Why would anyone willingly keep poison in their mouth?"

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OHR offering electronic workers' comp billing

In a move that will enable it to offer electronic billing services for clients involved with workers' compensation, Skowhegan, ME-based Occupational Health Research (OHR), a leading provider of software and services for occupational medicine professionals, has entered into a long-term agreement with eStellarNet Inc. of Concord, CA.

eStellarNet provides the property and casualty industry's transaction hub for medical transaction processing. This hub will now enable comprehensive payer connectivity services to 500 occupational health facilities currently using OHR's SYSTOC software, serving more than 150,000 corporations in 46 states. There are two versions of SYSTOC currently in the field, notes **Ken Martin**, vice president of customer solutions for OHR. The 6.x version, which operates in a DOS environment, is used by 65% of OHR's clients and is the version that is currently compatible with eStellarNet. It is anticipated that compatibility with the Windows version will be achieved later this year.

"We've had clients asking for this type of technology for a long time," says Martin. "There have been ongoing problems with billing.

"If you come out of the hospital environment as an end-user, you've been able to do electronic billing to Medicaid and Medicare for years. In fact, Medicare has announced that soon it won't accept paper at all. The problem is that the workers' comp insurance payer typically requires more documentation about claims than Medicare does, for example, about an urgent care claim. They want to know if the employee is able to do work, to perform light duty, if the diagnosis is related to the accident, when they might be able to come back to work, and so on."

A logical fit

The OHR/eStellarNet partnership makes sense, Martin notes, because both organizations are specialized. "The beauty of SYSTOC is that it is designed for the occupational health clinics," he notes. "The problem has been that electronic claims submissions have not been designed to handle workers' comp claims. But eStellarNet serves the same niche we do; it is designed for workers' comp electronic claims."

Sophisticated workers' comp billers know that if they want to keep their AR (accounts receivable) down when they send out their billing, it's critical to make sure the progress note goes with it. "What you generally find, however, is that half of the occupational health clinics don't do this, or they don't even have transcribed notes; they have hand-written notes," says Martin.

The transaction hub electronically "clips" all the required attachments to the bills and batch-delivers them within 24 hours. "That is huge," Martin asserts. "What is being clipped on is the medical record that will ensure the bill will be paid."

The way the new system works is through what Martin describes as a "two-way data dump."

The day-to-day SYSTOC customers don't really do anything very different; they enter their workers' comp bill, which has payer IDs in the

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system that indicate the use of electronic claims.

"However, often when they drop the bills SYSTOC has all the billing information, the medical transcription as well as work restriction information, and a host of other things," Martin explains. "Whenever the clients drop their bills, the workers' comp bills kick out and the paper claims kick out behind them; then, they are collated and mailed out in paper form. But eStellarNet will do the same thing on the computer screen. You just press the 'process bill' button; it drops out an electronic copy of all that information, and it is sent to eStellarNet. [The company] lets you know within 24 hours if there are any critical omissions, so you can fix and resubmit the claim. We also can set up a direct deposit into their account."

Be careful what you send

Because everything that is sent electronically will be seen by the insurance carrier, users must be careful about what they include in their claims submissions, Martin advises. "There's a mindset that says insurance carriers should not be privy to all of this information, and that's true to some degree," he concedes. "Clinics need to be conscious of the fact that workers' comp insurance carriers really only should be privy to information pertinent to that claim. If a worker got a nosebleed because he was hit by a '2 x 4' and he happens to be a diabetic, the two are not related and the information about the diabetes is not pertinent to the claim. Doctors and medical managers need to be careful not enter nonpertinent information in places where SYSTOC will automatically attach it to the bill. Some users don't want to deal with this, and say they will only give the payer the information as they ask for it; the price they pay is that their AR will take longer."

And that is the key benefit of electronic workers' comp bill paying. "It's not so much that it will reduce administrative costs," notes Martin.

"But it clearly will reduce administrative headaches. If you've ever walked into a clinic that sees between 50 to 100 patients a day on the day they drop their bills, it's a nightmare. They have stacks of paper everywhere that they have to collate. Through eStellarNet, you are basically saving headaches and improving efficiency."

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