


 A healthcare worker wearing a green surgical cap and a matching face mask is shown from the chest up. She is holding a syringe in her right hand and a small glass vial labeled 'vaccine H1N1' in her left hand. The background is a blurred clinical setting.

FLU SURVEY FINDS MIXED RESULTS ON PREPAREDNESS

READY OR NOT?

Certain basic supplies such as respirators, needles and hand sanitizers were often hard to come by this past flu season as hospitals and health systems dealt with the H1N1 influenza outbreak. Facilities also struggled to vaccinate health care workers against H1N1 in high-risk areas such as pediatric, maternity and intensive care units, as many staff refused vaccinations. On the flip side, years of pandemic planning by hospitals and health departments paid dividends as facilities implemented multiple initiatives around business continuity and surge planning and appeared to communicate well with staff and patients about H1N1 prevention. These are just a few of the findings from a new *Materials Management in Health Care* survey.

QUICK TAKE >>>

For years now, hospitals have been bracing for the possibility of an influenza pandemic and readying communication, immunization, materials management, infection control and prevention, staffing and other plans. And even though the second wave of H1N1 influenza virus that crested during this past winter's flu season wasn't as dire as some had forecast, it tested many aspects of hospitals' emergency preparedness plans. So how did hospitals and their supply chain partners fare? This survey report provides important insights from those on the front lines.

The survey highlighted a persistent supply chain challenge facing the industry, according to Richard Andrew, director of supply chain integration at Owens & Minor. "It goes back to a long-standing problem that's still unresolved. Materials management in health care is a business, and we don't carry a vast amount of materials just in case an event arrives. We look at customer needs and carry supplies to meet that need," he explains. "Medicine is different in that there's a public health component, but still, suppliers don't just gear up for swine flu or other disasters."

One of the survey's most striking findings was the persistent shortage of N95 respirators, which the Centers for Disease Control

and Prevention (CDC) recommends for health care professionals who are in close contact with patients with suspected or confirmed H1N1 influenza. Nearly 60 percent of respondents indicated that they had experienced shortages prior to December 2009, with one-fifth reporting continuing supply problems after January. Slightly more than one-quarter indicated that the respirators were still on allocation at the time the survey was conducted in March of this year.

Where are the respirators?

That circumstance is a reflection of the worldwide pressure placed on the health care supply chain during the pandemic,

INSIDE THE NUMBERS: A look at barrier protection, vaccination challenges during winter flu season

according to Al Cook, chief resource director at Regional Medical Center in Orangeburg, S.C. “Medical supplies are in a steady state of normal demand with just-in-time inventory. But with H1N1, for a time there was an almost daily exponential increase in demand. It destabilized the supply chain and it hasn’t picked up yet,” he says.

Overall, a clear majority of survey participants indicated that the shortage of N95 respirators was either a major or minor challenge. Lack of this protective equipment may have led to minor shortages of other types of respirators, particularly prior to December 2009. More than three-quarters of respondents reported setting up a reserve inventory to ensure an adequate supply of respirators for clinical staff in high-usage areas, and almost as many indicated that they implemented protocols to prioritize use, reuse and conservation of respiratory protection devices.

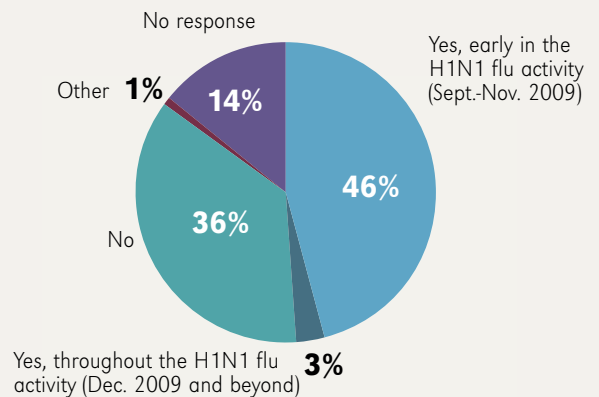
Far fewer participants—just under 50 percent—reported documenting a respirator shortage with evidence of attempts to purchase the product. “That surprises me, because we heard formally and informally from CDC and NIOSH about the importance of monitoring and regularly showing a good faith effort to keep up inventory checks once they went into a prioritization program,” explains Judene Bartley, MS, MPH, CIC, vice president of Epidemiology Consulting Services in Beverly Hills, Mich. “This was to ensure that enough N95s would be available for high-risk procedures.” Bartley also is a consultant with the Premier Safety Institute.

Some facilities, Regional Medical Center included, resorted to use of powered air-purifying respirators in certain circumstances and tightened controls on N95 respirators in an effort to conserve the latter. “We brought all the N95s under central control as opposed to our normal of stocking them wherever they might be needed,” Cook explains. “We reported to infection control any distributions and followed up to make sure they were needed. It was a practical way to slow down distribution of the N95s.”

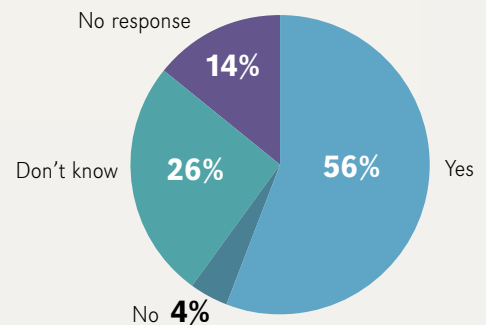
Hospital experiences in obtaining the following types of barrier protection and other supplies to meet prioritization plans

	Experienced shortages/back orders prior to Dec. 2009	Still experiencing shortages/back orders (Jan. 2010 and beyond)	Products are still on allocation
N95 respirators	58%	21%	26%
Other respirators (P-99, elastomeric, half-face)	10%	3%	7%
Surgical/procedure masks	38%	11%	17%
Face shield	17%	5%	12%
Eye protection	11%	2%	9%
Needles	22%	10%	12%
Hand sanitizer	28%	6%	11%

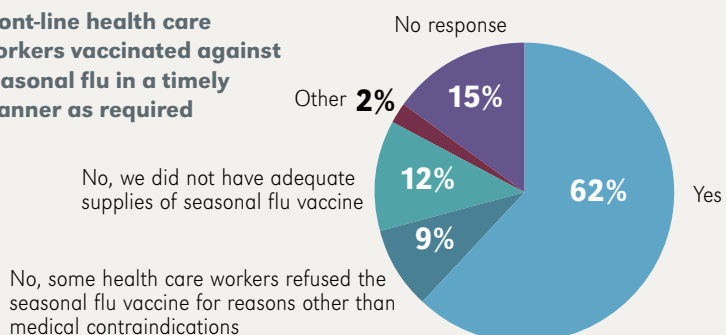
Unable to vaccinate front-line health care workers due to inadequate supplies of the H1N1 vaccine



Percentage of hospitals reporting that some health care workers refused the H1N1 vaccine for other than medical contraindications



Front-line health care workers vaccinated against seasonal flu in a timely manner as required



Source: MMHC/AHRMM/APIC 2010 Hospital Influenza Prevention and Respiratory Protection Survey

The fit-test challenge

Adding to the frustration of the N95 respirator shortages was the need to fit-test new supplies that came from secondary suppliers or state strategic stockpiles. In fact, fit-testing proved to be slightly more of a major or minor challenge to survey respondents than the actual shortage, with

one-third indicating that they had to conduct new fit-testing. "That's a huge issue. It can take up to 30 minutes per person, and requires considerable staff resources," observes APIC board member Marcia Patrick, R.N., MSN, CIC, director of infection prevention and control at Multicare Health System in Tacoma, Wash.

Scrambling for supplies

Shortages not only of respirators but also other hard-to-find supplies like surgical masks, hand sanitizer and needles, sent materials managers scrambling to procure them from back-up sources. Some even resorted to retail purchases. "We ran out of alcohol sanitizer and couldn't get it through the medical distribution system, so we went to Walmart," recalls Mickey Sparrow, material manager at Toomey Healthcare System in Sumter, S.C. Comments from the survey indicate that other respondents took similar action.

Use and even knowledge of state allocations of the strategic national stockpile appeared to vary considerably among participants, as did the states' use of this resource. Nearly two-thirds of respondents reported contacting their state health departments to determine availability of respirators and masks, but at the same time, almost 22 percent reported not knowing whether their state had developed a plan. This dichotomy may be due to the fact that the survey respondents included both infection control professionals (ICPs) and materials managers. The responsibility for keeping current on state stockpile plans often falls to materials managers, not ICPs.

"Materials managers should have already contacted state agencies and known what was in place. When the crisis has broken out, it's too late," observes Cook.

Distribution plans of various states were all over the map. Many survey comments suggest that respondents were able to access state stockpiles with no appreciable difficulties, but that was not the case for others. "Access to the national stockpile is contingent on the declaration of a disaster by the state. Our state had no intentions of declaring a disaster," said one respondent. "[I] tried tapping into state supplies but [the] process was very fragmented and [I] was not able to receive help," commented another respondent.

The patchy state responses are a cause for concern, according to Hal Muller, president of special markets at Henry Schein.

WHAT DOES IT TAKE TO VACCINATE?

Since 1986, the federal government's Advisory Committee on Immunization Practices has recommended that all health care personnel be vaccinated annually for the flu, but studies indicate that no more than 49 percent of the health care workforce has received the vaccine in any given season. Experience with the 2009-2010 H1N1 strain was no different.

An online survey of a nationally representative sample of 1,417 health care workers sponsored by the Centers for Disease Control and Prevention (CDC) found that by mid-January 2010, 37 percent of the respondents had received the H1N1 vaccine versus nearly 62 percent for seasonal flu. Overall, 64 percent of respondents said they received either vaccine—higher coverage than for any previous season—but only about 35 percent indicated that they received both vaccines.

Employer practices had a significant impact on vaccination coverage rates. Respondents who worked in facilities that required vaccination were eight times more likely to receive the H1N1 vaccine than those who did not. Similarly, health care workers whose employers recommended vaccination were four times more likely to be immunized. "These data suggest that having a systematic approach as a health care institution to vaccination is a good way to make sure that your health care workers are protected and are able to protect their patients from the spread of flu," according to Anne Schuchat, M.D., assistant surgeon general of the U.S. Public Health Service and director of CDC's National Center for Immunization and Respiratory Diseases.

Although the low coverage rates for health care workers is concerning, Schuchat is optimistic that the tide may turn in the future. "We have a unique opportunity right now with greater attention to patient safety. We're really trying to improve our health care system, and we've been able to show that focused attention to practices and processes in the health care environment can really improve patient safety."

That message may gain more currency in light of the H1N1 virus epidemiology. According to the

CDC, an estimated 60 million Americans were infected and 12,000 died during the 2009-10 flu season. While the latter figure is less than half for the typical flu season, the pattern of illness and mortality was quite different. "There was a shift to younger people in terms of serious illness, hospitalization and death," explains Schuchat. "We estimate that the rate of death in young people is probably five times higher than what we would typically see with seasonal influenza."



“The states do what they want in terms of how the strategic national stockpile is used, and there’s a huge variation. We need better consistency,” he argues.

What about next time?

Whether they tapped into their state’s strategic reserve, the majority of respondents maintained or attempted to maintain reserve inventory. But observers question how effective this will be in the long run or for the next epidemic. “The N95s don’t have an expiration date, but we don’t know how long they’re good for,” says Sparrow. He questioned whether facilities would be stuck holding inventory that will deteriorate even in climate-controlled conditions.

If long-term storage doesn’t degrade reserve supplies, the advance of technology may, according to Muller. “Right now there’s a huge development of antimicrobial masks hitting the market. If that becomes the standard, what will we do with the old inventory that’s sitting in storage?” he asks.

Sick leave policies lacking?

The survey also evaluated hospitals’ overall influenza prevention programs. The majority of respondents reported adopting multiple initiatives around business continuity and surge planning and appeared well-prepared to communicate with staff and patients about influenza prevention. For example, more than 90 percent of respondents indicated that sick employees were asked to stay home. Nearly 90 percent posted visual alerts outside facility entrances and emergency departments instructing patients to notify caregivers if they were experiencing respiratory infection symptoms and to practice respiratory hygiene. And more than 8 in 10 respondents developed a communication plan with local and state health department officials to immunize health care workers and target population groups.

One area of staff and patient infection prevention effort that seemed to be in flux was aligning sick leave policies so that ill staff members could stay home without penalty. Half of the respondents had such

INSIDE THE NUMBERS: Hospitals stepped up flu prevention efforts, but challenges remained

Strategies hospitals put in place as part of their 2009-2010 winter influenza prevention program

Asked sick employees to stay home	91%
Communication plan with local and state health departments to immunize health care personnel and target population groups	86%
Educational plan for policies and procedures to protect staff and patients	84%
Management plan for handling patient surge and increased demands for services	84%
Business continuity plan addressing staffing and supply disruptions	68%
Outreach plan with local community to immunize target population groups	62%
Used hospital’s website to update community about when to seek medical care, when to seek emergency care, and information about caring for a person with the flu at home	57%
Aligned sick leave policies so ill staff can stay home without penalty	50%
Contingency plan to cross-train staff if there is significant staff absenteeism	45%
Used telephone system or related technologies to triage patients during a community outbreak	39%

Influenza prevention steps hospitals took to protect visitors and patients

Posted visual alerts at outpatient facility and ED entrances instructing patients to inform health care personnel of respiratory infection symptoms and to practice respiratory hygiene	88%
Offered face masks to symptomatic patients who are able to wear them (adult and pediatric sizes)	85%
Where sinks are available, ensured supplies for hand washing are consistently available	85%
Provided facial tissues, no-touch receptacles for tissue disposal and hand sanitizer in waiting areas and examination rooms	84%
Provided face masks to people in waiting areas and examination rooms	76%
Placed age restrictions on visitors (e.g., no one under the age of 18)	62%
Screened patients for signs and symptoms of respiratory illness with fever at entry to the facility	61%
Placed visitor restrictions on obstetrics and pediatrics patients	59%
Used separate waiting and exam rooms for possible H1N1 flu patients	42%
Limited points of entry to the facility	37%

Top 10 challenges/barriers to hospitals’ influenza preparedness programs

Public concerns or misinformation about safety of H1N1 vaccine	34%
Fit-testing of N95 respirators	34%
Surge of patients in the emergency department	34%
Shortage of N95 respirators	31%
CDC guidance (10.14.09) on proper use of N95 respirators	28%
Health care worker refusal to get vaccinated beyond medical reasons	25%
Shortage of H1N1 vaccine	24%
Reliability and accuracy of H1N1 testing	21%
Shortage of surgical/procedures masks	21%
Patient/visitor education	18%

Source: MMHC/AHRMM/APIC 2010 Hospital Influenza Prevention and Respiratory Protection Survey

COVER STORY

a policy in place.

“That’s highly significant, and it reflects a change that hospitals are beginning to make to prepare for the next epidemic,” Bartley says. “This is an impressive change in policy ... this was not the norm and it shows hospitals started to address this issue during pandemic/emergency preparation planning.”

Patrick agrees that it would be ideal to align sick leave policies and practices, but says that hospitals are in a bit of bind in terms of doing so. “It comes down to money,” she contends. “When there’s a disconnect like this it means people will come to work sick. Some do it because they don’t have any more sick time and can’t afford the day off, but it’s open for abuse too.”

Vaccination vexation

Another major challenge providers faced was vaccinating staff for H1N1. Survey respondents estimated that 60 percent of health care workers in high-risk areas such as pediatric, maternity and intensive care units, and 56 percent in other areas had received the vaccine. While this appears to be higher than coverage rates reported in other national surveys, it still is woefully low, according to Patrick. “As health care workers we don’t have a right to expose patients to disease, and you might be [shed-

ding virus] even if you don’t have symptoms.”

Perhaps most troubling, survey respondents indicated that on average, 40 percent of all health care workers in their facilities refused the vaccine for nonmedical reasons. “There was so much resistance to the vaccine that was based on false notions and myths,” says Patrick, adding that many feel the only way to combat it is with mandatory vaccination. APIC and other professional organizations recommend vaccination for H1N1, but hospitals have been reluctant to mandate it, in part because the flu vaccine is less effective than other typically required immunizations like hepatitis B, according to Bartley. “Further, you can’t say that if someone gets the vaccine they’ll almost certainly be protected, since you don’t know if they have been exposed already,” she says. (See sidebar on Page 14.)

Also of concern was that nearly half of respondents indicated that inadequate supplies of the vaccine hampered immunization of front-line workers, at least in early fall. “In my experience, people tired of checking to see whether the vaccine was available, and they just gave up,” recalls Patrick. “Having the vaccine available when workers are ready to receive it is important.”

If vaccination coverage among staff was disappointing, Bartley was encouraged to

see that 40 percent of respondents indicated that front-line workers in their facilities who had not been immunized were asked to wear masks. “That’s definitely noteworthy. You wouldn’t have found that in past flu seasons because 1) hospitals are better at understanding that worker vaccination is a patient safety issue, and 2) CDC and OSHA required staff to wear masks when caring for patients suspected of or diagnosed with H1N1 flu—especially if they were not vaccinated. The shortage of H1N1 vaccine figured importantly here as well as the respirator shortages,” she says.

Looking down the road

Will experience with the H1N1 outbreak shape responses to future epidemics and disasters? Many observers hope so. Owens & Minor’s Andrew would like to see more consideration of this issue now. “It would be nice to have a conversation about how to coordinate and share the risk and financial burden while a crisis isn’t taking place,” he says.

Andrew also supports pooling resources and implementing innovative pilot projects to make surge supplies available across hospitals. Several respondents reported success with such approaches. “We are in a network of hospitals and have arrangements to call on other hospitals...to supply us,” wrote one individual.

Other observers are looking at nationwide supply initiatives. “Perhaps it’s time to incentivize manufacturers to warehouse critical supplies,” contends Sparrow. “If they keep a stockpile, they can rotate stock nationally, which is something individual providers can’t do.”

Cook has reasons for optimism about future responses. “From a national perspective, it’s clear that between the first and second waves of H1N1 the industry was better prepared,” he observes. “I hope they’ll take that experience and prepare for the next time now.” **MMHC**

HOW THIS SURVEY WAS CONDUCTED

This online survey, co-sponsored by *Materials Management in Health Care*, the Association for Healthcare Resource and Materials Management (AHRMM) and the Association for Professionals in Infection Control & Epidemiology (APIC), was designed to assess respondents’ experiences with the H1N1 influenza outbreak during the 2009-2010 fall and winter flu season. Conducted in February and March 2010 by Perception Solutions, Aurora, Ill., it was e-mailed to a sample of more than 8,600 *MMHC* readers, and AHRMM and APIC members. There were a total of 1,109 replies, for a nearly 13 percent return rate, which gave a 95 percent confidence interval with a 5 percent plus or minus margin of error.

Materials Management in Health Care would like to thank the survey sponsors—Amerinet and Mölnlycke Health Care—for underwriting this research.



Biogel[®]
HIBICLENS[®]
BARRIER

GENNA ROLLINS IS A FREELANCE HEALTH CARE WRITER BASED IN SILVER SPRING, MD.