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INSIDE

CMS Issues Mandate Rule:

The CMS came down to one bedrock reason healthcare workers now face mandated immunization: the ethical duty to protect patients 137

CMS Warned of Mandate's

Downside: Even healthcare workers who voluntarily are fully vaccinated against COVID-19 warn of the consequences of a federal vaccine mandate 139

'Superspreader' in Provincetown?

Genetic evidence in new research signals a superspreader-type event 140

Temp Check Misses Many Cases:

Temperature/symptom checks for healthcare workers at hospital entry rarely works 141

Pregnant? Get Vaccinated:

About two-thirds of pregnant women are not getting vaccinated against COVID-19 142

Hand Hygiene and Eye Injury:

The presence of alcohol-based hand hygiene dispensers has led to an increase of people reporting severe eye irritations and injuries 143

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Infection Preventionists Experiencing Burnout, Moral Injury Amid Pandemic

'We are no exception — infection preventionists are definitely struggling'

By Gary Evans, Medical Writer

Infection preventionists (IPs) are suffering along with their coworkers as an epidemic of burnout and job turnover roils the healthcare system amid an ongoing pandemic. According to a survey in press by the Association for Professionals in Infection Control and Epidemiology (APIC), 70% of IPs meet the criteria for “high stress” and 65% have symptoms of burnout, says **Ann Marie Pettis**, RN, president of APIC.

“We partnered with the Ohio State School of Nursing to do a survey study of our members,” she says. “We reached out to about 6,000 members and got just under 1,000 responses — a 15% response rate. Those that screened positive for depression were 22%, and 30% screened positive for anxiety.”

As this report was filed, the survey article was slated for publication in an

upcoming issue of the APIC journal, the *American Journal of Infection Control*.

“We are no exception — IPs are definitely struggling,” Pettis says “I think one of the main reasons we are seeing the burnout and exhaustion is that [the pandemic] has gone on so long. People didn’t really anticipate that we would be dealing with this coming up on two years. It seems like every day you think you are going to get a semblance of normalcy, [and] something else comes along. Right now, it is [COVID-19 vaccine] mandates and determining religious exemptions. IPs are still right in the thick of it trying to work with those who are on the frontlines. Their stress and emotional health have definitely taken a hit.”

In that regard, the Centers for Medicare & Medicaid Services has set a Jan. 4, 2022, deadline for millions of

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MEDICAL WRITER: Gary Evans

EDITOR: Jason Schneider

ASSOCIATE EDITOR: Mike Gates

EDITORIAL GROUP MANAGER: Leslie Coplin

ACCREDITATIONS DIRECTOR: Amy M. Johnson, MSN, RN, CPN

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healthcare workers in a wide variety of medical settings to be immunized against COVID-19 or their employers could face penalties and loss of reimbursement. (See “CMS Issues Mandatory Vaccine Rule for Healthcare Workers.”)

SARS-CoV-2 necessarily has been the predominant infection control issue, but IPs were distraught at seeing the traditional array of healthcare-associated infections (HAIs) rising during the pandemic chaos. As *Hospital Infection Control & Prevention* reported recently, several critical HAIs — including high-mortality bloodstream infections — skyrocketed during the pandemic in 2020, as IPs had insufficient resources and staff, while many were pulled from normal duties to work on COVID-19 tasks. (See *Hospital Infection Control & Prevention*, September 2021.)

“We have seen the results with the HAIs around the country going up,” Pettis says. “Both the staff and the IPs have had to focus so much on all the chaos around COVID. This is something that has been very difficult for IPs to deal with. [HAI prevention] is our mission — that’s our wheelhouse — it’s all about protecting patients.”

The collateral damage includes the relationships IPs carefully built with staff to collaboratively prevent HAIs, she adds. “The trust that we worked to have with staff has been challenged throughout the pandemic because of all the shifting of requirements and recommendations,” Pettis says. “That takes a toll.”

A Decline, but Little Relief

The pandemic has fallen off somewhat from the recent delta variant surge, but it persists and there still are millions of Americans unvaccinated.

Consider that 89% of U.S. counties reported high (73%) or substantial (16%) transmission as of Nov. 1, 2021.¹ That is down from Oct. 8, 2021, when 96% of counties were reporting high (90%) or substantial (6%) transmission. In a sign of continuing futility, only 64 counties in the nation — 2% — report “low” transmission of COVID-19 in the most recent data. Genomic surveillance indicates the delta variant is being found in about 99% of sequenced SARS-CoV-2.

As the pandemic endures, healthcare workers are leaving their chosen profession in droves. In particular, nurses report a cascade of negative emotions and are leaving the field in an exodus expected to worsen with resignations to avoid COVID-19 vaccine mandates. Employment in healthcare is down by 524,000 jobs since February 2020, with nursing and residential care facilities accounting for about four-fifths of the loss, the Bureau of Labor Statistics reported recently.²

“One of the biggest stressors has been staffing, whether it is people out sick or taking early retirement,” Pettis says. “That leads to closed-down units and closed-down beds.”

A widely cited estimate by the Association of American Medical Colleges (AAMC) projects that the United States will face a shortage of between 54,100 and 139,000 physicians by 2033.³ That projection was made before the pandemic, which likely will accelerate the trend. In any case, the demographics of a graying America translate to more physicians retiring as more of the population ages. There are multiple pre-pandemic reports of physician burnout and depression, and things certainly have not improved in the current environment. One physician, who cited the “damning effect” of the healthcare system’s failure to prioritize wellness for caregivers, put

it bluntly: “Doctors are twice as likely to die by suicide as their own patients.”⁴

According to a survey by the American Nurses Foundation (ANF) that netted responses from 22,215 nurses from Jan. 19 to Feb. 16, 2021, nurses feel such intense emotions as “betrayed” (12%), “guilty” (11%), and “like a failure” (10%).⁵ Nurses reported more than one emotional state, as the highest percentage answers exceeded 100%: exhausted (51%), overwhelmed (43%), irritable (37%), and anxious (36%). Only 1% of respondents felt suicidal, but that still is 222 nurses thinking of taking their own lives.

These are the classic symptoms of burnout, although some prefer the term “moral injury or moral distress,” a condition somewhat similar to that experienced by soldiers in combat. In general, moral injury occurs in a person who witnesses, participates in, or fails to prevent some harmful event. This event might be well beyond their power to stop, but their ethics and moral code are violated, and they are harmed emotionally.

“Nurses, for example, may have too many patients to care for at one time,” says **Alyson Zalta**, PhD, associate professor of psychology at the University of California Irvine. “While they are taking care of one patient, they realize a patient is coding in another room.”

The term burnout could be interpreted as an individual lacking resiliency, but moral distress captures the larger forces of a systemic breakdown, she adds.

“There is moral distress in watching the dumpster fires we have seen so many times in this pandemic,” said **Susy Hota**, MD, MSc, FRCPC, medical director of infection prevention and control at Toronto General Hospital.

Speaking at IDWeek 2021, a virtual conference held Sept. 29-Oct. 4, 2021,

she added, “[For example], when we have ideas and thoughts on what should be done, but we are not in control of that decision-making. Sadly, sometimes the recommendations that we make do not align with the hospital priorities right now, and that can be frustrating.”

Moral Distress and Activism

In shifting the framing of the mental health crisis from the worker as an unresilient victim to the larger occupational damage done by the healthcare system, “Moral distress can be a platform for activism,” Hota said.

“[Know] the things that are important to you, speak up, and do not sit on the sidelines,” she added. “This can be an outlet for not letting it eat away at you. A lot of this is about prevention. I think that is why we keep emphasizing the ‘prevention’ in infection prevention and control. It’s actually important in your own life.”

Although the pandemic has been mentally disturbing to healthcare workers in general, infection control and healthcare epidemiology have some unusual job aspects that contribute to burnout.

“Decisions we make around policies for infection prevention and control actually may affect thousands of people,” Hota said. “That’s a big emotional burden that we carry. Some of those policies that we set, we just can’t quite effect the change that is required for them to be effective. All we can do is try to influence people to change their behavior and affect their thinking. That can be mentally exhausting and involve a lot of repetition, which also could contribute to burnout.”

Data collection and discussion is needed for identifying trends and adverse events, but in the raw emotions

exposed by the pandemic, numbers may seem dehumanizing.

“We talk about cases and rates all the time,” she said. “That’s how we describe epidemiologically what is happening, but we don’t talk about the people behind those rates. That causes some depersonalization that can erode our empathy.”

Interestingly, by the nature of the job, IPs and epidemiologists actually can contribute to burnout in other healthcare workers, she noted.

“By trying to be highly reliable we often will work toward standardizing processes through algorithms or checklists,” Hota said. “The problem is we are taking away the autonomy of the clinical decision-makers. That can contribute to burnout and a sense of lack of control in other clinicians. Moreover, by trying to do audit and feedback — by trying to give people a sense of how well they are doing with processes — we’re kind of imposing another source of oversight and control over clinical practice.”

Although necessary, antibiotic stewardship and restricting certain antimicrobials during pandemic times may have a similar negative effect on clinicians.

“A lot of what we do to facilitate these processes for stewardship and other infection prevention and control initiatives are integrated into electronic medical records, which we know from multiple surveys are a source of stress,” she said. “This can contribute to burnout of our colleagues as well. We should be mindful to try to reduce these burdens as much as possible.”

Groundhog Day

In an unrelenting pandemic, the sheer repetitive nature of the work can blur aspects of the job that may once have brought joy. “Sometimes it feels like *Groundhog Day*,” Hota says, using

the movie as a metaphor. “Outbreak meeting after outbreak meeting, and there is only so much of that you can take. I don’t know what the solutions are, except maybe having a recognition of what your limits are and making sure you have enough [support] in your system so can put things off or have other individuals help.”

This kind of support requires an institutional commitment to wellness, a foundation that includes people modeling healthy behaviors and talking about their experiences.

“We can’t address this problem until we can talk about it — until we can understand it,” Hota said. “Having engagement and work culture surveys are really important to understand how big the issue is, and what factors need to be addressed.”

IPs and healthcare epidemiologists see their prime mission as patient safety, and, thus, administrators underfund their programs at the peril of those admitted for care.

“In healthcare epidemiology in particular there is connection between burnout and patient safety and medical errors,” Hota said. “It is very clearly an emerging problem. So, make that connection between what your targets are in infection prevention and control, and what you need to actually get there in terms of support and people. Try to be motivated and continue advocating for the resources we need. Use this as an opportunity to actually improve the conditions in which we work.”

Foster a culture of inclusion, respect, and stability, she said. “Really commit to having a positive work environment just in your day-to-day work,” she added.

This individual effort can be supported by group meetings, particularly among nurses who are on the frontlines.

“Some hospitals are offering support groups and therapeutic groups to

allow nurses to get together and talk to each other on company time,” Zalta says. “I think it is really valuable to communicate that the psychological health of the nursing workforce is something that organizations care about. Encouraging peer support for nurses to be able to talk about their experiences is really important.”

One of the major barriers is the enduring stigma of seeking mental health, which both physicians and nurses fear could affect their licensing or alter their standing with superiors if there is a breach in confidentiality.

“Stigma is unfortunately still quite prevalent,” says **Liselotte Dyrbye**, MD, an internist at the Mayo Clinic in Rochester, MN.

Dyrbye found in research that was done before the pandemic that 38% of nurses reported symptoms of burnout and 40% had substantial indicators of depression.⁶ Noting that burnout is the direct result of job demands that exceed job resources, she cited the need for healthcare administrators who can “provide people with a positive work environment and with leaders who are really skilled at building teams. Nearly all the solutions lie in the work environment. We really need system-level solutions.”

Public health officials are asking for solutions. The Center for Disease Control and Prevention’s National Institute for Occupational Safety and Health (NIOSH) published a request for information, asking for “interventions to prevent work-associated stress, support stress reduction, and foster positive mental health and well-being among the nation’s health workers.”⁷ As this report was filed, the deadline to submit comments was Nov. 26, 2021.

NIOSH asked for input on programs and interventions, including “how stigma associated with seeking mental healthcare is addressed, and

how health workers are encouraged to participate. In your experience, how does the workplace benefit from implementing interventions or offering services to health workers to prevent/reduce work-related stress?”

An anonymous commenter to the NIOSH request for information, who reported experiencing post-traumatic stress disorder after four tours in Iraq, may have tapped into some of what healthcare workers are feeling in writing, “I’ve had some very bad experiences, and some included near death. I know it’s hard for some people to understand, but at the same time it’s also extremely hard to be able to explain and to feel comfortable doing so. But I think half the battle is being able to come forward and at least try to explain or understand. Because I know myself if you are comfortable with talking to someone that will actually listen to you, it’s a great feeling to be able to unload some of your feelings and thoughts, stress, anger, and frustration. Nobody is perfect, but everyone deserves their happiness. It’s just a very difficult journey at times.” ■

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CMS Issues Mandatory Vaccine Rule for Healthcare Workers

Agency lowers the hammer with full array of penalties

While emphasizing the national threat of the pandemic and the safety and efficacy of the SARS-CoV-2 vaccines, the Centers for Medicare & Medicaid Services (CMS) came down to one bedrock reason healthcare workers now face mandated immunization: their ethical duty to protect patients.

“Patient safety is a central tenet of the ethical codes and practice standards published by healthcare professional associations, licensure and certification bodies, and specialized industry groups,” the CMS said in an Interim Final Rule published on Nov. 5, 2021.¹ “Healthcare workers also have a special ethical and professional responsibility to protect and prioritize the health and well-being of those they are caring for, as well as not exposing them to threats that can be avoided. This holds true not only for healthcare professionals, but also for all who provide healthcare services or choose to work in those settings. The ethical duty of receiving vaccinations is not new, as staff have long been required by employers to be vaccinated against certain diseases.”

The CMS asserted its authority to establish health and safety standards under its “Conditions of Participation,” and said those who fail to comply with the vaccination rule face the full gamut of penalties. These include fines, denial

of payment for new admissions, or “termination of the Medicare/Medicaid provider agreement.”

In addition to hospitals, long-term care, and skilled nursing facilities, the vaccination mandate applies to ambulatory surgical centers, hospices, psychiatric residential treatment, homecare, and other healthcare settings. (See the CMS interim rule for the full list.) Overall, the vaccine requirement applies to about 17 million healthcare workers and approximately 76,000 medical facilities.

The CMS has set two deadlines for vaccination, the first effective one month after publication of the rule and the second a month later. Under these requirements, all staff must have received at least the first dose of a primary series (Pfizer, Moderna) or a single dose COVID-19 vaccine (Janssen) by Dec. 6, 2021, unless they have been granted an exemption for medical or religious reasons.

By Jan. 4, 2022, all non-exempt staff must have received the second shot in an immunization series. “We believe it is necessary to begin staff vaccinations as quickly as reasonably possible,” the agency states. In keeping with the Centers for Disease Control and Prevention, the CMS is not requiring the booster shot or including it in its definition of those fully vaccinated.

“Although an individual is not considered fully vaccinated until 14 days after the final dose, staff who have received the final dose of a primary vaccination series by the Phase 2 effective date are considered to have met the individual vaccination [requirement],” the CMS said.

In addition to medical contraindications, the COVID-19 vaccine requirements are subject to existing federal antidiscrimination laws.

“Certain allergies, recognized medical conditions, or religious beliefs, observances, or practices, may provide grounds for exemption,” the CMS noted. For those exempted under such grounds, CMS requires healthcare facilities to “have a process for ensuring the implementation of additional precautions, intended to mitigate the transmission and spread of COVID-19.”

Serious Effect Feared

Less than a week after the rule was posted and opened for feedback, there were more than 180 comments — many from rural healthcare facilities or nursing homes that said the vaccine mandate will create a loss of staff that will severely compromise care or even shut them down. (See “CMS Warned of Mandate’s Threat to LTC, Rural Sites.”)

As this report was published, the rule was open for comments until Jan. 4, 2022.

A vaccine proponent, **Michael Matthews**, MD, a family physician at Syringa Hospital and Clinics in Grangeville, ID, told CMS the mandate could close his facility.

“I [work] at a rural health clinic and an 11-bed independently owned critical-access hospital in a city of 3,200 people in one of the most remote, least population-dense areas in the lower 48 states,” he said.

Medical resources are scarce, and the people who live there are “fiercely independent” about things in general and the COVID-19 vaccine specifically, he said.

“This vaccine hesitancy holds true among our hospital and clinic staff, as many registered nurses, CNAs, radiology technicians, and medical assistants remain unvaccinated,” Matthews said. “Most are adamantly opposed to doing so.”

Although he tries to encourage vaccinations, Matthews said the mandate should be reconsidered for such remote facilities.

“I firmly believe that the least catastrophic way to pass through this pandemic is to vaccinate,” he said. “[But] when a nurse quits, we feel the stress of their absence. When this happens, there often is nobody to turn to [and] fill the gap. It does not take many nurses quitting before we lose our ability to keep our hospital and emergency department open.”

Although other commenters argued the mandate was constitutional overreach by the federal government, one anonymous post applauded CMS and reminded that many vaccines always have been required. “This vaccine is in no way different from any others given at the time we’re all born, at our three-month checkup, six-month, one-year, 18 months, annual flu

shot, and so on,” the commenter said. “Without this mandate and without everyone getting vaccinated, this virus will forever continue to mutate.”

Still, there was sufficient debate about the ethics of vaccine mandates within the National Institutes of Health (NIH) for the NIH bioethics department to schedule a Dec. 1, 2021, live-streamed, roundtable discussion on the issue. The time of the event, which will be open to the public, had not been announced and was not on the NIH official “upcoming meetings schedule” as this report was filed. One of the issues apparently is the argument that the nation would be better served by letting more natural immunity develop. Speculation is that this event, if it had any effect on public policy, would fall primarily in the public sector, not healthcare settings.

The mandate is necessary in healthcare because unvaccinated staff not only pose a risk to admitted patients but contribute to the general pandemic trend of people avoiding medical care, the CMS emphasized in the rule.

“Nationwide, there are reports of individuals avoiding or forgoing healthcare due to fears of contracting COVID-19 from healthcare workers,” the rule states. In addition, CMS cited “anecdotal reports” that admitted patients are refusing care from unvaccinated healthcare workers.

The CMS has the broad backing of the medical community in mandating COVID-19 vaccines for healthcare workers, with more than 50 professional societies and associations supporting required immunizations in a joint statement.²

Signatories include the Association for Professionals in Infection Control and Epidemiology and the Society for Healthcare Epidemiology of America. Also signing off to support mandates for healthcare personnel were the

American Academy of Pediatrics, American Medical Association, and the American Nurses Association.

Of course, numerous health systems and individual healthcare employers across the country have implemented SARS-CoV-2 vaccine mandates as a condition of employment.

“Despite the successes of these organizations in increasing levels of staff vaccination, there remains an inconsistent patchwork of requirements and laws that is only effective at local levels and has not successfully raised staff vaccination rates nationwide,” the CMS stated in the rule.

Some states have established laws against vaccine mandates, but CMS cited the Supremacy Clause in the Constitution in saying federal regulations will preempt such state laws.

As required by the CMS rule, hospitals and other healthcare facilities must track and document the vaccination status of all employees, including records of those granted exemptions.

“This documentation will be an ongoing process as new staff are onboarded,” the CMS stated.

The CMS plans to issue interpretive guidelines for the vaccine rule, which will include survey procedures. The facilities policies and procedures will be examined to ensure all components of the rule are in place.

“We will advise and train state surveyors on how to assess compliance with the new requirements among providers and suppliers,” the CMS rule states. “For example, the guidelines will instruct surveyors on how to determine if a provider or supplier is compliant with the requirements by reviewing the entity’s records. [They] will also instruct surveyors to conduct interviews [of] staff to verify their vaccination status.” ■

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CMS Warned of Mandate's Threat to Long-Term Care, Rural Sites

Some are pro-vaccine, anti-mandate

Even healthcare workers who voluntarily are fully vaccinated against COVID-19 warn of the unintended consequences of a federal vaccine mandate, particularly to long-term care and rural facilities already hit hard by the pandemic.¹

In comments submitted to the Centers for Medicare & Medicaid Services (CMS), an unidentified infection preventionist (IP) at a long-term care facility in South Dakota said the mandate could compromise resident care and halt new admissions because of inadequate staffing.

"I'm vaccinated — I'm an infection control nurse," the IP said. "I believe that the vaccine is helpful, but I don't think it is right to force the vaccine on someone who doesn't want it. Our facility has 100% of our residents fully vaccinated. We have 79 staff who are fully vaccinated and 15 staff who aren't vaccinated."

That's an 84% immunization rate, but the facility will be in trouble if those unvaccinated workers quit or have to be fired.

"My facility has the potential to lose 15 staff unless they qualify for a waiver," the IP said. "South Dakota has a serious shortage of licensed nursing staff and well as certified nursing assistants to care for our elders. This shortage isn't new due to COVID. We struggle daily to find enough staff to work. We have had to reach out to very expensive staffing agencies to find staff. My facility is going to have to shut down a

wing, move residents from one room (their home) to another room. How is that good for their emotional health? Give us some other testing options to keep our unvaccinated staff."

Many other commenters made a similar request, some citing the weekly COVID-19 testing option that is allowed to non-healthcare businesses with more than 100 employed under a separate federal mandate.

'LOSING A KEY MANAGER OR JUST A FEW KEY STAFF CAN SHUT DOWN SOME DEPARTMENTS.'

Citing the existing nursing shortage, a nurse practitioner in rural Kansas asked that unvaccinated workers be allowed to wear masks and be tested weekly for COVID-19.

"In [my] facility there are approximately 40 people unvaccinated, and 24 of them provide direct patient care," the nurse practitioner said. "With the enforcement of the CMS regulation, there is a potential of losing one-third of our workforce."

An unidentified healthcare worker at a small rural hospital in Idaho said they also risk losing too many employees if the mandate goes into effect.

"At last count, 92 out of 198 employees are unvaccinated (46%), including eight department managers," the commenter told CMS. "Losing a key manager or a just a few key staff can shut down some departments. We currently have four departments with more than 70% unvaccinated staff. A hospital cannot function without key departments, such as laboratory, nursing, and radiology."

The commenter proposed a novel solution, a "hardship exception" for rural providers that immediately would forbid the hiring of new employees who are not vaccinated. "[This would] allow us keep the unvaccinated staff we already have with appropriate precautionary measures for these people going forward (i.e., testing, social distancing, etc.)."

An unidentified healthcare professional in Oklahoma took issue with the CMS's contention that "few" staff actually have been fired in state and local mandates.

"In a rural setting, even one or two nurses are too many," the healthcare worker said. "I do agree that these vaccines save lives. I am fully vaccinated, and advocate for vaccination of all. I just don't agree with the manner in which the mandate occurred." ■

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1. 86 Fed Reg 61555 (Nov. 5, 2021)

Genetic Research Suggests a ‘Superspreader’ in Provincetown

Conflicting findings, but could be a ‘common source across multiple settings’

Was the large COVID-19 outbreak in Provincetown, MA, in July 2021 a superspreader event?

The question remains inconclusive, but genetic evidence in new preprint research strongly signals a superspreader type event, wherein a person or persons with high transmission capability — because of a variety of factors — results in infecting a majority of cases in an outbreak.

“We identified [at least] 40 distinct branches of the tree in our dataset that predate the outbreak, suggesting that the delta variant was introduced into this population from many sources,” the researchers report.¹ “Six of these branches led to clusters (three or more cases) of varying sizes, of which one cluster — that comprised 83% (387/467) of outbreak-associated genomes — dominated this outbreak. The remaining five clusters each accounted for [less than] 4% of primary outbreak-associated cases.”

A “striking feature” of the dominant cluster was 158 (41%) identical consensus genomes, they reported.

“That suggests a single source, and is a signal that looks like superspreading,” said lead author **Katherine Siddle**, PhD, a postdoctoral fellow at Harvard and the Broad Institute. “It suggests transmission in a short period of time.”

The July 4, 2021, celebration in Provincetown extended over several days and at many different venues, and transmission likely was accelerated by poor weather that forced many events indoors. Critically, this was during the time period when the Centers for Disease Control and Prevention (CDC) said it was safe for vaccinated people to

remain unmasked indoors. The third critical factor in this trifecta was that the highly transmissible delta variant was beginning to emerge rapidly.

The result of these multiple factors was that hundreds of fully vaccinated people had breakthrough infections, and as the genetic study confirms, transmitted the delta variant to other immunized people. The outbreak has been cited by anti-vaxxers as a sign the vaccines do not work, but only four immunized people were hospitalized, and none died. The CDC reinstated the mask recommendation for the vaccinated after the outbreak, as the delta variant quickly arose nationally to become the predominant strain of SARS-CoV-2.

However, the genetic findings were confounded by the outbreak epidemiology, since no one event or infected case could be confirmed as the source of the large cluster or the matching genomes at its genetic “root,” Siddle says.

“We talked to the health department [investigators] but we couldn’t link [the cluster] to a single person or a single event,” she says. “We can’t [definitively] say this was a superspreader event.”

The researchers concluded in the paper that “the genomic and epidemiological data taken together suggest that superspreading of the same viral sequence occurred at multiple locations. This is consistent with several scenarios, including one individual infecting others at multiple locations, or several individuals with the same virus, from either a common source or serial infection, transmitting independently.”

Coronaviruses a Common Superspreader

The superspreader phenomenon has been documented in other infectious diseases, including two other coronaviruses: the original severe acute respiratory syndrome (SARS), and Middle East respiratory syndrome (MERS).

“During the 2003 SARS epidemic in Beijing, China, one hospitalized index patient was the source of four generations of transmission to 76 patients, visitors, and healthcare workers,” the authors of the review article on superspreading report.²

“During the MERS outbreak in South Korea, 166 (89%) of 186 confirmed primary cases did not further transmit the disease, but five patients led to 154 secondary cases. The index patient transmitted MERS to 28 other persons, and three of these secondary cases infected 84, 23, and seven [other people].”

The authors of the review also note that SARS-CoV-2 has caused many superspreader events. Some go further and argue it is the primary way the pandemic has spread globally.³ Certainly, crowded indoor settings are a setup for such transmission, but what makes an individual a superspreader biologically is the subject of some conjecture.

Theories include a higher viral titer, greater viral shedding, stronger emissions of aerosols when they speak or yell, and a tendency to get close to people unmasked when

communicating. These conditions are not mutually exclusive, of course.

Still, Siddle emphasizes that those vaccinated in the Provincetown outbreak were following current CDC guidelines by not wearing masks at the indoor venues.

“We see transmission in this data both to and from vaccinated individuals,” Siddle says. “We weren’t able to quantify the extent to which that happened. We were not able to say that vaccinated people were equally likely to transmit [as the unvaccinated]. We didn’t have the data for that kind of analyses, but we definitely confirmed what was suspected at the time — transmission between vaccinated individuals.”

The genomic and epidemiologic data strongly support 25 transmission events, including many from the vaccinated to the vaccinated, Siddle and colleagues report. The genetic data alone shows evidence of an additional 64 transmissions. There appeared to be no significant difference between the outbreak-associated genomes and other publicly available delta variants.

“This was the first large outbreak among vaccinated people in the U.S. and it led to a return of masking, but it

actually did not have a big downstream impact and I think that is pretty important to remember,” Siddle says.

One reason for that was many Provincetown events were targeted at the gay community, which certainly is experienced in public health incidents, and quickly communicated with others that an outbreak was underway.

“[They were] highly engaged and very proactive about contact tracing and alerting people who may have been exposed,” she says. “It really was very controlled, and it didn’t continue in Massachusetts or in other states.”

The researchers found that the genetic signature of the dominant cluster began decreasing after peaking at 9% of all delta genomes in the state on July 16. It was down to 4% by August 30 in Massachusetts. Cases were found in 37 other states after people left Provincetown. New York, California, and Georgia contained the largest number, with each representing approximately 10% of the 328 sequenced cases. The authors argue that this reflects rapid diminishment as the matching strain faded out.

“These findings suggest that, while the outbreak led to some onward transmission, it made at most a modest

contribution to later delta cases within Massachusetts and a minimal contribution to cases elsewhere in the U.S.,” the researchers concluded. “The high rates of vaccination and the swift public health response, which included deployment of mobile testing, a local indoor masking mandate, and an extensive outreach campaign, likely contributed to the short duration and restricted impact of the outbreak.” ■

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Temperature and Symptom Check Rarely Prevents Presenteeism

Only one in five infected with SARS-CoV-2 will have fever

During the COVID-19 pandemic, a common ritual at hospital entry for healthcare workers is having their temperature and/or symptoms checked upon showing up for their shift. The problem — and it is no small one, given the time and resources required for screening — is that it rarely works.

“Perhaps surprisingly, there are very few publications about the ability

to detect cases among healthcare personnel [during the pandemic],” said **David Kuhar**, MD, a medical officer in the division of healthcare quality promotion at the Centers for Disease Control and Prevention. “However, we received anecdotal reports from professional societies, state and local health departments, and facilities that temperature screening was just not

identifying many cases, if any cases at all.”

Airports have widely implemented screening among passengers, but modeling estimates show they are missing at least half of the cases, Kuhar said at the IDWeek 2021 virtual meeting, held Sept. 29-Oct. 4, 2021.

A healthcare report indicated that, among patients who were admitted

with SARS-CoV-2 and had positive tests, only 16 (19%) out of 68 had a fever.¹

“Temperature screening during the pandemic has not efficiently identified cases and — it’s not a stretch of the imagination — it is not likely an efficient strategy for detection of other respiratory illnesses,” he said. “We know that people can have influenza and not have fevers, [even though] there may be presymptomatic [viral] shedding.”

Symptom screening has the advantage of looking for more data points, such as a sore throat, shortness of breath, and cough.

“You’re able to cast a wider net,” Kuhar said. “The biggest cons are that it is not objective, and symptom screening really is only ever as good as people are aware of [symptoms] and willing to share them.”

Some hospitals have gone to electronic reporting of symptoms to speed the process up and allow those with no symptoms to enter quickly.

“There are minimal reports of symptom screening alone detecting infected healthcare personnel, which I found a little surprising,” Kuhar said. “However, from anecdotal reports, we heard from many facilities, as well as health departments, that very few cases were being identified with symptom screening at all, with some places reporting none.”

Could Work as Deterrent

That does not necessarily mean symptom screening has no value, Kuhar added, noting that it still may discourage workers from coming in sick.

“Active screening may end up discouraging personnel with symptoms from even testing the [facility] doorway and just staying home,” he said.

For a variety of reasons, from a facility’s work culture to its policy on paid sick leave, the oft-described phenomenon of “presenteeism” persists in healthcare.

“It can depend upon the job of the employee, their social status in the organization, and the care demands of their work,” he said. “Commonly identified reasons include local [work] culture, an unwillingness to disappoint colleagues, even a fear of consequences for taking days off. Are you going to develop a reputation for leaving work to colleagues? Someone’s individual work ethic can affect this.”

Healthcare leadership sets the tone for the work culture, so unless the problem of presenteeism rises to their level, any substantive change is unlikely.

“Without it coming from the top, it’s generally not going to happen,” Kuhar said.

For example, leadership can remove barriers for personnel in taking sick

days, such as providing pay for those days to remove the financial pressure that drives presenteeism.

“Create policies that require restriction from work when ill,” he said. “It’s very different when the message is ‘We don’t want you to come to work when you are sick’ vs. ‘If you’re not feeling well, you don’t have to come to work.’ It’s really a different message when it’s clearly, ‘do not do this.’”

The current challenge of staffing certainly is a factor, but there has always been some element of threadbare resources and limited backup in many facilities.

“There are actually reports of healthcare workers coming to work when ill — even with respiratory symptoms — and they have paid sick days that they simply haven’t taken,” Kuhar said. “If there’s no backup, if there’s no person to cover their job, people are going to be much less likely to stay out of work when they’re sick.” ■

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CDC Urges Pregnant Women to Get Vaccinated

COVID-19 infection poses serious risk to mother and baby

Despite the risk of severe disease and death, about two-thirds of pregnant women are not getting vaccinated against COVID-19, the Centers for Disease Control and Prevention (CDC) reports.¹

“Despite the known risks of COVID-19, as of Sept. 18, 2021,

31% of pregnant women were fully vaccinated before or during their pregnancy,” the CDC emphasized. “In addition, there are racial and ethnic disparities in vaccination coverage for pregnant people. Healthcare providers should communicate the risks of COVID-19, the benefits of vaccination,

and information on the safety and effectiveness of COVID-19 vaccination in pregnancy . . . as soon as possible.”

Recently, the CDC urged vaccination for women who are pregnant or recently pregnant, including those who are lactating. Likewise, women who are trying to

become pregnant now or who might become pregnant in the future should be vaccinated.

“CDC strongly recommends COVID-19 vaccination either before or during pregnancy because the benefits of vaccination outweigh known or potential risks,” the agency reports.

As of Sept. 27, 2021, more than 125,000 laboratory-confirmed COVID-19 cases have been reported in pregnant women, resulting in about 22,000 hospitalizations and 161 deaths. In August 2021, 22 pregnant women died of COVID-19, the highest monthly total yet in CDC surveillance. Mirroring the pandemic in the general population, 97% of pregnant women who acquire SARS-CoV-2 and are hospitalized — either for medical care or delivery — are unvaccinated.

“In addition to the risks of severe illness and death for pregnant and

recently pregnant [women], there is an increased risk for adverse pregnancy and neonatal outcomes, including preterm birth and admission of their neonates to an intensive care unit,” the CDC reported.

In addition, vaccination coverage for pregnant women differs by race and ethnicity, with vaccination coverage lowest for non-Hispanic Blacks (16%). The CDC called for increased focus on such populations with lower vaccination coverage, using approaches that are “tailored, culturally responsive, and linguistically appropriate” to communicate the benefits of vaccination.

Compared to nonpregnant women who acquire symptomatic COVID-19, pregnant women who develop symptomatic infection are at a two-fold increased risk of requiring intensive care unit admission and at a 70%

increased risk of death, the CDC stated. “Communicate accurate information about COVID-19 vaccines, respond to gaps in information, and confront misinformation with evidence-based messaging from credible sources,” the CDC urged. “For example, there is currently no evidence that any vaccines, including COVID-19 vaccines, cause fertility problems in women or men.” ■

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FDA: Eye Injuries Increasing Because of Alcohol Hand Rubs

Patients should rinse eyes with water immediately

Although a key infection control intervention, the ubiquitous presence of alcohol-based hand hygiene dispensers has led to an increase in people reporting severe eye irritations and injuries, the Food and Drug Administration (FDA) warns.

Splashes of the sanitizer or touching the eye after disinfecting hands “can result in serious injury, including severe irritation and damage to the surface of the eye,” the FDA said.¹

“Eye exposure to hand sanitizer has been reported in all age groups. However, it has occurred most often in children. Such eye injuries have become much more frequent, likely due to the marked increase in the use of

alcohol-based hand sanitizer during the COVID-19 pandemic.”

To prevent this adverse event, the FDA recommends that healthcare professionals do the following if alcohol-based hand sanitizer gets into a patient’s eyes:

“Urge them to immediately and thoroughly rinse their eyes under gently running water, such as from a sink tap, water bottle, or emergency shower, for at least 15 to 20 minutes,” the agency recommended. “After rinsing, if symptoms, such as redness, pain, irritation, visual impairment, blurred vision, or light sensitivity persist, advise the patient to seek an urgent eye examination.” ■

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CME/CE QUESTIONS

- 1. According to a survey in press by the Association for Professionals in Infection Control and Epidemiology, what percentage of infection preventionists reported symptoms of burnout?**
 - a. 22%
 - b. 37%
 - c. 50%
 - d. 65%
- 2. According to Susy Hota, MD, data collection and discussion is needed for identifying trends and adverse events, but in the raw emotions exposed by the pandemic, numbers may seem dehumanizing. She said the resulting "depersonalization" can erode which of the following emotions?**
 - a. Honesty
 - b. Empathy
 - c. Self-respect
 - d. Loyalty
- 3. Which is of the following is true regarding the Centers for Medicare & Medicaid Services (CMS) interim final rule mandating COVID-19 vaccination of healthcare workers?**
 - a. It applies only to clinical staff.
 - b. It allows no religious exemptions
 - c. CMS will issue interpretive guidelines that include survey instructions.
 - d. Because of privacy rules, reasons for exemptions should not be kept in records.
- 4. In a genetic analysis of the Provincetown, MA, COVID-19 outbreak in July 2021, researchers described which of the following as a "striking feature" of the dominant cluster of the infecting virus?**
 - a. There were 158 identical consensus genomes.
 - b. It was only found in attendees of one large event.
 - c. It was caused by a novel type of the delta variant.
 - d. It did not infect those who had a history of prior COVID-19 infection.