Hello, I’m Dr. Nimalie Stone. Welcome to Part 3 of the presentation series, “Taking Action to Prevent and Manage Multidrug-resistant Organisms and C. difficile in Nursing Homes.” In this video, we will review some infection-prevention strategies that your facility can take to prevent the spread of MDROs and C. diff.

Once we’ve understood how these bacteria can emerge and spread in our healthcare facilities, it becomes easier to identify our opportunities to improve practices at the bedside which could reduce transmission during resident care activities. And in this session, we’re going to outline some of those actions that caregivers can take.

This slide outlines some basic infection-prevention strategies for managing MDROs and C. diff. I’ve highlighted in the red box the four strategies we will review in this video: consistent performance of hand hygiene; appropriate use of gowns and gloves; considering resident risk factors when selecting room placement; and cleaning and disinfection of shared equipment, rooms and surfaces. Although we won’t cover assessment and improvement of antibiotic use in this video, there is an entire Train the Trainer session focused on antibiotic stewardship in this education.

So hand hygiene might be the most common topic discussed during infection prevention educational sessions for nursing home staff. However, our education may not be effective in changing practices if we don’t understand the perceptions of and barriers to performing hand hygiene among our staff.

This slide highlights findings from a survey administered to over 1000 nursing home staff including nurses, nurse aides and other healthcare personnel from 17 homes across six states. Some of the major themes which came out of the survey included the perception among 20 to 30 percent of respondents that the current CDC hand hygiene guidelines weren’t applicable or practical for nursing homes.

Almost 20 percent reported a lack of access to hand hygiene supplies, and this went up to almost 30 percent specifically when asked about alcohol-based hand hygiene products. Roughly 25 percent reported not performing hand hygiene due to glove use, and this reflects a common misperception that hand hygiene is not needed when gloves are worn. Studies have shown, however, that wrists and hands can become contaminated during glove removal, so glove use alone may not be adequate to prevent hand contamination.

And in a very honest response from close to 40 percent of staff, they reported forgetting hand hygiene due to heavy workload. I think for us, we should recognize that if we don’t make hand hygiene supplies accessible to caregivers, it becomes very hard for them to incorporate this practice into their workflow.

In addition, over 50 percent reported rarely receiving personalized feedback on their hand hygiene practices, and this really highlights the importance of providing monitoring and feedback to supplement our education. So efforts to improve hand hygiene performance should be designed to address these perceptions, knowledge gaps and practice challenges that are identified by facility staff.
Outlined in this next slide are the moments for performing hand hygiene. Nursing homes seem to have been slower to adopt alcohol-based hand rubs as the preferred method for hand hygiene despite the fact that alcohol-based products have been shown to be more effective at disinfecting hands compared with soap and water in most clinical situations. In addition, increasing access to alcohol-based products, especially in resident rooms and resident care areas, does increase staff performance of hand hygiene. There are some specific moments when handwashing with soap and water should be done, and these are highlighted in the yellow text.

Since this session is focused somewhat on C. diff prevention, I’ll highlight that handwashing is recommended after care of residents with known or suspected infectious diarrhea and that is because alcohol-based hand rubs are not effective at disinfecting hands which have been contaminated with C. difficile spores. Despite our knowledge that hand hygiene is the most effective way to prevent the transmission of infections, we continue to see poor adherence and uncertainty about when and how to clean hands during different activities, especially in the context of caring for residents with C. difficile.

One strategy for reducing this confusion is having clear messages about hand hygiene policies which specifically address care of residents during infections with C. difficile. We know that the C. diff spores are not killed by alcohol-based hand rubs, but be aware that soap doesn’t kill spores either. It’s actually the friction caused by rubbing hands together coupled with the thorough rinsing of hands which physically removes the sticky spores from hands, and that requires very good handwashing technique. So the most important way to protect healthcare personnel hands during care of a resident with C. difficile is to use gloves appropriately to prevent hand contamination.

The other important message is that while alcohol products may not kill C. diff spores, they still remain the most effective prevention for spread of other bacteria including MDROs. So facility hand hygiene policies should try to avoid discouraging all use of alcohol-based hand rubs because hand hygiene with alcohol before donning gloves and providing care ensures that hands are well cleaned before resident contact. Then handwashing can be done after glove removal.

Finally, policies should promote use of gowns and gloves in situations when C. diff contamination could be highest, like new-onset diarrhea, even when diagnostic tests are being performed to determine the cause, as well as during care of residents with incontinence who have just recently had a C. difficile infection.

This slide lists several strategies which you might consider in order to promote and improve hand hygiene adherence in your facility. In the interest of time, I won’t read them all, but I would encourage you to explore one or two of these activities if you see opportunities to improve hand hygiene practices among your nursing home staff.

Now, let’s discuss the role of contact precautions and isolation practices in nursing homes, especially since I just talked about the important role of gown and glove use during the care of residents with known or suspected C. difficile infection.
Just like with hand hygiene, staff perceptions of gown and glove use may impact the implementation of effective transmission-based precautions in nursing homes. A survey of 350 nursing home staff identified common concerns related to gown and glove use.

Less than half of the respondents said they would change their practices if they became aware that a resident was colonized with an MDRO. Over 95 percent expressed concern that isolation might negatively impact a resident’s psychosocial well-being. In addition, there are other infrastructure barriers which impact effective isolation practices for communicable infections like C. diff, such as limited numbers of private rooms and challenges with moving residents.

There are also issues with detecting MDRO or C. diff carriers since most facilities do not perform surveillance cultures but instead rely on clinical cultures when residents have active symptoms of an infection. And finally, we don’t have good guidance on when transmission-based precautions could be discontinued, and this can have a significant impact on a resident’s quality of life if they are excluded from participating in group activities for a prolonged period of time.

This slide reviews the basic components of contact precautions which could be applicable for both MDRO and C. diff prevention. It includes gown and glove use for direct resident care activities, use of dedicated equipment to reduce the spread of bacteria, placement of actively infected residents in private rooms or cohorting them with other known carriers of a specific bacteria or infection, and if you can’t cohort residents, at a minimum finding ways to separate toileting between infected and unaffected residents in the setting of active C. difficile infection.

Finally, similar to hand hygiene strategies, monitoring staff adherence and providing feedback on gown and glove use during resident care is a critical piece of promoting contact precautions.

As we’ve been discussing, resident room placement, especially for individuals suspected of an infection, can be critically important in light of the fact that there may be delays in identifying the organism causing signs or symptoms of disease. These high-level principles may also be useful in considering room placement for new admissions to the facility since facilities may or may not know who is colonized with an MDRO or C. diff at the time they enter.

If a resident develops new signs or symptoms which may suggest an infectious process, then knowing how certain infections spread in a facility can help determine whether they need to move to a new room. For MDROs, understanding resident risk factors which might contribute to spread or acquisition of bacteria are important considerations, but so is the length of time a resident has been in a specific room and their relationship with a particular roommate. Ultimately, bed availability will also be a big factor in deciding whether a resident could or should be moved.

So here are some examples of how to apply resident placement strategies for MDROs. First, consider the level of risk a resident may have for MDRO colonization. High risk characteristics include current or recent antibiotic use, presence of indwelling devices or wounds, incontinence and high levels of functional dependence. When you recognize a resident with several risk factors, that may allow you to
place them with someone who has a lower level of risk in order to reduce the possibility that an MDRO could move from one person to the next.

For example, if I place two high-risk residents together—like two people, both of whom have indwelling urinary catheters—in the same shared room, then it’s possible I could inadvertently spread a resistant Gram negative bacteria from handling one urinary collection system and then moving to the other without careful hand hygiene or gown and glove use.

Sometimes I know facilities strategically place all the residents with higher acuity needs—like presence of wounds or being dependent on ventilators for care—into a single unit based on the skill sets of their nursing staff, but in those situations, it’s critically important that the staff understand all the steps to prevent spread of MDROs among the residents in that unit. Otherwise, clusters of colonization and infection could emerge.

But on the other end of the spectrum, if you have a pair of stable, longstanding roommates, you may not need to disrupt their living situation just because a new culture result reveals an MDRO colonized resident. Generally, roommates who have been together for a long time have already had the opportunity to share a germ, even if we as caregivers are only recently identifying its presence. You may also want to have policies which establish when you restrict a resident’s movement outside of their room in addition to using gowns and gloves or other personal protective equipment during their care.

For example, presence of signs and symptoms of a communicable infection, like new nausea, vomiting, diarrhea, which may be indicative of norovirus, or the inability to contain a draining wound when it’s infected might be reasons to limit a resident’s movement within a shared environment. In those situations, you want to contain infectious symptoms quickly to reduce the spread to other residents and staff in the building. However, in nursing homes we want to use the least restrictive approach to preventing the spread of infections. So we only limit resident movement during those highest risk periods of transmission, and we discontinue those restrictions as soon as signs and symptoms resolve or a communicable infection have been ruled out.

Other considerations for implementing contact precautions including gown and glove use based on high-risk care activities that might be performed for residents in a facility. As we reviewed in Part 2 of this presentation, bundling care activities like toileting, assisting with dressing and changing bed linens increases the likelihood of contamination of the hands and clothes of healthcare personnel. So perhaps a policy which incorporates gown and glove use during morning care for high-risk residents could be a smart prevention strategy. Always document the decisions and rationale for contact precautions and room placement for a resident, and clearly explain your approach to residents and their families.

Finally, incorporating cues to action like signs, and performing audits and providing feedback to staff on their gown and glove adherence will ensure that practices at the bedside match your facility policies and protocols.

As I mentioned earlier, providers sometimes wonder when contact precautions can be stopped for a resident with an MDRO or recent C. diff infection, and the honest answer is we don’t really have a single
best strategy for discontinuing precautions in any healthcare setting. In hospitals, they tend to keep patients in precautions for the duration of their admission, and that is feasible because lengths of stay are typically quite short and people aren’t usually feeling well enough to wander around the hospital units anyway. But in nursing homes we know that contact precautions or movement restrictions might impact a person’s rehab and recovery. So we try to resume standard precautions as soon as those high-risk exposures are removed or resolved, like having an indwelling urinary catheter or PICC line taken out.

Now some of you may recall from Dr. Robin Jump’s presentation that some research supports extending gown and glove use during care of residents with recent C. difficile infection because studies have demonstrated spores continue to be shed into the environment for several days even after diarrhea has resolved. However, that practice may not be universally implemented, and questions still remain about how long is long enough. As I mentioned earlier, the most important thing about contact precautions is making sure our communication to residents, families and staff are clear and that we document our decision-making so everyone understands why we are doing what we do.

So the last strategy we’re going to cover is cleaning and disinfection, and we’ll touch on the issues related to contaminated surfaces and equipment. We know that contaminated environments contribute to the spread of C. diff and MDROs, and you can see the variety of places where these organisms have been cultured. The room contamination rates can be very high for infected and colonized people, depending on the organism they carry. So, for example, up to 30 percent of rooms may be contaminated in individuals colonized with MRSA, but that goes up to 75 percent if people are colonized or infected with C. difficile. We know that people have also acquired MDROs just by being admitted into rooms which were previously occupied by a carrier of that MDRO.

This graph shows you a snapshot of some of the frequent places where C. difficile has been found within residents’ rooms. And not surprisingly, the highest-risk places are commodes, toilets, and surfaces in the bathrooms. But notice that there is also C. diff occurring on the curtains, bedrails, and sometimes even door handles. So we need to be thinking about these high risk, frequently touched surfaces during our cleaning practices.

When we look at cleaning strategies, it’s really important to consider the adequacy of cleaning. Several studies have evaluated how we can improve cleaning practices through auditing. Using things like fluorescent products which are powders that are invisible to the naked eye but light up under a black light to assess the quality of cleaning. When studies implemented those auditing markers, they found following routine cleaning only about 47 percent of the high-touch surfaces were being adequately cleaned. Once they implemented education as well as provided feedback to housekeeping staff on their individual practices using the auditing fluorescent markers, they saw sustained cleaning of some of these same high-risk objects and surfaces.

Another aspect of effective cleaning and disinfection is ensuring that you are using the correct products, especially when it comes to C. difficile. As you’ve heard previously, the spores are not killed by the standard cleaning products used in most healthcare facilities, and either bleach or use of an EPA-labeled sporicidal product must be used to disinfect rooms of residents who have had C. difficile infection.
Another piece of the environment is the use and cleaning of equipment. Some strategies we can employ to improve this include ensuring all shared resident equipment is cleaned and disinfected between uses. Certain pieces of equipment, like blood glucose meters, must be designated for multi-person use and come with manufacturer’s instructions on how to clean and disinfect them. Otherwise, frequent disinfec-
tion or use of the wrong product on these sensitive pieces of equipment may impact their functioning.

It’s also very important that nursing staff and housekeeping staff know which pieces of equipment they might be responsible for cleaning and disinfecting, and having a logbook for managing large items like wheelchairs or lifts can ensure that those pieces of equipment are also regularly cleaned. When residents have infections with MDROs or C. difficile, dedicating single-use or disposable equipment can also prevent transmission to unaffected residents.

So I know we covered a lot in this session, but I really believe these strategies are fundamentally important to preventing spread of infections and resistance in our facilities. So some themes that have come out across these prevention practices is that it’s critically important to evaluate staff perceptions and those barriers to implementing hand hygiene, transmission-based precautions and even effective cleaning practices. And ensuring adequate supplies are available and accessible can go a long way to helping support staff trying to do the right thing.

In addition to education, verify staff adherence to policies by auditing practices and providing feedback. This can really help continue to engage staff and sustain improvements over time.

And finally, I would encourage you to consider identifying one or two of the strategies that you’ve heard in this session that you might try to implement to improve one of these basic infection-prevention practices with your staff in your facility.

So with that I’ll thank you again for taking the time to review these videos and wish you the best of luck with your efforts to prevent the spread of resistance and C. diff in your nursing homes.