Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Learnings to operate LTC better from the COVID-19 crisis

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While COVID-19 has directly caused a significant number of deaths in LTC, the indirect effect may be even more devastating. The combination of communal environment, many close staff interaction with very frail residents has led to many deaths from the spread of the COVID virus. But the indirect impact of COVID and LTC residents from social isolation causing weight loss, falls, delirium, dementia and depression as well as staff burn out will likely cause early deaths that may be even more significant. Plus battling these in the face of magnified negative LTC stereotypes will cause a multiplication of these issues. Although there are some benefits that may come out of this crisis such as the expanded use of telemedicine, Facetiming with family & friends, increased facility cleanness, and funding/support for LTC, there are many learnings that still require our developing of solutions.

Rahm Emanuel, when he served as President Obama's chief of staff was quoted as saying – "You never let a serious crisis go to waste. And what I mean by that it's an opportunity to do things you think you could not do before." This COVID-19 is a serious crisis that we should not let go to waste but rather use as an opportunity operate differently around improving socialization, senses and staff support.

Experience

Before we discuss Covid-19 in terms of the lessons that we can learn from it, let us review pandemics of the past and the lessons that we have learned from those experiences. History has taught us, on more than one occasion, that new viruses that emerge with a pandemic have a history of returning in waves after we think that we have them under control. In some cases, the heaviest mortality associated with pandemic's occurs years after the virus first emerged. Our current pandemic has sparked much discussion regarding prior global outbreaks. None has sparked more discussion then the flu epidemic of 1918 that killed his many as 100 million people which at the time was approximately 5% of the world's population. Ultimately, the weapon that been used against this virus that ultimately was at the forefront for helping to curb its spread was something that we have spoken about quite a bit currently, that being social distancing. Obviously, this is a lesson than that needs to be taken seriously today by all of us. Social distancing works. If we isolate ourselves from each other in a reasonable way by maintaining distance between us and by wearing masks or face coverings of some sort when we cannot maintain distance, we cripple the viruses ability to sustain itself by moving from person to person. What are some of the specific ways in which past pandemics were brought under control? Towns and cities were locked down, theatres were closed, bars were not allowed to operate, live sporting events were postponed, military troops were quarantined when necessary, and government officials wore masks while asking others to do the same.

Take a moment to think about the HIV/AIDS crisis that emerged in the 1980s. A great tragedy emerged with that outbreak that was purely social, having nothing to do with science, that undoubtedly interfered with our ability to effectively deal with the situation. What am referring to his xenophobia or more simply stated the process of having a fear or hatred of strangers or foreigners or anything that is strange or foreign. It has been stated that xenophobia around a virus can be more virulent than the virus itself. When HIV initially emerged in the late 1970s and early 1980s it was a virus that was associated with intravenous drug abuse, homosexuality, and it being of Haitian descent. As you might imagine, if you did not live through that time, making those associations fueled a lot of prejudice and along with that a great deal of scapegoating. Unfortunately, prejudice and scapegoating in tandem can cause a high level of harm by distracting from the unified efforts that are ultimately required to get a pandemic under control. With coronavirus specifically, there has been an emergence of anti-Asian sentiment resulting from the virus having an apparent origin in the Chinese population. This has fueled a great deal of the political distraction that undoubtedly deplete some of the energy that could be better served toward developing strategies to contain the spread and impact of the virus.

With the approach of the academic year there was much debate over whether or not children should be put back in the classroom or should live teaching be replaced by virtual learning. Those in favor of life classroom learning argue that the virus does not seem to affect children, possibly because of their immune systems are strong thus giving them the ability to fight off the effects of the virus. Those in favor of virtual learning express concerns that young children even if not directly affected can act as vectors of the virus and put others at risk such as parents, grandparents, teachers, school bus driver's, and others who would have a higher risk of serious illness if exposed to an asymptomatic carrier of the virus. Despite what the early and limited data to tell us, history tells us that viruses do not spare children. It is true that younger people have more robust immune systems, but we have seen with coronavirus that robust immune systems can

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have a deadly impact as evidenced by those patients with COVID who have apparently succumbed to what has been described as "cytokine storm". In cytokine storm, the body develops an autoimmune type response to the virus that results in multi-system damage affecting the lungs and other vital organs. Cytokine storm has been cited as the reason for poor outcomes that have been seen in some younger patients.

Socialization

Effectively putting social distancing into place comes at the cost of ensuring loneliness for the residents of our long-term care facilities. Studies have consistently demonstrated specific adverse events that result from social isolation. These include elevations in blood pressure, interference with be able to sleep at night, decline in cognitive performance and stress resulting in consistent morning spikes in cortisol levels.[5]

The closing of communal dining rooms with a shift to residents eating in their room during the COVID crisis has led to many issues. This is the result of the Centers for Medicare and Medicaid Services (CMS) Guidance for Infection Control and Prevention of Coronavirus Disease 2019 (COVID-19) in Nursing Homes.[1] One aspect of this guidance recommends that facilities "cancel communal dining and all group activities, such as internal and external group activities."

Studies have shown that a lack of companionship at mealtime may be independently associated with geriatric depressive symptom for females and those aged 60–74 years.[2] What's more, eating alone is a strong factor associated with depressive symptom, weight loss and malnutrition. In addition, these same issues contribute to dehydration.

Much of this eating alone occurs in resident rooms in front of the television. It happens that watching too much television may increase your risk of developing Alzheimer's/dementia and cause brain damage. Into the bargain, the negative effects of too much TV time could show up much sooner than previously thought, according to a recent *Washington Post* article.[3] A study from the Northern California Institute for Research and Education in San Francisco concerning the association between a sedentary lifestyle and the risk of developing dementia found that people who watch four hours or more of television per day scored significantly lower marks on tests measuring cognitive performance. This heavy television viewing not only impacts dementia but delirium and depression as well. Using this time for more thoughtful and social activities can alleviate these issues.

LTC facilities need to figure out how to bring older adults together in small safe groups for communal meals and activities. This could be accomplished through testing of residents and staff on a regular basis to limit isolation to only infectious residents. Also while handwashing has been stressed for staff, LTC residents should also be educated and continuously enforced on the importance of hand hygiene to prevent infectious disease spread.

Senses

The impact of COVID-19 lock down on socialization impacting meals and activities is made even more significant when one take into account the worsening of senses in this frail population. Services such as Dental, Hearing and Ophthalmology have taken a back seat during the lock downs, despite these services are critical to not only LTC resident quality of life but conditions previous raised such as mental wellness, weight and falls. Developing a process for assuring these services even in the face of an infectious disease lock down is critical. Obvious best is when these services are brought on site either through mobile services or within the facility. On site services prevents the burden and danger of transporting residents outside of the facility. LTC facilities would serve their residents well by establishing these services for their community including the initial or follow-up care via telemedicine access, thus limited unnecessary resident travel.

And while not a sense limiting physical activity due to restriction movement of residents can contribute to all the harms noted above as well as falls. Falls suffer from a use it or lose it principle such that the more physical restrictions we force on older adults the more deconditioned they become. Again, forcing some level of socialization and engagement through physical activity can prevent this decline.

PTSD

For residents of health care facilities and staff the COVID-19 pandemic has added to our existing burden of daily stressors. We are carry a new fears and anxiety about coming in contact with the virus, testing positive for the virus, getting sick due to the virus, spreading the virus to others, fearing that are loved ones will be exposed to the virus, being isolated, being unable to have contact with loved ones, and being able to appropriately grieve and have services for those that have died during the pandemic whether there death was due to coronavirus or some other cause. These are just a few of them many new concerns that have become part of our daily routine. At the same time, the pandemic has short circuit many of the activities that some of us may have used in the past to serve as coping mechanisms during times of personal crises. We cannot necessarily engage in dining at our favorite restaurant, we may not be able to shop at our favorite store or mall, and we may not have access to activities such as being able to attend life sporting events.

The pandemic has potentially given rise for many to the perfect storm that can result in posttraumatic stress disorder, a condition that can put you in a perpetual state of high alert with feelings of depression, insecurity, loss of control, and anxiety. Certainly, many healthcare workers experienced feelings of loss of control and anxiety over the inability to have access to adequate supplies of personal protective equipment.

Support

New York Governor Andrew Cuomo sparked outrage when he said private nursing homes were responsible for providing staffers "with the right equipment" — even though his administration has ordered them to admit people with the coronavirus while at the same time heavily supporting hospitals.

While LTC facilities have suffered from a negative perception for a long time, this latest crisis has placed them front center as a track with publications such as the New York Times calling them out from their headlines. Headlines such as…ravages nursing homes, body bags poled up, "We are in prison" and "They're death pits" make it difficult for LTC staff, patients and family to feel secure. Through improved communication with our patients, families and community we can dispel these misperceptions.

Further, at a time where the Triple Aim was expanded to include the support of caregivers/providers because of their vital role in care delivery in the face of increasing burn out – these comments are especially difficult. There are of course things that we can do to support our facilities and staff. These includes keeping their work focused on the most essential of activities. Help here can come from deprescribing of unnecessary medications that only serve as a burden on staff and patients without any clinical benefit. The University of Maryland Peter Lamy Center on Drug Therapy and Aging along with the US Deprescribing Resource Network developed the Optimizing Medication Management during the COVID-19 Pandemic: Implementation Guide for Post-Acute and Long-Term Care.[4]

This guide describes optimizing the use of medications in an evidence-based, person-centered care approach is consistent with the recently enacted Quality Assurance Performance Improvement (QAPI) regulations (F865) and longstanding regulations related to unnecessary drugs (F757). Goals of the implementation guide include reduction of unnecessary drugs and aligning medication administration times, which can lead to a reduction in the potential for adverse events, drug interactions, resident burden, infection transmission risk, and time spent by nurses on medication pass. This can have a tremendous impact on not only residents but the staff that care for them.

Deprescribing

Polypharmacy is often thought of simply in terms of quantity and much of this may have its rots in the quality indicator that isolates the use of nine or more medications for an individual as an indicator of poor quality of care. It is better to think of polypharmacy as an issue where a patient is taking medication that they don't need and that can happen in patients who are taking a smaller or larger total number of medications. This is not a new problem and for years efforts have been in play to formulate strategies to identify and eliminate medications that are not needed from patient regimens. In the most tragic and avoidable polypharmacy scenarios, medications are initiated to manage new problems that actually were symptoms caused by adverse effects of existing prescribed medications in the patient's profile. Reducing, rather than adding to existing medication burden leads to less drug-drug interactions, less medication adverse events, and better clinical outcomes for our residents. As we navigate the COVID-19 pandemic, the need or deprescribing and optimizing medication management is more critical than it has ever been as reducing medications will potentially reduce opportunities for transmission of the virus between staff and residents.

The following points should be applied to deprescribing strategies:

1. The primary goal of deprescribing is to improve patient outcomes.
2. A secondary benefit of deprescribing is to reduce opportunities for the virus to spread between staff and residents.
3. Be aggressive in identifying medications with no therapeutic benefit and avoid the pitfall of simply looking to discontinue PRN medications that are not being used.
4. Evaluate continued use of any medications that is not being used for a clear indication and where there is limited evidence of ongoing benefit.
5. Identify residents who have had symptoms, such as falls with injury, is having potential adverse medication reactions and assess the medications for the risks and benefits of continued use.
6. Target reviews for use of any medications that are known to increase risk for falls such as benzodiazepines, sedative hypnotics, multiple psychotropic medications used in combination, and medications with high levels of anticholinergic activity.
7. Consider tapering medication regimens for those patients with limited life expectancy while maintaining their comfort and quality of remaining life.
8. Always evaluate medication use in the framework of what the goals of care are.
9. Look for medications that may be adding to symptom burden typically associated with geriatric syndromes such as incontinence, muscle pain, and reduced mobility.
10. Generally, only one drug should be stopped at a time while monitoring the resident closely for any subsequent change in condition.

Guidance for healthcare workers

Now is the time for each of us as healthcare providers to actively utilize strategies that can reduce the risk of coming in contact with coronavirus. We have to be vigilant around-the-clock and be mindful not to let her guard down whether at work, at home, or at any other location. Many facilities have replaced face-to-face group meetings with virtual meetings using technologies such as zoom. When face-to-face meetings are held, the room in which the meeting is to be held must be strategically set up to ensure that all individuals at the meeting are separated by at least 6 feet. In addition, these meeting areas should be equipped with all the materials that are necessary to sanitize the area immediately following the meeting. Face to face group meetings should also be limited to only those individuals that are absolutely required to be present for the meeting.

Wearing a mask is crucial in reducing the risk of airborne virus in the workplace. It is estimated that when a COVID carrier not wearing a mask is in close contact with a non-COVID carrier for an extended period of time, that the risk of transmission of the virus is at 70%. If, on the other hand, the COVID carrier is wearing a mask even if the non-COVID person is not wearing a mask the risk of transmission is only 5%. in the best scenario, where both the COVID carrier and the non-COVID person a wearing a mask the risk of transmission is only 1.5%. Masks have proved to be effective because of the potential for the virus to be transmitted by respiratory particles and because the virus has shown an ability to remain aerosolized for a period of time after being expelled into the environment by coughing, sneezing, or even engaging in normal speech.

Hand hygiene, whether with an alcohol-based sanitizer or with soap and water is a simple yet effective way to reduce the transmission rate for coronavirus and other pathogens.

You should also limit the amount of personal items that you bring with you to the workplace. Items such as mobile phones, hand bags, laptops, and even pens can be exposed to virus and the virus can remain viable on the surface of these items long enough to then act as a vector for bringing the virus into your home or other areas.

Don't drop your guard when you leave the workplace, especially when you are at home. Many of you have probably been having her temperature checked when you enter the workplace. This would be a good practice to adopt at home as well for you and for other members of your household. It would also be a good idea if you take a shower and change into fresh clothing as soon as you arrive at your home. The items that you have worn at work should be cleaned immediately or at least separated from other items. Also, do not forget that COVID can be carried on shoes.

Make a plan, in advance, for how you will manage the household if a member of the family tests positive for the virus or is exposed to the virus.

You should avoid public transportation if possible. If it is not possible for you to do that, you must take all precautions necessary to maintain 6 feet between you and other commuters while doing your best to limit any potential contact with surfaces that may be contaminated.

It is essential to avoid risky activities during this time. The riskiest activity appears to be those that involve large groups that together for social contact such as bars, clubs, and parties. It would be advisable for you to clearly research any activities that you are thinking about engaging in to determine the level of risk that would be involved. The Centers for Disease Control and other organizations such as the National Institutes of Health or excellent resources from which to obtain information.

So again, if we do not learn from this crisis how to operate better we will have surely missed an opportunity. From improving in deprescribing to reducing social isolation to supporting our staff and residents there is much that we can apply from this crisis so we are

ready not only for the next crisis but in caring for our LTC patients on a daily basis.

Declaration of Competing Interest

Authors have no conflicts of interest with regard the content presented in this article.

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