American healthcare systems are overwhelmed due to the ongoing COVID-19 pandemic. Providers are managing respiratory infectious disease on a mass scale, testing their ability and agility. Remote patient monitoring and telemedicine are designed to enable healthcare systems to provide critical evaluation and care to patients outside conventional clinical settings. These methods allow patients to be monitored from afar throughout the care continuum, helping to improve outcomes while limiting the spread of respiratory infectious disease.¹

**MONITORING DURING SUSPECTED EXPOSURE**

Remote patient monitoring technology gathers data by routinely engaging patients in symptom and vital sign tracking from the comfort of their home. This data provides essential insights into a patient’s health and allows for prompt identification of trends that may enable earlier intervention by providers. The ability to act fast is key for managing respiratory infectious disease, especially in vulnerable populations.²

Patients with high-risk chronic conditions are more likely to experience poor outcomes if they contract COVID-19.³ These populations include people with significant obesity, cardiopulmonary problems, diabetes, and are age 65 or older, to name a few. Immunocompromised populations also face significant risk, such as patients going through cancer treatment, those with chronic conditions like lung disease, or people on certain medications.³

We already know that 31.5% of the U.S. population has multiple chronic conditions that account for 71% of healthcare spending.⁴ When you add respiratory infectious disease like COVID-19 as a variable, caring for these patients safely and efficiently in a cost-effective manner becomes even more complex.⁵

For these vulnerable groups, respiratory infectious disease may also trigger tremendous anxiety.⁶ Leaving the house for any reason may increase their potential of getting COVID-19. In-person provider visits for minor issues can often be eliminated with remote patient monitoring and telemedicine. Remote patient monitoring is an alternative designed to monitor a patient’s existing conditions while flagging key characteristics of respiratory illness so they can shelter in place safely.

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**By streamlining the evaluation process, remote patient monitoring can help keep patients out of hospitals**

With remote patient monitoring, providers can extend their reach into the outpatient world to communicate with patients in an effective, educational manner. Patients are informed of monitoring parameters for their unique needs, the symptoms being observed, and proper steps to take should a health event occur. This closes the loop by informing and empowering the individual in their healthcare journey.

By streamlining the evaluation process, remote patient monitoring can help keep patients out of hospitals that don’t need to be there, helping to reduce the burden to overwhelmed systems while also slowing the potential spread of a highly contagious disease.⁷

**DURING DIAGNOSIS AND ACTIVE INFECTION**

In addition to COVID-19, fall and winter are challenging to providers who must also screen for influenza A and B, as well as other viruses that flourish during these seasons in the Northern Hemisphere. Because many viral respiratory illnesses have similar symptoms, remote patient monitoring flags condition changes and a patient can seek provider guidance on next steps to determine if a specific infection exists.
If determined to be COVID-19 or another illness, providers can then decide appropriate next steps. Some patients may require hospitalization while others can quarantine at home and receive care remotely from their provider. Remote patient monitoring is ideal for those recovering at home, allowing providers a frequent connection to the patient’s condition.

One aspect of remote patient monitoring is its ability to be tailored to the patient’s needs, so system parameters and associated alerts are customized. Therefore, an 80-year-old with heart failure will have different parameters than a healthy 50-year-old, giving an advantage to providers who can now offer more personalized experiences.

Remote patient monitoring provides regular data updates, so when a patient shows signs of decline, providers receive timely alerts so they may intervene as quickly as possible. Depending on the situation, they may provide a telemedicine consult or conduct a home visit. For urgent situations, a patient may need to visit the clinic or go to the emergency room.

**RECOVERY AND SECONDARY-INFECTION CONCERNS**

After an infection, close monitoring may be essential to ensure symptoms don’t return and the virus hasn’t put too much strain on other patient-specific conditions. Secondary infections are a notable concern during the COVID-19 recovery phase.

Typically, with COVID-19 and influenza A and B, the illness course includes one to two weeks of infection before the patient feels better. For some, this is the end of the illness. Others may start to feel better, but then develop symptoms like fever, cough, or significant fatigue again. These are common signs of what is often a secondary bacterial infection.

Secondary infections are associated with worse outcomes and even death, especially for vulnerable populations. Studies show bacterial co/secondary infection of influenza occurs in 11% to 35% of cases. While COVID-19 co/secondary infection data continues to emerge, initial rates are significant. In a multicenter study, patients were divided into three groups: moderately ill, severely ill, and critically ill. Critically ill patients had the highest rate of bacterial coinfection (34.5%) compared to moderately ill and severely ill groups (3.9% and 8.3%).

Remote patient monitoring can help track symptoms of secondary infections so appropriate intervention can occur as soon as possible. With routine patient use, remote patient monitoring provides data to providers who can see trend departures and if appropriate take immediate action.

**THE POTENTIAL OF REMOTE PATIENT MONITORING**

Remote patient monitoring has incredible potential when managing respiratory infectious disease and can be tailored to whatever phase of illness the patient is in, from asymptomatic early exposure to advanced stages and secondary infections. This can further be customized based on a patient’s unique considerations, providing focused insight into a patient’s health at any given time.

Medtronic Care Management Services offers remote patient monitoring solutions, with the scale and scope to meet the needs of individual patients and patient groups. We work with providers to understand specific practice requirements and offer platforms that can be modified to maximize remote monitoring potential in an ever-evolving healthcare landscape.

**ABOUT THE AUTHOR**

Author Samuel Ajizian, M.D., FAAP, FCCM, CPPS is a board-certified Pediatric Intensivist with more than 20 years of clinical practice in the Pediatric ICU. He received his medical degree from the University of Southern California and completed pediatric residency and Chief Residency at Children’s Hospital Los Angeles. He then entered the U.S. Air Force and served 3 years on active duty as a pediatrician and Flight Surgeon in an F-16 squadron. He then completed pediatric critical care fellowship at Le Bonheur Children’s Hospital, University of Tennessee.

Dr. Ajizian joined Medtronic in 2015 in his first role as Vice President, Medical Affairs for the Patient Monitoring and Recovery business unit. In 2018, he assumed direction of the MITG Medical Safety Office. Dr. Ajizian then became interim director of the MITG Scientific Communications team, where he oversaw the production of key compliance-related deliverables including Clinical Evaluation Reports. He also serves as the Chief Medical Officer for Medtronic Care Management Services.

In 2020, Dr. Ajizian assumed the roles of Chief Medical Officer of Patient Monitoring and Vice President of Global Clinical Research and Medical Science: Patient Monitoring and Respiratory Innovations at Medtronic.
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