

How COVID-19 Is Changing Skin: Post-Acute Care Wound Experts From Across the United States Speak Out

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The United States continues to face the coronavirus disease 2019 (COVID-19) pandemic, with infection and fatality rates increasing, an economic crisis looming, and confronting racial inequities becoming essential. In this article, wound experts weigh in on the significant impact to skin that is looming just under the national headlines.

COVID-19 has created the perfect storm for skin and wound issues. Wound specialists working with the adverse effects created by COVID-19 also recognize how darker skin is and always has been at higher risk for underrecognized skin and wound impairments.¹ Despite the global challenges presented by COVID-19, there is some light at the end of this tunnel, as human resilience and innovation bring new practices and technologies that may leave us in a better situation after the pandemic has passed.

CONFINEMENT AND ISOLATION

To prevent the spread of COVID-19, the Centers for Disease Control (CDC) and the Center for Medicare and Medicaid Services (CMS) provided guidance and regulation to isolate those living in nursing homes, while individual US states provided guidelines for those at home to self-isolate.² Many outpatient clinics shut their doors to routine visits. In skilled nursing facilities, this meant

“shelter in place” with no visitors, no social dining, no communal recreation, and trips out of the facility limited to time-sensitive, medically necessary care. Most residents were restricted to their rooms. As a result, residents were significantly less mobile. Lack of movement or mobility is the number one risk factor for pressure injury (PI) development. In addition, lack of mobility contributes to the loss of musculoskeletal strength. This creates the potential for a higher risk of not only falls, but falls with an injury. Furthermore, the loss of respiratory reserve creates a higher risk of pneumonia and other respiratory conditions,³ which could no doubt include the increased risk of COVID-19.

Although guidance from the CDC and CMS is grounded in the best available evidence with the intention to protect vulnerable populations, it is likely that there will be unintended consequences of these guidelines.

ACTIVE COVID-19 INCREASES PI RISK

COVID-19 continues to spread as the health care community scrambles to institute complex guidelines to keep staff and residents safe, while simultaneously searching for enough personal protective equipment (PPE). Patients with COVID-19 are at high risk for both morbidity and mortality.⁴ The health

care community focuses on maintaining lung health with ventilators and proning, while trying to mitigate the inflammatory response to the virus with medications such as steroids. Also, there are unusual coagulopathy aspects of the disease that may require treatment with blood thinners.

Sadly, the real dynamics of a systemic virus that affects oxygen perfusion in combination with the vascular system can devastate the skin and may increase the rate of PI formation. To add insult to injury, the very treatments attempting to mediate the conditions of COVID-19 may add to PI risk and non-healing.

This expert wound group concedes that the rates and severity of PIs are likely to increase and that there is potential for rapid evolution of deep tissue injury in those with active COVID-19.⁴⁻⁶ Wound goals for those with symptomatic, active COVID-19 are simply maintenance and comfort until the basics of homeostasis are restored. The concept of wound “maintenance” needs to be explained carefully to the resident and family, who may not understand that this virus can impede wound healing. These are difficult conversations that need to be navigated with compassion, as many are already overwhelmed with their loved one struggling with COVID-19.

ACTIVE COVID-19, PRONING, AND MEDICAL DEVICE PI

Proning, a treatment regimen intended to improve airway perfusion for patients with active COVID-19, should raise a red flag to every wound specialist. As the National Pressure Injury Advisory Panel (NPIAP) details in their COVID-19 resources,⁷ proning increases the risk for PIs in new areas, such as the anterior surface of the body. As wound specialists, we need to ensure that everyone is aware of the need to fully observe all skin areas for PIs. This is a shift in the mindset from before COVID-19. Prior to COVID-19, when a patient or resident was newly admitted to a skilled nursing center with a purple mark on the chin, face, or anywhere on the anterior body surface, the mark would have likely been thought to be unrelated to a pressure injury. Previously a new, purple mark on the chin or face may have been thought to be a bruise. Now, health care providers need to inquire about COVID-19 treatments such as proning, which could be the root cause of a PI.

COVID-19 AND MEDICAL DEVICE PI

COVID-19 interventions may include ventilators, supplemental oxygen, and other life-saving measures, all of which can have the unintended consequence of pressure on the skin. The NPIAP has excellent resources, including a free poster, to highlight medical device PIs. During the COVID-19 pandemic, wound specialists agree that there is a higher risk of these types of PIs.^{8,9} Raising awareness and increasing skin checks can help to prevent and best manage these types of PIs.

COVID-19 AND WEIGHT LOSS

COVID-19, like any active viral infection, can impair appetite. A unique symptom of COVID-19 is the loss of smell and taste, both instrumental senses in appetite stimulation. Further, the systemic reaction of fever, increased heart rate, decreased oxygen perfusion, and subsequent increased respiratory rate all require energy. This energy requires a higher-than-average nutritional demand

that is unlikely to be met during active COVID-19 infection. Ultimately, this is a recipe for weight loss, fatigue, and muscle wasting. It may also set the stage for PI development and non-healing of any existing wounds.

COVID-19 SKIN

The media has covered a litany of COVID-19-related issues, including the infamous COVID skin. This is thought to be a result of cytokine storm, perhaps associated with the virus's coagulatory nature and/or damage to the endothelial cells.^{10,11} It may present as a rash, discolored skin, or open wound.¹² It may appear as an early symptom in the young, or a late COVID-19 outcome in the old. It may be on the chest, back, hands, or toes. Regardless of the pathophysiology, it seems logical that COVID-19-related skin issues are possible, so much so that the NPIAP has endorsed the American Academy of Dermatology's global registry for collecting data on these skin manifestations.⁷ The American Academy of Dermatology also has instituted a COVID-19 dermatology registry.¹³

COVID-19, PRESSURE, AND DARKLY PIGMENTED SKIN

As wound specialists, we know that PIs are often missed in those with darkly pigmented skin. We know that too often these wounds are not recognized until later stages, which means higher morbidity and mortality rates. We also know that few of us were ever taught in school how to assess dark skin. As the country becomes more mindful of racial inequities, wound specialists can do our part by raising awareness of the inequities in education about skin tones that result in disproportionate PI rates.

COVID-19 AND PPE SKIN ISSUES

COVID-19 has also resulted in skin issues for staff members. Wound specialists are now being asked PI questions beyond resident and patient needs. Now that all staff utilize PPE, wound specialists can help by providing evidence-based interventions to reduce PPE PIs and reduce PPE-related moisture-associated dermatitis (MASD).

THE SILVER LINING

All wound specialists can now easily help anyone understand the cause of skin breakdown by reflecting on PPE experiences during the COVID-19 pandemic. Key questions a wound specialist can ask anyone include the following: Remember how your skin felt under your mask? The moisture? The heat? The rash? Remember the pain you felt on the bridge of your nose or the back of your ears from pressure? Thanks to COVID-19, the "how" of PIs and MASD will be well understood by all of us who wore PPE.

As mentioned above, national attention and awareness of racial inequities has highlighted another impact on the skin. This is an opportunity for every wound specialist to raise awareness of the inequities in wound education, the disparities of risk factors that impact minorities, and the need for inter-professional skin integrity curriculums to address all skin tones. This is a call to action for each of us in our own areas of expertise to give voice to needed and overdue changes to improve skin integrity for everyone.

The COVID-19 pandemic has expedited the incorporation of technology into practice. Caregivers, care-receivers, employers, staff, families, regulators, and payers have all implemented certain practices such as Telehealth and TeleWounds. For many, photography and video brought a true "picture" to wound assessment and a team approach to the bedside, while minimizing resident exposure and conserving PPE. This also allowed access to a specialist when needed, especially when an in-person visit was not an option. Whether Telehealth is working in all areas is yet to be determined, but it may be a cost-effective way to improve wound care in any outbreak.

Finally, COVID-19 did something amazing for long-term care; it brought the team together and created an environment in which consistent staffing was required. A team approach and consistent staffing had been an aspiration that many had been trying to implement for years, and COVID-19 made it happen in

weeks. Although no one is giving thanks for the pandemic, there are indeed some positive outcomes that have occurred because of the resiliency of mere humans to collaborate as well as the strength of our health care teams, our communities, and our country. COVID-19 has shown us that we can work together, leverage innovation, and be nimble; it has also shown that we really, really care. This brings to mind the old adage, “You cannot control what happens, but you can control your response.”

Despite overwhelming social issues, education gaps, and a global pandemic, the post-acute industry has responded, and continues to respond, with an enduring compassion. As an inter-professional group of wound experts, we are actively collaborating on a white paper that will address the issues discussed in this Guest Editorial to further increase the awareness of emerging research and practice recommendations. We could not be prouder to serve the post-acute care community, encompassing all those who live in this setting, all those who work in it, and all those who support it.



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