



COVID-19 Impact: Skin Manifestation

This meeting will be recorded and will be available at www.fmda.org/journalclub.php



FMDA Journal Club

January 27, 2021

Pamela Scarborough, PT, DPT, CWS, FAAWC – Special Guest

Diane Sanders-Cepeda, DO, CMD – Host

Pamela Scarborough

PT, DPT, CWS, FAAWC

Vice President of Clinical Affairs, American Medical
Technologies



COVID-19 Impact: Skin Manifestations

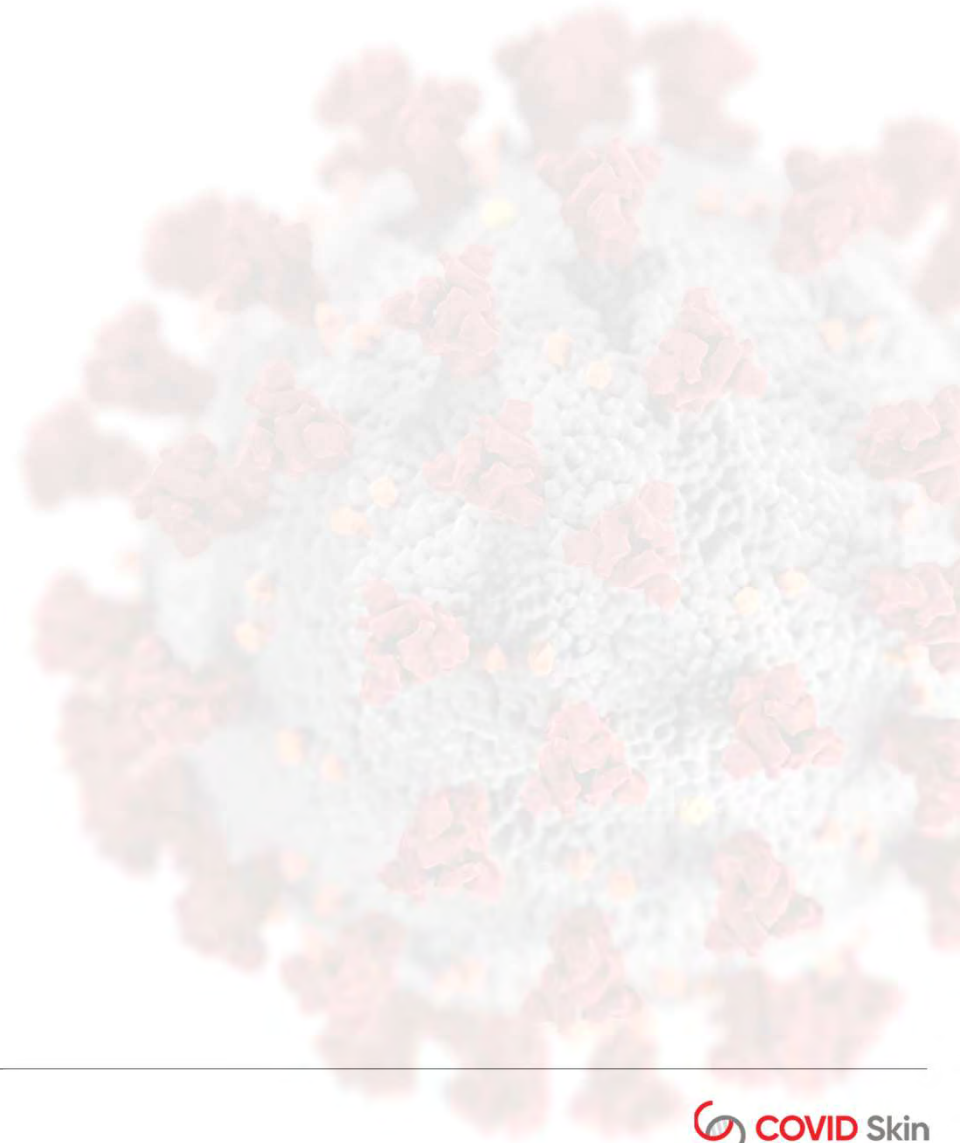
FACULTY:

Pamela Scarborough

PT, DPT, MS, CWS, FAAWC

Vice President of Clinical Affairs

American Medical Technologies



Disclaimer

This information is provided for informational purposes only. Patient management decisions should be based on a number of factors, including (but not limited to) professional society guidelines and published clinical literature relevant to a patient's condition. Providers are encouraged to rely on their training and expertise, as well as any and all available information, prior to making management or treatment decisions for any individual patient.

Objectives

Our learning objectives for this session will be:

1. Call for action for specific COVID-19 skin related education;
 2. Propagate awareness of COVID-19 skin manifestations in the medical and lay communities;
 3. ICD-10 code for COVID-19 skin manifestations for proper reporting to CMS;
 4. Collect meaningful numbers of specific skin manifestations of silent COVID-19 from the long-term care setting.
-

Challenges for LTC Providers

Long term care providers have faced unprecedented challenges during the COVID-19 pandemic while protecting their residents, who are especially vulnerable to COVID-19 due to advanced age, underlying medical conditions, and communal living arrangements.

Florida Health Care Association Communications: January 14, 2021

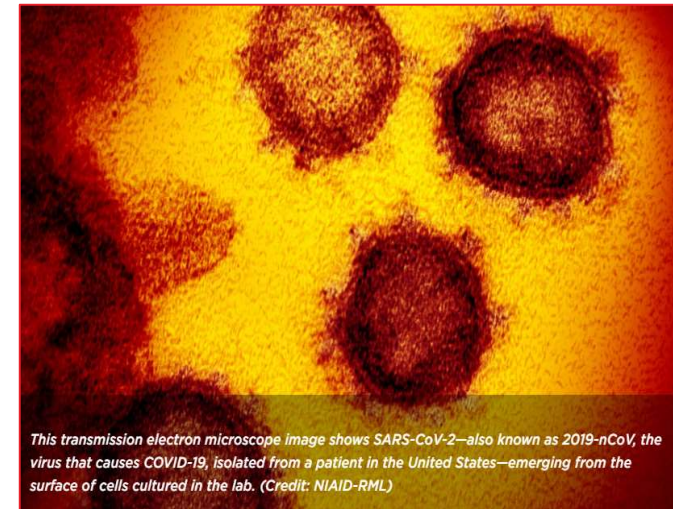
COVID-19

The Disease & Symptoms



SARS-CoV-2 = COVID-19 Epidemic

- Coronavirus
 - Type of common virus that causes infections in the nose, sinuses and upper throat
 - Most are not dangerous
- COVID-19 pandemic caused by SARS-CoV-2—new type of coronavirus
 - Primarily triggers respiratory tract infections
 - Affects upper or lower respiratory tracts
 - Spreads same way other coronaviruses do
 - Mainly through person-to-person contact
 - Infections range from mild to deadly



Cytokine Storm & COVID-19



- Cytokines are part of the immune system
 - Immune system gone wrong
 - Causes immune activity to become overactive
 - Can't stop itself
 - Immune cells spread beyond infected body parts
 - Attacks healthy tissues
 - Causes blood clots-inflammatory response
 - Coagulopathy
 - Creates decreased blood flow to organs
 - Skin is an organ too, blood flow to skin diminished
 - Skin changes
-

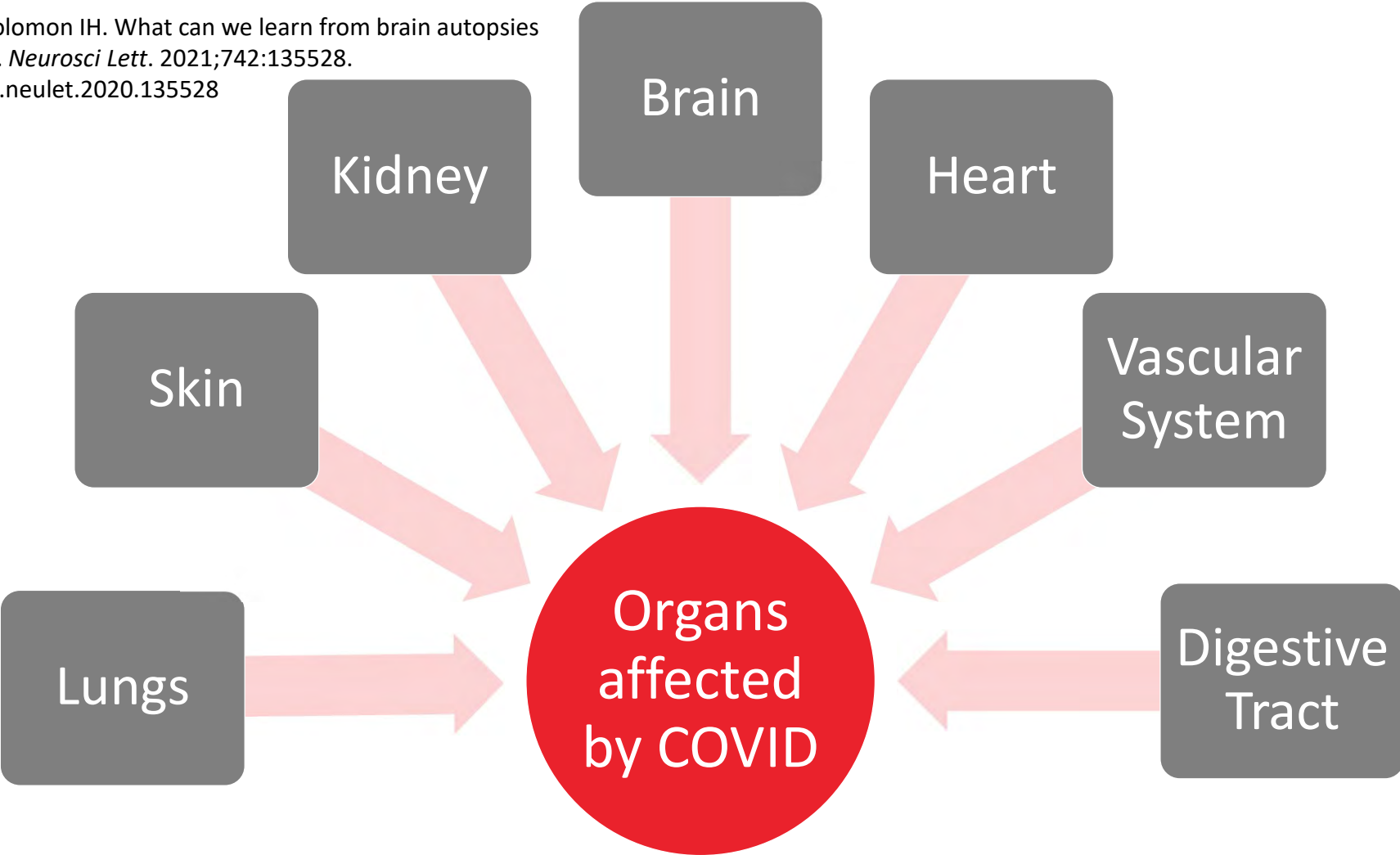
Main Symptoms of COVID-19

- Fever (low or high)
- Coughing
- Shortness of breath
- Trouble breathing
- Fatigue
- Chills
- Body/muscle aches
- Headache
- Sore throat
- Loss of smell or taste
- Nausea
- Diarrhea



Silent symptoms of COVID-19 include skin and mucosal manifestations

Mukerji SS, Solomon IH. What can we learn from brain autopsies in COVID-19?. *Neurosci Lett.* 2021;742:135528. doi:10.1016/j.neulet.2020.135528



Skin Rashes Predictive Symptom of COVID-19

- Coronavirus mainly targets lungs
- Affects other organs:
 - Heart
 - Kidneys
 - Brain
- Skin manifestations slower to be reported
 - Potentially because skin changes less pressing issue
- Virus causes wide variety of skin symptoms
- These skin changes may have diagnostic value for SARS-CoV-2 infections
- New study from Cleveland Clinic states that skin rash is predictive symptom of COVID-19 infection

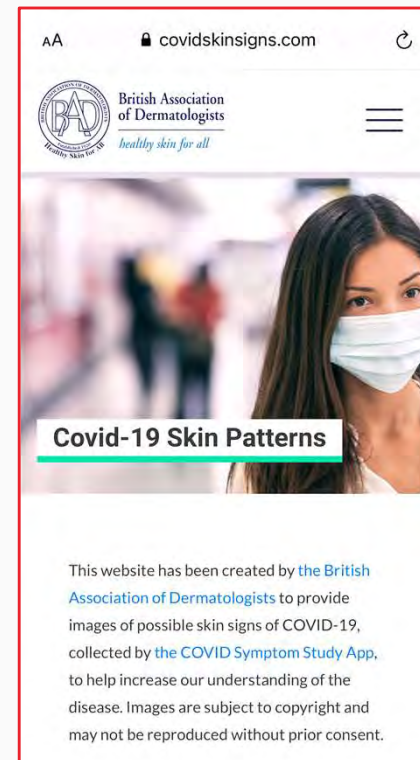
In **nine percent** of cases, dermatologists identified outbreaks of small blisters, commonly itchy, that appeared on the trunk of the body



Bataille V, Visconti A, Rossi N, Murray B et. al. Diagnostic value of skin manifestations of SARS-CoV-2 infection. Young S, Fernandez AP. Skin manifestations of COVID-19. In COVID-19 Curbside Consultants. Cleveland Clinic. Posted May 7, 2020.

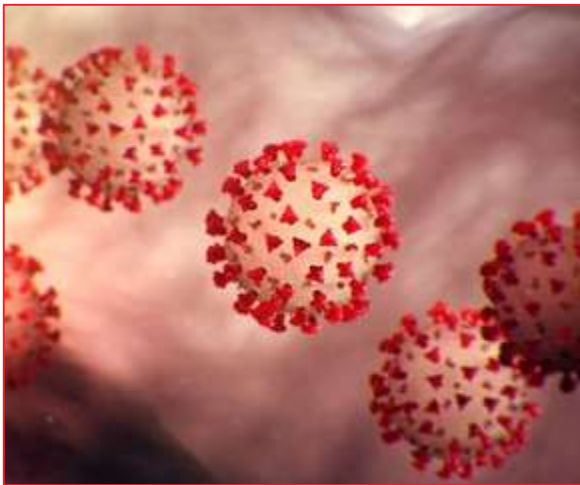
What is the Diagnostic Value of New Skin Rashes in SARS-CoV-2 Infection?

- Community-based, observational study. 336,847 UK users of the COVID Symptom Study app
- **Results:**
 - 8.8% positive SARS-CoV-2 viral swab, reported a skin eruption
- **Skin symptoms first:** 15% – 17%
- **Skin symptoms during illness:** 47%
- **Skin symptoms after illness:** 35% – 39%
- **Skin symptoms only:** 21%
- This site has a large library of high-quality manually curated photos, available at: <https://covidskinsigns.com>



Attribution:
Chelsea Kelly, MSN, FNP-C

True Incidence of COVID-19 Related Skin Injuries Currently Unknown



- Research in these skin manifestations is now getting significant attention due to the number of skin disruptions appearing in all ages, from young to elderly
- Many of the skin changes mimic known dermatological disorders including pressure injuries and arterial insufficiency wounds

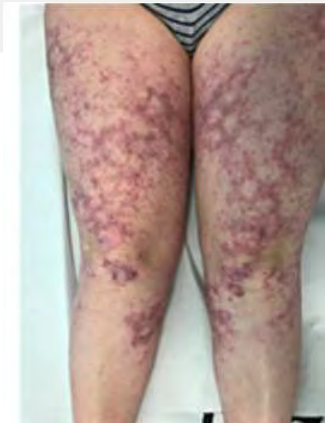
Different skin manifestations associated with COVID-19

Young S, Fernandez AP. Skin manifestations of COVID-19. In COVID-19 Curbside Consultants. Cleveland Clinic. Posted May 7, 2020.

- Morbilliform (measles-like)
- Urticarial (hives)
- Vesicular eruptions (small blisters)
- Acral lesions (“COVID toes”)
- Livedoid eruptions (necrotic lesions)

COVID-19 Cutaneous Manifestations

Spanish report¹ categorized skin findings in 375 patients with suspected and confirmed COVID-19, including livedoid and necrotic eruptions, which were noted in patients with more severe disease. The authors suggested that these skin manifestations may be associated with occlusive vascular disease.



Livedoid Eruptions



Necrotic Eruptions



¹ Galván Casas, C., Catala, A. C. H. G., Carretero Hernández, G., Rodríguez-Jiménez, P., Fernández-Nieto, D., Rodríguez-Villa Lario, A., ... & García-Gavín, J. (2020). Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases. *British Journal of Dermatology*, 183(1), 71-77.

Chilblain-Like Symptoms (COVID Toes)



Older Toes

Younger Toes

- Acral lesions
- Affect hands and/or feet
- Red-purple discolored skin can be painful and itchy
- Sometimes small blisters or pustules
- More often seen in children and young adults
- But have also been reported, though less frequently in older adults
- Believed to be the result of hypercoagulation

DTI, KTU/Skin Failure, or COVID Associate Skin Damage?



Deep Tissue Injury

- From bone out to skin surface
- Pressure injury
- Preventable?
- Unavoidable???



Kennedy Terminal Ulcer/Skin Failure

- Dying process
- Unable to prevent



COVID Skin Damage

- Superficial
- Blood vessels to skin inflamed and damage

Mucosal Manifestations

COVID-19 Mouth

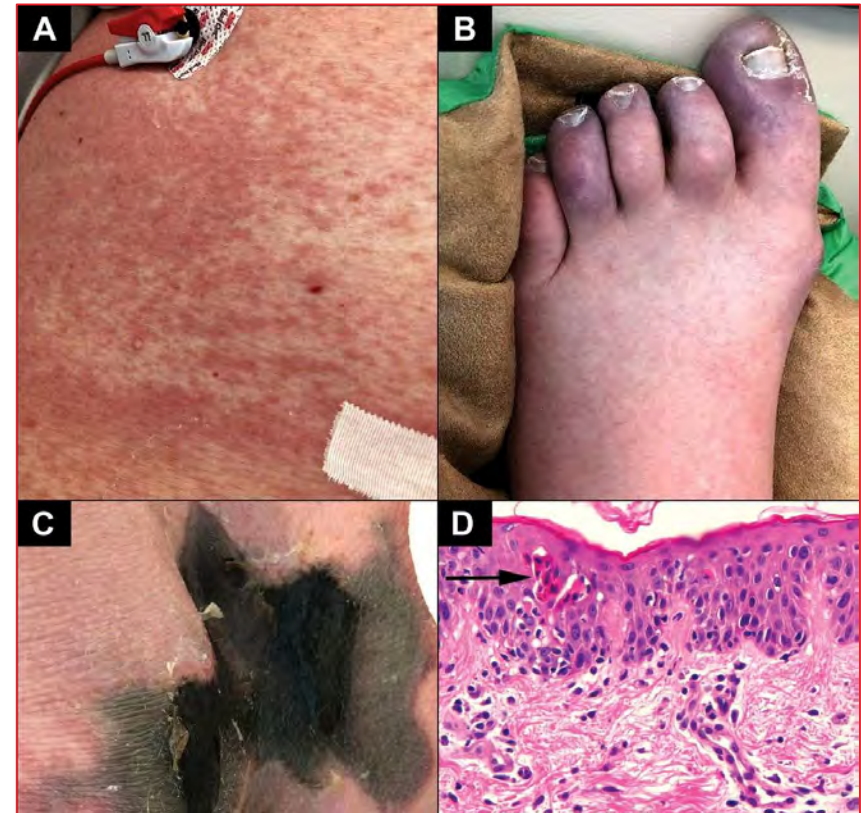
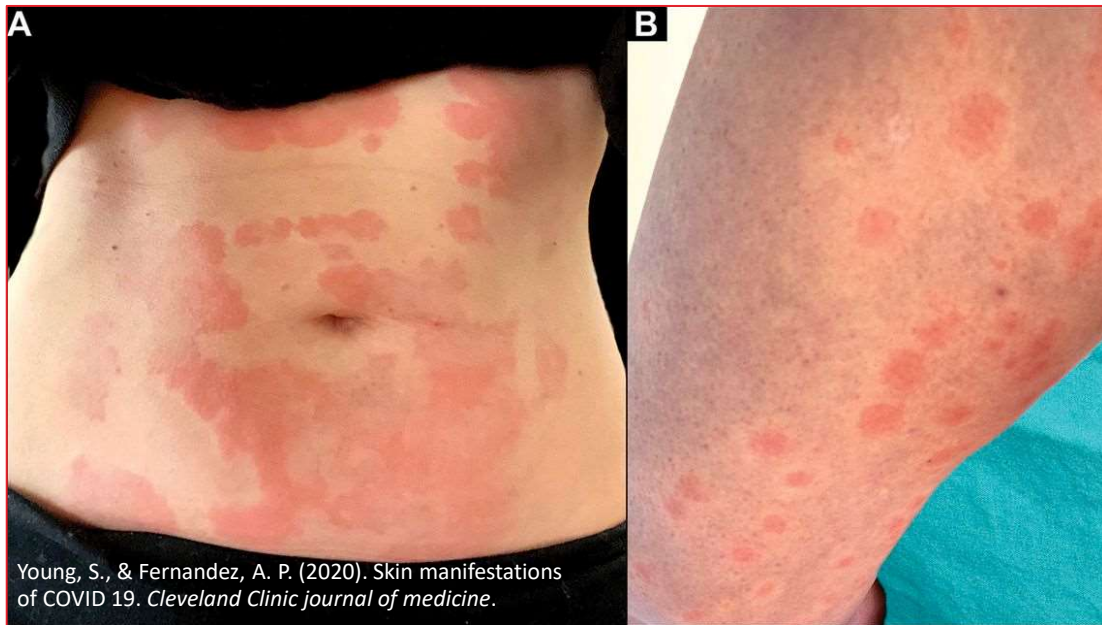


COVID-19 Eye



Juliana Amorim dos Santos, Ana Gabriela Costa Normando, Rainier Luiz Carvalho da Silva, Renata Monteiro De Paula, Allan Christian Cembranel, Alan Roger Santos-Silva, Eliete Neves Silva Guerra, Oral mucosal lesions in a COVID-19 patient: New signs or secondary manifestations? *International Journal of Infectious Diseases*, Volume 97, 2020, Pages 326-328, ISSN 1201-9712.

COVID-19 Cutaneous Manifestations



Challenges in Delivering Care for Wound Patients

The COVID-19 pandemic poses major challenges in delivering care to wound patients. Due to multiple comorbidities, wound patients are at an increased risk for the most extreme complications of COVID-19 and providers must focus on reducing their exposure risk.

Wound Center Without Walls: The New Model of Providing Care During the COVID-19 Pandemic

L. Rogers, D. Armstrong et. al., July 2020, Issue: Volume 32 - Issue 7 - July 2020, ISSN: 1044-7946, Index: Wounds 2020;32(7):178-185.

Challenges in Delivering Care for Wound Patients

Evidence-based standards of pressure injury prevention have not changed. However, we reasonably anticipate that unavoidable pressure injury rates may increase during the COVID-19 crisis.

Janet Cuddigan, PhD, RN, FAAN Professor, University of Nebraska Medical Center President, National Pressure Injury Advisory Panel April 2, 2020

Does COVID-19 Cause Unavoidable PIs?

- Definitions of avoidable and unavoidable pressure ulcers originated from The Centers for Medicaid and Medicare Services (CMS) as part of its inspection process for long-term care facilities
- Inspection known in the LTC industry as the survey process
- Facility acquired avoidable pressure ulcer/injury becomes a quality issue
- In general pressure injuries are avoidable
- However, CMS recognizes, in LTC, that not all pressure ulcer/injuries are avoidable
- Resident's high acuity or deteriorating clinical condition
- Example: resident on hospice and in the dying process

NPIAP Statement

Any determination of unavoidability requires an honest and thorough review of the documentation, the appropriateness and the adequacy of the evidence-based preventive measures that were implemented.

Avoidable & Unavoidable PIs in the LTC Setting per CMS

Avoidable Pressure Ulcer/Injury

Resident developed a pressure ulcer/injury and that the facility did not do one or more of the following:

- Evaluate the resident's clinical condition and risk factors;
- Define and implement interventions that are consistent with resident needs, resident goals, and professional standards of practice;
- Monitor and evaluate the impact of the interventions; or revise the interventions as appropriate.

Unavoidable Pressure Ulcer/Injury

Resident developed a pressure ulcer/injury even though the facility:

- Evaluated the resident's clinical condition and risk factors;
- Defined and implemented interventions that are consistent with resident needs, goals, and professional standards of practice;
- Monitored and evaluated the impact of the interventions; and revised the approaches as appropriate.

NPIAP:

Intrinsic Factors

Please ensure your facilities are aware of and have processes in place to watch for and report these skin manifestations to you for differential diagnosis opportunities. Is this a pressure injury or COVID skin manifestation???

- Virus creates a systemic coagulopathy
- Hypercoagulation and microvascular occlusion
- Ischemic stroke, myocardial infarction, venous thromboembolism, acute limb ischemia and pulmonary embolism.
- Overall mechanism of hypercoagulable state still not completely understood, it does involve the skin.
- Skin changes appear purpuric and quickly become necrotic
- Mimic appearance of deep tissue pressure injury (DTPI)
- If the vessels are significantly or fully occluded, then adequate reperfusion is not achievable even in the presence of reasonable repositioning and turning of the patient and the use of appropriate support surfaces.

- *“The unique complexities of the COVID-19 patient, combined with the rapid volume of their admissions outpacing the available critical care support surfaces, places the COVID-19 patient at heightened risk for the development of unavoidable pressure injury.”*
- **Unavoidable criteria related to LTC**
 - Four constructs mentioned in F686
 1. Assessment
 2. Interventions – standards of care
 3. Monitored the interventions
 4. Revised interventions

NPIAP: _____

Extrinsic Factors

- NPIAP Guidance, 2020
- CMS F686-State Operations Manual

NPIAP Position Statement Review

- Avoidable vs unavoidable is case-by-case, including intrinsic issues in the critically ill patient and extrinsic issues in health care facility
- Differential diagnosis: consider skin manifestations of COVID-19 may mimic PI
- Skin discoloration or injury on non-loaded locations are likely not PI
- PI on anatomical locations under pressure and/or sheer may be unavoidable if:
 - Microvascular occlusions increase non-modifiable risk, superseding preventative interventions
 - Multiorgan dysfunction prevents normal skin resilience to injury and trauma
 - Evidenced-based preventative care limited by a healthcare system at crisis capacity

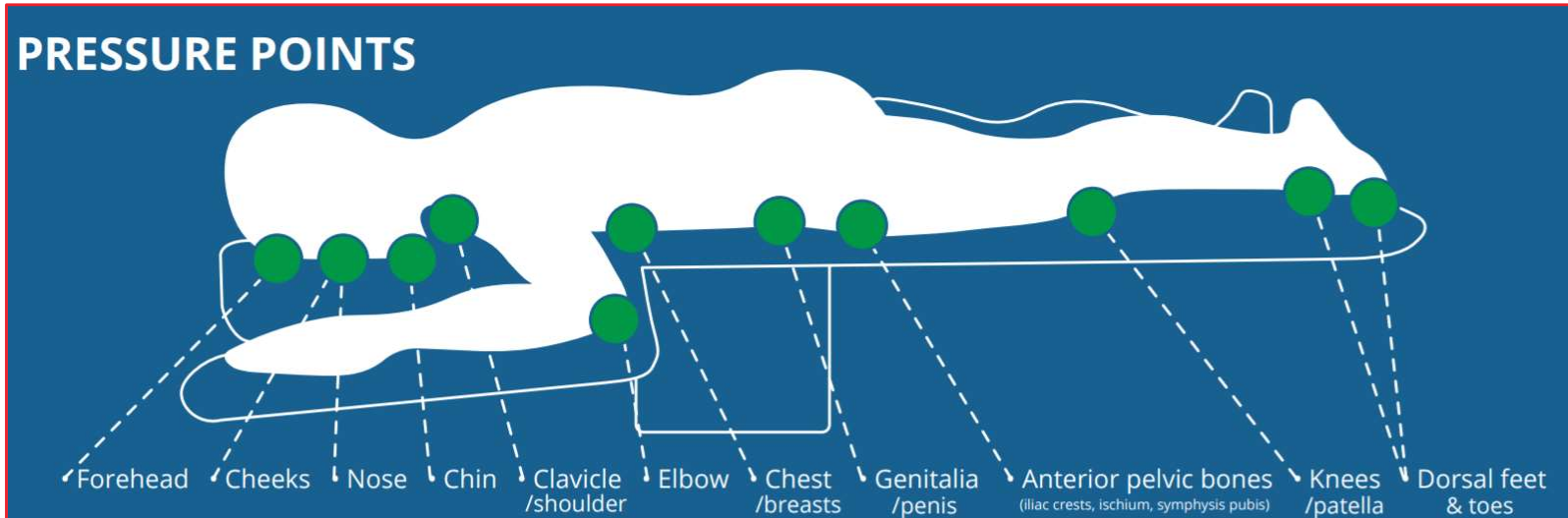
Black, J., Cuddigan, J., Capasso, V., Cox, J., Delmore, B., Munoz, N., & Pittman, J. on behalf of the National Pressure Injury Advisory Panel (2020). Unavoidable Pressure Injury during COVID-19 Crisis: A Position Paper from the National Pressure Injury Advisory Panel. Available at www.npiap.com.

Identification of POA PI Presents New Challenges in COVID-19 Patients

Was patient
proned at
hospital?

Carefully survey
anterior surfaces
on admission!

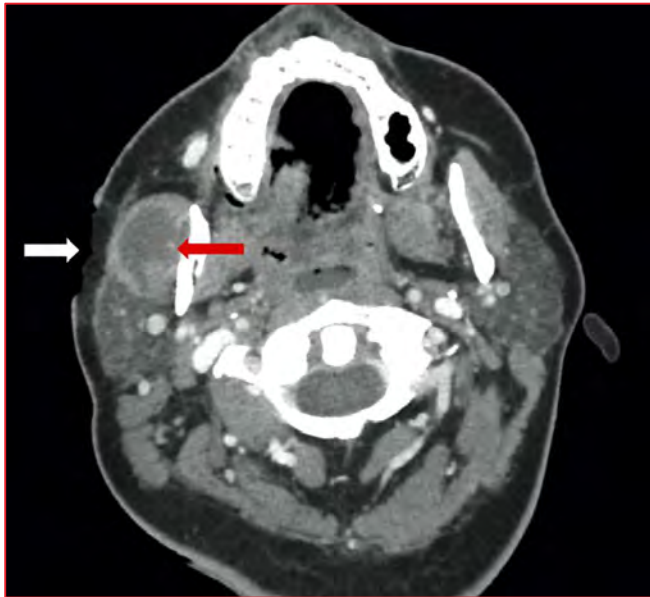
Prone Pressure Points



Residents who return to your facility, having survived COVID-19, who were prone in the ICU, will need comprehensive skin assessments on bony and non-bony prominences

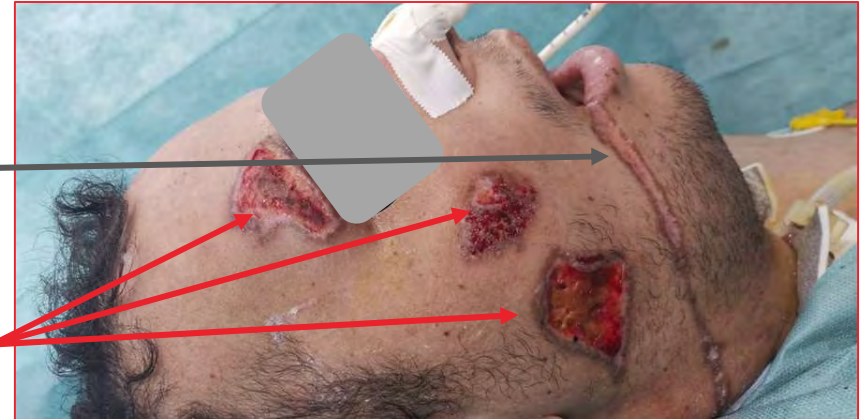
Attribution: NPIAP

Proning Injuries



Stage 2 MDRP

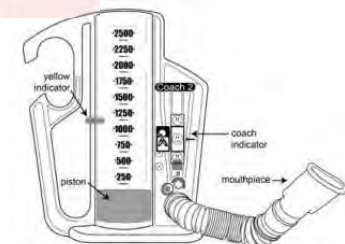
Stage 3 Proning Injuries



Perrillat, A., Foletti, J. M., Lacagne, A. S., Guyot, L., & Graillon, N. (2020). Facial pressure ulcers in COVID-19 patients undergoing prone positioning: How to prevent an underestimated epidemic?. *Journal of stomatology, oral and maxillofacial surgery*, 121(4), 442-444.

Check Oxygen Levels on Admission & With Wound Healing

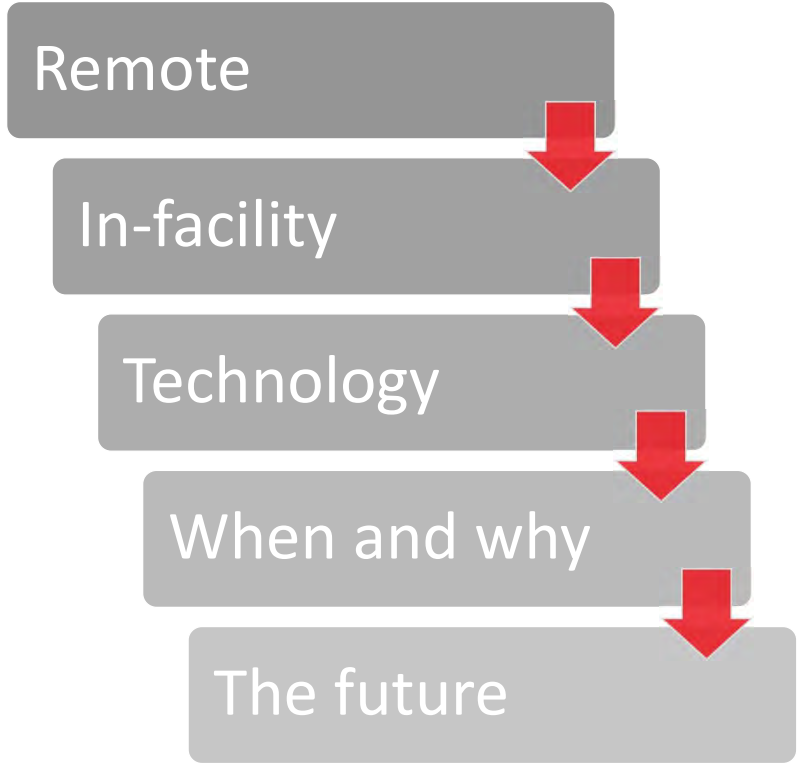
- Tip: Check systemic O₂ levels in all residents surviving COVID-19 due to **evidence of lung damage from virus**
- Diminished systemic oxygen levels put patients at risk for pressure injuries
- Diminished systemic oxygen levels delay/prevent wound closure
- People who survive COVID-19 need extra surveillance for lung functions
- Recommendations for breathing exercises and pulmonary rehabilitation after surviving COVID-19 from major medical institutions
- Note: Ambulating pulse ox should not drop more than 3% of resting pulse ox
- Physicians are recommending pulse ox be done 1-2X/day in all LTC facilities for early detection of COVID-19, not CDC recommendation
- If SpO₂ ≤ 90% refer for further evaluation and possible treatment



Castilla DM, Liu ZJ, Velazquez OC. Oxygen: implications for wound healing. *Adv Wound Care* (New Rochelle) 2012;1(6):225–230. doi: 10.1089/wound.2011.0319. [[PMC free article](#)]

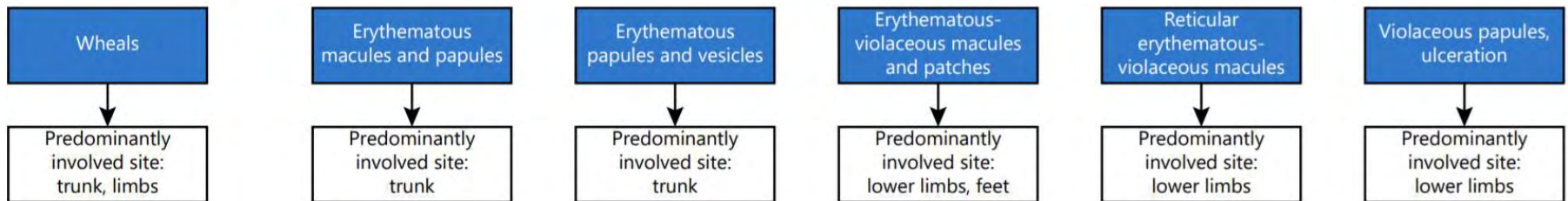
A good video on the proper use of the incentive spirometer can be found here: <https://youtu.be/O-Zawtb32o>

Telemedicine



Key Message for COVID-19 Cutaneous Manifestations

Urticarial rash	Confluent erythematous/ maculopapular/morbilliform rash	Papulovesicular exanthem	Chilblain-like acral pattern	Livedo reticularis/racemosa- like pattern	Purpuric "vasculitic" pattern
-----------------	---	--------------------------	------------------------------	--	-------------------------------



Genovese G, Moltrasio C, Berti E, Marzano A, V: Skin Manifestations Associated with COVID-19: Current Knowledge and Future Perspectives. *Dermatology* 2021;237:1-12. doi: 10.1159/000512932

What can we do about COVID Skin & Mucous Manifestations in our buildings?

- Make sure all facility teams, family, residents (where appropriate) know about the skin and mucous membrane COVID-19 manifestations (esp. CNAs)
- Stay abreast of NPIAP guidance related to skin and wound healing issues related to COVID-19 (e.g., DTPI, KTU, unavailability)
- Ensure thorough initial head to toe skin assessment for residents returning to your building after a stay in ICU—don't miss a POA pressure injury or MDRP
- Ensure your building is following regulatory guidance (F686) for prevention and treatment of pressure ulcer/injuries

What can we do about COVID Skin & Mucous Manifestations in our buildings?

- Create protocols for your facility for how you will handle dermatological manifestations that may be COVID related
- Use technology to optimize efficiency and safety for diagnosing silent COVID-19 dermatoses
- Be aware that low systemic oxygenation may create increased risk for PU/PIs AND impair wound healing opportunities, specifically in residents who have survived COVID-19 and continue to have low pulse ox
- Use current evidence-based wound interventions for all hard-to-heal wounds

Do We Need for SPECIFIC ICD-10 Code for COVID-Dermatological Manifestations and Skin Complications?

- ICD-10 directions guidance is to use an additional code to identify pneumonia or other manifestations.
- Instructions guide provider/practice to use U07.1 as first listed diagnosis for patient with confirmed COVID-19.
- Then, add an additional diagnosis for pneumonia or other conditions, or symptoms.
- **D68.8** is a billable ICD code used to specify a diagnosis of other specified coagulation defect. This covers COVID toes/fingers (acral lesions)
- **L99** is a billable ICD code used to specify a diagnosis of other disorders of skin and subcutaneous tissue in diseases classified elsewhere
- These instructions cover skin and maybe mucosal lesions (mouth, eyes), but not sure
- Maybe mucosal lesions are covered somewhere else in the codes.
- AMT CSC Coalition and others are trying to identify whether there should be a specific code for COVID related dermatological issues.
- We think there's a need for a Specific COVID dermatology code for **clarity related to diagnosis, documentation, appropriate coding, reporting and reimbursement**.

AMT LTC/Skilled Nursing COVID Skin & Mucous Membrane Registry

- Registry address: to be sent to you as soon as site completed
 - Unique about this registry
 - Includes the LTC/Skilled nursing care setting
 - Gathers images
 - Asks for both skin and mucous membrane manifestations
 - Identify when the manifestations take place: before, during and after COVID-19
 - Asks about dermatologic disruptions after vaccination
-

COVID-19 Dermatology Registry

- Important initiative to gain valid data has recently been created by the American Academy of Dermatology (AAD) COVID-19
- Task Force has launched an online COVID-19 dermatology registry:
www.aad.org/covidregistry
- Primary purpose is to rapidly collect the various cutaneous manifestations
- This survey is for all health care professionals taking care of:
 - COVID-19 patients who develop dermatologic manifestations, **or**
 - Dermatology patients with an existing condition who then develop COVID-19

Summary

- COVID-19 has varied clinical manifestations and targets multiple organs, including the skin and mucosa
- These manifestations present in many forms
- These cutaneous changes manifest at different stages of the disease; before, during, after
- Sometimes these skin changes appear as the first symptom of the COVID-19 and may be the only symptom
- Differentiating DTI, from KTU, from COVID-19 skin manifestation is important and can be confusing as these skin changes can have similar presentations
- Although COVID-Toes occur primarily in younger patients, there have been reports of COVID-Toes/Fingers in older individuals including LTC residents

Summary

- These skin changes can manifest due to many reasons including COVID-19, medication reactions and allergic reactions from causes other than medications (e.g., pollens, contact dermatitis, etc.)
- Access to dermatology specialists may be an important consideration for facilities when unable to determine the etiology of some of these skin rashes and mucosal manifestations
- Be vigilant for POA pressure injuries on residents who have been critically ill in the acute care hospital and have returned to your facility...the thorough head to toe, front to back skin assessment takes on a new and different meaning in this situation

References

- Dance A. What is a cytokine storm? <https://www.knowablemagazine.org/article/health-disease/2020/what-cytokine-storm>
- Mukerji SS, Solomon IH. What can we learn from brain autopsies in COVID-19?. *Neurosci Lett.* 2021;742:135528. doi:10.1016/j.neulet.2020.135528. Accessed 1/26/21
- Bataille, V., Visconti, A., Murray, B., Bournot, A., Wolf, J., Ourselin, S., ... & Falchi, M. (2020). Diagnostic value of skin manifestation of SARS-CoV-2 infection. *medRxiv*.
- Young S, Fernandez AP. Skin manifestations of COVID-19. In COVID-19 Curbside Consultants. Cleveland Clinic. Posted May 7, 2020
- Wollina U, Karadağ AS, Rowland-Payne C, Chiriac A, Lotti T. Cutaneous signs in COVID-19 patients: A review [published online ahead of print, 2020 May 10]. *Dermatol Ther.* 2020;e13549. doi:10.1111/dth.13549
- Galván Casas, C., Catala, A. C. H. G., Carretero Hernández, G., Rodríguez-Jiménez, P., Fernández-Nieto, D., Rodríguez-Villa Lario, A., ... & García-Gavín, J. (2020). Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases. *British Journal of Dermatology*, 183(1), 71-77.
- Casas G et al. Five common skin manifestations of COVID-19 identified. *Br J Dermatol* 2020; 183:71–77.

References

- Gürkan Kaya, Aysin Kaya, Jean-Hilaire Saurat, Clinical and Histopathological Features and Potential Pathological Mechanisms of Skin Lesions in COVID-19: Review of the Literature, *Dermatopathology*, 10.3390/dermatopathology7010002, 7, 1, (3-16), (2020).
- Feldman SR, Freeman EE. Coronavirus disease 2019 (COVID-19): Cutaneous manifestations and issues related to dermatologic care. <https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19-cutaneous-manifestations-and-issues-related-to-dermatologic-care> Accessed 9/18/20
- Phelan AL, Katz R, Gostin LO. The Novel Coronavirus Originating in Wuhan, China: Challenges for Global Health Governance. *JAMA* 2020; published online Jan 30. DOI:10.1001/jama.2020.1097.
- Giavedoni P, Podlipnik S, Pericàs JM, et al. Skin Manifestations in COVID-19: Prevalence and Relationship with Disease Severity. *J Clin Med*. 2020;9(10):3261. Published 2020 Oct 12. doi:10.3390/jcm9103261
- Black J and Cuddigan J. Skin manifestations with COVID-19: the purple skin and toes that you are seeing may not be deep tissue pressure injury. *WCET® Journal* 2020;40(2):18-21
- Black, J., Cuddigan, J., Capasso, V., Cox, J., Delmore, B., Munoz, N., & Pittman, J. on behalf of the National Pressure Injury Advisory Panel (2020). Unavoidable Pressure Injury during COVID-19 Crisis: A Position Paper from the National Pressure Injury Advisory Panel. Available at www.npiap.com.
- Bataille V, Visconti A, Rossi N, Murray B et. al. Diagnostic value of skin manifestations of SARS-CoV-2 infection. medRxiv 2020.07.10.20150656; doi: <https://doi.org/10.1101/2020.07.10.20150656>
- Oral mucosal lesions in a COVID-19 patient: New signs or secondary manifestations? Published by Elsevier Ltd on

behalf of International Society for Infectious Diseases

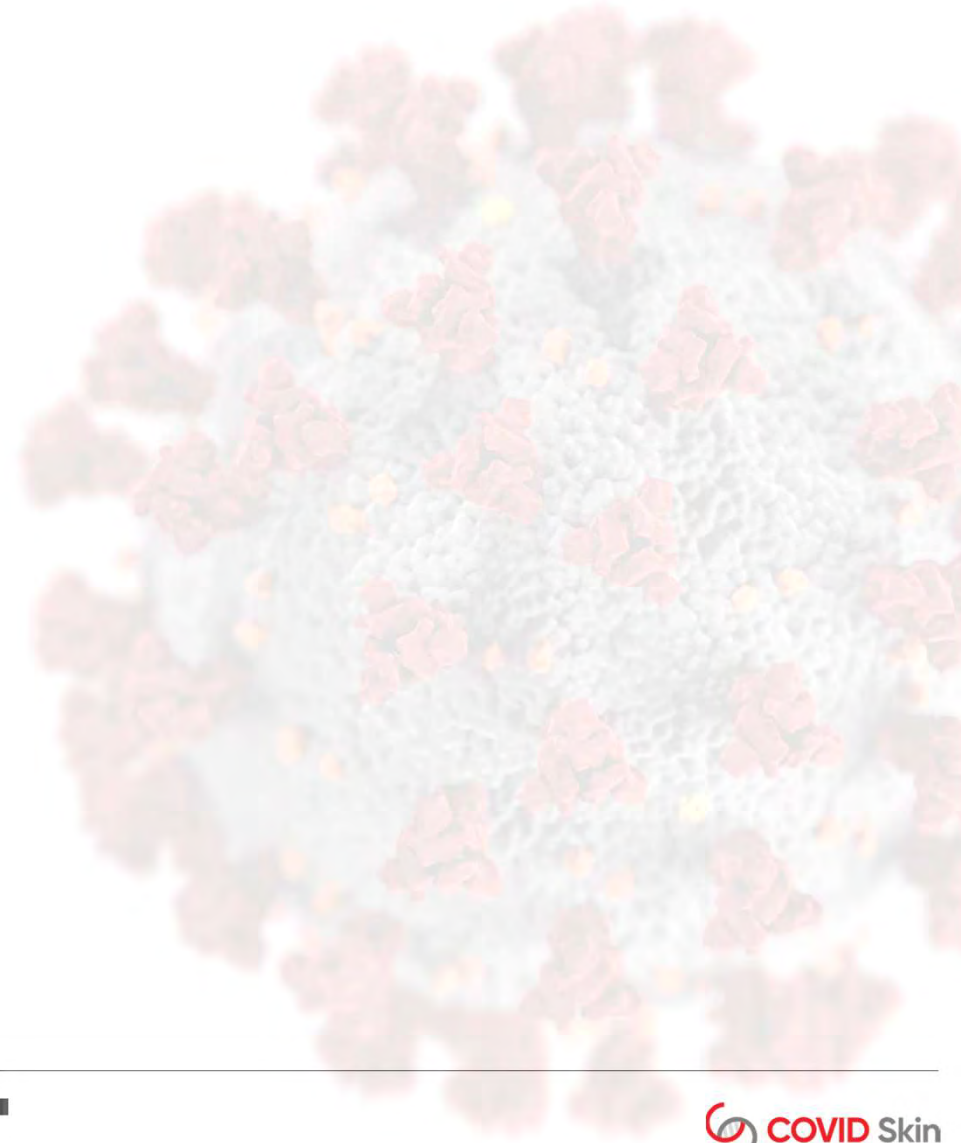
References

- Sachdeva M, Gianotti R, Shah, M, et.al. Cutaneous manifestations of COVID-19: Report of three cases and a review of literature. April 24, 2020. <https://doi.org/10.1016/j.jdermsci.2020.04.011>. Accessed 5/28
- <https://foamcast.org/2020/04/29/covid-19-cutaneous-manifestations-and-covid-toes/>. Accessed 5/28/20
- Dermatology Solutions: Emerging Skin Manifestations of COVID-19. <https://www.dermolutionstx.com/covid>. Accessed 5/28/20
- Marzano AV, Cassano N, Genovese G, Moltrasio C, Vena GA. Cutaneous manifestations in patients with COVID-19: A preliminary review of an emerging issue. Br J Dermatol 2020; published online June 1. DOI:10.1111/bjd.19264.
- Juliana Amorim dos Santos, Ana Gabriela Costa Normando, Rainier Luiz Carvalho da Silva, Renata Monteiro De Paula, Allan Christian Cembranel, Alan Roger Santos-Silva, Eliete Neves Silva Guerra. Oral mucosal lesions in a COVID-19 patient: New signs or secondary manifestations? International Journal of Infectious Diseases, Volume 97, 2020, Pages 326-328. Accessed 1/26/21
- Drew DA, Nguyen LH, Steves CJ, et al. Rapid implementation of mobile technology for real-time epidemiology of COVID-19. Science 2020; 368: 1362–7.
- Genovese G, Moltrasio C, Berti E, Marzano A, V: Skin Manifestations Associated with COVID-19: Current Knowledge and Future Perspectives. Dermatology 2021;237:1-12. doi: 10.1159/000512932. Accessed 1/26/21



Thank You!

QUESTIONS?





Open Discussion |



THE FLORIDA SOCIETY
FOR POST-ACUTE AND
LONG-TERM
CARE MEDICINE

**400 Executive Center Drive, Suite 208
West Palm Beach, FL 33401**

www.fmda.org; www.bestcarepractices.org



This meeting has been recorded and will be available at www.fmda.org/journalclub.php