

Preventing the misdiagnosis of cellulitis

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Study finds that early dermatology consultation for presumptive cellulitis can improve patient outcomes, reduce costs and reduce unnecessary hospitalization.

Cellulitis - a bacterial infection of the skin - is a common medical condition, yet there is no diagnostic tool for it currently available. The only way to diagnose cellulitis is based on the appearance of the affected area and the patient's reported symptoms. Many other medical conditions cause skin inflammation that mimics the appearance of cellulitis (known as pseudocellulitis) and are commonly misdiagnosed. A new study by researchers from Brigham and Women's Hospital demonstrates that early consultation by a dermatologist for patients with presumed cellulitis was a cost-effective intervention to prevent misdiagnoses and improve health-related outcomes. Their results are published in *JAMA Dermatology*.

"This is a big win-win for both the patients and for the hospitals," said corresponding author Arash Mostaghimi, MD, MPA, MPH, Director of Inpatient Dermatology. "Our findings show that early intervention by dermatologists for patients with presumptive cellulitis, not only improves outcomes for the patients, but saves the hospitals on costs associated with unnecessary hospitalization and opens up beds in the emergency department."

Previous work by Mostaghimi and his colleagues evaluated a series of patients in BWH's Emergency Department with presumptive diagnosis of cellulitis and determined that a third of these patients had

pseudocellulitis. Alarmed by this statistic, the dermatology consult team partnered with the inpatient group and ED to provide dermatology consultation for 165 patients in the ED observation unit who were about to be admitted with presumptive diagnosis of cellulitis. A third of these patients were diagnosed with pseudocellulitis by dermatology consultation. The dermatologists recommended the discontinuation of antibiotics in 82.4 percent of these patients, and discharge from planned observation or inpatient admissions in half of the patients. None of the patients diagnosed with pseudocellulitis showed worsening of their condition after discharge.

Extrapolating from their findings, the researchers estimate that dermatology consultation for presumed cellulitis could nationally prevent between 97,000 to 256,000 in hospitalization days and 34,000 to 91,000 cases of unnecessary antibiotic exposure. It could also result in \$80 million to \$210 million in net cost savings annually.

While the results of their proof-of-concept study show the benefits of early dermatology consultation, the major challenge now is scalability. The researchers have already implemented protocols at BWH to involve dermatology experts early in the care of [patients](#) with presumptive cellulitis, but this is hard to do in settings that do not have access to 24/7 dermatology consultation, such as primary care offices, nursing homes and rehabilitation centers. Mostaghimi and his team are currently developing tools to allow them to provide high quality [dermatology](#) consultation remotely, which they call "tele dermatology," to improve health-related outcomes of pseudocellulitis diagnoses on a much larger scale.

More information: David G. Li et al, Outcomes of Early Dermatology Consultation for Inpatients Diagnosed With Cellulitis, *JAMA Dermatology* (2018). [DOI: 10.1001/jamadermatol.2017.6197](https://doi.org/10.1001/jamadermatol.2017.6197)

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