Utilization of bacterial cultures in dermatology

To the Editor: Bacterial infections of skin and soft tissue are frequently encountered in dermatology clinics. Initial management of these infections might include incision and drainage, bacterial culture and sensitivities, and empiric antibiotic therapy.[1] Choosing Wisely, an initiative to identify inappropriately utilized diagnostic tests, has targeted bacteria cultures for skin and soft tissue pathogens.[2] The utilization and impact of bacterial cultures on patient management has not been studied in dermatology. This retrospective study investigated trends in the use of bacterial cultures and their impact on patient care during 2011-2015 in an outpatient dermatology clinic at the Manhattan Veterans Affairs Hospital.

During 2011-2015, there were 33,974 dermatology visits, 429 of which included bacterial culturing to test for skin and soft tissue pathogens (Fig 1). Abscesses (carbuncles, furuncle, and cysts) were the most common clinical scenario associated with bacterial culture utilization. In 14.7% of these cases, the patient was taking oral antibiotics before sample collection (Table I). The most commonly empirically prescribed oral antibiotic was doxycycline, which was presumably to cover *Staphylococcus* species in accordance with the hospital antibiogram.

There was microbial growth in 87.2% of cultures, encompassing 47 different microbial species. Among cultures with microbial growth, 44.7% grew *Staphylococcus aureus* or beta-hemolytic *Streptococcus*, bacteria that are generally considered skin pathogens.[3] Skin colonizers (eg, coagulase-negative staphylococci) and probable skin contaminants (eg, *Escherichia coli*) grew in the other 207 (55.3%) cultures with microbial growth.

After cultures and sensitivities were reported, changes in patient management occurred in 10.7% of cases. These changes were concordant with the

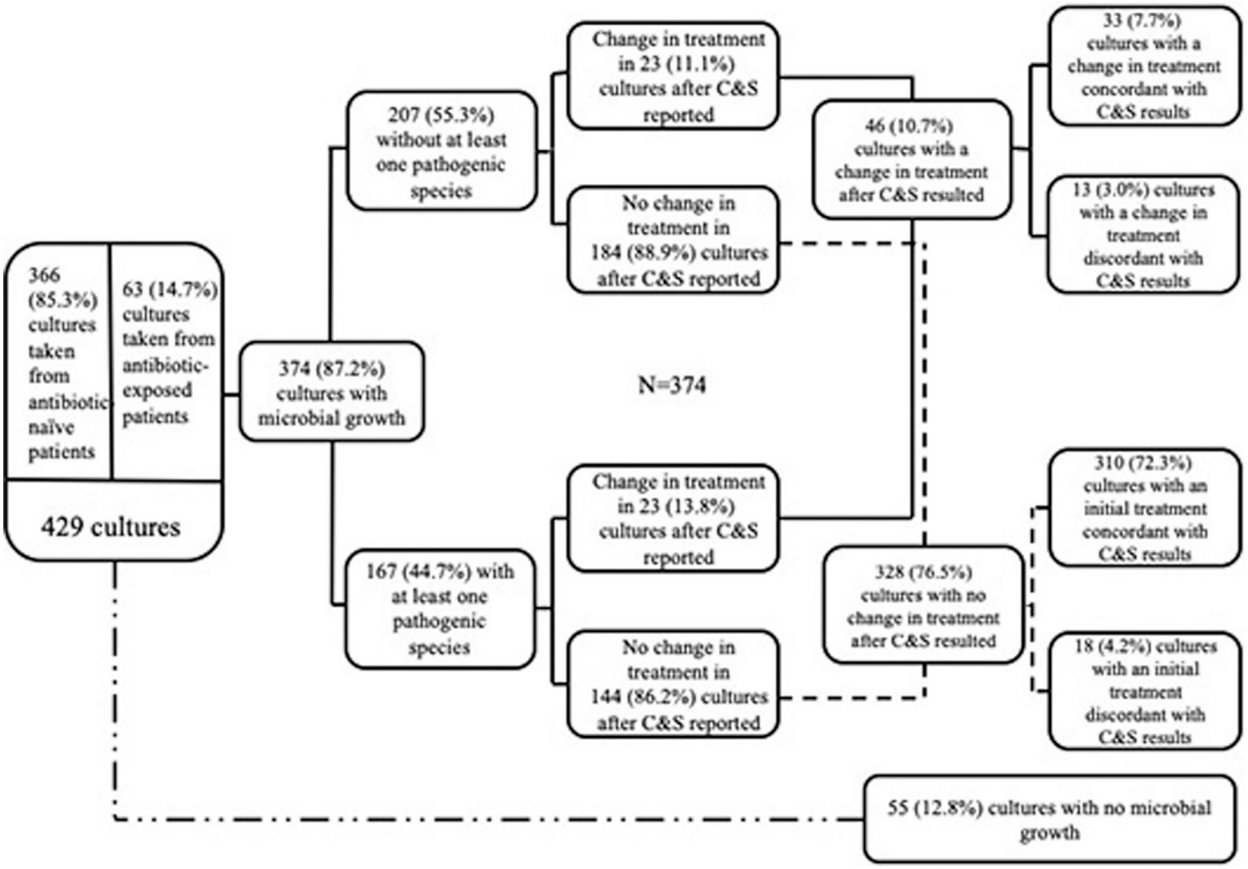

Fig 1. Flow diagram displaying the results from 429 bacterial cultures obtained at 1 outpatient dermatology clinic performed for skin and soft tissue infection diagnosis. Pathogenic species refers to skin pathogens, such as *Staphylococcus aureus* and beta-hemolytic *Streptococcus*. The dotted-dashed line indicates the cultures with no microbial growth. The dashed line indicates the subset of cultures in which bacteria grew but no changes in patient management resulted. *C&S*, Culture and sensitivity.

Table I. Clinical contexts at time samples were obtained for bacterial cultures

Clinical context	N = 429, n (%)
Patient prescribed antibiotics before sample collection	63 (14.7)
Patient prescribed oral antibiotics at the time of sample collection	225 (52.4)
Incision and drainage performed at the time of sample collection	116 (27.0)
Incision and drainage performed and antibiotics prescribed at the time of sample collection	61 (14.2)
Infection or lesion type	
Abscess, carbuncle, furuncle, cyst	156 (36.4)
Folliculitis, acne, pustule	86 (20.0)
Cellulitis	14 (3.3)
Surgical wound infection	43 (10.0)
Other wound infection (friction ulcer, traumatic ulcer, leg ulcer, penile ulcer, erosions)	50 (11.7)
Impetigo, superinfected dermatitis	39 (9.1)
Hidradenitis suppurativa	9 (2.1)
Bullae and vesicles	20 (4.7)
Paronychia	12 (2.8)

cultured organisms and their sensitivities in only 7.7% of cases. Categorized by clinical context, changes in management occurred in 8.3% of abscess cases, of which 76.9% were concordant with sensitivities. For cultures performed at the same time as incision, drainage, and empiric antibiotic treatment, change in management occurred in only 4.5% of cases. Changes in management occurred in 20.5% of impetigo and superinfected dermatitis cases, 75% of which were concordant with sensitivities. No changes in management occurred among cases of hidradenitis suppurativa, bullae, and vesicles. In 4.2% of bacterial cultures, organisms were resistant to empiric therapy, but there were no subsequent changes in therapy.

Although this study involved a small sample size from a single clinic, it appears as though bacterial culturing infrequently leads to changes in management. It also appears that culture utility might vary depending on clinical context, with cultures of hidradenitis suppurativa, bullae, and vesicles being least likely to result in therapeutic changes. Furthermore, some cultures were ordered after patients had started antibiotics and over half of the bacterial skin cultures grew organisms that are not typical cutaneous pathogens, making these results difficult to interpret and utilize clinically.

This pilot study highlights the need to further investigate bacterial cultures for skin and soft tissue infections to determine the best practices and improve patient care while decreasing unnecessary costs. In an effort to cut wasteful tests in medicine, the optimal use of bacterial cultures in outpatient dermatology settings should be further studied.

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Funding sources: None.

Conflicts of interest: None disclosed.

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https://doi.org/10.1016/j.jaad.2019.03.038

Sunscreen may prevent the development of basal cell carcinoma in individuals with basal cell carcinoma nevus syndrome: A retrospective survey study

To the Editor: A recent survey study of individuals with basal cell carcinoma nevus syndrome (BCCNS) suggested that sun exposure is responsible for basal cell carcinoma (BCC) development in individuals with BCCNS.[1] On the basis of this demonstration that individuals with and without BCCNS share a trigger for BCC development, BCCNS provides an excellent model for studying BCC prevention strategies, as individuals with BCCNS have an elevated risk of BCC development (lifetime average of 257 BCCs), which facilitates powering studies.[1] The proper use of sunscreen is frequently recommended as a method to prevent BCCs despite the failure of several prospective studies to confirm the efficacy of this strategy.[2] A 33-question survey was utilized to assess