Supercharge Your On-Call Bag: 4 Must-Have Items for Dermatology Residents

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RESIDENT **PEARL**

- The following unconventional items will come in handy the next time you are on call (or in clinic) and need an alternative to a suture, topical antimicrobial, Wood lamp, or Michel solution.

The contents of a dermatology resident's on-call bag can make or break their inpatient experience. This article explores 4 outside-the-box items to carry when on call (or in clinic): a hemostatic powder, antimicrobial marker, portable Wood lamp, and substitute for Michel solution.

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It is no secret that a well-stocked on-call bag is one of the keys to providing inpatient care as a dermatology resident. Beyond the basic items that should never be left at home, there are some lesser-known tools that I have learned about from my book- and street-smart attendings and co-residents in the Department of Dermatology at the State University of New York Downstate Medical Center (referred to here as Downstate). Here are our top 4 items to pack the next time you are on call. (Bonus: you will find them helpful in clinic, too.)

Item 1: WoundSeal Powder

The most valuable player in my on-call bag, WoundSeal Powder (Biolife) is an over-the-counter hemostatic agent that I learned about from Daniel M. Siegel, MD, MS, a Mohs surgeon at Downstate and former president of the American Academy of Dermatology. The powder consists of a hydrophilic polymer and potassium ferrate.[1] When poured over a bleeding wound and pressed in place (eg, with a sterile cotton-tipped swab), the hydrophilic polymer absorbs plasma while the iron in potassium ferrate agglomerates blood solids. The result is a scablike seal that is safe to leave in place until the wound has healed.[1]

Since Dr. Siegel introduced WoundSeal to Downstate about a decade ago, it has become our department's go-to hemostatic agent for most punch biopsies performed in the inpatient setting. In our experience, achieving hemostasis in the hospital usually is easier, safer, and faster with WoundSeal than suture. Furthermore, using WoundSeal eliminates the need for patients to follow up for suture removal. From a practical perspective, WoundSeal works best when the biopsy defect is positioned parallel to the ground so the powder can be poured directly over and into the defect. From a cosmetic perspective, we have found that WoundSeal and suture have similar outcomes when used for punch biopsies up to 4 mm in size on the trunk and extremities in both adult and pediatric patients. Working with other dermatology attendings such as Sharon A. Glick, MD; Eve Lowenstein, MD, PhD; and Jeannette Jakus, MD, MBA, I also have found WoundSeal helpful when taking care of suture-phobic children or patients with lesions that are less amenable to suture, such as an ulcer or indurated plaque.

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Item 2: Purple Surgical Marker

Another tip I have learned from Drs. Siegel and Jakus: If you are ever in a bind for a topical antibacterial or antifungal agent, look no further than a sterile purple surgical marker. These markers are a surprising source of gentian violet, the same purple dye that is the basis of Gram staining and sold as an over-the-counter antiseptic in 1% to 2% concentrations. Purple surgical markers, on the other hand, are 2.5% to 10% gentian violet.[2]

Gentian violet has been shown to have antibacterial, antifungal, antiviral, antihelminthic, and antitrypanosomal properties, but its efficacy has been mostly demonstrated against *Streptococcus*, methicillin-sensitive and methicillin-resistant *Staphylococcus aureus*, and *Candida*.[3] Given the dermatologic relevance of these organisms, gentian violet is a favorite among attendings at my residency program; it is not uncommon to remove a patient's dressing and uncover an iatrogenically purple wound. Best of all, pediatric patients are invariably amused when they see someone drawing on their skin with a purple marker.

When using a sterile surgical marker to apply gentian violet to the skin, we use either the marker tip or the ink core, which Dr. Siegel taught me can be easily accessed by snapping most plastic markers in half.

Item 3: Handheld Blacklight

The Wood lamp is a useful tool in the diagnosis of various infectious diseases and pigmentary disorders,[4] but it is not always practical to use when on call, as standard ones are relatively large and corded, so they must be plugged into an electric outlet to work. You can therefore imagine the gratitude I have for my co-residents Miriam Lieberman, MD; Jaime Alexander, MD; Nicole Weiler, MD; and Alessandra Haskin, MD, for introducing me to the most convenient Wood lamp: the handheld blacklight. For less than $10, this gadget combines the diagnostic power of UV light with the portability of a pocket-sized, battery-powered flashlight. You will never want to use another Wood lamp again.

Item 4: Normal Saline Flush

Normal saline can be used for more than storing specimens for frozen section or tissue culture; it also can substitute for Michel solution when storing specimens for direct immunofluorescence (DIF) studies. I learned this tip from Edward Heilman, MD, a dermatopathologist at Downstate. For the last 20 years, Dr. Heilman has been successfully storing DIF specimens in refrigerated normal saline for up to 24 hours when Michel solution is unavailable, after which the specimen is processed or transferred to Michel solution for further storage while being transported to an immunofluorescence laboratory.

In 2004, Vodegel et al[5] formally studied this technique in 25 patients with autoimmune skin diseases such as pemphigus and pemphigoid. (Thanks to Dr. Lieberman for telling me about this study.) The experiment involved taking 4 punch biopsies from each patient and placing them in either normal saline at −80°C for 24 or 48 hours, room temperature Michel solution for 48 hours, or liquid nitrogen for up to 2 weeks before being processed for DIF and analyzed by a blinded interpreter. Interestingly, specimens stored in normal saline for 24 hours were the most diagnostic, with a conclusive diagnosis reached in 21 of 25 specimens (84%). This result was attributed to the statistically significant reduction ($P<.01$) in background fluorescence with normal saline compared to Michel solution and liquid nitrogen, which in turn allowed for easier detection of diagnostic immunoreactants. Similar to Dr. Heilman, the authors cautioned against placing DIF specimens in normal saline for more than 24 hours; in their experience, the risk for an artefactual split developing at the dermoepidermal junction increases with this practice.[5]

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