Skin Rejuvenation—a Dermatology Curriculum

Jay Vary, MD PhD
Division of Dermatology, Department of Medicine
University of Washington

Introduction

The Problem:

The University of Washington needs to provide medical students with an education in the basic science of the skin and its diseases such that they will be able to provide routine dermatologic care in a wide variety of clinical specialties. As part of the curriculum redesign of the preclinical years at the UW, the skin curriculum needs to be streamlined, integrated with other subjects, and be teachable throughout the WWAMI (Washington, Wyoming, Alaska, Idaho, Montana, Idaho) region where Dermatologist-educators are in short supply.

The Conceptual Model:

The University of Washington is unusual, but not unique, in servicing a geographically broad and multisite area through the WWAMI program. The need to provide increased education in non-Seattle locations of Laramie, WY; Anchorage, AK; Missoula, MT; Spokane, WA; and Moscow, ID as well as time constraints on the first 2 “pre-clinical” years of medical school have resulted in curriculum redesign in which the first 18 months of instruction will be run concurrently in 6 sites across 3 timezones and 5 states which account for over 25% of the land mass of the United States.

In addition to the widespread geography, an additional challenge has been to use the same instructional materials, strategies, and evaluation tools at all sites.

Similar challenges have been addressed in other programs in Australia, Michigan, Ontario, and most similarly in British Columbia (Bates et al). Specifics for incorporating a single curriculum for dermatologic pre-clinical education into such a multi-site program have not yet been published. The American Academy of Dermatology and American Professions of Dermatology have developed an online clinical curriculum intended to serve all medical schools as an adjunct to a clerkship in Dermatology, but does not address the need for a reduction in required classroom time while also allowing concurrent instruction at multiple institutions by non-specialists.

This redesign is unique in that it enables the education of medical students in geographically disparate locations by non-dermatologist physicians and even non-physician scientists. With the exception of instruction in a full skin exam small group session, the course can be implemented without prior dermatology expertise.

Objectives and Components

Objectives in the new curriculum

Cognitive Objectives:

1. - define the terms for primary and secondary lesions.
2. - describe the pathophysiologic correlation to primary and secondary lesions
3. - describe the layers of the epidermis, the major components of the dermis and skin appendages, and the protein complexes that attach keratinocytes to each other and to the basement membrane.
4. - identify and define at least one dermatologic disease that is associated with defects in each of the above components.
5. - describe the phases of wound healing.
6. - list two major organisms for each category of normal flora or skin pathogens of bacteria or fungi or viruses and formulate appropriate treatments for these pathogens.
7. - list the components of the innate and adaptive immune system and at least one dermatologic disease associated with alterations of each.
8. - describe how pigment is made and varies by ethnicity as well as diseases associated with pigment changes.
9. - describe the effects of UV radiation on the skin.
10. - correctly identify basal cell carcinomas, squamous cell carcinomas, and melanomas, list common risk factors and DNA mutations associated with each, and prognostic features for melanoma.
11. - rank the relative incidence and mortality of BCC, SCC, and melanoma.
12. - recommend appropriate choices for topical pharmaceutical treatments based upon knowledge of their indications and side effects.

Affective Objectives:

13. - identify the impacts of skin disease on individuals and society.

Psychomotor Objectives:

14. - perform a full skin examination

Educational Strategies

Curriculum content:

- Syllabus (structure and function of the skin, clinicopathologic correlation, pigmentation, photobiology, skin cancer)
- Vodcasts: summaries of each syllabus section
- External website for skin morphology

Team Based Learning sessions. Case study format. Topics: Epidermis-keratin, epidermal changes, nevi, nevi
- Photobiology: sunburn, pigmentation, sunscreens, sunscreen

Day 1

Session type

Topics

Histology—didactics & lab

Structure and function of the skin, melanogenesis

Day 2

Small group

Full Skin Exam Morphology

Day 3

Large group?

Small group

3-day curriculum

Conclusions

This new Dermatology curriculum for the WWAMI program at UW addresses the need for a reduction in required classroom time while also allowing concurrent instruction at multiple institutions by non-specialists.

Students who master the objectives of the course will be adequately trained to do well on the USMLE step I exam and address common skin concerns while on clerkships. In addition, by utilizing a flipped classroom model and predominantly small group formats, they will be able to achieve a higher level understanding of the skin and skin diseases. Removing didactic information from the classroom allows time to be spent making connections and deepening understanding. This is not a novel concept to Dermatology.

“Didactic presentation today is for the printed page and memosheet sheet. I would tell the student little or nothing about anything, and lead him instead, by skillful questioning and discussion, to create his own fund of information out of what lies before him for observation, cemented by inductive reasoning based on his own past knowledge, medical and personal.”

—Stokes, J.H., Teaching of Dermatology and Syphilitology to Medical Undergraduate. Archives of Dermatology and Syphilitology. 1928.

Such an understanding of skin physiology and how it may be altered in disease states will serve them well later in any chosen specialty when they encounter patients with skin disease.

References


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