Dermatology in the Undergraduate Medical Curriculum

Recommendations of the British Association of Dermatologists
Introduction

The dermatology that is mastered by undergraduates during their medical training will underpin postgraduate education in Foundation courses, medicine and general practice. The recommendations for the dermatological content of the core curriculum in this document are informed by the outcomes of a study that used a modified Delphi technique to consult a multidisciplinary panel of 66 individuals (dermatologists, medical specialists, surgeons, tutors in basic sciences, general practitioners, dermatology nurses, pharmacists, junior doctors) about the dermatology curriculum for medical undergraduates.

The panel were asked to rank the importance of 145 dermatological learning outcomes using a Likert scale. The British Association of Dermatologists recommends that the core curriculum includes the 53 outcomes rated “very important” and one of those rated “fairly important” (an outcome relating to psoriasis in the section on inflammatory disease). These outcomes encompass bioscience knowledge, the application of that knowledge, management of acute and chronic clinical problems and clinical skills. Some outcomes are generic, while others are related to the prevalence and impact of skin disease in the UK. Many might be achieved while students are working with GPs or during attachments in medical or surgical specialities. Medical courses should provide appropriate resources, including clinical experience, so that all medical students have an opportunity to achieve these outcomes by graduation.

The curriculum should foster skills in self-directed learning, application of knowledge and critical appraisal. Suggested methods of learning, teaching and assessment are listed alongside each outcome and are discussed later in this document. Core curricula in UK medical schools are supplemented by student-selected components during which students may investigate and study topics of their choice in some depth. All curricula should also provide intellectually challenging and inspirational learning opportunities in dermatology in this part of the course.

More information is available on our website www.bad.org.uk/healthcare

Reference


The development of this curriculum was supported by the British Skin Foundation

Published June 2006
Learning and Teaching Dermatology

Dermatological learning and teaching may occur in a variety of clinical placements, including general practice, and may be integrated into the course at different stages. In addition to studying the fundamentals of skin biology and dermatology, all students should have direct clinical contact with dermatological patients. **A minimum of 10 half-day sessions and preferably more should be available for this clinical experience.**

Students should acquire the skills to direct their own learning. They must have access to suitable learning resources including course material (that may be available on an electronic learning site), dermatology texts, pictures of skin diseases and computer technology.

Learning and teaching may involve:

- **Early clinical contact.** Patients with skin diseases may be used to illustrate biological concepts (immunology, structure and function, physiology, genetics), to introduce subjects such as communication skills and medical ethics and to illustrate the difficulties inherent in living with or managing a chronic disease with accompanying impairment, handicap or disability.

- **Problem-based learning.** Dermatological cases may be used to bridge the gap between basic sciences and clinical practice. Scenarios generally put together by a team of writers, may be dermatological. The case is handled by a small group of students, who discuss the problem, define the knowledge required to solve the problem, share amongst themselves the tasks to seek the relevant answers or information needed, and come together one to two weeks later to resolve the problem. A facilitator, who may not necessarily have expertise in the area under discussion, supervises each group. The facilitator’s role is not to provide answers, but to guide learning so that the group achieves the desired outcomes.

- **Community experience.** General practice attachments take an increasing proportion of time in most curricula. Undergraduates have an opportunity to learn from patients with a spectrum of dermatological problems, which is slightly different from those encountered in a hospital setting. Some dermatology courses are integrated into courses in primary care.

- **Clinical experience.** On-the-job teaching requires planning and preparation as well as time for feedback and reflection, but successful clinical teachers will have learned to teach in short “bites”, making the most of teaching opportunities in the clinic and balancing the conflicting demands of patients, students and junior staff.

- **Case studies, learning portfolios and logbooks.** Students may be required to record cases seen or keep a reflective record. A proportion of cases might have a dermatological flavour.

- **Formal lectures.** Schools have reduced the number of lectures, replacing them with interactive forms of teaching and learning, often problem-based.

- **Computer-assisted learning.** Web-based resources may be used to supplement learning. Telemedicine and computer technology facilitate distance learning when students are working in different sites. Students may also use web-based resources for personal learning, to prepare for teaching, to investigate problems encountered during clinical attachments or for self-assessment.
Assessment

Dermatologists should play their full part as examiners in medical schools; this includes writing questions for knowledge-based assessments, designing Objective Structured Clinical Examination (OSCE) stations and contributing cases for clinical examinations. Analysis of student experiences has shown that an “intended” core curriculum is not sufficient to ensure that students are proficient in basic skills such as describing skin lesions. If skills are deemed essential, they must be both taught and assessed.

Regular formative assessment is a most valuable form of assessment that allows students to measure their progress. Learning portfolios, logbooks or reflective reports might be discussed during a formative assessment. Within-course assessments that identify problems when the students and teachers still have time to address the deficiencies may help students to structure their learning.

The primary purpose of summative assessment is to determine whether the candidate is competent. Assessments must be aligned with learning and teaching. A blueprint (map or matrix) showing how the assessment is planned against curricular learning outcomes provides a method for ensuring that assessments cover or sample the competencies that the course considers to be the most important. The aim is to test a representative sample.

The dermatological skills tested in an OSCE with actors or standardised patients might include:

- obtaining a history from a patient with psoriasis
- describing a skin lesion
- explaining the diagnosis of psoriasis to a patient
- counselling a patient about sun protection
- discussing the management of a child with mild atopic eczema with the mother
- informing a patient that the histology of a pigmented lesion had confirmed malignant melanoma
- measuring the ankle-brachial pressure index
- writing a prescription for a topical preparation such as an emollient
- taking a skin swab for viral culture or a skin scrape for mycological examination
- inserting a cutaneous suture (using a mannequin)
The Core Curriculum in Dermatology

Essential Outcomes

These competencies must be mastered for safe practice. Achievement of all essential outcomes must be tested so that students have an opportunity to demonstrate that they are competent prior to graduation.

<table>
<thead>
<tr>
<th>DERMATOLOGY LEARNING OUTCOMES</th>
<th>LEARNING AND TEACHING</th>
<th>ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential Clinical Skills</td>
<td>Clinics- observation, reflection on best practice and discussion with senior staff</td>
<td>Observed in clinics = mini-CEX (may be used as formative tool)</td>
</tr>
<tr>
<td>Graduates MUST be able to:</td>
<td>Task specific on-the-job training including note-keeping.</td>
<td>Review of clinic notes</td>
</tr>
<tr>
<td>• Take a dermatological history</td>
<td></td>
<td>OSCE</td>
</tr>
<tr>
<td>• Explore a patient’s concerns and expectations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Examine skin, hair, nails and mucous membranes systematically showing respect for the patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Describe cutaneous physical signs in skin, hair, nails and mucosa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Record their findings accurately in the patient’s records</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Interact sensitively with people with skin diseases</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Important Outcomes

These outcomes should feature in the core curriculum. They should be sampled in assessments and the pass mark should be high. Although the curriculum appears limited, in order to achieve these outcomes teachers and students will address other topics. For example students cannot learn to “recognise melanoma” (an outcome that requires skills in pattern recognition) without becoming familiar with benign melanocytic naevi and seborrhoeic warts and to learn about “the difficulties, physical and psychological, experienced by people with chronic skin diseases” students will surely meet people with skin diseases such as psoriasis.

<table>
<thead>
<tr>
<th>DERMATOLOGY LEARNING OUTCOMES</th>
<th>LEARNING AND TEACHING</th>
<th>ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background Knowledge</td>
<td>Lectures, Histology demonstrations, Tutorials, Personal study, Case-or problem based learning</td>
<td>Written examinations – multiple choice questions, extended matching items, OSCE</td>
</tr>
</tbody>
</table>

Background Knowledge

Graduates should be able to:
- Describe the functions of normal skin e.g. thermoregulation, protective, sensory, immunological, psychosocial.
- Describe the structure of normal skin
- Describe the principles of wound healing
- Apply their knowledge of skin structure and function to diagnosing, investigating and treating skin disease
- Describe the difficulties, physical and psychological, that may be experienced by people with chronic skin diseases
<table>
<thead>
<tr>
<th><strong>DERMATOLOGY LEARNING OUTCOMES</strong></th>
<th><strong>LEARNING AND TEACHING</strong></th>
<th><strong>ASSESSMENT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skin Failure and Emergency Dermatology</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Graduates should be able to demonstrate they can **recognise** these emergency presentations and discuss the causes and potential complications:  
  - Anaphylaxis and angioedema  
  - Acute meningococcaemia  
  - Toxic epidermal necrolysis,  
  - Stevens Johnson syndrome  
  - Erythroderma  
  - Eczema herpeticum | Seminars  
  Personal study  
  Computer-based tutorials  
  Case-or problem based learning | Observed working in scenarios as part of a team |
| | Practical training-e.g.  
  ALS course,  
  ALERT course | Written examinations – multiple choice questions, extended matching items |
| Graduates should be able to demonstrate that they can provide first contact care, including resuscitation, in these emergencies:  
  - Anaphylaxis and angioedema  
  - Acute meningococcaemia  
  - Toxic epidermal necrolysis  
  - Stevens Johnson syndrome  
  - Necrotizing fasciitis | Clinical attachments in medicine, A&E, surgery | |
| **Skin Infections** | Clinical attachments in dermatology, general practice. | Written examinations – multiple choice questions, extended matching items |
| Graduates should be able to describe the presentation, investigation and management of:  
  - Cellulitis and erysipelas | Formative assessment with clinical slides | |
| Graduates should be able to describe cutaneous signs in  
  - Necrotizing fasciitis | | |
| **Inflammatory Diseases** | Clinical attachments in dermatology, paediatrics, general practice. | Written examinations – multiple choice questions, extended matching items |
| Graduates should be able to describe the presentation, demonstrate assessment, formulate a differential diagnosis, instigate investigation and discuss how to provide continuing care of:  
  - Atopic eczema (children)  
  - Acne  
  - Psoriasis | Treatment clinics provided by dermatology specialist nurses.  
  Case or problem-based learning.  
  Logbook of cases with reflective component. | OSCE |
<table>
<thead>
<tr>
<th>DERMATOLOGY LEARNING OUTCOMES</th>
<th>LEARNING AND TEACHING</th>
<th>ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common and Important Problems</strong>&lt;br&gt;Graduates should be able to formulate a differential diagnosis, describe the investigation and discuss the management in patients with:&lt;br&gt;• Chronic leg ulcers&lt;br&gt;• Purpuric rashes&lt;br&gt;• Itching&lt;br&gt;• A red swollen leg&lt;br&gt;• A changing pigmented lesion&lt;br&gt;• An enlarging cutaneous lesion (nodule, papule, ulcer)</td>
<td>Clinical attachments in medicine, geriatrics vascular surgery, plastic surgery, general surgery, paediatrics, dermatology, general practice.&lt;br&gt;Treatment clinics provided by wound care nurses</td>
<td>Written examinations – multiple choice questions, extended matching items OSCE</td>
</tr>
<tr>
<td><strong>Skin Tumours</strong>&lt;br&gt;Graduates should be able to recognise:&lt;br&gt;• Basal cell cancer&lt;br&gt;• Squamous cell cancer&lt;br&gt;• Malignant melanoma</td>
<td>Clinical attachments in plastic surgery, general surgery, dermatology, general practice.&lt;br&gt;Skin surgery in plastic surgery or dermatology.&lt;br&gt;Case or problem-based learning.&lt;br&gt;Formative slide-based assessment</td>
<td>Written examinations – multiple choice questions, extended matching items OSCE</td>
</tr>
<tr>
<td><strong>Signs of Systemic Disease</strong>&lt;br&gt;Graduates should be able to recognise and describe the potential significance of:&lt;br&gt;• Purpuric lesions (disseminated intravascular coagulation, vasculitis)&lt;br&gt;• Nail clubbing, koilonychia, splinter haemorrhages</td>
<td>Clinical attachments in medicine and medical specialities, dermatology.&lt;br&gt;Formative slide-based assessment</td>
<td>Written examinations – multiple choice questions, extended matching items</td>
</tr>
<tr>
<td>DERMATOLOGY LEARNING OUTCOMES</td>
<td>LEARNING AND TEACHING</td>
<td>ASSESSMENT</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Preventative medicine</td>
<td>Clinical attachments in plastic surgery, general surgery, dermatology, general practice. Treatment clinics provided by wound care nurses Observation of counselling provided by clinical nurse specialists in skin cancer</td>
<td>OSCE</td>
</tr>
<tr>
<td>Drug Eruptions</td>
<td>Clinical attachments in medicine, A&amp;E, dermatology, general practice. Seminars Personal study Computer-based tutorials Case-or problem based learning Formative slide-based assessment</td>
<td>Written examinations – multiple choice questions, extended matching items</td>
</tr>
<tr>
<td>Management and Therapeutics</td>
<td>Clinical attachments in medicine and medical specialities, A&amp;E, dermatology, general practice. Formative slide-based assessment</td>
<td>Written examinations – multiple choice questions, extended matching items OSCE</td>
</tr>
<tr>
<td>DERMATOLOGY LEARNING OUTCOMES</td>
<td>LEARNING AND TEACHING</td>
<td>ASSESSMENT</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Clinical Skills</strong></td>
<td>Graduates should be able to:</td>
<td>Clinical attachments in medicine and medical specialties, vascular surgery, paediatrics, dermatology, general practice.</td>
</tr>
<tr>
<td>• Explain to a patient or parent of a child with eczema how to use an emollient or a topical corticosteroid</td>
<td></td>
<td>OSCE</td>
</tr>
<tr>
<td>• Make a referral either in writing or by telephone to doctors and other health professionals or agencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Describe the reasons for referral, describe the information that should be included in a referral, and describe the level of urgency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Write a discharge letter to a GP including advice about management of the skin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Take a skin swab for virology or microbiology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Take a skin scrape for mycology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Write a prescription for an emollient, showing knowledge of quantities and bases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Explain to a patient how to use an emollient or a topical corticosteroid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Measure the ankle-brachial pressure index (ABPI) and interpret the result</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Treatment clinics provided by dermatology nurses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wound care clinics provided by dermatology nurses or vascular nurses</td>
<td></td>
</tr>
</tbody>
</table>
Supplementary Learning Outcomes

The core curriculum is derived from the most important outcomes identified in the Delphi study, but some outcomes, ranked a little less important by the panel, might also reasonably be included in the core if time permits. However, curriculum designers must avoid the temptation to overload curricula as this will push students towards a surface approach to learning without deeper understanding. Students who chose to study dermatology in the student-selected components of the course might also have opportunities to address some of these topics. These supplementary outcomes are listed below.

**Background Knowledge**

Students should be able to:
- Describe the epidemiology of skin disease in the community
- Describe biochemical / biological pathways in skin e.g. triple response, inflammatory cascades
- Describe the biology of the keratinocyte / melanocyte / epidermis
- Describe the psychosocial impact of skin disease on patients, their families and friends
- Describe the role of dermatology nurses in the community and hospital

**Skin Failure and Emergency Dermatology**

Students should be able to demonstrate they can recognise these emergency presentations and discuss the causes and potential complications:
- Generalised pustular psoriasis
Students should be able to demonstrate that they can provide first contact care, including resuscitation, in these emergencies:
- Erythroderma
- Generalised pustular psoriasis
- Eczema herpeticum

**Inflammatory Diseases**

Students should be able to describe the presentation, demonstrate assessment, formulate a differential diagnosis, instigate investigation and discuss how to provide continuing care of:
- Contact dermatitis (allergic, irritant)

**Preventative medicine**

Students should be able to describe the principles of prevention in:
- Scabies
- Hand dermatitis
- Dry skin in the elderly

**Common and Important Problems**

Students should be able to formulate a differential diagnosis, describe the investigation and discuss the management in patients with:
- Lymphoedema
- Scaly erythematous rashes
- Red face
- Blistering / vesiculation (localised or widespread)
- Mouth ulcers
- Hair loss

**Tumours**

Students should be able to recognise:
- Viral warts
- Epidermoid (“sebaceous”) cysts
- Melanocytic naevi (moles)
- Seborrheic warts
- Solar keratoses
- Bowen’s disease
- Dermatofibroma
- Keratoacanthoma
- Lipoma
- Pyogenic granuloma
- Mycosis fungoides (cutaneous T-cell lymphoma)
- Paget’s disease of the nipple
- Cutaneous metastases

**Signs of Systemic Disease**

Students should be able to recognise and describe the potential significance of these problems:
- Nail fold erythema, dilated nailfold capillaries
- Pigment change (loss or gain)
- Photosensitivity
- Scleroderma and sclerodactyly
- Erythema nodosum
- Erythema multiforme
- Pyoderma gangrenosum

**Skin infections and infestations**

Students should be able to describe the presentation, investigation and management of:
- Scabies
- Insect bites
- Lice infestation
- Impetigo and folliculitis
- Viral warts
- Herpes simplex infection
- Herpes zoster infection
- Molluscum contagiosum
- Dermatophyte infections (“ringworm”)
- Candida albicans infection (skin, mucosal)
- Pityriasis versicolor
- Pityriasis rosea
- Syphilis

Students should be able to describe cutaneous signs in:
- Human immunodeficiency virus (HIV) infection
- Tuberculosis

**Drug eruptions**

Students should be able to recognise and describe these drug-induced skin reactions:
- Photosensitivity

**Management and Therapeutics**

Students should be able to describe:
- The principles of use of topical antifungals
- The principles of use of topical antibacterials
- The principles of use of topical retinoids
- The principles of use of topical vitamin D analogues
- The principles of use of coal tar
- The principles of use of oral retinoids
- The principles of use of methotrexate
- The principles of use of ciclosporin
- The principles of use of topical calcineurin inhibitors e.g. tacrolimus
- The indications for and the complications of UVB (phototherapy) and PUVA (photochemotherapy)
- Indications for and use of simple cutaneous surgical modalities for treating skin cancer e.g. excision, curettage, cryosurgery

**Clinical Skills**

Students should be able to:
- Write a prescription for a topical corticosteroid showing knowledge of quantities and bases
- Apply topical medications