



Dermatological content of U.K. undergraduate curricula in 2015: full report

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Summary

Background

The British Association of Dermatologists (BAD) published recommended learning outcomes in dermatology in 2006. The dermatological content of U.K. undergraduate curricula was previously audited in 2009.

Objectives

To review provision of undergraduate dermatology education by U.K. and Irish medical schools with reference to the BAD recommended learning outcomes and the previous audit; to identify learning, teaching and assessment methods used, and collect further comments on learning and teaching in dermatology.

Methods

A questionnaire was sent to dermatology teaching leads in medical schools in the U.K. and Ireland. It was sent to medical school deans if no teaching lead was identified. The questionnaire focused on background information on teaching provision, essential learning outcomes, teaching and assessment methods used, comments on current curriculum and suggested future changes to dermatology undergraduate education.

Results

Responses were received from 30 medical schools. Dermatology teaching was mandatory in 75% of medical schools. The mean duration of rotations was 2.2 weeks and mean number of clinics was 3.5. Most core dermatology teaching was delivered in year 4 in secondary care outpatient clinics. Essential learning outcomes were included in the curriculum of most medical schools. However, skin emergencies were omitted in some medical schools. Summative assessment was mandatory in only 57% of medical schools. 73% of teaching leads felt the curriculum was adequate, but some commented that it was too extensive to deliver with current challenges to service delivery.

Conclusions

Undergraduate dermatology provision continues to vary widely between medical schools.

Introduction

The General Medical Council made recommendations on undergraduate medical education in *Tomorrow's Doctors* in 1993, leading to curriculum revisions in medical schools in the United Kingdom.¹ The impact of these changes on the teaching of dermatology in the U.K. was explored in 2002.² A study was carried out in 2006 to define the content of the undergraduate curriculum via a modified Delphi technique³ which led to the publication of recommended learning outcomes by the British Association of Dermatologists (BAD).⁴ In 2009, Davies and Burge audited the content of the core curriculum in U.K. medical schools against the BAD recommendations, as well as looking at areas of good practice in the learning and teaching of dermatology.⁵

Most education in skin disease in the U.K. is done at the undergraduate level⁶ and there is no consistent provision of postgraduate GP dermatology education.⁷ As skin problems constitute 24% of GP consultations,⁸ undergraduate programmes should provide a firm grounding in dermatology.

This survey aimed to explore undergraduate dermatology education provided by U.K. and Ireland medical schools based on established recommendations by the BAD, and to identify learning, teaching and assessment methods used.

Methods

A questionnaire was developed based on the previous audit in 2009 and the BAD recommended learning outcomes. The questionnaire was split into five sections: background information, learning outcomes in dermatology, learning and teaching methods used, assessment and comments (Appendix 1).

The background information section collated data such as the total number of teaching sessions delivered, duration of rotation, minimum number of clinics, which year delivered in, location of teaching, who teaches dermatology, and whether there are extra opportunities for dermatology undergraduate experience. The questionnaire also assessed whether the BAD learning outcomes featured in the medical school's curriculum. Questions included whether assessment in dermatology is mandatory, and the types of assessments used. Comments on the current curriculum and future changes to dermatology teaching were also sought. The questionnaire was reviewed by the BAD Teachers of Undergraduate Dermatology Sub-Committee with the final questionnaire covering 99 items. Ethical approval was not required.

The questionnaire was sent electronically to dermatology undergraduate teaching leads at all medical schools in the United Kingdom and Ireland. Where no specific teaching leads were identified, the questionnaire was sent to clinical deans instead. Non-responders were sent email reminders periodically.

Results

Background information

Responses were received from dermatology teaching leads at 30 out of 35 medical schools (86%; Appendix 2). No responses were received from clinical deans. Dermatology undergraduate teaching was found to be mandatory in 24 (75%) of these medical schools. In two, dermatology teaching was available only if students were attached to certain sites. The total number of teaching sessions such as lectures, tutorials or seminars ranged from 0 to 37 sessions, with a mean of 10 and a median of 8. One medical school included dermatology service design, and dermatology and art sessions.

The duration of the dermatology attachment ranged from 1 to 8 weeks, with a mean of 2.2 weeks and a median of 1 week. Longer attachments comprised mixed rotations which included primary care, paediatrics and palliative care. Two medical schools had a dedicated dermatology attachment as part of a “special senses” block with ear, nose & throat surgery and ophthalmology. The minimum number of clinics that the students were required to attend ranged from 0 to 10 (mean 3.5, median 3).

Dermatology teaching was mostly delivered in the 4th year of study (Table 1). Three medical schools (10%) split their dermatology teaching between 2nd and 4th years, with basic sciences teaching taking place in 2nd year, and a clinical attachment in 4th year. Two medical schools also stated that dermatology sessions such as seminars and revision lectures were taught throughout the undergraduate course.

Undergraduate dermatology was mostly taught by dermatologists (97%) (Table 2). This was followed by dermatology specialist nurses (67%), general practitioners (GPs) (37%) and expert patients (27%). Most dermatology teaching took place in secondary care (83%) with only 7% of dermatology teaching carried out mostly in primary care (Table 3). One medical school had an equal split of teaching between primary and secondary care, and another delivered integrated teaching in primary and secondary care, as well as at the university. In terms of dermatology teaching as a whole (Table 4), all but one medical school (97%) had undergraduate teaching in secondary care.

Table 1: In which year is most core dermatology teaching delivered?

Year	Number of medical schools	Percentage of medical schools (%)
1	0	0
2	1	3
3	8	27
4	14	47
5	3	10
6	1	3
2 and 4	3	10

Table 2. Who teaches dermatology to undergraduates?

Teacher	Number of medical schools	Percentage of medical schools (%)
Dermatologists	29	97
Dermatology specialist nurses	20	67
General practitioners	11	37
Expert patients	8	27
Student-led seminar	1	3
GP with specialist interest (GPwSI)	1	3
Other dermatology nurses	1	3
University academic staff	1	3

Table 3. Where does **most** dermatology teaching take place?

Location	Number of medical schools	Percentage of medical schools (%)
Secondary care	25	83
Primary care	2	7
Primary and secondary care	1	3
Integrated	1	3
Uncertain	1	3

Table 4. Where does dermatology teaching take place?

Location	Number of medical schools	Percentage of medical schools (%)
Secondary care	29	97
Primary care	16	53
University	3	10
Online	1	3

Extra undergraduate dermatology experience, including special study modules, projects, research placements, electives and extra attachments, was available in 29/30 (97%) medical schools. The number of students able to undertake this varied from 2 to 19 per year, although one medical school stated that they could accommodate 4 students every 3 weeks. In one medical school, extra opportunities for dermatology exposure had to be suspended due to a shortage of staff.

Learning outcomes in dermatology

Most of the essential learning outcomes such as history taking, skin examination and describing physical signs featured in the curricula of most medical schools (Figure 1). However, taking a history, examination of the skin and describing physical signs did not feature in 7%. Background knowledge in dermatology featured in the curricula of about 80% of medical schools (Figure 2), except for wound healing at 67%.

Fig 1. Learning outcomes: essential learning outcomes.

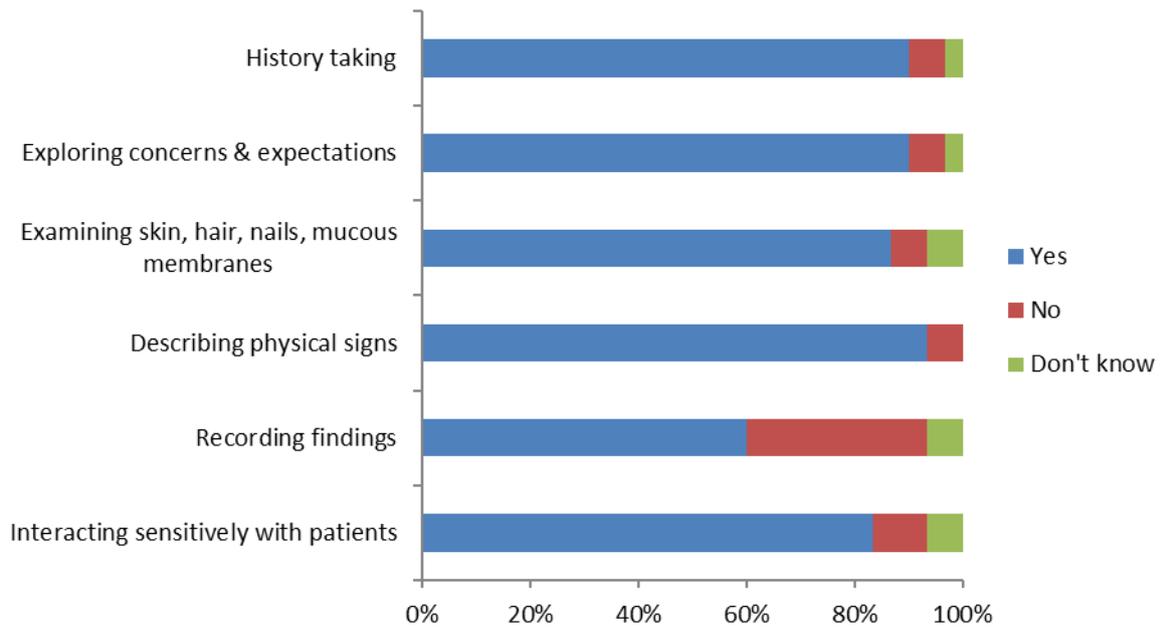
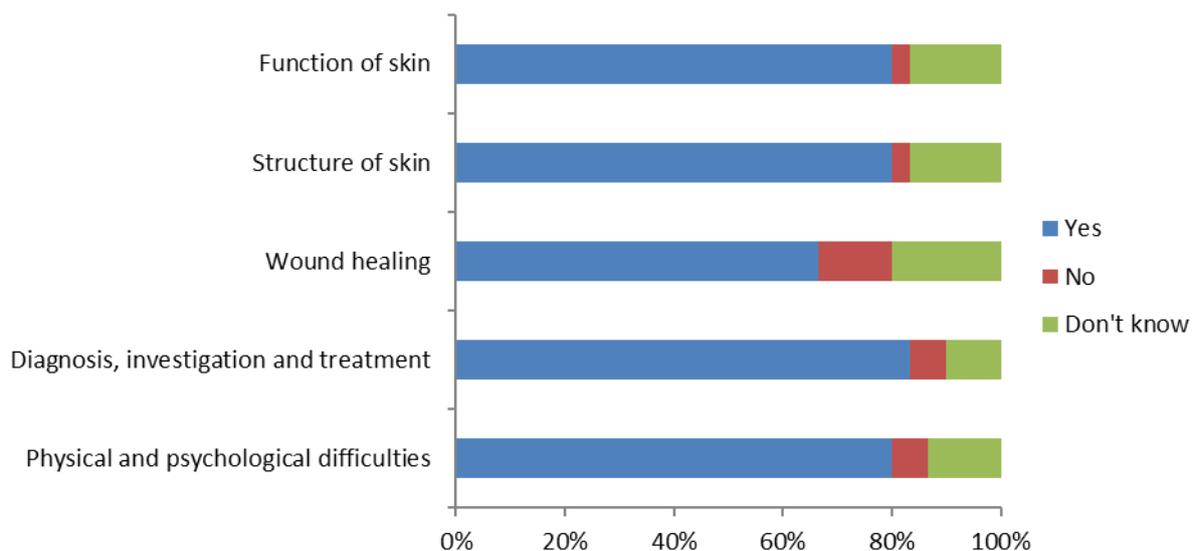
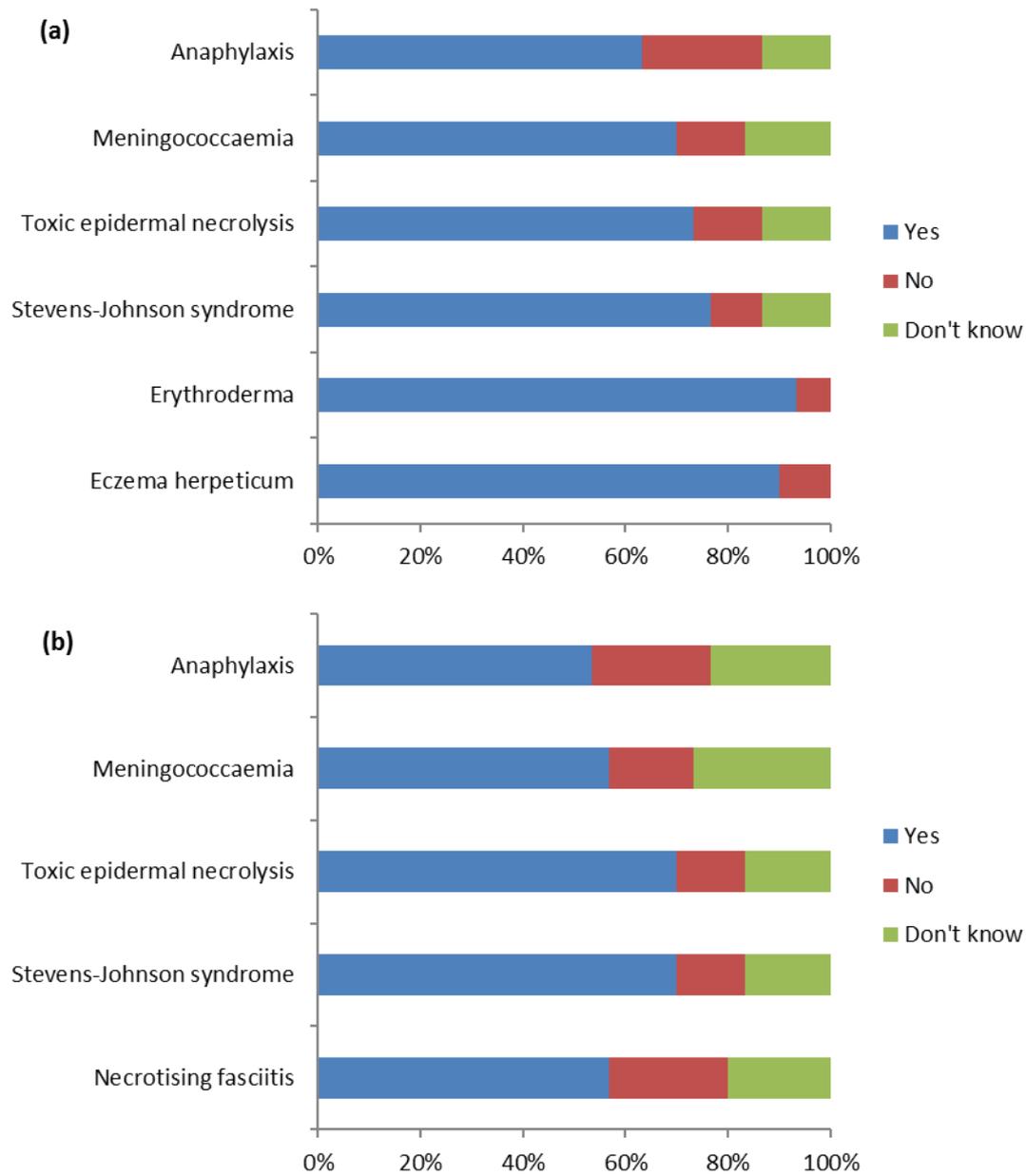


Fig 2. Learning outcomes: background knowledge.



Recognition and provision of first contact care for skin emergencies such as anaphylaxis, meningococcaemia, toxic epidermal necrolysis, Stevens-Johnson syndrome, erythroderma, eczema herpeticum and necrotising fasciitis did not feature in the curricula of some medical schools (Figure 3).

Fig 3. Learning outcomes: skin failure and emergency dermatology. (a) Recognition and potential complications; (b) provision of first contact care.



Skin infections and inflammatory skin disease showed varied results (Figure 4). Acne and psoriasis did not feature in the curricula of 5 (17%) and 2 (7%) medical schools respectively. Other common and important topics such as leg ulcers, purpuric rashes and itching did not feature in some medical schools (Figure 5).

Fig 4. Learning outcomes: skin infections and inflammatory disorders.

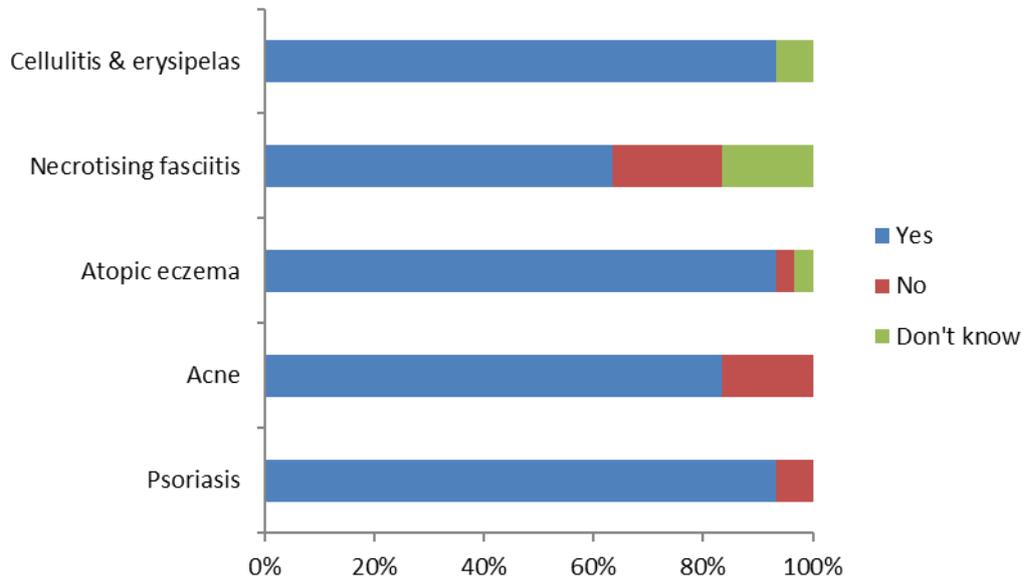
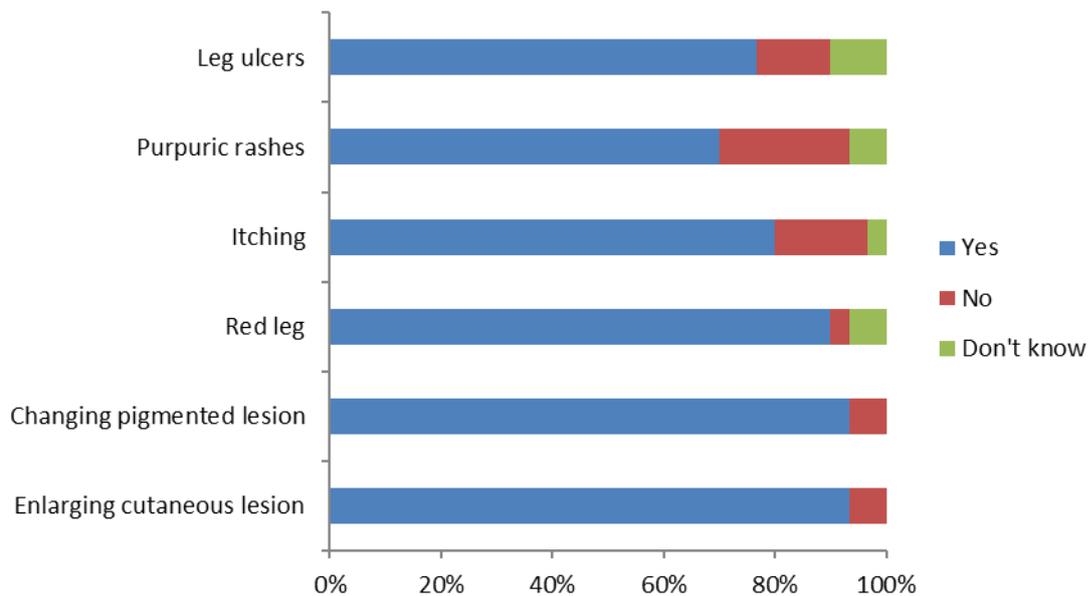


Fig 5. Learning outcomes: common and important problems.



Skin cancers such as basal cell carcinoma, squamous cell carcinoma and malignant melanoma did not feature in the curricula of 7% of medical schools (Figure 6). Drug eruptions did not feature in 10-17%.

Fig 6. Learning outcomes: skin tumours and signs of systemic disease.

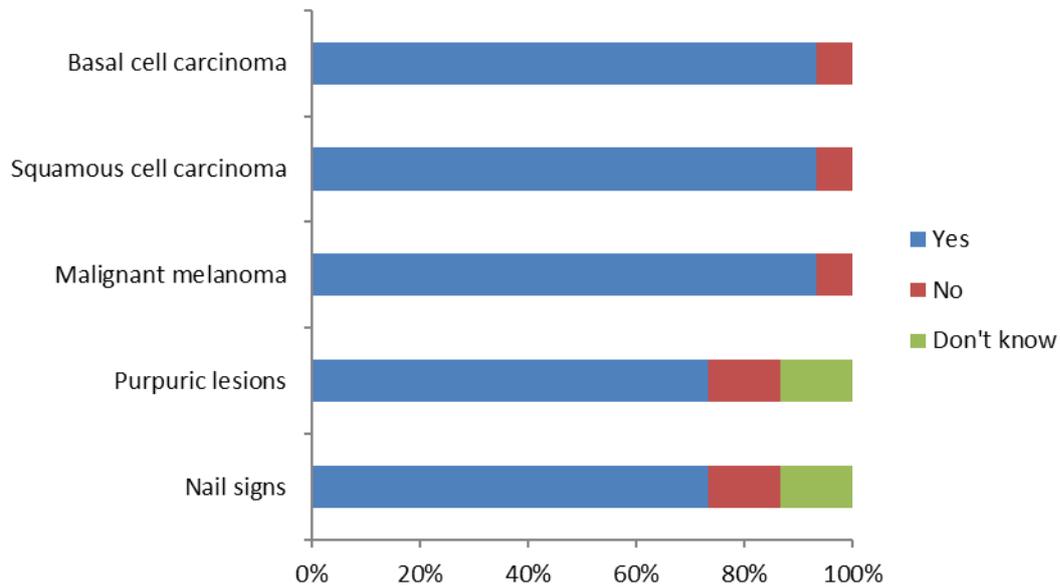
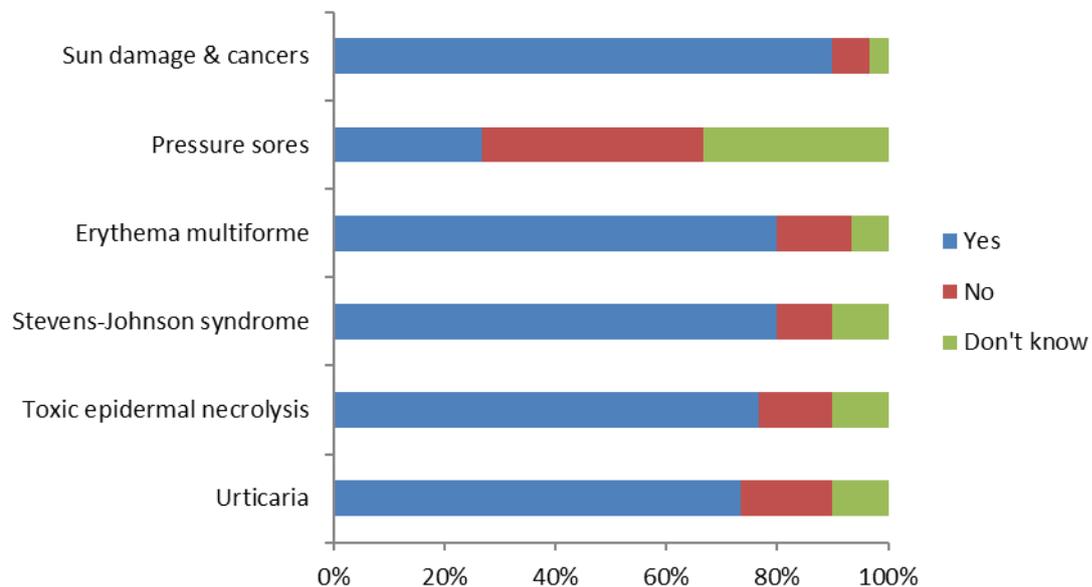


Fig 7. Learning outcomes: preventative medicine and drug eruptions.



Therapeutics, emollients and use of topical corticosteroids featured in the curricula of most medical schools (Figure 8). Clinical skills showed variable results but practical tasks such as taking a swab or skin scraping, and writing a prescription were frequently absent.

Fig 8. Learning outcomes: management and therapeutics.

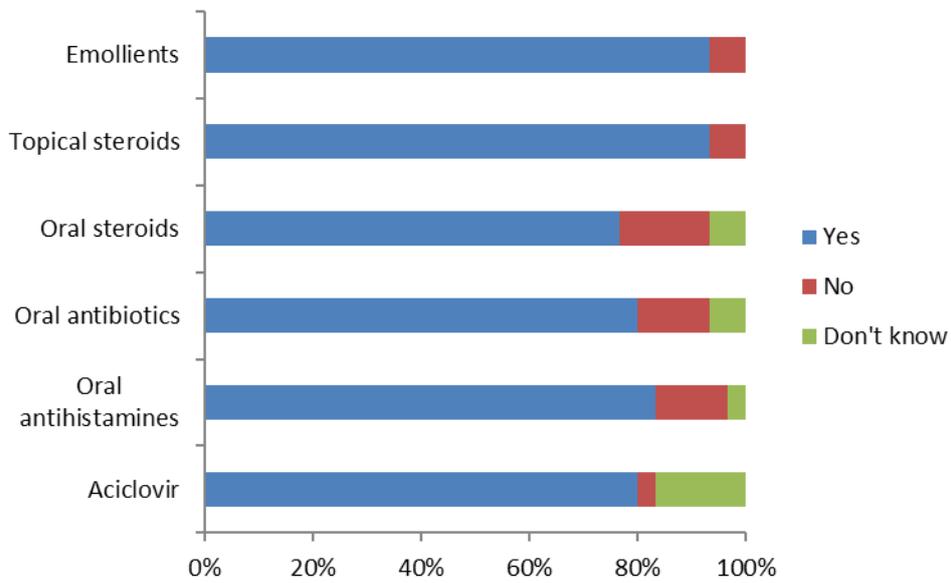
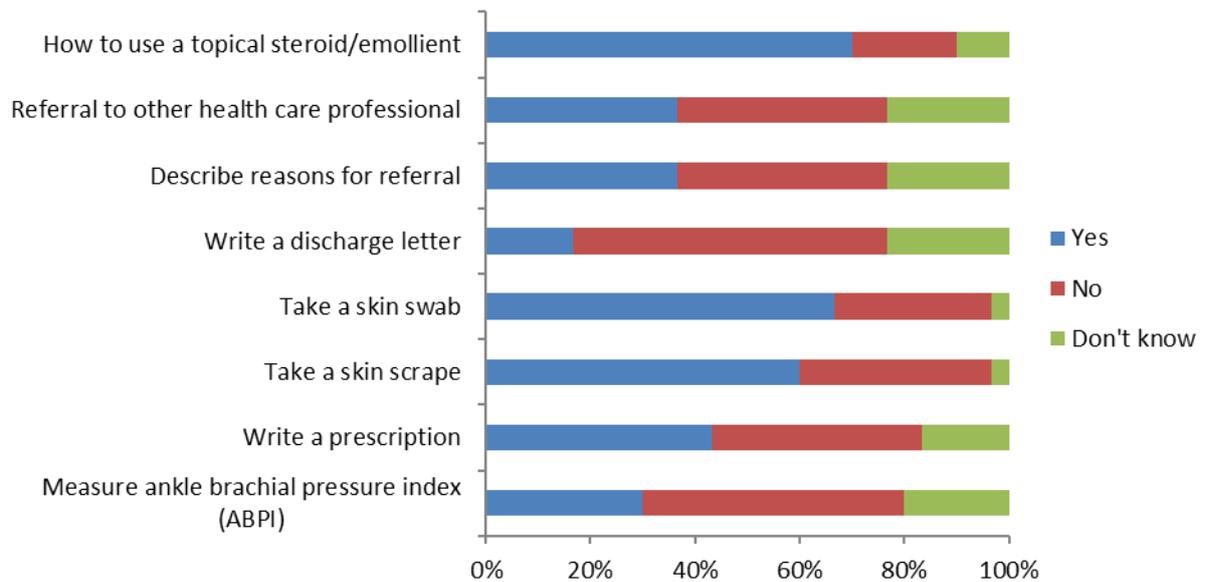


Fig 9. Learning outcomes: clinical skills



Learning and teaching methods

All medical schools taught in outpatient clinics and this was variably supported by tutorials, observation of surgery, observation of specialist nurses, problem based learning, lectures and use of logbooks. Ward based teaching and dedicated teaching clinics were offered in 53%, while expert patient workshops were used in 17% of medical schools (Table 5).

Table 5. Learning and teaching methods in dermatology.

Learning & teaching method	Number of medical schools	Percentage of schools (%)
Outpatient clinics	30	100
Tutorials	28	93
Observation of surgery	28	93
Observation of specialist nurses	26	87
Problem based learning	25	83
Lectures	25	83
Log book	24	80
Electronic learning	20	67
Clinical slides/images	20	67
Clinical skills laboratory	18	60
Ward based	16	53
Teaching clinic	16	53
BAD expert lectures	14	47
Other e-lectures	14	47
Histology demonstrations	7	23
Critical appraisal	7	23
Expert patient workshops	5	17

Assessment

Summative assessment is mandatory in only 17 medical schools (57%). Knowledge based assessment such as multiple choice questions (MCQ) and extended matching questions (EMQ) could feature in 90% of medical schools with objective structured clinical examination (OSCE) as the next most popular assessment method in 73%. Dermatology cases may feature in 73% of medical schools' final examinations.

Table 6. Assessment methods in dermatology

Learning & teaching method	Number of medical schools	Percentage of schools (%)
Knowledge-based	27	90
OSCE	22	73
Medical finals	22	73
Review of logbook	18	60
Mini-CEX or DOPS	5	17
Essay	4	13
Multisource feedback	3	10
Presentations	2	7
Mandatory assessment of core clinical skills	1	3

OSCE – objective structured clinical examination; CEX – clinical evaluation exercise; DOPS – direct observation of procedural skills

Comments on current or future dermatology curriculum

Twenty-two out of thirty (73%) of the dermatology teaching leads were happy with the current BAD curriculum. Six stated that the curriculum was too extensive or required simplification, with a few commenting that it is unrealistic to cover everything in the limited time available to teach. Some stated that parts of the dermatology curriculum were delivered in other rotations as there were overlaps with other specialties. One teaching lead suggested clarifying the depth of knowledge required for each topic, whilst another teaching lead thought that the curriculum should be reviewed using the Delphi method, with a good balance of specialisms on the panel. Two teaching leads suggested more paediatric dermatology and a greater focus on common skin conditions. Specific conditions mentioned were psoriasis, lichen planus, blistering disorders, pruritus in the elderly and hand dermatitis. Therapeutics of skin cancer and precancerous lesions were also mentioned. One teaching lead suggested focusing on diagnosis and management approaches rather than disease-based presentations. Other suggestions include highlighting the impact of dermatological conditions on patients' quality of life, clarifying teaching aims for GPs, and an increased emphasis on the visual nature of the specialty.

Comments on future changes to dermatology learning fell into four main categories: teaching, primary care, delivery and resources. Comments on teaching included the demand that all medical schools should have dermatology rotations, ideally longer in duration and taught earlier in the course; retention of basic lectures was favoured, supplemented by tutorials and case-based discussions; linking basic science to issues of clinical relevance was mentioned; more assessments were suggested, along with an expansion of dermatology teaching in general.

A significant proportion commented on the opportunity to integrate dermatology teaching with colleagues in primary care, with the expectation that more dermatology could be taught by GPs. Against this, one respondent mentioned the challenges of teaching dermatology in primary care; another suggested the BAD could provide courses for GP educators. One suggested that future teaching should be relevant to the needs of GPs; another felt that medical schools saw their role as to produce competent foundation doctors rather than GPs, with the result that dermatology teaching was not regarded as a priority.

There were also comments on issues regarding resources and delivery of teaching. Four teaching leads mentioned a lack of time to teach dermatology with current pressures of service delivery. One stated that there were too many students, hence dermatology had been removed from the curriculum. Other issues include lack of staff to teach, and the absence of specific academic teaching posts in dermatology. The desire to have more teaching resources was expressed, along with better utilisation of web resources and sharing between institutions.

Discussion

Compared to the audit in 2009,⁵ the number of responses received (30 vs 29 medical schools) and the broad pattern of results was remarkably similar. Although some of the responding medical schools differed between the two sets of data making direct comparisons more difficult, it appears that little has changed in the intervening years. This is not entirely surprising, as large-scale changes to medical school curricula and the duration of attachments occur very infrequently. We were, however, disappointed to find continued omission in some schools of specific important learning outcomes, such as those relating to dermatological emergencies.

Provision of undergraduate dermatology teaching in the U.K. and Ireland still varies widely between medical schools. A striking finding from the present survey, which was not assessed specifically in the earlier work, is that dermatology is only mandatory in 75% of medical schools. In other words, some students at a quarter of medical schools graduate having had no clinical attachment in dermatology. In some cases, this was site dependent, though one medical school had to stop teaching dermatology due to the large number of students. Additionally, extra opportunities for dermatology exposure had to be suspended in one medical school due to a shortage of staff, though almost all schools were able to offer this to at least a small number of students. The mean figure for minimum number of dermatology clinics that students are expected to attend has decreased from 5 to 3.5. This appears to represent further erosion of clinical exposure to the specialty, although some schools may take the view that this is offset by other non-clinic learning opportunities. Overall, it is concerning that exposure to undergraduate dermatology remains limited, and there is the possibility that some medical students may pass through their training with no clinical experience in the specialty at all. Since up to a quarter of new GP consultations are concerned with skin diseases,⁸ half of medical students tend to become GPs,⁹ and postgraduate placements in dermatology for GP trainees are scarce, reliable exposure to good quality dermatology teaching at undergraduate level is crucial.

Essential topics such as history taking, eliciting patients' concerns, skin examination, describing physical signs, and usage of topical treatments still featured highly in curricula, although some are still omitted at certain medical schools. Other areas which are covered well, as one would expect, are atopic eczema, psoriasis, acne and skin cancers. There are concerning omissions in some schools regarding skin emergencies and drug eruptions. In addition, relevant clinical skills such as taking a swab or skin scrapings, and measuring ABPI, are not included in a significant number of medical schools' curricula. These findings are broadly similar to the previous audit. It may be that these learning outcomes are covered in other areas of the undergraduate programme. Not receiving training on these topics may affect confidence in managing skin conditions after leaving medical school.¹⁰

Teaching is still largely carried out in outpatient clinics. There has been a small increase in the use of expert patients (from 2 to 5 medical schools), along with observation of the role of specialist nurses, and of skin surgery. Such varied modes of teaching should be applauded and encouraged, to highlight the range of the multidisciplinary team, as a means to accommodate extra students, and to mitigate staff, space and time constraints.

Assessment of undergraduate dermatology is still largely knowledge based. However, mini-clinical evaluation exercise and direct observation of procedural skills are being utilised more compared to previously. These are valid tools that are well established in assessing competence in postgraduate trainees.^{11,12} Dermatology can feature in medical finals in 73% of medical schools, though these data do not demonstrate in what frequency or amount. However, summative assessment of dermatology is only mandatory in 57% of medical schools. It is widely acknowledged that assessment drives learning¹³ and it thus seems essential that a meaningful amount of summative assessment of

dermatology should occur in all medical schools. This requires teaching leads and other interested dermatologists to engage with assessment teams in medical schools to influence the content of examinations.

Seventy three per cent of teaching leads were happy with the current BAD recommended learning outcomes. However, there were several responses suggesting that the current curriculum could be condensed, particularly in view of the limited time allocated for teaching. There were also suggestions on topics to be included in the curriculum, suggesting that the current BAD recommended learning outcomes should be reviewed. Some teaching leads agree that medical schools should have compulsory dermatology teaching, and that the rotations should be lengthened. As dermatology teaching is also delivered by GPs, teaching could be integrated between primary and secondary care. This is in keeping with a recommendation from the 2009 audit that all opportunities for learning dermatology should be taken. Issues regarding the balance between service delivery and teaching were highlighted, with lack of time and staff being cited. As noted above, this has directly affected undergraduate teaching in a small number of courses.

There are a few limitations to this survey. Recall bias may be introduced if teaching leads are not aware of the full curriculum and the provision of dermatology teaching throughout the medical school programme. Some apparently omitted learning outcomes may be covered in different parts of the undergraduate programme. It is conceivable that medical schools which did not complete the questionnaire lacked an interested lead in dermatology teaching. This may have led to non-response bias and might correlate with gaps in teaching and assessment. Overall however, the 86% response rate is likely to have yielded a representative picture.

These findings have provided data on the current provision of undergraduate dermatology in the U.K. and Ireland. We recommend that all medical schools should have a mandatory clinical attachment in dermatology and associated summative assessment should be mandatory. Where dermatology is taught in both secondary and primary care settings, delivery should be coordinated to optimise effectiveness and preferably quality assured. As tension between service delivery and teaching will always exist, the time allocated to teaching needs to be considered realistically to maximise resources, and to promote efficient learning.

Acknowledgements

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Appendix 1

Questionnaire sections

1. Background information
 - Total number of dermatology seminars/lectures
 - Is a dedicated dermatology attachment mandatory for all undergraduates? If yes, please summarise its duration
 - Minimum number of dermatology clinics that must be attended
 - In which year is most core dermatology teaching/learning?
 - Where does most dermatology teaching take place?
 - Where does dermatology teaching take place?
 - Who teaches dermatology to undergraduates?
 - Are there opportunities for extra undergraduate experience? If yes, how many students are able to undertake these?
2. Learning outcomes in dermatology
 - Essential clinical skills
 - Important outcomes
 - Skin failure and emergency dermatology
 - Skin infections
 - Inflammatory disorders
 - Common and important problems
 - Skin tumours
 - Signs of systemic disease
 - Preventative medicine
 - Drug eruptions
 - Management and therapeutics
 - Clinical skills
3. Learning and teaching methods in dermatology
 - Which of the following learning and teaching methods are used for dermatology?
4. Assessment in dermatology
 - Is there a mandatory summative assessment in dermatology?
 - Which of the following assessment methods are used for testing dermatological knowledge or skills?
5. Further comments
 - Are you happy with the current BAD undergraduate dermatology curriculum?
 - Please comment below including up to 3 suggestions for changes to the BAD undergraduate dermatology curriculum
 - What are your views on future changes to the dermatology learning in the undergraduate medical curriculum?
 - Please add any additional comments

Medical schools that responded to the survey

1. Aberdeen
2. Belfast
3. Birmingham
4. Brighton
5. Bristol
6. Cambridge
7. Cardiff
8. Cork
9. Dublin – University College Dublin
10. Dundee
11. Exeter (formerly Peninsula)
12. Glasgow
13. Hull/York
14. Keele
15. Leeds
16. Leicester
17. Liverpool
18. London - Barts and The London School of Medicine and Dentistry
19. London – Imperial College
20. London – King’s College London
21. London – St George’s
22. London – University College London
23. Manchester
24. Newcastle
25. Norwich – University of East Anglia
26. Nottingham

27. Oxford

28. Southampton

29. Swansea

30. Warwick