

Are the bigger hospitals better: DREEM on?

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Abstract

Background Clinical teaching in the undergraduate medical curriculum occurs at diverse sites. Analysis of the quality or effectiveness of such sites centres on student feedback. The Dundee Ready Education Environment Measure (DREEM) is a standardised instrument used internationally to analyse the educational environment.

Aim Our objective was to analyse and compare the student experience at a range of hospital clinical sites in the year 3 undergraduate medical programme in the School of Medicine in University College Cork using the DREEM.

Methods All year 3 students were asked to complete the DREEM at the end of each hospital rotation.

Results All hospital sites performed well but smaller hospitals perform particularly well.

Conclusions In the current climate, schools are compelled to make strategic decisions regarding the configuration of clinical teaching in a context where healthcare is also increasingly centralised. However, it is clear that smaller hospitals are preferred by students.

Keywords DREEM · Medical education · Hospital clinical attachments · Undergraduate clinical teaching

Background

Clinical placements in hospital and community settings form the basis of undergraduate medical education. The importance of early exposure to clinical practice has been

highlighted, by the GMC and the Fottrell report, as a focus for curricular reform [1, 2]. Patient contact is now encouraged from the outset of medical training [3]. The focus of this study is the evaluation of hospital clinical placements at a large tertiary referral centre and at smaller hospital sites. Student evaluation of their clinical experience helps to promote a student-centred curriculum. The use of robust evaluation instruments in such evaluations is essential [4].

The Health Service in Ireland is currently undergoing significant reform in relation to the location and manner of delivery of clinical care. Increasingly many acute clinical services are centralised in tertiary centres [5]. The consequences of reconfiguration will influence the delivery of the clinical curricula in all Medical Schools in Ireland. The reduction in acute care services at smaller and peripheral hospitals, with the emphasis shifting to chronic disease management, will mean that clinical exposure during placements at these sites will be significantly altered. This may lead to clinical placements tending to be concentrated at major regional sites.

In future, the impact of financial constraints on decisions regarding the delivery of the curriculum may also lead to a tendency to deploy students to larger centres to allow pooling of resources.

Aims

We wanted to evaluate the current experience of our students across the range of hospital sites through which they rotate in year 3 of the undergraduate medical programme.

These rotations, after Christmas, occur at a point at which the biomedical sciences curriculum has been

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covered. They are the first full-time clinical rotations for these students all of whom rotate through two hospital and one community based site. The rotations are configured to provide students with an opportunity to perfect their history-taking and physical examination skills by exposing them to representative common clinical presentations. Students are assigned to sites in representative groups with a male/female, national/non-national balance.

Students have fulltime clinical attachments for 4 weeks at each of two hospital sites. These two rotations were undertaken at different hospital sites, therefore some students ($n = 49$) rotated through one large and one smaller site, while the remainder ($n = 59$) rotated through two smaller sites, typically one peripheral and one Cork hospital.

All clinical hospital sites have assigned clinical lecturers affiliated to the Medical School with most consultants on an honorary senior lecturer contract. There are academic appointments at most sites but substantive academic roles, e.g. senior lecturer or professorial appointments are clustered in the largest hospital.

At present, students rotate to Cork University Hospital, Bon Secours Hospital Cork, Kerry General Hospital, Mercy University Hospital, South Infirmary Victoria Hospital and South Tipperary General Hospital. Cork University Hospital is a true tertiary referral site with a bed capacity of over 800. The other sites have a bed capacity between 250 and 400 and although some may serve specified tertiary functions, they are mainly secondary referral in nature. Currently, the largest site appears to be the most cost-effective with deployment to peripheral sites incurring accommodation and educational refurbishment costs some of which are absorbed by the School.

Methods

All year 3 students ($n = 108$) in 2008/2009 were requested to complete a standardised evaluation instrument, the Dundee Ready Education Environment Measure (DREEM) [6] at the end of each of their two hospital rotations. The DREEM contains 50 statements relating to educational environment. Each statement is assessed using a 5-point Likert scale ranging from strongly agree to strongly disagree. Items are scored as follows: strongly agree (4); agree (3); uncertain (2); disagree (1); strongly disagree (0). The 50 items have a maximum score of 200 indicating the ideal educational environment. The following is an approximate guide to interpreting the overall score: 0–50 very poor, 51–100 plenty of problems, 101–150 more positive than negative, 151–200 excellent [7].

As well as the total DREEM score the following five subscales can be analysed:

- Students' perceptions of learning (12 items, max score 48)
- Students' perceptions of teachers (11 items, max score 44)
- Students' academic self-perceptions (8 items, max score 32)
- Students' perception of atmosphere (12 items, max score 48)
- Students' social self-perceptions (7 items, max score 28)

All forms were analysed and inputted into Graphpad INSTAT version 3. Total DREEM scores as well as subscale scores were calculated for each site and total scores as well as subscale scores were compared in all sites using a Mann–Whitney U non-parametric test.

Ethical approval was granted by Cork Regional Ethics Committee.

Results

Two completed DREEM questionnaires were obtained for each student, however, due to incomplete form filling 199 out of 216 questionnaires were utilisable for data analysis. Student demographics are described in Table 1.

The scores obtained in the DREEM subscales are presented in Table 2 and Fig. 1

All sites performed well, however, there were statistically significant differences between the perception of learning, perception of teachers and perceptions of atmosphere in favour of the smaller sites compared to the largest site as outlined in Fig. 1 and Table 3. There was no significant difference on the academic and social self-perception subscales between larger and smaller sites. There were no significant differences between those for whom English was a first language and not, nor were any significant differences found between graduate students and undergraduates. Of note, the group who were at the larger site did show significant differences between males and females on the academic ($p = 0.009$) and social self-perception ($p = 0.0082$) subscales, with females scoring lower on both. This pattern was not seen in the smaller hospital sites.

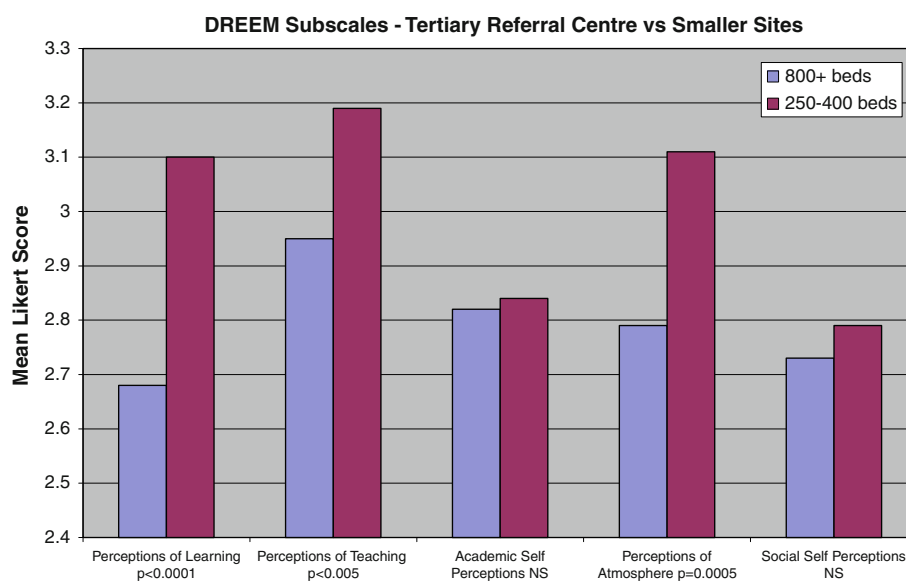
Detailed analysis of the evaluation of the learning and teaching data suggests that all teachers are held in high regard but that there was more encouragement and constructive feedback from teachers at smaller sites with those

Table 1 Demographics

Class demographics	Male:female ratio	Average age	Undergraduate: postgraduate ratio
$N = 108$	51:57	23 years	81:18 (9 unknown)

Table 2 DREEM subscales and totals

	Perception of learning	Perception of teachers	Academic self-perceptions	Perceptions of atmosphere	Social self-perceptions	Total
Max score	48	44	32	48	28	200
All hospitals ($N = 199$)	36.59	34.37	22.66	36.38	19.46	149.47
800+ beds hospital ($N = 49$)	32.16	32.45	23.53	33.53	19.1	140.77
250–400 beds hospital ($N = 150$)	38.13	35.05	22.74	37.37	19.57	152.86

Fig. 1 DREEM subscales tertiary referral and other sites

in the tertiary referral site who were perceived as more authoritarian and more likely to show anger towards students. Students felt more motivated at smaller sites and identified the teaching as more student-centred and more stimulating, helping to build their confidence and competence. The clinical attachments at the tertiary referral site were more likely to be described as disappointing. The atmosphere was also felt to be far more relaxed in the smaller hospitals with fewer timetabling issues arising here. Analysis of differences between firms within sites was not undertaken due to limitations of sample size.

Conclusions

All sites performed well overall with an average score (152.07) in the excellent range.

However, statistically significant differences emerged in favour of the smaller sites on the overall score, subscales relating to learning, teachers and atmosphere and several individual statements within these subscales. Our results mirror findings in other Schools in the UK and Northern Ireland evaluating educational environment in larger tertiary referral centres and district general hospitals, where

smaller peripheral hospitals have been praised for the more approachable nature of the teaching staff; the interest shown in students and the time allocated to student feedback [8, 9]. It would appear that our year 3 students similarly found staff at the smaller hospitals more supportive and the atmosphere more relaxed and conducive to learning.

The DREEM questionnaire does not collect qualitative data and the reasons for the differences in the evaluation of the clinical placements remain unclear. The variability inherent in clinical rotations has been noted by many others [10–12] and it is known that adequate supervision and feedback from senior staff increase the likelihood of that rotation enabling students to achieve desired competencies [13]. Students should be actively engaged as part of the team, with designated mentoring responsibility where the trainee is observed performing tasks and where there is supervised student reflection for an optimal educational environment [13].

While some tertiary centres are heavily populated with medical students, which might impact on the quality of the clinical placement, this is not the case at our larger hospital site. Student allocations are dictated by numbers of consultants contracted to teach and range of services at the site.

Table 3 DREEM subscale scores

Perceptions of learning	800+ beds	<400 beds	<i>P</i> value
I am encouraged to participate during tutorials/tutor teaching/bedside teaching	3.18	3.56	0.0017
The teaching is often stimulating here	3.02	3.41	0.0008
The teaching is student-centred here	2.45	3.29	<0.0001
The teaching here helps to develop my competence	2.86	3.37	0.0007
The teaching here is well focussed	2.49	3.17	<0.001
The teaching here helps to develop my confidence	2.63	3.34	<0.001
The teaching time is put to good use here	2.37	3.19	<0.001
The teaching overemphasises factual learning*	2.31	2.42	0.5935
I am clear about the learning objective of the attachment	2.59	2.97	0.0147
The teaching encourages me to be an active learner	2.94	3.39	0.0002
Long-term learning is emphasised over short-term learning	2.73	3.01	0.0588
The teaching is too teacher-centred here*	2.59	2.97	0.0045
Perceptions of teaching			
The teachers are knowledgeable here	3.39	3.48	0.2226
The teachers are patient with patients	3.2	3.44	0.0026
The teachers ridicule the students*	2.56	3.23	0.0076
The teachers are authoritarian*	2.49	2.81	0.0315
The teachers have good communication skills with patients	3.14	3.39	0.0193
The teachers are good at providing feedback to students	2.63	3.08	0.0093
The teachers provide constructive criticism	2.86	3.15	0.0743
The teachers give clear examples	3.08	3.15	0.2545
The teachers get angry in class	3.02	3.39	0.0063
The teachers are well prepared for teaching sessions/tutorials	3.06	3.09	0.7326
The students irritate the teachers*	2.73	2.89	0.3075
Perceptions of atmosphere			
The atmosphere is relaxed during ward teaching	2.61	3.15	0.0006
This attachment is well timetabled	2.27	3.04	<0.0001
Cheating is a problem at this school*	2.76	2.98	0.1496
The atmosphere is relaxed during tutorials/lectures here	3.04	3.19	0.0704
There are opportunities for me to develop interpersonal skills on this attachment	3.12	3.31	0.0602
I feel comfortable in class socially	3.2	3.33	0.1429
The atmosphere is relaxed during teaching in general here	2.89	3.21	0.0019
I find the experience of this attachment disappointing*	2.49	3.13	<0.0001
I am able to concentrate well here	2.77	2.98	0.0591
The enjoyment of this attachment outweighs the stress of studying medicine	2.61	2.83	0.2250
The atmosphere here motivates me as a learner	2.79	3.16	0.0167
I feel able to ask the questions I want here	3.1	3.32	0.1117

* Indicates that this statement is negative and therefore the Lickert scoring has been reversed. A higher Lickert score on these items, as shown in the table, indicates disagreement with the statement

The student:supervisor ratio is constant across all sites with each consultant (contracted honorary senior clinical lecturer) supervising two to three students. It seems unlikely therefore that an overload of students at the larger site explains the preference for smaller sites.

Similarly, there is equal provision of lecturer support at all hospital sites. Each hospital has at least one designated site clinical lecturer who is available to the students on a daily basis. The clinical site lecturer oversees the clinical

placements, provides small group learning and bedside teaching at the site and runs sessions where students reflect on professionalism issues they have encountered during their attachment. These “site tutors” are in close daily contact with the students which enables the early identification and support of students in difficulty. The ratio of students to site tutor for year 3 students is 7:1 across all the hospital sites.

Our scores for students’ academic self-perceptions and social self-perceptions were low, which is a common

finding in other evaluations using DREEM and highlight the challenges and stressful nature of the undergraduate medical course [10, 14]. These scores did not vary significantly between sites. Our scores are higher than elsewhere and this may be due to the success of mentoring and the pastoral support offered by site clinical lecturers [11].

It is interesting that female students at the larger site have significantly lower academic and social self-perceptions than their male counterparts on the same clinical placement. It would seem that the experience of a disappointing and demotivating placement impacts the female students to a greater degree, diminishing their self-confidence outside the clinical arena. Gender differences have been described previously in DREEM evaluations, however, in the Western world these have tended to show female students being more satisfied with their clinical placements [7, 12]. This is an area which will need further examination.

Although the nature of the clinical workload may differ between sites, the conflicting demands of research, service delivery and teaching are universal. All clinicians are equally stretched, albeit for possibly differing reasons. The style adopted in the smaller hospitals certainly appeared to have been more student-centred and conducive to learning.

Our findings mirror those found in the UK, but are to our knowledge, the first publication of findings highlighting the difference between larger and smaller clinical placement sites in the Irish clinical context. Students have also completed more detailed quantitative and qualitative reports on each of the sites, currently being analysed, which will hopefully explore in more detail the reasons sites perform differently. We wonder whether our findings are relevant to other schools.

Financial considerations will increasingly predominate in clinical curricular decisions. It is perhaps cost-effective to pool resources and centre students in the larger tertiary referral sites, which often already have a cadre of academic staff and which are usually proximal to medical schools. Also, as reconfiguration takes place it may be that exposure to acute presentations will only be available at larger regional sites. Within the healthcare centralisation debate, the student voice should be heard. Students have identified that they benefit greatly from the clinical experience in the smaller teaching hospitals. This has implication for strategic decisions made in all Schools and perhaps the larger centres have something to learn from the smaller ones.

We are delighted that all sites performed so well and wish to acknowledge the contribution of the smaller sites in particular. It is more expensive and administratively

challenging to disperse students geographically, possibly incurring accommodation and travel costs (some of which Medical Schools absorb). Furthermore configuring academic appointments at such sites can be challenging. The results of this study, however, suggest it is a worthwhile endeavour from the students' perspective.

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