

# Enhancing capacity for intern training in the emergency department: the MoLIE project

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The large increase in medical graduate numbers between 2005 and 2012 is currently the greatest challenge for postgraduate medical education and training in Australia. Australian domestic graduate numbers are estimated to rise by 81% over this period,<sup>1</sup> and even more dramatically in some states. Queensland Health, for instance, has projected an increase in graduate numbers from 300 in 2007 to 727 in 2014 — a rise of 142%.

Despite offering a potential long-term solution to a national doctor shortage, this rising tide of graduating doctors is a significant immediate challenge for postgraduate medical education providers and health services.<sup>1,2</sup> Graduates must progress through further years of training while working as junior doctors, and require adequate clinical and educational supervision, with sufficient exposure to patient care. The traditional apprenticeship model in teaching hospitals is unlikely to be able to absorb a doubling of intern numbers without reducing the quality of training or leaving clinical service provision less safe and efficient.<sup>3,4</sup> This challenge is most immediate in intern and prevocational training,<sup>5</sup> and pertains to both metropolitan and rural settings.<sup>6</sup> The pressure on intern training capacity is further exacerbated by an increase in the number of international full-fee-paying medical students seeking work in Australia after graduation who are not currently guaranteed an internship position.<sup>7</sup>

Emergency medicine, in particular, is a “bottleneck” for intern placements. In most Australian states, 8–10 weeks of emergency medicine experience is part of the internship requirement for general registration. In the emergency department (ED), intern numbers are limited by the supervisory capacity of senior ED staff and by a service model requiring optimal efficiency of patient flow. This bottleneck has led to critical review of the need for an emergency medicine term as a core requirement in some jurisdictions, and a search for alternative ways of providing the ED educational experience.<sup>8</sup>

However, the retention of the ED term as a core component of intern training has received overwhelming support among junior doctors, their supervisors and those involved in medical education.<sup>8,9</sup> It offers an

## ABSTRACT

**Objective:** To evaluate an intern educational project, the More Learning for Interns in Emergency (MoLIE) project, designed to increase intern placements in the emergency department (ED).

**Design, setting and participants:** The study was conducted in the ED of the Royal Brisbane and Women’s Hospital, Queensland, in 2008. As well as the usual direct contact with patients, interns had 8 hours per week of “off the floor” structured learning time supervised by consultants. This allowed for an increased number of interns to complete a term in the ED over a 1-year period. The study was evaluated by an intern exit feedback survey and a senior staff survey.

**Main outcome measures:** Numbers of intern placements in the ED; intern satisfaction with the project; senior medical staff satisfaction with interns’ skills and performance assessments.

**Results:** The number of interns completing a term in the ED increased from 65 in 2007 to 90 in 2008. Overall, the 90 interns surveyed were highly satisfied with their training. Most agreed or strongly agreed that the sessions were relevant and covered the right mix of clinical and professional issues. Most of the 12 senior staff surveyed felt that the participating interns performed slightly or much better than interns in previous years, and that their experience as supervisors and overall patient care were improved.

**Conclusions:** The project successfully combined increased intern numbers with educational outcomes that were well perceived by interns and senior staff, without adversely affecting service delivery or supervision workload in the ED.

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opportunity to fulfil many of the learning capabilities listed in the Australian Curriculum Framework for Junior Doctors (ACFJD),<sup>10</sup> especially those relating to communication and professional skills.

In addition to concerns about the capacity of education and training systems to accommodate additional graduates, there are calls for review of prevocational educational processes to enhance quality<sup>11,12</sup> and better prepare graduates for the 21st century health care workplace.<sup>13</sup> Australian and international research indicates that many interns feel poorly prepared for practice.<sup>14–17</sup> A survey by Dent and colleagues found that only 56% of interns felt they had sufficient contact with consultants, and 81% said they would prefer more formal instruction from consultants.<sup>17</sup>

Against this backdrop, a report by Queensland Health’s Ministerial Taskforce on Clinical Education and Training<sup>18</sup> led to the provision of \$33 million to develop infrastructure for clinical education and training of junior doctors, including the creation of more intern positions in public hospitals. In 2007, as part of this program, Queensland Health funded

the design and implementation of an innovative intern training program in the Department of Emergency Medicine (DEM) at the Royal Brisbane and Women’s Hospital (RBWH). The More Learning for Interns in Emergency (MoLIE) project commenced development in July 2007, with delivery beginning in January 2008. The twin goals of the project were to increase the placement of interns in the ED while enhancing their educational experience.

Our article examines interns’ and supervisors’ subjective experiences of the MoLIE project. We report data on changes in the number of intern placements in the ED term, interns’ satisfaction with the program, and senior medical staff’s satisfaction with the program and assessment of interns’ performance.

## METHODS

### Setting

The MoLIE project was conducted in the DEM of the RBWH. The hospital has an annual ED census of about 75 000 presentations, with a diverse casemix.

## Education program

The education program commenced in 2008. Fellows of the Australasian College for Emergency Medicine (ACEM) were recruited as program faculty. Dedicated protected teaching time was provided by 1.75 new full-time equivalent positions, with a total of seven Fellows each committing 1 day per week to teaching. Faculty were selected on prior educational experience, particularly in small group learning. The team then undertook faculty development activities to ensure consistency and congruency of the teaching approach.

The curriculum was developed in a modular format, with each module covering a key presenting complaint or core topic in emergency medicine (Box 1). Individual Fellows wrote two or three modules, which were then independently reviewed by a second faculty member. One faculty member oversaw all the writing and reviewing to avoid duplication or omissions. A curriculum revision was undertaken after the second intern term in 2008, with minimal changes to core content.

## Educational content

Each module comprised three or four structured cases representing typical ED patient care episodes. For each case, clinical information was provided, followed by questions designed to prompt discussion on key clinical communication and professional aspects. Some modules included procedural skills, which were practised within the context of the case. Content was mapped against the ACFJD.<sup>10</sup> The MoLIE curriculum covered 59 of the 63 topics listed in the ACFJD, as well as 54 out of 72 “skills and procedures” and 40 out of 62 “common problems and conditions”.

## Delivery of the program

MoLIE sessions, each of 4 hours' duration, were conducted four afternoons per week. Interns were rostered to attend an average of two sessions per week, before or after a half-day ED clinical shift. Thus, each intern received 20% “off the floor” structured learning time in MoLIE sessions. Additional interns (above the normal quota for the ED) were accommodated without changing the supervision ratio on the floor, by reducing direct patient care time and by meticulous rostering (including complementary rostering of post-graduate Year 2 and Year 3 residents).

About six interns per session were led by one or two faculty members. MoLIE sessions were conducted in a dedicated tutorial room with a whiteboard, large plasma screen television, laptop computer, and access to the internet. The role of faculty members was in

### 1 MoLIE module titles

Module	Title
1	General approach to the emergency patient
2	The patient with chest pain
3	The breathless patient
4	The patient with abdominal pain
5	Altered level of consciousness
6	The poisoned patient
7	The patient with PV bleeding
8	Collapse/syncope
9	The multiply injured patient
10	Minor injuries
11	ENT and eye
12	Fever
13	Resuscitation
14	Communication in the ED
15	Paediatrics
16	Environmental injuries
17	Headache
18	The patient with GI bleeding
19	The patient with weakness
20	Case presentations

ED = emergency department. ENT = ear, nose and throat. GI = gastrointestinal. MoLIE = More Learning in Emergency. PV = per vaginal. ◆

facilitating clinical reasoning and small-group discussion, rather than just direct presentation of content. A total of 204 MoLIE sessions were delivered in 2008, representing 816 direct-contact, focused educational hours.

## Project evaluation

Participation in the project evaluation was voluntary. Data for the evaluation were obtained from two sources. First, 90 interns (36 men and 54 women) completed a 22-question survey at the end of their ED term. This included four items assessing the content of the MoLIE modules, six items assessing the facilitators, five items assessing the educational process, and one item and two open-ended questions assessing the overall program. All items except the open-ended questions elicited five-point Likert scale responses, which were examined using descriptive statistics. Content analysis was conducted to identify the most and least useful aspects of the MoLIE project.

Second, at the end of 2008, 12 senior medical staff (nine Fellows of the ACEM and three DEM registrars) were surveyed. Eight of the respondents had no involvement in the development or delivery of the MoLIE project

and the remaining four ED supervisors were MoLIE facilitators. All participants were asked to complete eight Likert-scale items rating their perceptions of the impact of the project on the interns and on overall patient care in the ED, and their own experiences as clinical supervisors.

## Ethics approval

Our study was approved by the RBWH Human Research Ethics Committee.

## RESULTS

### Intern numbers

The MoLIE project enabled 90 interns to complete an ED term at RBWH in 2008, compared with 65 in 2007 (an increase of 38%).

### Intern feedback

Intern responses to the satisfaction survey are shown in Box 2. Overall, the interns were highly satisfied with the MoLIE experience. Most agreed or strongly agreed that the sessions were relevant, covered the right mix of clinical and professional issues, and were delivered in an interesting and engaging format.

In the open-ended responses, two core themes regarding the positive aspects of the program emerged: the relevance of the educational experience to interns' workplace clinical activities, and the positive aspects of spending time with ED consultants (Box 3). Although most interns did not provide information about the least useful aspect of the MoLIE project, two stated that they did not like time away from clinical work and two said they would have liked some sessions to be earlier in their ED rotation.

### Supervisor perceptions of the program

Senior staff perceptions of the impact of the MoLIE project and the additional intern numbers are summarised in Box 4. Most senior staff felt that the interns' skills were slightly better or much better in 2008 compared with previous years. They also felt that patient care, their experience as supervisors, and the quality of intern performance assessments were better overall.

## DISCUSSION

Increasing the number of junior doctors and maintaining high-quality clinical and educational outcomes are not necessarily mutually exclusive. The success of the MoLIE project demonstrates that a structured learning program can allow the provision of more ED

## 2 Intern satisfaction with the MoLIE project, 2008

Item	Response range	Median (IQR)	Number of interns who responded to each point on the Likert scale*				
			1	2	3	4	5
<b>Items about MoLIE modules</b>							
The cases used in MoLIE were relevant to the work I was doing on the floor <sup>†</sup>	(1) not relevant to (5) relevant	5 (5–5)	0	0	0	9	81
The modules were pitched at the correct level for interns <sup>‡</sup>	(1) too hard to (5) too easy	3 (3–3)	9	3	<b>68</b>	7	3
There was the right proportion of clinical versus professional issues <sup>‡</sup>	(1) too clinical to (5) too professional	3 (3–3)	4	3	<b>77</b>	5	0
The modules covered sufficient breadth of clinical presentations <sup>‡</sup>	(1) too broad to (5) too narrow	3 (3–3)	4	3	<b>80</b>	3	0
<b>Items about MoLIE facilitators</b>							
The facilitators were similar in their approach to the sessions <sup>‡</sup>	(1) very similar to (5) very different	2 (2–3)	4	41	24	17	3
The facilitators provided a better experience when there were two facilitators <sup>‡</sup>	(1) strongly disagree to (5) strongly agree	4 (3–4)	1	12	30	<b>28</b>	19
The facilitators made the session interesting <sup>‡</sup>	(1) strongly disagree to (5) strongly agree	5 (4–5)	0	1	1	22	<b>66</b>
The facilitators were knowledgeable on their topic <sup>‡</sup>	(1) strongly disagree to (5) strongly agree	5 (5–5)	1	0	0	4	<b>85</b>
The facilitators explained concepts clearly when required <sup>‡</sup>	(1) strongly disagree to (5) strongly agree	5 (5–5)	0	0	0	15	<b>74</b>
The facilitators prompted me to think about professional issues such as communication, ethics, etc <sup>‡</sup>	(1) strongly disagree to (5) strongly agree	5 (4–5)	1	0	9	31	<b>49</b>
<b>Items about the sessions</b>							
The sessions were the right length <sup>‡</sup>	(1) too long to (5) too short	3 (3–3)	0	4	<b>69</b>	14	3
The sessions provided a welcome break from the floor work <sup>‡</sup>	(1) strongly disagree to (5) strongly agree	5 (4–5)	1	2	5	18	<b>64</b>
It was easy to handover and get to MoLIE on time <sup>‡</sup>	(1) strongly disagree to (5) strongly agree	3 (2–4)	2	32	28	24	4
The MoLIE sessions were a negative distraction from clinical work <sup>‡</sup>	(1) strongly disagree to (5) strongly agree	1 (1–1)	<b>68</b>	18	4	0	0
The sessions were similar to medical school tutorials <sup>‡</sup>	(1) strongly disagree to (5) strongly agree	2 (1–3)	36	25	18	10	0
<b>Overall</b>							
I am more likely to choose emergency medicine as a career after participating in MoLIE <sup>§</sup>	(1) strongly disagree to (5) strongly agree	4 (3–4)	3	3	33	34	14

IQR = interquartile range. MoLIE = More Learning in Emergency. \*Numbers in bold represent the most favourable responses. †n = 90. ‡n = 89. §n = 87.

## 3 Sample responses from interns about the most useful aspects of the MoLIE project in two domains: relevance and access to consultants

### Relevance to interns' workplace clinical activities

- "Overall clinically relevant"
- "Concentration on common presentations and on their management"
- "Relevance to floor work. Develop confidence with procedures and skills"
- "Practical clinical teaching, able to discuss cases we had seen"
- "Revision of important topics, which gave me more confidence on the floor"

### Access to consultants

- "Access to consultants for any questions simple or hard"
- "Being able to deal with consultants directly"
- "Valuable time with consultants (they rarely get to see interns), making it easier to approach them on the floor — more learning"

MoLIE = More Learning in Emergency.

intern training places at the same time as enhancing the training experience and providing a positive outcome for clinical supervisors. Through a structured learning adjunct to traditional bedside teaching in the ED, interns potentially improved their reflection on and learning from patient care exposures, despite reduced time spent with patients.

Moreover, senior staff felt that this was achieved without compromising the quality of patient care.

There were limitations to our evaluation strategy. Positive feedback from interns or self-reported improvements in competence are no guarantee of objective improvement in performance. Supervisor feedback may be

subject to a general "halo effect" or feeling of goodwill about the project, which may have biased responses. On the other hand, the fact that responses were mainly positive, in spite of a 38% increase in intern numbers, suggests that the apparent positive effect of the MoLIE project was valid.

The MoLIE project was resource-intensive, with protected clinical educator time (requiring back-up by replacement Fellows of the ACEM) being the most significant financial cost. Availability and funding for clinical supervisors may be a key constraint as post-graduate medical education systems struggle to absorb additional medical graduates.

The MoLIE project continued at RBWH in 2009 and 2010 with recurrent funding from Queensland Health. The project was expanded to two additional teaching hospitals in 2010 (Townsville Hospital and Princess Alexandra Hospital, Brisbane), with a 25%–50% increase in intern numbers intended at these sites. The clinical teaching model continues to be led by Fellows of the ACEM, with

## 4 Senior staff perceptions of the MoLIE project, 2008

Item	Median (IQR)	Number of supervisors who responded to each point on the Likert scale*				
		Much better	Slightly better	Unchanged	Slightly worse	Much worse
Compared with previous years, I feel that the interns' clinical skills are ... <sup>†</sup>	2 (1.5–2.5)	3	6	3	0	0
Compared with previous years, I feel that the interns' communication skills are ... <sup>†</sup>	2 (1–2)	5	5	2	0	0
Compared with previous years, I feel that the interns' professional skills are ... <sup>†</sup>	2 (2–2.5)	2	7	2	1	0
I feel that the effect on patient care at RBWH DEM as a result of MoLIE and increased intern numbers has been ... <sup>†</sup>	2 (2–3)	1	7	4	0	0
I feel that my experience as a clinical supervisor on the floor as a result of MoLIE and increased intern numbers has been ... <sup>†</sup>	2 (1.5–2)	3	6	3	0	0
I feel that the quality of performance assessments for interns this year at RBWH DEM as a result of MoLIE and increased numbers has been ... <sup>‡</sup>	2 (1–2)	3	7	1	0	0
My impression of the interns' view of the ED term this year is that it has been ... <sup>†</sup>	1 (1–1)	11	0	1	0	0
I feel that the supervision workload for registrars and consultants on the floor has been ... <sup>†</sup>	2 (2–3)	0	5	6	0	1

DEM = Department of Emergency Medicine. ED = emergency department. IQR = interquartile range. MoLIE = More Learning in Emergency. RBWH = Royal Brisbane and Women's Hospital. \*Numbers in bold represent favourable responses. †n = 12. ‡n = 11. ◆

funding provided for senior ED registrars to participate as part of a vertically integrated teaching and learning model.

The MoLIE project demonstrates that good educational outcomes and increased trainee numbers are not necessarily incompatible. Structured learning activities should be part of training capacity solutions if educational quality is to be maintained. Success requires commitment from government, effective project management, and engagement of clinical staff in developing practical solutions to the workforce challenge. The MoLIE project is one example of a strategy that proved successful in increasing intern numbers in one state in Australia. However, an economic analysis of its true cost-effectiveness would be complex and difficult to provide.

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## COMPETING INTERESTS

None identified.

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