

BRIEF REPORT

The Internal Medicine Subinternship

A Curriculum Needs Assessment

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Despite broad acceptance of the internal medicine subinternship rotation by the undergraduate medical education community, only a small fraction of programs provide students with explicit learning objectives. To design a curriculum for the medical subinternship, we surveyed 3 different groups of educational stakeholders—subinternship directors, residency program directors, and housestaff—in order to identify and prioritize the competencies that should be learned during this rotation. This study provides a starting point for the development of a structured curriculum for the fourth-year subinternship rotation.

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The internal medicine subinternship is a traditional fixture of the undergraduate medical education curriculum.¹ Nevertheless, only a small fraction of subinternship programs provide students with explicit learning objectives or structured teaching at the medical student level.¹ It is not surprising, therefore, that studies have suggested that many undergraduate curricula inadequately prepare medical students for the intense experience of the first postgraduate year.²⁻⁴ In addition, while the medical internship is a transient experience and not representative of usual clinical practice, it is often physically demanding and marked by a high incidence of emotional distress.^{2,5} Thus, as the first clinical experience that most newly minted medical school graduates encounter, the internship year looms large in the minds of fourth-year students.

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For these reasons, we have sought to develop a new model curriculum for the internal medicine subinternship. To do so, it is necessary to consider the content that should be addressed with the understanding that the subinternship serves as a unique articulation between undergraduate and postgraduate training. Thus, it would be valuable to know the views of the different educational stakeholders who interact with students on this rotation—namely subinternship directors, residency program directors, and internal medicine housestaff. We performed a survey of these 3 representative groups in order to identify and prioritize the competencies that should be learned during the subinternship rotation.

METHODS

Survey Content and Design

We developed a questionnaire that focused on competencies that should be addressed in a subinternship in internal medicine (see <http://www.aecom.yu.edu/subinternship/survey.htm>). A comprehensive list of potentially relevant competency items was derived from a published curriculum for graduate medical education,⁶ a previous unpublished subinternship survey of internal medicine clerkship directors conducted by the Clerkship Directors in Internal Medicine (CDIM) (Paul Hemmer, MD, written communication, March 2001), the CDIM/SGIM core clerkship curriculum,⁷ and from discussions among the authors. Focus groups with housestaff at 3 training programs were asked to consider both the list and the question: "What are the skills needed to be an effective intern for the care of inpatients?" Through an iterative process, the comprehensive list of competencies was subsequently revised and divided into 3 categories.

The first category, "Integrative Skills," comprised a set of communication and information management skills that are routinely used by hospital-based housestaff. The second category, "Clinical Scenarios," was defined in terms of specific clinical problems and emergencies often encountered by housestaff during regular ward and cross-coverage duties. The third category, "Procedures," contained a set of common inpatient procedures.

The questionnaire asked respondents to rate 20 communication and information management skills, 27

clinical management scenarios, and 8 procedures according to their degree of importance as subintern learning objectives. A 5-point ordinal scale (1 = totally unnecessary, 2 = rarely important, 3 = possibly important, 4 = important, and 5 = absolutely essential) was chosen for the priority scores. This scale was chosen because it provided adequate dispersion of responses and it allowed for the identification of highest priority competencies (i.e., score ≥ 4). The scale was clearly labeled for each set of questions.

A preliminary questionnaire was pilot tested with a group of housestaff at the main author's institution for face validity, redundancy, and ease of use, and it was subsequently revised.

The questionnaire was then composed using Survey Solutions for the Web (Perseus Development Corp., Braintree, Mass) and edited using Microsoft Front Page 2000 (Microsoft, Redmond, Wash). A request for identifying data in the form of name and home institution was included. The questionnaire was subsequently posted on the web server of the main author's home institution at 3 different URL addresses. Each unique web address was made available to either internal medicine housestaff, program directors, or subinternship directors.

Survey Administration

In May 2001, solicitations for participation in the survey were sent to the membership of the Association of Program Directors in Internal Medicine and the CDIM via each organization's e-mail list-server. Since the CDIM is an organization of clerkship directors, a request was made to forward the survey to the subinternship director at each medical school. In addition, subinternship directors whose e-mail addresses were known to the main author from a previous study were contacted directly. Those respondents who functioned as both a program director and subinternship director were asked to identify themselves and only complete the subinternship director survey.

PGY-1 internal medicine interns at 4 geographically distinct tertiary care training hospitals (Montefiore Medical Center, Brown University, University of Texas Southwestern Medical Center, and University of Miami) were targeted for survey completion. The study was intentionally timed toward the end of the first postgraduate year in order to survey experienced interns. Both categorical and preliminary year interns at these institutions were asked, via e-mail, paper, and verbal solicitations, to complete the survey. Small nonfinancial incentives were established at each hospital site to encourage housestaff responses.

In June 2001 the solicitation process was repeated for all 3 groups of respondents.

Data Analysis

Survey responses were submitted electronically and were automatically entered into one of 3 Microsoft Access databases. A secondary data set was derived from the

original one by interpreting importance ratings of 1, 2, or 3 as "competency is not or possibly not important as a learning objective for subinterns" and by interpreting ratings of 4 or 5 as "competency is important as a learning objective for subinterns." This data dichotomization allowed for the identification of those competencies that were clearly felt to be important for inclusion in a curriculum for subinterns.

Results

Response rates were as follows: interns, 60% (89/150); program directors, 24% (60/254); and subinternship directors, 45% (56/125). Only 4 of the respondents had a dual position as both a residency and subinternship director at the time of survey administration.

The mean importance scores and degree of agreement with the statement "This competency is important as a subinternship learning objective" are shown in Tables 1 and 2. Although there were some minor statistically significant differences in the responses among the 3 groups of respondents, there was good overall agreement. Only the combined scores are reported.

DISCUSSION

This study was the first attempt to systematically prioritize learning objectives for the fourth-year subinternship rotation. Although a previously published curriculum for the third-year clerkship has been widely adopted by the medical education community,^{8,9} its content was felt to inadequately cover topics of relevance for the purely inpatient-oriented subinternship. Thus, it was felt that a unique curriculum should be developed, one that specifically addressed the question: "What competencies do fourth-year students need to acquire to enable them to function as interns?"

Seven communication and information management competencies were assigned importance scores greater than 4. This suggests that these skills are considered essential for the smooth functioning of interns in the hospital setting, and that they should be highlighted as educational priorities for the subinternship rotation. The 13 remaining skills had mean importance scores between 3 and 4, indicating that many of the competencies in this area might warrant attention as well (Table 1). There was good agreement with regard to the importance of subintern training for the various clinical scenarios; most scenarios received high importance ratings (Table 2). The clinical topics that received the lowest ratings are those more likely to be encountered in the outpatient setting, and thus might have been perceived as less relevant subintern learning goals. Overall, the clinical scenarios received higher ratings than did the integrative competencies or procedures. We suspect that this is because most physicians, when reflecting on their own subinternship experiences, recall a busy clinical experience with little structured educational

Table 1. Prioritization of Subintern Competency Areas by Housestaff, Residency Program Directors, and Subinternship Directors (N = 205)

| Integrative Skill | Mean Score | Total Percent Believing the Competency Is an Important Learning Objective |
|---|------------|---|
| Case presentation | 4.9 | 97 |
| Longitudinal tracking of patient data | 4.7 | 94 |
| Coordinating care with other health care workers | 4.6 | 91 |
| Prioritizing "scut"/sign out lists | 4.6 | 91 |
| Identifying adverse drug reactions/interactions | 4.2 | 83 |
| Ethics of informed consent | 4.0 | 74 |
| Using electronic databases (e.g. MEDLINE, Cochrane, UpToDate) | 4.0 | 74 |
| Assessing patient decision-making capacity | 3.9 | 71 |
| Pharmacokinetics of common medications | 3.9 | 71 |
| Literature appraisal skills (EBM) | 3.8 | 70 |
| Grief management | 3.8 | 68 |
| Composing discharge summaries | 3.8 | 64 |
| Communicating with "difficult patients" | 3.8 | 62 |
| Assessing suicide risk | 3.7 | 60 |
| Delivering bad news | 3.7 | 60 |
| Dealing with emotional abuse from patients and colleagues | 3.7 | 58 |
| Ethics of withdrawal/withholding of care | 3.7 | 57 |
| Interpreting advance directives | 3.6 | 56 |
| Discussing advanced directives with patients | 3.6 | 55 |
| Requesting autopsies | 3.0 | 34 |

time devoted to learning other skills. The only procedures receiving a priority score >4 were venipuncture and arterial blood gas sampling. While hospital ancillary support varies among institutions, interns, often in acute clinical situations, are usually expected to perform these common procedures. Since few interns receive formal training in these procedures, the high priority scores might reflect a degree of anxiety with regard to their performance.

This study has several limitations. First, the response rates were suboptimal. While appropriate measures were undertaken to solicit the input of housestaff, busy interns remain a difficult group to isolate and survey. In addition, the novelty of the internet-based survey collection might

also have contributed to the low response rates among faculty. Finally, while our survey covered a broad range of competencies that were deemed important for the functioning of interns, some potentially important skills or experiences might not have been included. Ultimately, the application of a subinternship curriculum should be tailored to the particular strengths and needs of each specific institution.

Although most of the specific competencies were rated highly in our survey, our results help to prioritize them. The competencies receiving the highest priority scores and having the highest degree of agreement with the statement "important as a learning objective" can be viewed as fundamental to the hospital-based education of medical students. By prioritizing the learning objectives for the subinternship, this study should help subinternship directors and those responsible for fourth-year students clarify the areas that require their greatest attention during the rotation. In addition, it is hoped that this study might

Table 2. Prioritization of Subinternship Competency Areas by Housestaff, Residency Program Directors, and Subinternship Directors (N = 205)

| Evaluation/Management | Mean Score | Total Percent Believing the Competency Is an Important Learning Objective |
|---|------------|---|
| Clinical scenario | | |
| Respiratory distress | 4.8 | 97 |
| Chest pain | 4.8 | 97 |
| Altered mental status | 4.6 | 91 |
| Gastrointestinal bleeding | 4.5 | 91 |
| Fever in hospitalized patient | 4.5 | 88 |
| Acute pulmonary edema | 4.4 | 88 |
| Hypokalemia/hyperkalemia | 4.4 | 99 |
| Abdominal pain | 4.3 | 81 |
| Severe hypertension | 4.3 | 87 |
| Shock | 4.3 | 79 |
| Inpatient glycemic control | 4.2 | 80 |
| Acute renal failure | 4.2 | 83 |
| Arrhythmias | 4.1 | 79 |
| Anaphylaxis | 4.1 | 75 |
| Alcohol withdrawal | 4.1 | 81 |
| Seizure | 4.1 | 76 |
| Procedure | | |
| Venipuncture | 4.3 | 79 |
| Arterial puncture | 4.1 | 74 |
| Peripheral intravenous catheter placement | 3.9 | 69 |
| Nasogastric tube placement | 3.7 | 62 |
| Lumbar puncture | 3.3 | 46 |
| Foley catheter insertion | 3.0 | 37 |

help to stimulate the development of innovative teaching tools, standardized outcome measures, and appropriate evaluation methods for the high-priority subinternship competencies.

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