

## A Training Session in a Clinical Simulation Laboratory for the Acquisition of Clinical Skills by Newly Recruited Medical Interns

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### Abstract

In organized orientation programs for newly recruited medical interns of the Nippon Medical School Hospital, the working committee of the clinical simulation laboratory introduced a laboratory training session that was designed to improve the clinical skills of the medical interns. The session consisted of 6 training courses, comprising internal examination, tracheal intubation, auscultation of heart sounds, bandaging and the collection of samples of venous and arterial blood. Medical interns rotated to a new course every 30 minutes and did practical trainings in each of the 6 skills. A total of 36 newly recruited medical interns participated in the training session. The majority of medical interns took part in the practical training actively and positively. The session was efficiently carried out from the standpoints of human resources and the teaching hours involved. A post training questionnaire survey, completed by the medical interns, revealed that many of them valued the sessions for comprehensibility of the instructions, the descriptions in the manual and the content of the training; however, only 21% thought that they had successfully acquired the clinical skills. Medical interns must continually engage in self-training to steadily acquire basic clinical skills. The convenience of a clinical simulation laboratory, together with the reinforcement of the education of clinical skills during internship, is necessary to strengthen the educational benefits of the training session.

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**Key words:** simulation-based training, basic clinical skills, training session, newly recruited medical interns

## Introduction

A new training system for newly recruited clinical interns has been in place in Japan since 2004. At the same time, educational programs for medical interns have been provided by all teaching hospitals and university hospitals<sup>1</sup>. The programs showed that an objective of internship is to acquire clinical skills including airway management, cardio-pulmonary resuscitation, collections of blood samples from veins and arteries, lumbar puncture and tracheal intubation<sup>1</sup>. These training programs, which promote the acquisition of clinical skills, are attractive to medical interns. Furthermore, intern education is an important component of risk management, and this may be sufficient reason in itself for health service providers to continue to support this type of program<sup>2</sup>. Therefore, one might assume that initial clinical skills training for medical interns in the early stages of their internship would be of great benefit, from the view-points of motivation and risk management.

The transition from medical student to medical intern is a big cultural leap. The Nippon Medical School Hospital now manages the transition with organized orientation programs. Among these programs, a training session was introduced by the working committee of the clinical simulation laboratory to improve the clinical skills of newly recruited medical interns<sup>3</sup>. We describe here the technique that was used to provide this effective clinical skills training and the results of a post training questionnaire survey completed by the trainees, which aimed at assessing the value the interns placed on the program.

## Subjects and Methods

In April 2009, as a part of the organized orientation programs for newly-recruited medical interns, a training session for clinical skills was implemented using a clinical simulation laboratory and 3 small-group learning rooms. The aim of the session was to train medical interns in basic clinical skills. Beforehand, all interns were required to read

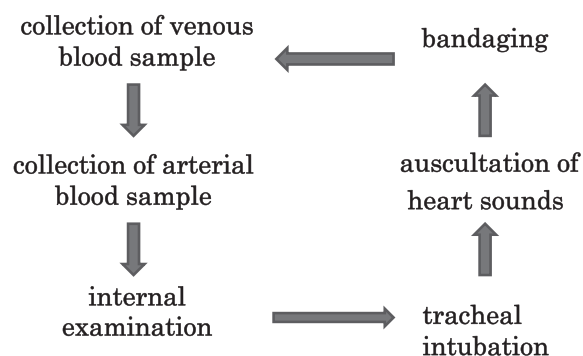


Fig. 1 Training Session for Clinical Skills  
Medical interns moved in rotation every 30 minutes and took practical training in each of the 6 skills.

the training manual, in which the procedures of each training course were described and the specific behavioral objectives were clearly defined.

The session consisted of 6 training courses, comprising internal examination, tracheal intubation, auscultation of heart sounds, bandaging and collection of venous and arterial blood samples. Five simulators were used in the session, which included Gynecologic Simulator (S503 GYM/AID, Gaumard Scientific, Miami, USA), Airway Management Trainer (Laerdal Medical Japan K. K., Tokyo, Japan), Cardiology Patient Simulator "K" (Kyoto Kagaku Co., Ltd., Kyoto, Japan), Simulator Intravenous Arm II (M50-B, Kyoto Kagaku Co., Ltd.) and Arterial Puncture Wrist (M99, Kyoto Kagaku Co., Ltd.). Medical interns rotated to a training course, every 30 minutes and took practical training in each of the 6 skills (**Fig. 1, 2**).

At the end of the training session, the medical interns were required to complete a 5-question survey using a 4-point scale (1=poor, 4=good). The 5 items in the questionnaire were as follows: question 1: "Were the instructions comprehensible?"; question 2: "Were the descriptions in the manual comprehensible?"; question 3: "To what extent did you acquire clinical skills?"; question 4: "To what extent were you content with the session?"; and question 5: "Will you use the clinical simulation laboratory for self-training?" (**Fig. 3**).

After completing the training session, medical interns had free access to the clinical simulation laboratory and were encouraged to engage in voluntary skills-training.



Fig. 2 Photographs of Training Sessions for Clinical Skills

a: collection of venous blood sample, b: collection of arterial blood sample, c: internal examination, d: tracheal intubation, e: auscultation (heart sounds), f: bandaging

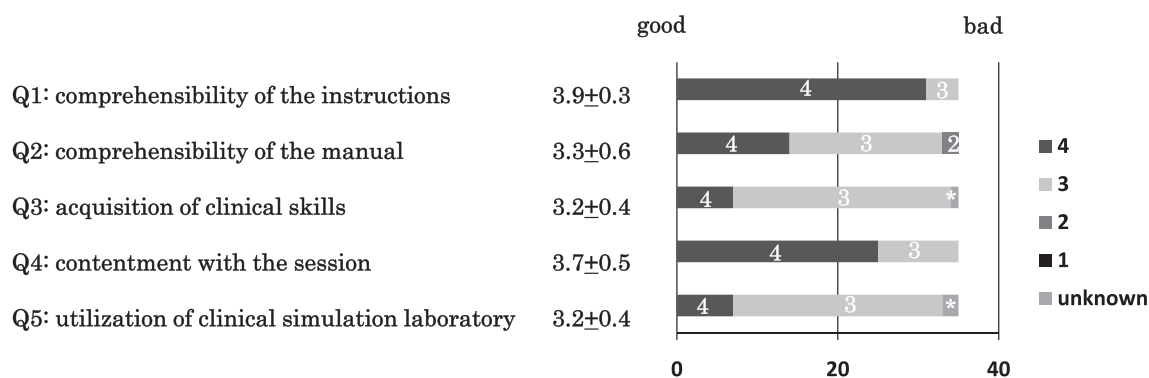


Fig. 3 Results of Post Training Questionnaire Survey

At the end of the training session, the medical interns were required to complete a questionnaire survey in which they answered five questions using a 4-point scale (1= poor, 4= good). \*Asterisks mean no opinion.

### Results

A total of 36 newly recruited medical interns of the Nippon Medical School Hospital participated in the training session. They were divided into 6 groups of 6 members. The sessions were all efficiently carried out from the standpoints of human resources and teaching hours. Seven physicians and 4 nurses were required as instructors. The entire session lasted 3 hours 30 minutes and consisted of 3 hours of training, 15 minutes of orientation preceding the first session, and a 15-minute rest period at the end of the third session.

The overall response rate of interns to the questionnaire survey provided at the end of the session was 97% (35 of 36 interns). **Figure 3** shows the result of the questionnaire survey. The mean values of question 1, 2, 3, 4, and 5 were 3.9, 3.3, 3.2, 3.7, and 3.2, respectively. Of the respondents, 89% (31 of 35) and 40% (14 of 35) thought that the explanations given by the instructors and the descriptions in the manual, respectively, were easily understandable. Although only 21% (7 of 34) of interns thought that they had successfully acquired clinical skills, 71% (25 of 35) were satisfied with the session. All 33 interns who answered question 5 indicated that they would use the clinical simulation

laboratory for self-training in the future to a varying degree.

A majority of medical interns actively participated in the practical trainings in a positive fashion (**Fig. 2**). We received much additional feedback from participants. The most frequent ad hoc remarks were as follows: “very appreciative of the opportunity to participate in the training course,” “felt that the time periods were too short and/or that there was an imbalance in the training time between the 6 different skill sets,” “usefulness for internship,” and a request that “other skills, such as lumbar puncture and chest tube drainage, could be included in future programs.”

### Discussion

We have described a program for the efficient inductive training of clinical skills for newly recruited interns and presented the results of a post training questionnaire survey.

Simulation-based education is characterized by a safe environment, proactive and controlled training, trainee/team/system-centered education, feedback-and debriefing-based education and a reproducible, standardized objective<sup>4</sup>. In medical training, it is impossible ultimately to avoid encountering ‘real-life’ patients if the necessary skills of health professionals are to be acquired<sup>4</sup>. On the other hand, there is also a responsibility to provide appropriate treatment and to ensure patients’ safety and well-being. Balancing these two needs represents a fundamental ethical dilemma in medical education. Simulation-based medical education can be a valuable tool for reducing these ethical and practical dilemmas<sup>4</sup>. Lynagh et al have demonstrated that clinical simulation laboratories lead to greater improvements in procedural skills compared with standard training or no training at all when assessed with simulator performance<sup>5</sup>. Therefore, initial clinical skills training for medical interns in the early stages of their internship must be both effective and valuable.

Because the change from medical student to medical intern is a big cultural leap for new recruits, organized medical orientation programs are indispensable for ensuring a trouble-free transition.

Therefore, since 2008, we have conducted training sessions for clinical skills using a clinical simulation laboratory and 3 small-group learning rooms, as a component of our organized orientation programs.

The session consists of 6 training courses, comprising an internal examination, tracheal intubation, auscultation of heart sounds, bandaging, and the collection of samples of venous and arterial blood. We selected these basic skills to correspond with simulators in the clinical simulation laboratory and with the core clerkships in internal medicine of the Society of General Internal Medicine, the Clerkship Directors in Internal Medicine in the United States, and the training program for medical interns in the Nippon Medical School Hospital<sup>1,6,7</sup>.

The session was efficiently carried out from the standpoints of both human resources and the teaching hours involved and, therefore, can be considered to contribute to the reduction of the overall teaching burden on instructors. Although many medical interns valued the sessions for comprehensibility of the instructions, the descriptions in the manual, and the content of the training, only 21% thought that they had successfully acquired clinical skills. It was understandable that medical interns pointed out the shortness or the imbalance of the training time period. However, we consider this designated time period to be reasonable taking account of the time restriction of the session and the concentration of medical interns.

Although medical interns were permitted to make free use of the clinical simulation laboratory after completing this session and were encouraged to continue to access the facility for voluntary skills-training, their subsequent utilization was disappointing. We have implemented consecutive training sessions, such as tracheal intubation, chest tube drainage, and lumbar puncture, to further promote additional clinical skills in medical interns. Taylor has suggested that undergraduate training in procedural skills is inadequate and has recommended comprehensive training programs and techniques for quality assurance to address this deficiency<sup>8</sup>. Consequently, we believe that mandatory supervision of key skills together with

opportunities to supplement the limited experience are needed during the intern year to ensure that all interns acquire a uniform standard of clinical experience<sup>9</sup>.

Medical interns must continually engage in self-training to steadily acquire basic clinical skills. The convenience of a clinical simulation laboratory, together with the reinforcement of training in clinical skills during internship, is necessary to strengthen the educational benefits of the training session.

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