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Education

THE 5CS OF CONSULTATION: TRAINING MEDICAL STUDENTS TO COMMUNICATE EFFECTIVELY IN THE EMERGENCY DEPARTMENT

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☐ **Abstract—Background: Effective communication is critical for health care professionals, particularly in the Emergency Department (ED). However, currently, there is no standardized consultation model that is consistently practiced by physicians or used for training medical graduates. Recently, the *5Cs of Consultation* model (Contact, Communicate, Core Question, Collaborate, and Close the Loop) has been studied in Emergency Medicine residents using simulated consultation scenarios. Objective: Using an experimental design, we aimed to evaluate the efficacy of the 5Cs consultation model in a novel learner population (medical students) and in a "real time and real world" clinical setting. Methods: A prospective, randomized, controlled study was conducted at eight large, academic, urban, tertiary-care medical centers (U.S. and Canada). Intervention involved two experimental groups (asynchronous and live training) compared to a baseline control group. All participants placed up to four consult phone calls. A senior physician observed and assessed each call using a preapproved 5Cs checklist and a Global Rating Scale (GRS). Results: Participants who received training (asynchronous or live) scored significantly higher on the 5Cs checklist total and GRS than the control group. Both training methods (asynchronous and live) were equally effective. Importantly, learning gains were sustained as students' 5Cs checklist total and GRS scores remained consistently higher at their second, third, and fourth consult (relative to their first consult). At posttest, all participants reported feeling more confident and competent in relaying patient information. Conclusion: Medical students can be trained to use the 5Cs model in a timely, inexpensive, and convenient manner and increase effectiveness of physician consultations originating from the ED. Published by Elsevier Inc.**

☐ **Keywords—handoffs; consultation; medical education; checklist**

Appropriate Ethical Approval/exempt status was granted by the Institutional Review Board for all associated institutions as follows: IRB University of Illinois at Chicago, IRB Christiana Care Health System, IRB Oregon Health & Sciences University, IRB Drexel University, IRB University of California, San Francisco, IRB University of Saskatchewan, IRB Metrohealth/Case Western Reserve University, IRB Virginia Commonwealth University.

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INTRODUCTION

Effective communication is critical for health care professionals, particularly in high-acuity arenas like the Emergency Department (ED). The Institute of Medicine (2001) has called for improved collaboration and communication between physicians, as communication errors contribute to a majority of adverse patient outcomes, and interphysician consultations are marred by poor communication and deficiency in standardized processes (1–3).

A substantial percentage of patients in the ED require interphysician consultations that are complicated by multiple and often overlapping patient encounters, unscheduled patient care, incomplete historical data, patients presenting with unpredictable conditions, and widely variable practice settings (4,5). Given this chaotic environment, physicians often have insufficient time, and faulty hand-offs contribute to almost 24% of ED malpractice claims (2). New guidelines limiting resident work hours highlight the risk to patient safety due to increased numbers of hand-offs and consultations in Emergency Medicine (EM) (6). Thus, it is vital to improve the quality of hand-offs between physicians and standardize communication processes between consulting physicians and the ED staff (7).

Although the Accreditation Council for Graduate Medical Education recognizes communication skills as a core competency, residents and medical students receive limited education in this arena (8,9). However, recently, improved consultation efficacy and quality have been reported when residents have been trained to use the *5Cs of Consultation* model (Contact, Communicate, Core Question, Collaborate, and Close the Loop), a novel and standardized teaching model for consultations (9–11). This model's content has been validated through its development based on a theoretical model, literature, and expert input (9). Further, in a randomized prospective control trial, residents trained in this model scored better on consultation assessments compared with untrained residents, using a Global Rating Scale (GRS) (10). Thus, providing formal education in consultation is vital to improving interphysician communication and enhancing quality of patient care.

The goal of our study was threefold: 1) evaluate the efficacy of the 5Cs standardized consultation model in a novel learner population (i.e., medical students); 2) evaluate the use of a "real time and real world" learning and assessment environment rather than simulated settings; and finally, 3) evaluate the differences between live and asynchronous training interventions. The ultimate goal is to provide a viable teaching model that can become the standard for medical education that improves overall quality of communication and consultation. We expected participants trained using the standardized model to have higher 5Cs checklist totals and GRS scores relative to a control group, and to find no performance differences between the two intervention groups.

METHODS

Study Design

This was a prospective, randomized, double-blind, experimental study, involving third- or fourth-year medical students completing a 2-/4-week EM rotation. The rationale for the sample selection was that students embarking on their first clinical rotations could benefit from early training in the 5Cs model. Participants were from multiple, geographically diverse medical schools across the United States and Canada, listed below:

Case Western Reserve University; MetroHealth Medical Center
Christiana Care Health System, affiliated with Jefferson Medical College
Drexel University College of Medicine
Oregon Health and Sciences University
University of California at San Francisco Fresno
University of Illinois at Chicago
University of Saskatchewan
Virginia Commonwealth University

Ethical Consideration

Prior to starting the study, local Institutional Review Board approval was obtained at each participating site, and all participants, site directors, and raters provided consent using a standard consent and waiver protocol.

Participants

Medical students. The third-/fourth-year medical students completing a mandatory/elective EM rotation for 2/4 weeks were recruited by site directors (Figure 1). Consenting participants were randomly placed into one of three groups: control, live training intervention, or asynchronous training intervention. Based on power analyses, the control, live, and asynchronous cohorts enrolled 62, 73, and 73 participants, respectively.

Raters. A group of 5–10 EM attending physicians or senior teaching residents (depending on location) were selected, provided consent, and trained at each site by respective site directors. These staff served as "raters," who assessed students during their consultations. They were trained in both the 5Cs model and the assessment tool by site directors. Raters viewed the same video about the 5Cs as the asynchronous intervention group, and also viewed four practice consult videos to practice the