

# Assessment of Developmental Progress Using an Objective Structured Clinical Examination-Simulation Hybrid Examination for Obstetrics and Gynecology Residents

Abigail Ford Winkel, MD,<sup>\*</sup> Colleen Gillespie, PhD,<sup>†</sup> Kristen Uquillas, MD,<sup>‡</sup> Sondra Zabar, MD,<sup>§</sup> and Demian Szyld, MD<sup>||</sup>

<sup>\*</sup>Department of Obstetrics & Gynecology, New York University School of Medicine; <sup>†</sup>Institute for Innovations in Medical Education, Department of Medicine, New York University School of Medicine, NYU-HHC Clinical and Translational Sciences Institute, New York, New York; <sup>‡</sup>Simulation and Education, New York Simulation Center for the Health Sciences, Department of Obstetrics & Gynecology, New York University School of Medicine, New York, New York; <sup>§</sup>Department of Medicine, Division of General Internal Medicine, New York University School of Medicine, New York, New York; and <sup>||</sup>Department of Emergency Medicine, New York Simulation Center for the Health Sciences, New York University School of Medicine, New York, New York

**OBJECTIVE:** The Test of Integrated Professional Skills (TIPS) is an objective structured clinical examination-simulation hybrid examination that assesses resident integration of technical, cognitive, and affective skills in Obstetrics and Gynecology (OBGYN) residents. The aim of this study was to analyze performance patterns and reactions of residents to the test to understand how it may fit within a comprehensive assessment program.

**DESIGN:** A retrospective, mixed methods review of the design and implementation of the examination, patterns of performance of trainees at different levels of training, focus group data, and description of use of TIPS results for resident remediation and curriculum development.

**SETTING:** OBGYN residents at New York University Langone Medical Center, a tertiary-care, urban academic health center.

**PARTICIPANTS:** OBGYN residents in all years of training, postgraduate year-1 through postgraduate year, all residents completing the TIPS examination and consenting to participate in focus groups were included.

**RESULTS:** In all, 24 residents completed the TIPS examination. Performance on the examination varied widely among individuals at each stage of training, and did not

follow developmental trends, except for technical skills. Cronbach  $\alpha$  for both standardized patient and faculty ratings ranged from 0.69 to 0.84, suggesting internal consistency. Focus group results indicated that residents respond to the TIPS examination in complex ways, ranging from anxiety about performance to mixed feelings about how to use the data for their learning.

**CONCLUSION:** TIPS assesses a range of attributes, and can support both formative and summative evaluation. Lack of clear developmental differences and wide variation in performance by learners at the same level of training support the argument for individualized learning plans and competency-based education. (J Surg Ed 73:230-237. © 2015 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

**KEY WORDS:** clinical competence, educational assessment, graduate medical education, patient simulation

**COMPETENCIES:** Professionalism, Interpersonal and Communication Skills, Practice-Based Learning and Improvement

## INTRODUCTION

Evaluation of residents' developmental progress across a range of competencies as required by the Accreditation Council on Graduate Medical Education (ACGME) milestones project represents a challenge to educators of residents.<sup>1</sup> Robust assessment tools are needed to capture

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*Correspondence:* Inquiries to Abigail Ford Winkel MD, New York University Langone Medical Center, Department of Obstetrics & Gynecology, 550 First Avenue, NBV 9E5, New York, NY 10016; fax: (212) 263-8251; e-mail: abigail.winkel@nyumc.org

resident ability in technical, cognitive, and interpersonal skills. A wide range of tools exist for evaluation of technical skills of residents,<sup>2-14</sup> but interpersonal decision making and teamwork skills are more difficult to measure.<sup>15,16</sup> The use of simulation in medical education has created opportunities for standardized training and formative feedback.<sup>17-20</sup> The objective structured clinical examination (OSCE) can evaluate verbal and nonverbal behaviors, and it can be combined into simulated scenarios with bench models to demonstrate a combination of skills simultaneously.<sup>16,21,22</sup> We developed the Test of Integrated Professional Skills (TIPS), a yearly assessment in OSCE format, to assess residents within a simulated setting of complex patient encounters.<sup>15,23-25</sup>

The goal of the TIPS examination is to create an opportunity for formative and summative assessment across a range of competencies to make individualized learning plans and support milestones assessment.<sup>26,27</sup> The formative assessment comes in the form of immediate feedback from faculty members, and the report card generated by TIPS performance, which informs individualized learning plans as part of a summative assessment by the Clinical Competency Committee, and during semiannual reviews with the program director. TIPS scores can identify outliers in performance and generate useful information about resident behavior not obtained through standard faculty evaluations.<sup>28,29</sup> In this study, we examined performance of the residents in the examination at all levels of training, and conducted focus groups with junior and senior residents following the examination to understand the residents' experience of simulation-based assessment. We aimed to analyze patterns of resident performance on the examination and resident reactions to the examination to understand how the TIPS examination fits within a comprehensive assessment program, and whether it can support individualized learning plans, competency-based education, and curriculum evaluation.

## MATERIALS AND METHODS

The TIPS examination was piloted in 2011 with 6 post-graduate year (PGY)-1 residents, and administered in 2012 and 2013 to all residents in the training program, PGY-1 through PGY-4. We developed cases through review of the literature or adapted from those of other programs. The examination includes different cases in the same structure each year to keep the content novel for examinees. We developed the checklists through consultation with 2 obstetrics & gynecology (OBGYN) faculty members and 2 simulation education faculty leaders with expertise in OSCE development and implementation.<sup>30-34</sup> A station requiring use of the medical literature to answer a clinical question was developed in consultation with a medical librarian.<sup>29</sup>

Each year, the structure of the TIPS examination is maintained although the clinical content may vary. The TIPS examination includes 5 OSCE stations, each with 2 elements: interaction with standardized patients (SPs) and a focused skill assessment using task trainers or hybrid.<sup>35</sup> The case content spans a range of inpatient and outpatient OBGYN issues that aligns with the OBGYNACGME milestones (Table 1). Each station is 21 minutes long and is composed of a patient encounter and clinical task (16 min) and 5 minutes of formative feedback with the faculty member who observed the encounter. The TIPS examination takes place in a simulation center where faculty observe participants interacting with SPs and models through a one-way mirror. Each station takes place in a different room along a corridor designed for OSCEs. The stations are videotaped for later review, quality assurance, and discussions with residents about performance.

A single SP was assigned to rate each case for all participants. For each case, SPs are trained in 3-hour sessions and faculty are trained in 1-hour sessions using standardized training processes to rigorously observe, interpret, and record nuanced behavior accurately. We relied on a small cohort of trained SP and faculty raters for both days of the TIPS examination to minimize variation in interpretation of examinee performance. All SPs underwent rigorous training on the content of the cases as well as on the use of behaviorally anchored checklists to rate participants on a 3-point scale from "not done" to "well done." For competencies involving specific procedural skills and evidence-based medicine, faculty also provide ratings in addition to giving feedback. Checklists range from 28 to 35 items per case; with a shared set of interpersonal and communication skills (14 items), 3 to 4 patient satisfaction items, and case-specific professionalism, patient care, or system-based practice items. Checklist items for each station were combined for summary scores based on mapping of the case content and checklist to the ACGME competencies. Scores were aggregated based on percent "well done."

A few weeks after the examination, residents received a report card of summary performance by ACGME competency and narrative comments, which was reviewed during semiannual evaluations with the program director and included the materials reviewed by the Clinical Competency Committee. Residents whose performance fell more than one standard deviation below the mean for a particular competency reviewed video and checklists to help tailor personalized learning plans.

We analyzed data from the TIPS examination from the year 2013 in SPSS (version 20, IBM, San Francisco, CA) using one-way analysis of variance to look for differences between levels of trainees. We evaluated scores from the examination for both SPs and faculty raters for internal consistency using Cronbach  $\alpha$ .

We created 2 focus groups with residents immediately following the examination in 2013: 1 group with junior

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