

Implementing Workplace-Based Assessments at Scale

The SIMPL Approach

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Over the past decade, medical education has shifted from a time-based approach to a competency-based approach for surgical training. This transition presents many new systemic challenges. The Society for Improving Medical Professional Learning (SIMPL) was created to respond to these challenges through coordinated collaboration across an international network of medical educators. The primary goal of the SIMPL network was to implement a workplace-based assessment and feedback platform. To date, SIMPL has developed, implemented, and sustained a platform that represents the earliest and largest effort to support workplace-based assessment at scale. The SIMPL model for collaborative improvement demonstrates a potential approach to addressing other complex systemic problems in medical education.

Keywords: assessment, feedback, surgical education, collaboration, quality improvement

Rising concern for patient safety, duty hour restrictions, and increased expectations for faculty supervision has led to a more regulated system of supervised training and evaluation within medical education.¹ In response, organizations such as the Accreditation Council for Graduate Medical Education and the American Board of Surgery in the United States, the Royal College of Physicians in Canada, and the General Medical Council in the United Kingdom, among many others, have pursued implementation of a more competency-based medical education (CBME) system.² At the same time, many local initiatives have tried to implement CBME within individual

training programs. However, both the top-down and bottom-up approaches to implementing CBME have faced numerous challenges. SIMPL was designed to mitigate some of these challenges and implement CBME at scale.

THE SIMPL APPROACH

Founded by surgical educators, the Society for Improving Medical Professional Learning (SIMPL) was established as a nonprofit collaborative of training programs interested in improving the quality of care provided to patients by improving the quality of education provided to medical trainees.³ A natural starting point for their work was to help overcome barriers to implementing a CBME system, with a specific focus on competency assessment.

From the beginning, SIMPL members agreed to apply a collaborative, continuous quality improvement approach to implementing change. To support this approach, SIMPL members collectively developed a shared data infrastructure, which includes an assessment platform to collect performance ratings, a data registry for research, and advanced analytic tools to evaluate and inform educational practice. Governed by a volunteer group of medical educators, all SIMPL members agreed to share these collective resources, which includes their data, to support the larger mission.

SIMPL's work began in 2012, when surgical educators at Northwestern University launched a new workplace-based assessment (ie, SIMPL OR) designed specifically to evaluate and provide immediate feedback regarding operative performance.⁴ To support utilization, this assessment was implemented as a smartphone app. Raters used this app to assess trainee retrospective entrustment (autonomy) and prospective entrustment (performance) on a 4- and 5-point scale, respectively (Figure 1). Raters also classify cases by patient-related complexity (easiest 1/3, middle 1/3, hardest 1/3) relative to similar cases in their own practice (Figure 2). By 2014, there was interest from 2 other residency programs in using SIMPL OR. Together they incorporated the SIMPL collaborative as a nonprofit educational quality improvement collaborative.

By 2015, SIMPL developed an assessment for operative performance and transitioned into an expansion phase, adding more members (N=14) from across the United States. Research

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TABLE 1. Zwisch Proposed Model for Teaching and Assessment in the Operating Room (Level Designated Based on Supervision Provided for the Majority of the Key Portions of the Case)

Zwisch Stage of Supervision	Attending Behaviors	Resident Behaviors Commensurate with This Level of Supervision
Show and Tell	Does majority of key portions as the surgeon Narrates the case (i.e., thinks out loud) Demonstrates key concepts, anatomy, and skills	Opens and closes First assists and observes
<i>Cues to advancement</i>		When first assisting, begins to actively assist (i.e., anticipates surgeons' needs)
Smart Help	Shifts between surgeon and first assist roles When first assisting, leads the resident in surgeon role (active assist) Optimizes the field/exposure Demonstrates the plane or structure Coaches for specific technical skills Coaches regarding the next steps Continues to identify anatomical landmarks for the resident	The above, plus: Shifts between surgeon and first assist roles Knows all the component technical skills Demonstrates an increasing ability to perform different key parts of the operation with attending assistance
<i>Cues to advancement</i>		Can execute the majority steps of procedure with active assistance
Dumb Help	Assists and follows the lead of the resident (passive assist) Coaching regarding polishing and refinement of skills Follows the resident's lead throughout the operation	The above, plus: Can "set up" and accomplish the next step for the entire case with increasing efficiency Recognizes critical transition point issues
<i>Cues to advancement</i>		Can transition between all steps with passive assist from faculty
No Help	Largely provides no unsolicited advice Assisted by a junior resident or an attending acting like a junior resident Monitors progress and patient safety*	The above plus: Can work with inexperienced first assistant Can safely complete a case without faculty Can recover most errors Recognizes when to seek help/advice

*Implicit in all of these stages is the responsibility that the attending has to ensure optimal patient safety and outcomes. To that end, they may at any time correct behaviors that may lead to errors or, if an error has already occurred, to "take over" and correct the error.

FIGURE 1. Zwisch scale of progressive autonomy⁴ (with permission).

was also prioritized with the American Board of Surgery funding the first SIMPL trial.⁵ As scaling and improvement efforts continued, more specialties (ie, pediatric surgery, urology, and otorhinolaryngology) joined the SIMPL collaborative, additional staff (ie, product managers and software developers) were hired, and dozens of papers collecting validity evidence were published.

Sweden was the first international member to join the SIMPL collaborative in 2019, followed by several other programs on other continents. New features, such as data downloads, automatic case logging, and additional apps (eg, SIMPL bedside) were added. Partnerships expanded with foundations, associations, and medical boards. To date, SIMPL consists of 222 programs in 7 countries, includes 6000 trainees, and has collected over 600,000 trainee evaluations (Figure 3).³

SIMPL RATER TRAINING

To help standardize assessment in surgical training, SIMPL developed the Zwisch Scale (Figure 1), which includes descriptors of entrustment behaviors by faculty. This was taught using videos of open and laparoscopic case scenarios demonstrating each Zwisch level, from "show and tell" to "active help" to "passive help" to "supervision only."⁴ Initially, every member that joined SIMPL received a 4-hour seminar on assessment principles using these video examples. To streamline training, SIMPL compared an accelerated versus an immersive training approach and found that a 1-hour training is sufficient.⁶ Following this study, SIMPL training was implemented as a 1-hour, in-person faculty and trainee session, with an additional hour to train the program coordinator and supportive faculty and residents labeled "local champions."⁷ In 2020, this approach was adapted to Zoom, where faculty and trainees are shown 6 brief operative videos illustrating both open

and laparoscopic examples for the Zwisch scale levels. In all cases, these sessions were led by a volunteer group of experienced SIMPL educators labeled "SIMPL ambassadors" who had been trained to onboard new member programs.

SIMPL DATA SHARING

Hosting a large repository of potentially sensitive data requires substantial infrastructure. For example, the SIMPL data infrastructure includes automated data pipelines to facilitate downstream analytic, reporting, and research tools. The SIMPL data infrastructure is also cloud-based, which permits scaling as SIMPL grows. Given the sensitivity of the data collected by SIMPL, it has also been designated an Agency for Healthcare Research and Quality Patient Safety Organization,⁸ which provides legal protections to use data for research, education, and quality improvement purposes. To support those uses, SIMPL has also ensured that registry data are Health Information Protection and Portability Act (HIPAA), Family and Educational Rights and Privacy Act, and Institutional Review Board compliant.⁹⁻¹¹ Multiple layers of security and auditing further buttress these protections.

Given the quality improvement focus of SIMPL, data sharing is an essential activity. SIMPL is incorporated as a non-profit organization to generate and share data for research, education, and quality improvement purposes. All programs who join SIMPL sign a network participation agreement that defines how data collected by the collaborative network are used. Importantly, all members retain the right to use their own data, as they see fit and in compliance with their local policies and regulations. Data collected by SIMPL can also be shared, in de-identified format, with other SIMPL network members for multi-institutional research and educational improvement

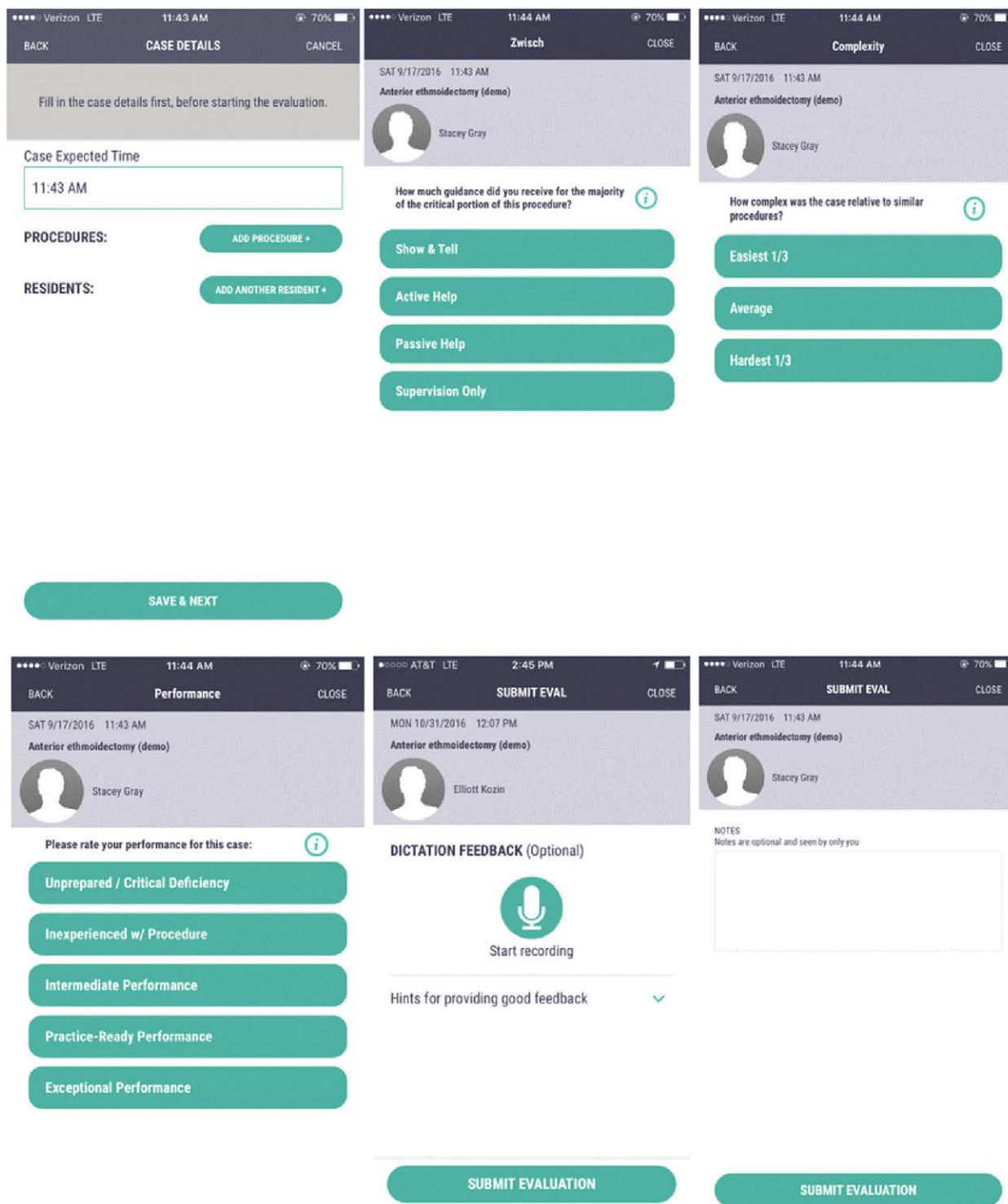


FIGURE 2. Screenshots of the SIMPL evaluation workflow showing the Zwisch performance and Complexity scales³ (with permission).

efforts. Any member of the SIMPL network can request data from the SIMPL data registry by submitting a Letter of Intent to the SIMPL Research Standing Committee (RSC), which are reviewed in accordance to RSC bylaws. Once an Letter of Intent is approved, the member must obtain approval from their institutional review board and sign a data use agreement prior to receiving data. SIMPL uses a robust approach to storing, managing, and governing SIMPL data guided by documented principles and safeguards and enforced by the educators who volunteer their time on the SIMPL RSC.³ This process has been used to coordinate and share data for over 58 SIMPL-related

manuscripts within the peer reviewed literature and generated through dozens of multi-institutional studies.

LESSON LEARNED: THE IMPORTANCE OF TRUST

What initially began as a response to challenges around CBME, ended up becoming one of medical education’s largest trust exercises. First, faculty and trainees are reluctant to use an assessment system unless they trust the value of the assessment process. SIMPL addresses these concerns by highlighting the supporting research. For instance, SIMPL ambassadors share the most

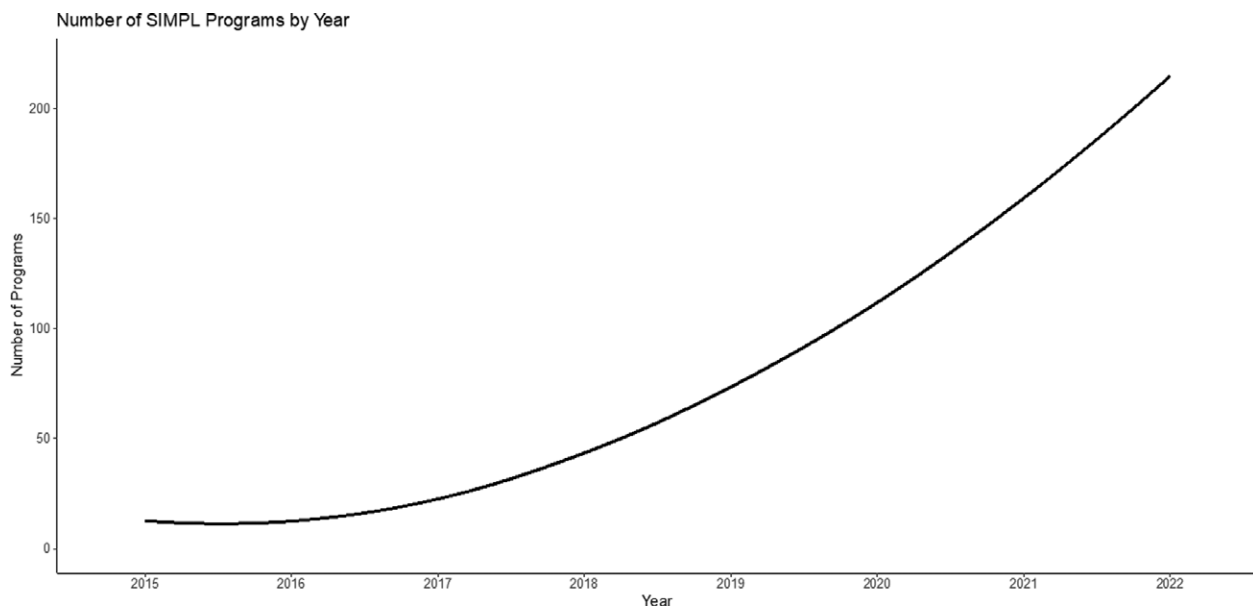


FIGURE 3. Growth of SIMPL programs by year.³

current scientific evidence during the onboarding and training process with each and every member and institution. The scientific foundation is also visible as part of the assessment workflow. For example, if a rater does not complete an assessment in a timely fashion, they receive an email reminder that provides the evidence for how delays degrade the quality of feedback.¹² Second, faculty, trainees, and institutions sometimes worry about how their data are going to be used; sharing data can elicit feelings of uncertainty, fear, and a loss of control. To address these concerns, SIMPL members and other stakeholders reinforce the collective goal, which is to improve the quality of patient care.

SIMPL IMPACT AND NEXT STEPS

The SIMPL network has been successful in helping advance CBME. For example, SIMPL ratings data are now being used to quantify competence across multiple specialties on every continent. SIMPL data are also being used, in partnership with national regulatory bodies, to support accreditation and certification policy updates that could help address competency gaps. Most importantly, by implementing a workplace assessment system at scale, SIMPL has demonstrated how a collaborative network of medical educators can collectively address difficult, systemic problems in a more sustainable way. Moving forward, we advocate for more approaches that leverage a collaborative improvement approach to tackle challenges in medical education. As this piece of surgical history from the SIMPL network showcases—if you want to go far, go together.

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