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Society for Improving Medical Professional Learning Collaborative: What's It All About?

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2022 Symposium Presentation

Society for Improving Medical Professional Learning

Collaborative: What's It All About?

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Abstract

The Society for Improving Medical Professional Learning (SIMPL) Collaborative is a non-profit, educational, quality improvement consortium focused on developing tools, curricula, and policies to improve physician training. The goal is to provide educators and learners with convenient, reliable, and valid evaluation tools for frequent, real-time workplace assessment and feedback. The SIMPL Operating Room application provides this platform. It was developed to provide high-quality, time-sensitive, procedural feedback. Its objective is to facilitate intra-rotation corrections.

SIMPL is available to all residency programs and has matured to include over 175 residency programs, involving 19 different specialties, 4000 trainees, 5000 attendings, and 354,800 evaluations in 3 countries. At least 52 peer-reviewed manuscripts have used the evolving database. We have performed an expert narrative review of the entire SIMPL literature (primary research studies, reviews, and websites) to discuss the unique lessons learned from this large collaborative experience. SIMPL can be the core of a competency-based operative skills assessment that is incorporated into medical training, assessment, and certification. Higher quality feedback is provided via SIMPL compared to the routine end-of-rotation evaluations with a corrective comment 60% of the time versus 15%, respectively. A high overall correlation between residents and faculty within case complexity has also been documented ($r = 0.76$, $P < .0001$), technical performance ($r = 0.66$, $P < .0001$), and autonomy ($r = 0.56$, $P < .0001$).

The goal of the SIMPL initiative is to use resident performance to drive continuous quality improvement of the individual, programs, and larger medical system.

Keywords: SIMPL, medical learning, resident training, trainee, mentor-mentee relationship

Background

Halsted's apprentice model of surgical education was the backbone of medical education for over 100 years when the time for training was unlimited, the educator had no teaching requirements, and you finished when the master said you were done.¹ This process has since become antiquated, secondary to rising concern for patient safety, duty hour restrictions with the introduction of the 80-hour work week, and increased

expectations for faculty supervision. Likewise, introductions of combined programs, pressure to perform clinical tasks in more condensed workdays, and poor methods of evaluating surgical residents have all contributed to a convergence of educators who began to question the autonomy, safety, and practice readiness of graduating surgery residents.²⁻⁹ No single tool has captured autonomy, performance, and case complexity principles.¹⁰⁻¹¹ The ideal tool provides educators with convenient, reliable, and valid evaluation tools for

frequent, real-time workplace assessment and feedback. The Society for Improving Medical Professional Learning (SIMPL) Operating Room (OR) application (App) provides this innovative assessment tool. The SIMPL OR App provides assessment criteria for an individual's autonomy, performance, and case complexity as measured by the resident and attending physician. The goal is to provide rapid feedback and assessment of the mentor and the mentee. SIMPL is currently available to all residency programs and has matured to include over 175 residency programs involving 19 different specialties, 4000 trainees, 5000 attendings, and 354,800 evaluations in 3 countries. At least 52 peer-reviewed and published manuscripts have used the evolving database.

An Expert Review of the Literature to Date from the SIMPL Collaborative

Why SIMPL?

Residents need an assessment tool that allows for real-time feedback and functions as a common avenue for faculty to administer prompt feedback. Bi-annual end-of-rotation (EOR) assessments and yearly in-service exams are inadequate for most resident training. The SIMPL OR App provides an easily navigable interface that is quick to fill out, taking reviewers less than 2 minutes to complete, even as little as 14 seconds with practice. Optional dictated feedback provides reviewers additional avenues to give specific, corrective feedback with learning plans. Evaluators can assess trainees on the individual, operation-by-operation, and day-by-day scales. SIMPL incorporates all known evidence-based best practices into one operative performance assessment.

Additionally, the SIMPL App can push procedures to the Accreditation Council for Graduate Medical Education (ACGME) website (www.acgme.org), saving time for the trainee. Before an operation, the experience for a given procedure through longitudinal data and previous evaluations of a resident's performance is viewable by the evaluator to allow focused conversations to express expectations, individualize teaching plans, and predict autonomy level. Unsurprisingly, studies reveal that immediate feedback ratings were the most accurate, stating, "ratings completed more than 3 days after observation should be discouraged and discounted, as they lack clarity and detail about the performance."¹ Therefore, all SIMPL data is a maximum of 72 hours "old."

Who Gets Trained on App Usage and How?

Resident and attending training is one hour and provided through a virtual platform. The program director or coordinator receives a more prolonged discussion of the SIMPL OR App. Current training sessions include six brief operative videos with an attending, resident, and student illustrating both open and laparoscopic examples of the four basic Zwisch levels (show and tell, active help, passive help, and supervision only). The level of autonomy varies throughout a case, but the overall autonomy grade is based on the level achieved during the majority of the critical portion of the case. The training session participants then review operative performance on a 5-level scale (unprepared/critical deficiency, inexperienced with the procedure, intermediate performance, practice-ready, and exceptional) adapted from a previously validated scale.¹¹ Residents and faculty are instructed to assess performance relative to years of training, known previous exposure to similar cases, known or expected preparation, perceived engagement during the case, and expectations relative to that case. Case complexity (easiest 1/3, middle 1/3, hardest 1/3) is a judgment call by case participants relative to the specialty, caseload of the attending surgeon, co-morbidities, and difficulties encountered during the case. Figure 1 demonstrates the Zwischen autonomy scale.

How It Works

1. SIMPL OR App evaluation is sent to faculty or trainee counterpart.
2. Users complete an assessment in as few as four "taps."
3. Faculty have the option to dictate feedback.

The SIMPL OR App is available on Google Play and the Apple App Store.

Show and Tell Stage	Active Help Stage	Passive Help Stage
The Resident essentially observes and assists but may participate in some parts of the procedures such as opening and/or closing the incision. Attending "shows" the resident how the procedure is done, and "tells" the resident what needs to be known.	The resident begins to assume the surgeon role in some parts of the procedure with the attending providing active guidance (i.e., verbal and/or physical) including periodically swapping "surgeon" and "assistant" roles with the resident. When the resident assumes the surgeon's role, the attending actively assists, essentially guiding the resident through the procedure.	The resident is capable of safely doing significant parts of the procedure without active guidance (i.e., verbal and/or physical) from the attending who passively assists.
Supervision Only Stage		
The resident can safely and effectively perform the procedure using operating room staff or a junior resident to assist. The attending provides no significant verbal or physical guidance/intervention to the resident but provides supervision and consultation if needed.		

Figure 1. The Zwischen scale for levels of autonomy.

Case Logs do Not Equate to Competency

Operative performance ratings for 29,885 procedures performed by 1,861 surgical residents in 54 general surgery programs were analyzed.¹³ For each core general surgery procedure, the adjusted mean probability of a graduating resident being deemed “Practice-ready” ranged from 0.59 to 0.99 (mean 0.90; standard deviation 0.08).¹³ Despite general surgery residents completing minimum requirements for a number of cases, these may not adequately represent what is encountered in common practice.^{13, 14} The Zwisch model was tested to determine a targeted number of cases to achieve a score of 3 or 4. While the number of cases varied greatly for each of the five core surgical procedures, the number of observations required to achieve competency exceeded certification requirements. This was exemplified by a prospective study of 14 general surgery programs showing that fifth-year residents in the last 6 months of training achieved meaningful autonomy in only 69.3% of cases, with the maximum autonomy rating of “Supervision Only” for only a fraction of core procedures.¹⁵ While autonomy has also been shown to increase with advancing graduate year and higher frequency procedures and decrease with case complexity,^{17, 18} operative performance remains the strongest determinant of autonomy.^{15, 16}

SIMPL Provides Objective Data

Traditional forms of performance feedback are completed physically and temporally remote from the OR experience. The SIMPL OR App was developed to provide objective, high-quality, time-sensitive, procedural feedback that facilitates intra-rotation corrections. Faculty provided substantially higher quality feedback using the SIMPL assessments compared to EOR evaluations. The SIMPL. Objectivity was also noted with a high intra-observer agreement ($P < .0001$) on the autonomy Zwischen scale.¹⁹ Similarly, a general surgery study looked at SIMPL assessments completed by both faculty and residents with a high overall correlation between residents and faculty for case complexity ($r = 0.76$, $P < .0001$), technical performance ($r = 0.66$, $P < .0001$), and autonomy ($r = 0.56$, $P < .0001$).¹² Higher quality feedback is also provided via the SIMPL OR App compared to the routine EOR evaluations with a corrective comment 60% of the time versus 15%.¹² The Zwischen performance scale is based upon resident performance (Figure 2).

The Future of SIMPL

The SIMPL mobile-based application has successfully adapted to multiple other surgical sub-specialties, including otolaryngology, oral and maxillofacial, pediatric, plastic,

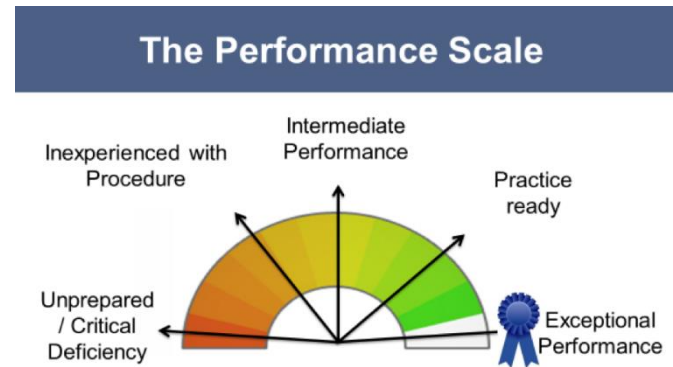


Figure 2. The Zwischen performance scale. Ratings should be based on a single operative performance, providing a snapshot of resident performance during the critical portion of the procedure. Throughout residency, these snapshots provide a movie of a resident's performance based on ratings over multiple procedures from different attendings.

urology, cardiac, and neurosurgery.^{18, 20-21} Standardization of resident evaluation via SIMPL-based assessments allows data comparison across programs, enhancing generalizability and providing more robust and statistically significant conclusions. The next steps include collaborative SIMPL 2.0 to better reach other types of workplace assessment approaches with entrustable professional activities, which are also required for board certification. SIMPL is creating a Reports Dashboard, which will use machine learning to estimate the competence of surgical trainees. Four national trials, including the SIMPL Competency-Based Medical Education Pilot, are underway to understand how we can collaboratively develop, implement, and sustain change, activities which are central to educational quality improvement.

How do these concepts impact clinical practice?

Learners benefit most from real-time feedback. The SIMPL OR App creates an avenue for mentors and mentees alike to provide feedback on performance and teaching style. It is an objective, quantitative, and time-saving approach to measuring performance in an increasingly time-constrained medical professional education system. This mechanism provides immediate feedback by becoming available directly to the trainee and attending, while longitudinally tracking progress over the years. The SIMPL OR App is an excellent tool to assess trainee progress in surgical competency and autonomy while maintaining the ability to evaluate attending surgeons' teaching methods. SIMPL can drive quality improvement for individuals, programs, and larger medical systems.

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References

- [1] Rankin JS. William Stewart Halstead: a lecture by Peter D. Olch. *Ann Surg.* 2006;243(3):418-425.
- [2] Procedural Learning and Safety Collaborative. SIMPL - Improving the Quality of Surgical Care by Improving the Quality of Medical Education [Website]. Accessed April 6, 2022. <https://www.simpl.org>
- [3] Nasca TJ, Philibert I, Brigham T, Flynn TC. The next GME accreditation system – rationale and beliefs. *N Engl J Med.* 2012;366(11):1051-1056.
- [4] Fronza JS, Prystowsky JP, DaRosa D, Fryer JP. Surgical residents' perception of competence and relevance of the clinical curriculum to future practice. *J Surg Educ.* 2012;69(6):792-797. <https://doi.org/10.1016/j.jsurg.2012.05.014>
- [5] Mattar SG, Alseidi AA, Jones DB, et al. General surgery residency inadequately prepares trainees for fellowship. *Ann Surg.* 2013;258(3):440-449.
- [6] Sanfey H, Williams RG, Chen X, Dunnington GL. Evaluating resident operative performance: a qualitative analysis of expert opinions. *Surgery.* 2011;150(4):759-770. <https://doi.org/10.1016/j.surg.2011.07.058>
- [7] Fryer J, Corcoran N, DaRosa D. Use of the Surgical Council on Resident Education (SCORE) curriculum as a template for evaluating and planning a program's clinical curriculum. *J Surg Educ.* 2010;67(1):52-57. <https://doi.org/10.1016/j.jsurg.2009.11.001>
- [8] Kim MJ, Williams RG, Boehsler ML, Ketchum JK, Dunnington GL. Refining the evaluation of operating room performance. *J Surg Educ.* 2009;66(6):352-356. <https://doi.org/10.1016/j.jsurg.2009.09.005>
- [9] Larson JL, Williams RG, Ketchum J, Boehler ML, Dunnington GL. Feasibility, reliability and validity of an operative performance rating system for evaluating surgery residents. *Surgery.* 2005;138(4):640-647; discussion 647-649. <https://doi.org/10.1016/j.surg.2005.07.017>
- [10] Chen XP, Williams RG, Sanfey HA, Dunnington GL. How do supervising surgeons evaluate guidance provided in the operating room? *Am J Surg.* 2012;203(1):44-48. <https://doi.org/10.1016/j.amjsurg.2011.09.003>
- [11] Williams RG, Sanfey H, Chen XP, Dunnington GL. A controlled study to determine measurement conditions necessary for a reliable and valid operative performance assessment: a controlled prospective observational study. *Ann Surg.* 2012;256(1):177-187. <https://doi.org/10.1097/SLA.0b013e31825b6de4>
- [12] Young KA, Lane SM, Widger JE, et al. Characterizing the relationship between surgical resident and faculty perceptions of autonomy in the operating room. *J Surg Educ.* 2017;74(6):e31-e38. doi: 10.1016/j.jsurg.2017.05.021.
- [13] Abbott KL, Krumm AE, Kelley J, et al.; Society for Improving Medical Professional Learning. Surgical trainee performance and alignment with surgical program director expectations. *Ann Surg.* Published online June 16, 2021. <https://doi.org/10.1097/SLA.0000000000004990>
- [14] Abbott KL, Chen X, Clark M, Bibler Zaidi NL, Swanson DB, George BC. Number of operative performance ratings needed to reliably assess the difficulty of surgical procedures. *J Surg Educ.* 2019;76(6):e189-e192. <https://doi.org/10.1016/j.jsurg.2019.07.008>
- [15] George BC, Bohnen JD, Williams RC, et al.; Procedural Learning and Safety Collaborative. Readiness of US general surgery residents for independent practice. *Ann Surg.* 2017;266(4):582-594. <https://doi.org/10.1097/SLA.0000000000002414>
- [16] Williams RG, George BC, Bohnen JD, et al.; Procedural Learning and Safety Collaborative. Is the operative autonomy granted to a resident consistent with operative performance quality? *Surgery.* 2018;164(3):488-494. <https://doi.org/10.1016/j.surg.2017.10.011>
- [17] Torbeck L, Williams RG, Choi J, et al. How much guidance is given in the operating room? Factors influencing faculty self-reports, resident perceptions, and faculty/resident agreement. *Surgery.* 2014;156(4):797-803. <https://doi.org/10.1016/j.surg.2014.06.069>
- [18] Wang RS, Daignault-Newton S, Ambani SN, Hafez K, George BC, Kraft KH. SIMPLifying urology residency operative assessments: a pilot study in urology training. *J Urol.* 2021;206(4):1009-1019. <https://doi.org/10.1097/JU.0000000000001874>
- [19] George BC, Teitelbaum EN, Meyerson SL, et al. Reliability, validity, and feasibility of the Zwisch scale for the assessment of intraoperative performance. *J Surg Educ.* 2014;71(6):e90-96. <https://doi.org/10.1016/j.jsurg.2014.06.018>
- [20] Jaeger C, Krumm A, Kraft KH. Achieving surgical competence in all urology residents. *J Urol.* 2022;207(3):493-495. <https://doi.org/10.1097/JU.0000000000002351>
- [21] Zhao NW, Haddock LM, O'Brien BC. Are you thinking what I'm thinking? Exploring response process validity evidence for a workplace-based assessment for operative feedback. *J Surg Educ.* 2021;79(2):475-484. <https://doi.org/10.1016/j.jsurg.2021.09.007>