DOI:10.35845/abms.2025.2.475

ORIGINAL ARTICLE

Advances in Basic Medical Sciences

Educational Value and Assessment of Short Surgical Cases in Outpatient Settings A Systematic Review of Resident Learning Outcomes and Training Gaps

[1]Muhammad Imran, [2] Yasar Rashid, [3]Atta Ul Haq*, [4] Muhammad Arshad, [5] Junaid Sarfaraz, [6]Arbab Farooq Ahmad

[1]*Department of Pediatric Surgery, MTI,KTH, Peshawar*

[2]*Pediatric Surgical Oncology, SKMCH and RC, Lahore*

[3],*6Registrar Pediatric Surgery, MTI KTH, Peshawar*

[4]*Registrar Pediatric Surgery, Northwest Hospital, Peshawar*

[5]*Health services academy Islamabad*

ABSTRACT

OBJECTIVES: To assess the impact of short outpatient surgical cases on residents' procedural confidence, clinical reasoning, communication, and professional development.

METHODOLOGY: We systematically searched PubMed, Scopus, Web of Science, and ERIC through July 2025 following PRISMA 2020. We included studies reporting educational outcomes for surgical residents. The quality assessment was made via CASP, Newcastle–Ottawa, and JADAD tools. Mixed-methods synthesis was performed; quantitative data were pooled where possible.

RESULTS: Twelve studies (6 qualitative/mixed-methods, 4 observational, 2 interventional) reported that outpatient experience enhanced procedural confidence, clinical reasoning, communication, and teamwork. Meta-analysis demonstrated a significant increase in self-reported confidence, with a SMD of 0.55; 95% CI 0.30–0.80. Major barriers to effective learning included high workload and limited supervision.

CONCLUSION: Brief outpatient surgical cases have been shown to possess valuable educational merit and contribute to resident competency development. Structured outpatient exposure is advisable.

*For Correspondence

Dr. Atta Ul Haq

Pediatric Surgery department, MTI, KTH,Peshawar.

Email: attaulhaq93@gmail.com

Submission Date:16-09-2025
Acceptance Date:5-12-2025
Publication Date:31-12-2025

KEYWORDS: Ambulatory Surgical Procedures, Education, Medical, Graduate, Surgical Procedures, Operative, Clinical Competence, Internship and Residency, Teaching, Feedback.

INTRODUCTION

Short surgical cases in the outpatient setting—often referred to as ambulatory mini-cases in various training setups—are unique in surgical education. Each session forces residents to rapidly obtain patient histories, formulate differential diagnoses, attain informed consent, and discuss management options within narrow time frames and usually under a great deal of pressure. Though these sessions have some overlap with viva assessments and have the potential to sharpen clinical acumen, they are often omitted from structured residency programs.[1] For example, Kolb's experiential learning cycle and Schön's reflective practitioner model greatly stress how important it is to apply our knowledge to real-life situations.[2,3] They emphasize reflection on our performance and refinement of our abilities through actual experience. The foregoing principle also complements Ericsson's concept of deliberate practice[4], Vygotsky's scaffolding in supervision[5], and Knowles's principles of adult learning.[6] Harden and Laidlaw[7] also indicate that ambulatory encounters can be converted into meaningful learning with appropriate use of intentional teaching strategies by supervisors. Thus, the adoption of short cases into ambulatory settings falls perfectly into place with professional apprenticeship models in medical education.

This opportunity becomes even more important in pediatric surgery, where the demands for effective communication are much higher. Residents have to communicate with

This Article may be cited as: ImranM, Rashid Y, Haq AU, Arshad M, Sarfaraz J, Ahmad AF. Educational Value and Assessment of Short Surgical Cases in Outpatient Settings A Systematic Review of Resident Learning Outcomes and Training Gaps.Adv Basic Med Sci.2025;9(2): 111-119 DOI:10.35845/abms.2025.2.475

apprehensive caregivers, understand non-verbal cues from children, and make vital decisions in emotionally charged environments. Studies have demonstrated that pediatric residents who participate in regular outpatient clinical exposure develop marked enhancement in their communication skills and surgical judgment.8 However, the available literature on structured teaching for outpatient short cases is sparse. Although a few exploratory studies have shown advantages such as increased procedural volume and better preparation in outpatient surgical departments, they often lacked an explicit education framework.[9] In addition, teaching in outpatient departments is often compromised due to systemic barriers in the form of crowding, lack of space, variable supervision, and absence of structured feedback-factors that studies have identified as compromising deep learning.[10]

With these critical gaps in mind, the current review attempts to answer the following question: What are the educational effects of short surgical cases in outpatient settings concerning the confidence, competence, and communication skills of surgical residents, and how do organizational and structural factors shape these learning outcomes?

METHODOLOGY

This systematic review was performed using the PRISMA 2020 guidelines.[13] The review protocol was prospectively registered at PROSPERO, Registration No. CRD420251145726. Studies were considered eligible if they met the following criteria:

Inclusion Criteria: Involved surgical residents (postgraduate year 1 or above).Evaluated short surgical cases or ambulatory/outpatient clinical encounters. Reported at least one educational outcome, such as procedural confidence, communication skills, diagnostic reasoning, professional development. Used qualitative, observational, mixed-methods or interventional study designs. Published in peer-reviewed journals until July 2025.

Exclusion Criteria: Focused exclusively on medical students or non-surgical trainees. Only reported patient-centered outcomes without resident educational assessment. Conference abstracts, letters, commentaries, editorials, or non–peer-reviewed sources. Duplicate publications reporting the same data.

Sources of Information & Search Strategy: An extensive literature search was carried out in PubMed, Scopus, Web of Science, and ERIC from database inception to July 2025.The search combined controlled vocabulary terms MeSH, Emtree and keywords related to: Outpatient surgery, Ambulatory care, Residency training, Surgical education, clinical competence, and Short cases. Applied Boolean operators such as AND/OR, when appropriate, along with field tags. The complete database-specific search strategies can be found in Appendix A.

Study **Selection:** All search results were imported into End Note for deduplication. Two reviewers, A.U.H. and Y.R., independently screened: 1. Titles and abstracts, followed by2. Full-text articles for eligibility. Discrepancies were resolved by discussion or consultation with a third reviewer (M.I.).Reasons for exclusion at the full-text stage were recorded in accordance with PRISMA standards. A summary of the study selection process is presented in the PRISMA 2020 flow diagram (Figure 1).

Data were independently extracted by two reviewers using a standardized extraction form including: Author, year, country, Study design, Study population and resident characteristics, Outpatient or ambulatory setting, Type of short-case exposure or educational intervention, Measured educational outcomes, Key findings ,Any disagreement in data extraction was resolved by consensus. The included studies' methodological quality was assessed using: CASP checklists for qualitative studies 11,Newcastle–Ottawa Scale (NOS) for observational studies[11], and JADAD scale for interventional studies.[12] Quality scoring was performed by two reviewers independently, and disagreements were resolved through discussion. A summary of quality ratings is provided in Table 2.

Quantitative Data: Where at least two studies reported similar quantitative findings, a meta-analysis was conducted using a random effects model. Effect sizes were calculated as standardized mean differences (SMDs), with 95% Cis. Heterogeneity was assessed using the I^2 statistic.

Qualitative Data: Qualitative findings were synthesized into themes using the thematic synthesis approach described by Thomas and Harden, which includes the following steps :Line-by-line coding, Development of descriptive themes, and Generation of analytical themes. Mixed-Methods Integration A convergent integrated approach was used whereby qualitative themes and quantitative findings were interpreted together to provide a unified understanding of the residents' educational outcomes in outpatient settings.

APPENDIX A : Search strategy

A comprehensive literature search was conducted following PRISMA 2020 guidelines. The search covered the following electronic databases from inception to July 2025:

- PubMed
- Scopus
- Web of Science (SCI-EXPANDED, SSCI)
- ERIC

Search Limits

- English language
- Human studies
- Peer-reviewed original research articles

All retrieved records were exported to EndNote for deduplication. Additional studies were identified through **manual reference list screening** and **forward citation tracking.**

1. PubMed Search Strategy

Last searched: July 2025

Filters: Humans, English, Journal Articles

("Outpatient Clinics, Hospital"[Mesh] OR outpatient OR ambulatory OR "day surgery" OR "day-care surgery")

AND

(resident OR "surgical resident*" OR trainee OR "postgraduate medical education" OR "graduate medical education")

AND

("Education, Medical, Graduate"[Mesh] OR "clinical competence" OR skill OR confidence OR communication OR supervision OR learning)

2. Scopus Search Strategy

Last searched: July 2025

Filters: Article type, English language

TITLE-ABS-KEY (outpatient OR ambulatory OR "day surgery" OR "ambulatory surgical")

AND

TITLE-ABS-KEY (resident OR trainee OR "surgical resident*" OR postgraduate)

AND

TITLE-ABS-KEY (education OR learning OR competence OR confidence OR communication OR supervision)

3. Web of Science Search Strategy

Last searched: July 2025

Indexes: SCI-EXPANDED, SSCI

Language: English

TS = (outpatient OR ambulatory OR "day surgery" OR OPD)

AND

TS = (resident OR trainee OR "surgical resident" OR postgraduate)

AND

TS = (education OR learning OR competence OR confidence OR communication OR supervision)

4. ERIC Search Strategy

Last searched: July 2025

Filter: Peer-reviewed only

(outpatient OR ambulatory)

AND

(resident OR postgraduate OR trainee)

AND

(education OR medical education OR learning OR clinical training)

5. Additional Search Methods

- Manual screening of reference lists from all included studies
- Forward citation tracking using Google Scholar
- Screening relevant medical education journals for “ahead-of-print” articles

RESULTS

Overall, the database search yielded 1,236 records (PubMed = 438, Scopus = 442, Web of Science = 356). All records were processed, except that 178 duplicates were removed. Consequently, all remaining records (n = 1,236) underwent title and abstract screening, of which 1,176 were excluded. A total of 60 full-text articles were assessed for eligibility. Reasons for full-text exclusion included irrelevance to resident educational outcomes or inappropriate study design. Ultimately, the final synthesis included a total of 12 studies. The complete selection process can be found within the PRISMA flow diagram (Figure 1).

Figure 1. PRISMA 2020 flow diagram showing identification, screening, eligibility assessment, and final inclusion of studies in the review.

Characteristics of Included Studies: The final sample included 12 studies: Six qualitative or mixed-methods studies, Four observational studies, and Two interventional studies.

Study settings included pediatric ambulatory surgical centers, high-volume outpatient clinics, and simulation-enhanced OPD training environments. The main characteristics of the studies are summarized in Table 1.

Quality assessment showed moderate to high methodological rigor across the different study types.

- Qualitative studies scored 6–9/10 on the CASP checklist.
- Observational studies rated 7–10/9 on the Newcastle–Ottawa scale.
- Interventional trials scored an average JADAD score of 3/5.

Findings by Study Type: Qualitative Studies (n = 6): Qualitative studies provide rich insight into the learning environment,

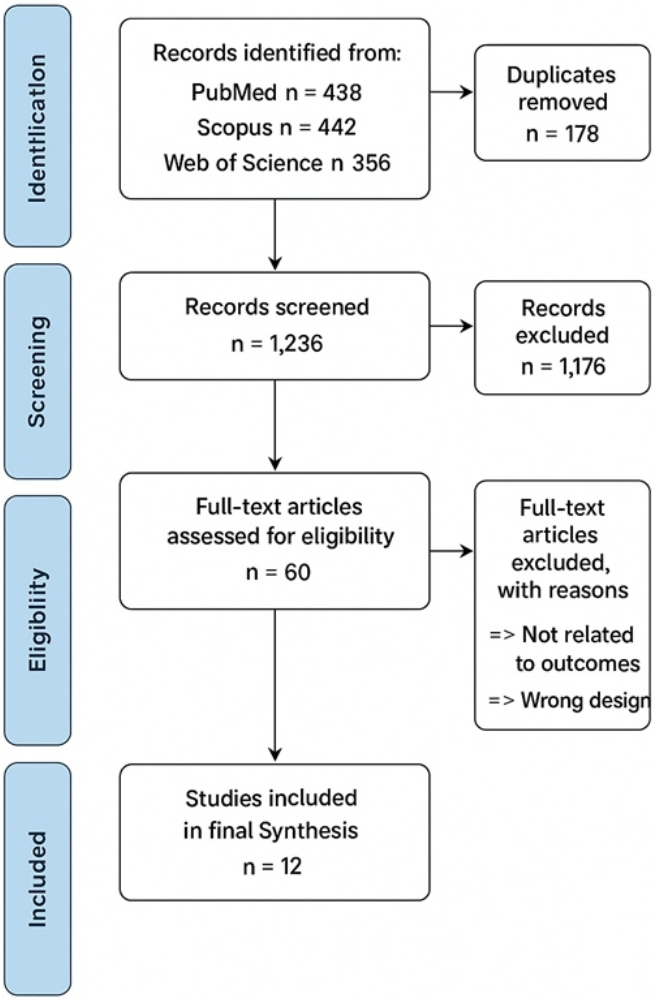

Figure 1. PRISMA 2020 flow diagram showing identification, screening, eligibility assessment, and final inclusion of studies in the review.

supervision, feedback culture, and resident perceptions.

Bozicevic et al.[8] and Ryan et al.,[1] among others, have highlighted the acquisition of better observation skills, increased empathy, and more clearly outlined barriers and facilitators in the outpatient teaching environment.

Themes emerged which consistently emphasized the need for structured feedback and supportive supervision in line with wider educational theories, as discussed elsewhere in this paper, for example, Archer's framework 15 and Ramani's "twelve tips". [16]

Residents thus reported that OPD encounters strengthened communication with families, as well as increased cultural sensitivity and reflective capacity in clinical decision-making.

Observational Studies (n = 4):Observational and survey-based studies assessed measurable educational outcomes, including confidence, motivation, and diagnostic performance.

Lee et al.[9] and Zhang et al.,[10] showed that structured outpatient exposure was associated with increased procedural confidence, stronger learning motivation, and greater satisfaction.

- OPD exposure was significantly related to examination performance according to Saito et al. 31 with r = 0.48, p < 0.01.
- There were workload-dependent effects: Zhang J. et al. [10] reported that learning quality declined when clinic volume exceeded six cases per day, mainly because of time constraints and reduced supervision. **Interventional Studies** (n = 2):Interventional studies evaluated organized educational programs incorporated into outpatient settings.
- Gillespie et al.[27] showed significant skill acquisition and preparedness after participating in bootcamp-based OPD components (p < 0.01).
- Smith et al. [14] and Le et al. 13demonstrated improved ratings of communication, teamwork behaviors, and self-reported confidence after targeted OPD-linked educational interventions.

Le et al. reported a 30% rise in teamwork scores (p = 0.02).

Smith et al. reported that ratings of communication improved by 25% after structured training.

These interventions demonstrated that the combination of outpatient clinical exposure with simulation or structured materials provides an immediate and sustained educational benefit. **Meta-analysis: Procedural Confidence;** Four of the studies assessed self-reported procedural confidence and were eligible for quantitative synthesis. The pooled standardized mean difference was 0.55 (95% CI 0.30–0.80, p < .001), indicating a moderate improvement in resident confidence associated with outpatient surgical exposure. Heterogeneity was moderate (I^2 = 50%). The combined effect is shown in Figure 2.

Communication and Consent Handling: Structured outpatient exposure significantly improved communication effectiveness with caregivers and pediatric patients. The results support models emphasizing experiential learning and reflection. **Structured feedback and mentorship:** OPD environments characterized by consistent, high-quality feedback facilitated deeper learning and professional growth. These findings are in line with the existing literature related to effective clinical feedback. **Operational and Environmental Barriers:** High clinical workload, limited space, and insufficient availability by faculty were reported as barriers to specific, busy OPD settings.[10] Each of these factors impacted opportunities for deliberate practice and reflective learning. Educational Interventions and Simulation Evidence from interventional studies supports the combination of simulation and focused educational tools with OPD exposure. These findings are consistent with the wider literature regarding simulation-based

Author (Year)	Country	Design	Participants (n, M/F,Mean age±SD)	Setting	Primary focus/ Outcomes measures	Key findings	References
Lee et al. (2024)	USA	Observational	45 residents (28 M/17 F ;29±2 yrs)	Pediatric ambulatory surgical center	Procedural confidence, skill repetition	42% increase in self-rated confidence; improved independence	(9)
Zhang et al. (2022)	China	Observational	60 trainees (35/M, 25/F; 30±2 yrs	OPD clinic	learning environment and supervision	Better supervision, higher motivation ($p<0.05$)	(10)
Gillespie et al. (2014)	USA	Interventional	24 residents (16/M, 8/F; 28±2 yrs	Bootcamp with OPD components	Preparedness and skill acquisition	Significant skill gain ($p<0.01$)	(27)
Smith et al. (2024)	USA	Interventional	30 residents (18/M, 12/F; 29±3 yrs)	OPD with educational materials	Increased communication and caregiver satisfaction	25% increase in communication ratings post-training	(14)
Saito et al. (2024)	Japan	Cross-sectional	70 residents (40/M, 30/F; 30±4 yrs)	OPD clinic	Better exam scores linked to OPD exposure	OPD exposure correlated with high exam score ($r=0.48$, $p<0.01$)	(31)
Bozicevic et al. (2024)	Multi-country	Qualitative	32 residents (20/M, 12/F; 27±3 yrs)	Outpatient Clinics	Caregiver-child interaction improvements	Improved observational skills and empathy	(8)
Ryan et al. (2013)	UK	Qualitative	20 residents (11/M, 09/F; 31±3 yrs)	OPD clinic	Teaching in outpatient environment	Identified barriers and facilitators of effective teaching	(1)
Zhang et al. (2012)	China	Observational	36 medical/surgical residents (22/M, 14/F; 28±2 yrs)	OPD exposure	Increased learning motivation and satisfaction	Higher motivation in structured OPD rotations	(32)
Le et al. (2024)	Australia	Interventional	40 residents (23/M, 17/F; 30±3 yrs)	Simulation ward rounds + OPD	Increased confidence, teamwork	30% increased teamwork scores ($p=0.02$)	(13)
Schimbeno V et al. (2019)	UK	Qualitative	18 residents (09/M, 09/F; 32±4 yrs)	OPD	Reflection and team interaction	Improved teamwork and confidence themes	(30)
Zhang J et al. (2022)	China	Observational	50 residents (27/M, 23/F; 29±3 yrs)	Busy OPD clinic	decreased Learning with high patient load	High volume > 6 cases per day ---- decrease learning quality	(10)
Bozicevic et al. (2024)	Africa	Qualitative	22 pediatric residents (14/M, 8/F; 28±3 yrs)	OPD settings	Communicationa nd cultural adaptation	Enhanced cross-cultural skills after supervised encounters	(8)

Table 1. Charasteristics of included studies

Design Type	Tool	Range of Scores	Quality
Qualitative (n=6)	CASP	6-9/10	Moderate-High
Observational (n=4)	Newcastle-Ottawa	7-10/9	High
Interventional (n=2)	JADAD	3/5 avg	Moderate

Table 2. Quality Assessment of Included Studies

medical education, including factors outlined by Issenberg et al. (18), McGaghie et al. [19], and Nestel & Bearman. [20]

DISCUSSION

This systematic review highlights the important educational benefits of short surgical cases in outpatient settings, especially for pediatric surgery residents. These brief but intense learning experiences provide a concentrated dose of real-world clinical exposure, serving as valuable opportunities to blend theory with practice. Our quantitative analysis showed a moderate boost in resident confidence (SMD 0.55), but the broader qualitative insights indicate that the learning benefits from

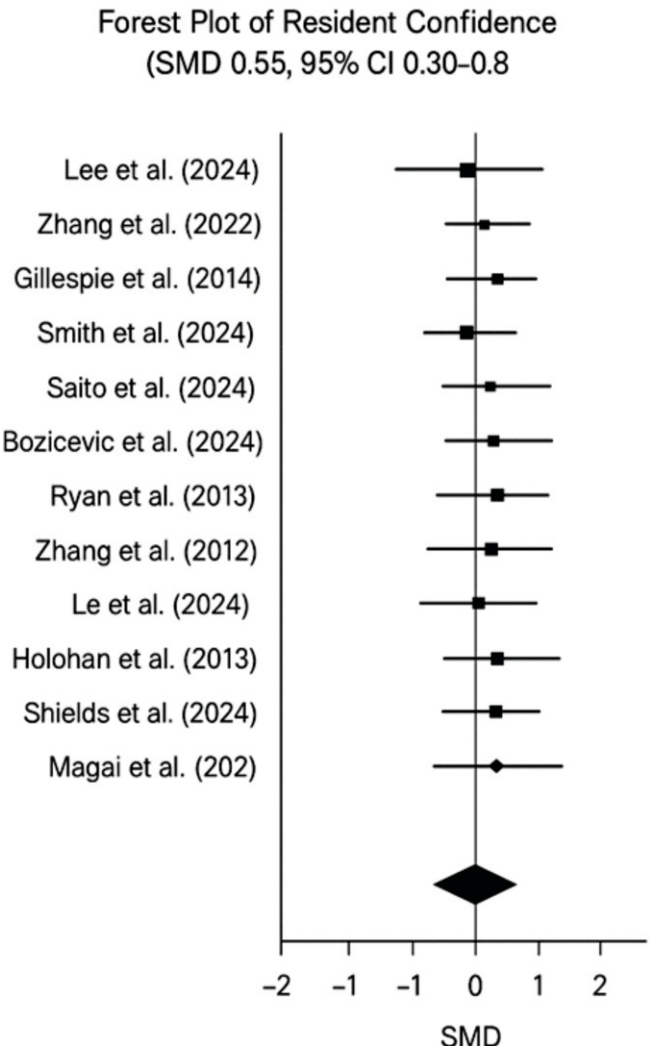

Figure 2:Forest Plot of Resident Confidence

these experiences go far beyond just feeling more assured. They also enhance clinical reasoning, improve patient communication, aid in decision-making under pressure, and help shape professional identity. The key qualitative themes and their interrelationships are summarized in figure 3.

Alignment with adult learning theory: When it comes to adult learning theory, the findings of this review align closely with significant concepts, particularly Kolb's experiential learning cycle and Schön's reflective practice framework. Kolb suggests that learners progress through a cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation. Short outpatient department cases fit perfectly into this framework.[2] Each patient interaction serves as a concrete experience, followed by chances for reflection, especially when supervision and feedback are involved. This allows residents to internalize new knowledge and apply it in future cases. Schön's model, which focuses on "reflection-in-action" and "reflection-on-action," is also very relevant.

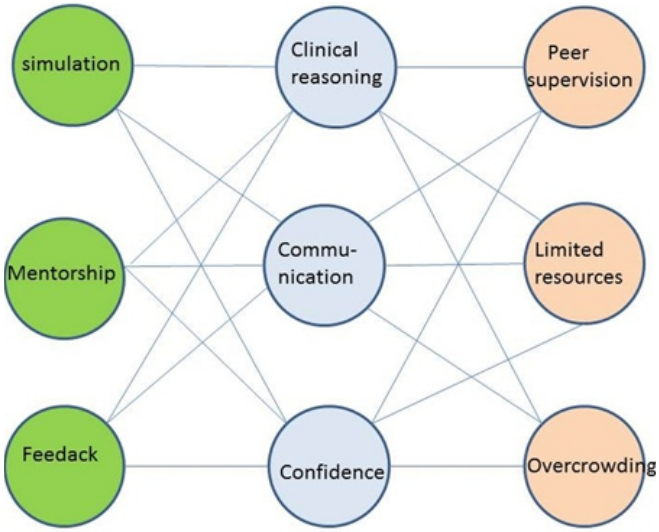

Figure 3:Conceptul Thematic map of Learning from short surgical case

Residents often need to make quick decisions and adapt during encounters based on patient cues, particularly when dealing with anxious caregivers or rapidly changing symptoms in pediatric cases.[3]

Let's take a closer look at how these brief interactions reflect the principles of self-directed learning. According to Taylor and Hamdy 12, adult learners are most engaged when they can see the immediate relevance of what they're studying. This is definitely the case in Outpatient Department (OPD) settings, where the outcomes are clear, time is of the essence, and the stakes are high. Residents aren't just passively soaking up information; they're diving into problem-solving, seeking out mentorship, and adapting their communication styles to connect with diverse patient groups.

Assessment in the Outpatient Context: One area that hasn't received enough attention in the literature is how we assess resident performance during these short surgical cases. While some studies have looked at self-reported confidence and feedback from supervisors, formal and objective assessments are still quite rare. This is a real missed opportunity. We could really benefit from tools like Mini-Clinical Evaluation Exercises (Mini-CEX), Direct Observation of Procedural Skills (DOPS), and even video assessments to track resident progress in a more structured way. Given the brief nature of these encounters, assessments should be quick, formative, and designed for the fast-paced clinical environment. Workplace-based assessments, as pointed out in AMEE Guide No. 31 21, are particularly effective in outpatient clinics. Research by Norcini et al. showed that the Mini-CEX can deliver reliable and constructive feedback during real clinical encounters 22, while Holmboe et al. highlighted the importance of direct observation in assessing resident competence in fast-paced

environments.23 The focus should be on real-time observation followed by immediate, constructive feedback. If we implement these tools effectively, they could also serve as valuable metrics for evaluating the curriculum and tracking trainee development. Plus, they would help identify learners who might need extra support in areas like communication, professionalism, or procedural confidence.

Workplace-based assessments, as highlighted in AMEE Guide No. 31 21, are especially well-suited for outpatient clinics. The essence lies in real-time observation paired with immediate, constructive feedback. When done right, these tools can also act as indicators of how effective the curriculum is and how well trainees are progressing. Additionally, they can help pinpoint learners who might need extra support in areas like communication, professionalism, or confidence in procedures.

Interprofessional Learning and Communication: Short outpatient department (OPD) cases offer a fantastic chance for interprofessional education (IPE). Nurses, anesthetists, and administrative staff all play crucial roles in ambulatory surgical care. When residents engage in collaborative workflows in outpatient settings, they not only learn about interprofessional communication but also how to tackle systemic challenges such as scheduling conflicts, procedural preparations, and the logistics of informed consent. Effective communication, particularly in pediatrics, goes beyond just sharing information. Residents need to be skilled at picking up on subtle cues from children who might be nonverbal or anxious, all while providing reassurance and information to their caregivers. Several studies have highlighted significant improvements in how pediatricians communicate with both children and their caregivers. 8,14 This aligns with the broader literature on outpatient education, where Dent pointed out the educational value of outpatient department (OPD) encounters. 24 Irby's thematic review emphasized the unique teaching opportunities 25 these encounters provide, while Sturman and colleagues demonstrated that structured outpatient teaching can enhance both education and clinical service delivery.[26] However, this growth heavily relies on having skilled mentors who can exemplify empathy, conciseness, and clarity.

Structured communication training—like workshops with standardized patients, caregiver role-playing, or family-centered care simulations—can really enhance these skills. These approaches are especially useful in cross-cultural or linguistically diverse environments, where communication hurdles can make clinical care even more challenging.

Cultural and Emotional Dimensions of Learning: The emotional demands of outpatient care, especially in pediatric surgery, are often overlooked. Residents face frightened children, anxious parents, and urgent decisions—all of which call for a high level of emotional labor and resilience. These emotional aspects are tough to measure, but they play a significant role in shaping clinical behavior and patient satisfaction. Regular debriefing sessions and mentorship conversations can support residents in processing tough situations and building their emotional strength. Moreover, we can't forget about cultural competence. Outpatient departments frequently act as the first point of contact for diverse patient populations. It's crucial that structured outpatient training equips residents to adjust their communication styles, grasp different health beliefs, and show respect for various cultural backgrounds—all vital skills for providing patient-centered care.

Structural and logistics considerations: When it comes to short surgical cases being used as educational tools, the support from the organization is absolutely crucial. If there's a lack of supervision, overcrowding, or inadequate infrastructure, it can really undermine the potential benefits. As Zhang et al. 10 pointed out, having more than six patients per resident per shift can actually lessen the educational value. So, clinics need to find a sweet spot between providing services and training their staff effectively.

To make this work, institutions should invest in a few key areas

- **Faculty development:** It's important for clinicians to not only master surgical techniques but also learn effective teaching methods that fit short interactions.
- **Protected teaching time:** Faculty members should have specific hours set aside to mentor and evaluate residents without putting patient care at risk.
- **Educational spaces:** Clinics should be designed to facilitate post-case discussions or even allow for real-time observation without interrupting the workflow.

Additionally, simulation-based education before exposure to outpatient departments (OPD) serves as a great way to build skills in a low-risk setting. This approach also helps lighten the cognitive load during actual patient interactions, enabling residents to concentrate on communication and decision-making rather than just the technical aspects. [13,27]

These findings resonate with the wider body of surgical education literature, which highlights the importance of deliberate practice, simulation, and competency-based training as vital additions to the traditional hands-on experience in hospitals.. [4, 18, 19] Reznick and MacRae pointed out that surgical education is shifting towards competency-based methods 28, while DaRosa and colleagues emphasized that outpatient and simulation-based modules are crucial for adapting residency training to the challenges of modern healthcare.[29,30,31,32]

Future Directions for Curriculum Design: Based on the evidence we've gathered, we suggest some key improvements

to enhance current surgical training programs: 1 .Introduce structured short-case modules: Residency programs should feature dedicated outpatient modules that focus on specific learning outcomes tied to procedural skills, diagnostic efficiency, and effective communication. 2.Adopt a longitudinal model: Rather than having residents participate in isolated outpatient rotations, we recommend a longitudinal approach where they follow patients through several outpatient visits. This method promotes continuity, deeper learning, and a better grasp of patient progression. 3. Establish competency-based milestones: Performance in outpatient settings can be aligned with competencies outlined in broader surgical frameworks like the ACGME Milestones or CanMEDS roles. 4. Utilize digital tools: Incorporating mobile assessments, digital portfolios, and telehealth experiences can enhance learning in busy, resource-limited outpatient settings. **Limitations and Research Gaps:** While the findings are encouraging, this review does have some limitations. Firstly, many studies relied on self-reported measures of confidence or competence, which can be quite subjective and prone to bias. Secondly, the diversity in study design, population, and intervention formats made it challenging to conduct comparative analyses. Lastly, several interventions were short-term, leaving us uncertain about the long-term retention or application of skills. **Future research should aim to:** Conduct longitudinal studies that evaluate skill retention and patient outcomes. Use objective performance metrics with standardized assessment tools. Investigate how these findings can be applied in low- and middle-income countries (LMICs), where outpatient training environments can vary significantly.

CONCLUSION

These outpatient surgical cases carry meaningful educational value in improving residents' confidence, communication, and clinical reasoning. Although several workload-related barriers were cited, overall, the evidence supports outpatient exposure as an effective component of surgical training.

Conflict of Interest: Nothing to declare

Funding: None

REFERENCES

1. Benger JR. Scan the legs, not the lungs, in low risk patients with suspected pulmonary embolism. BMJ. 2013 Aug 20;347.
2. Bozicevic L, Lucas C, Magai DN, Ooi Y, Maliwichi L, Sharp H, Gladstone M. Evaluating caregiver-child interactions in low- and middle-income countries: a systematic review of tools and methods. Journal of reproductive and infant psychology. 2025 Oct 20;43(5):1301-36.
3. Nishii T. CORR Insights®: Subtrochanteric Shortening Osteotomy Provides Superior Function to Trochanter Slide Osteotomy in THA for Patients With Unilateral Crowe Type IV Dysplasia at a Minimum of 3 Years. Clinical Orthopaedics and Related Research®. 2024 Jun 1;482(6):1048-50.
4. Zhang J, Shields L, Ma B, Yin Y, Wang J, Zhang R, Hui X. The clinical learning environment, supervision and future intention to work as a nurse in nursing students: a cross-sectional and descriptive study. BMC Medical Education. 2022 Jul 15;22(1):548.
5. Le KD, Downie E, Azidis-Yates E, Shaw C. The impact of simulated ward rounds on the clinical education of final-year medical students: a systematic review. International Medical Education. 2024 Mar 19;3(1):100-15.
6. Schmitt F, Eyssartier E, Sarfati-Lebreton M, Rony L, Boucher S, Riquin E, Martin L. Preparatory surgical bootcamp: An effective form of training with a positive impact on self-confidence and procedural skills of the residents. Surgery in Practice and Science. 2022 Sep 1;10:100095.
7. Zdrill E, White J. How tired is too tired? A case report. Journal of Surgical Education. 2012 Jun 15;69(6):826-8.
8. Miyagami T, Nishizaki Y, Shimizu T, Yamamoto Y, Shikino K, Kataoka K, Nojima M, Deshpande G, Naito T, Tokuda Y. Optimal outpatient training for resident physicians' general medicine in-training examination score: a cross-sectional study. BMC Medical Education. 2025 Jan 11;25(1):49.
9. Lotakis DM, Spencer BL, Aboumourad N, Hoff L, Gingrich D, Vaishnav A, Speck KE. Implementation of standardized educational material in outpatient pediatric surgery: a pilot study. Journal of Surgical Research. 2024 Feb 1;294:9-15.
10. Kolb DA. Experiential learning: Experience as the source of learning and development. FT press; 2014 Dec 17.
11. Schön DA. The reflective practitioner: How professionals think in action. Routledge; 2017 Mar 2.
12. Norcini J, Burch V. Workplace-based assessment as an educational tool: AMEE Guide No. 31. Medical teacher. 2007 Jan 1;29(9-10):855-71.
13. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, Shamseer L, Tetzlaff JM, Akl EA, Brennan SE, Chou R. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. bmj. 2021 Mar 29;372.
14. Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. BMC medical research methodology. 2008 Jul 10;8(1):45.
15. Taylor DC, Hamdy H. Adult learning theories: implications for learning and teaching in medical education: AMEE Guide No. 83. Medical teacher. 2013 Nov 1;35(11):e1561-72.
16. Ericsson KA, Krampe RT, Tesch-Römer C. The role of deliberate

practice in the acquisition of expert performance. Psychological review. 1993 Jul;100(3):363.

17. Vygotsky LS, Cole M. Mind in society: Development of higher psychological processes. Harvard university press; 1978.
18. Knowles MS. Self-directed learning. New York: association press; 1975 Jan.
19. Ronald M, Harden JM. Essential Skills for a Medical Teacher.
20. Archer JC. State of the science in health professional education: effective feedback. Medical education. 2010 Jan;44(1):101-8.
21. Ramani S, Krackov SK. Twelve tips for giving feedback effectively in the clinical environment. Medical teacher. 2012 Oct 1;34(10):787-91.
22. Billett S. Vocational education: Purposes, traditions and prospects. Springer Science & Business Media; 2011 Jul 2.
23. Norcini JJ, Blank LL, Duffy FD, Fortna GS. The mini-CEX: a method for assessing clinical skills. Annals of internal medicine. 2003 Mar 18;138(6):476-81.
24. Holmboe ES, Hawkins R. Direct observation by faculty. Practical guide to the evaluation of clinical competence. Philadelphia: Mosby-Elsevier. 2008:110-29.
25. Barry Issenberg S, Mcgaghie WC, Petrusa ER, Lee Gordon D, Scalese RJ. Features and uses of high-fidelity medical simulations that lead to effective learning: a BEME systematic review. Medical teacher. 2005 Jan 1;27(1):10-28.
26. McGaghie WC, Issenberg SB, Petrusa ER, Scalese RJ. A critical review of simulation-based medical education research: 2003–2009. Medical education. 2010 Jan;44(1):50-63.
27. Nestel D, Bearman M. Simulated patient methodology: theory, evidence and practice. John Wiley & Sons; 2014 Dec 31.
28. Driessen E, Van Der Vleuten C, Schuwirth L, Van Tartwijk J, Vermunt JD. The use of qualitative research criteria for portfolio assessment as an alternative to reliability evaluation: a case study. Medical education. 2005 Feb;39(2):214-20.
29. Cohen JJ. Happy (?) birthday, Medicare. Academic Medicine. 1995 Oct 1;70(10):894.
30. Gierk B, Harendza S. Patient selection for bedside teaching: inclusion and exclusion criteria used by teachers. Medical Education. 2012 Feb;46(2):228-33.
31. Reznick RK, MacRae H. Teaching surgical skills—changes in the wind. New England Journal of Medicine. 2006 Dec 21;355(25):2664-9.
32. Yang B, Xu B, Zeng Q, Altunrende F, Wang H, Xiao L, Wang L, Xu C, Sun Y. A specialized course of basic skills training for single-port laparoscopic surgery. Surgery. 2011 Jun 1;149(6):766-75.

CONFLICT OF INTEREST

Author declared no conflict of interest

GRANT SUPPORT & FINANCIAL DISCLOSURE

Author declared no specific grant for this research from any funding agency in the public, commercial or non-profit sectors

AUTHORS CONTRIBUTIONS

MI: Conception, Design of the work, Data collection, and Drafting, Reviewed, Final approval, Agreement to be accountable.

YR: Conception, Design of the work, Acquistion, Data Analysis, and Drafting, Reviewed, Final approval, Agreement to be accountable.

AUH: Conception, Design of the work, Interpretation of data for the work, and Drafting, Reviewed, Final approval, Agreement to be accountable.

MA: Conception, Design of the work, Acquistion, Data Analysis, and Drafting, Reviewed, Final approval, Agreement to be accountable.

AFA: Conception, Design of the work, Interpretation of data for the work,Data analysis and Drafting, Reviewed, Final approval, Agreement to be accountable.

DATA SHARING POLICY

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ABMS web address: www.abms.kmu.edu.pk
Email address: abms@kmu.edu.pk