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Communication as a core non-technical skill in pediatric surgery: existing frameworks and potential implementation in training programs

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Abstract

Purpose Communication skills are essential non-technical competencies in pediatric surgery, yet formal training programs remain limited and inconsistent. This perspective article examines the critical role of communication across pediatric surgical subspecialties and proposes frameworks for implementing structured communication training in residency programs.

Methods We performed a narrative review of published literature on communication skills in pediatric surgery and synthesized existing communication frameworks applicable to surgical training. Expert perspectives were gathered from an international group of pediatric surgeons representing diverse subspecialties including prenatal counseling, neonatal surgery, pediatric urology, and pediatric surgical oncology.

Results We identify specific communication challenges unique to pediatric surgery, including prenatal counseling, neonatal intensive care discussions, sensitive urological conditions, and pediatric oncology. Existing frameworks such as SPIKES for delivering bad news and EMPATHY for non-verbal communication provide evidence-based tools adaptable to pediatric contexts. Current training approaches remain largely informal and mentor-dependent, with significant variability between programs.

Conclusion Pediatric surgery training programs should integrate structured communication curricula with defined learning objectives, simulation-based practice, and regular feedback mechanisms to prepare trainees for the unique communication demands of caring for children and their families.

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Introduction

Technical proficiency remains a cornerstone of pediatric surgery training, but cultivating effective communication skills is equally essential for building trust and enhancing clinical outcomes [1]. Communication skills are critical for navigating various scenarios, from prenatal counseling to complex surgical discussions. Effective communication between healthcare providers and patients forms the cornerstone of high-quality care. In surgical specialties, strong communication skills are associated with improved patient satisfaction, better adherence to treatment plans, reduced complications, enhanced well-being, and psychological outcomes [2, 3]. This is particularly crucial in pediatric surgery, where communication involves not just the child (the patient), but also their parents, guardians or caregivers. We argue that developing effective communication skills is an often overlooked competency, but is commensurate to technical competency. Particularly within pediatric surgery where communication dynamics can vary significantly by situation and audience, it should be a core competency required of accredited training programs to invest in formal communication training and evaluation of medical trainees [4]. In this perspective article, we highlight specific areas of pediatric surgery which collectively warrant specific consideration for specialized focus in communication training.

Methodology

This perspective article was developed through a narrative review of published literature and expert consensus. We searched PubMed and MEDLINE databases using search terms including "communication skills," "pediatric surgery," "surgical training," "non-technical skills," "prenatal counseling," and "shared decision-making." We reviewed articles published in English focusing on communication training in surgical and pediatric settings. Expert perspectives were synthesized from authors representing diverse subspecialties (prenatal surgery, neonatal surgery, pediatric urology, pediatric surgical oncology) and international training backgrounds (USA, Japan, Italy, France, UK, Germany). Our conclusions represent expert opinion informed by available literature rather than results from a systematic review. The identified communication challenges and proposed training recommendations are based on the collective clinical and educational experience of the authoring group.

Prenatal counseling

Prenatal ultrasound screening has enabled early detection of structural fetal anomalies, providing vital information on management options and prognosis that must be communicated with precision and sensitivity. Prenatal counseling addresses parental anxieties and fetal well-being, requiring multidisciplinary collaboration and teamwork. Effective communication is essential during initial encounters, counseling sessions, and when delivering difficult news to expectant parents. Managing the 'unborn patient' diagnosed with a surgically correctable anomaly also requires clear and robust collaboration between obstetricians, neonatologists, and pediatric surgeons [5].

Training programs must include structured education platforms on the practical aspects of prenatal tests, fetal anomalies, and communication skills to provide information and address challenging situations. Currently, there is a notable absence of formal guidelines and standardized curricula specifically addressing communication skills for fellows in prenatal counseling, representing a significant gap in pediatric surgical training that warrants immediate attention [6].

Neonatal surgery and intensive care

Neonatal surgery presents unique challenges, including outcome uncertainty and ethically complex decision-making. Strong communication skills are vital for alleviating parental anxiety, aiding shared decision-making, and handling end-of-life discussions [7]. Strong communication skills to convey compassionate and clear messages are fundamental in distinguishing successful encounters in pediatric surgery [8].

Professional consensus and targeted training initiatives should be established to enhance pediatric surgery trainees' comprehension of families' viewpoints and foster collaborative decision-making among health care teams, particularly within intensive care units.

Pediatric urology

Interacting with children requiring urologic care poses unique challenges, particularly given the socioemotional ramifications of many conditions. Children may feel ashamed of symptoms such as daytime wetting, nocturnal enuresis, and soiling. Treatment includes not only medical or surgical interventions, but also reassurance by urologists to motivate and support children, reducing feelings of frustration and low self-esteem. In the example of hypospadias repair, despite the fact that surgery typically occurs before 18 months of age, young patients may still experience challenges with psychological adaptation or develop distorted self-body image due to multiple reoperations, unsatisfactory outcomes, and emotional trauma. Children with bladder exstrophy-epispadias complex are at particularly

heightened risk of psychiatric disorders, necessitating targeted psychological support [9]. Pediatric urologists often serve as the initial point of contact for parents and patients, and sensitive communication skills are also crucial when addressing disorders of sex development (DSD) and future gender identification [10].

Pediatric surgical oncology

In pediatric oncology, communication challenges are uniquely complex due to several factors that distinguish them from adult oncology settings. Pediatric surgical oncologists must simultaneously communicate with both the child patient and their parents/guardians, adapting their approach to the child's developmental stage while managing heightened parental anxiety and emotional distress. Additionally, children's comprehension of illness, mortality, and treatment side effects varies dramatically with age, requiring surgeons to develop versatile communication strategies that evolve throughout the child's treatment journey.

Unlike adult oncology, pediatric cases often involve parents making critical decisions about intensive treatments that may affect their child's growth, development, and long-term quality of life, adding significant ethical complexity to these discussions. Furthermore, pediatric oncology frequently involves multidisciplinary care with numerous providers, requiring surgeons to coordinate consistent messaging across teams while maintaining therapeutic relationships with vulnerable children undergoing traumatic experiences.

Training programs should and must prepare pediatric oncology surgeons to handle these specialized communication challenges, fostering positive doctor-patient-family relationships that improve treatment adherence, psychological outcomes, and quality of life for both patients and their families. This preparation should include structured, evidence-based communication skills programs with clearly stated learning objectives specifically tailored to pediatric surgical contexts, rather than the current state of training which often relies on informal, mentor-dependent approaches that vary significantly between training programs.

Evidence demonstrates that effective communication in pediatric oncology significantly impacts various patient outcomes, including enhanced adherence to chemotherapy regimens, increased accuracy in symptom disclosure, and reduced anxiety and psychological distress. Training programs should be developed to establish patient and family-centered communication during critical times, with particular attention to the unique developmental and psychological needs of pediatric patients [11].

Communication skills learning strategies

Improving communication skills for health care providers requires structured training programs beyond clinical exposure. These programs should include theoretical and practical workshops, simulated patients, role-playing exercises, and structured feedback sessions. Prior pediatric-focused research has demonstrated that communication and relational competencies are mainly focused on roleplay, with simulation exercises being the most widely used educational tools for experiential learning [12]. Role-playing in varied scenarios and structured feedback helps active participants and novices practice and refine communication skills in a safe environment [13]. Feedback should not only focus on what is said, but also encompass assessment on reflective listening, sensitivity to non-verbal cues, emotional intelligence, and effective information-giving skills. Key behaviors to emphasize may include mindfulness of physician's body language, using plain language, ensuring comprehension, encouraging questions, observing cultural norms, and involving pediatric patients in the shared decision-making process.

Several validated frameworks provide structured approaches to communication training that can be adapted for pediatric surgical contexts. The SPIKES protocol offers a six-step framework for delivering bad news: Setting up the interview (ensuring privacy, adequate time, and appropriate participants), assessing patient/family Perception of the situation, obtaining an Invitation to share information, providing Knowledge and medical information using clear language, addressing Emotions with empathic responses, and summarizing with Strategy and Summary for next steps [14]. This protocol has been validated across oncology settings and provides a reproducible structure that can be taught and assessed.

The EMPATHY tool focuses specifically on non-verbal communication skills through the mnemonic: Eye contact (maintaining appropriate visual engagement), Muscles of facial expression (demonstrating concern and attention), Posture (open and engaged body positioning), Affect (matching emotional tone to the situation), Tone of voice (calm, clear, and compassionate), Hearing the whole patient (active listening beyond spoken words), and Your response (appropriate verbal and non-verbal feedback) [15]. Non-verbal communication accounts for a substantial portion of message transmission and is particularly important when communicating with anxious parents or young children who may be more attuned to emotional cues than verbal content.

Additional frameworks applicable to pediatric surgical training include the Calgary-Cambridge Guide, which provides a comprehensive structure for medical interviews encompassing opening, gathering information, building

relationship, explanation and planning, and closing phases [16]. The SEGUE Framework (Set the stage, Elicit information, Give information, Understand the patient's perspective, End the encounter) offers another validated teaching tool particularly suited for observed clinical encounters and formative assessment [17].

Clinical service rotations can provide opportunities for pediatric surgeons to refine these skills, with timely feedback from senior colleagues and families using 360 evaluations. Creating opportunities for parents to participate in the training process through targeted feedback may positively enrich health service education by fostering relational awareness and facilitating better understanding of challenges faced while delivering patient health care.

Conclusion

Pediatric surgery programs have significant communication skill training gaps. Effective communication is crucial across the various pediatric surgical disciplines, enhancing interactions with patients and families. Training programs should provide clear learning objectives, experiential teaching methods (simulation), and opportunities for practice and regular feedback for surgical residents. Integration of validated communication frameworks such as SPIKES and EMPATHY into curricula, combined with regular assessment and feedback, can help standardize training and ensure all graduates achieve competency in this essential non-technical skill. This framework approach will help pediatric surgeons develop practical communication skills, improving patient care and health outcomes.

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Data availability No datasets were generated or analysed during the current study.

Declarations

Conflict of interest The authors declare no competing interests.

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