REVIEW

Large Language Models in the Clinic: Counseling, Consent, and Multilingual Communication

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Abstract. Large language models are reshaping the conversational layer of surgical practice. From preoperative counseling to consent drafting to multilingual patient education, these models can improve clarity, comprehension, and access. This article examines how large language models can be safely and effectively integrated into surgical workflows across all specialties, with a safety-first implementation framework.

Keywords: large language models, informed consent, patient counseling, multilingual communication, clinical safety

1. Why LLMs Matter in Surgical Practice

Communication failures remain among the top contributors to adverse events and litigation in surgery. Large language models offer standardized explanations of procedures, reduced cognitive load for surgeons, counseling tailored to patient reading level, automatic translation, consistent risk disclosure, and streamlined post-visit summaries. In plastic surgery, where expectations and psychological factors play a major role, clear communication is especially critical.

2. Key Clinical Use Cases

Preoperative Counseling

Models can generate procedure-specific explanations, risk and benefit summaries, expected recovery timelines, and personalized Q&A; based on patient-specific details, while surgeons retain full oversight.

Informed Consent Drafting

Models can support, but not replace, consent generation by ensuring all major and minor risks are listed, providing multilingual versions, tailoring content to literacy level, and highlighting context-specific risk factors such as capsular contracture, open versus closed rhinoplasty, or filler embolism.

Multilingual Communication

Models reduce dependence on overburdened interpreter services through instant translation of educational materials, multilingual discharge instructions, native-language Q&A;, and on-demand cultural adaptation without changing clinical meaning.

Documentation and Staff Communication

Models can draft clinic notes, post-visit summaries, operative planning notes, and preauthorization letters, and can unify workflows with standardized pre-op instructions and handoff summaries. All drafts require clinician final edits.

3. Implementation Framework for Safe Clinical Use

- Human-in-the-loop oversight: models never replace clinical judgment; all outputs require review.
- Clear escalation rules: define what the model can and cannot do.
- Robust data privacy: no PHI in prompts unless within a HIPAA-compliant environment.
- Version control and documentation: track model versions, errors, and template changes.
- Clinical calibration: customize prompts to practice terminology and evidence-based guidelines.

4. Strengths, Limitations, and Risks

Strengths include high scalability, rapid and consistent communication, multilingual support, literacy-level adaptation, and major time savings. Limitations include possible hallucination of facts, inconsistent risk phrasing, an overly confident tone, and limited ability to judge emotional context. Major safety risks include incorrect or incomplete risk disclosure, misinterpretation of patient-submitted information, and overreliance on autogenerated text.

5. Best Practices for Adoption

Start with low-risk applications such as educational materials, discharge instructions, template generation, and risk summaries. Avoid early use in documentation containing PHI outside HIPAA-compliant environments, in final consent documents without thorough review, and in sensitive psychosocial counseling.

Key Takeaways

- LLMs enhance, but never replace, surgeon communication.
- They improve clarity, consistency, and linguistic accessibility.
- Proper governance prevents miscommunication risks.
- Plastic surgery offers ideal early use cases due to communication-heavy workflows.