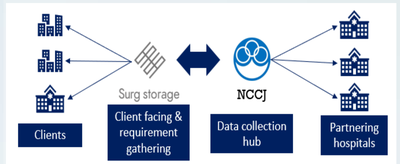
Achievements of the S-access Database Project: A 4-Year Review of Surgical Data Utilization

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Introduction

The increasing adoption of AI in surgery necessitates large-scale, high-quality datasets for model development, clinical validation, and regulatory approval. However, surgical data remains fragmented, with significant challenges in standardization, accessibility, and compliance with international regulations.
Surg Storage, in collaboration with over 100 medical institutions in Japan, has developed **S-access**, one of the largest structured databases of surgical videos, endoscopic images, and related clinical data. This project aims to enhance AI-driven surgical innovation, establish global data-sharing standards, and accelerate the development of AI-assisted surgical technologies.
This presentation will outline the construction and impact of the S-access database, its role in supporting AI development, and ongoing efforts to expand data standardization internationally.

Current Setup of Database



LAPAROSCOPIC SURGERY: >6,500

- Colon: >2,400
- Stomach: >700
- HPB: >1,600
- Prostate: >500
- Gynecology: >1,300

Objectives

The objectives of this study are:
1.To establish a large-scale, standardized surgical data repository (S-access) for AI-driven applications in surgery.
2.To facilitate the development of AI-based surgical assistance models through high-quality, annotated datasets.
3.To promote the international standardization of surgical data through collaboration with ISO/TC215/WG2 and leading global academic institutions.
4.To evaluate the impact of structured data access on AI model training, validation, and deployment in clinical settings.

Materials & Methods

Data Collection & Standardization:
•S-access integrates **over 6,500** high-resolution laparoscopic surgery videos, endoscopic images, and structured clinical data.
•Data is collected from **100+ affiliated medical institutions**, including **40% of Japanese university hospitals**.
•A multi-layered anonymization pipeline ensures compliance with privacy regulations (Japan's Act on Protection of Personal Information).
AI Development Support:
•**20+ expert annotators** provide **high-precision labeling**, ensuring datasets are optimized for AI training.
•Partnerships with AI developers and medical device manufacturers facilitate real-world AI validation.
•Surg Storage's proprietary **Surg Stream** platform enables on-demand access to surgical datasets via a SaaS-based model.
Regulatory & Standardization Initiatives:
•Leading the **ISO/TC215 WG2** project to develop global standards for surgical data interoperability.
•Providing datasets for AI validation in compliance with **PMDA** performance evaluation requirements.
•Collaborating with international medical societies, including **SAGES**, for global data utilization and research exchange.

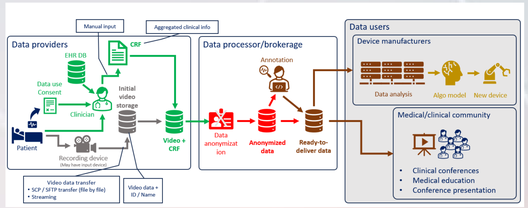
Results

Scalability & Impact:
•**6,500+ surgical datasets** collected across multiple specialties (laparoscopy, gastroenterology, cardiology).
•The dataset has supported **multiple AI model developments**, including robotic surgery assistance, post-operative complication prediction, and automated surgical skill assessment.
•Some medtech distributors using S-access for training reported **faster procedural learning for the deployment of each equipment into clinical side.**

AI Model Development & Validation:
•Our dataset has contributed to the development of **surgical assistance AI**, with real-world applications in robotic surgery systems and autonomous endoscopic navigation.
•AI models trained/valudated using S-access datasets demonstrated **enhancement of generalizability across institutions**.

Standardization & International Expansion:
•ISO/TC215 project is in **final draft phase**, aiming for **official publication by Mar 2026**.
•Partnerships initiated with **North American and ASEAN** medical institutions to establish international data-sharing agreements.
•Expansion of **data categories** into neurosurgery, orthopedics, and vascular surgery.

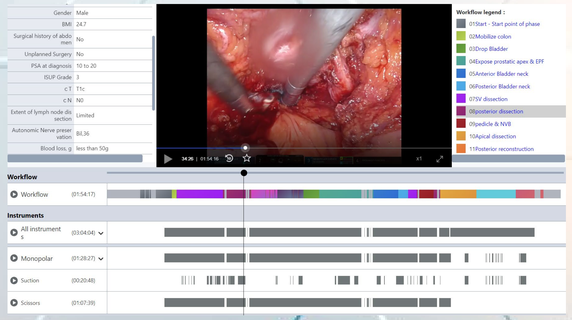
Process of surgical AI development



Conclusions

Surg Storage has successfully built **one of the largest structured surgical data repositories** to advance AI development, surgical education, and clinical decision support. The S-access project has enabled:
•**Efficient AI model training** by providing large-scale, high-quality datasets.
•**Regulatory-compliant data infrastructure**, supporting AI validation and certification.
•**International collaboration on surgical data standardization**, accelerating the adoption of AI-driven innovations globally.
Looking forward, **our next goal is to expand S-access to 15,000+ datasets** by 2027, integrating **multi-modal AI-driven insights** and strengthening collaborations with **leading global medical institutions and regulatory bodies**. Our commitment to **standardized, high-quality surgical data** will continue driving the future of AI-powered healthcare innovation.

Database with various annotations



Comprehensive R&D support base on the Database

Market research	Data consultation	Data sourcing	Analysis	Modeling	Regulatory submission support
• Field research • Interviewing Japanese KOLs or key commercial players	• Defining the data requirements based on the end goal • Consultation for	• Key coverage area of Surg Storage	• Defining development requirements based on the data acquired	• AI algorithm modeling development * Most probably achieved by joint effort	• Validation of the functionality through local data