incision

Assist

A Mobile Platform for Operating Room Teams

Contents

Synopsis

Assist is a mobile application created by Incision to support the performance of surgical and perioperative staff and their teams. Staff using Assist are more confident, better prepared, able to access information faster, and more familiar with the equipment and materials they work with. Assist has been comprehensively implemented by participating institutes to generate high levels of usage, customization and satisfaction.

Assist enables teams to capture, share, and access clinical protocols and professional workflows. Through optimized access to essential information — and the improved preparedness and performance this affords — the overall length of new staff training and onboarding programs have been successfully reduced (up to 25%). This saves time, reduces costs, and ameliorates the supervision burden on preceptors and supervisors. More junior staff can safely assist with low complexity procedures, boosting productivity and further accelerating their learning. Staff retention over training is improved. Overall team efficiency is increased and the changeover time between surgeries is reduced (by an average of 9 minutes), more so for complex procedures.

This white paper presents Assist as a high-impact tool that can be successfully introduced in an operating department to directly improve efficiency, standardization, and financial performance. These results provide attractive and valuable insights for healthcare organizations seeking to enhance their perioperative processes.

Introduction

The operating room (OR) demands high levels of team efficiency to deliver consistent patient care and optimal financial performance.

Improving efficiency in the OR is a highly desirable but challenging goal; each day, team workflows interact with resource availability, equipment factors, patient demographics and myriad other factors to influence outcomes and performance. Improvement strategies must be adaptable, pragmatic, and cost-effective to be impactful and sustainable.
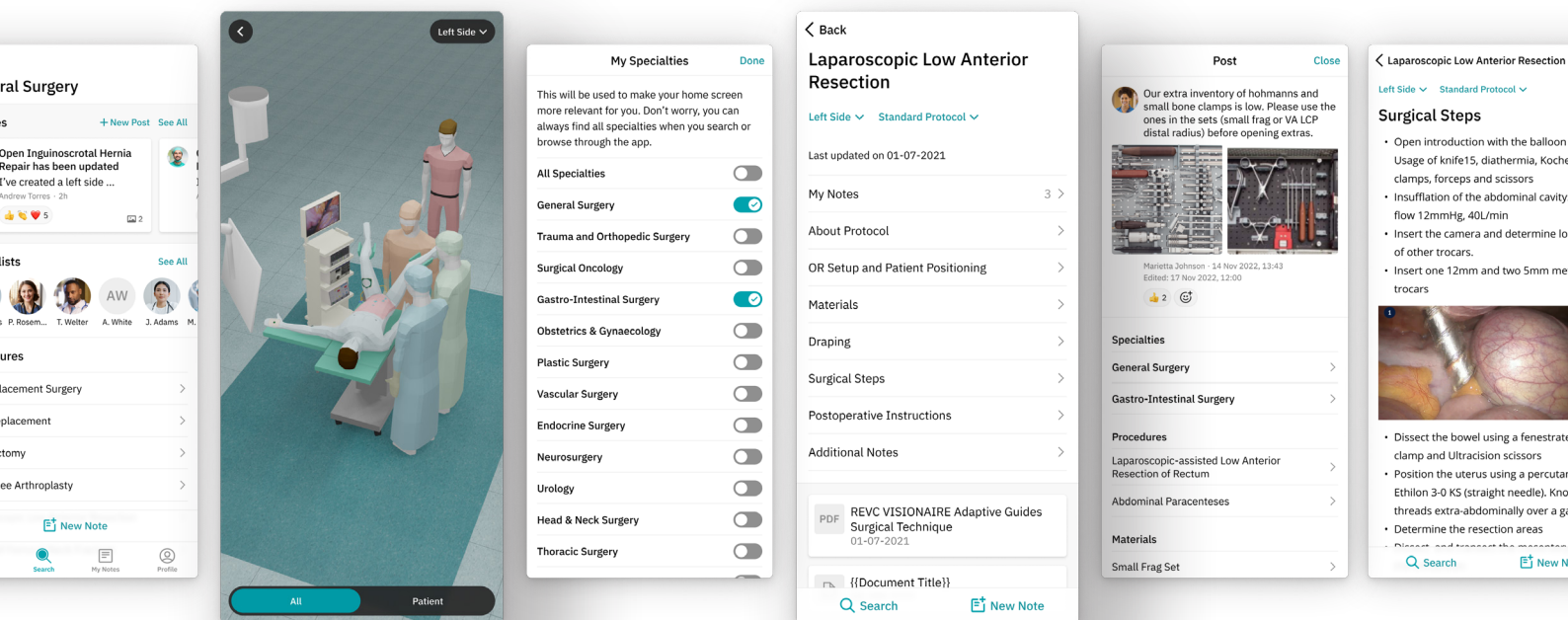
Assist presents a multidisciplinary approach, enabling team-wide access to essential surgical and perioperative protocols through a mobile app and counterpart management system. Content includes equipment setups, patient preparations, materials lists, device instructions, surgical steps, recovery protocols, user notes, and updates feed (among others).

Protocols are organized per speciality and per procedure, down to the level of unit-specific workflows and surgeon-specific preferences. Updates and group messaging enable teams and managers to communicate and post information directly — all accessible in real-time, from any place.

Assist occupies a unique space in the current healthcare market. For OR staff, it provides a single point of reference for their specific ways of working. For hospitals, it delivers a ready-to-go package to train and onboard newcomers, standardize practice, manage information, and improve performance outcomes.

Case Study

This white paper evaluates the impact of Assist as reported by active users in four hospitals across the Netherlands. Up to June 2023, a survey was conducted using email, in-app prompts, and direct outreach to hospital leads. Interviews were conducted with OR managers and a designated representative OR specialist. The survey gathered 61 responses from staff who had used the platform for at least 6 months

Respondents identified as operating assistants (88%), nurse anesthetists (6%), recovery practitioners (3%), surgical residents (2%) and physicians (2%). Most fell in the 40–49 age bracket (38%), although there was also significant representation from users who were 20–29 (20%), 30–39 (21%) and 50–59 (11%). In terms of experience, 25% of respondents had over 25 years clinical experience, 12% had 1–2 years, and 8% had less than a year.

20%	21%	38%	11%
12 respondents	13 respondents	23 respondents	7 respondents
20–29	30–39	40–49	50–59
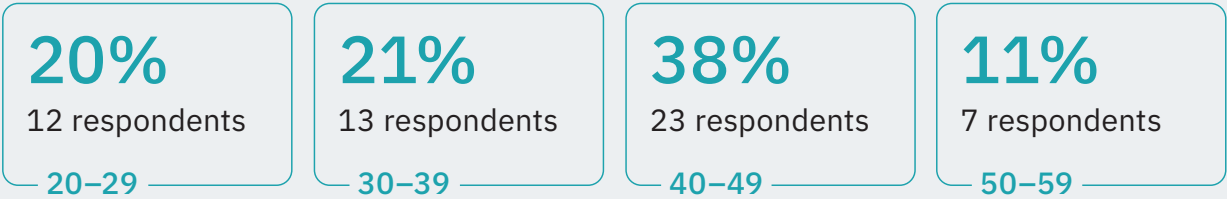
Most users (52%) reported using Assist multiple times per week, demonstrating solid and valued integration of the app into their daily OR workflows. By the end of the study period, an average of 640 individual protocols (per institution) were available through the app, added by hospital staff and researchers.

640 ● Protocols available (on average) per hospital

This shows that users and departments were prepared to invest in Assist as a way to manage information, and tailor content to meet their specific requirements.

"Assist enables us to start each day with the team completely aligned so we can focus on what's most important: our patients."

Laurens van Houte, Surgical Department Manager,
Twente Medical Center

Efficiency and Confidence

The significant majority of users (88%, 54 respondents) reported feeling better prepared OR using Assist. Increased confidence levels are associated with increased levels of post-training competence, showcasing a direct benefit of Assist to their clinical practice [1]. Likewise, 88% stated that Assist helped them find relevant information faster. Users repeatedly describe *liking* the app, factoring in major improvements to their daily preparation both in terms of quality and time.

88% Felt better prepared

88% Can access information faster

Improvements are especially pronounced in junior staff and those in the early stages of a new rotation. Owing to this, more junior staff are able to scrub-in and actively assist; for example, operating assistants in their first year of study were able to safely assist with low-complexity procedures. This reduces pressures on more senior staff, improves productivity, and further boosts individual learning trajectory.

9 Minutes faster changeover between cases

From a managerial perspective, optimal information retrieval is a key driver of effective team alignment and cohesive performance.

Both interviewees stressed that changeover between surgical cases had improved directly as a result of better alignment between teams using the app.

Changeover time between surgical cases was seen to drop from an average of 25 to 16 minutes, resulting in ~9 minutes faster patient changeover. This was especially pronounced in high-complexity surgery comprising multiple approaches or numerous parts, such as procedures using robotic platforms.

Familiarity with Equipment

Assist improves familiarity with equipment and materials, and the majority of users were more confident with the equipment they encountered during specific surgical procedures (70%, 43 respondents). Those who used Assist the most were also the most confident; users who spent an average of 6-minutes on the app per day expressed an average confidence rating of 4.1 out of 5 (Likert scale).

Lack of familiarity with specific equipment can contribute significantly to preventable intraoperative delays, negatively impacting patient flow and resource utilization [2, 3]. This is especially pronounced for staff working in new environments and/or with new equipment.

By familiarizing users with the equipment they will encounter, Assist is highly suited to training staff to use new devices (for example, robotic platforms), and to complement training and onboarding programs. Improved familiarity with equipment also has important implications for risk reduction and improved patient safety: these are currently under further investigation.

70%

are more familiar with equipment and materials

"A well-prepared operating room represents a job already half done."

Marc Besselink,
Professor of Hepatobiliary
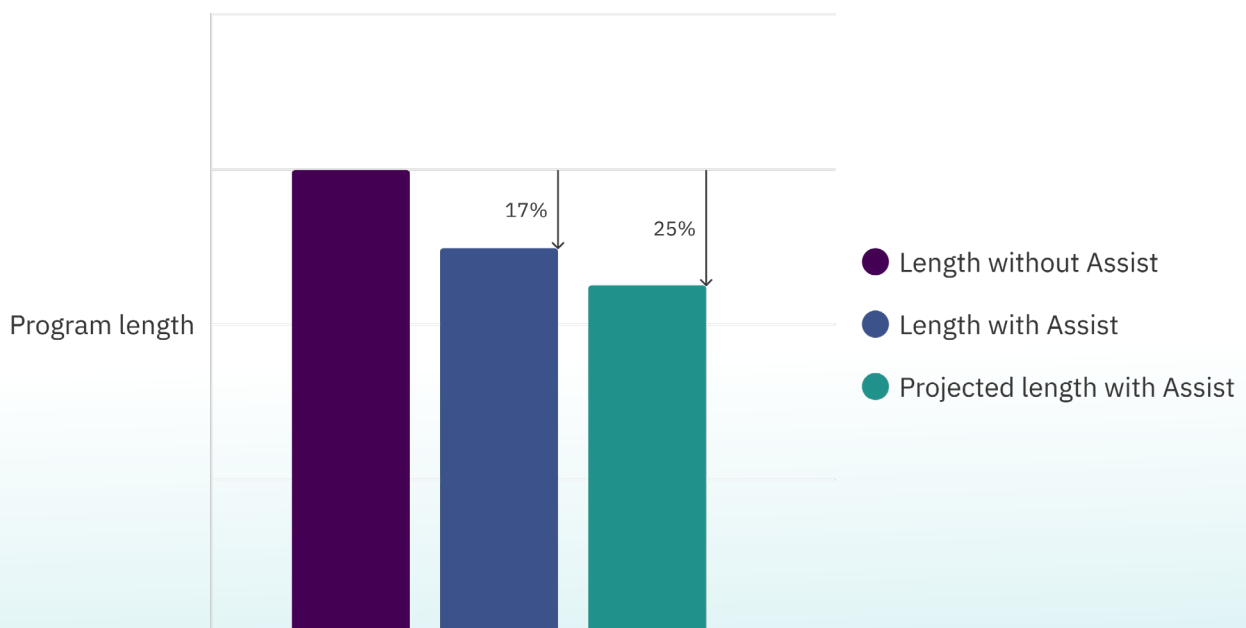and Pancreatic Surgery,
Amsterdam University Medical Center
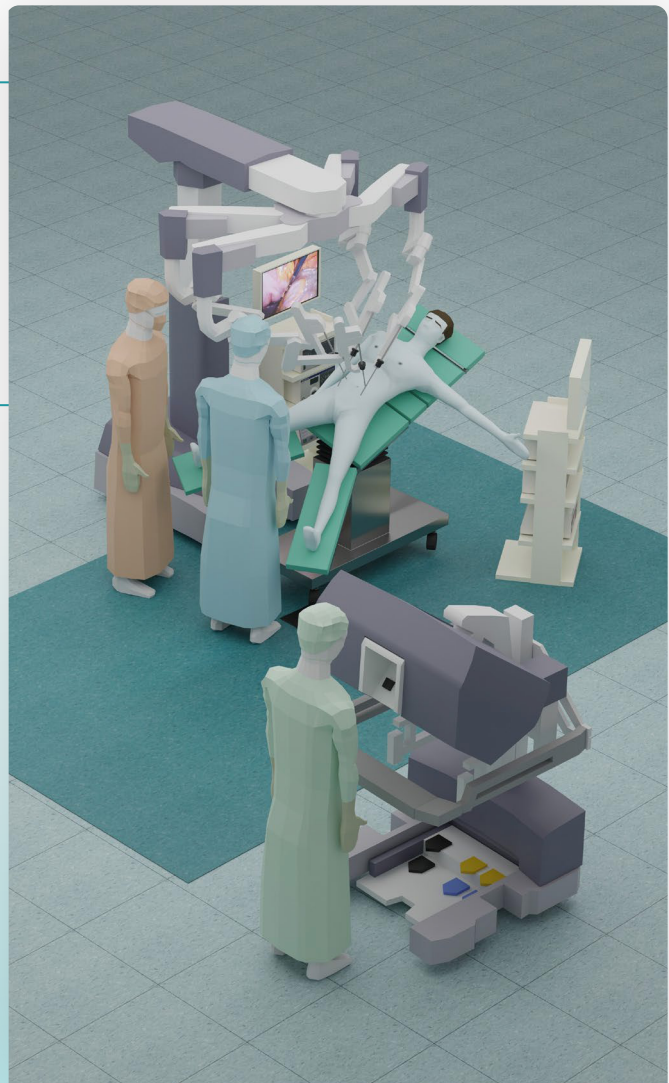
Training and Onboarding

Assist positively impacts both the primary training of OR staff and the onboarding programs by which they start working in a new department or hospital. Successful programs have a multitude of positive repercussions and have been proven to significantly reduce staff turnover and improve hospital financial performance [4]. Departmental protocols and unit-specific workflows form a key part of these programs, where new staff may lack direct experience with a specific way of working, a particular surgeon's preferences, or a new equipment setup.

25% Shorter training and onboarding

Both interviewees stressed that staff using Assist consistently performed ahead of schedule, meaning that the "Observe" part of their training could be safely reduced. Subsequently, this hospital successfully reduced the length of their training program for new operating assistants by 6 months, from 36 to 30 months. Management further felt confident to reduce the program by another 3 months, to give a total reduction of 25% (from 36 to 27 months) and saving 9 months per new member of staff.

Program length

17%

25%

● Length without Assist

● Length with Assist

● Projected length with Assist

Reducing the length of staff training and onboarding durations has significant implications for understaffed units, where there is an urgency to quickly train up new staff to maintain services. In many units, traveler cover and locum staffing are commonly utilized to provide relief: a solution that can be inefficient and highly expensive.

With the power to safety and predictably save time, Assist frees up more experienced staff and optimizes their productivity across the department. This intuitively reduces the need (and associated costs) for traveler cover and facilitates cost effective, high-volume training and onboarding [5].

An additional benefit to this is that it also reduces the associated supervision burden placed on senior staff, preceptors and supervisors, who may have to juggle numerous conflicting priorities. Burnout among preceptors in perioperative nursing is high: lessening the supervision burden placed on them is a worthwhile strategy to reduce this.

The dropout rate for new operating assistants was also significantly lower than in previous cohorts, falling from an average of ~ 30% to zero at the time of the interviews. Given the positive impact that onboarding improvements can have on staff retention, this observation is encouraging.
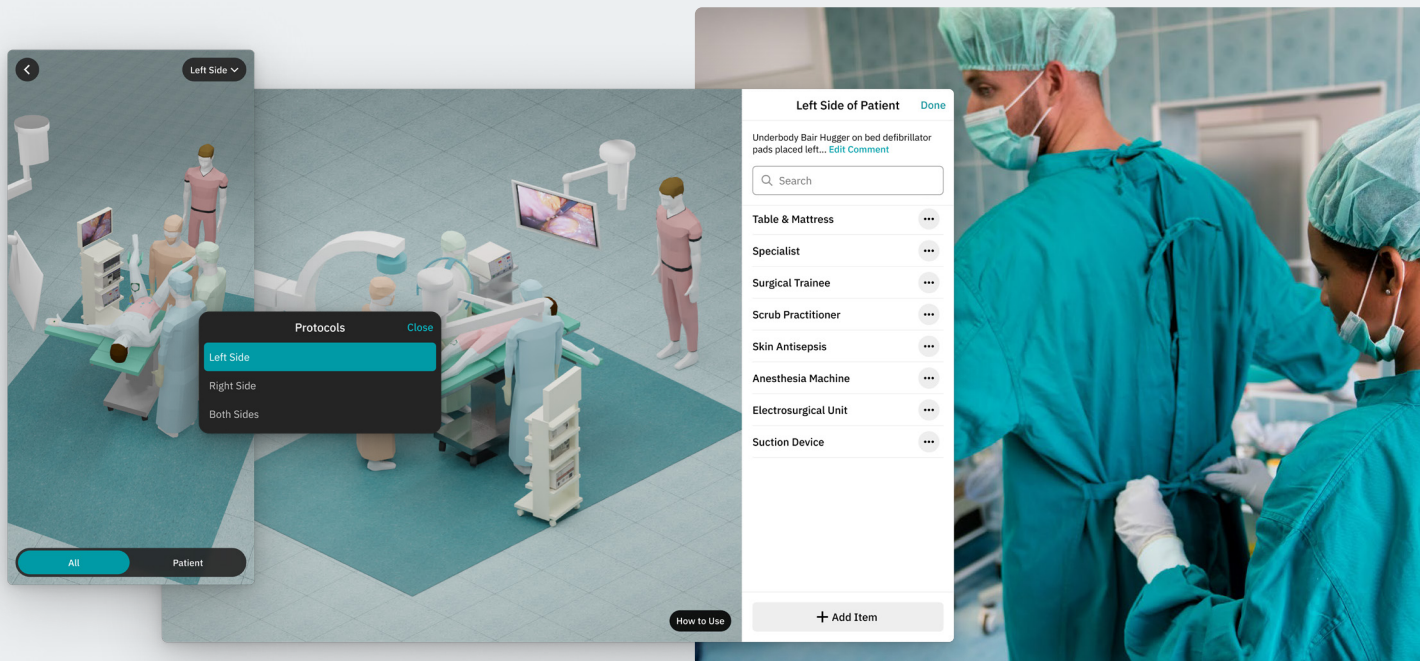
30% — Improved retention over training
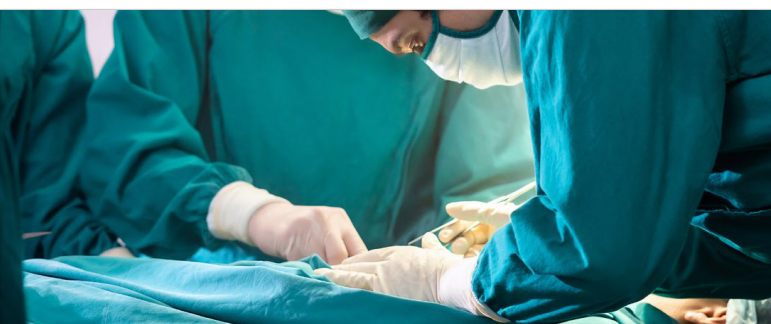
"Staff feel more secure, more aligned and better prepared when they enter the OR."

Johan Thelen,
Surgical Department Manager,
IJsselland Hospital

User Satisfaction

User satisfaction with Assist was overwhelmingly positive, with 93% of respondents happy to recommend the app to a colleague. A significant portion of respondents (70%) indicated that they would feel disappointed if they were to lose access.

Qualitative feedback related that users highly valued the ease of use and accessibility of Assist, enabling quick reference during critical moments. Other qualitative feedback included enhanced convenience, allowing information retrieval directly from mobile devices; improved confidence through familiarity with surgeon-specific preferences; time-saving benefits, especially during shifts and in preparation for surgeries, and learning support and knowledge sharing between new and experienced staff members.

93% ● Would recommend to a colleague

"Assist fills an important gap by providing complete OR teams with detailed protocols and preferences of surgeons in order to perform safe and effective surgery."

Rutger-Jan Swijnenburg, Hepatobiliary and Pancreatic Surgeon, Amsterdam University Medical Center
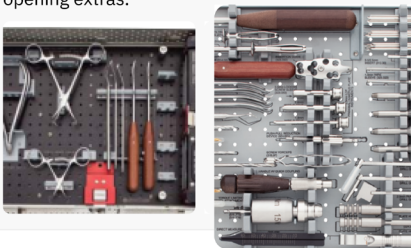
Conclusions

This white paper demonstrates that Assist has a significant positive impact on OR efficiency and performance levels. Users are more confident, better prepared, and quicker to access the critical information they need. Teams can function more efficiently, changeover between cases is faster, and overall staff productivity is increased; in particular, more junior staff can safely perform at a more advanced level and reduce the burden on preceptors and experienced staff. Training programs can be safety streamlined, saving valuable weeks of onboarding time and lessening reliance on travelers.

These results make a strong value case for Assist to optimize processes, boost efficiency, and improve outcomes. Healthcare organizations can leverage these findings to improve unit performance and overall operational excellence.
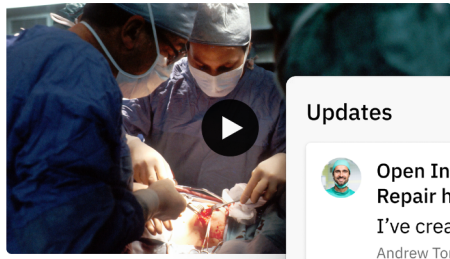
References

1. Clanton J, Gardner A, Cheung M, Mellert L, Evancho-Chapman M, George RL. The Relationship Between Confidence and Competence in the Development of Surgical Skills. J Surg Educ. 2014 May-Jun;71(3):405-12. doi: 10.1016/j.jsurg.2013.08.009. Epub 2013 Nov 18. PMID: 24797858.

2. Kenawy DM, Ackah RL, Abdel-Rasoul M, Tamimi MM, Thomas GM, Roach TA, D'Souza DM, Merritt RE, Kneuertz PJ. Preventable Operating Room Delays in Robotic-Assisted Thoracic Surgery: Identifying Opportunities for Cost Reduction. Surgery. 2022 Oct;172(4):1126-1132. doi: 10.1016/j.surg.2022.06.038. Epub 2022 Aug 13. PMID: 35970610.

3. Witmer HDD, Dhiman A, Jones AD, Laffan AM, Adelman D, Turaga KK. A Systematic Review of Operative Team Familiarity on Metrics of Efficiency, Patient Outcomes, Cost, and Team Satisfaction. Ann Surg. 2022 Dec 1;276(6):e674-e681. doi: 10.1097/SLA.0000000000005531. Epub 2022 Jul 11. PMID: 35815890.

4. Kurnat-Thoma E, Ganger M, Peterson K, Channell L. Reducing Annual Hospital and Registered Nurse Staff Turnover—A 10-Element Onboarding Program Intervention. SAGE Open Nursing. 2017;3. doi:10.1177/2377960817697712

5. Needs T, Scheer M and Feitz R. Use of App-Based Software to Improve Operating Room Team Performance: A Feasibility Study. 2023. [Manuscript submitted for publication]

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