

**LOCAL EXPERIENCE OF COORDINATION IN ROBOTIC SURGERY:
ORGANIZATIONAL REFLECTIONS**

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Commentary

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ABSTRACT

Introduction: The launch of the robotic surgery program in our hospital showed that the main challenges did not concern the technology itself but rather the organization of work. Delays in operating room preparation, unclear task distribution, fragmented communication among professionals, and inconsistent management of instrument traceability highlighted the absence of a clearly defined coordination function.

Methods: Through descriptive observations drawn from daily activity during the initial phases of the program, operational episodes, team dynamics, and workflow patterns were recorded in order to understand how the system adapted to the introduction of the robotic platform.

Results: From these observations, the figure of the “Da Vinci Coordinator” (DVC) emerged locally as a practical response to organizational challenges. This function contributed to aligning tasks among teams, making workflow preparation more predictable, improving interprofessional communication, and supporting internal training activities. The few descriptive indicators included served solely to contextualize the experience.

Conclusion: The DVC function was not conceived as a formalized or generalizable professional role, but rather as an emergent organizational adaptation useful during the implementation phase of a robotic program. The considerations presented may offer insights for other centers preparing to introduce robotic surgery; however, further structured studies will be necessary to assess its transferability to different contexts.

Keywords: Robotic surgery; perioperative coordination; organisational role; instrument traceability; Team integration; Da Vinci system

INTRODUCTION

Robotic surgery is increasingly used to support minimally invasive procedures, with well-documented advantages in precision, patient safety, length of stay, and postoperative recovery [1–5]. In January 2025, the Umberto I Hospital of Nocera Inferiore introduced the Da Vinci system within the ASL Salerno network. Although robotic platforms are typically associated with technological benefits, our early implementation phase highlighted challenges of a different nature: the most recurrent difficulties were organizational rather than technical. During the first weeks, we observed delays in operating room start times, unclear task allocation during system preparation, fragmented communication among surgical, anesthesiology, nursing, and technical staff, and inconsistent procedures for instrument traceability and expiry control. The lack of a standardized monitoring protocol also resulted in occasions where robotic instruments exceeded their prescribed service life without timely identification, creating risks of unavailability or malfunction [6]. These observations underscored a key insight: in the start-up phase of a robotic program, patient safety and workflow stability depend not only on technology or surgical skill, but also on a clearly defined coordination function capable of integrating clinical, technical, and organizational activities across the perioperative pathway [7]. To address these gaps, our center introduced the Da Vinci Coordinator (DVC), conceptualized as a coordination function rather than a formal professional role and assigned to an experienced operating room nurse trained on the robotic system. The role emerged as a practical response to early challenges and was maintained as staff increasingly recognized its value for workflow predictability, interprofessional communication, and training support.

Objective

The purpose of this commentary is to explain why this coordination function became necessary during the early implementation phase, to describe its main activities, and to reflect on how this experience may support other centers preparing to introduce robotic surgery.

Rationale behind the introduction of the Da Vinci Coordinator

During the first weeks of using the robotic system, our local experience revealed a recurrent organizational need that may be relevant for other centres starting a robotic programme [8]. In response, the hospital established a multidisciplinary working group including surgeons, anesthesiologists, and operating room nurses to review early operational episodes and identify practical priorities. These discussions motivated the introduction of the Da Vinci Coordinator (DVC), assigned in our unit to a single operating room nurse with advanced competencies and specific training on the robotic system and its instruments. Initially introduced as a pragmatic solution to early-stage challenges, the DVC function was subsequently maintained as staff perceived clear benefits in workflow predictability, standardization of preparation, and interprofessional collaboration elements that are critical for supporting safe, patient-centered care during the start-up of a robotic program. In our setting, the essential activities observed included (Figure 1):

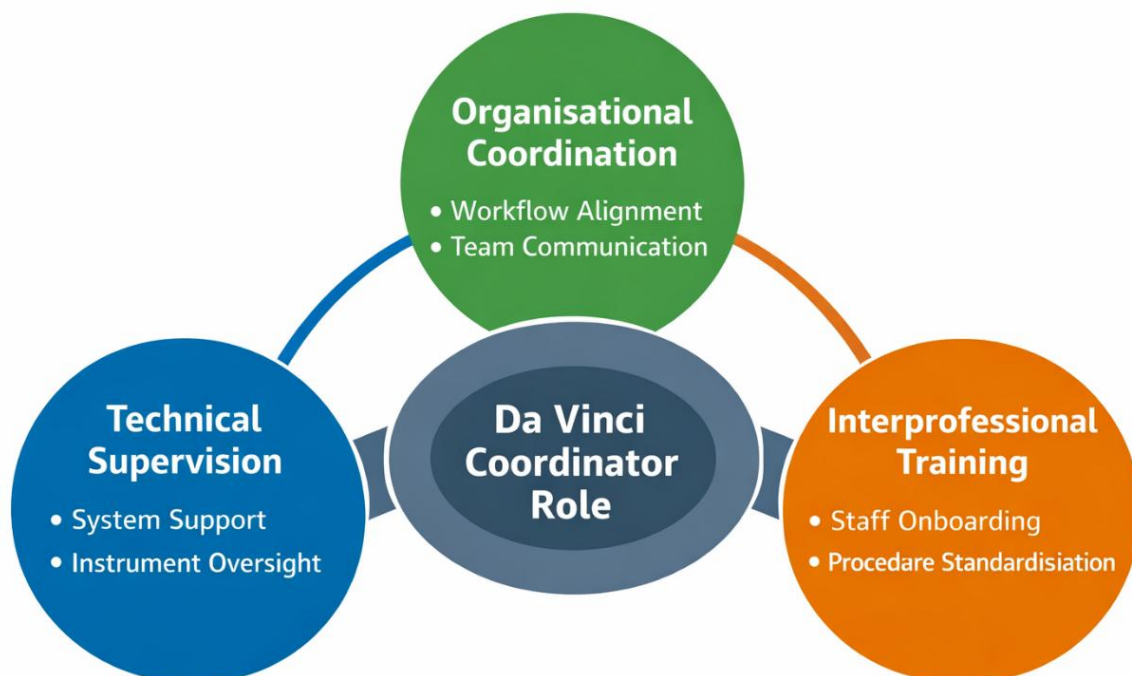


Figure 1. Key competence that may have the Da Vinci Coordinator.

(1) Technical supervision of system readiness and troubleshooting; (2) Organizational coordination to align workflow and responsibilities; (3) Interprofessional training supporting the team’s learning process. These activities reflect a context-dependent coordination function rather than a formal professional standard, illustrating how dedicated coordination mechanisms may be essential during early robotic implementation. In our setting, the DVC was conceptualized as a distinct coordination function compared with the standard operating room nurse [9].

Clinical, technical, and organizational skills (locally observed)

In the context of our start-up phase, the DVC role integrated clinical competencies (procedure-specific patient positioning), technical competencies (system readiness verification, troubleshooting and escalation pathways, instrument traceability, and management of usage life and expiry), and organizational competencies (workflow preparation, clarification of professional roles, facilitation of multidisciplinary communication, and provision of training support). These competencies are presented as context-dependent observations derived from a single-center implementation phase and do not constitute a formally codified professional standard (Table 1).

Aspect	Traditional OR Nurse [10]	Da Vinci Coordinator (DVC) [Fig. 2]
Role focus	Intraoperative assistance	Coordination across the robotic surgical pathway
Competence	Primarily clinical intraoperative skills	Integrated clinical, technical, and organizational skills
Instrument management	Basic instrument control	Traceability, usage-life checks, system readiness verification
Team interaction	Interaction with surgeons, anesthesiologists, OR nurses and technical/support staff)	Cross-team communication among the same professional groups
Training role	Limited or none	Support to onboarding and standardized setup routines
Responsibility procedure-based	Focused on the current procedure	Coordination of preparation and workflow across sessions (context-dependent)

Table 1. Preliminary, locally observed functional comparison between the traditional OR nurse role and the coordination function referred to as “Da Vinci Coordinator (DVC)” in our setting.

Core skills and tasks of the Da Vinci Coordinator (locally observed)

In our setting, the DVC combines clinical, technical, and organisational support (Table 1; Figure 2). Rather than providing a procedural checklist, we summarise the DVC contribution as a coordination function across perioperative phases, aimed at reducing variability and making interdependencies manageable during the start-up period.

Across phases, three recurrent coordination mechanisms were observed:

- Before surgery: aligning timing and responsibilities; verifying instrument readiness and traceability/usage-life; ensuring basic system readiness.
- During surgery (setup/docking): facilitating bidirectional communication among teams; supporting standardised setup routines; coordinating escalation when technical or workflow disruptions occur.
- After surgery updating traceability records; capturing causes of start-time deviations when present; enabling rapid readiness for subsequent sessions and brief feedback for iterative learning.

These activities are reported as context-dependent observations from a single-centre implementation phase and are not proposed as a formal professional standard.

The Da Vinci Coordinator clinical insights: minimum indicators

To contextualise this local experience, we report a small set of descriptive observations from the start-up phase (March–November 2025; 75 procedures). These elements are not intended as an assessment of effectiveness but solely to frame the coordination perspective discussed in this commentary

- *Instrument governance*: no episodes of instruments exceeding service life or requiring unplanned traceability checks.
- *Start-time predictability*: two delays of 15 minutes, both linked to lower scrub-nurse familiarity with robotic instrumentation.
- *Team coordination*: clearer role allocation, more reliable communication, faster instrument retrieval, and better adaptability to workflow changes.
- *Training*: three full days of standardized training for the dedicated robotic nursing team.

Together, these elements suggest that coordination activities may contribute to improving workflow stability during early implementation (Figure 2).

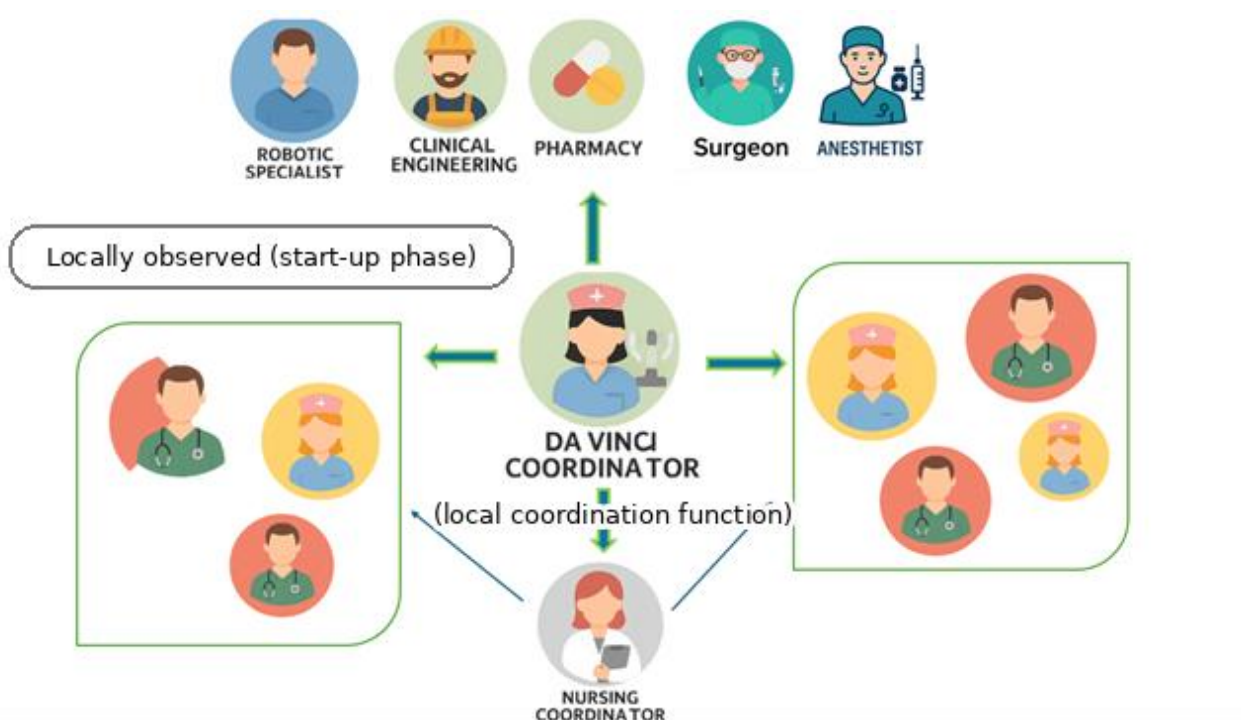


Figure 2. *Descriptive representation of coordination interfaces in our setting: not a codified organizational model*

Coordinating activities across perioperative phases (locally observed)

- Before surgery (preoperative / pre-session), the following activities should be undertaken:

verification of the planned robotic procedure requirements; confirmation of instrument availability, remaining usage-life/expiry, and updating of instrument traceability; coordination of instrument retrieval from multiple storage locations (operating room supply, pharmacy); confirmation of the patient positioning strategy and required positioning accessories; performance and/or coordination of system readiness checks (surgeon console, patient cart, vision cart); and alignment of timing, team roles, and setup responsibilities through a structured pre-session briefing and/or checklist.

- During surgery (setup, docking, intraoperative support), key responsibilities include: facilitation of real-time, bidirectional communication among surgical, anesthetic, nursing, and technical personnel; support of standardized setup and docking protocols; management of unanticipated requirements (e.g., rapid instrument retrieval, instrument substitutions, or workflow modifications); escalation and coordination of technical troubleshooting to minimize procedural interruptions; and support of rapid adaptation when novel techniques or intraoperative changes necessitate modifications in patient positioning or workflow organization.
- After surgery (post-session), the following measures should be completed: documentation of instrument utilization and corresponding updates to traceability records, including notation of any device- or process-related issues; recording of start-time deviations and their underlying causes, when applicable; planning and coordination of restocking for all consumed or opened materials to ensure readiness for subsequent procedures; and systematic capture of concise feedback and lessons learned to promote continuous quality improvement during the implementation and maturation of the robotic surgery program.

Taking care of the patient

The initial phase of robotic surgical is when the DVC collaborates with surgeons, anesthesiologists, and operating room nursing staff to conduct a comprehensive preoperative evaluation and

systematically coordinate the patient's subsequent surgical pathway [10]: reducing uncertainty, aligning roles, and preventing delays during the initiation phase of robotic surgery.[11]; As a Da Vinci Coordinator, taking care of the patient means ensuring safety, precision, and comfort at every stage of robotic surgery. This is managed through simple operational tools: a pre-session readiness checklist (system check, instrument availability/usage-life/expiry, positioning plan) [12], a short team briefing to align roles and timing, and an instrument traceability log updated at the end of each session; when issues are identified, they are communicated through structured alerts to the appropriate contacts [13].

Future directions

Our experience suggests that a robotic surgery program can run better when there is a simple and clear way to coordinate the work. However, our data come from one center only (March–November 2025, 75 procedures), so we propose only realistic and small improvements.

Based on what we observed (instrument control, start-time delays, communication, and training needs), we suggest four practical directions:

1. Add coordination to routine session planning. Include the DVC in weekly or monthly planning of robotic sessions, instrument availability checks, and short pre-session readiness steps. Use simple checklists/logs to document key actions without creating extra bureaucracy.
2. Create training focused on start-up problems. Develop short training modules based on real issues seen during early use (instrument checks and traceability, standardized setup, communication during docking, and adaptation to new procedures). Test these modules locally or within regional networks.
3. Use basic digital tools to support instrument governance. Start with simple digital tracking (alerts for usage limits/expiry, replacement planning, and a basic delay log). Consider advanced

analytics after data collection becomes stable and reliable.

4. State the role clearly and define its limits. The DVC is not a ward/unit coordinator and does not manage staffing or overall department organization. The DVC is a procedure-focused coordination function, limited to the robotic pathway (pre-session preparation, setup support, instrument governance, communication, and training support). Clear boundaries help avoid overlap and confusion.

Overall, this commentary does not propose a standardized professional model. It offers a practical coordination perspective and a small set of process measures that other centers can use when starting a robotic program.

DISCUSSION

Our early implementation experience showed that the main sources of variability and delay were not related to the robotic technology itself, but to gaps in coordination and governance. Introducing a dedicated coordination function made these interdependencies visible and manageable across teams and phases. From this experience, three practical lessons emerged:

1. the need to define early “who does what” and establish clear instrument governance;
2. the value of brief, structured communication routines during setup;
3. the importance of training focused on the most frequent start-up challenges, including setup routines, instrument management, and communication during preparation and docking.

These observations are consistent with the literature showing that robotic implementation requires not only technological investment but also structured coordination, communication, and workflow standardisation [8, 11–13]. Reports on robotic nurse specialists or perioperative robotic coordinators

also suggest that responsibilities vary across centres and that no single standard model exists [8, 11–13]. Our commentary adds to this literature by offering a practical “coordination lens” for the start-up phase and a small set of feasible process indicators that can support reflection and future evaluation. Describing the DVC as a function (not a fixed job title) allows each hospital to adapt it to its own context and to choose a few simple measures to monitor progress.

Limitations

This commentary is based on a single-centre start-up experience and does not aim to demonstrate effectiveness. The indicators reported are minimal and primarily process-based, and several observations remain qualitative and may reflect local perceptions. Data were not collected through a predefined structured protocol, and the absence of a formal comparative evaluation limits interpretability. Findings may also be influenced by learning curves, case mix, and team experience or turnover. For these reasons, the DVC should be interpreted as a context-dependent coordination function intended to stimulate reflection rather than a validated or universally generalizable model.

CONCLUSION

Introducing robotic surgery requires not only technology and technical skills but also clear coordination work. Describing the DVC as a practical coordination function, rather than a fixed job title, allows each hospital to adapt it to its own organizational structure and to monitor a few simple process indicators to assess whether daily work is becoming more stable as the robotic program evolves.

Local Ethics Committee approval

Not applicable. This is a commentary reporting only aggregated, non-identifiable process information; no patient-level data were collected.

Conflict of interest

The authors report no conflict of interest.

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Authors' contribution

RC and MA were the only two contributors in writing the manuscript. RC and MA discussed the importance of the Da Vinci Coordinator role during a work meeting and decided to report and discuss this local coordination experience. Both authors contributed equally to the conception and writing of the manuscript.

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