



Robotic HPB Surgery: Liver Resections

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RACS 93rd Annual Scientific Congress 2025

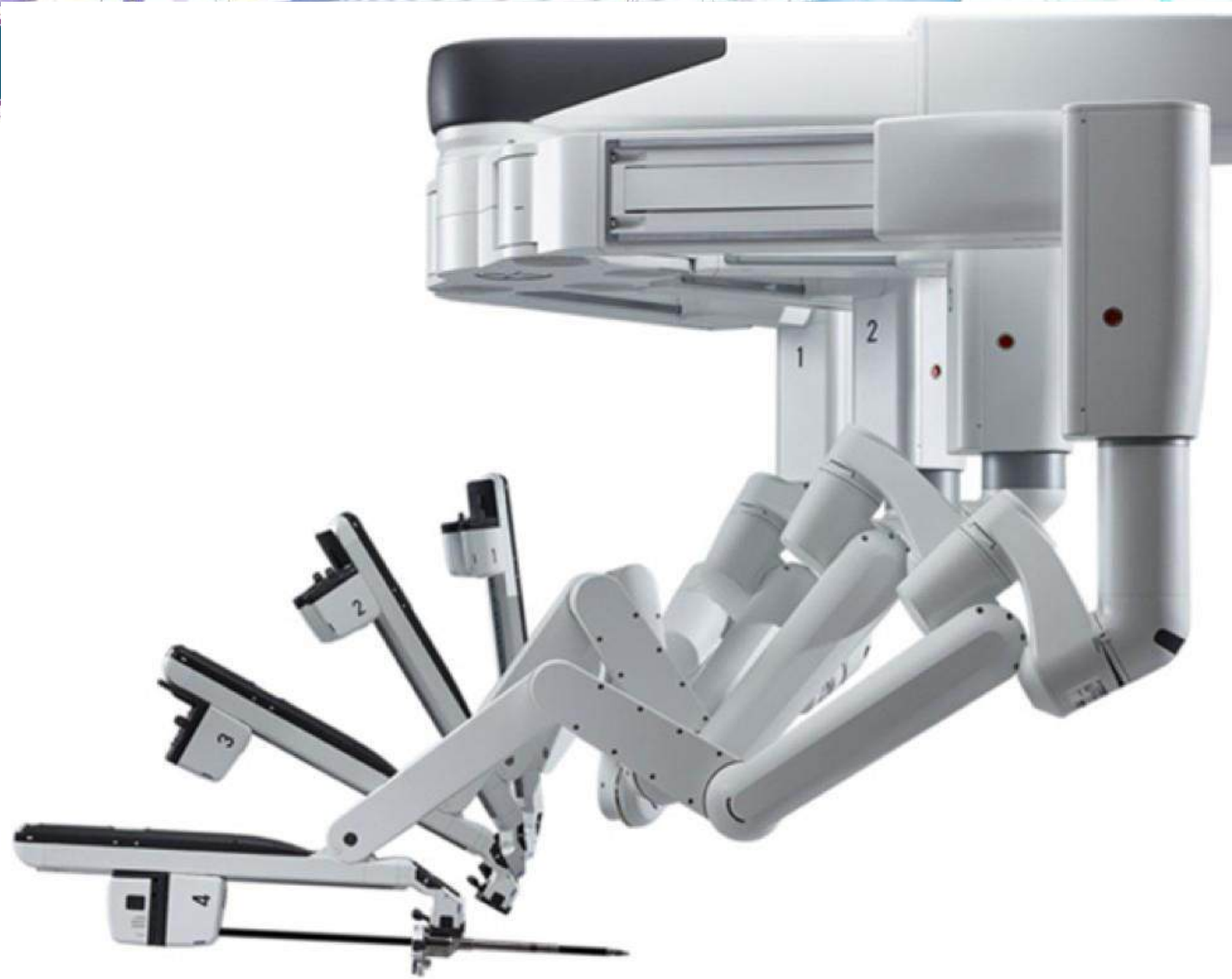
Saturday 3 – Tuesday 6 May 2025



INNOVATION | PRECISION | EXCELLENCE

Disclosures

I do robotic surgery!



DAVINCI | Surgery™



Geoffrey Moore's 'Crossing the Chasm' diagram circa 1991

It costs too much!
There is no evidence!
The risks are too high!
It takes too long!





Da Vinci System Installed Base





2,680,000+

Procedures performed on
da Vinci® systems in 2024

95,000+

Ion procedures performed in 2024

1,790+

Intuitive systems
placed in 2024

1,430+

Multiport

95+

Single port

270+

Ion

4,000+

Peer-reviewed articles
published in 2024

17,670,000+

Procedures performed on
da Vinci® systems to date¹

210,000+

Ion procedures performed to date

11,040+

Intuitive systems in
hospitals globally¹

9,890+

Multiport

290+

Single port

850+

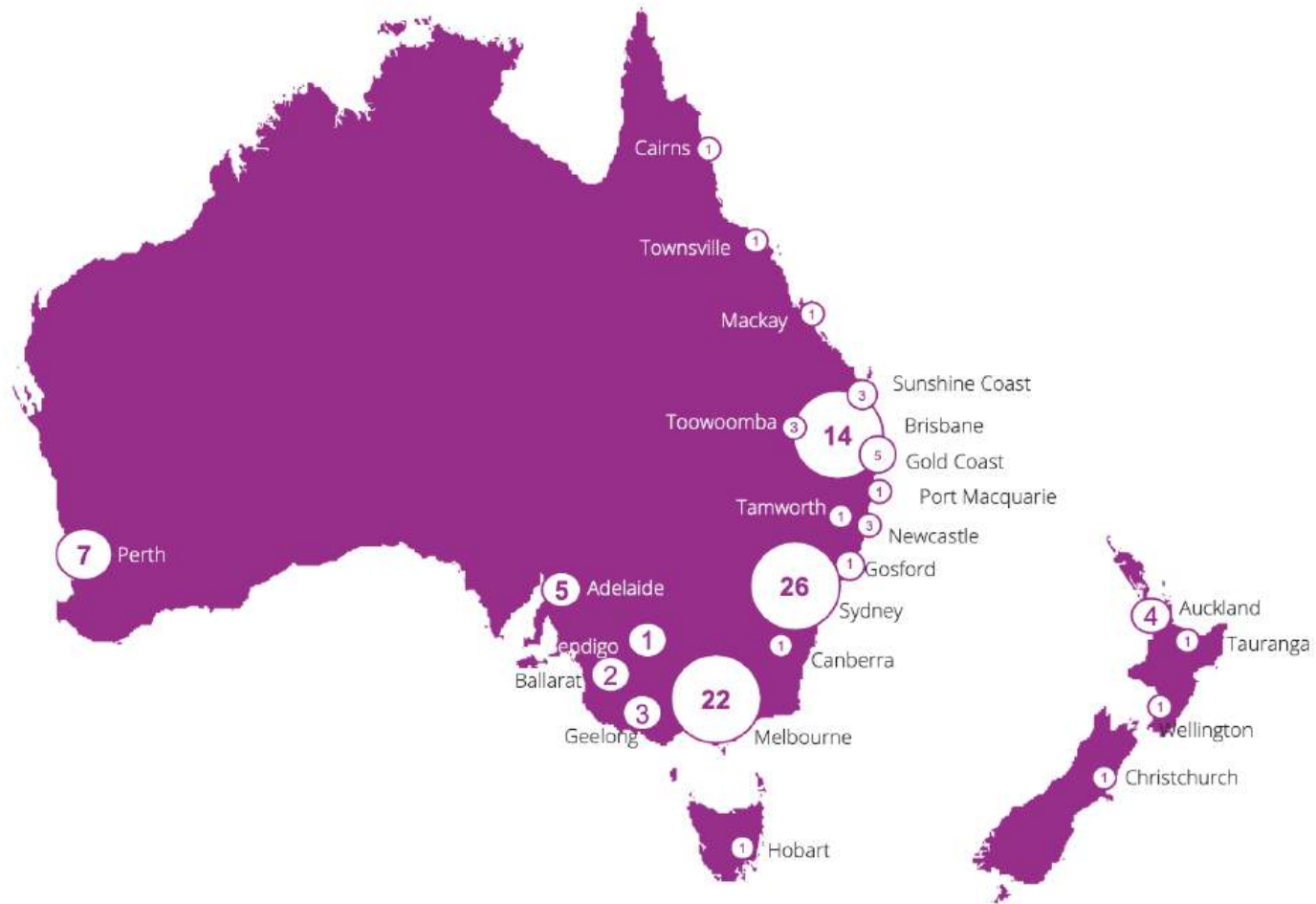
Ion

43,000+

Peer-reviewed articles
published to date²



DA VINCI SURGICAL SYSTEMS IN ANZ

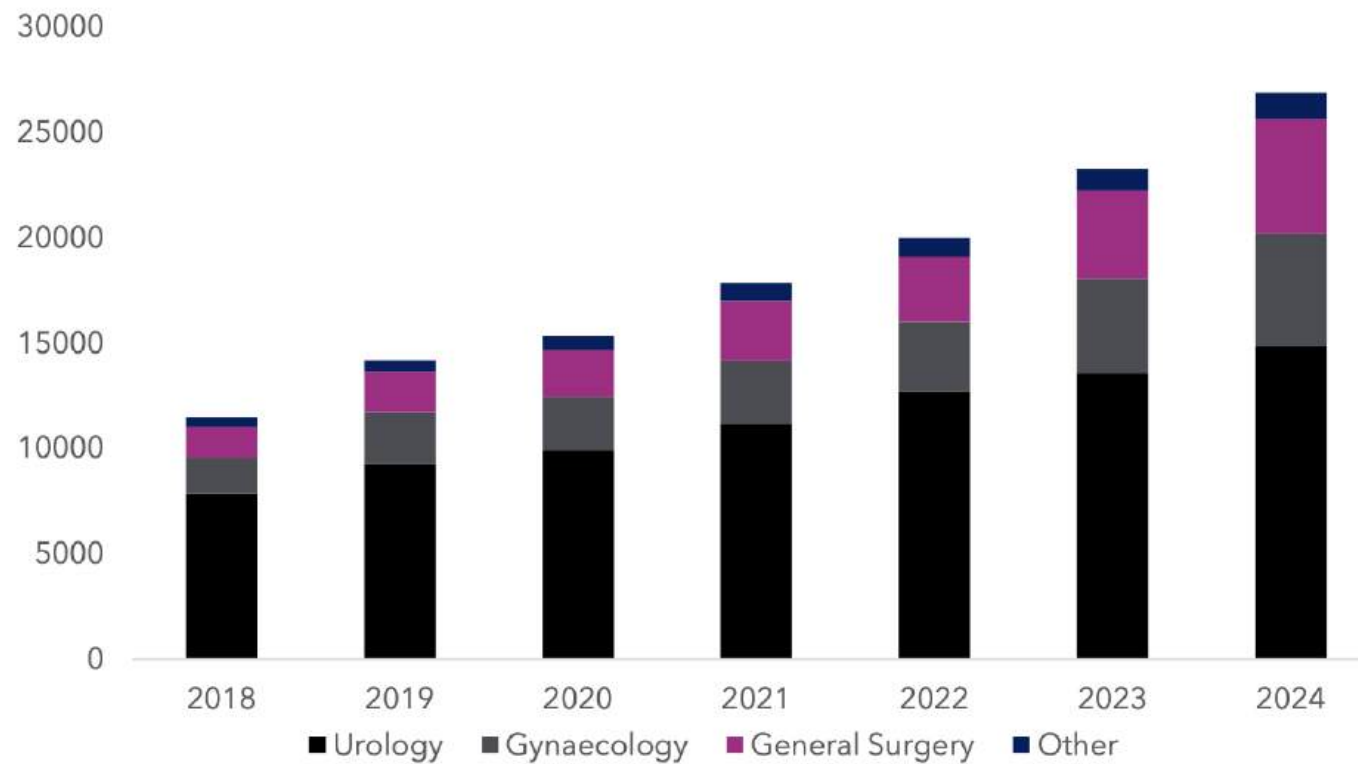


111
SYSTEMS IN
ANZ





LOCAL PROCEDURE TRENDS - ANZ



Source: Intuitive data on file

160,000+

Procedures performed in ANZ
using da Vinci® systems
to date¹

27,000

Procedures performed in ANZ
using da Vinci® systems in 2024

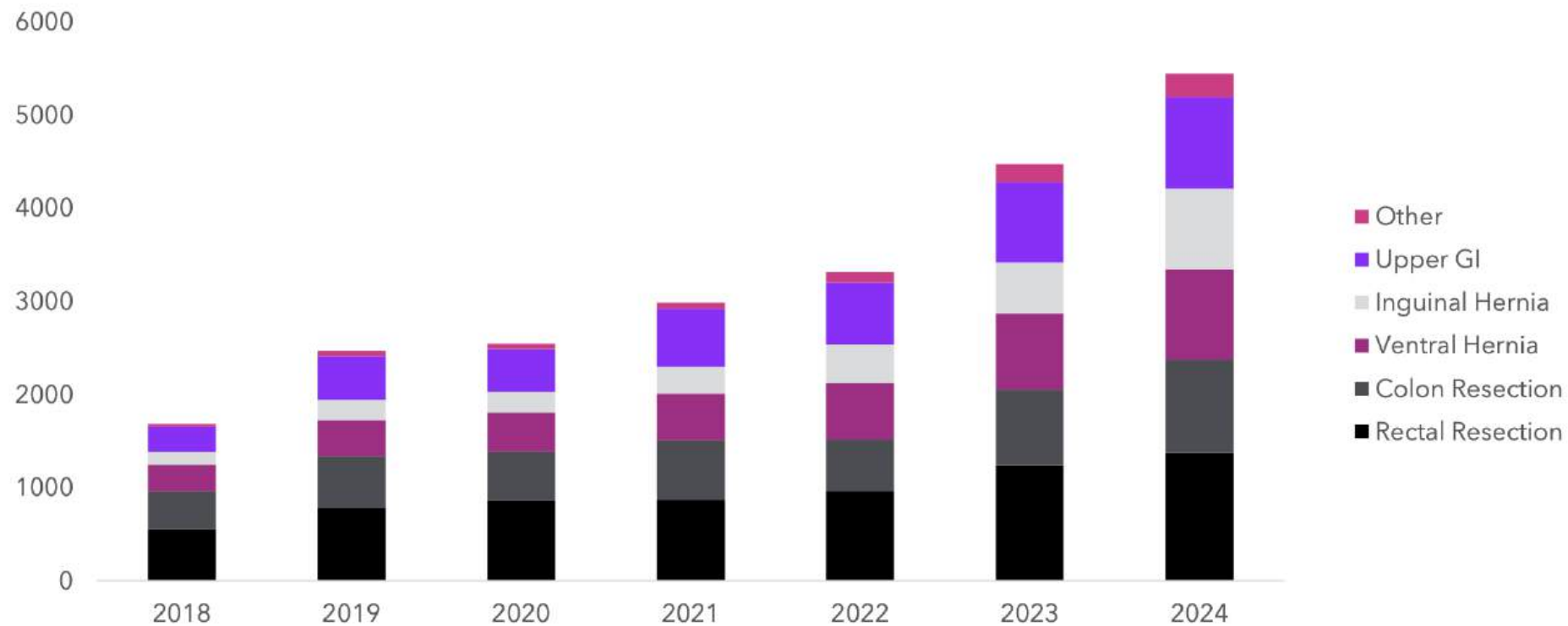
110+

Da Vinci systems in ANZ
hospitals¹

1. As of Dec. 2024.



ROBOTIC-ASSISTED GENERAL SURGERY CONTINUES TO GROW IN ANZ



† Internal data on file 2018-2024



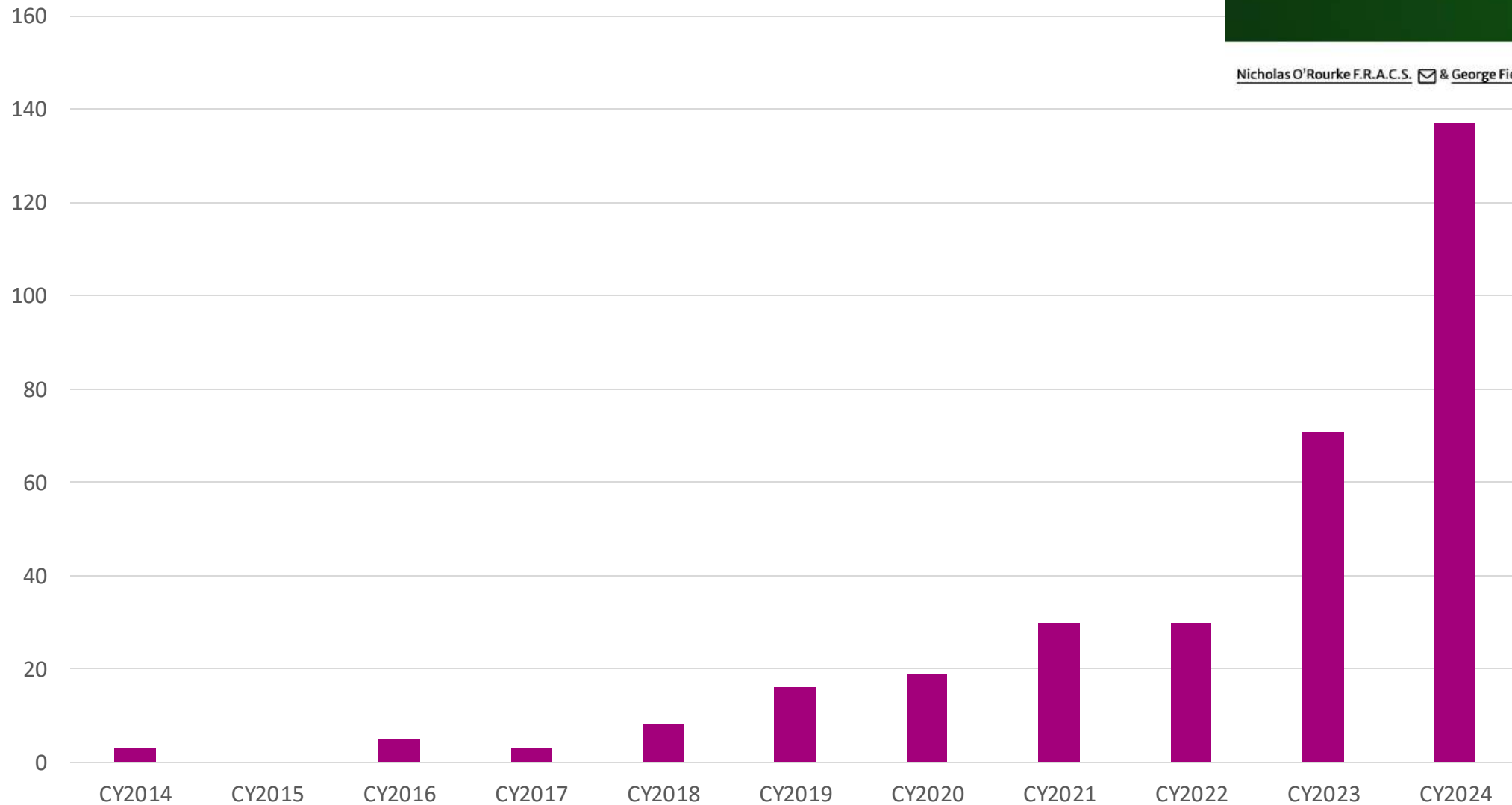
Laparoscopic right hepatectomy: Surgical technique

Published: February 2004

Volume 8, pages 213–216, (2004) [Cite this article](#)

[Nicholas O'Rourke F.R.A.C.S.](#)  & [George Fielding F.R.C.S.](#)

ROBOTIC HEPATECTOMY





What makes laparoscopic surgery hard?

Vision and the camera





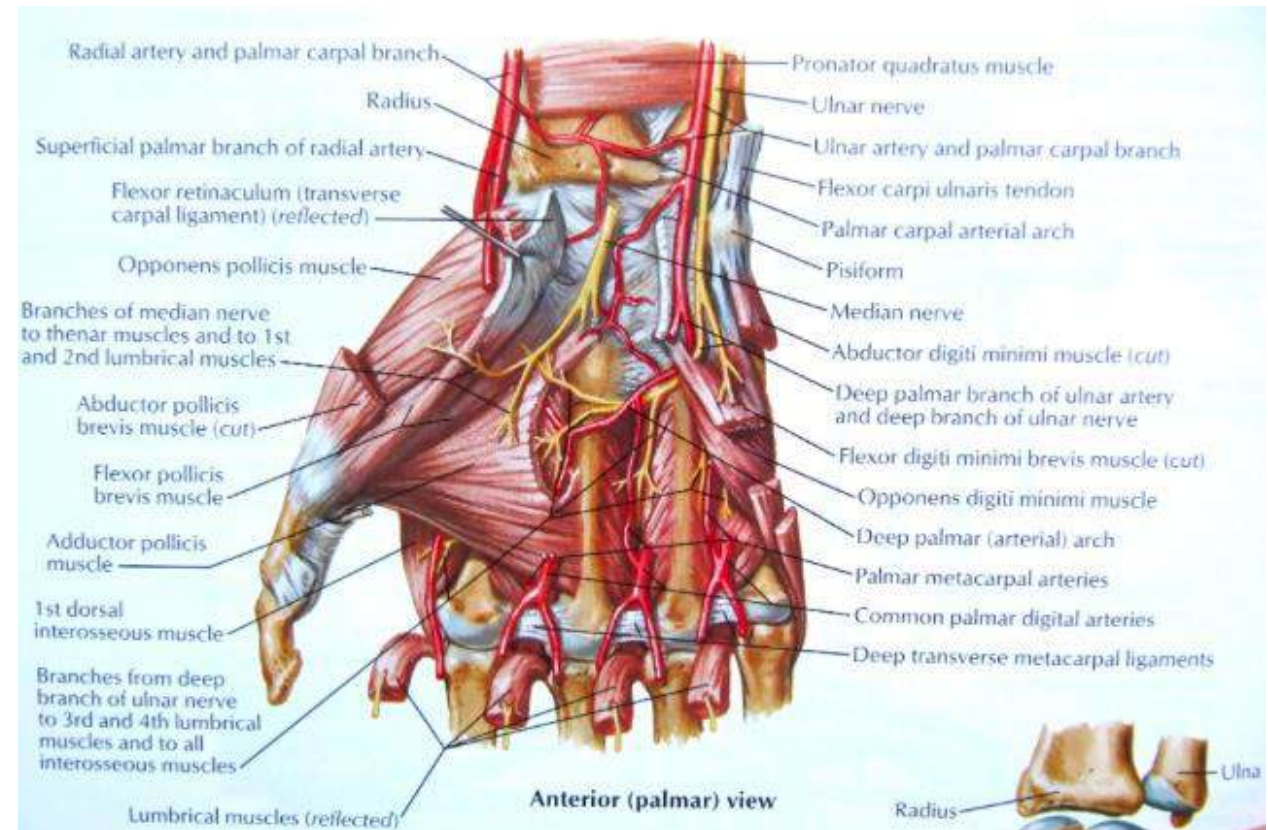
What makes laparoscopic surgery hard?





How does robot make it easier?

Operating with fine muscles in zone of maximal dexterity



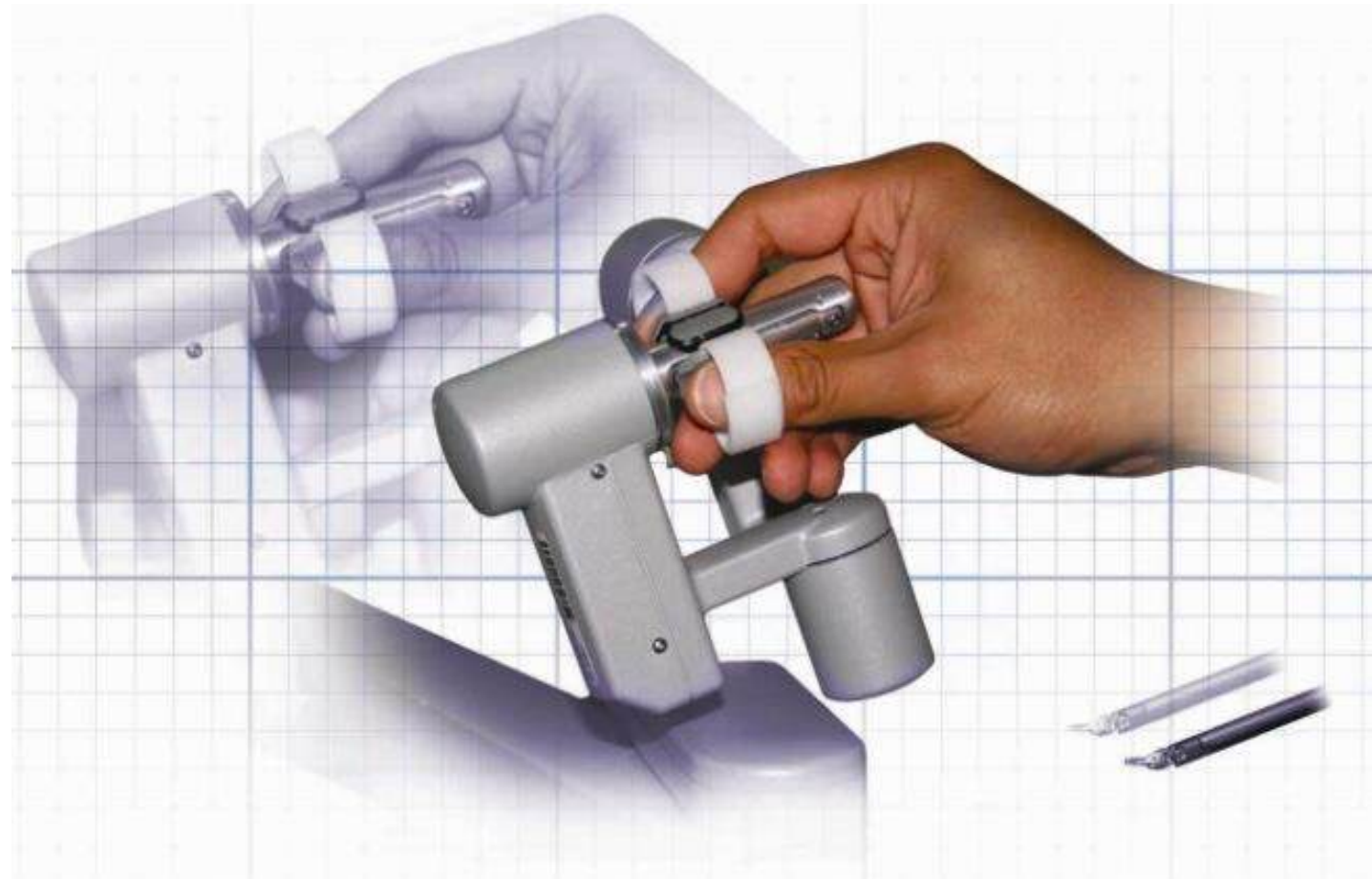


How does robot make it *better*?

Scaling of movements *improves* dexterity



“Computer enhanced surgery”





What makes laparoscopic surgery hard?

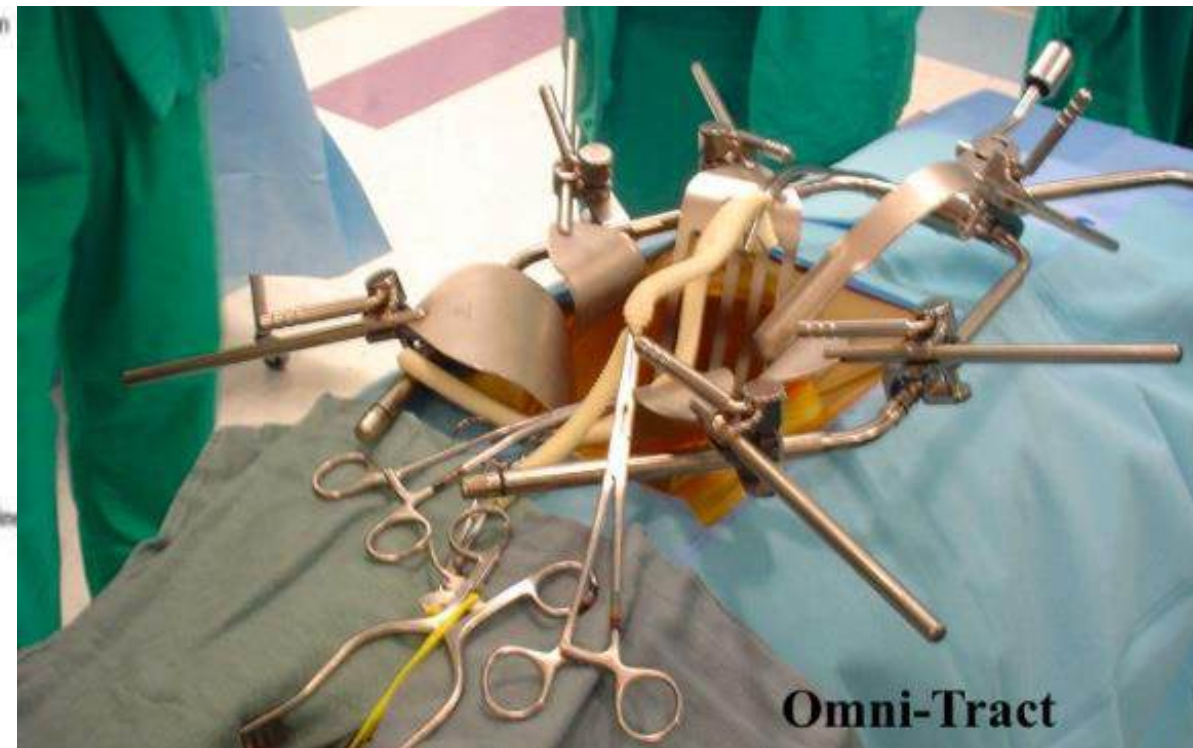
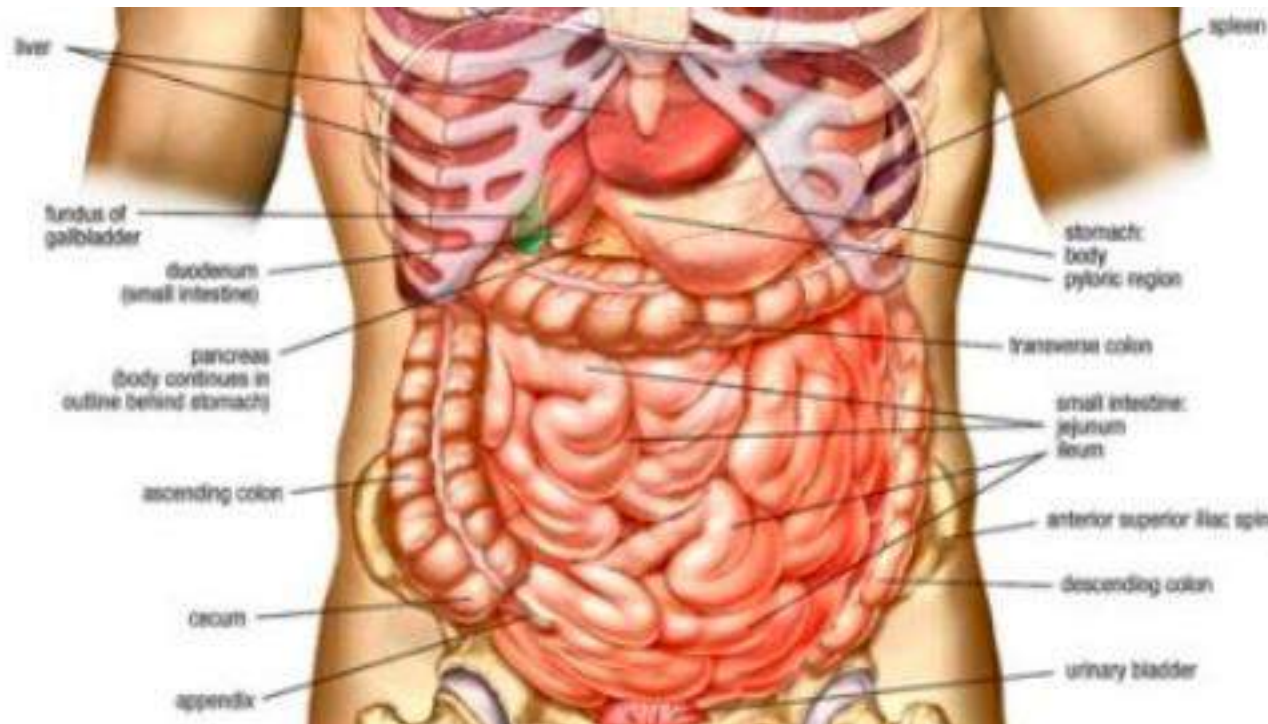


A picture is worth 1000 words



What makes liver surgery hard?

Access and retraction





What makes laparoscopic liver surgery hard?



Working over the horizon



What makes laparoscopic liver surgery hard?

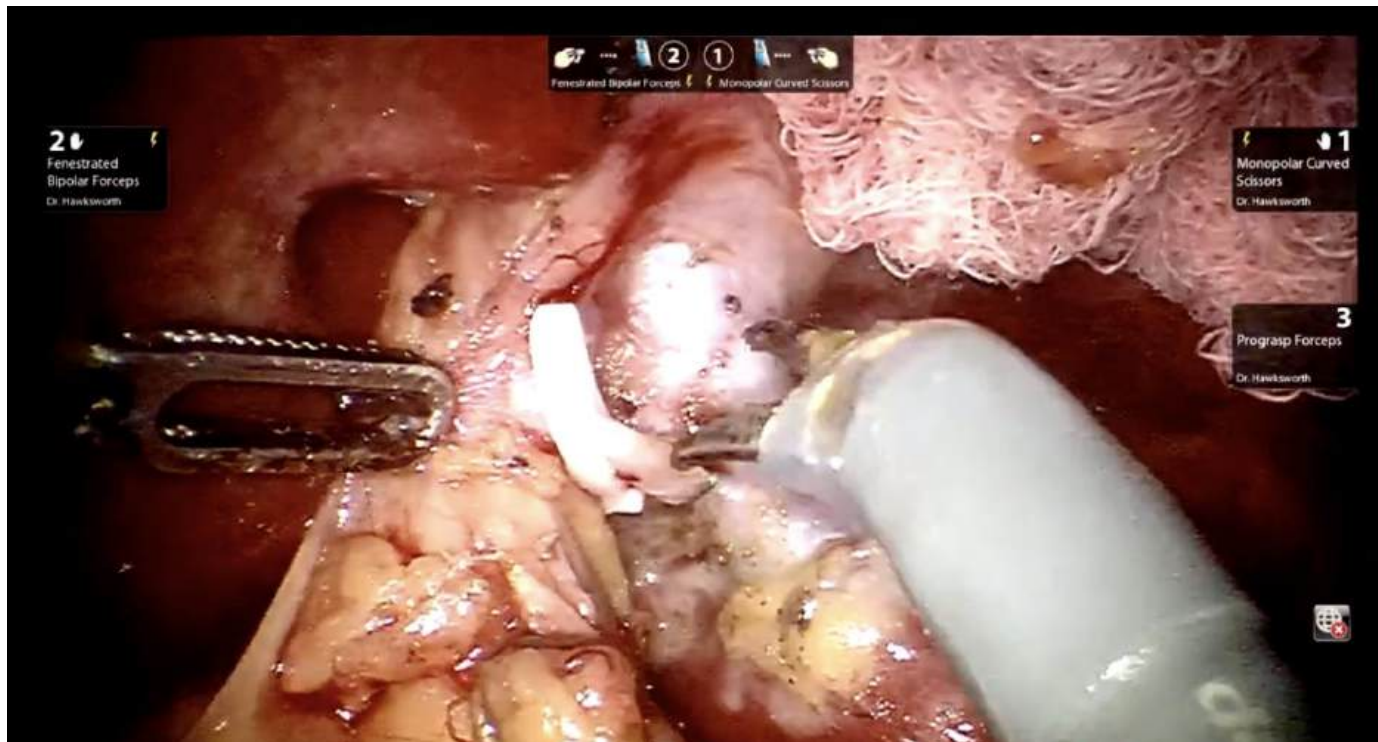
Wedge resection: 3D sphere to resect, access all angles





What makes liver surgery hard?

Hilum: precise and controlled access to vital structures



Robotic advantages

- Magnified view
- Improved dexterity
- Improved range of movement
- Rock solid stability
- Precision dissection



From a peer-reviewed publication by Wang et al. DOI: 10.1002/jso.25640, 2019 J Surg Oncology

Retrospective comparative study reviewed outcomes of perioperative robotic and laparoscopic hemihepatectomy.

Robotic hemihepatectomy (RH) demonstrated similar perioperative outcomes as laparoscopic hemihepatectomy (LH) and was better than LH regarding estimated blood loss and open conversion.

Perioperative outcomes	Laparoscopic n = 48	Robotic n = 92	Adjusted between group differences (95%CI)	P value
Operative time (mean ± SD [mins])	198.98 ± 72.94	195.53 ± 67.00	-17.65 (-44.22, 8.92)	.196
Estimated blood loss (EBL) (mean ± SD [mL])	346.04 ± 234.17	243.04 ± 171.87	-120.24 (-186.76, -53.72)	<.001*
Postoperative hospital stay (mean ± SD [d])	7.06 ± 3.35	7.41 ± 2.64	0.48 (-0.63, 1.60)	.397

Abbreviation: CI, confidence interval.

Model adjusted for age, gender, BMI, disease type, resection extent, background liver disease, previous upper abdominal operation, and largest tumor size.

*P value <.05.

Purpose

Robotic surgery is increasingly being used in hepatectomy. Previous studies comparing robotic and laparoscopic minor hepatectomy are documented, but comparative studies on RH and LH involving a large patient cohort are rare. The objective of this study was to compare perioperative outcomes between RH and LH.

Study design

Retrospective review of patients who underwent RH or LH in a single center between November 2011-July 2017. RH group N=92, LH group N=48.

Outcomes measured

Perioperative outcomes including operative time, estimated blood loss, postoperative hospital stay, postoperative complications, conversions and mortality between the groups.

Key result

RH was safe and feasible in selected patients. It had similar perioperative outcomes as LH and was better than LH regarding EBL and open conversion.

Compared to the LH cohort, the RH cohort had a significantly less estimated blood loss (120.24 mL; 95% CI, 53.72-186.76) and a significantly lower conversion rate (unadjusted values were 1.09% vs 10.42%; P = .034).

Limitations

- Single institution study.
- Further investigation is necessary to validate retrospective findings.

Study information



Submit a Manuscript: <https://www.f6publishing.com>

World J Gastroenterol 2023 August 28; 29(32): 4815-4830

DOI: [10.3748/wjg.v29.i32.4815](https://doi.org/10.3748/wjg.v29.i32.4815)

ISSN 1007-9327 (print) ISSN 2219-2840 (online)

GUIDELINES

International experts consensus guidelines on robotic liver resection in 2023

Rong Liu, Mohammed Abu Hilal, Go Wakabayashi, Ho-Seong Han, Chinnusamy Palanivelu, Ugo Boggi, Thilo Hackert, Hong-Jin Kim, Xiao-Ying Wang, Ming-Gen Hu, Gi Hong Choi, Fabrizio Panaro, Jin He, Mikhail Efanov, Xiao-Yu Yin, Roland S Croner, Yu-Man Fong, Ji-Ye Zhu, Zheng Wu, Chuan-Dong Sun, Jae Hoon Lee, Marco V Marino, Iyer Shridhar Ganpati, Peng Zhu, Zi-Zheng Wang, Ke-Hu Yang, Jia Fan, Xiao-Ping Chen, Wan Yee Lau



Which pathologies are appropriate to select?

Question 2: Is RLR safe and effective in patients with HCC?

Recommendation: RLR is safe and feasible for HCC, as it is associated with lower overall complication rates than LLR and OLR and a shorter hospital stay than OLR, although it has a longer operative time than LLR and OLR. Other perioperative outcomes are comparable among the three interventions. Regarding oncologic outcomes, limited evidence suggested there is also no significant difference.

Level of evidence: Low level of recommendation: Weak (Grade 2C). Expert agreement: 96.55%.

HCC = robot probably better than lap or open



Which pathologies are appropriate to select?

Question 3: Is RLR safe and effective in patients with ICC?

Recommendation: Currently, there is insufficient evidence to compare the safety and feasibility between RLR and LLR for treatment of ICC. Limited evidence suggests that RLR has less intraoperative blood loss, shorter hospital stay, and better overall survival than OLR.

Level of evidence: Very low. Level of recommendation: Weak (Grade 2D). Expert agreement: 86.21%.

ICC = not enough evidence



Which pathologies are appropriate to select?

Question 4: Is RLR safe and effective in patients with CRLM?

Recommendation: RLR is safe and feasible for patients with CRLM, since it is associated with a lower conversion rate but longer hospital stay than that of LLR. Limited evidence suggests no significant difference in all the perioperative outcomes between RLR and OLR in patients with CRLM. Oncologic outcomes with limited evidence suggested there was also no significant difference between RLR *vs* LLR and RLR *vs* OLR.

Level of evidence: Very low. Level of recommendation: Weak (Grade 2D). Expert agreement: 89.66%.

CRLM = robot possibly better than lap



Are certain procedures preferable or to be avoided?

Question 5: Is robot approach safe and feasible for living donor hepatectomy?

Recommendation: Robotic living donor hepatectomy can be a safe and feasible alternative to open and laparoscopic approach. Robotic living donor hepatectomy has a longer operative time than that of OLR and LLR, but a shorter hospital stay compared with OLR. The other donor and recipient outcomes were reported to be comparable among the three interventions.

Level of evidence: Very low. **Level of recommendation:** Weak (Grade 2D). **Expert agreement:** 96.55%. ←

Question 6: Is robotic approach safe and feasible for minor hepatectomy?

Recommendation: For minor hepatectomy, the safety and feasibility of RLR are comparable to that of LLR and OLR. Robotic minor hepatectomy was reported to have a longer operative time than LLR, but there was less overall complication. RLR resulted in a shortened hospital stay and decreased overall morbidity compared to the open approach. The other perioperative outcomes were comparable among the three interventions.

Level of evidence: Low. **Level of recommendation:** Weak (Grade 2C). **Expert agreement:** 96.55%. ←

Question 7: Is robotic approach safe and feasible for major hepatectomy?

Recommendation: For major hepatectomy, robotic hepatectomy is as safe and feasible as laparoscopic and open hepatectomy. Compared with LLR, RLR was significantly better in estimated blood loss and conversion rate. In comparison with OLR, the estimated blood loss and hospital stay of RLR are significantly better than those of OLR, but there is a longer operation time in the RLR group.

Level of evidence: Low. **Level of recommendation:** Weak (Grade 2C). **Expert agreement:** 93.10%. ←



Recommendations on Robotic Hepato-Pancreato-Biliary Surgery. The Paris Jury-Based Consensus Conference

Christian Hobeika, MD, PhD, Matthias Pfister, MD,†‡ David Geller, MD,§
Allan Tsung, MD,|| Albert Chan, MD,¶ Roberto Ivan Troisi, MD, PhD,#
Mohamed Rela, MD,** Fabrizio Di Benedetto, MD, PhD,†† Iswanto Sucandy, MD,‡‡
Yuichi Nagakawa, MD, PhD,§§ R. Matthew Walsh, MD,|||| David Kooby, MD,¶¶
Jeffrey Barkun, MD,###✉ Olivier Soubrane, MD, PhD,***✉
Pierre-Alain Clavien, MD, PhD,†‡✉ and
on behalf of the ROBOT4HPB consensus group*



Peer-to-peer consensus study

Da Vinci for hepatectomy

Minor hepatectomy

Less than three segments

Da Vinci surgery compared to open

- ↓ Lower complication rates
- ↓ Shorter hospital stays
- ✓ Acceptable approach

Recommendation
Conditional*

Major hepatectomy

Three or more segments

- ✓ Acceptable approach

Recommendation
Conditional*

Da Vinci surgery compared to lap

- ↓ Lower conversion rates
- ≈ Similar postoperative outcomes

Statement
Conditional*

- ↓ Lower conversion rates

- ↓ Shorter learning curve

- ≈ Similar postoperative outcomes

Statement
Conditional*

*Low level of evidence

Hobeika C, Pfister M, Geller D, et al. Recommendations on Robotic Hepato-Pancreato-Biliary Surgery. The Paris Jury-Based Consensus Conference. Annals of surgery. Published online May 24, 2024. doi:<https://doi.org/10.1097/sla.0000000000006365>

Purpose

To establish the first consensus guidelines on the safety and indications of robotics in Hepato-Pancreatic-Biliary (HPB) surgery. The secondary aim was to identify priorities for future research.

Study design

The ROBOT4HPB conference developed consensus guidelines using the Zurich-Danish model. An impartial and multidisciplinary jury produced unbiased guidelines based on the work of ten expert panels answering predefined key questions and considering the best-quality evidence retrieved after a systematic review. The recommendations conformed with the GRADE and SIGN50 methodologies.

Fifty-four experts from 20 countries considered 285 studies, and the conference included an audience of 220 attendees. The jury (n=10) produced recommendations or statements covering five sections of robotic HPB surgery: technology, training and expertise, outcome assessment, and liver and pancreatic procedures.

Outcomes measured

Statements compared robotic and nonanatomic resections to lap and open method outcomes such as complication rates, length of stay, conversion to open, and other postoperative outcomes.

Key results

The recommendations supported the feasibility of robotics for most HPB procedures and its potential value in extending minimally invasive indications, emphasizing however the importance of expertise to ensure safety. The concept of expertise was defined broadly, encompassing requirements for credentialing HPB robotics at a given center. The jury prioritized relevant questions for future trials and emphasized the need for prospective registries, including validated outcome metrics for the forthcoming assessment of HPB robotics.



○ Minor Hepatectomy (< 3 segments)

14. Compared with open, robotic anatomic and nonanatomical minor resections are associated with lower complication rates and shorter hospital stays and should be considered an acceptable approach.

Recommendation: Conditional, [Level of Evidence: Low]

15. Compared with laparoscopy, robotic anatomical and non-anatomical minor resections should be considered acceptable minimally invasive alternatives.

Recommendation: Strong, [Level of Evidence: Moderate]

○ Major Hepatectomy (≥ 3 segments).

16. Compared with open, robotic major liver resection performed with expertise should be considered an acceptable approach.

Recommendation: Conditional, [Level of Evidence: Low]

17. Compared with laparoscopy, robotic major liver resection performed with expertise is associated with a lower conversion rate, shorter learning curve, and similar postoperative outcomes.

Statement: Conditional, [Level of Evidence: Low]



LDLT

○ Robotic Donor Hepatectomy

22. Compared with open and laparoscopy, robotic donor hepatectomy performed with expertise is feasible. Although associated with prolonged operative times and warm ischemia, the robotic approach does not negatively influence recipient outcomes.

Statement: Conditional, [Level of Evidence: Very Low]

23. Compared with laparoscopy, robotic donor hepatectomy performed with expertise may offer more precision for hilum anatomic variation and bile duct division.

Statement: Conditional, [Level of Evidence: Very Low]



Question 8: Is RLR more cost-effective than LLR and OLR?

Recommendation: As the policy on medical expense and definition of cost are different in the literature, the real cost of three interventions should be calculated and compared based on a standard method in the future. Limited evidence suggests the total cost of RLR to be higher than LLR, but there were no significant differences between RLR and OLR. The cost-effectiveness of the three interventions should be synthetically evaluated based on many factors, including direct and indirect costs, hidden benefits from favorable clinical outcomes and local social and economic situations.

Level of evidence: Very low. Level of recommendation: Weak (Grade 2D). Expert agreement: 89.66%.

Robotic costs poorly calculated



COMPREHENSIVE COST OF CARE



Theatre investment and costs

Instrument and accessory costs

Capital costs

Operative time costs

Downstream costs

Length of stay

ICU admission

Blood transfusions

Conversions

Complications

Surgical site infections (SSI)

Readmissions

Variability related costs

Surgeon experience

Patient comorbidities

The COMPARE Study: Comparing Perioperative Outcomes of Oncologic Minimally Invasive Laparoscopic, da Vinci Robotic, and Open Procedures

3rd RACS Annual Scientific Congress 2025



Royal Australasian
College of Surgeons

A Systematic Review and Meta-analysis of the Evidence

Rocco Ricciardi, MD, MPH,*✉ Usha Seshadri-Kreaden, MSc,†
Ana Yankovsky, MS,† Douglas Dahl, MD,‡ Hugh Auchincloss, MD, MPH,§
Neera M. Patel, MS,† April E. Hebert, PhD,† and Valena Wright, MD||

(Ann Surg 2025;281:748–763)

Maturing clinical evidence

Experience meets performance
Clinical value of robotic-assisted surgery
using the da Vinci surgical system

These results are from peer-reviewed COMPARE Study¹.
¹The COMPARE Study: Comparing Perioperative Outcomes of Oncologic Minimally Invasive Laparoscopic, Da Vinci Robotic, and Open Procedures: A Systematic Review and meta-analysis of The Evidence.
Ricciardi R, Seshadri-Kreaden U, Yankovsky A, Dahl D, Auchincloss H, Patel NM, Hebert AE, Wright V. Ann Surg. 2024 Oct 22.

Hysterectomy Lung Lobectomy Radical Prostatectomy Partial Nephrectomy Low Anterior Resection* Right Colectomy

Outcomes that favor RAS	vs. Lap		vs. Open
	Conversions	56% less likely	NA
	Blood transfusions	21% less likely	75% less likely
	30-day complications	10% less likely	44% less likely
	Length of stay	0.5 days shorter	1.9 days shorter
	30-day mortality	14% less likely	46% less likely
	30-day readmissions	9% less likely	29% less likely
	30-day reoperations		11% less likely
Comparable outcomes	30-day reoperations	comparable	
Outcomes that favor lap/open	Operative time	17.7 min longer	40.9 min longer



TRANSLATING AUSTRALIAN CLINICAL OUTCOMES INTO ECONOMICS

Length of stay costs (per day)

\$2,270₁
General ward

\$4,875₂
Intensive care unit

Transfusions

\$1,000₃
per unit

Conversion to open surgery

\$2,580₄
per conversion

Complications

\$12,560₅
General Ward

Surgical site infection

\$42,102₆
per SSI

Anastomotic leak (per leak)

\$30,670₇

Operating theatre time

\$42₈
per minute

References

1. https://www.ihacpa.gov.au/sites/default/files/2022-09/ihacpa60284_nhcde_infographic_factsheet_220902.pdf
2. <https://www.mja.com.au/journal/2019/211/7/financial-cost-intensive-care-australia-multicentre-registry-study> or <https://www.anzics.com.au/wp-content/uploads/2020/11/2019-CORE-Report.pdf>
3. <https://pubmed.ncbi.nlm.nih.gov/31664712/>
4. <https://pubmed.ncbi.nlm.nih.gov/28916895/>
5. <https://pubmed.ncbi.nlm.nih.gov/31220063/>
6. https://www.safetyandquality.gov.au/sites/default/files/migrated/SAQ7730_HAC_Factsheet_HealthcareAssociatedInfections_LongV2.pdf
7. <https://pubmed.ncbi.nlm.nih.gov/31720809/>
8. <https://pubmed.ncbi.nlm.nih.gov/27109202/>



Special considerations

Evidence free zone

Question 9: What is the role of RLR for cirrhotic patients?

In the setting of cirrhotic patients, similar to LLR, RLR could also be performed in to selected patients. Currently, there are insufficient studies focusing on the application of RLR on cirrhotic patients (clinical recommendation: Expert agreement 100%).

Question 10: What is the role of RLR for lesions located close to major vascular and biliary structures?

For lesions located close to major vascular and biliary structures, especially for deeply located lesions, parenchyma-sparing liver resection should be performed by using the robotic approach to rely on the delicate dissection offered by the stable and flexible movements of the robotic arms, as an alternative approach to major liver resection. Compared to robotic major liver resection, robotic parenchyma-sparing liver resection could potentially increase resectability of these lesions. However, as this is a technically demanding procedure, it should be performed by experienced surgeons on well-selected patients (clinical recommendation: Expert agreement 100%).

Question 11: What is the role of robotic approach for associating liver partition and portal vein ligation for staged hepatectomy?

Robotic first- or second-stage associating liver partition and portal vein ligation for staged hepatectomy (ALPPS) is an optional strategy for treatment of primary and metastatic liver cancer in patients with insufficient residual liver volume. Due to the complexity of ALPPS surgery and the high morbidity rate, the benefit of robotic ALPPS is unclear on the curative effect of the initially unresectable liver cancer, as there have been rapidly evolving developments in locoregional and systemic therapies. Robotic ALPPS must be evaluated with caution before operation and should only be performed in highly selected patients (clinical recommendation: Expert agreement 100%).



Da Vinci for complex liver surgery situations

*Da Vinci
surgery
compared
to open*



Feasible in Child-Pugh A cirrhotic
patients without clinically significant
portal hypertension

Statement
Conditional*

*Da Vinci
surgery
compared
to lap*



May offer advantages in cases of
advanced liver resections and liver
resections involving radical portal
lymphadenectomy and/or biliary
reconstruction

Statement
Conditional*

*Low level of evidence

Hobeika C, Pfister M, Geller D, et al. Recommendations on Robotic Hepato-Pancreato-Biliary Surgery. The Paris Jury-Based Consensus Conference. Annals of surgery. Published online May 24, 2024. doi:<https://doi.org/10.1097/sla.0000000000006365>



Question 14: What is the role of intraoperative navigation techniques in RLR?

Intraoperative ultrasonography (IOUS) and indocyanine green (ICG) imaging has been used for tumor locating and surgical margin delineation in RLR. Surgeons are supposed to master these techniques and choose the suitable navigation tools to increase the safety of RLR (clinical recommendation: Expert agreement 100%).

**Firefly
fluorescence
imaging**



Do something





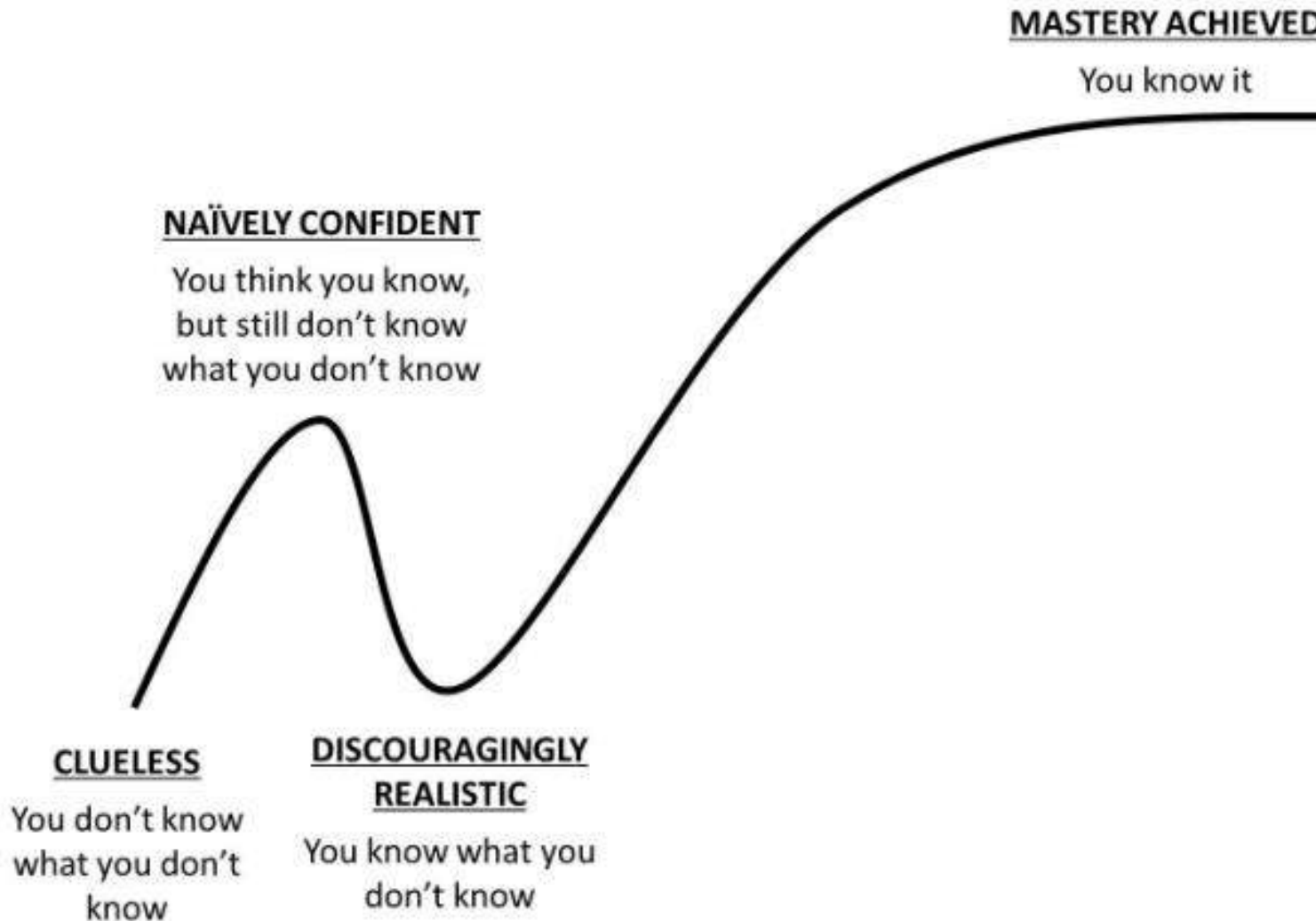
Education and training

Question 12: Could the robotic approach shorten the learning curve of liver resection?

The case number required to surmount the learning curve for KLR has been reported to be lower than that for LLR. The case number required to surmount the learning curve of RLR varied among different studies[12,32,129-134]. The surgeons' experience in LLR could have a significant influence on the learning curve of RLR. About 25 consecutive cases are needed for an experienced surgeon to surmount the learning curve of major RLR and 15 cases for minor RLR (clinical recommendation: Expert agreement 100%).



Why not do every liver resection robotically?





Real-world selection of cases

Question 13: Which difficulty scoring systems should be used for RLR?

Ban and Iwate reported on the difficulty scoring system for LLR which was externally validated for RLR. The two difficulty scoring systems are currently recommended. A difficulty scoring system exclusively for RLR should be established by further studies (clinical recommendation: Expert agreement 100%).

22. Compared with laparoscopy, robotic liver resection may offer advantages in advanced (as defined by laparoscopic difficulty scores) minimally invasive liver procedures.

Statement: Conditional, [Level of evidence: Low]

21. The current laparoscopic difficulty scores offer valuable guidance regarding patient selection and risk assessment.

Statement: Conditional, [Level of Evidence: Very Low]

**TABLE 1** Summary of existing DSS for MILR

Study/year	DSS/country	Formulation	Variables included
Ban et al 2014 ⁶	Ban/Japan	90 patients who underwent pure LLR were assessed for difficulty by operators on a scale of 1-10, with divisions into low (1–3), intermediate (4-6) and high (7-10) difficulty. This was correlated with a difficulty index based on clinical variables	Resection extent, tumor location, tumor size, liver function, proximity to major vessels
Wakabayashi et al 2016 ³	Iwate/Japan	Modification of the Ban DSS to incorporate HALS/hybrid method based on expert consensus at the 2nd ICCLLR in 2014	Resection extent, tumor location, size, liver function, proximity to major vessels, HALS/hybrid method
Hasegawa et al 2017 ⁷	Hasegawa/Japan	187 patients who underwent pure LLR were assessed for preoperative predictive factors of surgical time via multivariate linear regression, with each factor assigned scores based on weighted contribution to create scoring system	Resection extent (0,2,3), tumor location (0,1,2), obesity (0,1), platelet count (0,1) on surgical time



Kawaguchi et al 2018 ⁸	IMM/France	452 patients who underwent LLR without simultaneous procedures were divided into 3 groups according to scores on 3 variables (operative time, blood loss, conversion rate), which was then correlated with overall morbidity and major complication	Procedure type (Group I include wedge resections and left lateral sectionectomy, Group II include anterolateral segmentectomy and left hepatectomy, Group III include posterosuperior segmentectomy, right posterior sectionectomy, right hepatectomy, central hepatectomy, and extended left/right hepatectomy)
Halls et al 2018 ⁹	Southampton/ UK	2856 patients who underwent LLR were assessed for independent risk factors that predicted intraoperative complications, which were assigned points and grouped into low-, moderate-, high- and extremely high-risk groups	Neoadjuvant chemotherapy, lesion type and size, classification of resection and previous open liver resection



Systematic review and meta-analysis of difficulty scoring systems for laparoscopic and robotic liver resections

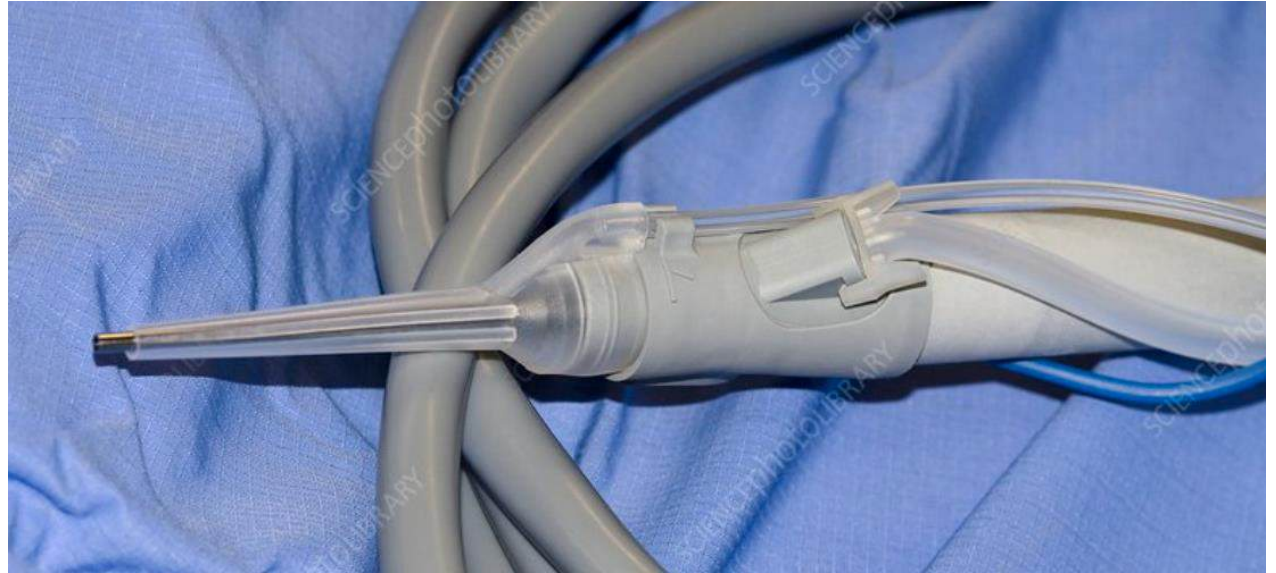
Yun-Le Linn¹ | Andrew G. Wu² | Ho-Seong Han³  | Rong Liu⁴ | Kuo-Hsin Chen⁵ |
David Fuks⁶ | Olivier Soubrane⁶ | Daniel Cherqui⁷ | David Geller⁸ |
Tan-To Cheung⁹ | Bjørn Edwin¹⁰ | Luca Aldrighetti¹¹ | Mohammad Abu Hilal^{12,13} |
Roberto I. Troisi¹⁴ | Go Wakabayashi¹⁵ | Brian K. P. Goh¹⁶  | International Robotic
and Laparoscopic Liver Resection Study Group Investigators

5 | CONCLUSION

In conclusion, our systematic review yielded 11 unique DSS for MILR, five of which have been validated to varying studies. Only the Ban and Iwate DSS were externally validated for RLR. Present studies comparing DSS have not established a clear superior system, and the five main DSS have been found to be predictive of difficulty in LLR.

Limitations

“CUSA, CUSA, wherefore art thou, CUSA?”



Vessel Sealer
Extend



SynchroSeal®



Force
Bipolar



Limitations

SureForm 60



SureForm 45



SureForm 45 Curved-Tip



Tips and tricks

- Ensure decent groove in liver before beginning to staple
- Go shorter rather than longer
- Use tips more than crotch
- Open and close to 'munch'
- Be patient
- "Force fire" still requires closure (only available on black reload)



Summary

Robotic surgery is Inevitable

Robotic hepatectomy lagged due to technology

Increasing evidence of benefit
(subtle compared with lap vs open comparisons)

“Takes longer” - does that really matter?

”Prohibitive cost” overstated (once you’ve bought the machine!)

Tide turning with consensus document publications





INNOVATION | PRECISION | EXCELLENCE

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THANK YOU

