

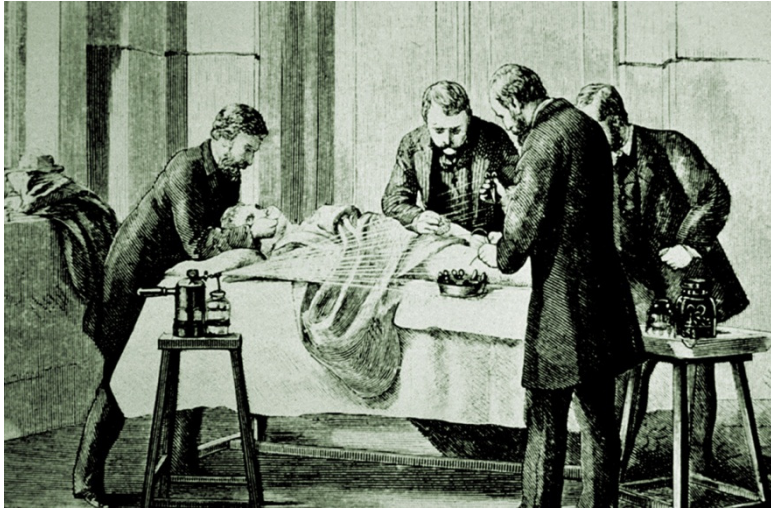
# ROBOTIC Surgery



Niels Thomassen

Aarhus University Hospital  
Denmark

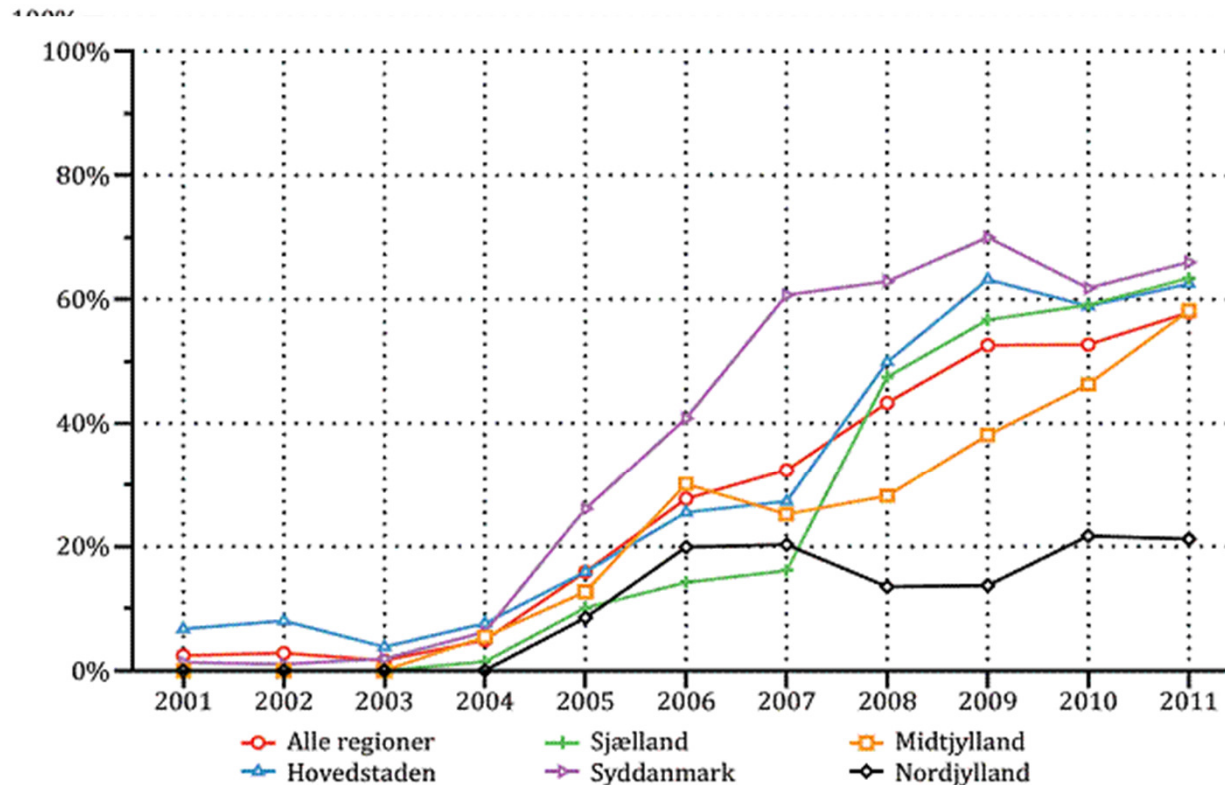
# Evolution in surgery



New technique, big interest



# Percentage colonic resections done with laparoscopy in DK

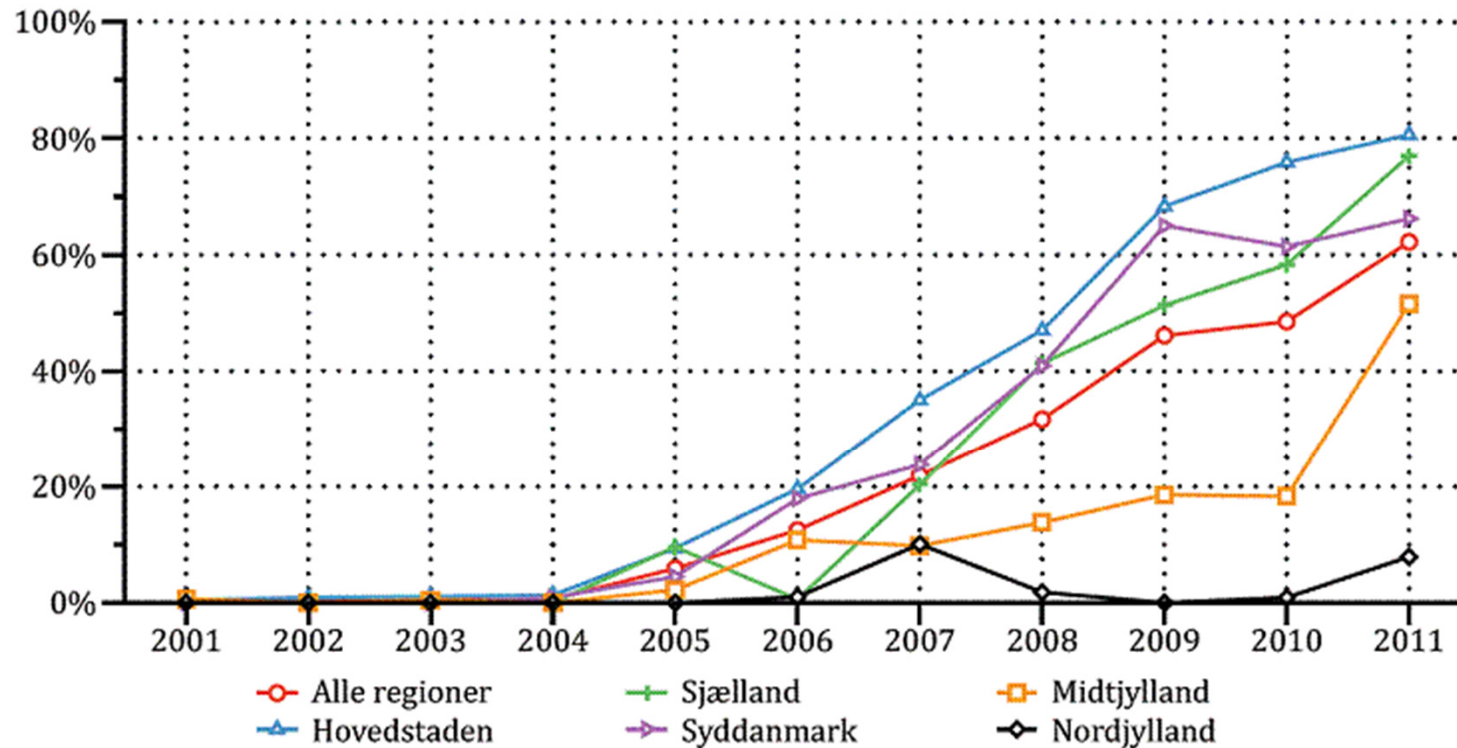


D

Data: Omfatter alle elektivt opererede koloncancer patienter der har fået foretaget en af følgende operative procedurer: Højresidig hemikolektomi, Transversum resektion, venstresidig hemikolektomi og sigmoideum resektion ± kolostomi.

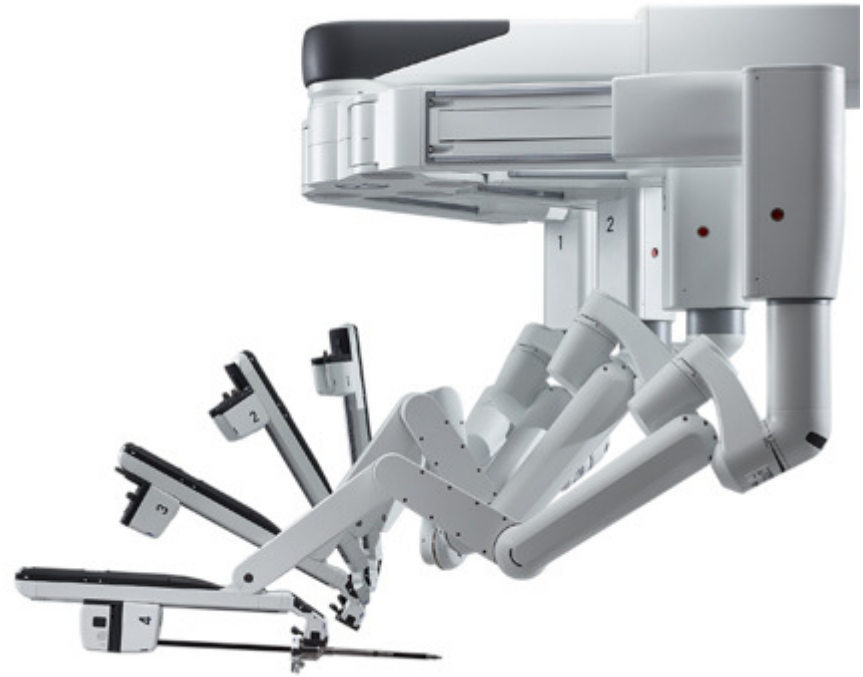


# Percentage rectal resections done with laparoscopy in DK



**Data:** Omfatter alle elektivt opererede rektumcancer patienter der har fået foretaget en af følgende operative procedurer: Anterior resektion ± kolostomi, APR am Holm eller APR konventionel.

da Vinci Xi



# Da Vinci Robot Surgery

Intuitive Surgical



# Open vs laparoscopy

- Big trials showed equal oncologic results
- Lesser morbidity with laparoscopy?
- Price?
- Learning curve
- Shorter hospital stay
- Decision made! ! Patient demand
- Long term oncologic outcomes?



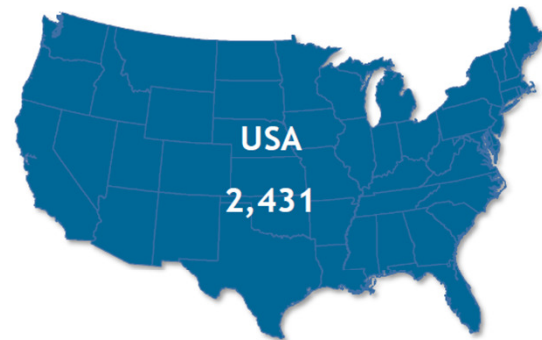
# Robot vs laparoscopy

- Why new technique? (It is not laparoscopy)
- What advantages?
  - 1. better camera (3D)
  - 2. better instruments
  - 3. wrist function
  - 4. better ergonomics (terrible in open and laparoscopic operations)
  - 5. better oncology?

# ROBOT versus LAP/OPEN

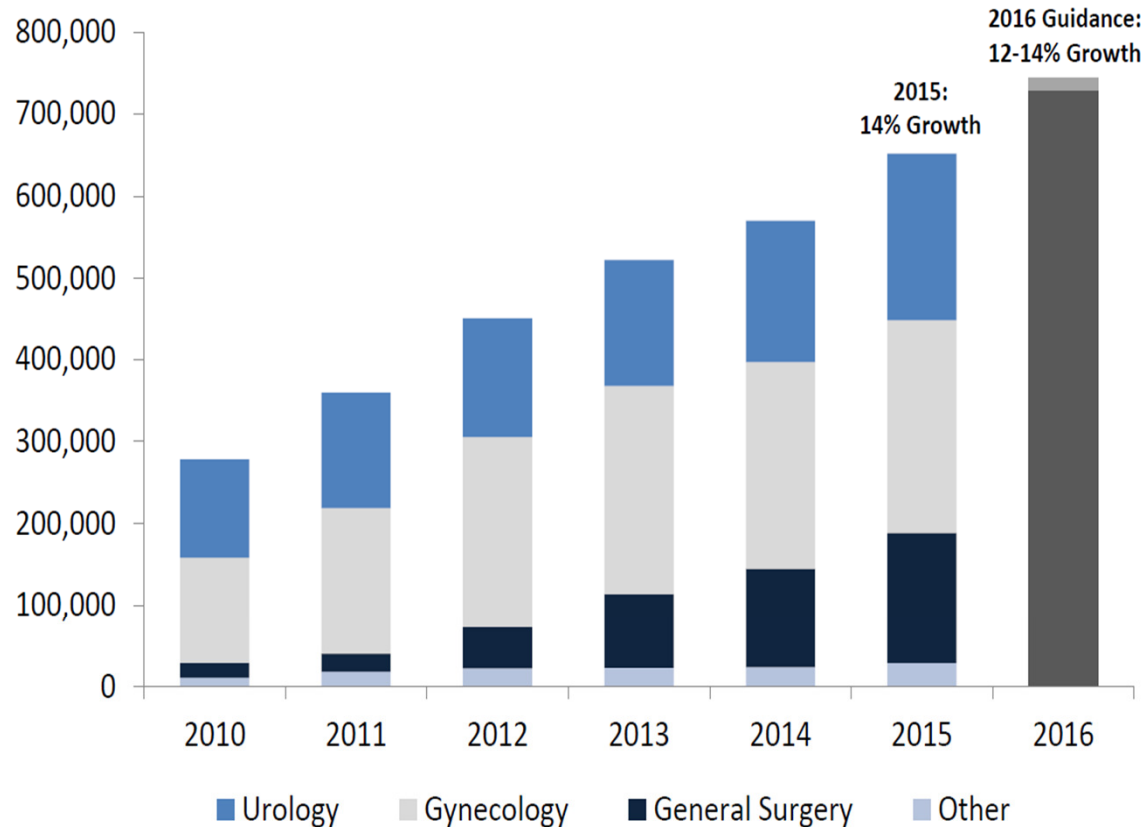
- SMARTER, but is it BETTER?
- **ROLARR**
- **More trials needed!!!**
- Surgeons experience!
- Expensive
- If smart less expensive, (competition)
- Equal or improved oncology important
- Less morbidity important

# da Vinci® System Installed Base



Rest of World: 172

# Worldwide Procedure Trend



Company estimates



## Robotic Colorectal programs in Nordic countries

### • Sverige

- Stockholm
- Linköping
- Malmö
- Södersjukhuset
- St.Göran
- Halmstad
- Göteborg
- Karlstad
- Uppsala
- Danderyd
- Örebro
- Växjö
- Karlskrona
- Umeå
- Helsingborg
- Varberg
- Västerland

### Danmark

- Roskilde
- Odense
- Århus Uni
- Herlev
- Rikshospitalet
- Holstebro
- Vejle
- Ålborg

### Norge

- Tromsø
- Stavanger
- Hamar
- Bergen

### ▪ Finland

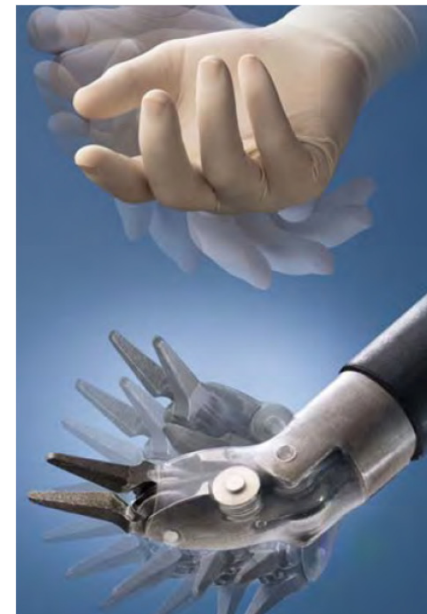
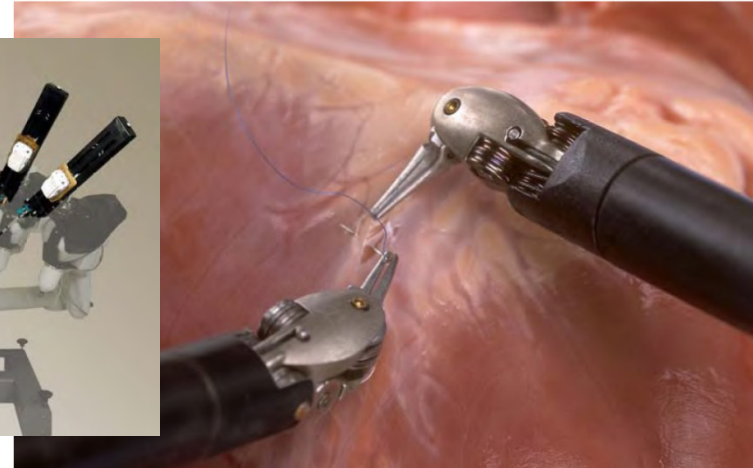
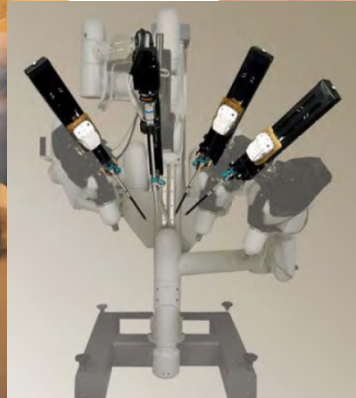
- Oulu



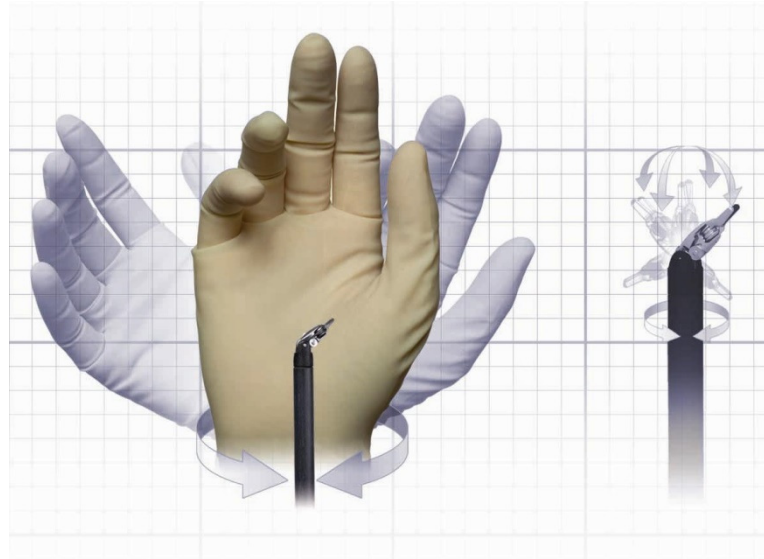
Is it difficult to use da Vinci?  
Do you have to be an experienced laparoscopic  
surgeon?



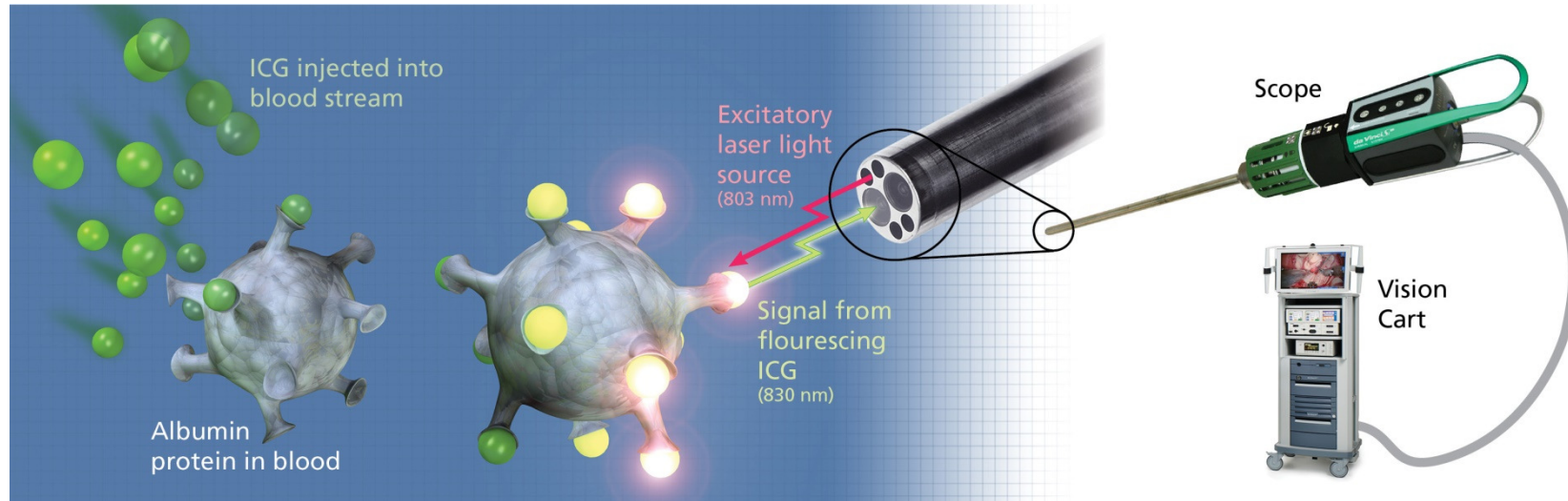
# New technology, same operation?



# Wrist function

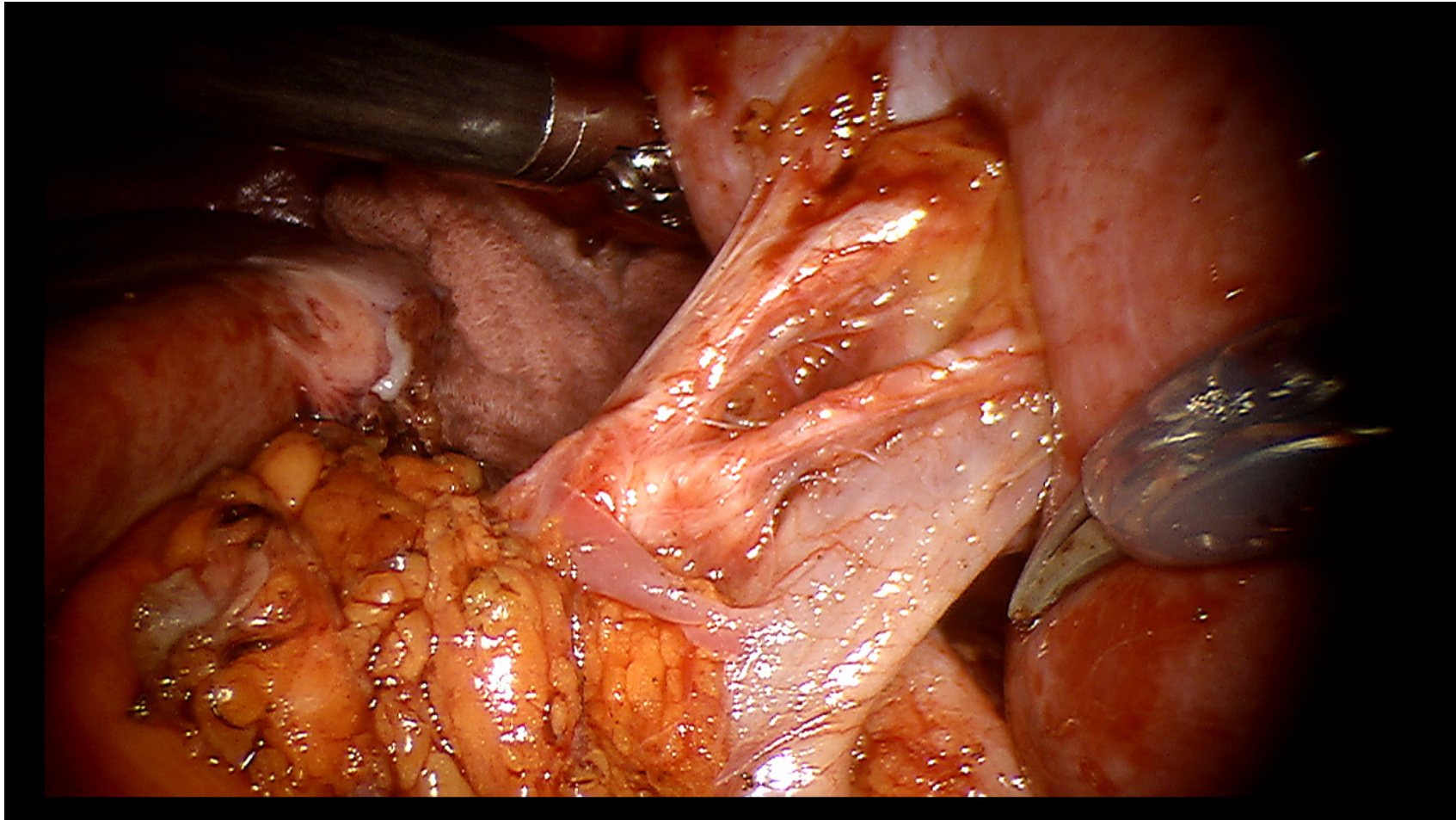


# Firefly



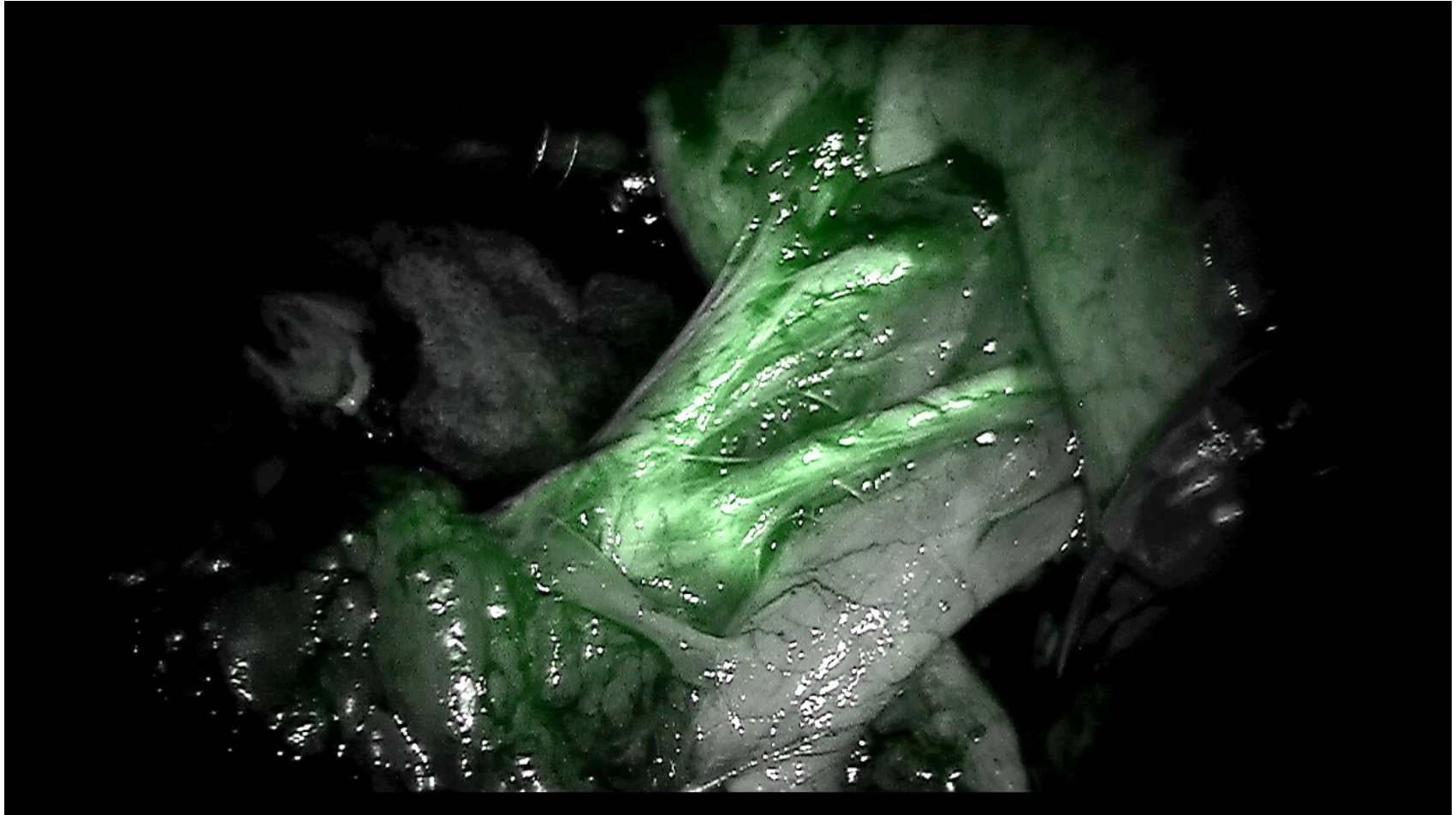


# Firefly

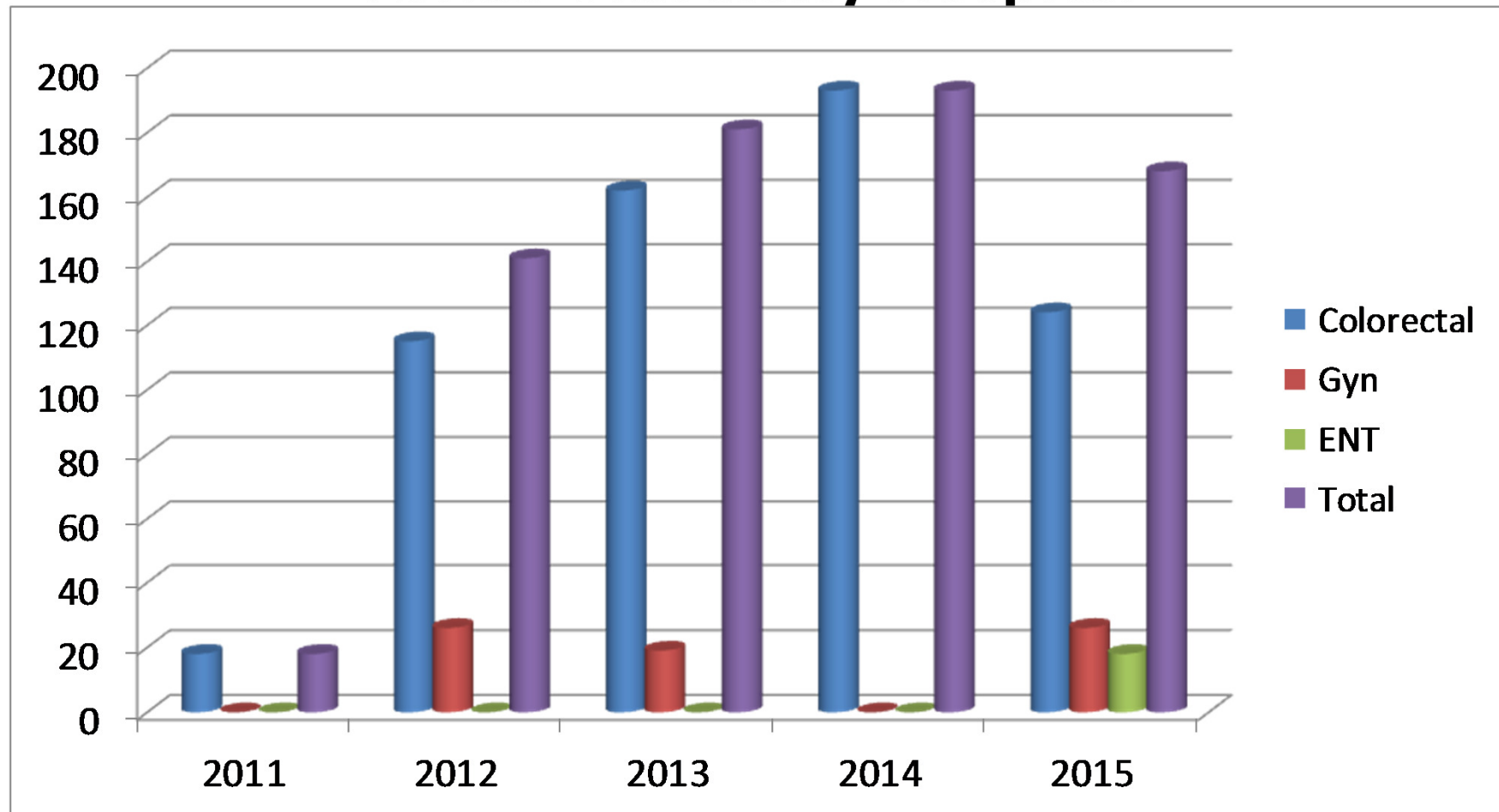




# Firefly



# Growth robotic procedures 2011 until 30<sup>th</sup> September 2015 Århus University Hospital



# Operation room





# Happy surgeon



# Dual console Simulator





“Joy sticks”

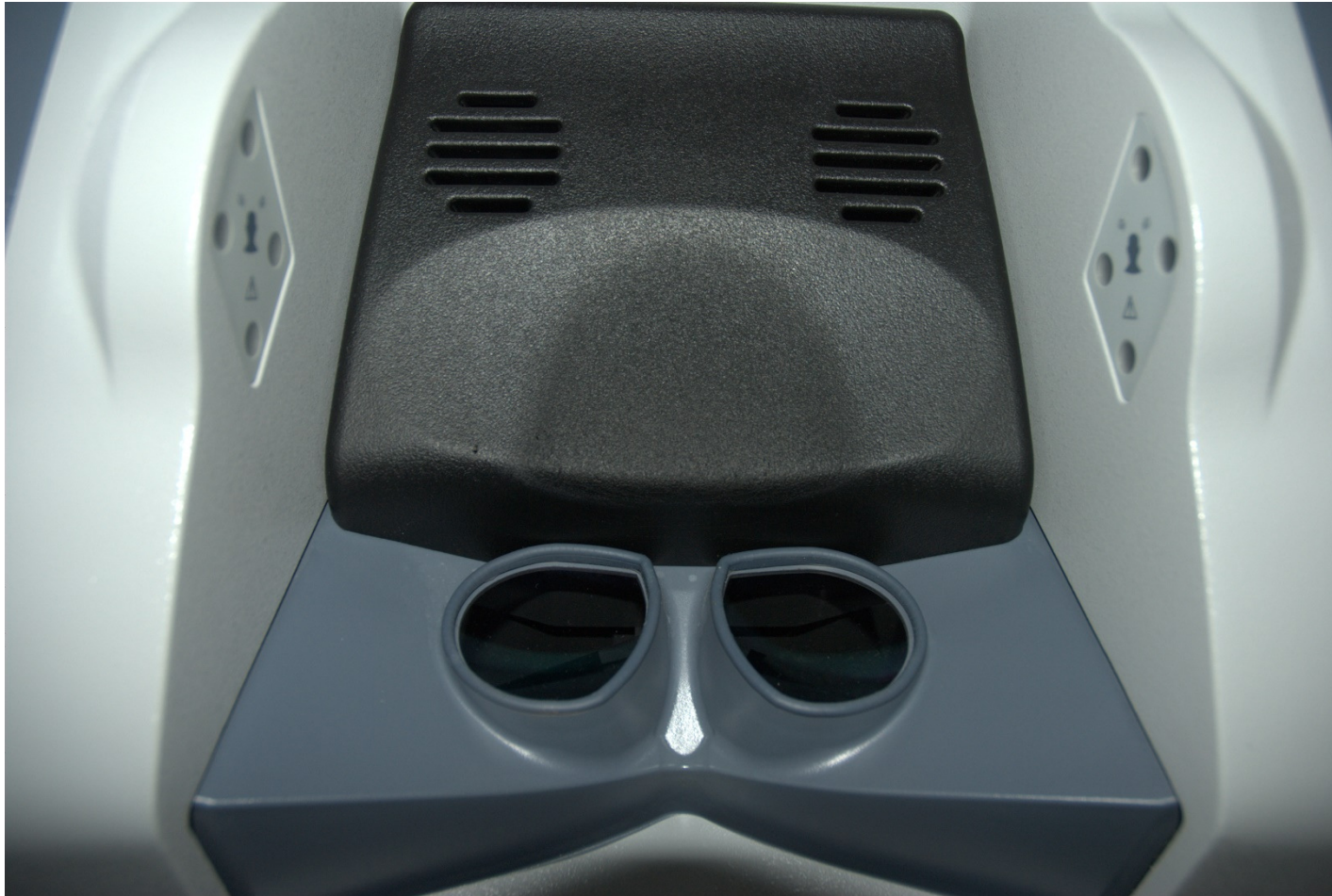


# Pedals

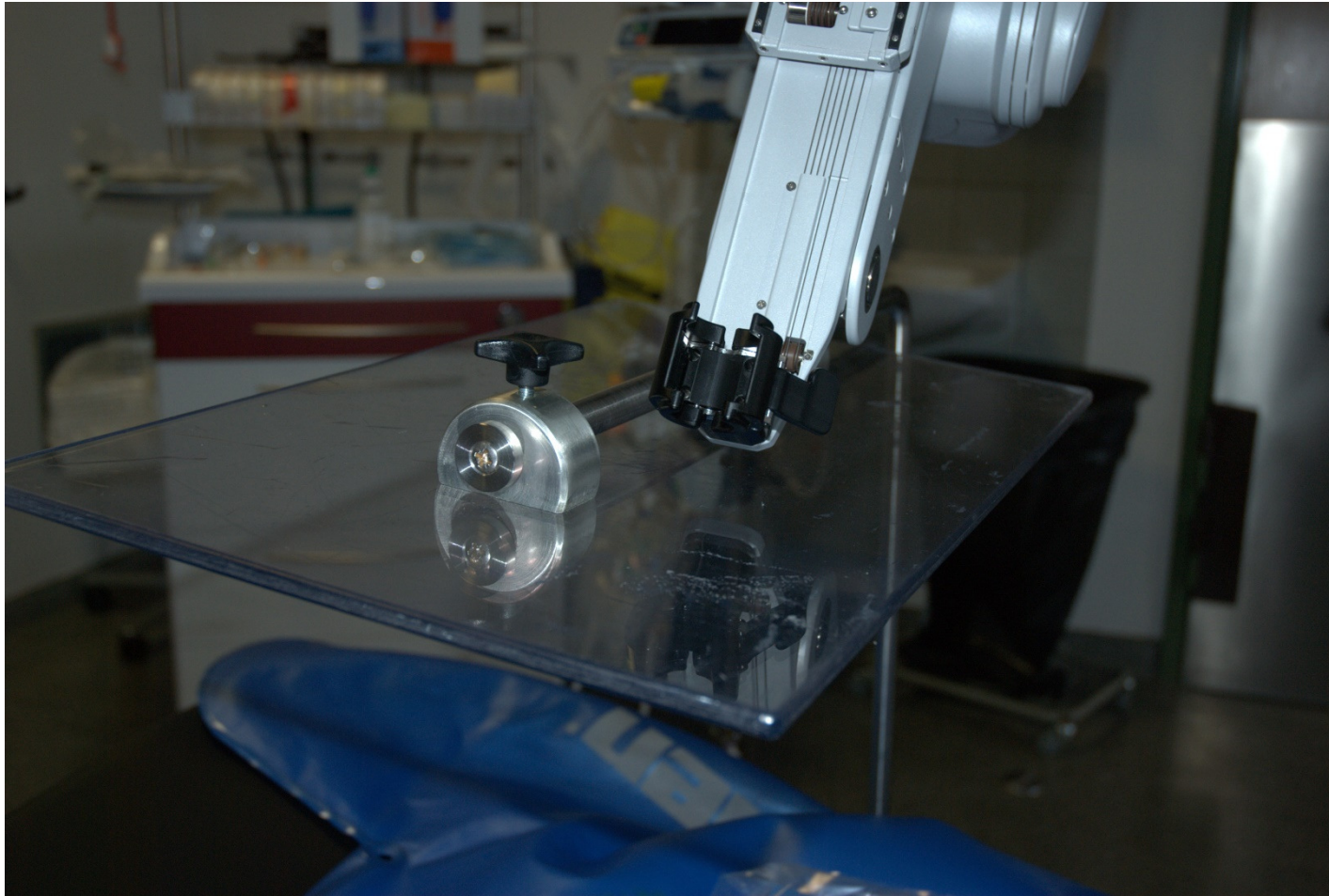




# 3D "goggles"



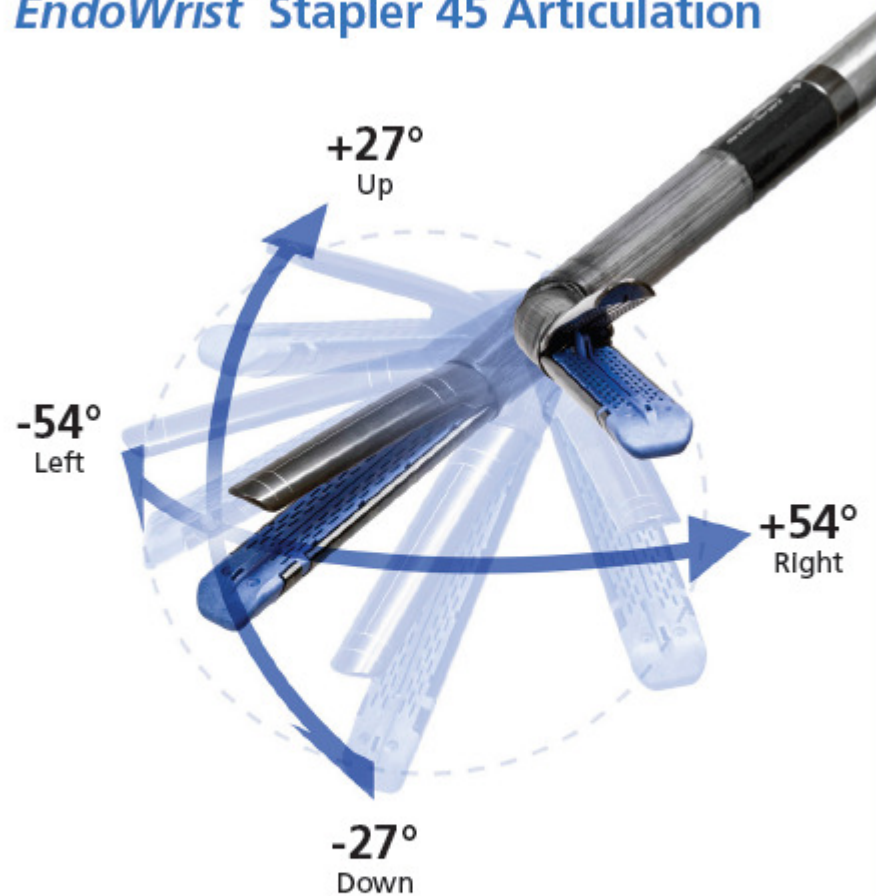
# Protecting the patient!



## **644** operations from October 2011 – March 2016

- **170** TME (LAR)
- **80** PME (AR)
- **153** APR
- **97** RECTOPEXIES +/- MESH
- **99** POUCH (rectal resection) ileo/anal
- **1** Pelvic teratoma
- **600**
- **1** PROCTOCOLECTOMI
- **25** SIGMOID RESECTIONS
- **5** LEFT HEMICOLECTOMIES
- **13** RIGHT HEMICOLECTOMIES
- **44**

## EndoWrist® Stapler 45 Articulation



### Fully-wristed Articulation

Full cone of articulation with 108° total side-to-side, 54° total up-and-down for precise positioning around vital structures and access in deep, confined spaces such as the pelvis.

### Complete Distal Tip Stability

Minimizes the tremor experienced with positioning, clamping and firing of handheld staplers.



# Revolutionary Technology

The *EndoWrist*® Stapler 45 is an endoscopic 45mm stapler cleared for use exclusively with the *da Vinci*, *Si*™ Surgical System. It is intended for resection, transection and/or creation of anastomoses in general, gynecologic and urologic surgery. The *EndoWrist* Stapler 45 can be used with staple line or tissue buttressing material (natural or synthetic). Fully controlled from the *da Vinci* *Si* System, it is the only stapler that provides fully-wristed articulation and features *SmartClamp*® feedback.

## Surgeon Control

### Full Surgeon Control and Autonomy

Positioning and grip are controlled through the *da Vinci* *Si* surgeon console masters. Clamp and fire are controlled through the foot pedals.





# Left side and rectal ports

