

Addressing the Robot in the Room:

How to offer robotic benefits without increasing procedural costs

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Dr. Kent Bowden, DO, FACOS. the authoring physician of this presentation, is a paid consultant to Olympus America Inc., Medical Systems Group.

Outline

- Background
- State of Surgery
- Finding the Sweet Spot
- Olympus 3D and FlexDex
- Cost Comparison vs Robot and Traditional Laparoscopy
- Summary

Disclosure

- Employed by Munson Healthcare Cadillac
- Consultant for Olympus
- Shareholder with FlexDex



Who we are

- Cadillac is a 47 bed community hospital
- 4 Operating Rooms: 4 General Surgeons
- We had been approached by the hospital to see if we needed a Robotics system to bolster the community and went through an analysis with a consulting firm



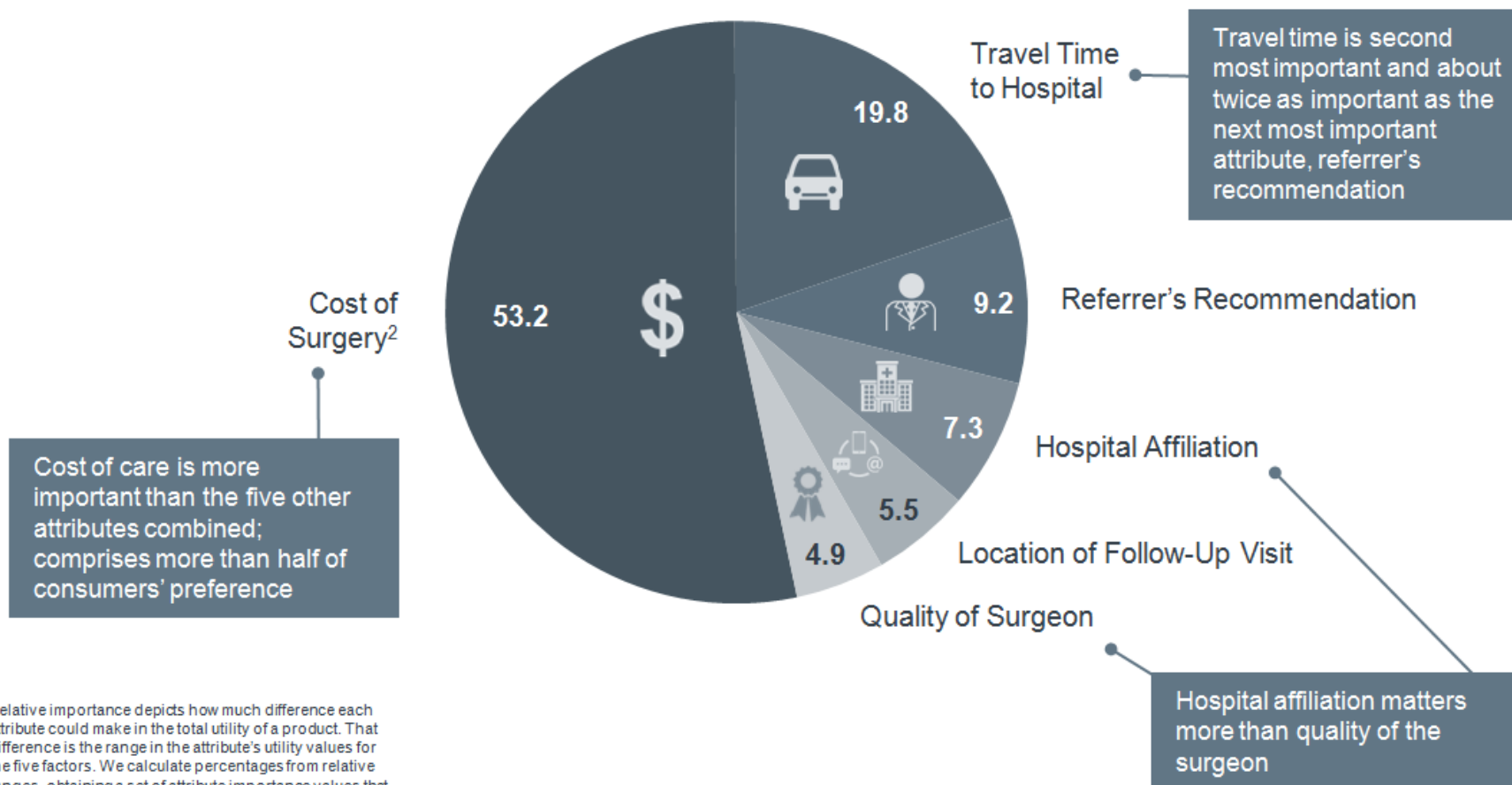
Recommendations from Consulting Firm

- Provide guidance on creating a robotic facility
- How to limit instruments per case
- How to have best in class turnover, including set-up
- Get facility to top 10% in cut to close times
- Robotic cases should have shorter LOS compared to open
- Limit adverse events- readmissions, surgical site infections...
- People will seek you for technology which will bring better payor mix

$$\begin{array}{c} \mathbf{V} \\ \text{(VALUE)} \end{array} = \frac{\begin{array}{c} \mathbf{Q} \\ \text{(QUALITY)} \end{array} + \begin{array}{c} \mathbf{S} \\ \text{(SERVICE)} \end{array}}{\begin{array}{c} \mathbf{\$} \\ \text{(COST)} \end{array}}$$

Cost of Care is important to Patients too

Average Relative Importance¹ of Six Surgical Care Attributes

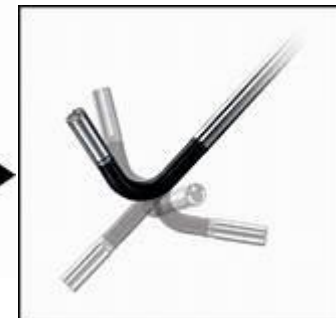
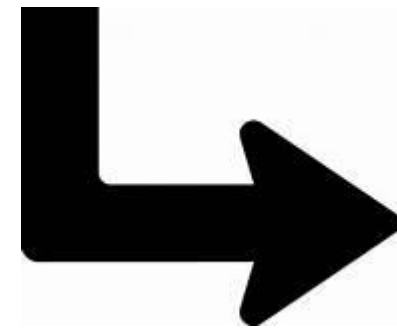


1) Relative importance depicts how much difference each attribute could make in the total utility of a product. That difference is the range in the attribute's utility values for the five factors. We calculate percentages from relative ranges, obtaining a set of attribute importance values that add to 100 percent.

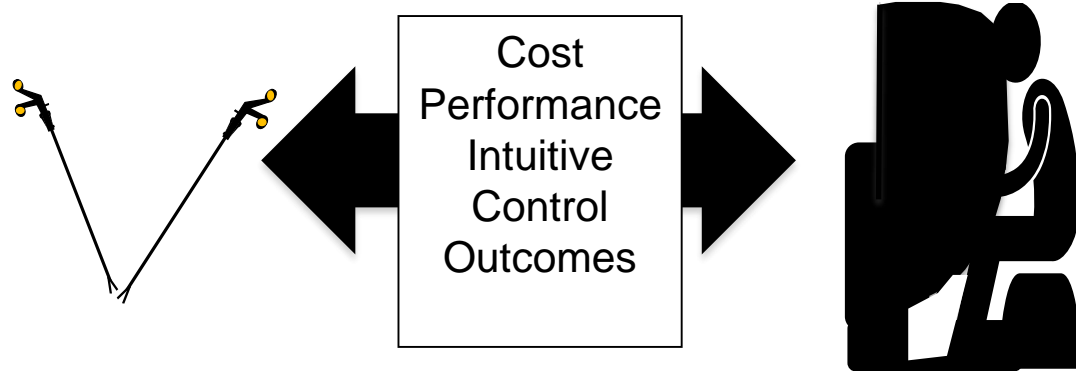
2) Includes cost of care and travel

The State of Surgery

- Laparoscopy was one of the most substantial innovations in surgery.
- Significant advancements in camera optics, cauterization, stapling, vessel sealing and robotics.
- Limited advancements in the design of laparoscopic instruments.



Finding the Sweet Spot

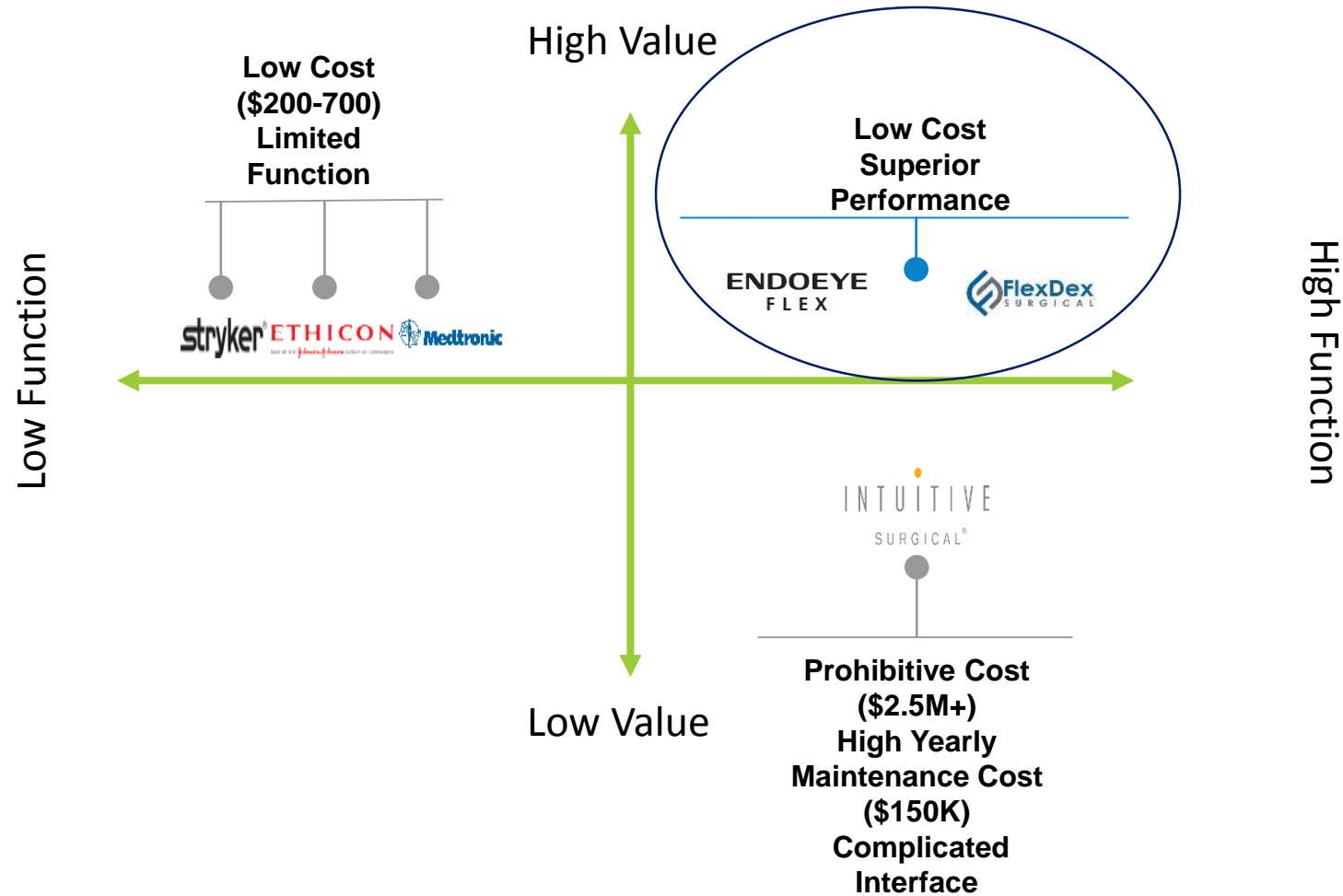


- Low Cost
- Low Dexterity
- Less Intuitive
- Well Established Outcomes

- Extremely High Cost
- High Dexterity
- Intuitive Control
- Lacking data compared compared to M.I.S.



In Search of a High Function, High Value Product



Hospitals are feeling pressure to adopt Robotic systems

- Community Hospitals in the US have been a big target for marketing robotics for the last few years
 - Our entire OR budget is \$32 million annually (across all surgeons and specialties)
 - 27 active staff
 - 2-3 surgeons in our hospital would have adopted robotic technology



Why FlexDex?

- Adding FlexDex was close to cost neutral move for our OR
 - No tackers, no endo-stitch or endo-stitch reloads
 - Added FlexDex and either Ethibond or Vicryl sutures, with Symmetric or Quill to close peritoneum
 - Better Fixation, larger Hernias, better peritoneal closure
- ‘Docking Time’
 - <1 minute vs 20 minutes of docking and undocking



Why Olympus ENDOEYE FLEX 3D?

- 2D laparoscopy doesn't allow for strong depth perception
- 25 cases with FlexDex and in 2D which almost doubled my operating times
 - Was it the learning curve or the 2D?
 - The last 50+ with 3D and my cases approach (within 10 minutes) of previous case length
- **Articulating devices require 3D visualization**

ENDOEYE
FLEX



Olympus 3D and FlexDex: Economic Benefit

- Direct Procedure cost
- Amortized capital Equipment costs
- O.R. Time
 - No docking time
- No Annual maintenance Fee \$150k - \$170k
- No special staffing requirements
- Any O.R. -anytime

Cost Comparison of Olympus 3D and FlexDex in Ventral Hernia Repair

	Da Vinci 8 mm	Da Vinci 5 mm -20 usage	Laparoscopy	Olympus 3D & FlexDex
Mesh (assume equal)	NA*	NA*	NA*	\$89
	<i>In my experience this is a \$1,300 expense</i>			
Fixation	\$60 suture	\$60 suture	\$565- 1 tacker \$1,130- 2 tackers	NA
Drapes	\$200	\$200	NA	NA
Trocars	\$80	\$80	\$150	\$80
Hot shears	\$340	NA	NA	NA
Harmonic	NA	NA	NA	NA
Monopolar or lap tray	NA	NA	\$120	\$76
5—mm monopolar	NA	\$227	NA	NA
Needle driver (2)	\$440	\$400	NA	\$895
Total (with/without mesh)	\$1,120	\$967	\$835- \$1,400	\$1,140

“Minimally Invasive Herniorrhaphy Using the da Vinci Surgical System: From community to Academia- Enabling MIS Across the Hernia Complexity Spectrum.” *General Surgery News*, 10 Jan. 2017.

Olympus 3D and FlexDex Data on File. Cost estimates and economic are this provider's specific findings which may not always be generalizable to other sites, Institutions are advised to conduct their own economic analysis to see if their economic findings are consistent with what is presented. SP4544V01

Cost Comparison of Olympus and FlexDex in Inguinal Hernia Repair

	Da Vinci 5 mm	Laparoscopic TAPP	Laparoscopic TEP	Olympus 3D & FlexDex
Mesh (assume equal)	NA*	NA*	NA*	\$89
	<i>In my experience this is a \$1,300 expense</i>			
Secure mesh	\$20 suture	\$565 tacker	\$565 tacker	\$20
Peritoneal closure	\$20 suture	\$828 EMS stapler	NA	\$20
Robot arm drapes	\$200	NA	NA	NA
Trocars	\$100	\$60	\$40	\$80
Balloon trocar	NA	NA	\$264	NA
Monopolar or lap tray	NA	\$120	\$120	\$120
5-mm monopolar hook	\$227	NA	NA	NA
5-mm bowel grasper \$200	NA	NA	NA	NA
Needle Driver (2)	\$400	NA	NA	\$895
Total (with/ without mesh)	\$967	\$1,573	\$989	\$1,224

"Minimally Invasive Herniorrhaphy Using the da Vinci Surgical System: From community to Academia- Enabling MIS Across the Hernia Complexity Spectrum." *General Surgery News*, 10 Jan. 2017.

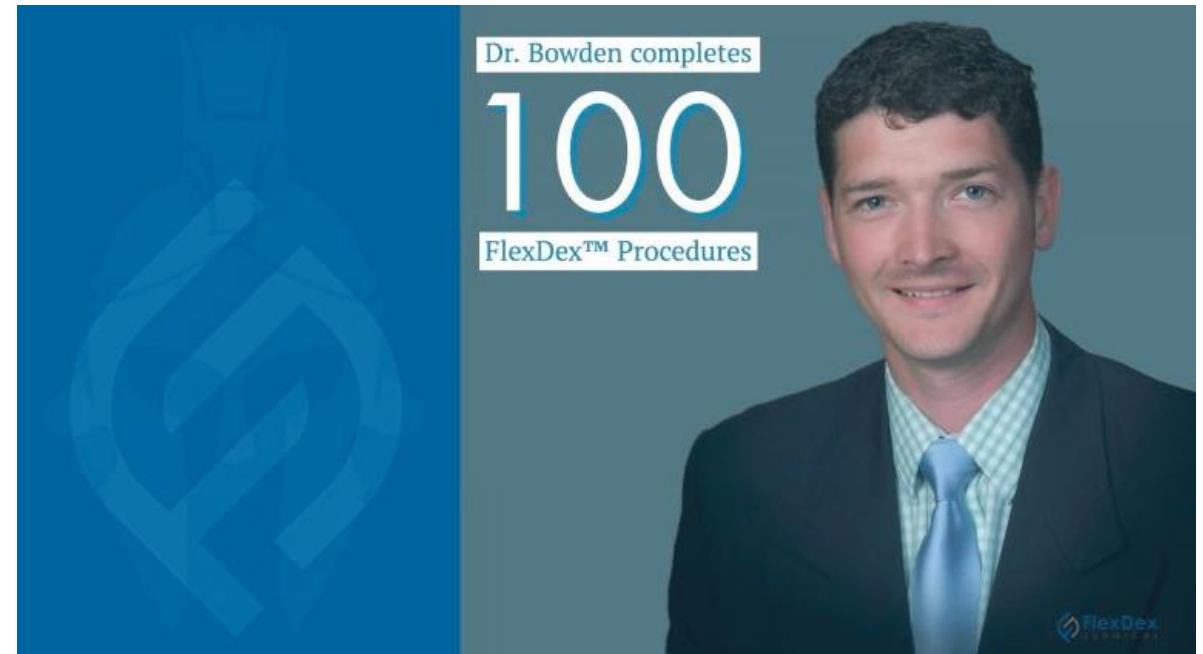
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Olympus 3D and FlexDex: Time Savings

- 18% Time Savings in the Operating Room
- After Added 3D to FlexDex on 5/24/17
 - Case time cut by 9%
 - Cut to Close decreased 18%
- Extra OR minute = \$289

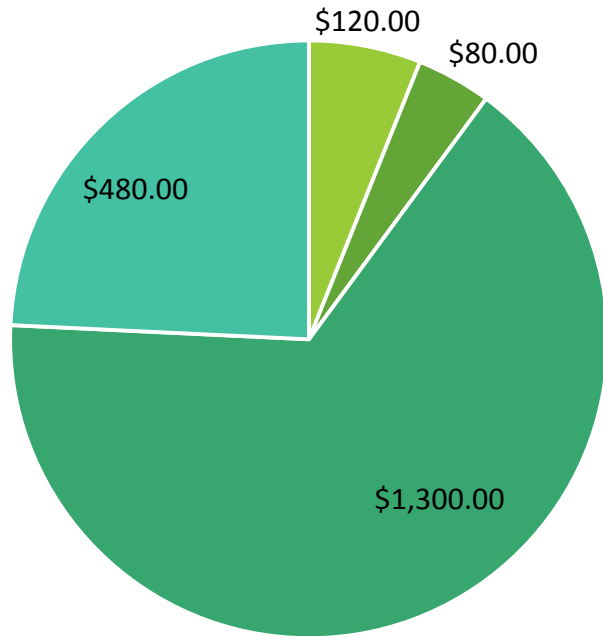
Cases Performed

- Personally 120 cases since 3/1/17
- Hernias
 - Inguinal TAPP
 - Ventral IPOM
 - Ventral Preperitoneal
 - Ventral Retrorectus
 - Paraesophageal
- The first 25 were with 2D, then added 3D with ENDOEYE FLEX 3D
 - Learning curve of 5 cases



Cost Comparison: Traditional Laparoscopic vs FlexDex

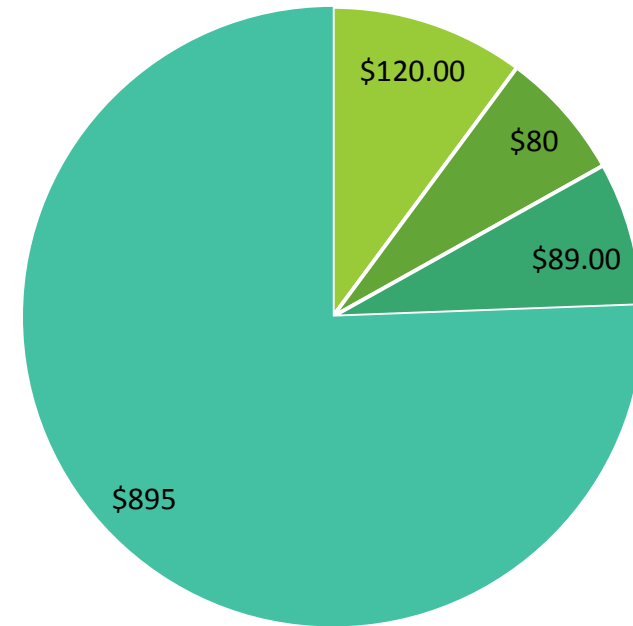
Traditional Laparoscopic without FlexDex



■ Lap Pack ■ Port ■ Progrid mesh ■ Securestrap Tacker

\$1,980*

Laparoscopic using FlexDex (Ventral or Inguinal Hernia)



■ Lap Pack ■ Port ■ Mesh ■ FlexDex

\$1,184

“Minimally Invasive Herniorrhaphy Using the da Vinci Surgical System: From community to Academia- Enabling MIS Across the Hernia Complexity Spectrum.” *General Surgery News*, 10 Jan. 2017. Olympus 3D and FlexDex Data on File. Cost estimates and economic are this provider's specific findings which may not always be generalizable to other sites, Institutions are advised to conduct their own economic analysis to see if their economic findings are consistent with what is presented. SP4544V01

Universal Technology

- There are a host of hernia applications for Olympus 3D and FlexDex
 - Better optics
 - Flexible in 2D and 3D
 - Inguinal (Groin)
 - Straightforward and always sewing right in front of yourself, ease with securing to the periosteum and peritoneal closure
 - Paraesophageal
 - Also straight forward with ease of use and sewing in front of yourself, ease with crural closure and thin biologic meshes

Summary

- Cost of Care is important to both hospitals and patients
- Time savings using Olympus 3D and FlexDex over 33% for Munson Hospital
- Decrease in direct procedure costs from robot and traditional laparoscopy
- Tactile feel and depth perception with Olympus 3D

Questions?

Backup Slides

Why Ventral Hernia?

- Ventral
 - Challenging to sew on the ceiling
 - Which technique to select
 - IPOM
 - eTEP
 - TAPP
 - Retrorectus
 - TAR
 - Which hernia to tackle
 - Umbilical
 - Incisional
 - Epigastric
 - Lower Midline
 - Subcostal