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GENIUS
Gastroenterological Network for Intestinal Ultrasonography

Intestinal Ultrasound in IBD
Why, when and how?

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Introduction

- Ileocolonoscopy is considered the gold standard for grading inflammation and mapping disease extent in ulcerative colitis and ileocolonic Crohn's disease
- Cross-sectional imaging is recommended at diagnosis and during follow-up
- With the wider adoption of tight monitoring in IBD, and the emergence of new therapeutic goals, there has been an increasing role for cross-sectional imaging in IBD

Ultrasound in IBD – Why?

- Accurate tool
  - Comparable to ileocolonoscopy to assess disease activity and extent
  - Comparable to other imaging modalities (CT and MRI) to assess disease phenotype and presence of complications

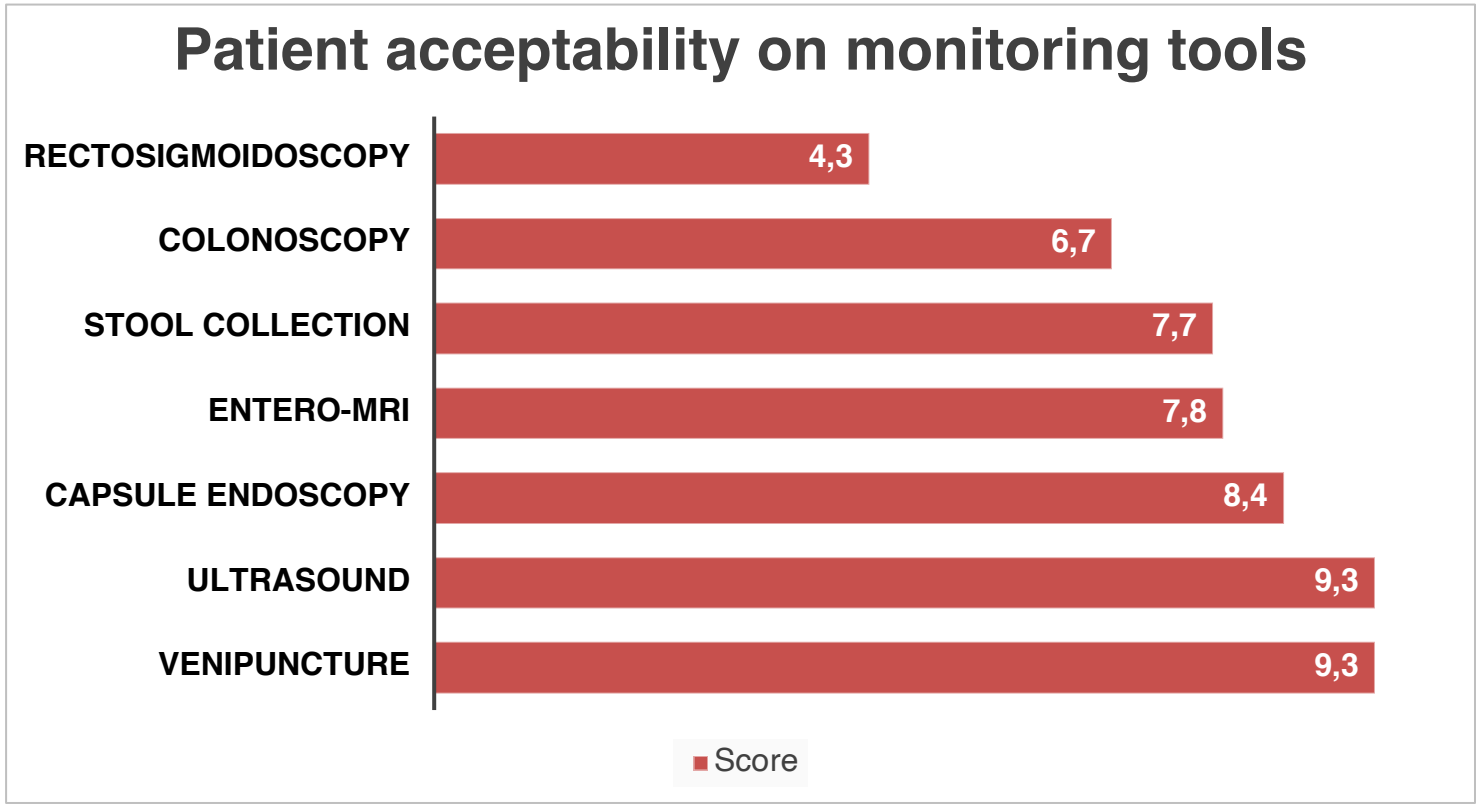
- Good correlation with mucosal healing both in CD and UC

- Non-invasive, no radiation involved, no prep needed
- Inexpensive
- Widely available
- Can be undertaken as point of care to allow real-time decision making
  - Expedite colonoscopy if suspicion for IBD based on IUS
  - May inform response to a given therapy – allows optimization

Panes J. *Aliment. Pharmacol. Ther.* 2011; **34**: 125–45. Moreno N. *J. Crohns Colitis*. 2014; **8**: 1079–87. Parente FA. *Am. J. Gastroenterol.* 2010; **105**: 1150–7.

Ultrasound in IBD – Why?

- Very good patient acceptation



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Ultrasound in IBD – Why?

- Patient-centered monitoring tool
  - Patients can be actively involved in the examination and the clinician can use the experience as an opportunity to educate and engage the patient
  - Immediate feedback about disease activity

Ultrasound in IBD – Barriers to implementation

- Lack of training opportunity
- A perception of operator dependence
  - Misconception:
    - ❖ BWT excellent correlation and interobserver agreement for disease activity
- No single accepted US score
- Need for more carefully conducted prospective studies on how to best use IUS in IBD

Ultrasound in IBD – When?

- Initial diagnosis in suspected IBD
- Detection of complications
- Postoperative recurrence
- Perianal disease activity (transperineal ultrasound)
- **Monitoring disease activity / response to treatment**
  - **To guide therapeutic decisions**
- **Monitor disease progression**

IUS – increasing role in our therapeutic algorithms

Tight monitoring

ECCO-ESGAR statement

Endoscopic or **transmural response** to therapy should be evaluated within 6 months following initiation of therapy (EL2).

Treat to target

Transmural healing

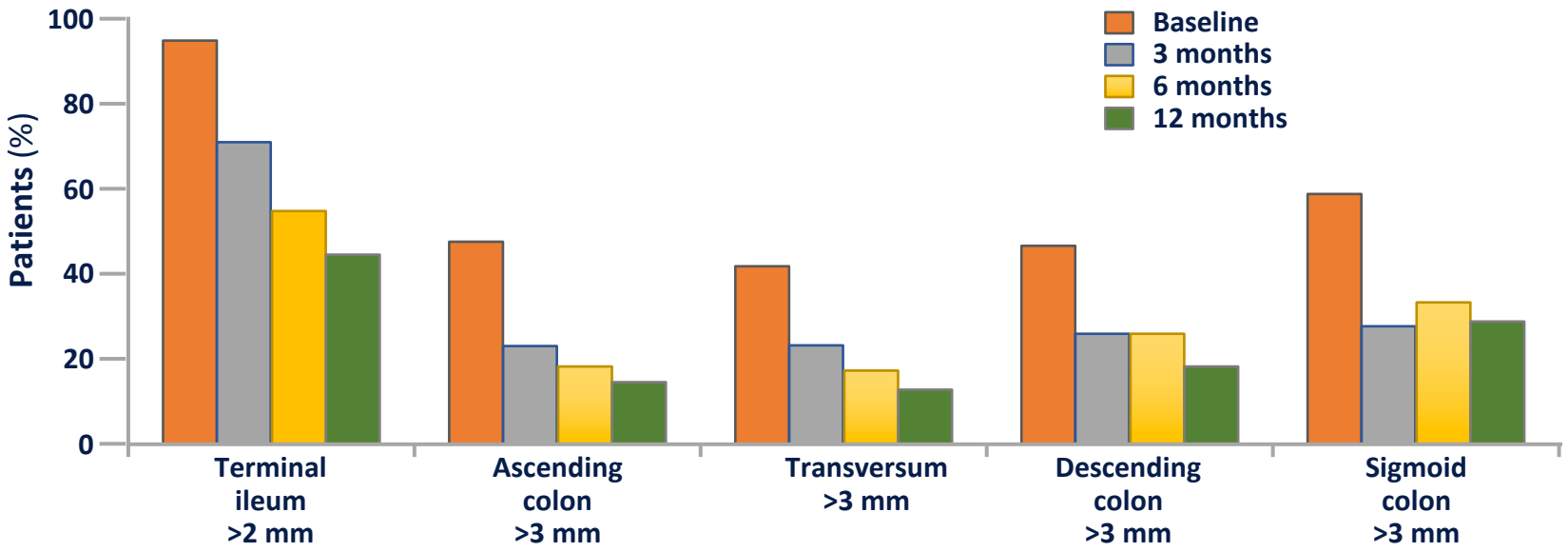
- **a new therapeutic target in CD? (and UC?)**

Maaser C et al. *J Crohns Colitis* 2018

Disease monitoring – Crohn's disease

TRUST Study

Reduction of bowel wall thickness on treatment



234 adult patients with CD who experienced a flare

Ultrasound agrees with endoscopic healing

K=0.73, p<0.001 (N=162)

Kucharzik T et al. *Clin Gastroenterol Hepatol 2017*

Disease monitoring – Crohn's disease

STARDUST IUS substudy

Patient inclusion criteria:

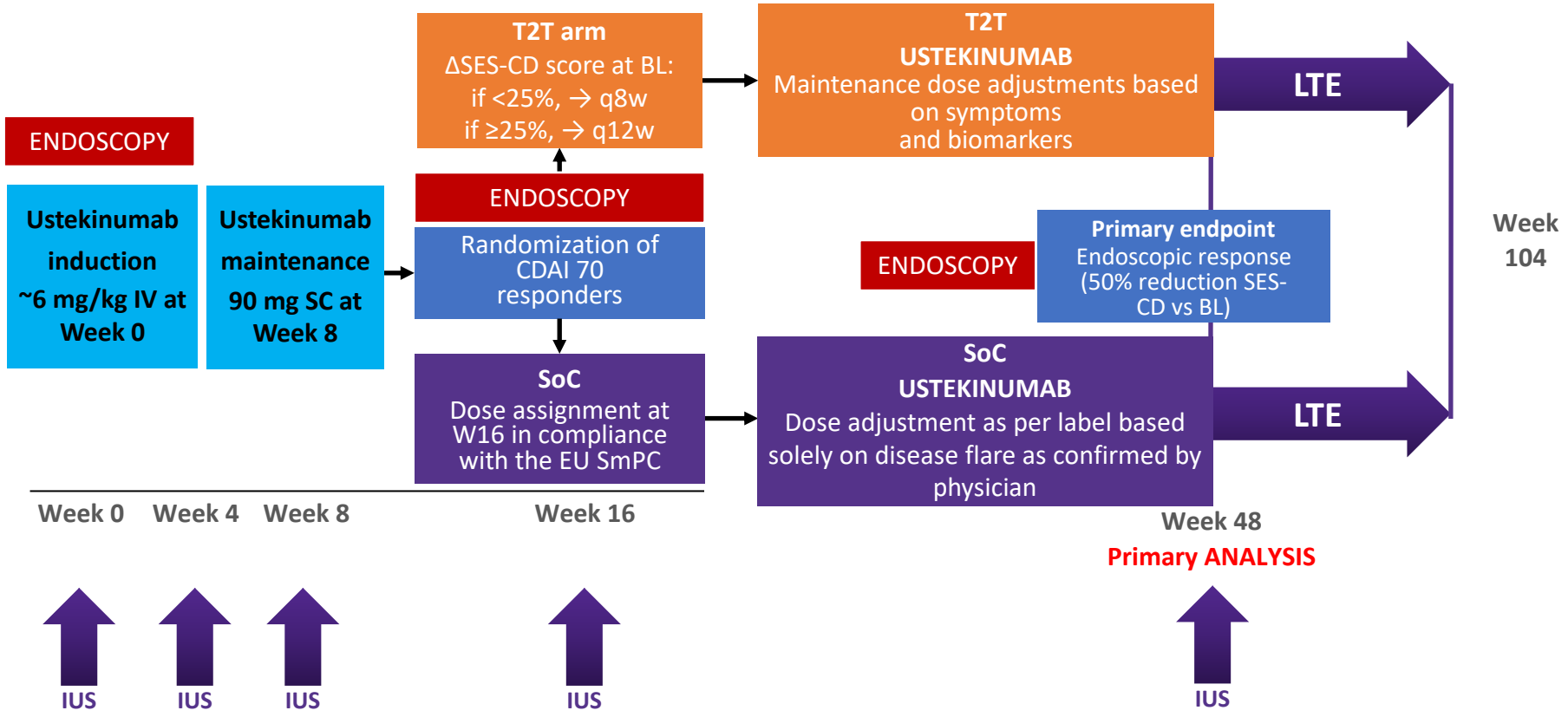
Active CD: CDAI ≥220 and ≤450 AND SES-CD ≥3. Biologic-naive or exposed to 1 biologic only

STARDUST IUS SUB-STUDY:

In selected centers

Exclusion criteria:

affected bowel segment not visible with IUS

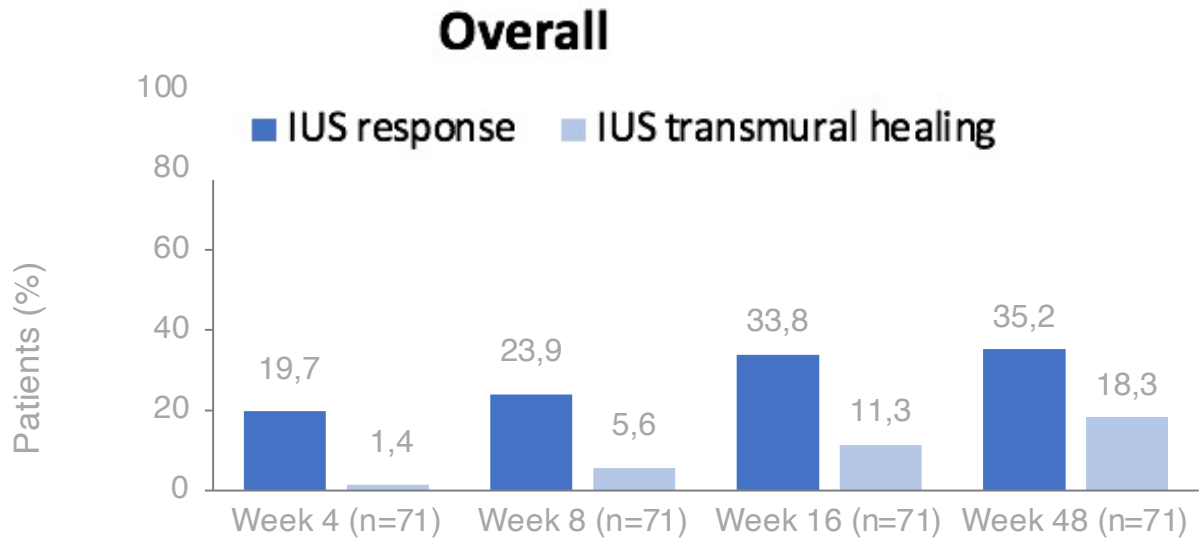


Kucharzik T et al. *UEGWeek virtual 2020*

Disease monitoring – Crohn's disease

STARDUST IUS substudy - IUS response and transmural healing over time

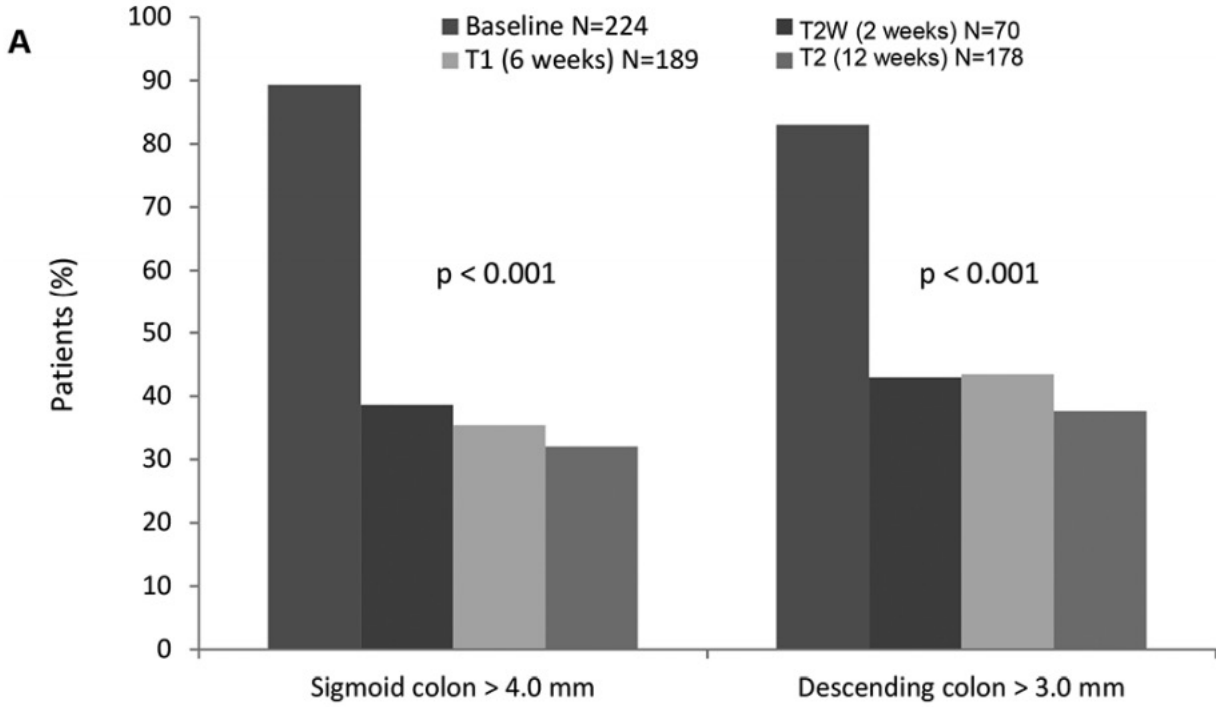
- **IUS response** → ≥25% BWT reduction
- **IUS transmural healing** → BWT normalisation, Doppler signal ≤1, normal stratification and absence of i-fat



Kucharzik T et al. *UEGWeek virtual 2020*

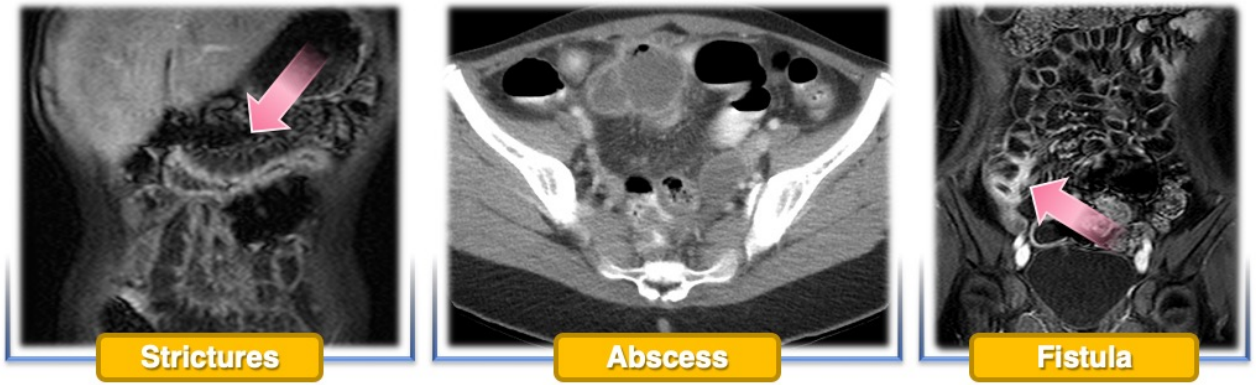
Disease monitoring – Ulcerative colitis

- Multicenter, prospective, observational study (TRUST&UC)
- 178 UC patients experiencing a flare
- **Primary outcome:** proportion of those patients that had a clinical response and normalization of BWT by W12

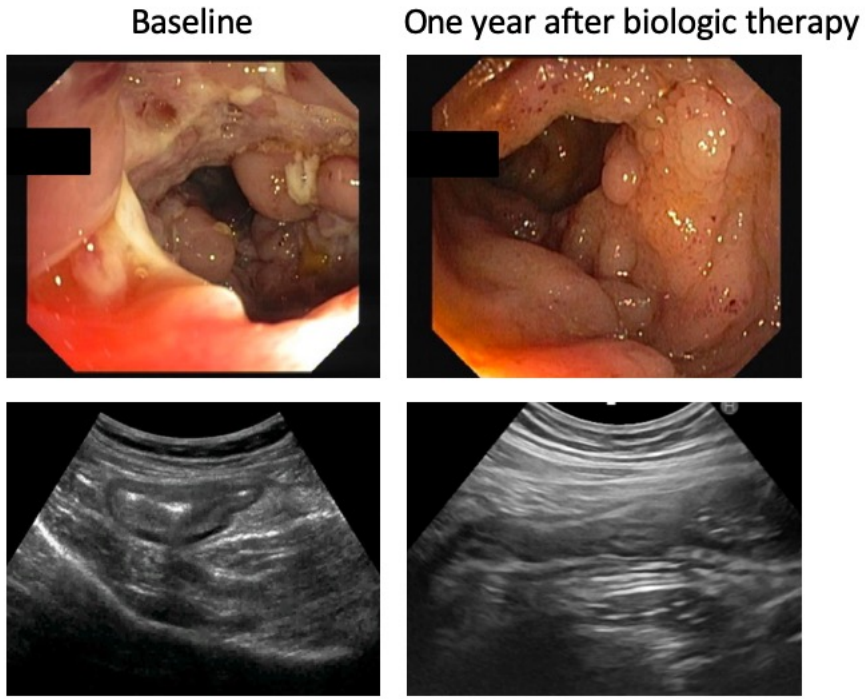


Maaser C. Gut 2020

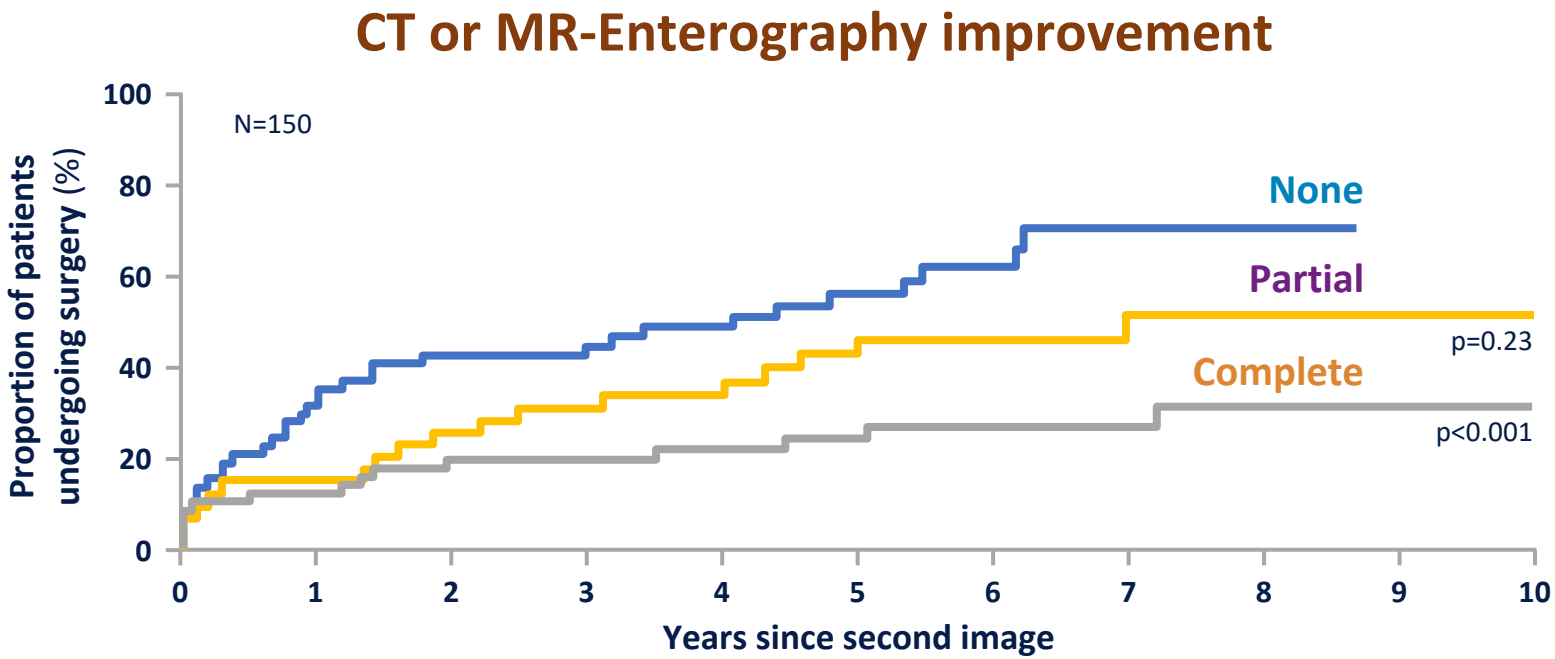
Transmural healing: the ultimate goal in CD?



Imaging identifies key disease features used to risk phenotype and stratify patients



Transmural healing



Less surgery, hospitalization, corticosteroid use in Crohn's disease patients with radiographic response

Improved lesions on CTE or MRE were defined as those with decreased enhancement or length of disease, without worsening of the other disease parameters of active inflammation (enhancement, length, dilated vasa recta/comb sign, perienteric inflammation (edema, phlegmon, or abscess), or fistulizing (internal penetrating) disease).

Deepak P, et al. *Am J Gastroenterol* 2016;111:997–1006.

Disease monitoring and treat to target with IUS

Burning questions

- What is the reduction of BWT during induction that can predict long-term remission?
- How often should we perform IUS?
- What degree of persistent BWT should trigger therapy optimization/discontinuation/switching?
- What is the degree of ultrasonographic response is associated with durable clinical remission?
- Can all patients achieve transmural healing?
- Can we use IUS to monitor bowel damage over time?

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Ultrasound in IBD – How?

Module 1 IBUS Hands-on Workshop

Module 2 Hands-on Training

Module 3 ECCO-ESGAR Advanced Workshop

Maaser C et al. *J Crohns Colitis* 2018

Module 1 - Every session will include:

- **Theoretical talk** (plenary session) – all participants + speaker(s)
  - Please share your questions at the end of the module in the Q&A session

- **Hands-on Session** (break-out rooms – 6/7 participants + 1 tutor per room)
  - Live demonstrations + still images & cineloop discussion

- **Q&A session** (plenary session) – all participants + speaker + moderator
  - Interactive discussion

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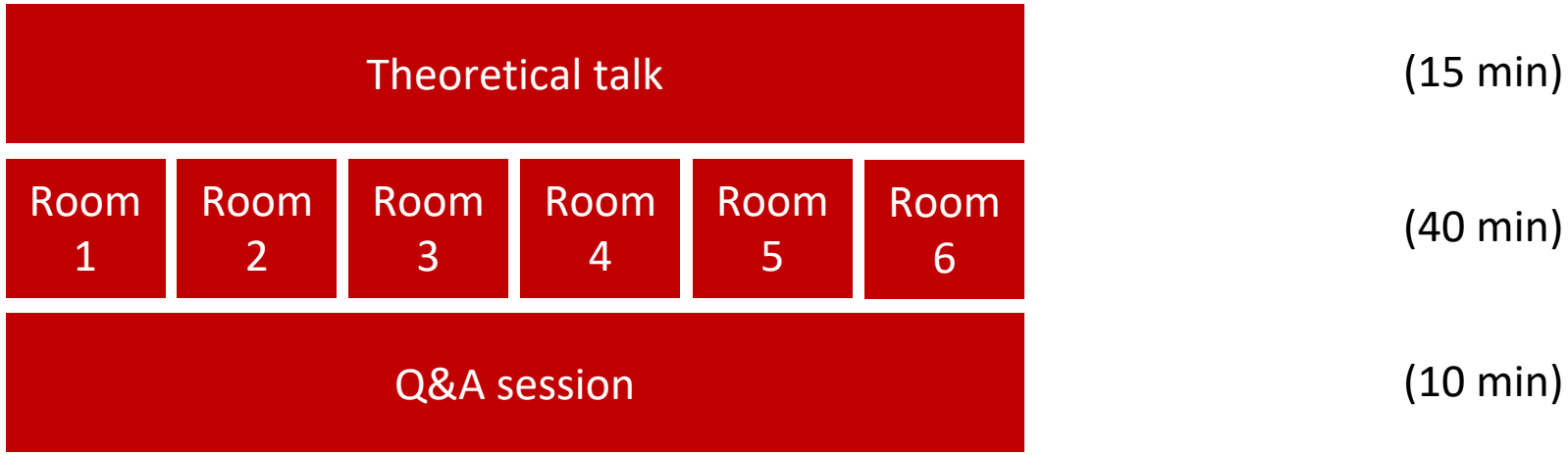
Example:

4:10 – 4:25 pm	**How to perform IUS** Carolina Palmela
4:25 – 5:05 pm	**Hands-On #1: How to perform IUS** Healthy Volunteers
5:05 – 5:15 pm	**Q&A: How to perform IUS**



Enjoy the workshop!