Colonoscopy
Key Performance Indicators (KPIs)
What do they tell you?

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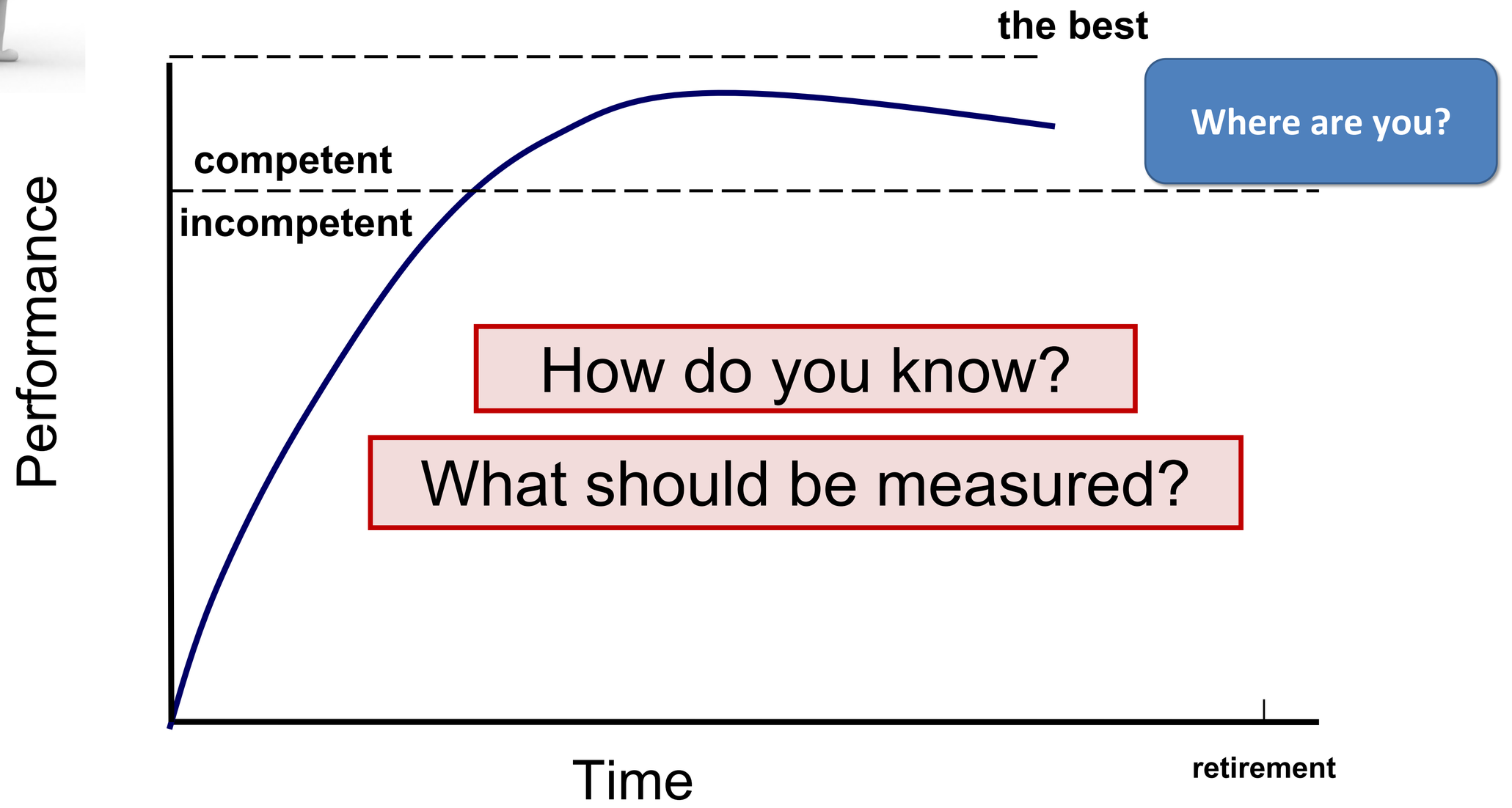
What you should learn today

At the end of this session participants should be able to:

- List key *performance indicators (KPIs) in colonoscopy*
- *Understand the relationship between KPIs and quality*
- *Appreciate the limitation of KPIs in relation to assessment of competence of the individual*
- *Apply a PDSA cycle to monitor and improve personal performance*

Quality in colonoscopy



How do we measure quality?

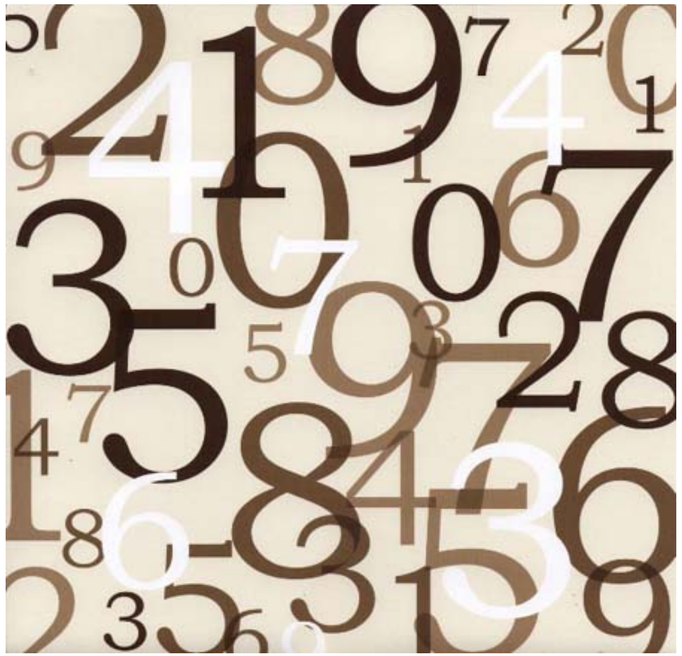
Expectations for colonoscopy?

- Complete examination
- Full mucosal visualization
- Identification of all pathology
- Relevant, safe, therapeutic intervention
- Appropriate FU and management plan

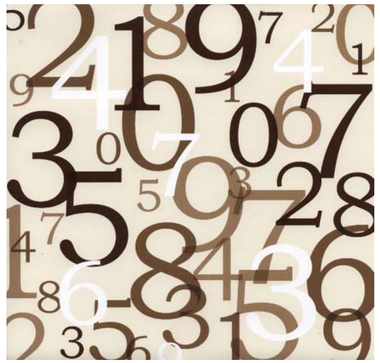
Achieving these things would indicate a high quality procedure

Have you had yours yet?

Numbers



Numbers



What does your lifetime procedural number tell you about:

- Your skills as an endoscopist?
- Your knowledge?
- Your attitude?
- The judgments and decisions you make?

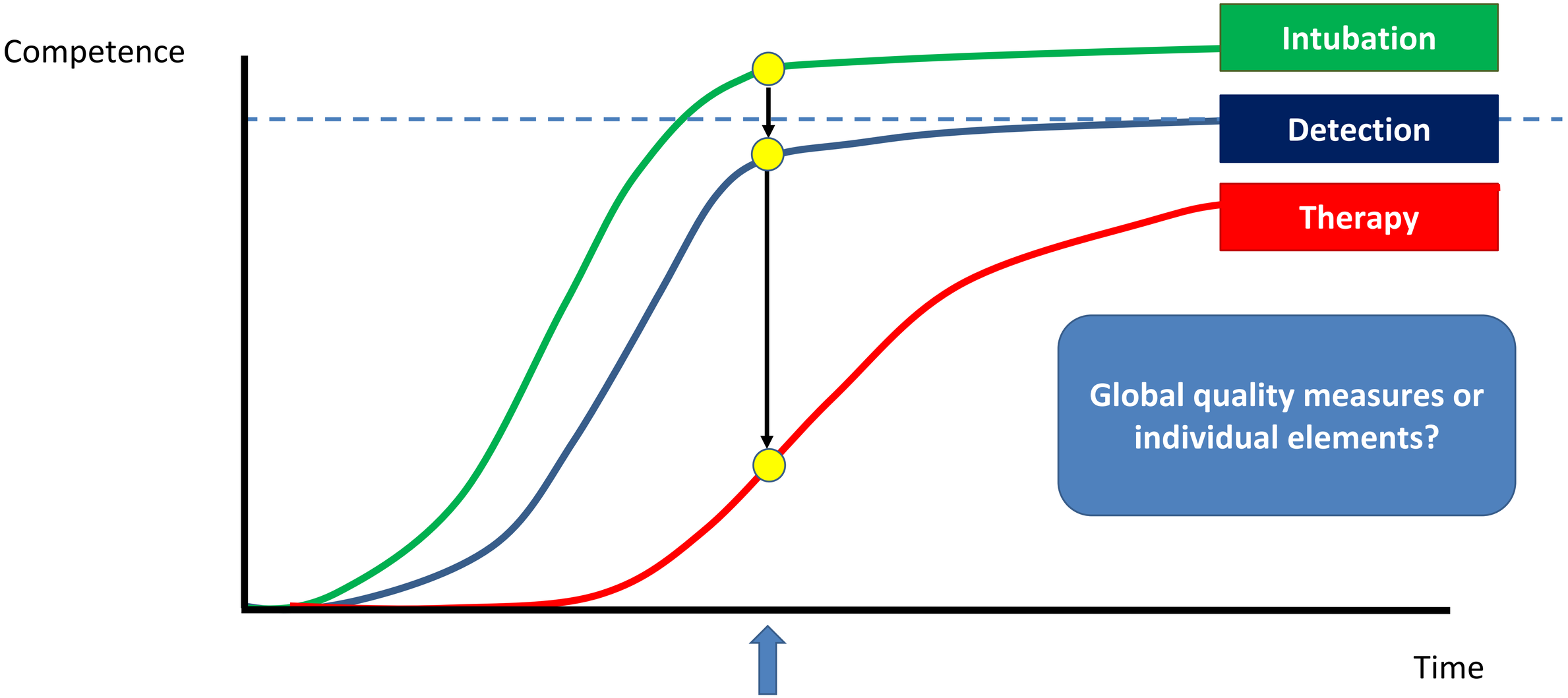
Do procedural numbers really indicate anything about the quality of the procedure for the patient, or the competence of the endoscopist?

Q Q
Q U U A
Q U A L L I T Y
Q U A L I T Y
Q

owing items meet your needs?
Excellent
Good
Fair
Quality Control
expect more...

Focus
on
Quality

Skills acquisition in colonoscopy



Surrogates

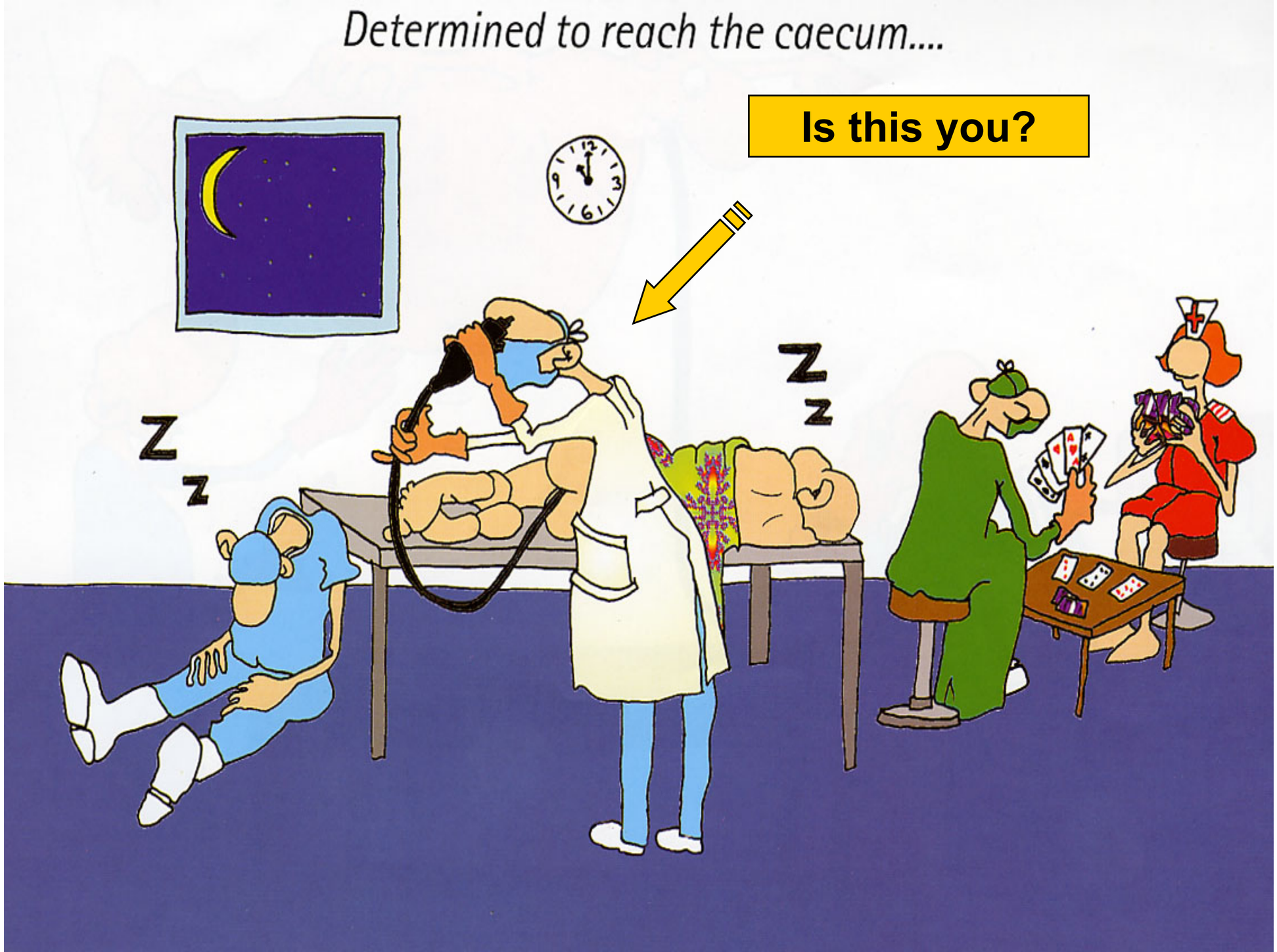
A measure to indicate performance of some other less observable or measurable attribute

Caecal intubation rate (CIR)

- Determine minimum standard (e.g.90%)
- Include associated parameters (unadjusted)
- Ensure all cases included in data analysis

Single surrogate measure is limited

	Endoscopist A	Endoscopist B	Endoscopist C
CIR	100%	98%	92%


Determined to reach the caecum....
Is this you?
Z z
Z z

Combining surrogate measures

	Endoscopist A	Endoscopist B	Endoscopist C
CIR	100%	98%	92%
Pain score	High	Moderate	Low

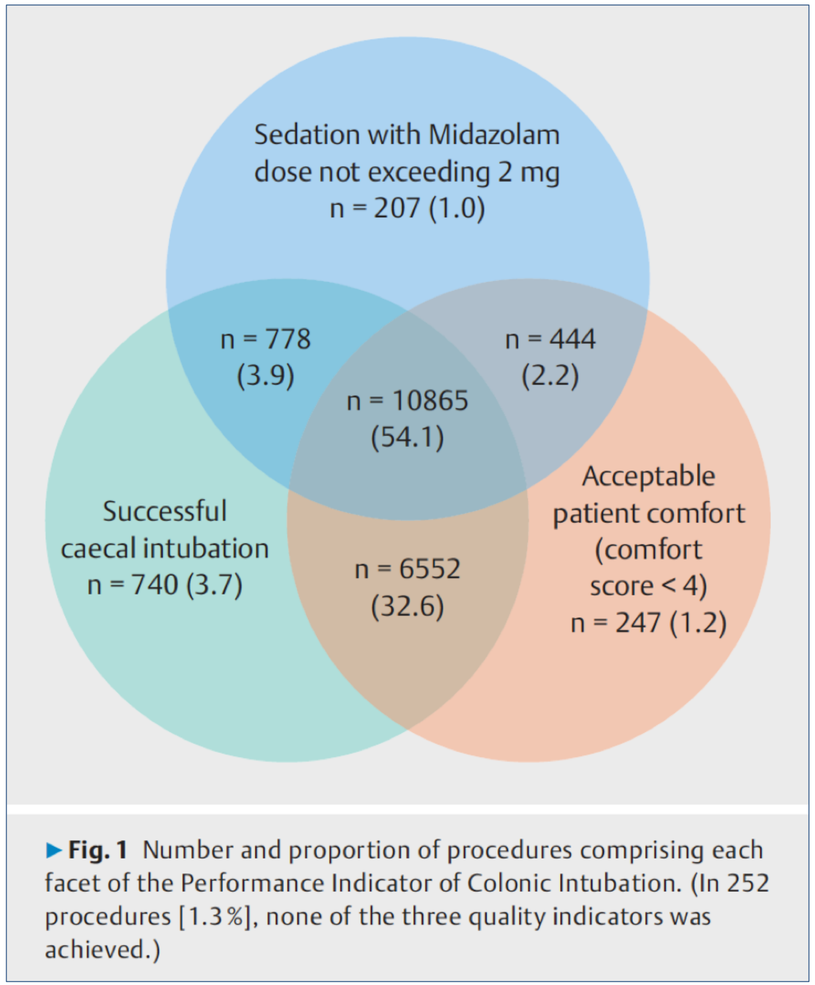
Which endoscopists are you now picking to do your procedure?

How many do you need to combine?

	Endoscopist A	Endoscopist B	Endoscopist C
CIR	100%	98%	92%
Pain score	High	Moderate	Low
Sedation	High	High	Low

Which endoscopists are you now picking to do your procedure?

Composite measurement for intubation skills



▶ **Fig. 1** Number and proportion of procedures comprising each facet of the Performance Indicator of Colonic Intubation. (In 252 procedures [1.3 %], none of the three quality indicators was achieved.)

Valori Roland M et al. A new composite … Endoscopy 2018; 50: 40–51

Performance Indicator of Colonic Intubation (PICI)

1. **Sedation administered**
2. **CIR (unadjusted)**
3. **Acceptable patient comfort**

Combination of 3 surrogates to give a evaluation of **intubation skills only.** These include:

- Scope handling
- Tip control
- Problem solving
- Air management
- Proactive rolling
- Endoscopic non-technical skills

Single measure limited

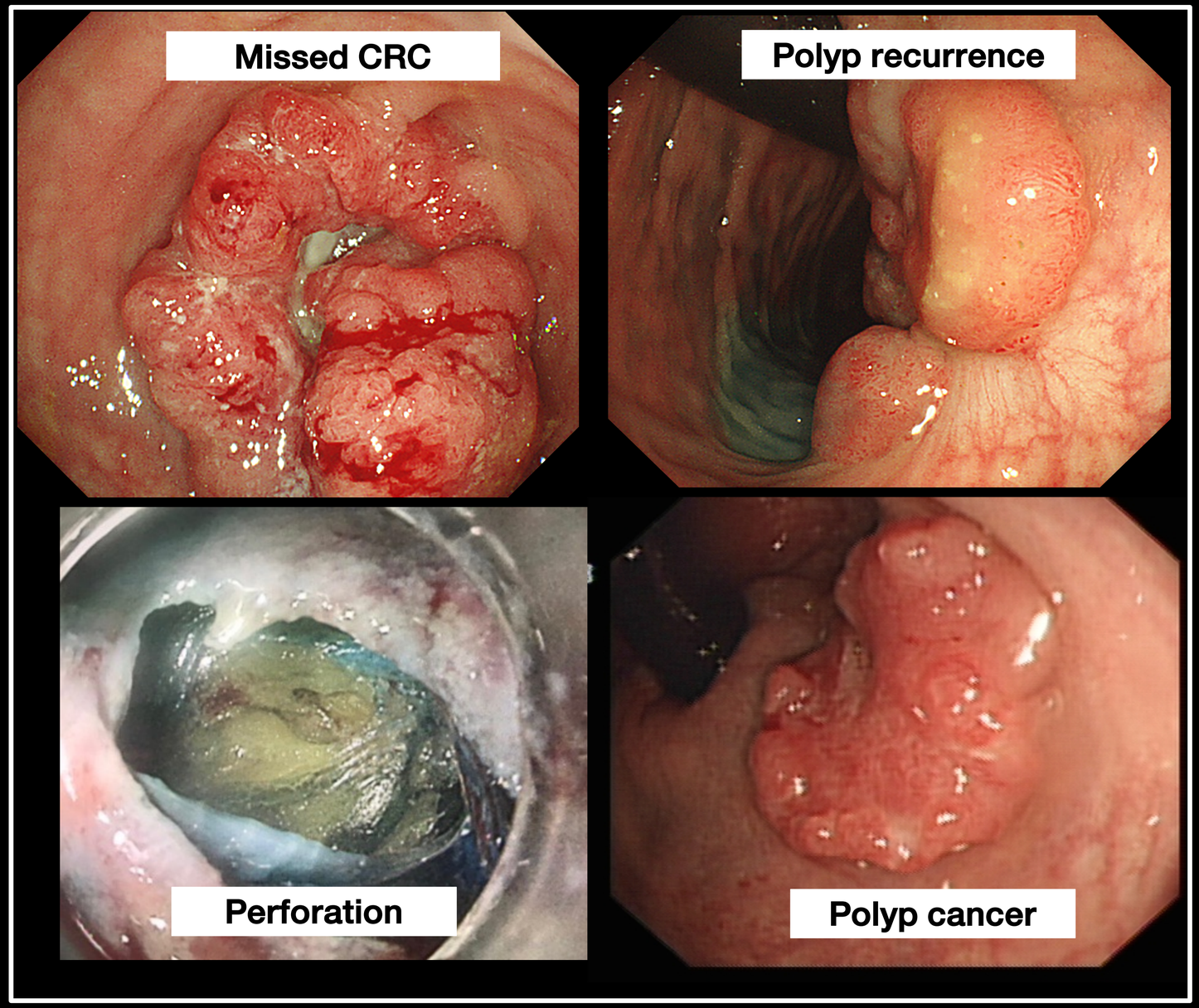
	Endoscopist A	Endoscopist B	Endoscopist C
CIR	100%	98%	92%
Pain score	High	Low	Low
Sedation	High	High	Low
ADR	10%	42%	20%

Changed your mind – again!

What do you measure?

Colonoscopy KPI	Surrogate of competence
Numbers	Nil
Caecal intubation rate	Intubation
Sedation	Intubation
Patient comfort	Intubation
Adenoma detection rate (or PDR)	Detection
Adenomas/patient rate	Detection
Withdrawal time	Detection
Polyp retrieval rate	Therapy

What is most important?



What is most important?

- Experience/complications
- Missed polyps
- Incomplete resection
- Inappropriate surgery
- Missed cancer

Outcomes which adversely affect patients

Unexpected hospital stay
Additional procedures
Protracted procedures
Death

What should we measure?

Colonoscopy KPI	Surrogate of competence
Numbers	Nil
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Adenoma detection rate (or PDR)	Detection
Adenomas/patient rate	Detection
Withdrawal time	Detection
Polyp retrieval rate	Therapy
Incomplete resection of polyp	Therapy
Complications	Insertion and Therapy
Post colonoscopy CRC rate (PCCRC)	Detection and Therapy
Surgery for benign disease	Detection, Judgement & local expertise
Surgery after multiple procedures (CRC)	Detection and Judgement

What should we measure?

Colonoscopy KPI	Surrogate of competence
Numbers	Nil
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Adenoma detection rate (or PDR)	Detection
Adenomas/patient rate	Detection
Withdrawal time	Detection
Polyp retrieval rate	Therapy
Incomplete resection of polyp	**Therapy**
Complications	**Insertion** and **Therapy**
Post colonoscopy CRC rate (PCCRC)	**Detection** and **Therapy**
Surgery for benign disease	**Detection**, Judgement & service provision
Surgery after multiple procedures (CRC)	**Detection** and Judgement

This is not easy

- Time
- Reporting software
- IT
- Probity
- Uncomfortable for individual

A **BIG** issue

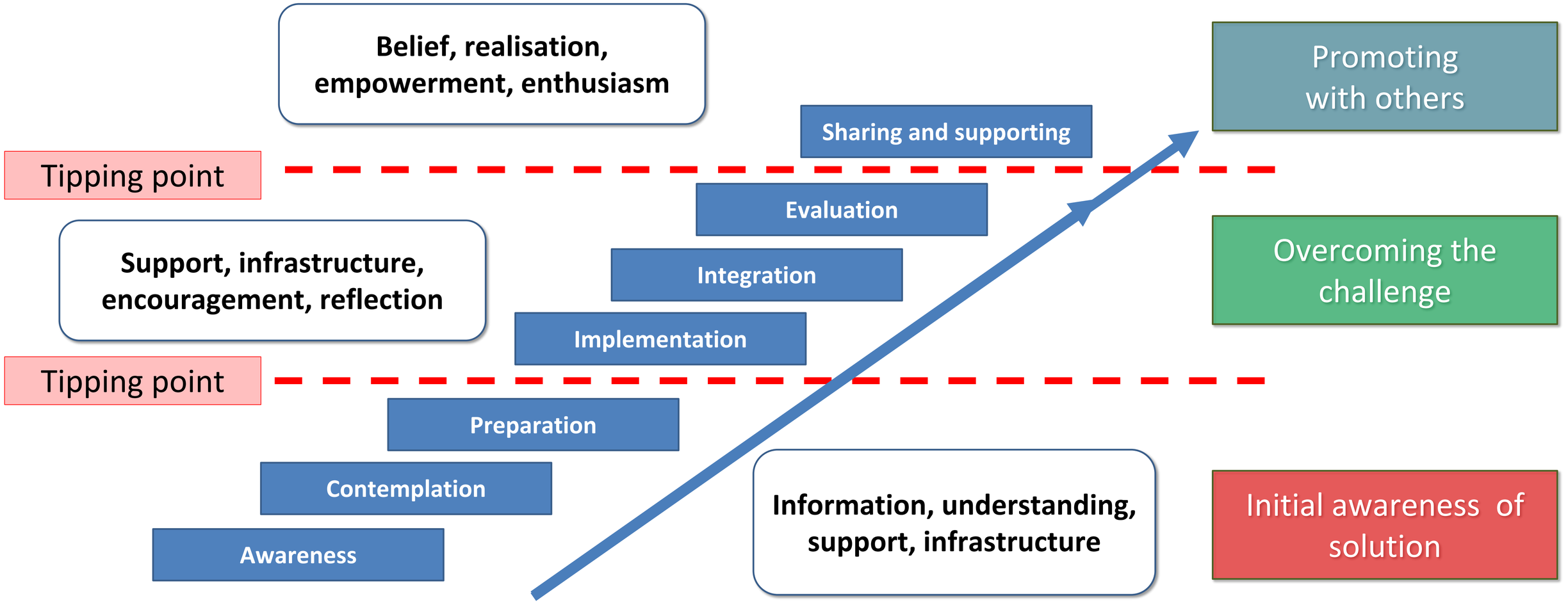
- Outcome measures are relatively infrequent (hopefully)
- Colonoscopy perforation rate is often quoted at approx. 1:1000
- In some it can be as low as 1:5000
- In those doing therapy it increases to 1:150
- Are you negligent if you perforate after:
  - 20 cases?
  - 200 cases?
  - 2000 cases?
  - 20000 cases?

Some endoscopists may never perform 5000 lifetime cases

Infrequently occurring quality measures

- Probably most difficult to measure
- Probably most important to patient and outcome measures
- Best assessed on institution or regional level (large denominator)
- Individuals generate this data but it may be too insensitive to apply to individuals (although case by case review is suggested)
- Other KPIs *may be surrogates* for these more important outcome measures

Ladder of adoption – meeting a challenge



Audit?

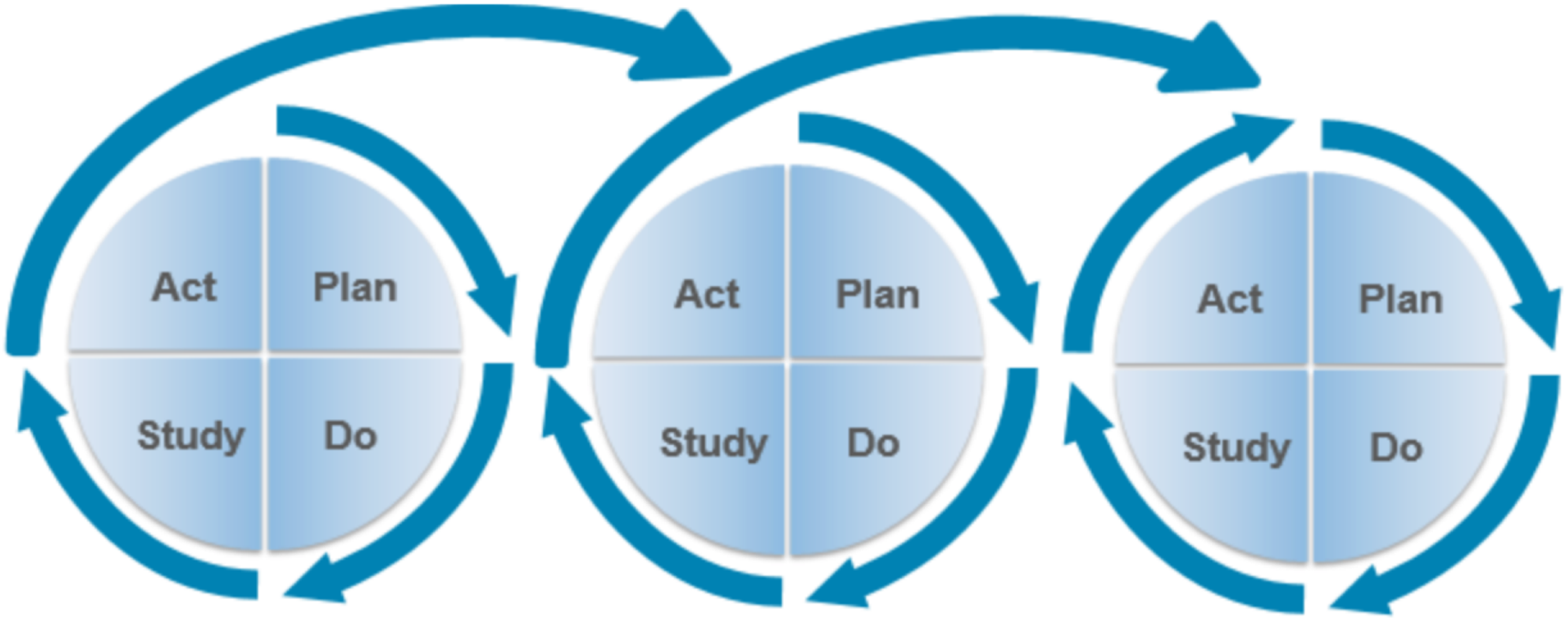
- Checks and balance
- External drivers
- Internal motivation
- Benchmarking
- Protection
- Guidance

KPIs can form the basis of audit

KPIs can relate to individuals, teams, organizations or countries

Internal and external drivers relate to individual motivation

PDSA – cycles of audit



Not everyone will reach the accepted ‘standard’
Support must be available to engage those wishing to improve
Transparent processes must be in place to deal with those who do not

Ladder of adoption – meeting a challenge

Activity
Facilitation
Support

Sharing and supporting

Evaluation

Integration

Implementation

Tipping point

Preparation

Contemplation

Awareness

Inactivity
Encouragement
Persuasion

Promote

Pull

Push

Last Thought

- If your quality standards were different would your behaviour change?
  - PICI
  - PDR v ADR
  - ADR per patient rate

Summary

- No data = no idea of quality
- Awareness of data promotes improvement in performance
- Comparative data drives improvement
- Think beyond current constraints
- Purchasers will increasingly demand data and quality
- Strive for excellence