



**QUALITY IN ENDOSCOPY**  
**COLONOSCOPY &**  
**COLONIC NEOPLASMS**

Berlin, Germany May 4 - 5, 2012

# **Quality control: the best parameter and how to measure it**

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# Which parameters should we use?

- Those that
  - matter to the patient
  - discriminate
  - are easy to measure

# What standards shall we use?

	<b>Hypertension</b>		
	Monitoring BP		
	Control of BP		
	Stroke and death		

# What standards shall we use?

	<b>Hypertension</b>	<b>Colonoscopy</b>	
Surrogate of surrogate	Monitoring BP	Withdrawal time	
Surrogate	Control of BP	Adenoma detection	
Direct	Stroke and death	Missed cancer	

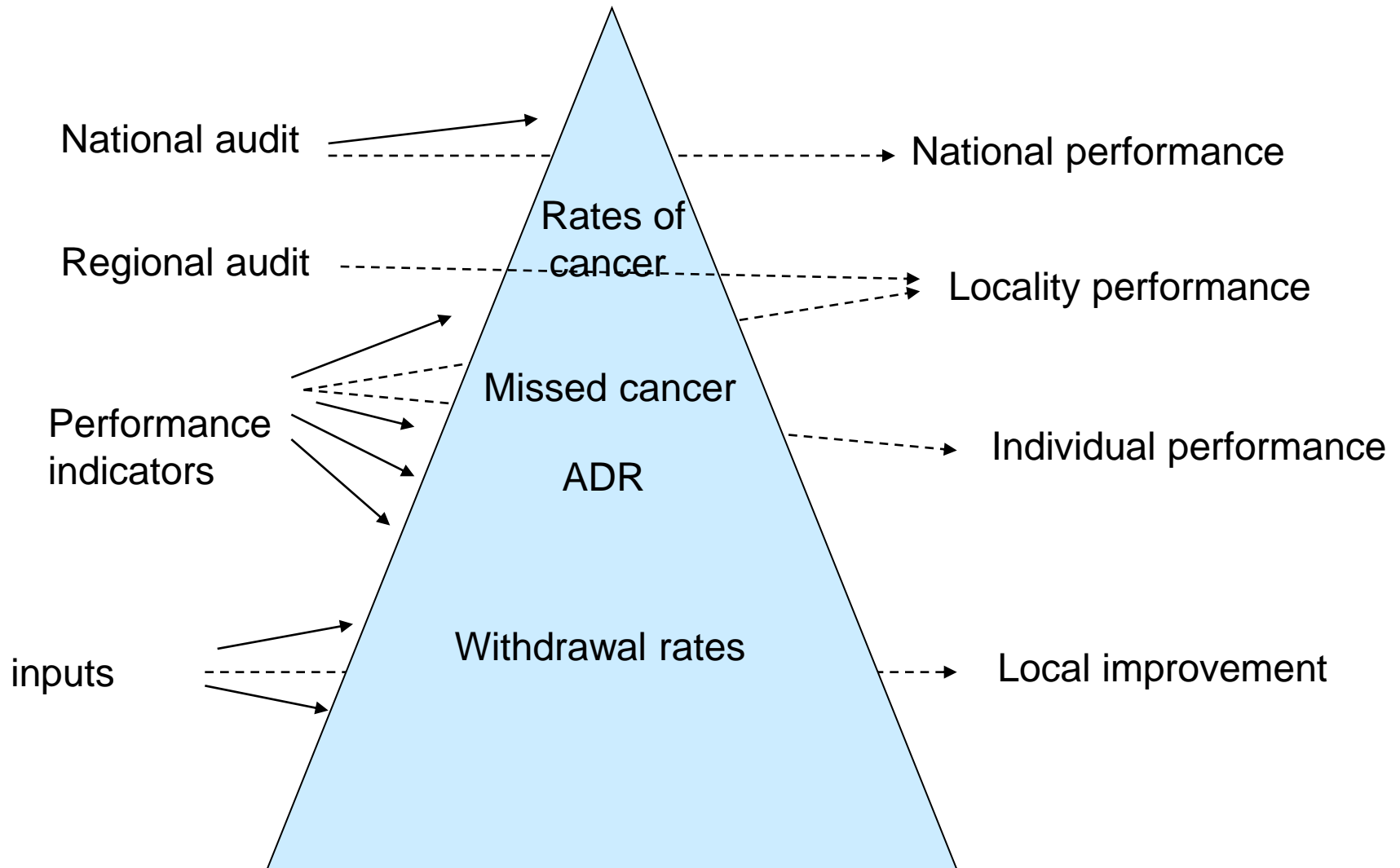
# What standards shall we use?

	<b>Hypertension</b>	<b>Colonoscopy</b>	<b>Ease of measurement</b>
Surrogate of surrogate	Monitoring BP	Withdrawal time	Easy
Surrogate	Control of BP	Adenoma detection	Moderate
Direct	Stroke and death	Missed cancer	Hard

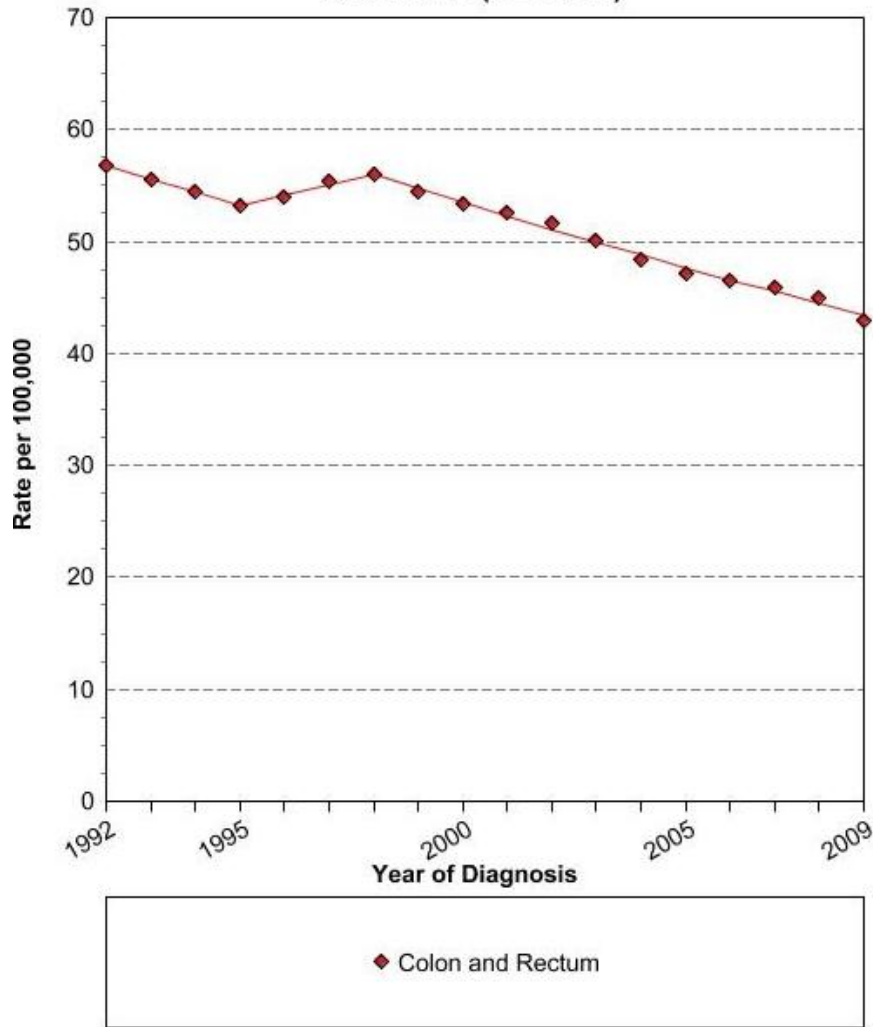
# What standards shall we use?

	Hypertension	Colonoscopy	Ease of measurement
Surrogate of surrogate	Monitoring BP	Withdrawal time	Easy
Surrogate	Control of BP	Adenoma detection	Moderate
Direct	Stroke and death	Missed cancer	Hard
Ultimate		Cancer rates	Easy

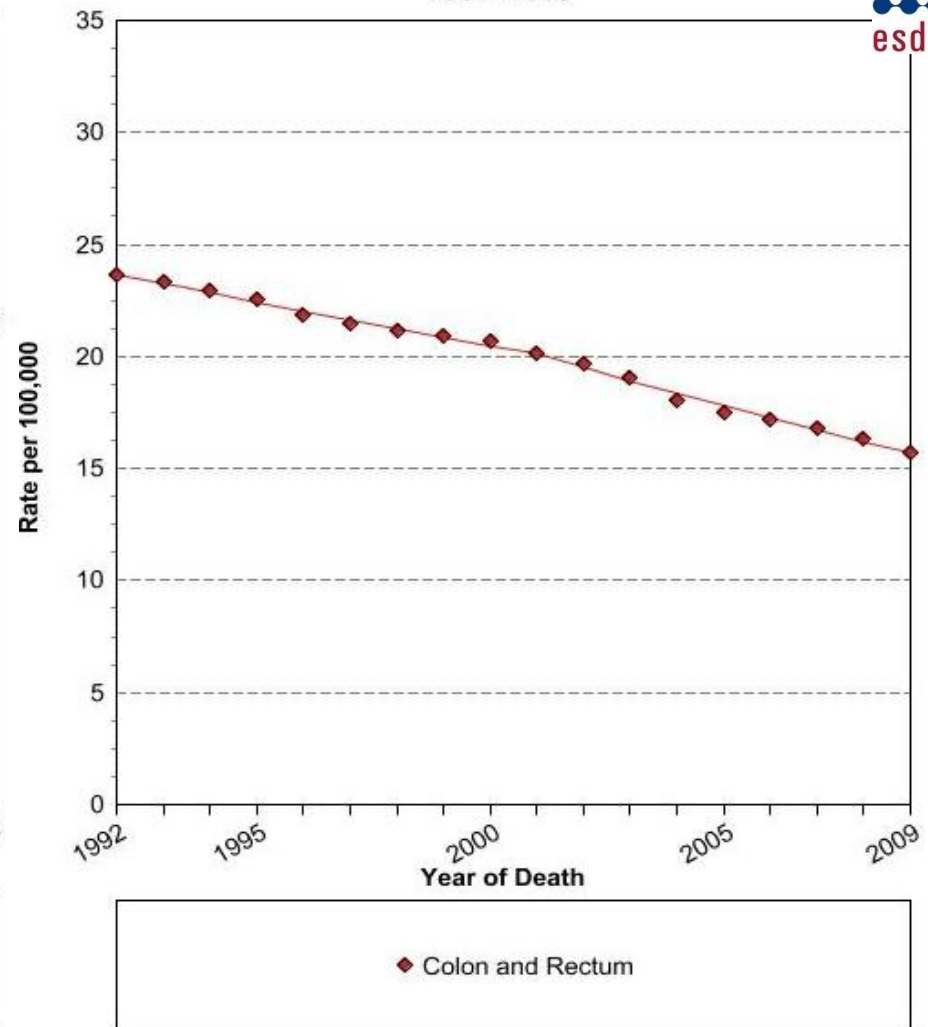
# Inputs, outputs and outcomes at different levels



**Age-Adjusted Delay-Adjusted SEER Incidence Rates  
By Cancer Site  
All Ages, All Races, Both Sexes  
1992-2009 (SEER 13)**



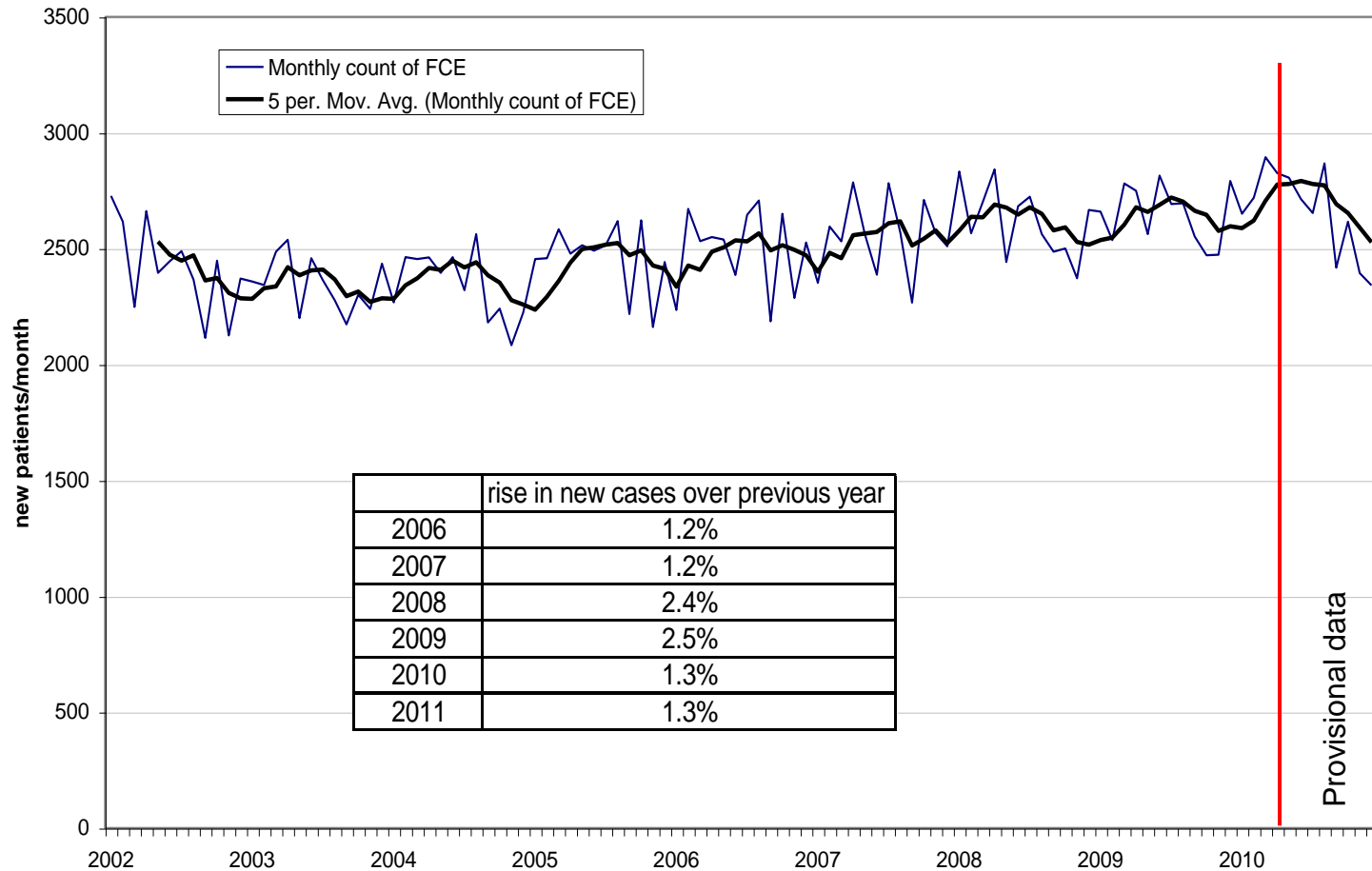
**Age-Adjusted U.S. Mortality Rates  
By Cancer Site  
All Ages, All Races, Both Sexes  
1992-2009**



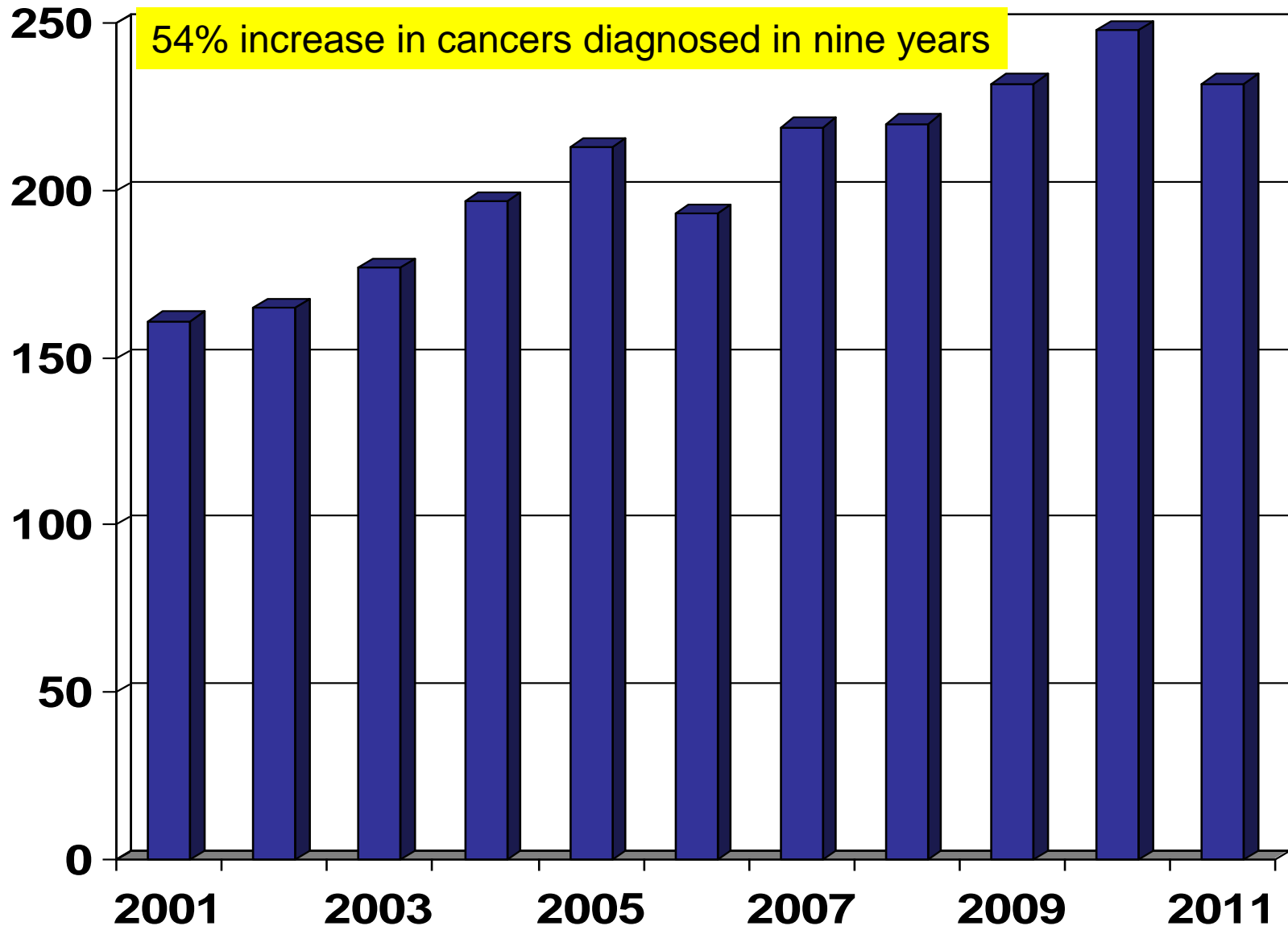


# The number of first occurrence of a patient with a primary diagnosis of colorectal cancer (C18 – C21) by month – English data

First occurrence of a FCE with a primary diagnosis of bowel cancer C18 C21



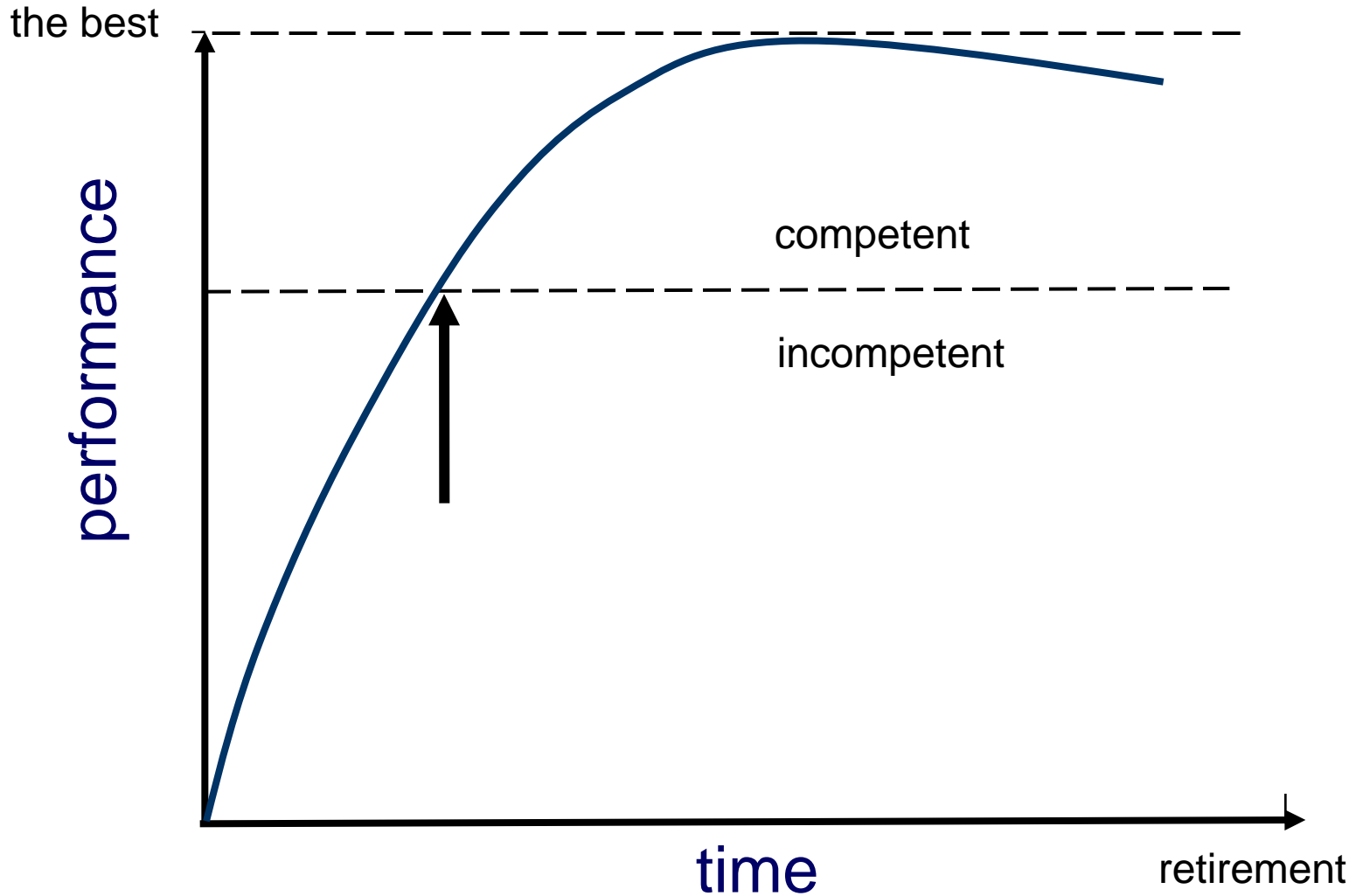
# Annual colorectal cancer diagnosis – W Glos



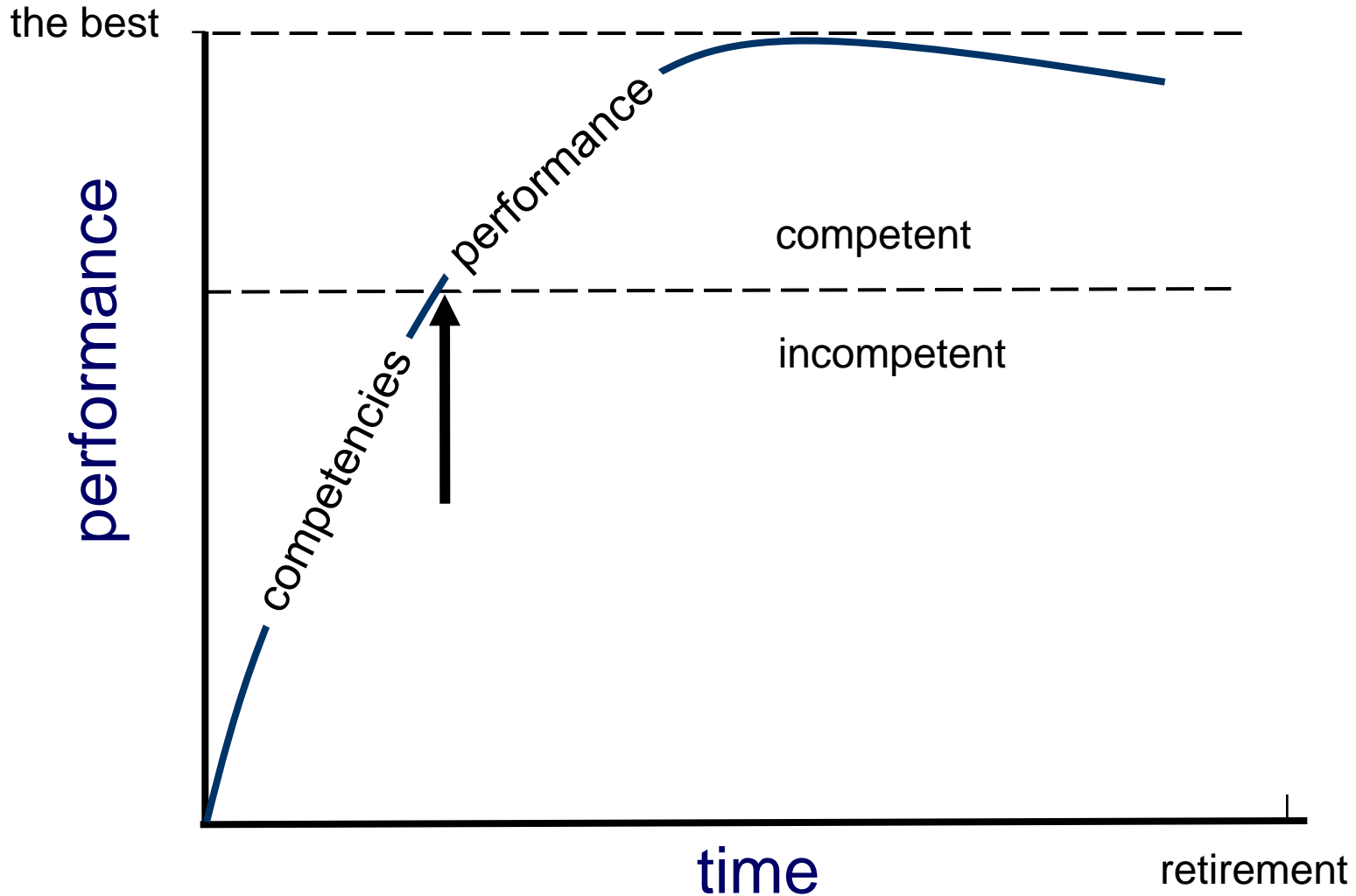
**Would you be prepared to have a colonoscopy done by a colonoscopist from your country selected at random?**

**NO: because you know there is unacceptably variable performance**

# Performance



# Competence and performance



# Competence and performance

## **Competency**

- is a component part of an action or task

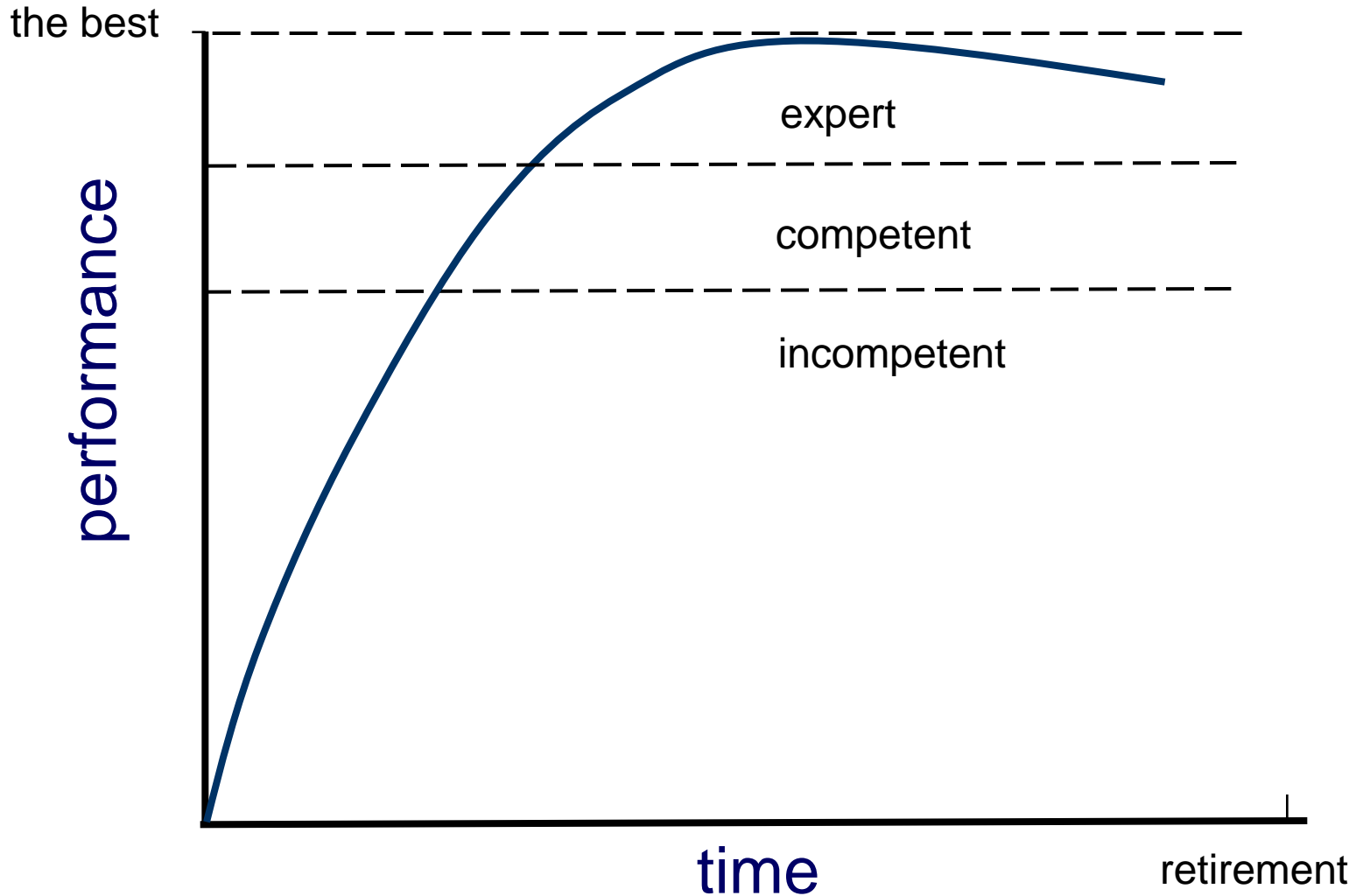
## **Performance indicator**

- is a numerical measure of the consequence or impact of the competencies associated with the task

## **Auditable outcome**

- is a performance indicator which should be measured but for which there is not a defined numerical standard

# Performance – we want an expert



# We have to differentiate between

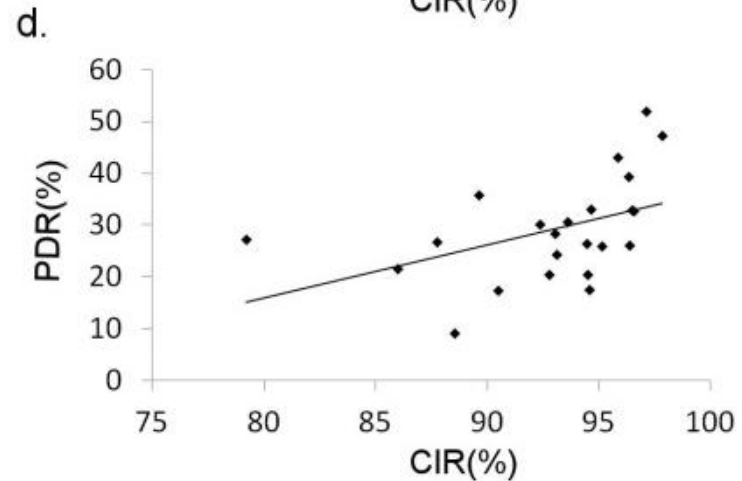
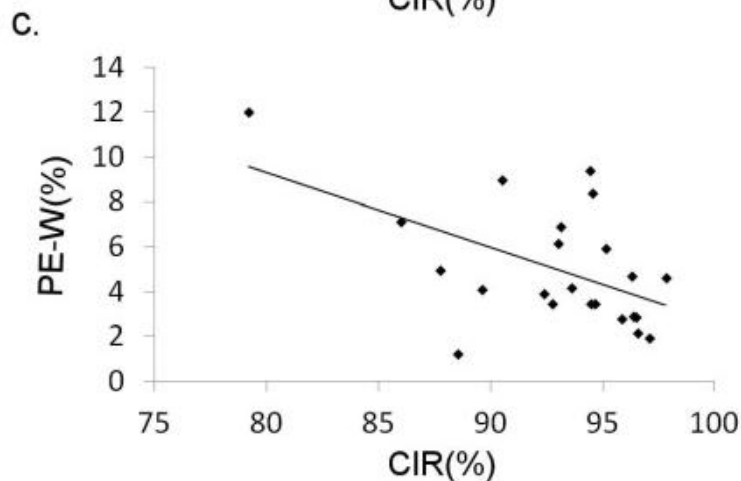
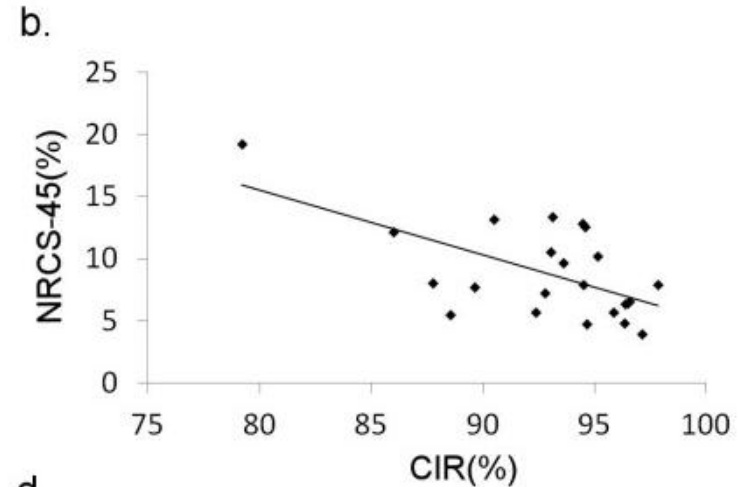
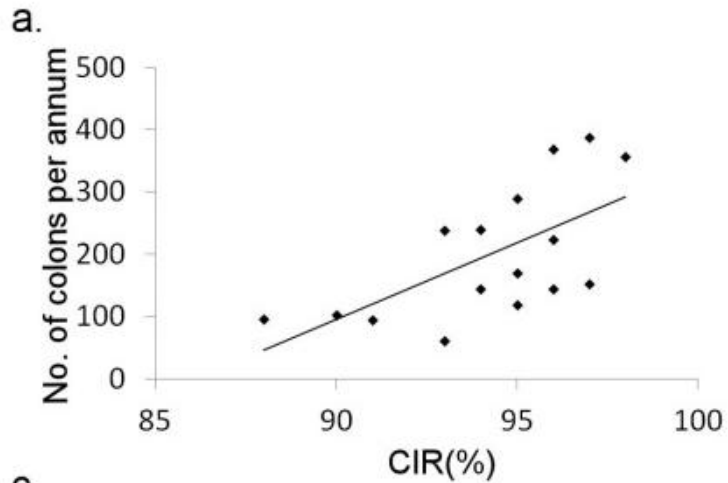
## Intubation and diagnosis

- CIR
- ADR
- sedation
- comfort

## Therapy

- completeness of removal
- complications

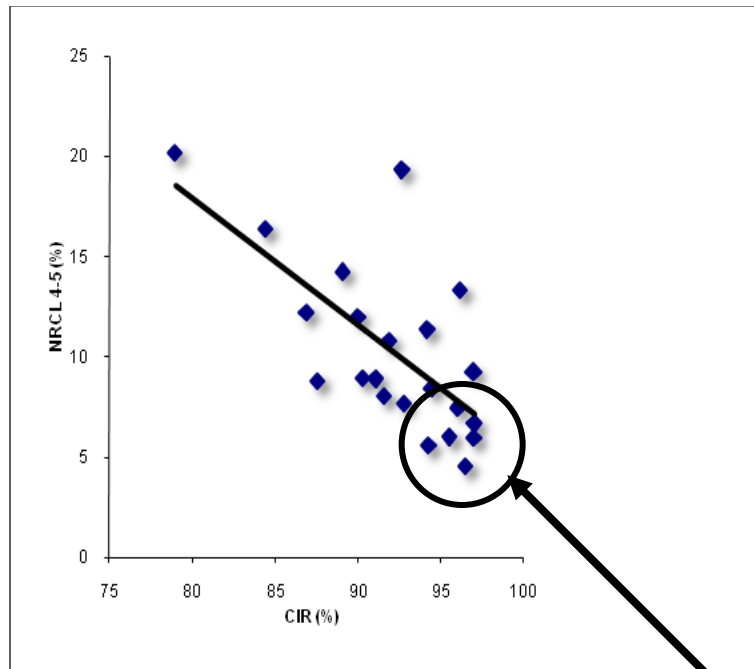




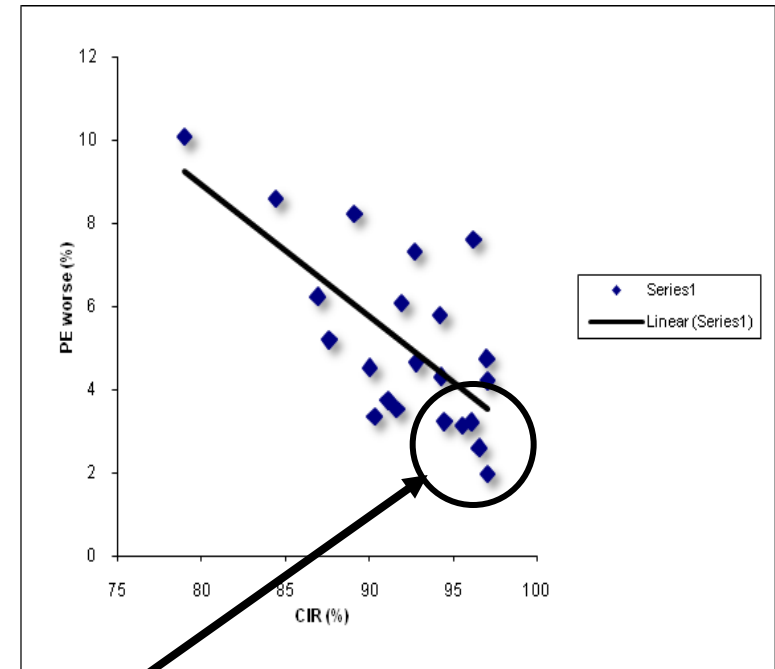
PE-W = patient experience – worse than expected

NRCS-45 = nurse recorded comfort score levels 4 or 5  
 (level 1 = comfortable; level 5 = severe discomfort)

# Discomfort and patient experience



Discomfort vs CIR



Pt experience vs CIR

The experts

# Impact of monitoring on performance

	<b>Unadjusted CIR (%)</b>	<b>Nurse (%discomfort score 4/5)</b>	<b>Patient (% worse than expected)</b>	<b>Midazolam (mean)</b>	<b>PDR (%)</b>
<b>2008</b>	93.3	10.0	5.6	2.3	29.6
<b>2009</b>	93.4	7.8	4.2	2.0	27.4
<b>2010</b>	94.6	7.6	4.1	1.8	31.9
<b>2011</b>	95.9	5.8	3.7	1.7	37.7

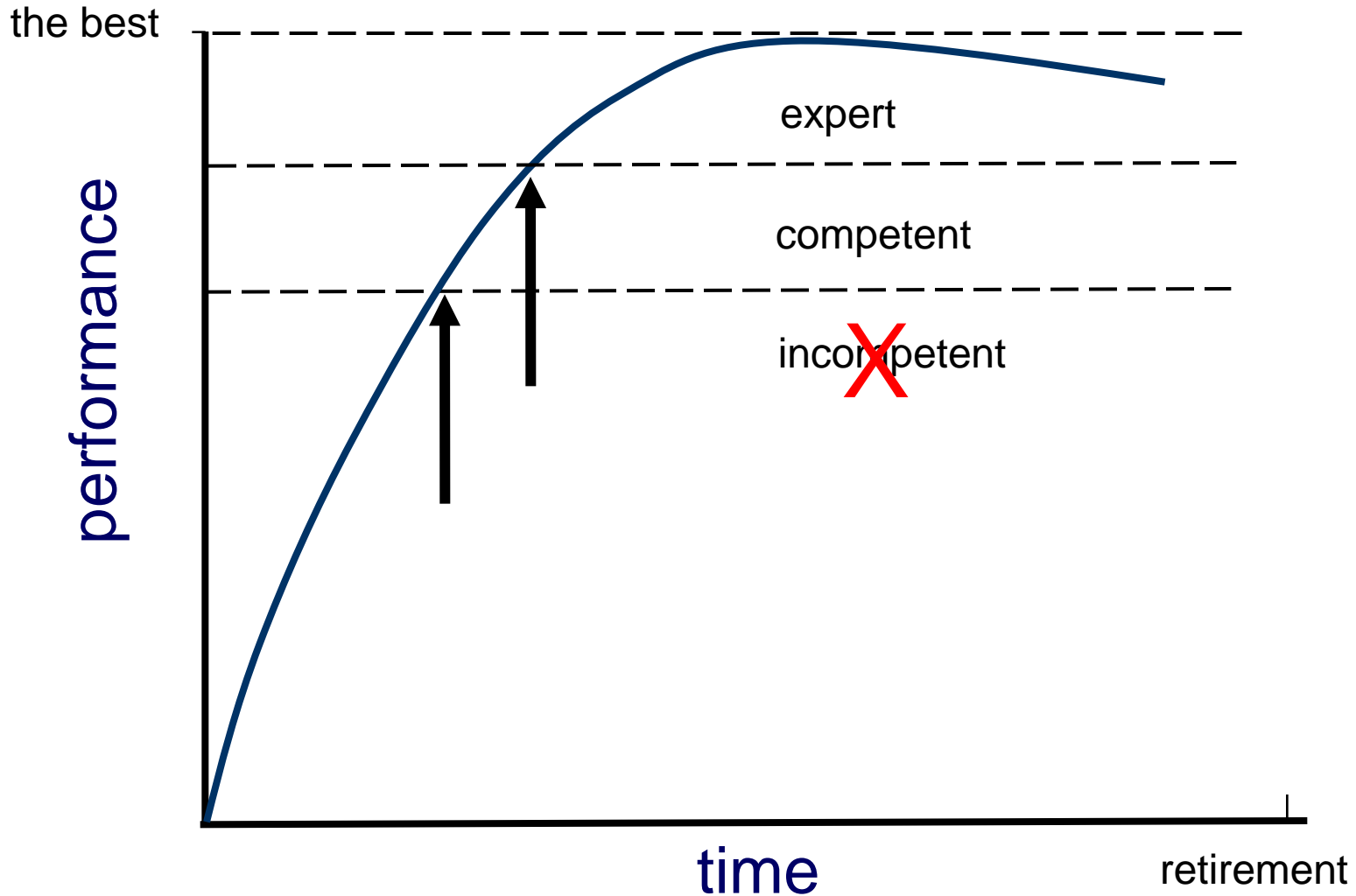
N = 22 colonoscopists with circa 5,000 colonoscopies/year

# Expert colonoscopy - intubation

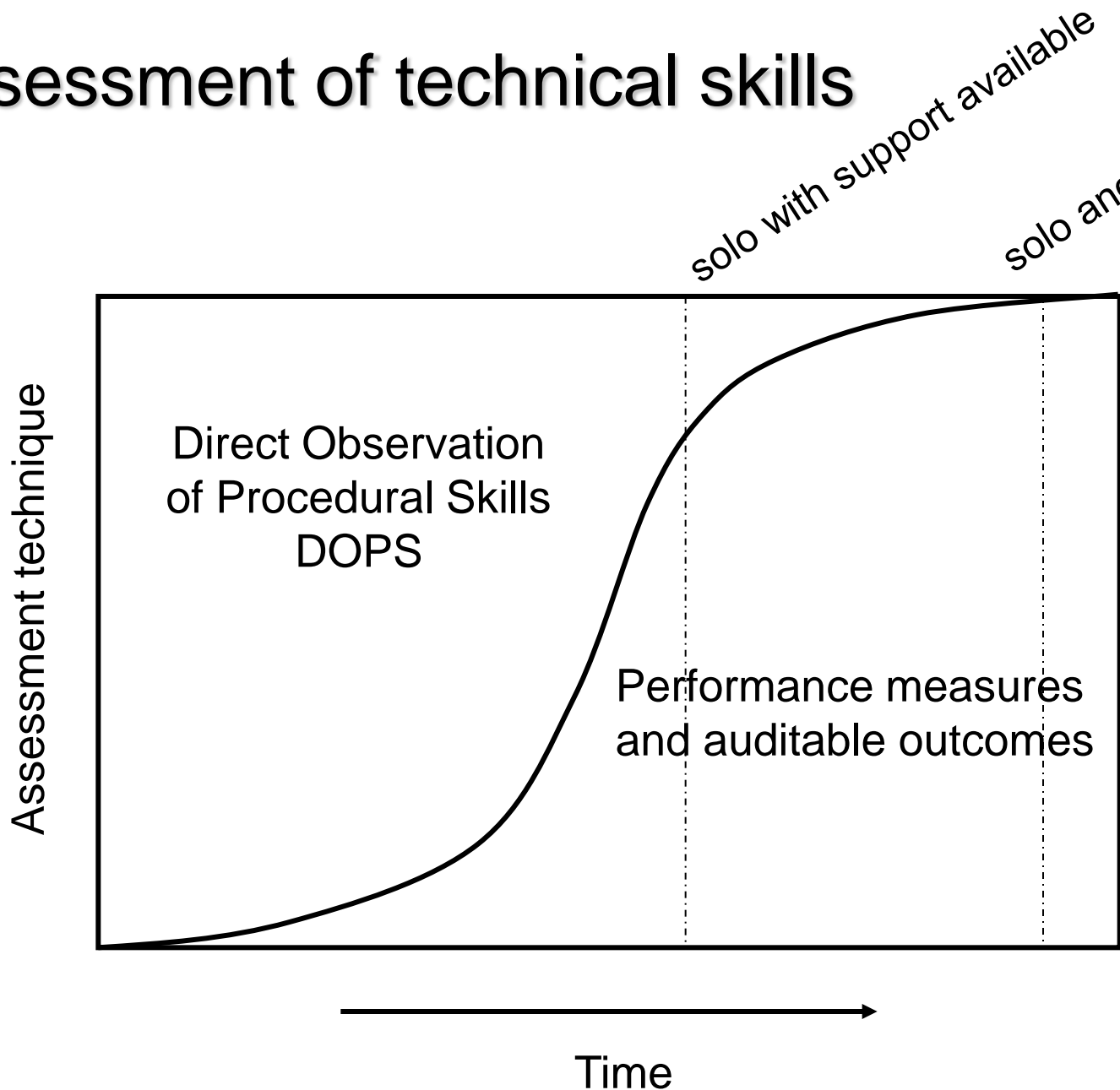
- Can be defined by:
  - CIR
  - comfort
  - patient experience
  - use of sedation
  - polyp detection rates

Expert colonoscopists get to the caecum more often, use less sedation, cause less discomfort, achieve a better patient experience and find more polyps

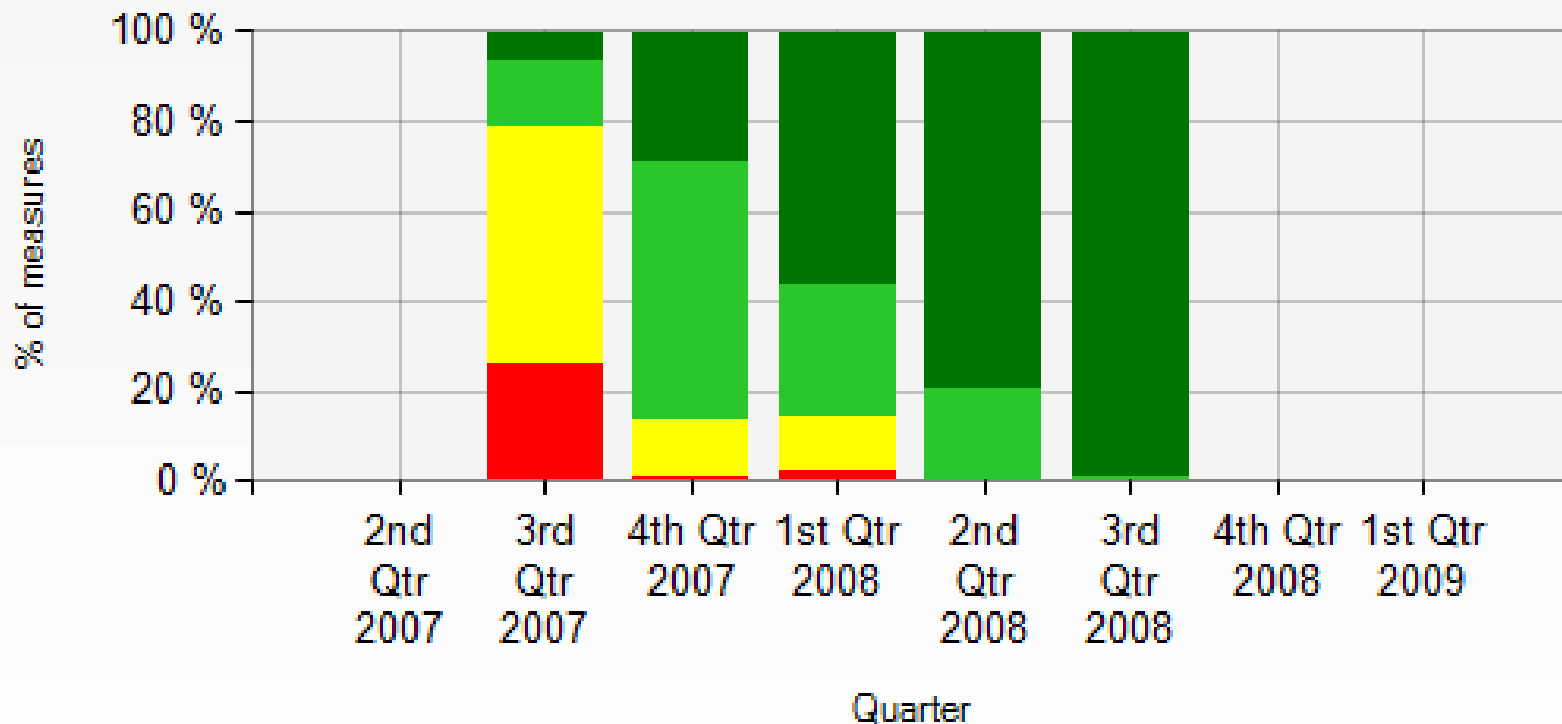
# Performance – we want an expert



# Assessment of technical skills











## Endoscopic Skills during insertion & withdrawal




- 1 - Accepted standards not yet met, frequent errors uncorrected
- 2 - Some standards not yet met, aspects to be improved, some errors uncorrected
- 3 - Competent & safe throughout procedure, no uncorrected errors
- 4 - Highly skilled performance

# Certification: minimal requirements

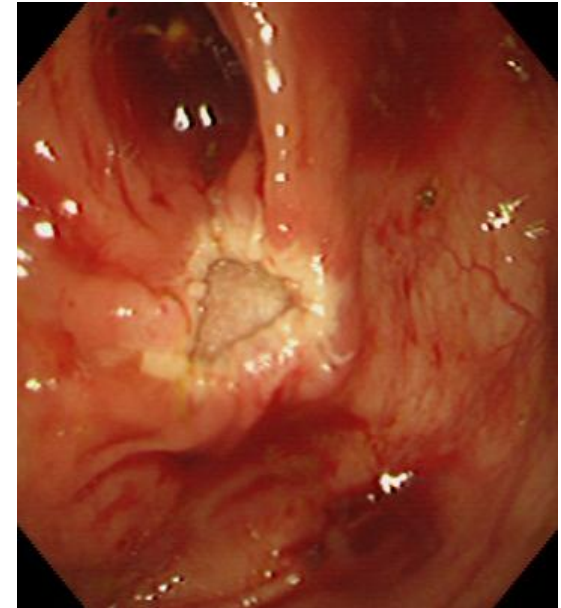
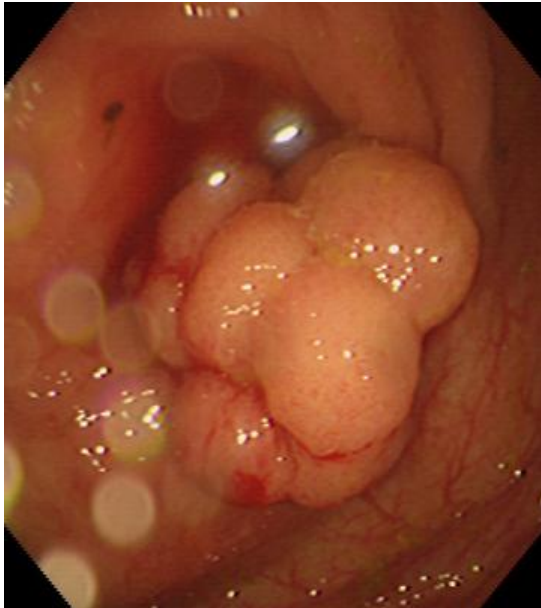
Colon Certification Criteria (Provisional)	Required Level	Current Level 18/03/2012	Criteria Met
? Caecal intubation	>90%	95.0%	
? Unassisted (physically)	>90%	95.0%	
? Formative Lower GI DOPS (colon)	≥10	10	
? Formative Lower GI DOPS (colon) 3s + 4s	>90%	98.7%	
? Formative DOPyS (lvl 1)	≥4	13	
? Formative DOPyS (lvl 1) 3s + 4s overall score	>90%	90.4%	
? Basic Skills in Lower GI course	Attended	21/02/2011	
? Recommended lifetime procedure count	200	299	
Procedures in previous 3 months	N/A	40	



# Certification: final sign off

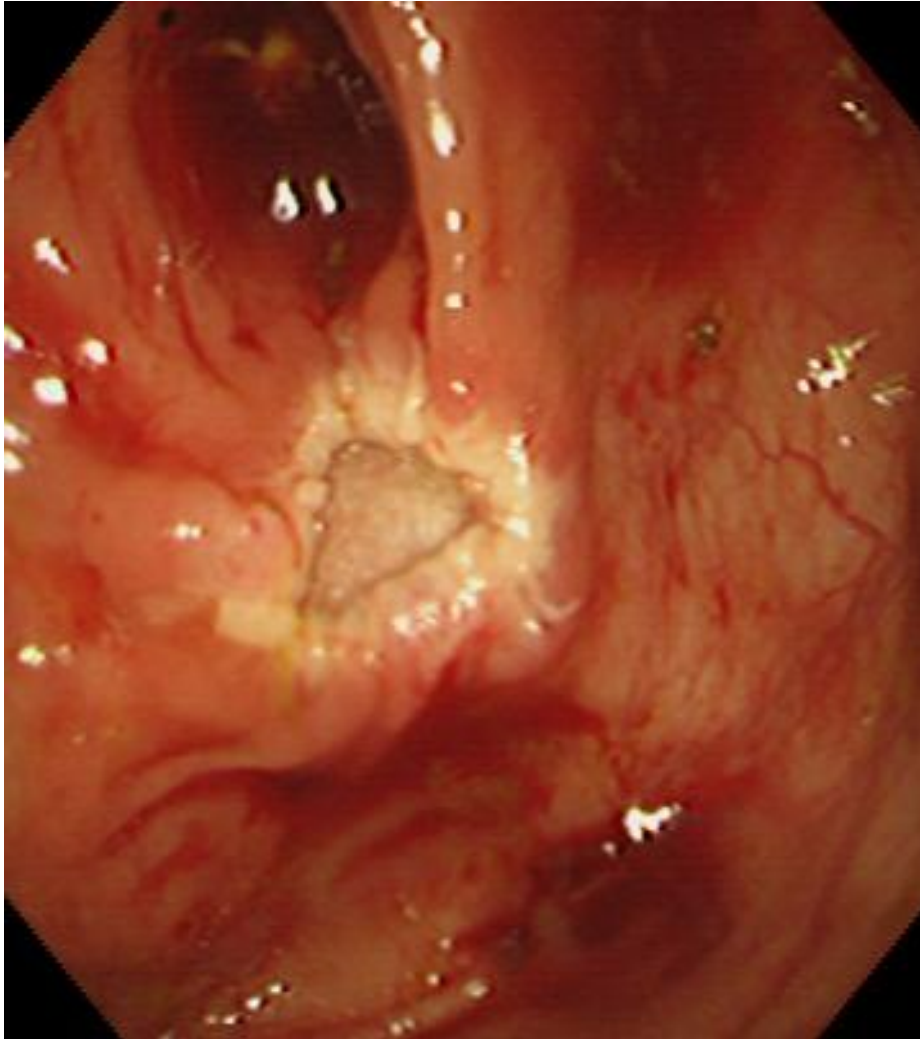
	Date	Assessor	Completed	Grade 3/4 on major domains	≤6 Grade 2s on minor domains (Cumulative)
<a href="#">View DOPS</a>	16/03/2012	Paul Dundkley			0
<a href="#">View DOPS</a>	16/03/2012	Paul Dundkley			0
<a href="#">View DOPS</a>	02/04/2012	Roland Valori			0
<a href="#">View DOPS</a>	02/04/2012	Roland Valori			0

# Polypectomy



**1999**

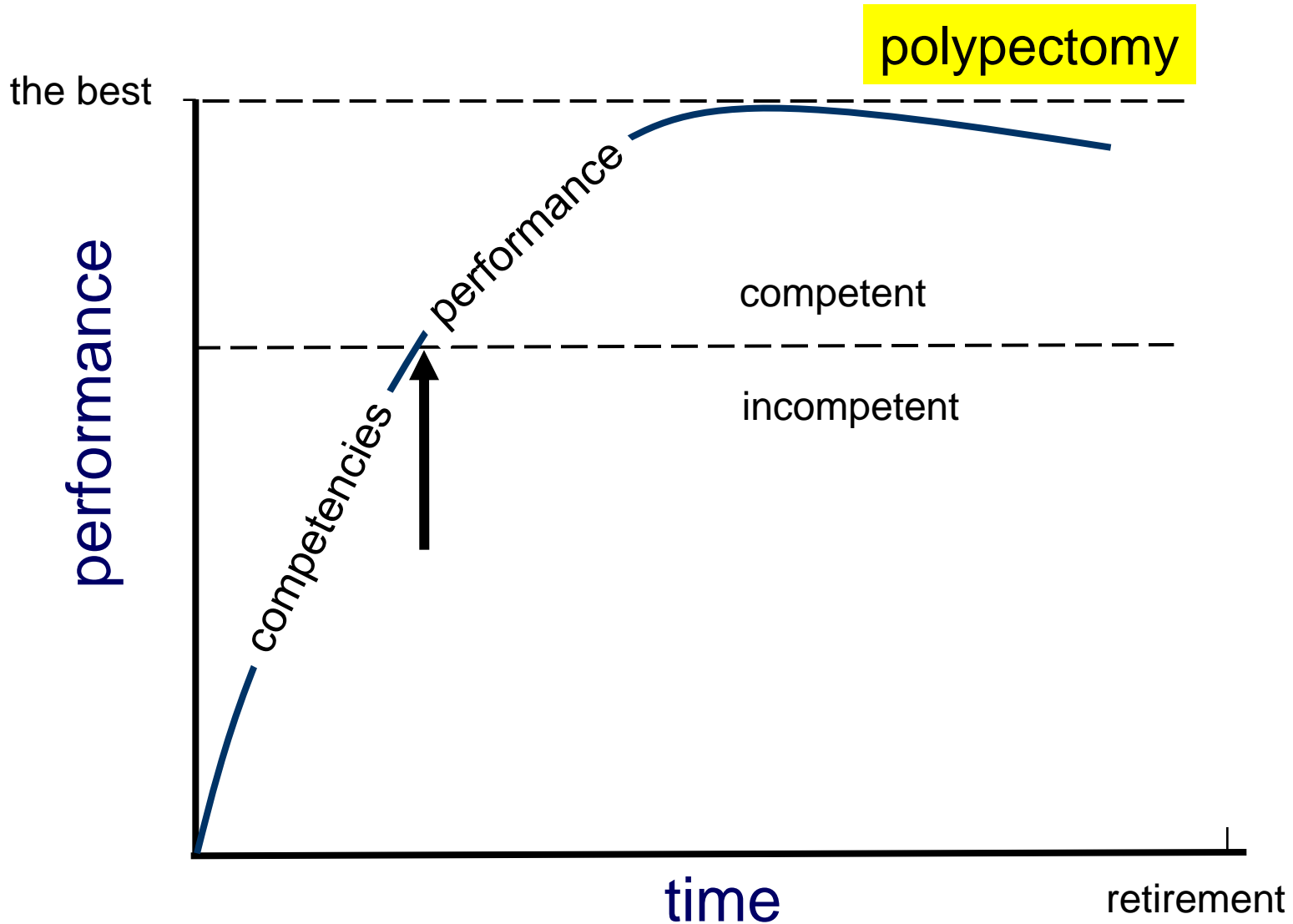
# Performance indicators.....



## Polypectomy KPIs

- removal technique used
- judgements
- completeness of excision
- retrieval rate
- use of tattoo
- complications
- appropriate surveillance intervals
- rates of cancer in surveillance patients
- non technical skills

# Competence and performance



# Removing polyps – what's involved?

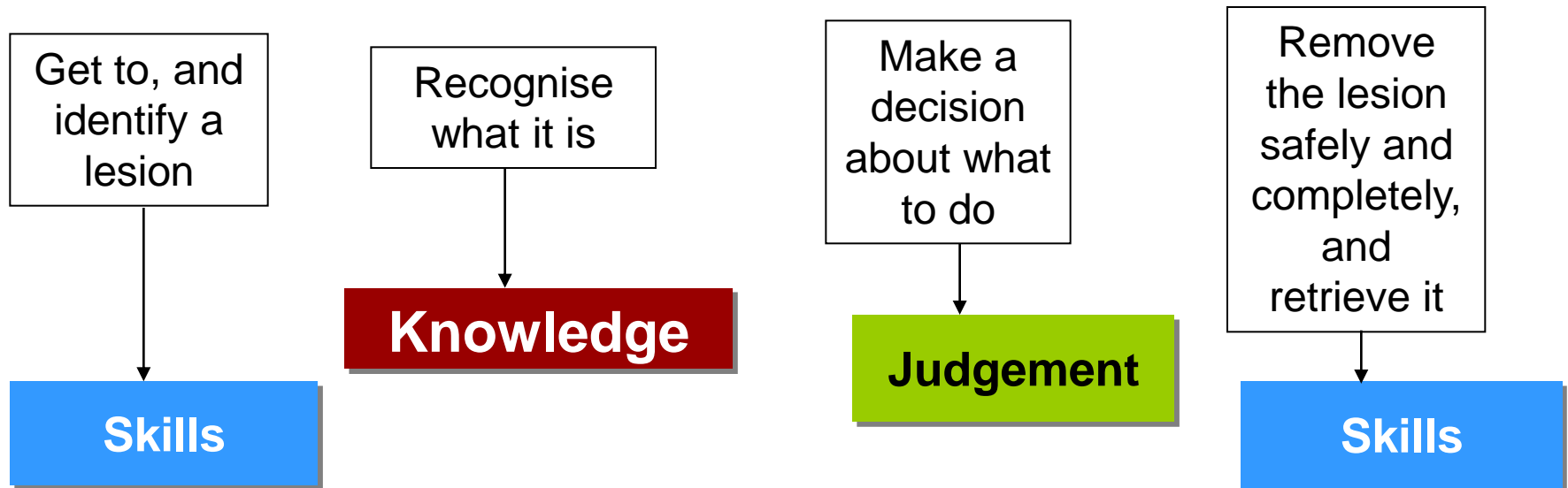
Get to, and  
identify a  
lesion

Recognise  
what it is

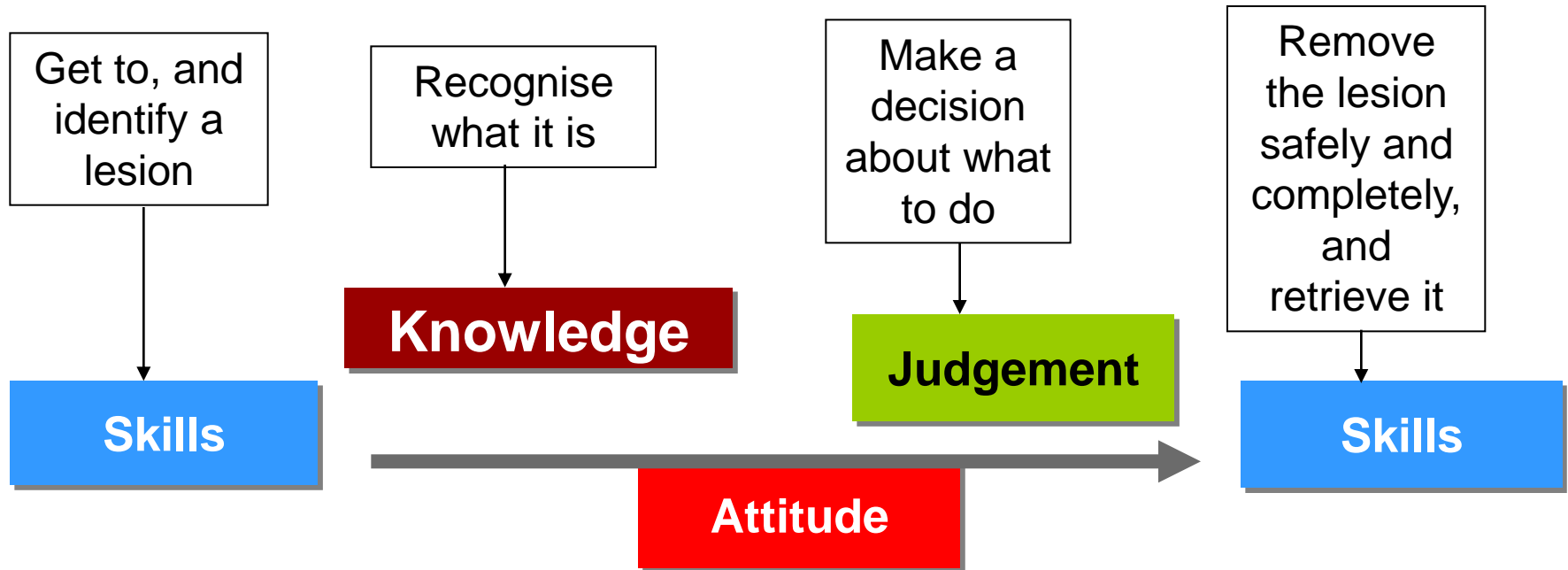
Make a  
decision  
about what  
to do

Remove  
the lesion  
safely and  
completely,  
and  
retrieve it

# Removing polyps – what's involved?



# Removing polyps – what's involved?



TEAMWORK

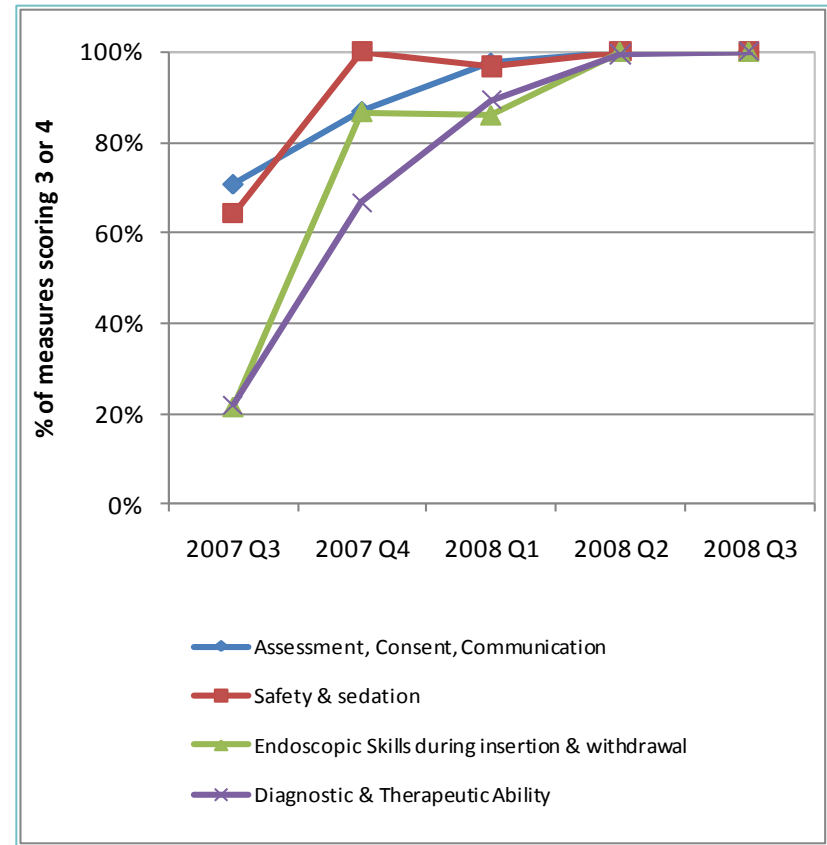
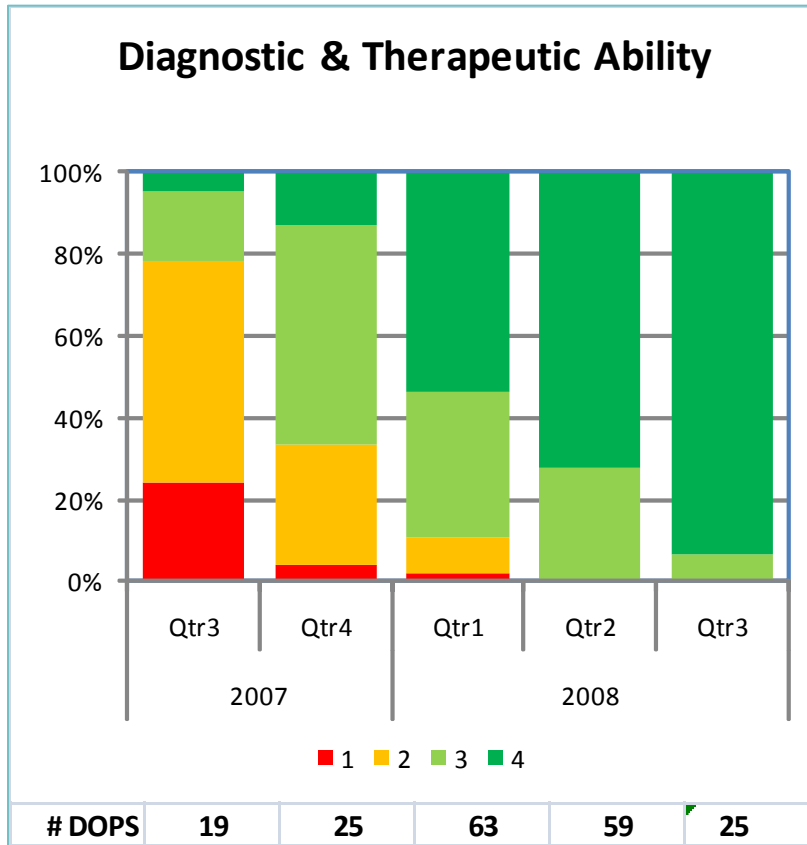
# Polypectomy competence framework (DOPyS)

## Domains:

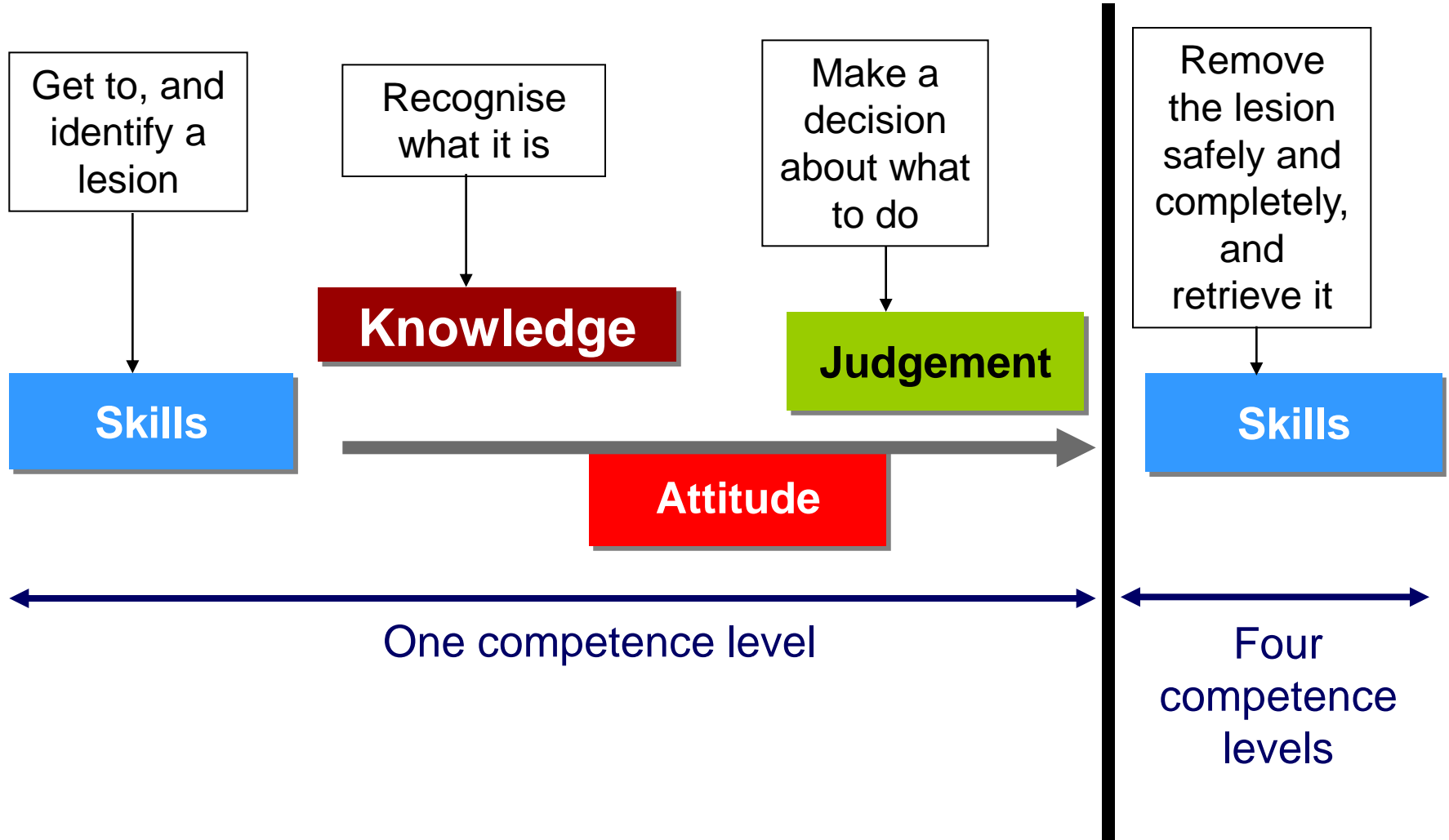
1. Optimising view of / access to the polyp
2. Stalked polyps
3. Small sessile lesions and EMR
4. Post polypectomy



# DOPS progression outputs

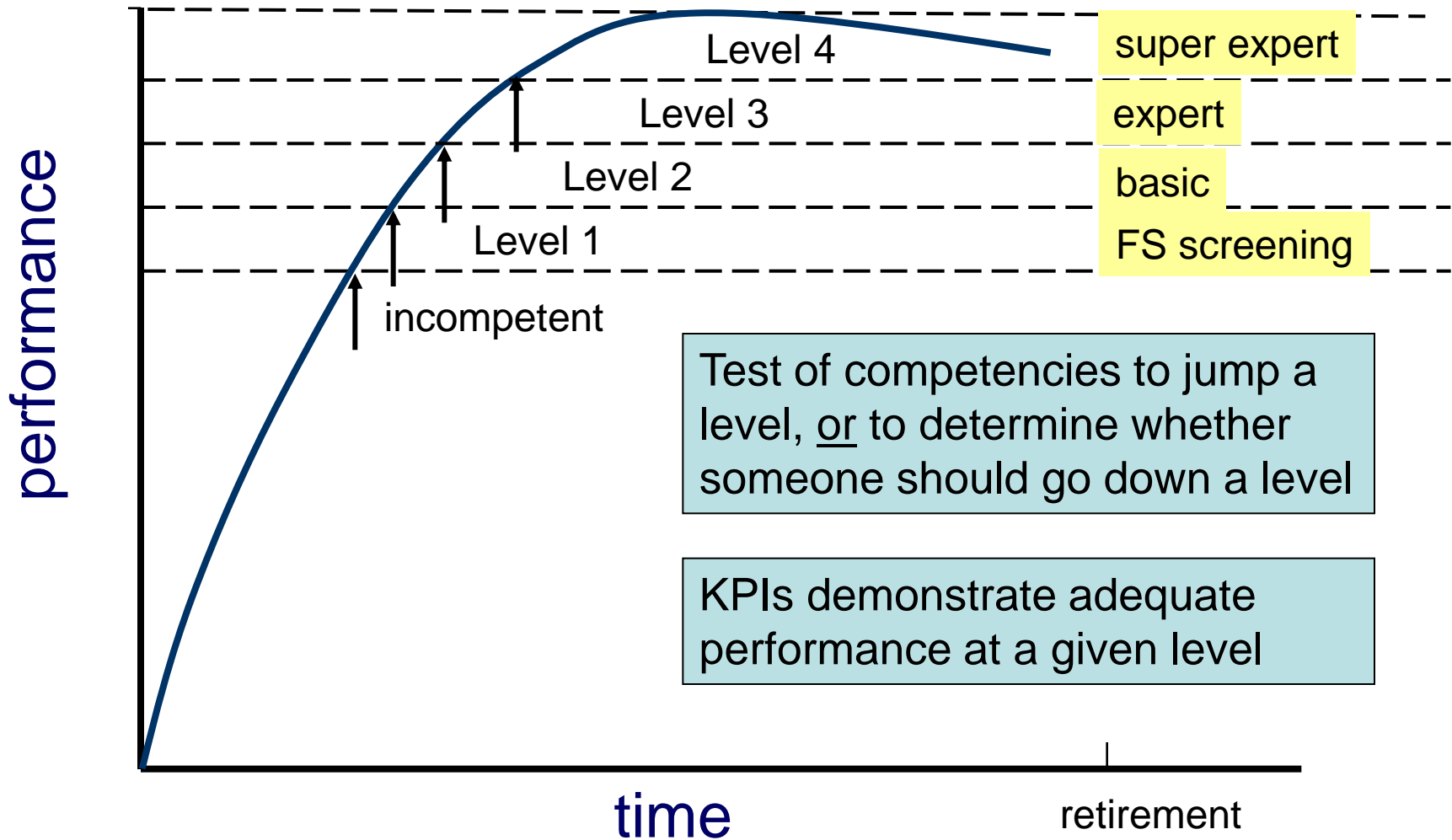


# Removing polyps – what's involved?



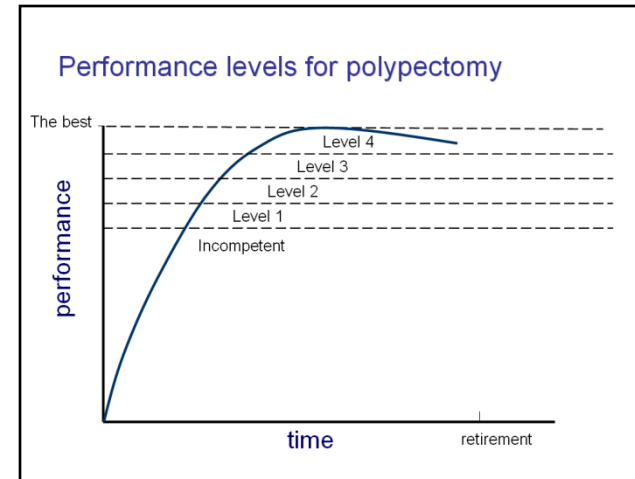
# Performance levels for polypectomy

The best



# Performance indicators for polypectomy

- ADR
- Completeness of excision
- Appropriate tattooing
- Complications
- Missed cancer
- Appropriate interval to next colonoscopy
- Rates of cancer at surveillance



# Hierarchy of outcome measures

- Withdrawal time Can we define target rates for these measures?
- Adenoma detection rates
- ‘High risk’ adenoma detection rates
- Incomplete excision rates
- Complications
- Cancer ‘miss rates’
  - cancer rates in surveillance programmes

# Validating performance measures

Elevating 'auditable outcomes' to performance indicators

- Clearly defined measures
  - everyone is measuring the same thing
- Clearly defined samples
  - everyone uses the same denominator
- Accurate measurement
  - everyone assesses the numerator precisely

# Key recommendation – EU guidelines

9.23 The occurrence of colorectal cancer in any individual in whom adenomas or pT1 cancers have been detected at a previous exam should be captured as an auditable outcome for any surveillance programme

# Rate of advanced adenoma and cancer at one year in high risk group in FOBT screen positives

<b>Polyp profiles</b>	<b>Index colonoscopy</b>	<b>12 month surveillance</b>	
	Total (%)		
>3 adenomas; more than one >10mm	997(56.6)		
>5 adenomas; more than one >10mm	619 (35.2)		
>5 adenomas; all <10mm	144 (8.1)		
<b>Total</b>	<b>1760*</b>		

\* 1294 (73.5%) had >1 index procedure



# Rate of advanced adenoma and cancer at one year in high risk group in FOBT screen positives

Polyp profiles	Index colonoscopy	12 month surveillance	
		ACN	Cancer
>3 adenomas; more than one >10mm	997(56.6)	59 (5.9)	9 (0.9)
>5 adenomas; more than one >10mm	619 (35.2)	47 (7.6)	2(0.3)
>5 adenomas; all <10mm	144 (8.1)	10 (6.9)	5(3.4)
<b>Total</b>	<b>1760*</b>	<b>116 (6.6)</b>	<b>16 (0.9)</b>

\* 1294 (73.5%) had >1 index procedure

## Key recommendation

9.23 The occurrence of colorectal cancer in any individual in whom adenomas or pT1 cancers have been detected at a previous exam should be captured as an auditable outcome for any surveillance programme

The standard for patients fulfilling high risk criteria, *and who have had clearance of polyps*, should be <1% cancer at one year

# At what level should performance be monitored?

	<b>Rate</b>	<b>Freq</b>	<b>Individual</b>	<b>Service</b>	<b>Programme</b>
Withdrawal time	6+	Hi	++++	-	-
Adenoma detection	20%	Hi	+++	+	+
Incomplete excision	5%	Lo	+++	+	-
Complications	0.5%	Lo	+	+++	++
Missed cancer	1-5%	V. Lo	+/-	+++	++++

# Quality control: the best parameter and how to measure it

## Take home messages

- Put your self in the patient's position and consider what is acceptable
- Be clear about terminology of performance
  - what is used when
- Differentiate between intubation/diagnosis and therapy
- Consider whether a parameter is a direct measure or surrogate
- Appreciate that the frequency of measure determines sample size to detect differences in performance
  - some events are very infrequent and can only be captured at unit, regional or national level

# Quality control: the best parameter and how to measure it

## Key message:

- Start monitoring (consider the process as well as the measure)
- Feedback the results regularly
- Act on poor performance
- Demonstrate performance improves