

Economic value of nursing

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Focus

- *Critical* evaluation of the evidence base
 - *Important to know the weakness as well as the strengths...*
 - *Requirements for building the economic case*
- Hospital nurse staffing levels
 - *Key 'structural' investment for quality care*
- Health economic perspective, provider cost perspective
 - *There are many potential aspects of 'value'*
 - *Costs (and benefits) can arise in many places*
 - *Providers 'feel' local costs and benefits*

Economic evaluation

- “... the comparative analysis of alternative courses of action in terms of both their costs and consequences.”
 - Drummond, Stoddard & Torrance, 1987

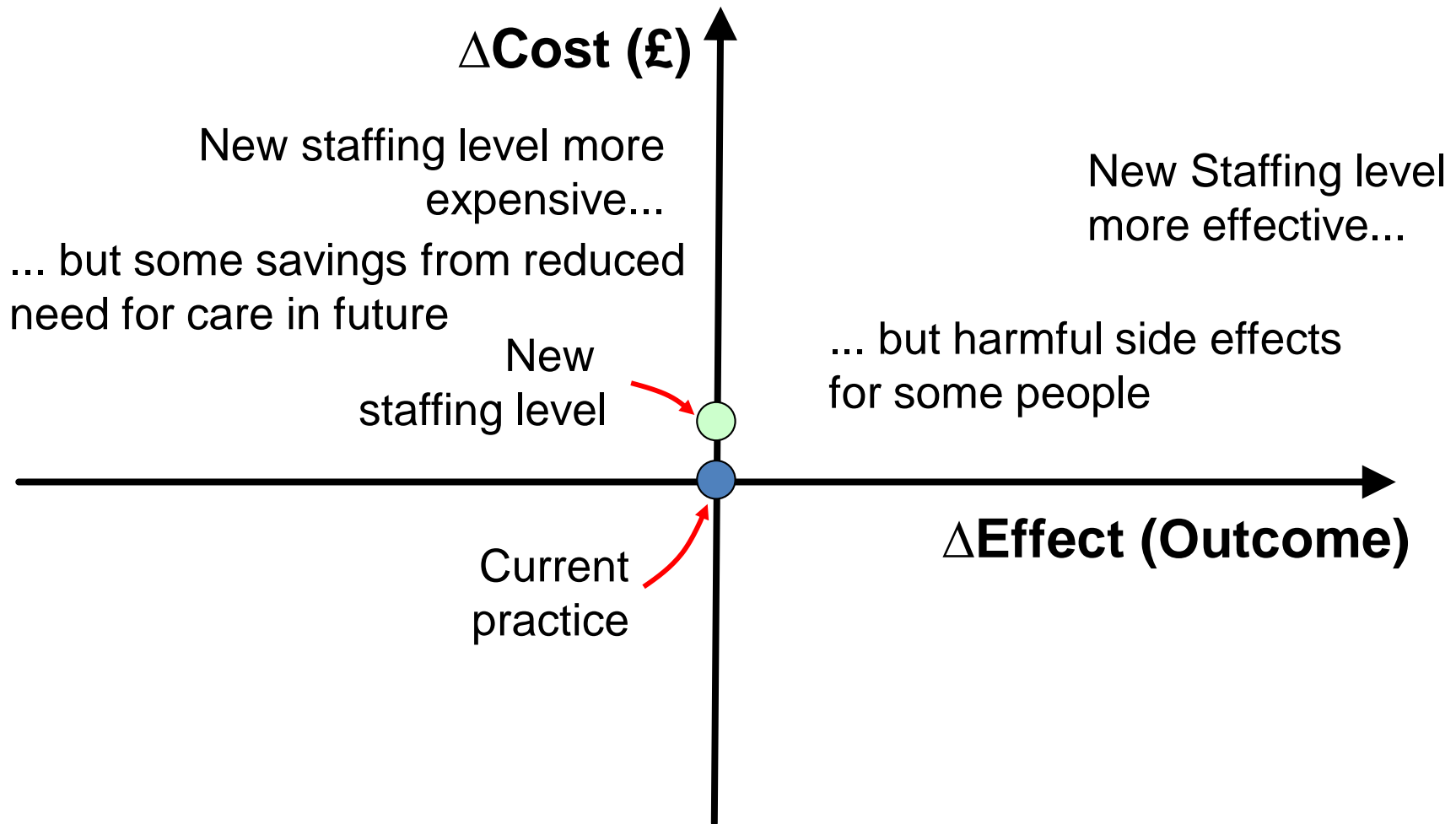


Types of economic evaluation

Type of analysis	Value of resources	Outcomes
Regression analysis	? £	Multiple, statistical method to estimate relationship between variables (staffing/outcomes/factors/cost)
Cost / Cost impact	£	None
Cost-consequences	£ (disaggregated)	All outcomes (disaggregated)
Cost-benefit	£	Attaches a monetary value on outcomes: Willingness to pay (£)
Cost-effectiveness	£	Single indicator: Weight loss (kg), blood glucose control (HbA1c) deaths averted, life years saved...
Cost-utility	£	Combined index: Quality Adjusted Life Years (QALY)

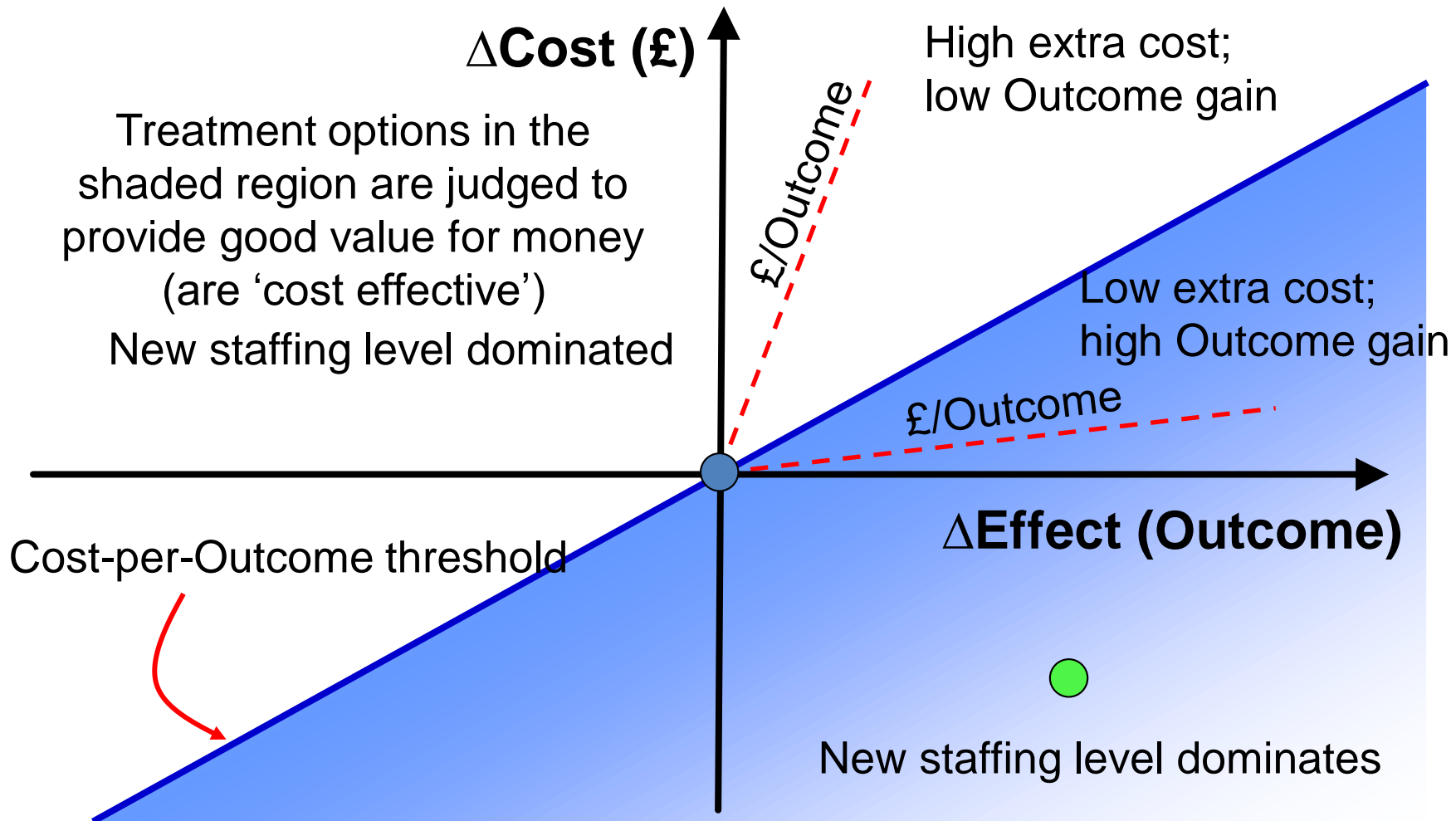
Assessing cost effectiveness

Weighing up the benefits, harms and costs

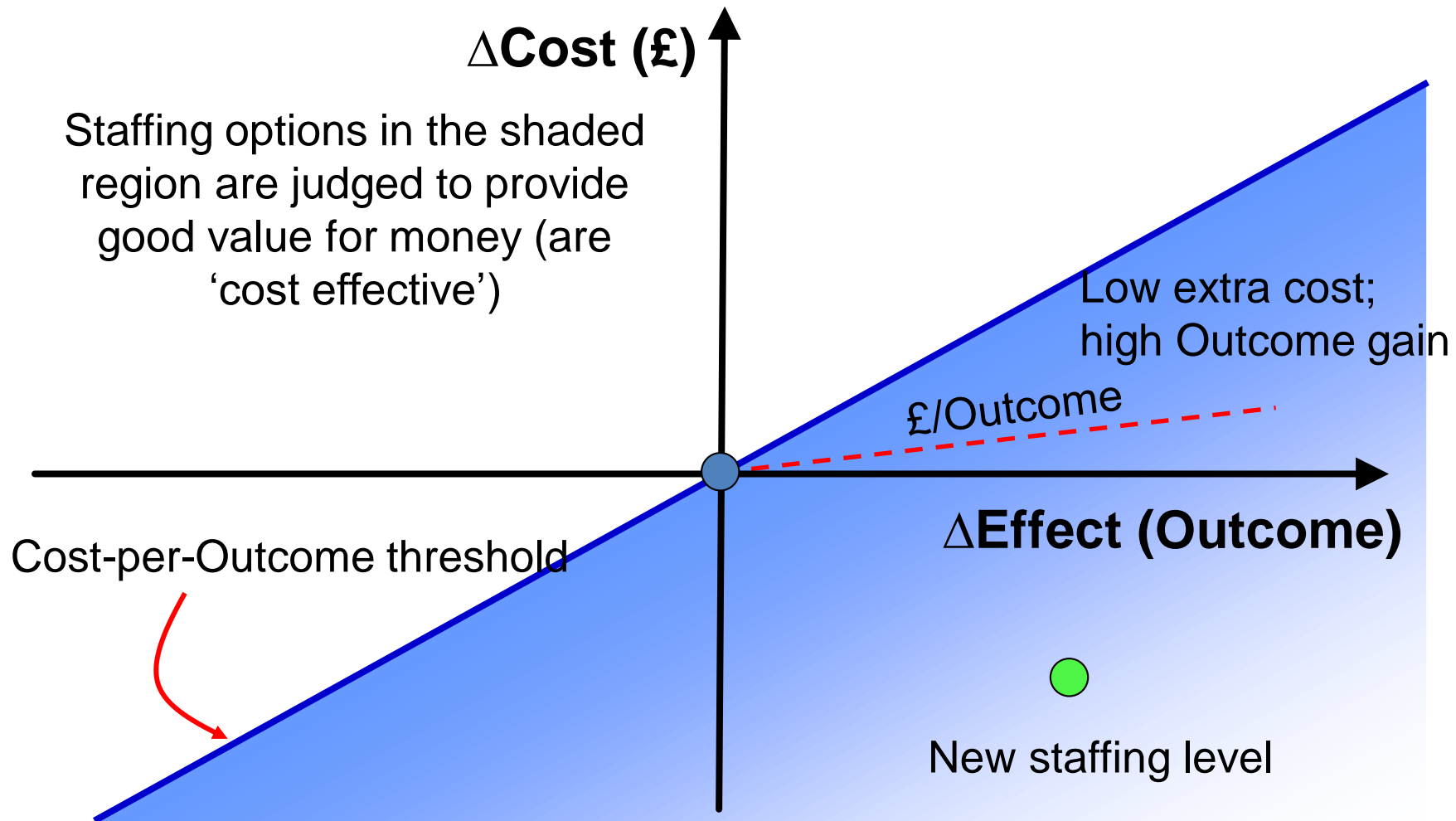


Assessing cost effectiveness

Value for money



Persuasive economic argument for increased nurse staffing



Issues with the evidence...

- We are a *long way short* of a compelling economic case
 - COSTS vary hugely by country
 - What is a ‘reasonable’ cost for a better outcome?
 - How do we know we can’t get more benefit from spending the money elsewhere...
 - “Standard” approaches use cost per QALY (cost utility) – we don’t have data
 - £20,000-£30,000 per qaly (NICE)

Nurse staffing in hospitals...

- Multiple sources of evidence establishes more nurses -> better outcomes
 - How much better, at what cost?

Summary outcome and cost results from economic studies Hospital perspectives...

Study	Intervention	Avoided		Hospital days avoided	Costs		
					Savings	Additional	Net
		\$840,000					
Dall (2009) USA	Increase RN hours to 75 th percentile, where required			3,600,000 ^b	6,100 ^c	11,039 ^d	4,939
Needleman (2006) USA	Option 1 – raise proportion of RN hours to 75 th percentile			1,507,493	1,053 ^e	811	-242
	Option 2 – raise licensed nurse hours to 75 th percentile			2,598,315	1,719 ^e	7,538	5,819
	Option 3 – combine option 1 and option 2			4,106,315	2,772 ^e	8,488	5,716
Twigg (2013) AUS	Increased hours with Nurse Hours per Patient Day method	155	709	NR	7,142,466 ^g	16,833,392	9,690,926

- Variation due to context, methods and staffing policies
- All scenarios substantial staff cost increase
- Most scenarios substantial net cost increase with uncertain cost-effectiveness
- *Possible* net cost reduction AND net benefit under some scenarios

Societal costs

Shamliyan (2009) USA	ICU – increase RN staffing in this setting	648,378	NR	NR	1,478,933 ^f	589,680	-889,253
	Surgical – increase RN staffing in this setting	592,958	NR	NR	1,646,190 ^f	923,832	- 722,358
	Medical – increase RN staffing in this setting	425,568	NR	NR	1,244,061 ^f	982,800	- 261,261

- Net societal benefit (including lost earnings etc.) in ALL scenarios....

Wessex CLAHRC vision

Improve the health of the people of Wessex and quality and cost-effectiveness of health care

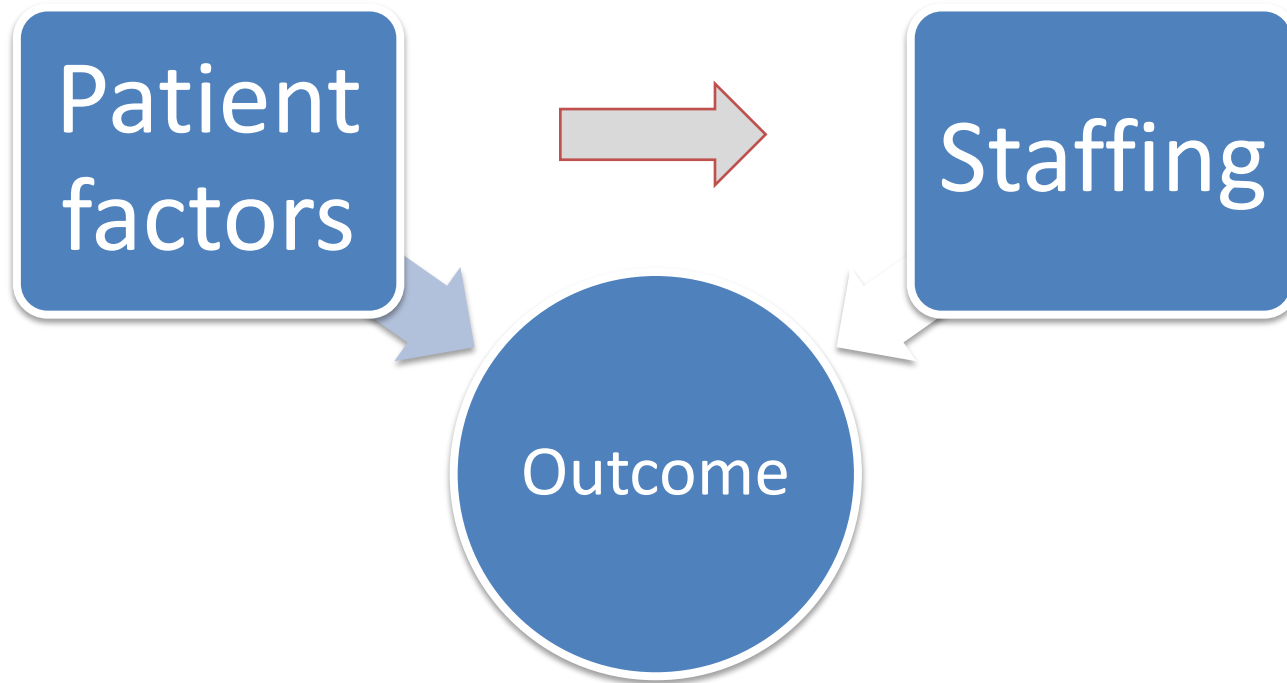
- **Step change in integration/pathways of care for people with long-term conditions**
- **Reduce hospital admissions/re-admissions – more appropriate health care utilisation**

Cautions...

- Studies model different policies
 - *Conclusions about value of nursing highly sensitive to specific policies*
- Most studies use US health care costs
 - *Will not generalise*
 - *Cost of adverse events is very high due to high healthcare costs*
- Evidence is observational
- Limited range of outcomes considered
 - *We cannot assume cause / effect*
 - *Costs of other outcomes omitted*
- Many assumptions made in models
 - *Open to criticism*
 - *Conclusions are likely sensitive to these assumption*

The endogeneity problem:

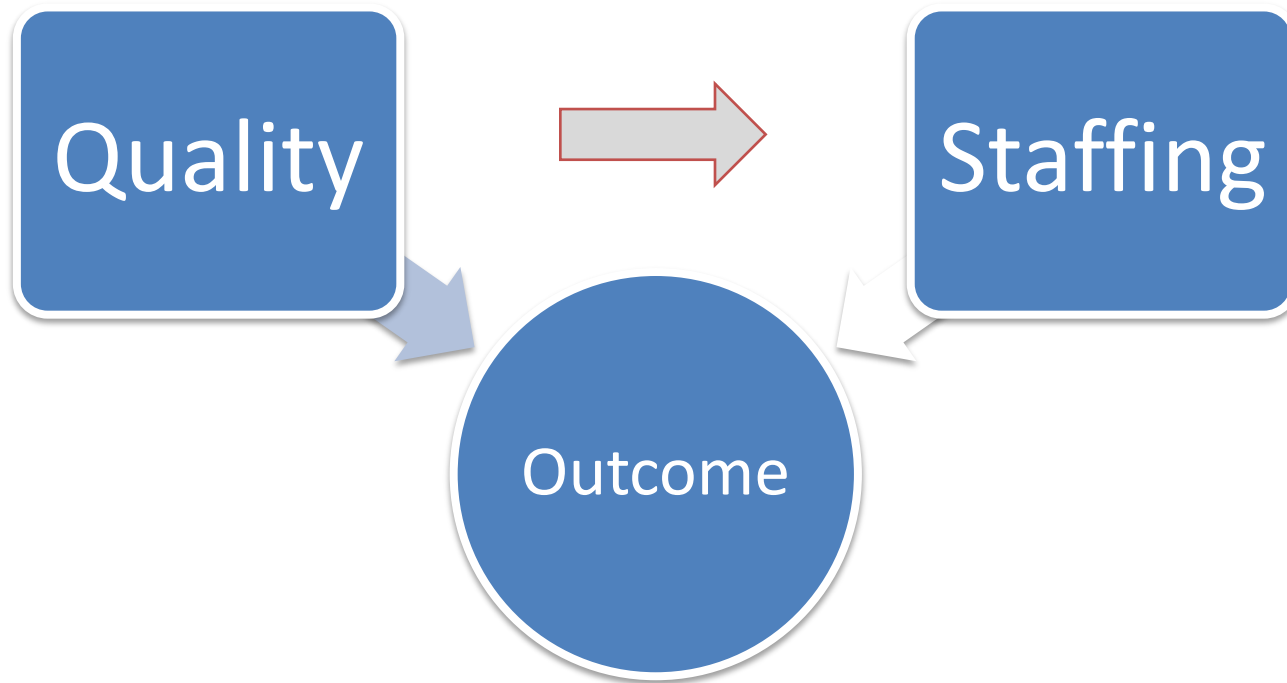
patient factors drive outcome and staffing level



- Most likely consequence is to reduce apparent benefit of nursing...

The confounding problem:

Nurse staffing associated with other 'quality' featured



- Benefit of nursing over estimated because it is associated with other causal factors (e.g. medical staffing...)

Conclusions

- Limited economic evidence
- ‘best guess’
 - Net cost to providers
 - *Likely / possibly cost effective*
 - *But needs country specific study / model*
 - Invest in more highly qualified nurses
 - *Prioritise quality over quantity?*
 - Match nursing increase to measured patient need rather than blanket increase
 - Potential for great societal benefit

Thank you!

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