



# Relationship between patient reported experience (PREMs) and patient reported outcomes (PROMs) in elective surgery

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# Background

## Domains of quality

- Effectiveness of care
  - Does it reduce symptoms, improve function, improve quality of life?
- Safety
  - Does it cause harm eg mortality, complications?
- Experience of care
  - What do patients think of the process of care eg dignity, information, trust in staff, cleanliness, timeliness?

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- Safety (**PROMs**)
  - Does it cause harm eg mortality, complications?
- Experience of care (**PREMs**)
  - What do patients think of the process of care eg dignity, information, trust in staff, cleanliness, timeliness?

# Background

- Many studies in primary and ambulatory care
- Eight studies carried out with hospital in-patients and, in general, found a weak positive relationship between PREMs and PROMs
  - Six from USA, two from Taiwan
- Three studies used aggregate data
  - Providers in top quartile for patient experience (all admissions) had outcomes 2-4% better than providers in the lowest quartile
- Five studies linked individual patient data
  - Good communication (acute MI patients) associated with better post-discharge health-related quality of life (correlation coefficient 0.33)
  - Good experience (COPD patients) associated with higher odds of a good health outcome (odds ratio 1.19)
  - Greater trust and better support (diabetes patients) associated with better mental health (correlation coefficients 0.24 and 0.18)

# Questions

1. Are experience and effectiveness associated?
2. Are experience and safety associated?
3. Is any experience:effectiveness association different (i) by patients' age, sex or socio-economic status, or (ii) between providers?

# Data

- East Midlands Patient Experience Service
- Population 4.3 million
- All patients completing a pre-operative PROM questionnaire were mailed a PREM questionnaire six weeks after surgery
- Commenced April 2010
- Linked data from the PREM questionnaire with the pre- and post-operative PROM questionnaires

# Data

- Patients recruited April 2010 – March 2012

	Hip replacement	Knee replacement	Hernia repair
Eligible patients	10 009	11 751	9 217
Pre-op PROM	7 037 (70%)	7 889 (67%)	3 829 (42%)
Pre-op PROM & PREM	4 622 (46%)	5 096 (43%)	2 114 (23%)
Pre-op PROM, PREM & Post-op PROM	4 089 (41%)	4 501 (38%)	1 793 (19%)

# PREMs questionnaire



## PATIENT EXPERIENCE QUESTIONNAIRE

### What is the survey about?

This survey is about your most recent experience as a patient at the hospital named in the letter enclosed with this questionnaire.

### Who should complete the questionnaire?

The questions should be answered by the person named in the letter enclosed with this questionnaire. If that person needs help to complete the questionnaire, the answers should be given from his / her point of view – not the point of view of the person who is helping.

### Completing the questionnaire

For each question please tick clearly inside one box using a black or blue pen.

Sometimes you will find the box you have ticked has an instruction to go to another question. By following the instructions carefully you will miss out questions that do not apply to you.

Don't worry if you make a mistake; simply cross out the mistake and put a tick in the correct box.

Please **do not** write your name or address anywhere on the questionnaire.

### Questions or help?

If you have any queries about the questionnaire, please call the FREEPHONE helpline number on **0800 783 1775**.

**Taking part in this survey is voluntary.**

**Your answers will be treated in confidence.**

- 32 questions (derived from NHS National Inpatient Survey)
- Five clinical areas
  - The hospital and ward
  - Doctors and nurses
  - Your care and treatment
  - Operations and procedures
  - Leaving hospital

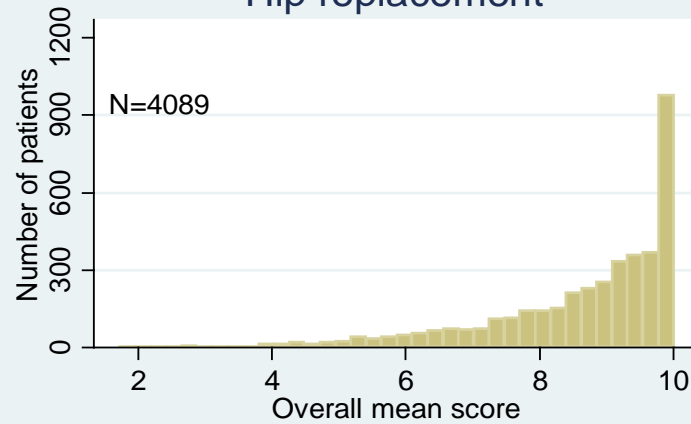


# PREMs dimensions

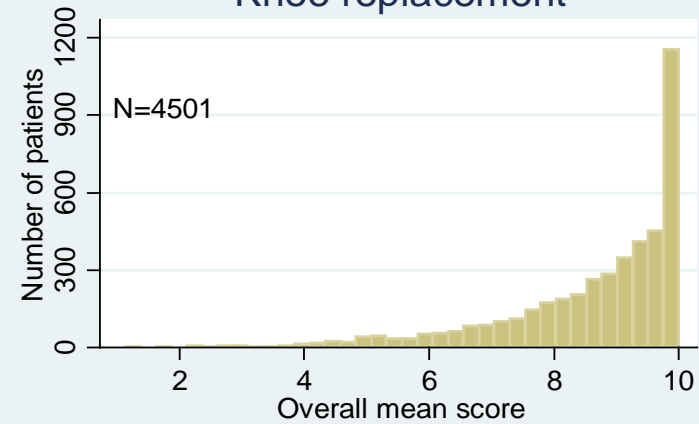
- Mapped 24 of the 32 items into eight dimensions (cf Picker Institute) based on 1-6 items
  - *consistency & coordination of care*
  - *treated with respect & dignity*
  - *adequacy of pain control*
  - *sufficient explanation and involvement*
  - *communication with and trust in doctors*
  - *communication with and trust in nurses*
  - *cleanliness of facilities and staff hand hygiene*
  - *sufficient discharge information*
- *Overall score* based on a simple summation of all 24 items
- Scores for dimensions and overall converted to 10 point scale (0 = poor experience, 10 = good experience)

# PREMs overall scores

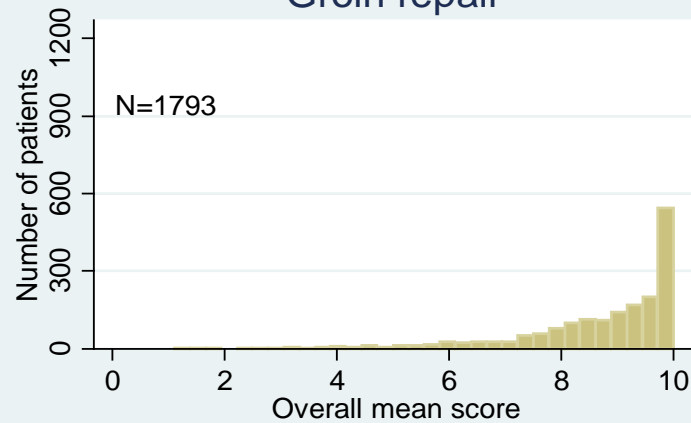
## Hip replacement



## Knee replacement



## Groin repair



# Methods

Examined associations between experience

- Overall PREM score and 8 dimensions and (i) effectiveness
- Change in disease-specific PROM - Oxford Hip Score (OHS)/Oxford Knee Score (OKS)
- Change in EQ-5D index score
- Response (five categories from 'much worse' to 'much better') to the question 'Overall, how are the problems now in the hip/knee/groin on which you had surgery compared to before your operation?'

and (ii) safety

- Incidence of any complication (wound problem, urinary problem, bleeding, allergy or reaction to drug)

Modelled using linear regression

- Interactions fitted to examine if associations differ by patients' socio-demographic characteristics
- Case-mix adjusted multilevel model to examine if associations differed by provider

# Results

- Experience slightly worse in younger (<61 years) patients; worse in females; no difference by quintile of deprivation
- Weak positive association between experience (PREM overall) and disease-specific PROM (correlation coefficient 0.20 for hip/knee replacements)
- Weak positive association between experience (PREM overall) and generic (EQ-5D) PROM (correlation coefficients 0.10-0.14)

# Disease-specific PROM

Change in Oxford Hip/Knee Score for a one standard deviation increase in PREMs score

Experience score	Hip replacement	Knee replacement
<b>Overall PREMs score</b>	<b>2.23 (1.91, 2.55)</b>	<b>2.08 (1.80, 2.37)</b>
Consistency/coordination	1.19 (0.86, 1.52)	1.38 (1.09, 1.67)
Respect/dignity	0.60 (0.28, 0.93)	0.99 (0.69, 1.28)
Pain control	1.25 (0.92, 1.57)	1.07 (0.77, 1.37)
Explanation/involvement	1.73 (1.41, 2.04)	1.80 (1.52, 2.08)
Doctors: trust/communication	2.03 (1.70, 2.35)	1.83 (1.55, 2.11)
Nurses: trust/communication	1.88 (1.56, 2.20)	1.71 (1.42, 2.00)
Cleanliness/hygiene	1.25 (0.93, 1.57)	1.12 (0.83, 1.41)
Discharge information	1.47 (1.15, 1.79)	1.14 (0.85, 1.43)

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# EQ-5D index score

Change in EQ-5D index score for a one standard deviation increase in  
PREMs score

Experience score	Hip replacement	Knee replacement	Hernia repair
<b>Overall PREMs score</b>	<b>0.038 (0.027, 0.050)</b>	<b>0.043 (0.033, 0.053)</b>	<b>0.029 (0.017, 0.038)</b>
Consistency/coordination	0.015 (0.004, 0.027)	0.019 (0.009, 0.030)	0.018 (0.007, 0.028)
Respect/dignity	0.014 (0.003, 0.026)	0.011 (0.001, 0.021)	0.016 (0.006, 0.026)
Pain control	0.017 (0.005, 0.028)	0.021 (0.011, 0.032)	0.016 (0.005, 0.028)
Explanation/involvement	0.026 (0.015, 0.037)	0.039 (0.029, 0.049)	0.021 (0.011, 0.031)
Doctors: trust/communication	0.038 (0.026, 0.050)	0.042 (0.032, 0.052)	0.021 (0.011, 0.032)
Nurses: trust/communication	0.029 (0.018, 0.040)	0.034 (0.024, 0.044)	0.024 (0.014, 0.035)
Cleanliness/hygiene	0.027 (0.016, 0.038)	0.023 (0.013, 0.033)	0.023 (0.013, 0.032)
Discharge information	0.028 (0.017, 0.039)	0.019 (0.009, 0.030)	0.017 (0.006, 0.027)



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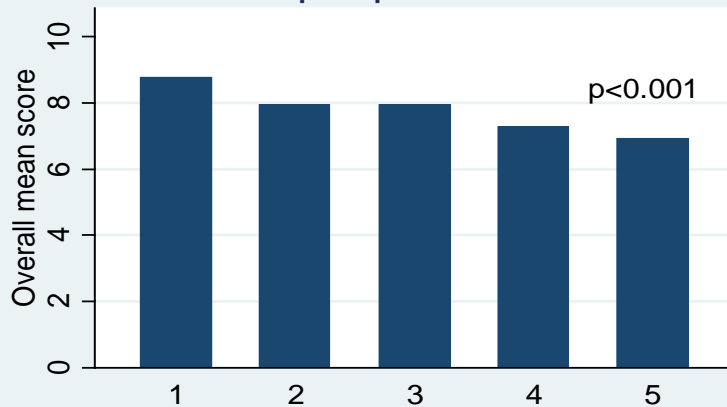
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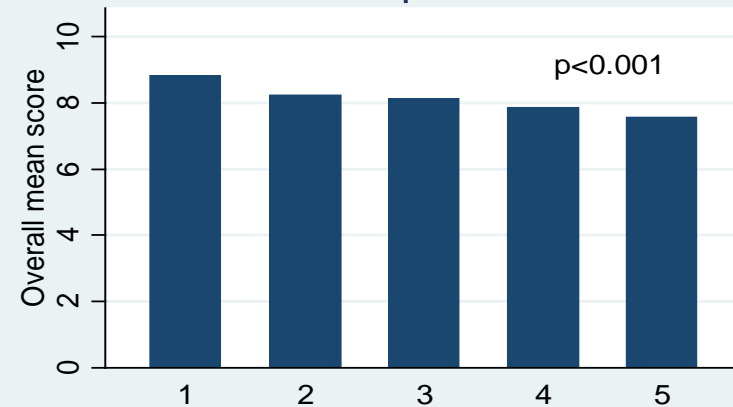
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# How are your problems now?

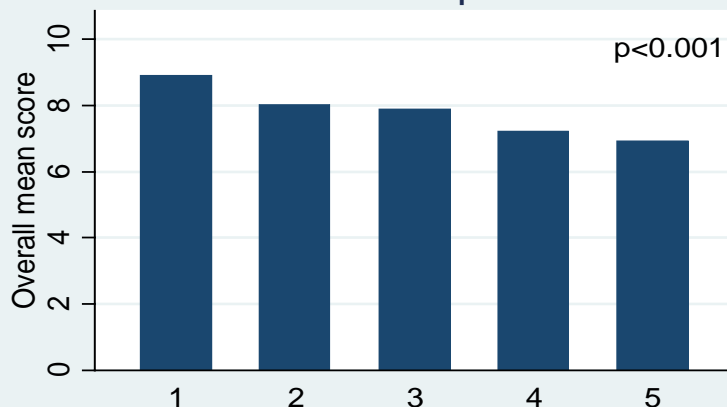
## Hip replacement



## Knee replacement



## Groin repair



- 1 = Much better
- 2 = Little better
- 3 = Same
- 4 = Little worse
- 5 = Much worse

# Complications

Odds ratios (95% confidence intervals) for associations between experience and reporting at least one complication

Experience score	Hip replacement	Knee replacement	Hernia repair
<b>Any complication (%)</b>	<b>31%</b>	<b>34%</b>	<b>23%</b>
<b>Overall PREMs score</b>	<b>0.72 (0.68, 0.77)</b>	<b>0.71 (0.67, 0.75)</b>	<b>0.64 (0.57, 0.71)</b>
Consistency/coordination	0.81 (0.75, 0.86)	0.77 (0.72, 0.81)	0.76 (0.69, 0.84)
Respect/dignity	0.86 (0.81, 0.92)	0.83 (0.78, 0.88)	0.93 (0.84, 1.03)
Pain control	0.83 (0.78, 0.89)	0.81 (0.76, 0.86)	0.84 (0.75, 0.93)
Explanation/involvement	0.80 (0.75, 0.85)	0.80 (0.75, 0.85)	0.69 (0.62, 0.76)
Doctors: trust/communication	0.74 (0.69, 0.79)	0.72 (0.68, 0.77)	0.66 (0.60, 0.74)
Nurses: trust/communication	0.72 (0.68, 0.77)	0.72 (0.68, 0.77)	0.66 (0.60, 0.73)
Cleanliness/hygiene	0.83 (0.78, 0.86)	0.80 (0.76, 0.85)	0.80 (0.72, 0.88)
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No evidence that PROMs:PREMs association differed by with respect to socio-demographic characteristics (data for hip replacement only)

Socio-demographic characteristics		Mean change in OHS score	Mean PREMs score	Interaction p-value
<b>Age</b>	<60	20.5	8.5	0.95
	61-70	20.4	8.7	
	>70	19.5	8.6	
<b>Sex</b>	male	19.7	8.8	0.41
	female	20.1	8.5	
<b>SES</b>	1 (affluent)	20.1	8.6	0.42
	2	20.5	8.6	
	3	19.8	8.6	
	4	20.0	8.6	
	5 (deprived)	19.2	8.7	

# Conclusions

- Weak positive associations between experience and effectiveness/safety
- Associations similar between providers and by patients' socio-demographic characteristics; some differences by dimension of experience
- Experience:effectiveness associations similar to previous studies (communication with/trust in doctor strongest)
- Evidence for similar associations between experience and safety
- Alleviates concerns among some clinicians that PROMs reflect patients' views on satisfaction with their experience of care
- Indicates assessment of experience is insufficient for measuring quality of care; outcome assessment also necessary



# Acknowledgments

- Patients, clinicians and other NHS staff in East Midlands
- East Midlands Patient Experience Service
  - Elaine Moss, Gemma Riley
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  - Richard Gosling, Lee Towndrow, Reg Race, Daniel Ratchford, Mandy Moore