Do clinical audits work?

Improving Category 1 caesarean section times in a Level 2 obstetric unit

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Background - Clinical Audit

"A quality improvement process that seeks to improve patient care and outcomes through systemic review of care against explicit criteria and the implementation of change"

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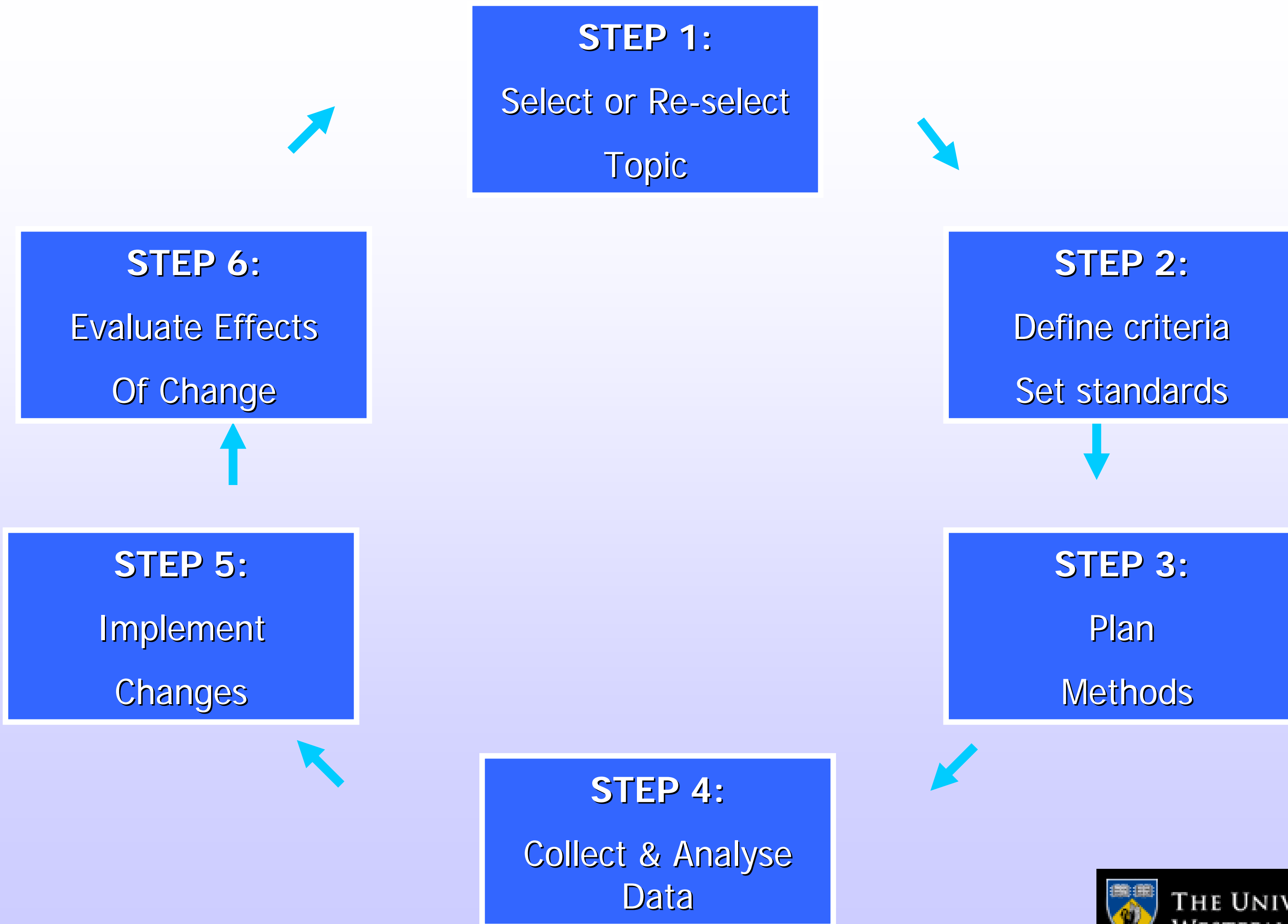
The Audit Cycle



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OPH Clinical Audit
Step 1: Select the topic

- **Primary Aim:** To discover how many Category 1 caesarean sections (C/S) were meeting international recommendations and the arbitrarily defined 30 minute threshold at Osborne Park Hospital (OPH), a Level two obstetric unit
- **Secondary Aims:**
  - Comparison with data from previous audit at OPH 2006
  - Comparison with data from KEMH 2008 (Level 3 Hospital)
  - To provide recommendations to improve the clinical care of patients undergoing Category 1 C/S at OPH

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Step 2: Set Standards

Standards for Emergency C/S times

- **RANZCOG recommendations:** *RANZCOG has no specific time attached to the various categories of C/S*

- For audit purposes and to enable comparison to international standards, the U.K. RCOG recommendations were used for comparison:

Category 1= Immediate threat to the life of a woman or fetus - *Aim for DDI within **30 minutes***

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Literature Review

- A decision to delivery interval (DDI) of 30 minutes is accepted in legal case law and has been set as an international standard for Category 1 C/S for many years
- 30 min targets are difficult to achieve in clinical practice
- Failure to meet the RCOG recommendations does not increase neonatal morbidity
- 30 min target based on custom and past practice, not objective evidence
- BUT, using 30 minutes allows the audit to benchmark with previous studies

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Step 3: Plan Methodology

- Benchmark with data from previous audit at OPH 2006 and data from KEMH audit on cat 1 C/S 2008 (Level 3 Hospital)
- Data capture: Birth registry was used to identify the last 108 “emergency” C/S dating back from the 31st Jan 2008
- Information from patient files and theatre records used to complete proforma on demographics, indications, outcomes and times
- “In hours” defined as 8 a.m. - 6 p.m. in current audit

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Step 4: Collect & Analyse Data

- Found 11 "true" Category 1 non-elective C/S
  5 "in hours" vs 6 "out of hours"

- Average "in hours" DDI: 24.6 min
- Average "out of hours" DDI: 54.5 min

- "In hours" significantly faster ($p<0.005$)

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Step 4: Collect & Analyse Data

- 45% of Category 1 cases met the 30 minute DDI recommendation
- No significant difference in outcomes irrespective of achieving target DDI times
  - Neonatal (5 and 10 min Apgar)
  - Maternal (EBL or post-op length of stay)

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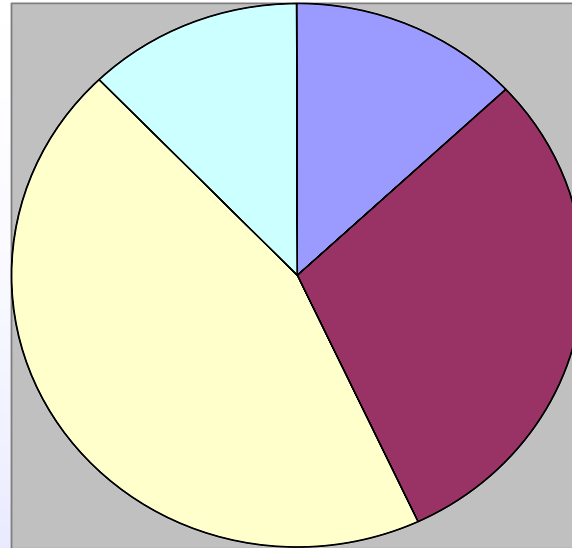
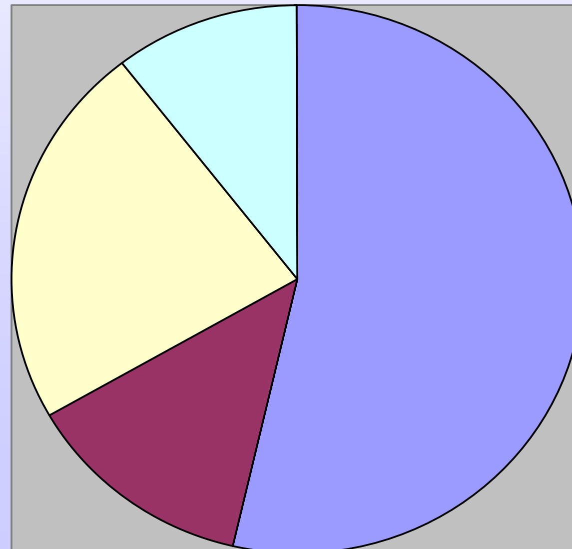
Breakdown of DDI times

In Working Hours



Out of Working Hours



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Step 5: Evaluating Effect of Change
Previous OPH Audit (2006)

- Previous retrospective audit of emergency C/S performed in OPH Oct - Dec 2006

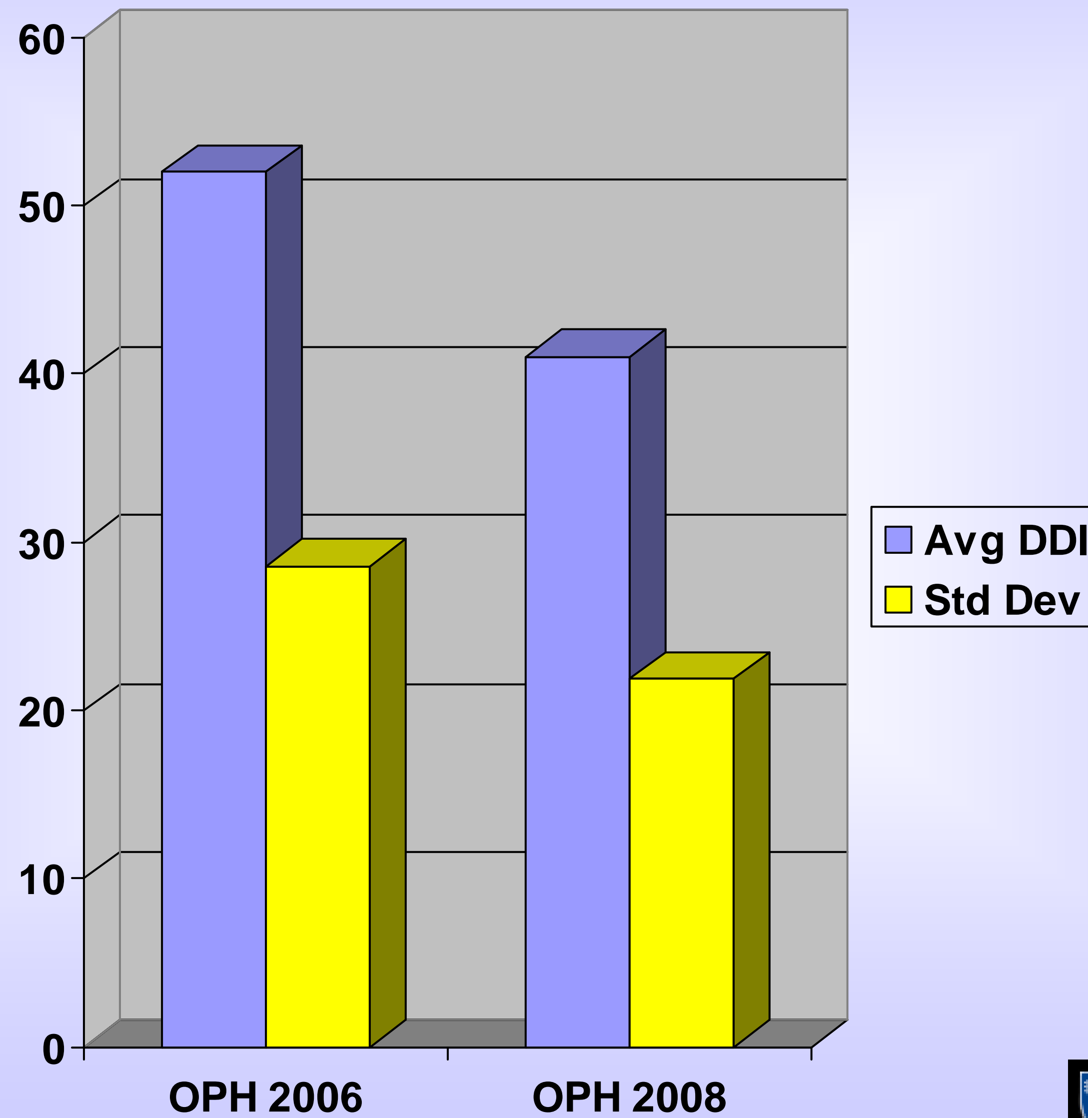
- 22 cases
- 10 “in hours” vs 12 “out of hours”
- 3 out of hours cases: no record of times

- Average “in hours” DDI: 59.3 min
- Average “out of hours” DDI: 47.6 min

Recommendations from previous OPH audit (2006)

- Changes to the paging system
- Theatre checklist to be finalised in operating theatre
- Transfer of Category 1 cases on the patient's bed (rather than a trolley) if operating theatre is ready
- RANZCOG guidelines made easily accessible and to be used to communicate the urgency of the case

All cases OPH 2006 (52min) vs OPH 2008 (41min), p=0.24



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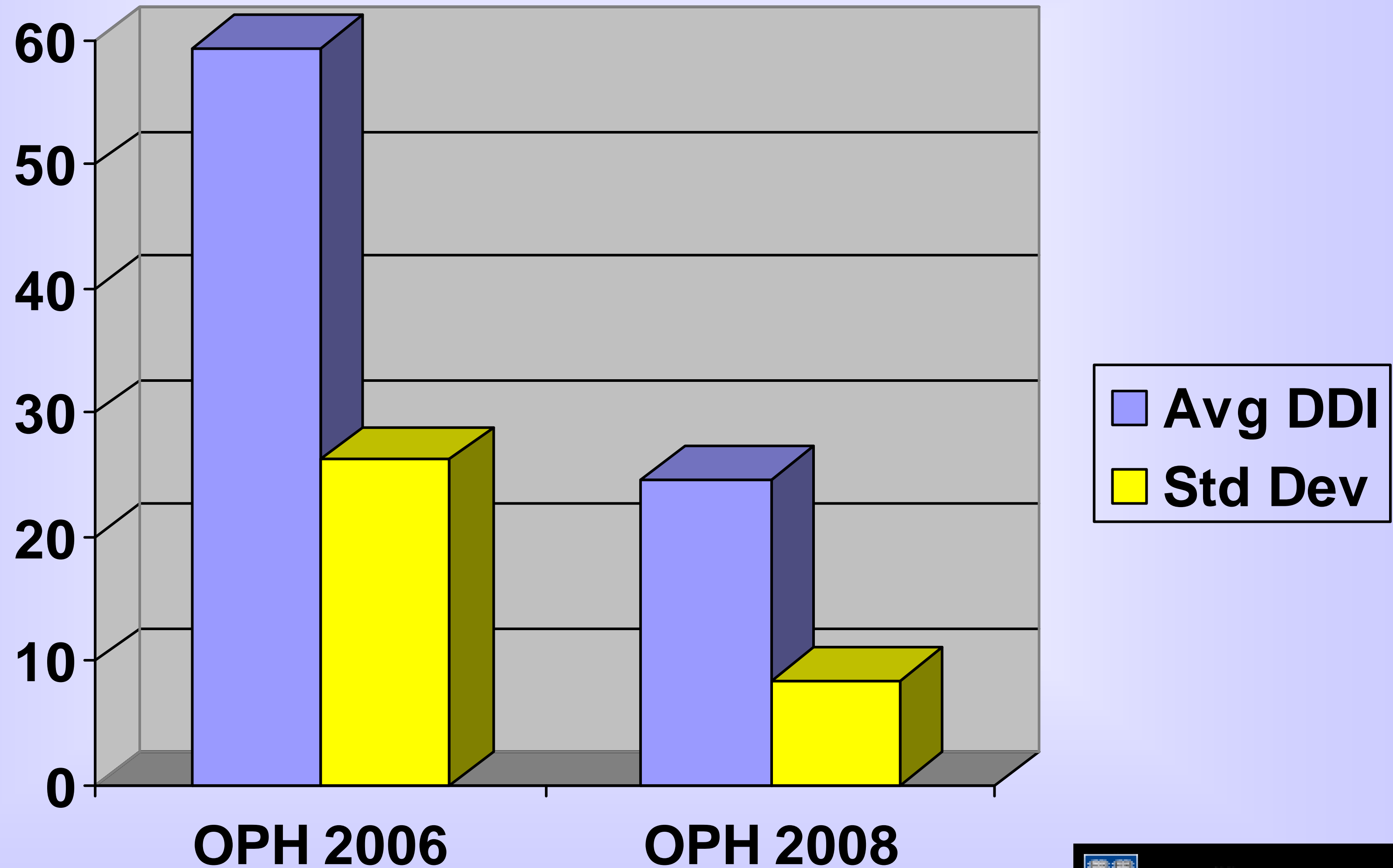
During “working” hours OPH 2006 (59min) vs OPH 2008 (25min), p=0.002



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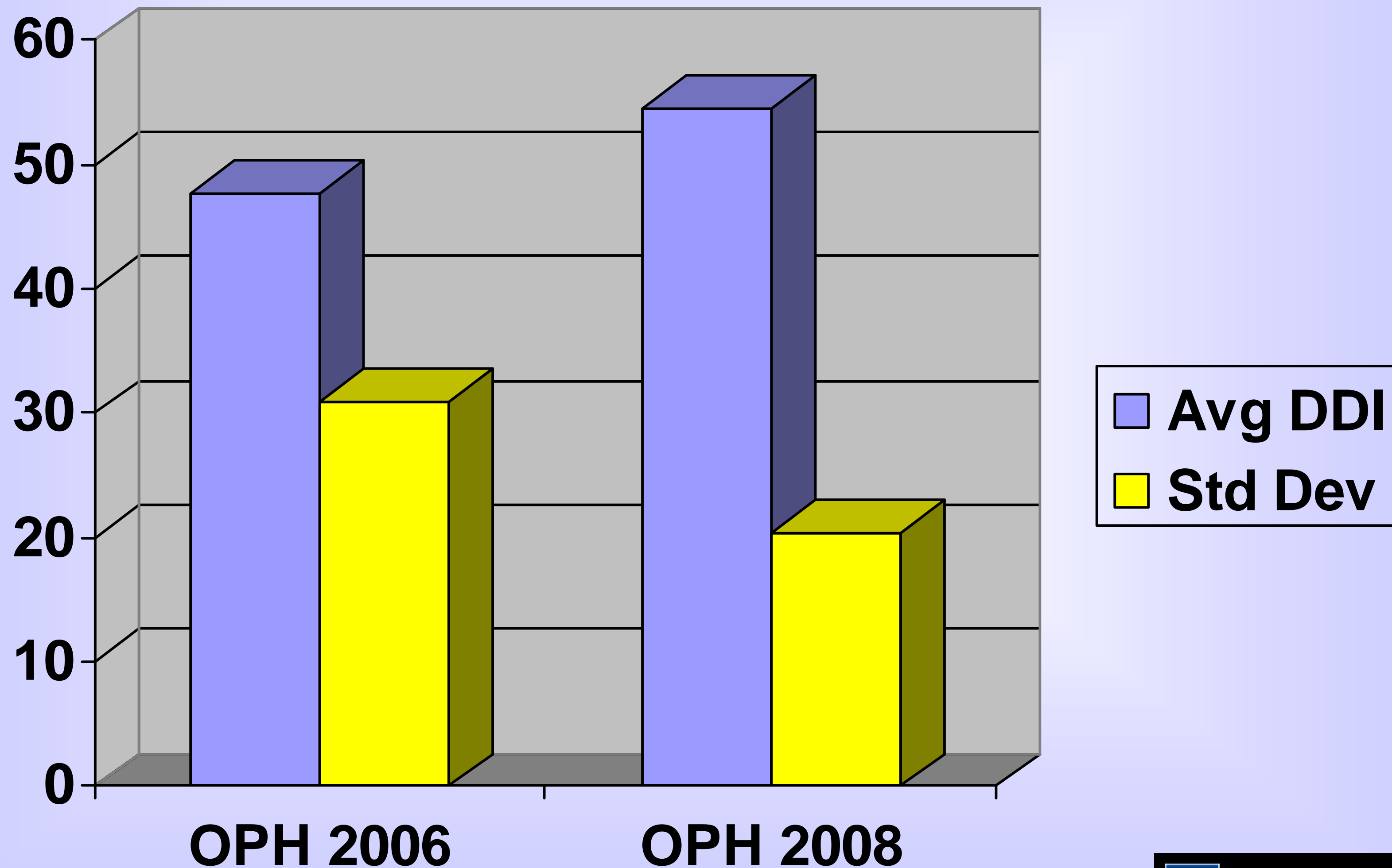
“Out of working” hours OPH 2006 (48min) vs OPH 2008 (55min), p=0.44



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KEMH Audit 2008

- Douglas Inquiry recommendation
- 14 Category 1 non-elective caesarean sections
- 3/14 (21%) met the <30 minute DDI target

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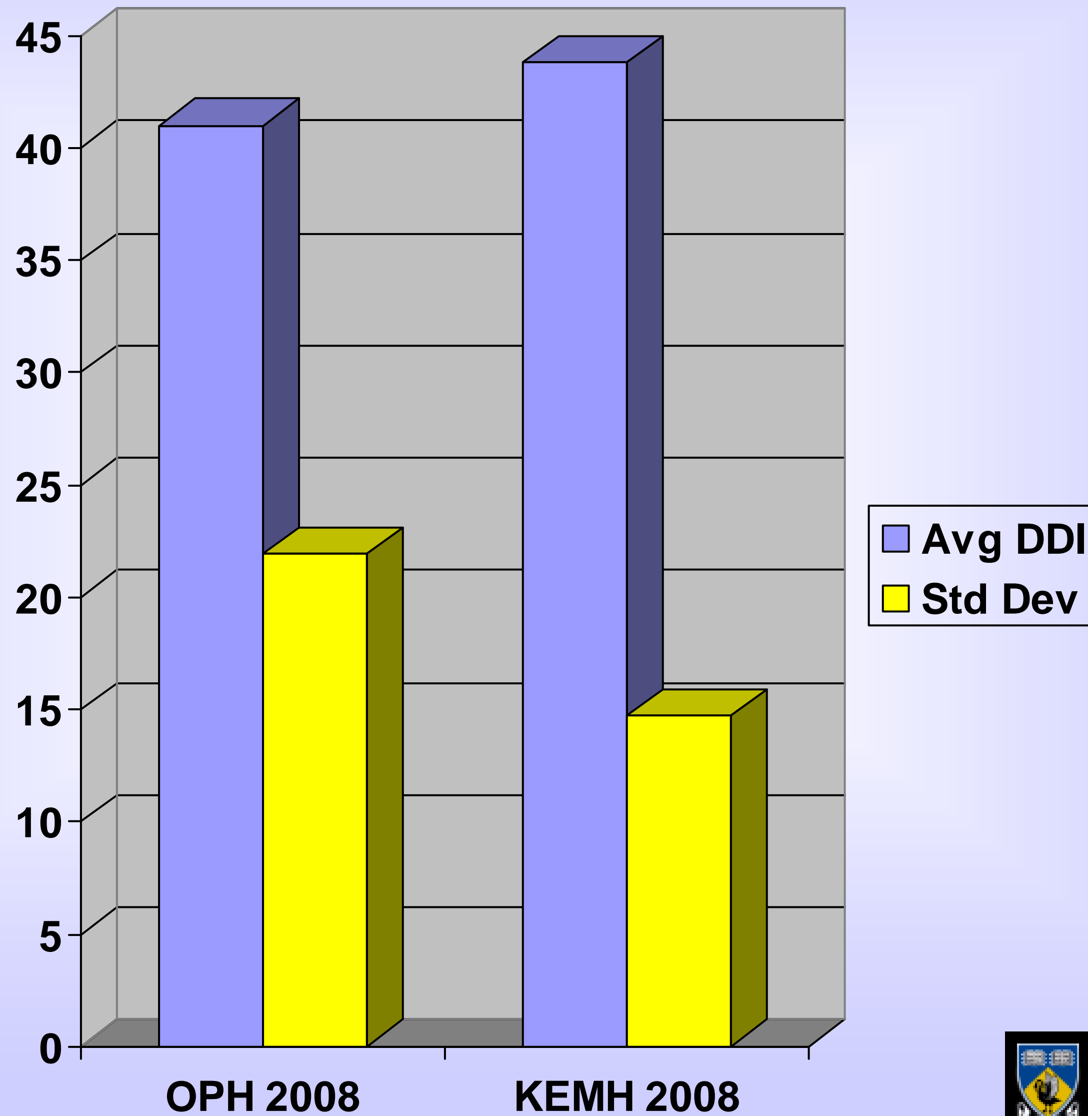
OPH vs KEMH Cat 1 C/S times audits 2008 (All cases), p=0.62



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Comparison of OPH 2008 data with KEMH audit (2008)

- Research in this area by Spencer *et al.* suggested that the DDI times at Level 3 units could be slower due the contributing factors e.g. higher number of medical and obstetric complications are referred to Level 3 institutions
- The results of this audit would lend weight to this theory and emphasise the importance of patient selection in Level 2 units

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Comparison of OPH 2008 audit data to other local audits

	OPH 2006	OPH 2008	KEMH 2008
Number of Category 1 caesarean sections	19	11	14
% achieving <30min DDI	26% (5/19)	45% (5/11)	21% (3/14)
% during working hours	53% (10/19)	45% (5/11)	N/A
% achieving <30min DDI during working hours	N/A	80% (4/5)	
% achieving <30min DDI outside of working hours	N/A	17% (1/6)	

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Discussion

Comparison with the only other published Australian audit (Spencer *et al.* 2001)

- Spencer *et al.*'s data for similar S.A. units found: 10% of Category 1 < 30 min DDI
- OPH Category 1 < 30 min DDI: 45% (5/11)

- This indicates that OPH is performing considerably above the published average

Discussion

- The lack of improvement on the DDI when performing emergency caesarean sections "out of hours" in OPH between the 2006 and 2008 audits may be due to

  the hospital staff involved in emergencies live within a 30 minute drive time radius

- Spencer *et al.*'s data for similar S.A. units found staff delays were the commonest reason for not meeting DDI targets

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Step 6: Recommend Changes

- Although this re-audit of the unit's DDI times has shown an improvement, accurate written documentation in patients notes was poor and this may be improved by the use of a theatre proforma in future
- This clinical re-audit completes the audit cycle and the improvements in the "in hours" DDI are most likely to be a direct result of the changes implemented after the 2006 audit
- Therefore the results demonstrate that the changes made to the unit's policies and practices made after the first audit have had a beneficial effect
- Plan to re-audit June 2010

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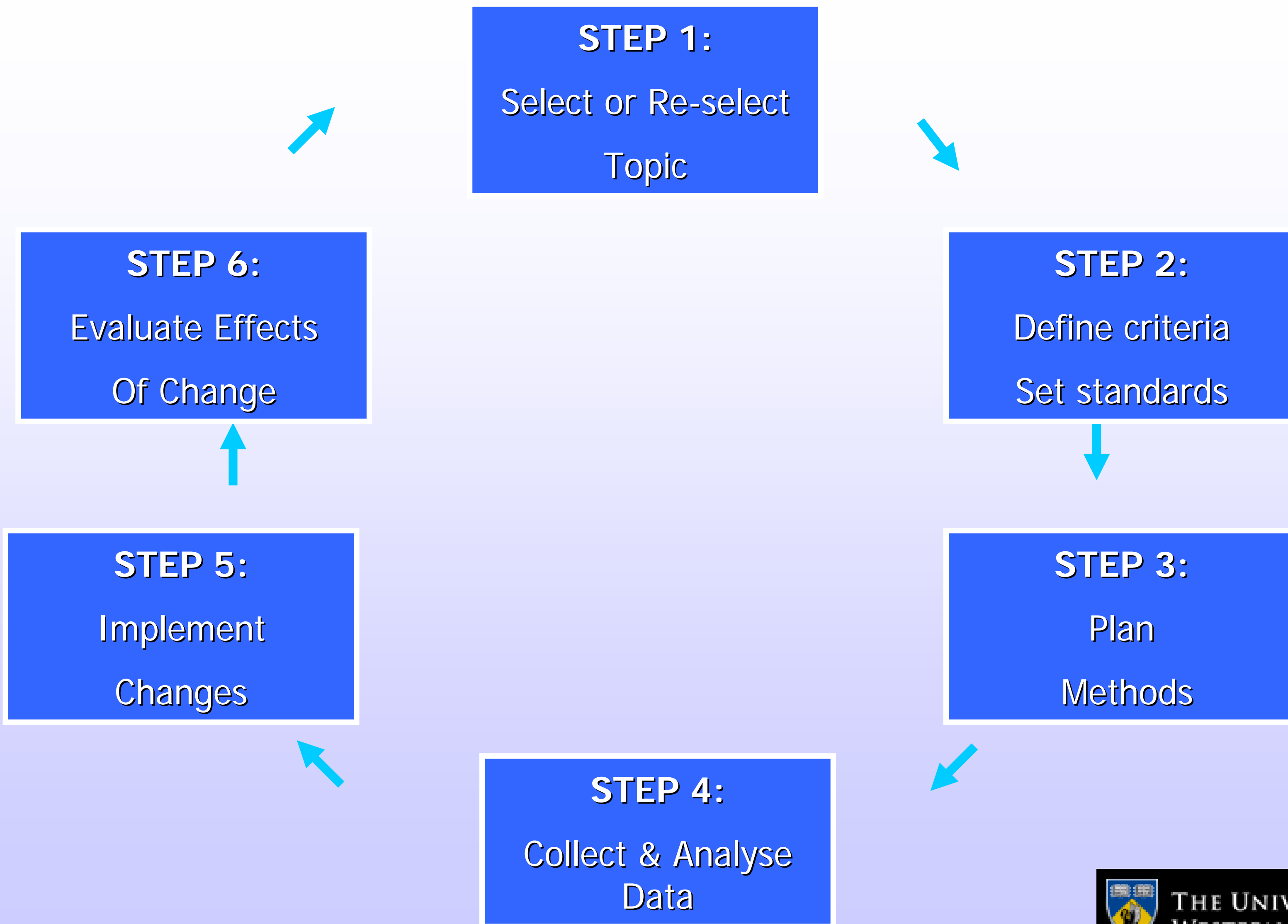
The Audit Cycle



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References

1) National Institute for Clinical Excellence. Principles for Best Practice in Clinical Audit. Abingdon, Oxon: Radcliff Medical Press; 2002.

2) Hush L, Quality Improvement OPH, 2008, Personal communication.

3) Robertson T, Audit Committee KEMH, 2008, Personal communication.

4) The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. College Statement – Decision to delivery interval for caesarean section [online]. 2007 [cited 2008 Feb 28]. Available from: http://www.ranzcog.edu.au/publications/statements/C-obs14.pdf.

5) Thomas J, Paranjothy S Royal College of Obstetricians and Gynaecologists Clinical Effectiveness Support Unit. National Sentinel Caesarean Section Audit Report. RCOG Press; 2001.

6) Spencer MK, MacLennan AH. How long does it take to deliver a baby by emergency caesarean section? *Aust N Z J Obstet Gynaecol.* 2001; 41: 7-11.

7) Helmy WH, Jolaoso AS, Ifaturoti OO, Afify SA, Jones MH. The decision-to-delivery interval for emergency caesarean section: is 30 minutes a realistic target? *Br J Obstet Gynaecol*. 2002; 109: 505-508.

8) MacKenzie IZ, Cooke I. What is a reasonable time from decision-to-delivery by caesarean section? Evidence from 415 deliveries. *Br J Obstet Gynaecol.* 2001; 109: 498-504.