



Effectiveness of anti-microbial coated or impregnated urethral catheters for short-term use in hospitals

presented by

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DISCLOSURE AND ACKNOWLEDGEMENTS

Catheter Trial Project Management Group:

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Catheter Trial Steering Committee and Data Monitoring Committee

Principal Investigators:

N'Dow, Bramwell, Persad, Babu, Pickard, Bollina, Koerner, Fader, MacDonagh, Olsburgh, Tang, Prashar, Parkinson, Patel, Khawaja, Irving, Mason, Ward, Hill, Barnett & Chauhan

Research Nurses and Recruitment Co-ordinators

Outline of Presentation

- **Brief introduction**
- **Important questions**
- **Current evidence for clinical effectiveness**
- **Catheter Trial:**
 - **objectives**
 - **methodology**
 - **current status**
- **Summary**

Introduction

- **Catheter associated UTI - 40% of hospital acquired infections**
- **25% of hospitalised patients require catheterisation**
- **Risk of bacteriuria is 5% per day in catheterised patient**
 - 20% develop symptomatic UTI
 - 4% develop bacteraemia
- **Organisms**
- **Important problem for NHS and society (£124m/year)**

Important questions

What can be done to reduce CAUTI risk in hospitals?

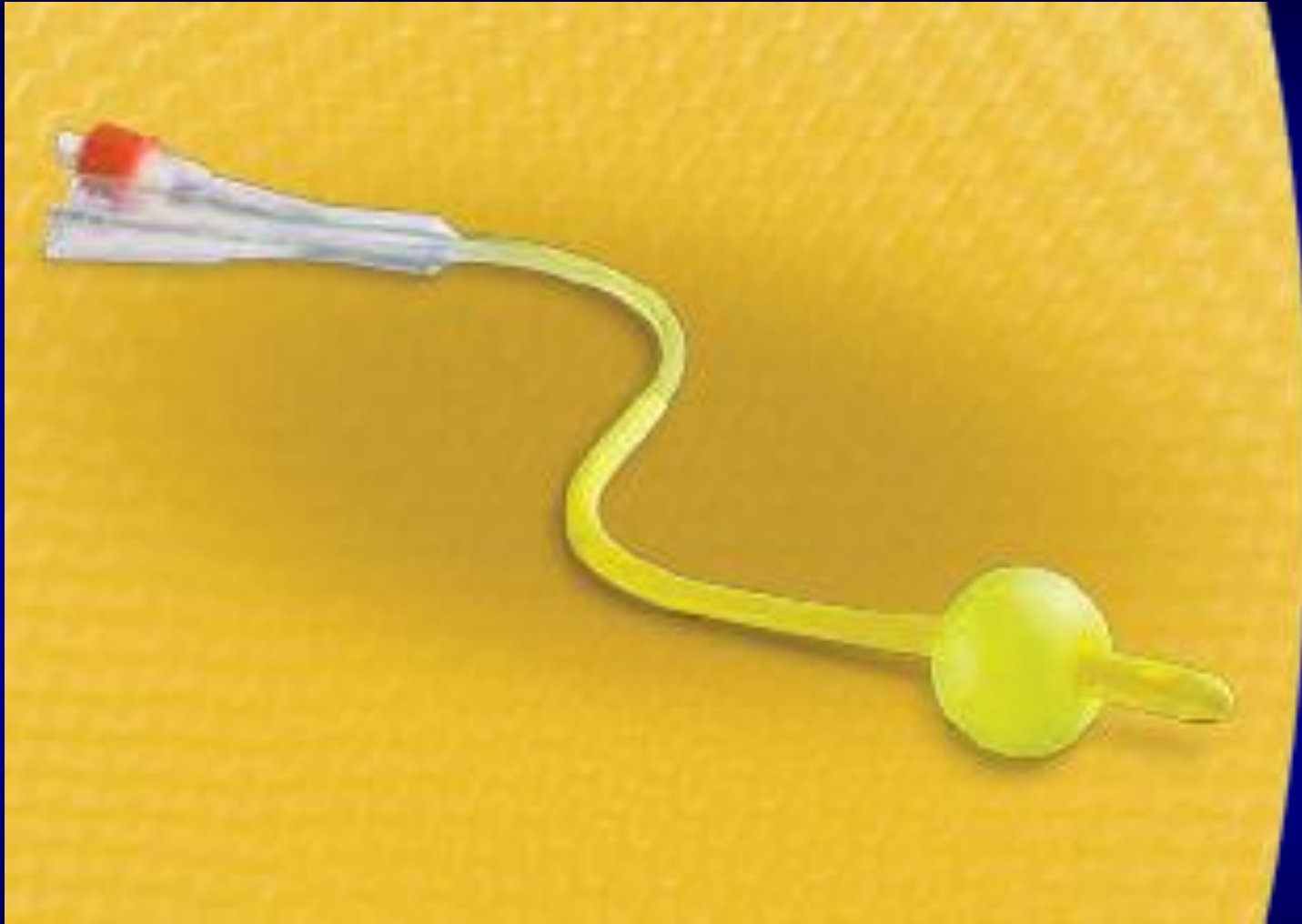
Recommendations for reducing CAUTI risk

- **Catheter care policies**
 - reduce prevalence of catheterisation
 - reduce duration of catheterisation
 - aseptic technique on insertion
 - maintenance of closed drainage system
- **Administration of antibiotics**
 - on insertion
 - throughout duration of catheterisation
 - on removal
- **Technical developments**
 - closed drainage systems
 - anti-microbial coated/impregnated catheters
 - catheter valves

Recommendations for reducing CAUTI risk

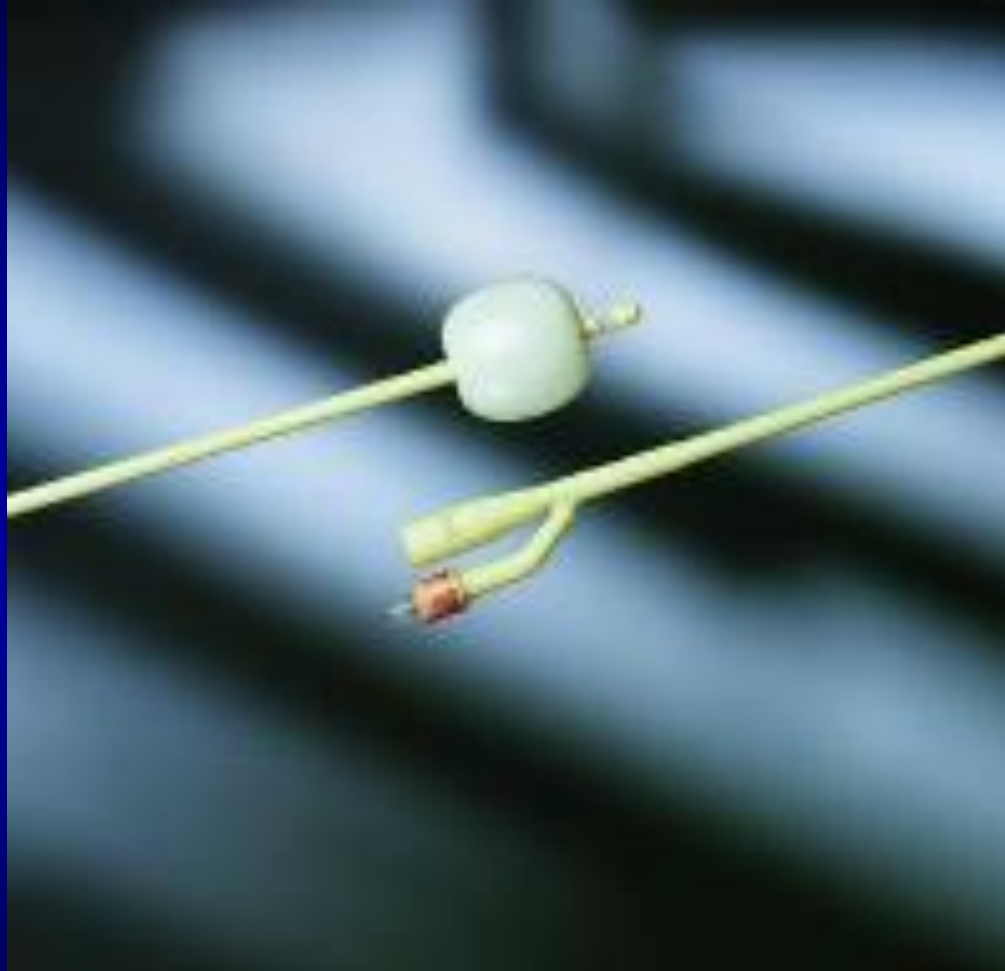
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Types of anti-microbial catheters



Nitrofurazone impregnated silicone catheter
(Rochester Medical Corp)

Types of anti-microbial catheters



**Silver alloy and hydrogel-coated latex catheter
(Bard Inc)**

Important questions

What is the clinical and cost effectiveness of anti-microbial coated catheters?

Evidence from systematic reviews and meta-analyses

- **5 systematic reviews and 2 meta-analyses**
 - Cochrane Review (Schumm & Lam 2008)
- **Suggestion that silver alloy and nitrofurazone catheters may reduce CAUTI risk**
 - silver alloy **RR 16-46%, AR 2-11%**
 - nitrofurazone **RR 48%, AR 9%**
- **Flaws in evidence base**
 - most studies poor to moderate quality
 - outcome measure bacteriuria
 - differing definitions of bacteriuria
 - cost effectiveness unclear
- **All systematic reviews emphasised need for a high quality RCT**

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The Catheter Trial

- **Prospective, multi-centre RCT comparing standard short-term catheters with anti-microbial coated catheters in hospitalised patients**
- **3 groups:**
 - standard PTFE vs silver alloy vs nitrofurazone
- **Funded by NHS NIHR HTA Programme**
- **Trial led by Prof. James N'Dow and co-ordinated from Aberdeen**

The Catheter Trial

- **Setting:**
 - Hospitalised inpatients needing short-term catheter (<14 days)
- **Primary outcome measure:**
 - Incidence of symptomatic UTI
- **Secondary outcome measure:**
 - microbiological support of primary outcome
 - economic outcomes (cost per UTI averted and QALYs gained)
- **Tertiary outcome measures:**
 - catheter discomfort
 - adverse events
 - serious events (sepsis/mortality)
 - HRQoL
 - Antibiotic use

The Catheter Trial

- **Statistical Analysis:**
 - Assumptions: Baseline UTI incidence 11%; RR reduction 30%; AR reduction 3.3%
 - Power 90%
 - Alpha 2.5%
 - Take up rate 60%
 - Withdrawal rate 8%
 - Intention to treat analysis
 - Generalised linear models for analysis (e.g. logistic regression)
 - Subgroup analysis: age, gender, antibiotic use, co-morbidity, catheterisation indication
- **Target n= 7,035 involving 23 UK centres**
- **Recruitment over 40 months (July 2007 – October 2010)**

The Catheter Trial: Current Status

- **Recruitment completed October 2010**
- **Last follow up completed March 2011**
- **Statistical analysis completed May 2011**
- **Economic analysis completed July 2011**
- **Monograph to HTA submitted October 2011**
- **Paper to Lancet being prepared – target date for submission January 2012**
- **Publication in March 2012**
- **Cochrane review update April 2012**

Summary

- **CAUTI incurs significant morbidity and costs**
- **Strategies aimed at reducing CAUTI risk being developed and refined**
- **Anti-microbial coated/impregnated catheters show promise from systematic reviews**
- **The Catheter Trial is a well designed and robust RCT**
- **Trial results will have implications on short-term urinary catheter policies within the NHS and beyond**

Thank You!