What is the Impact of a Bowel Management Protocol in Cardiac Intensive Care?



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# Introduction

### CONSTIPATION

#### Incidence: 83% (Mostafa et al. 2003)

#### **ICU Risk Factors**

- Opioid use
- Immobility (Van der Spoel et al. 2006)
- Severity of illness (Van der Spoel et al. 2007)

#### **Implications**

- Difficulty weaning from MV
- Increased length of ICU stay (Mostafa *et al.* 2003)

# DIARRHOEA

Incidence: 78% (Jack et al. 2010)

#### **ICU Risk Factors**

- NG feed
- Antibiotics (Thibault et al. 2013)
- Infection (Salva et al. 2013)

#### **Implications**

- Impaired skin integrity
- Fluid & electrolyte loss (Pittman et al. 2012).
- NHS costs

- NHS Costs
- •Bowel Management Protocols: standardising and improving incidence of constipation and diarrhoea (Dorman *et al.* 2004; McPeake *et al.* 2011).

# Bowel Management on Cardiac Intensive Care (PHNT)

- Southwest Cardiothoracic Centre
- 12 bedded ICU capacity
- 6 HDU
- Elective and emergency cardiac surgery, e.g. CABG, valve repairs, aortic dissection repairs.
- Rise in comorbidities longer
   ICU stay

- Haphazard bowel management
- Lack of guidance
- Needed standardisation
- Bowel management protocol developed based on research and protocols in the literature
- Implemented on CICU











# Impact of a BMP in ICU

- What does the research say?
- Mixed results
- Is compliance the issue?
- Only 34% compliance rate to a BMP in ICU (Knowles et al. 2014)
- **Snapshot**: day one of admission only.
- Implementation research: to improve compliance need to identify barriers to using BMP in health care (Graham *et al.* 2006; Grimshaw, 2012).





# Aims and Objectives

- Ascertain the impact of the implementation of a BMP on cardiac intensive care patients & to identify the factors to implementation success using the following objectives:
- 1. Detect the impact that the implementation of the BMP had on the incidence of constipation and diarrhoea.
- 2. Identify the level of compliance to the BMP
- 3. Explore the barriers and enablers of the BMP after its implementation to help future refinements of the BMP





# Methods

#### Implementation of BMP: 03/07/15 – 18/10/15



Descriptive stats, Chi-square & Mann-Whitney U

Member Checking offered

#### Results: Phase One



Demographics and clinical characteristics	Pre-implementation n (%)	Post-implementation n (%)	Test Statistics
Gender: Male	21 (70)	15 (71.4)	
Female	9 (30)	5 (23.8)	$\chi^2$ = .028, df = 1, p = .87
Operation: CABG	8 (26.7)	3 (14.3)	
Valve repair/replacement	7 (23.3)	9 (42.9)	
CABG + valve repair/replacement	5 (16.7)	5 (23.8)	
Multiple valve repair/replacement	3 (10)	-	
Type A dissection repair	4 (13.3)	3 (14.3)	
Other	3 (9.9)	1 (4.8)	**
	Md (IQR)	Md (IQR)	
Age	73 (65.50 – 76.75)	69 (60 – 77.5)	U = 285.50, z =565, p = .572
ICU LOS (days)	7.67 (5.89 – 15.09)	6.98 (5.10 – 15.38)	U = 286.50, z =545, p = .585
Hours of MV	88.64 (22.86 – 159.50)	64 (44.37 – 289.09)	U = 299, z =306, p = .759
EuroSCORE II	3.66 (2.23 – 14.04)	3.31 (1.99 – 9.42)	U = 308, z =134, p = .893
Total IV fentanyl intake (mcg)	350.00 (0 – 7639.79)	2300.00 (0 – 8562.20)	U = 294, z =422, p = .673
Total IV remifentanil intake (mg)	1.77 (0 – 9.5)	7.20 (0 – 26.85)	U = 263, z =761, p = .446
Total IV propofol intake (mg)	13625.00 (2775.00 – 21878.75)	9400.00 (4603.34 – 19316.25)	U = 312.50, z =048, p = .962
Total enteral feed intake (ml)	7107.29 (2695.50 – 10349.06)	2565.00 (1150.00 – 14501.79)	U = 253, z = -1.187, p = .235
Course of antibiotics	3 (2-3)	3 (2-3)	U = 288, z =556, p = .578
Number of inotropes	2 (1-3)	2 (1.5 – 2)	U = 269.50, z =909, p = .363

CABG Coronary Artery Bypass Graft, PE Pleural Effusion, LOS Length of Stay, IV Intravenously, MV Mechanical Ventilation, \*\* Chi-square assumption violated

# Constipation

	<b>Pre-implementation</b>	Post-implementation	Test Statistic
Hours until first bowel movement <i>Md</i> ( <i>IQR</i> )	96.52 (72.59-128.10)	108 (97.98 – 119.23)	<i>U</i> = 266, <i>z</i> =938, <i>p</i> = .348.
Episodes (%) of constipation <i>Md</i> ( <i>IQR</i> )	14.29 (6.67 – 20)	14.29 (5.5 – 20)	<i>U</i> = 282.50, <i>z</i> =626, <i>p</i> = .531
Constipated within first 96 hours: <i>n</i> (%) Yes No	15 (50) 15 (50)	17 (81) 4 (19)	χ <sup>2</sup> = 3.8, df = 1, <b>p</b> = <b>.05</b>





# Diarrhoea

	Pre-implementation	Post-implementation	Test Statistics
Number (%)			
diarrhoea days	2.17 (0-20)	0 (0 – 16.07)	U = 283, z =644,
Md (IQR)			p = .507
Patients who			
developed diarrhoea:			
n (%)			
Yes	15 (50)	9 (42.9)	$\chi^2$ = .048, df = 1,
Νο	15 (50)	12 (57.1)	<i>p</i> = .827
Flexi-seal? n (%)			
Yes	7 (23.3)	0 (0)	n = 02
Νο	23 (76.7)	21 (100)	p = .05





## Results: phase one - Compliance







## **Evidence of Behaviour Change**



# **Evidence of Behaviour Change**







## Results: Phase Two – Focus Groups



## Themes extracted from focus groups



# Action plan

Barrier	Action Plan	Barrier	Action Plan
<ul> <li>BMP appearance overwhelming</li> <li>Statements on BMP not clear.</li> </ul>	Simplify the BMP Ensure its elements are clearly stated.	Lack of a multi- disciplinary approach of bowel management.	Inform anaesthetic lead consultant of findings. Ward round templates to include 'bowel' element for doctors to
<ul> <li>Inconsistent methods of dissemination to staff.</li> <li>Misinterpretation of the BMP.</li> <li>Reluctance to change</li> </ul>	Additional one-to-one interactions and teaching sessions for staff to explain the elements of the BMP and the implications of	<ul> <li>Lack of nurse confidence in performing a PR assessment.</li> </ul>	complete. Provide guidelines to nurses on performing PR assessments.
previous practices.	its use in practice.	<ul> <li>Poor documentation of patients' nutritional intake and bowel function.</li> </ul>	Set up reminders about the importance of documentation

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# Discussion

- Little impact was established on incidence of constipation and diarrhoea following BMP implementation.
- •Tendency for higher incidence of constipation and lower incidence of diarrhoea.
- •Less laxatives were given after the implementation misinterpretation of protocol
- •Compliance was low.
- •Barriers identified can explain low compliance.
- •Discrepancies between actual compliance and nurse documented compliance highlights educational requirements.
- There was evidence of practice change through less varied bowel care.





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# Thank you for your attention

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# Any Questions?

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