

# *Outcomes of Patients with Adhesive Small Bowel Obstruction at a Central Hospital in Johannesburg*

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# Literature Review

## Introduction, Epidemiology and Aetiology

- **Adhesive Small Bowel Obstruction (ASBO):** an interruption to the flow of small intestine contents due to intraperitoneal fibrous bands connecting surfaces which are usually separated from one another (Tong, Lingam & Shelat, 2020; Zamarly & Spain, 2020)
- **Mortality:** 2-10%; up to 30% with complications (Hill, 2007; Rami Reddy & Cappell, 2017)
- **Recurrence:** 12% (Hajibandeh et al., 2017; Lorentzen et al., 2017)
- **Morbidity:** chronic post-operative pain and decreased quality of life (Jeppeson et al., 2016)
- **Risk factors include:**
  - previous (multiple) abdominal surgeries (ten Broek et al., 2013)
  - increased age (Long et al., 2019)
  - female sex (Hajibandeh et al., 2017)

# Literature Review

## Clinical Features & Diagnosis

- **'Acute abdomen' presentation** (Rami Reddy & Capell, 2017):
  - Abdominal pain
  - Nausea and vomiting
  - Abdominal distension
  - Constipation-to-obstipation
- **Laboratory findings** (Catena et al., 2016):
  - Raised serum creatine kinase
  - Raised lactic acid
  - Increased white blood cell count
- **Diagnosis: combination of** (van Oudheusden et al., 2013):
  - History
  - Physical examination
  - Laboratory findings
  - Imaging e.g. abdominal CT with oral and intravenous gastrografen contrast

# Literature Review

## Management and Outcomes

- **Operative and non-operative management** (Catena et al., 2016)
- **Treatment goals** (Long et al., 2019; Maung et al., 2012):
  - Identification of patients requiring emergency surgery
  - Haemodynamic stability
  - Fluid and electrolyte replacement
  - Symptom control (analgesics, antiemetics, nasogastric tube)
- Mellor, Hind and Lee (2018) systematic review - 50 different **outcomes** used:
  - Mortality
  - Duration of hospital stay
  - Operative rate

# Aims

To determine the factors associated with the outcomes of patients presenting with ASBO at a tertiary hospital in South Africa

# Objectives

*To  
research  
the:*

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**Outcomes** of patients presenting with ASBO

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**Demographics** of patients presenting with ASBO

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**Clinical findings** of patients presenting with ASBO

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**Laboratory findings** of patients presenting with ASBO

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**Management** of patients presenting with ASBO

# Methodology

## Research Design

- Retrospective record review

## Study Site

- Charlotte Maxeke Johannesburg Academic Hospital

## Ethics

- HREC ethical clearance obtained on 9/12/2021
- Further permission from the CMJAH CEO
- Clearance certificate No. M210927

## Study Population

- Patients > 14 years of age with ASBO from 01 January 2018 - 30 June 2021

# Data Analysis

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Patient file numbers were provided by the CMJAH Department of Surgery

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The anonymized patient records transcribed into a MS Excel sheet

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Data was divided into tables according to the research objectives

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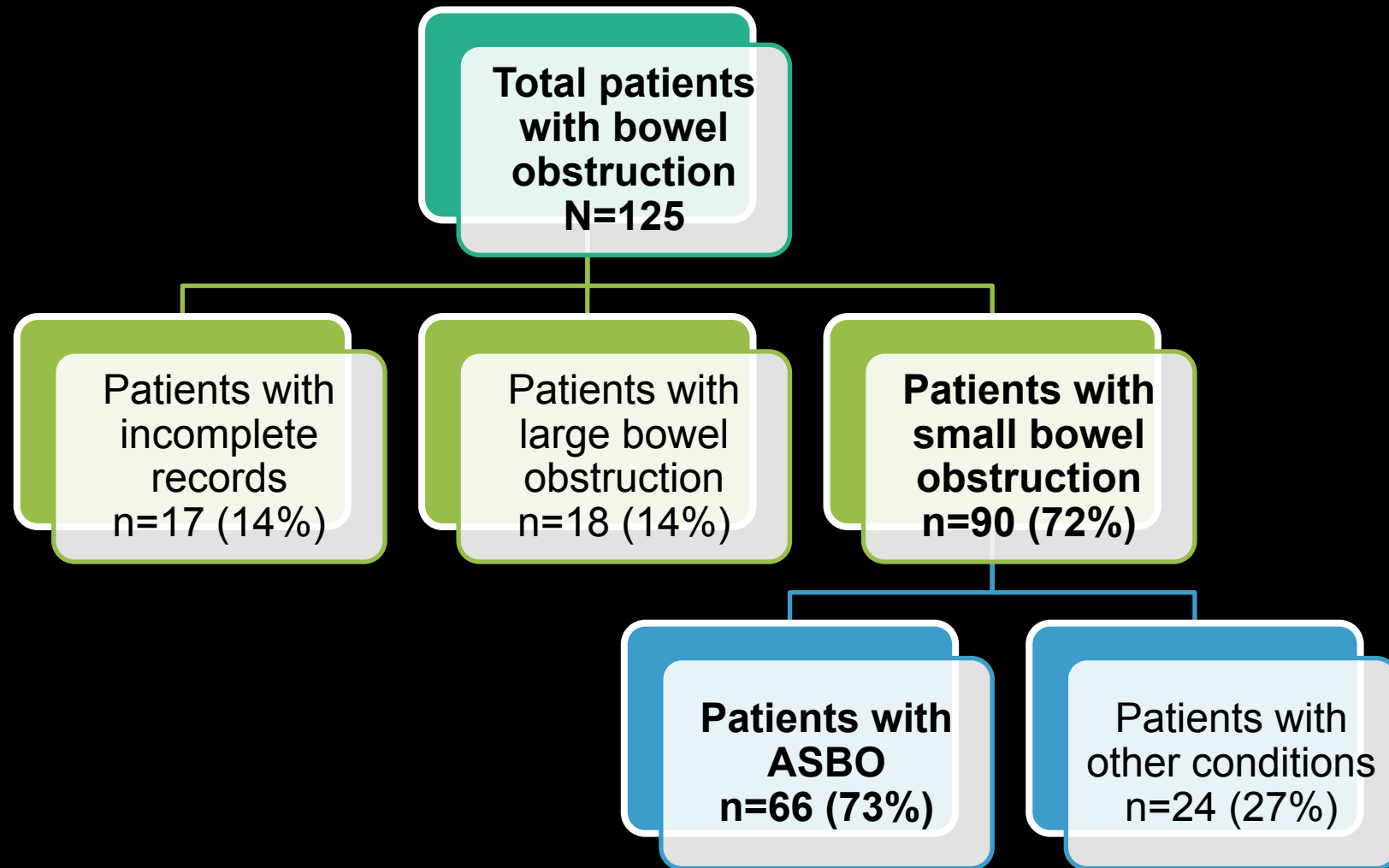
The data was run through Graphpad Prism Version 9 Software

# Data Analysis

Test Done	Type of Data	Example of Variable Analysed
<b>Fischer's Exact Test</b>	Categorical data of two groups being compared	Co-morbidity: Yes or No
<b>Chi-Square Test</b>	Categorical data with multiple sub-groups	Co-morbidity subtypes
<b>Mann-Whitney U Test</b>	Continuous data non-normal distribution	Lab results
<b>T-Test</b>	Specific continuous data with normal distribution	Age distribution

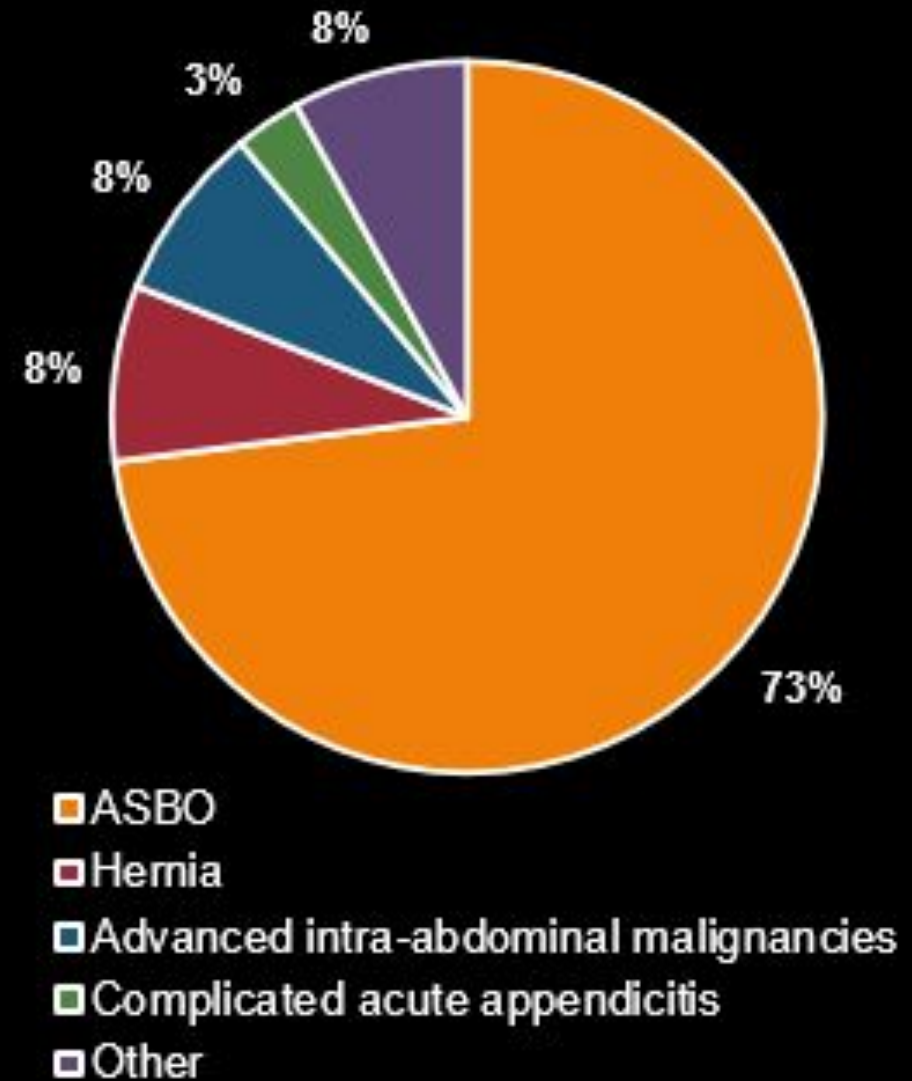


# Results



# Results

## Causes of Small Bowel Obstruction



# Results of ASBO Patients (n=66)

## Demographics of patients with ASBO

Parameter	Number (%)
<b>Gender</b>	
Male	42 (63.64%)
Female	24 (36.36%)
<b>Previous surgery</b>	
Yes	33 (50%)
No	33 (50%)
<b>Recurrence of ASBO</b>	
Yes	15 (22.73%)
No	51 (77.27%)
<b>Definitive management</b>	
Conservative	23 (34.85%)
Surgical	43 (65.15%)

## Laboratory results in patients with ASBO

Parameter	Median (range)	Normal Range
<b>CRP (mg/L)</b>	71.5 (4-355)	<10
<b>Lactate (mmol/L)</b>	1.8 (0.5-8.7)	0.5-1.0
<b>White Cell Count (x10<sup>9</sup> cells/L)</b>	9.985 (2.76-28.53)	4.0-11.0

## Outcomes of patients with ASBO

Parameter	Number (%)
<b>Outcome</b>	
Death	5 (7.56%)
Discharged	61 (92.42%)

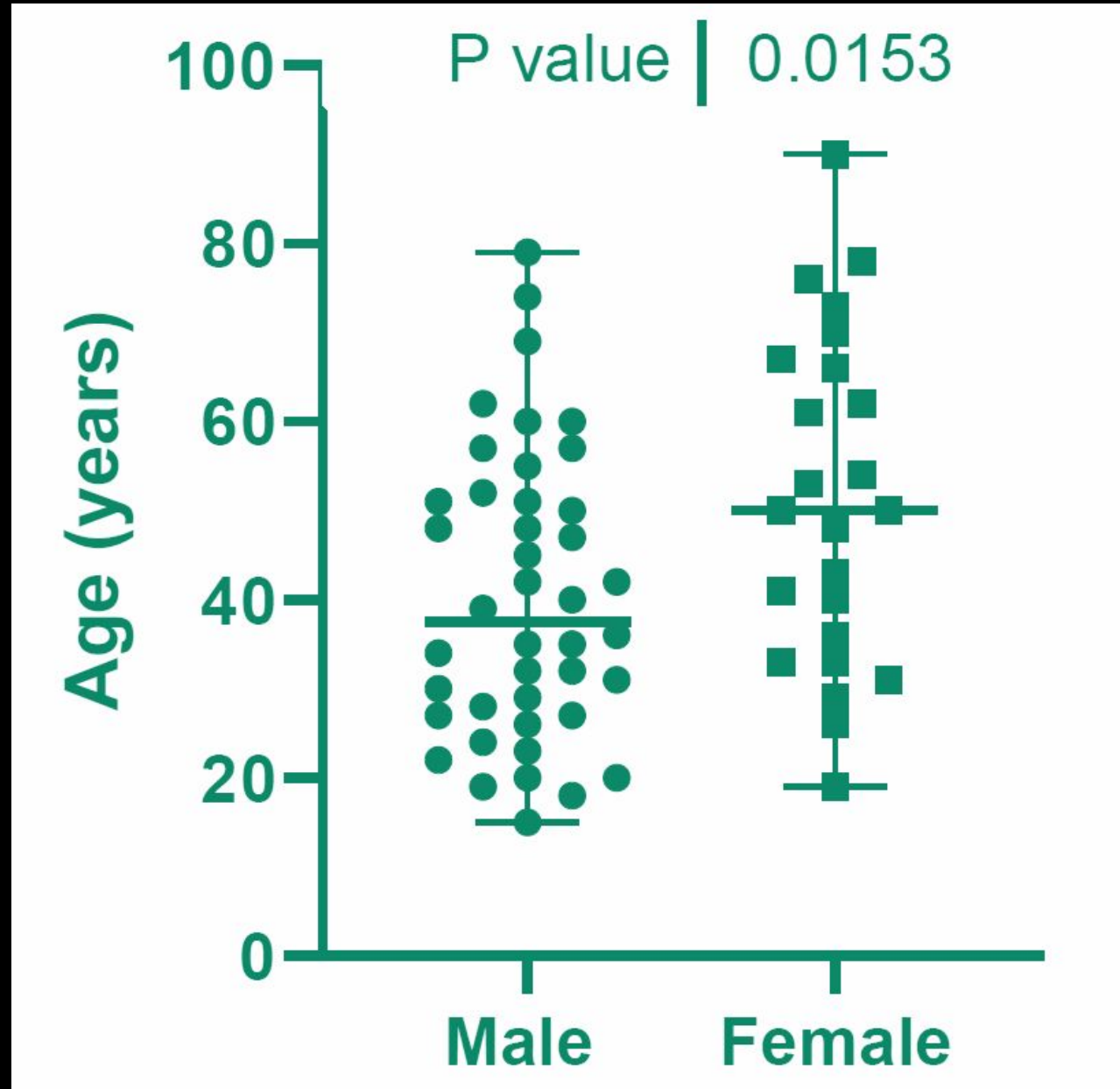
# Outcome: Death vs Discharge

Parameter	Death	Discharged	P-value
<b>Gender</b>			
Male	0 (0.00%)	42 (68.85%)	0.0048
Female	5 (100%)	19 (31.14%)	
<b>Age</b>			
Median	73 (50-78)	40 (15-90)	0.0011
<b>Comorbidities</b>			
Yes	4 (80.00%)	30 (49.18%)	0.3565
No	1 (20.00%)	31 (50.82%)	
<b>Previous surgery</b>			
Yes	0 (0.00%)	33 (54.10)	0.0531
No	5 (100.00%)	28 (45.90%)	
<b>ASBO Recurrence</b>			
Yes	1 (20.00%)	14 (22.95%)	>0.9999
No	4 (80.00%)	47 (77.05%)	
<b>Definitive management</b>			
Conservative	0 (0.00%)	25 (40.98%)	0.1478
Surgical	5 (100.00)	36 (59.02%)	

# Lab Results

Parameter	Death	Discharged	P-value
<b>White Cell Count</b> (x10 <sup>9</sup> cells/L) Median	16.4 (7.66-24.71)	9.77 (2.76-28.53)	0.1643
<b>CRP (mg/L)</b> Median	59 (29-315)	73 (4-355)	0.4452
<b>Lactate (mmol/L)</b> Median	2.2 (1.3-4.4)	1.6 (0.5-8.7)	0.2356
<b>Urea (mmol/L)</b> Median	14.6 (10.5-39.7)	6.5 (1-42.7)	0.0099

**Figure 2A:**  
Scatterplot of  
age of ASBO  
patients by  
gender



# Conclusion

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Adhesions were the cause of 73% of small bowel obstruction

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The overall mortality of patients who had ASBO was 7.56%

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Majority occurring in males and previous surgery in only 50%

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<i>Significant Associations:</i>	Females presenting at a later age than males
	Mortality associated with being female and high median urea level

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# Recommendations

## Clinical Practice:

Lower threshold of care in older females

Using urea levels for management

Addressing delays in surgical intervention

## Future Research:

Multi-site studies

Gender differences in incidence and time to present

Relationship between comorbidities and outcomes



# Limitations

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Smaller than anticipated sample size

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Inaccurate record keeping and missing records

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More severe cases may have skewed results

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Single site study

# Acknowledgements



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**CMJAH MEDICAL RECORDS  
DEPARTMENT**



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# Thank you

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