

Kingston Contenance Service Clinical Audit on the Use of Video Urodynamic Studies

Lead researcher – Dr. Anika Kibria
Advanced Trainee in Geriatric Medicine

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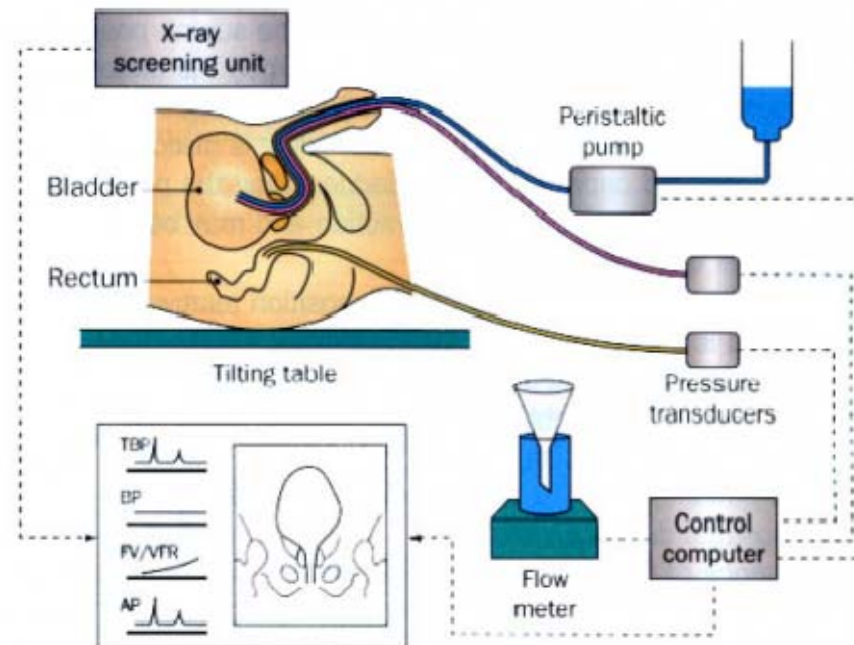
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A Video-urodynamic Study (VUS)

- The technique combines cystometry, uroflowmetry and cystography



A Video-urodynamic Study (VUS)

Risks of VUS (1):

- Discomfort
- Urinary retention
- Haematuria
- Urinary tract infection
 - 1-4% women
 - 2-6% men

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Background

Continence Foundation of Australia report on the Economic impact of incontinence in Australia 2011(2):

- 4.2 million Australians >15 years of age suffer from urinary incontinence.
- More than half are above age 50 and women are more likely to be affected.
- In residential aged care, the prevalence rate is 70.9%.
- Total financial cost of incontinence is estimated to be \$42.9 billion
- Total health system expenditure on incontinence in Australia is estimated at \$271 million and projected to rise to \$450 million by 2020.

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Background

- J. C. Winters et al. conducted a systematic review to create guidelines on the use of VUS 2012 (3):
 - Utility of VUS in clinical practice is not well-defined.
 - There is a lack of well-designed RCTs.
 - literature is scarce and inconsistent regarding optimal role of urodynamics in guiding therapy for patients with LUTS
 - Main recommendation: Identify a clear question and indication for performing the invasive study, to guide therapy.

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Background

- Voiding dysfunction is common and often have complex, multifactorial aetiology in the elderly (4).
- LUTS are a major cause of morbidity and decreased quality of life (5).
- Symptoms are a poor predictor of urodynamic diagnosis (4).
- VUS is the current gold standard in diagnostic testing for LUTS (3-5).
- However the impact of VUS on the management of LUTS is poorly understood.

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Gap in literature identified:

- Use of video urodynamic studies is unclear, specifically whether it changes management and clinical outcomes for patients with LUTS.
- There have been no previous studies examining the use of VUS in geriatric patients in the community

Study design formulated: A retrospective audit of geriatric patients who had undergone video urodynamic studies at Kingston Centre since its introduction in 2014

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Aims

- Compare current practice to gold standard recommendations and guidelines, specifically looking at documentation of history, examination and investigations prior to VUS
- Identify and assess referrals for VUS
- Assess pre and post VUS diagnosis and management
- Assess patient outcomes post VUS

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Method

- **Population:** all consecutive geriatric patients (>65 years) who had undergone VUS at Kingston Continence Service from 2014 - 2016.
- **Time period audited:** 2014-2016
- **Identification of patients:** continence database used to identify all patients who had undergone VUS. 116 were identified of which 56 were above 65 years of age.
- **Data Collection Method:** electronic case notes review. Missing data attempted to be collected via phone calls to GP practices and specialist clinic and visits to peripheral sites.

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Method

- Ideal for an audit is to compare current practice with the 'gold standard'. However, this does not exist for VUS. Thus recommendations from well respected bodies have been utilised (6,7):
 - International Continence Society
 - European Association of Urology
 - The National Institute for Health and Care Excellence
- Document created summarising gold standard guidelines from these bodies.
- Data collection form created to check documentation of history and examination.

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Method

- Audit proposal submitted to Monash Ethics and deemed low risk
- Secure (password encrypted) Word document created with patient UR numbers and designated de-identified numbers
- Secure (password encrypted) Excel Spreadsheet created for data entry

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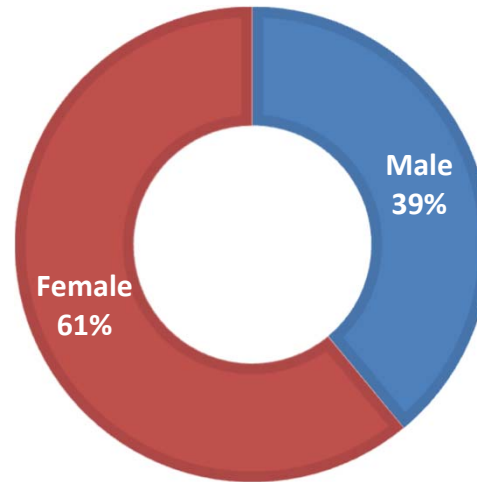
Method – Data collected

1. Age
2. Sex
3. History details (aiming for >80% compliance with gold standard guidelines)
4. Examination details (aiming for >80% compliance with gold standard guidelines)
5. Bladder diary completion
6. Urinalysis/MCS completion
7. PVR completion
8. ICIQ completion
9. Indication for VUS
10. Time to VUS (in months)
11. Diagnosis pre-VUS
12. Diagnosis post-VUS
13. Change in diagnosis
14. Post VUS management
15. Change in management
16. Symptoms at 1-3 months
17. Symptoms at 6 + months



Results - Gender

■ Male ■ Female



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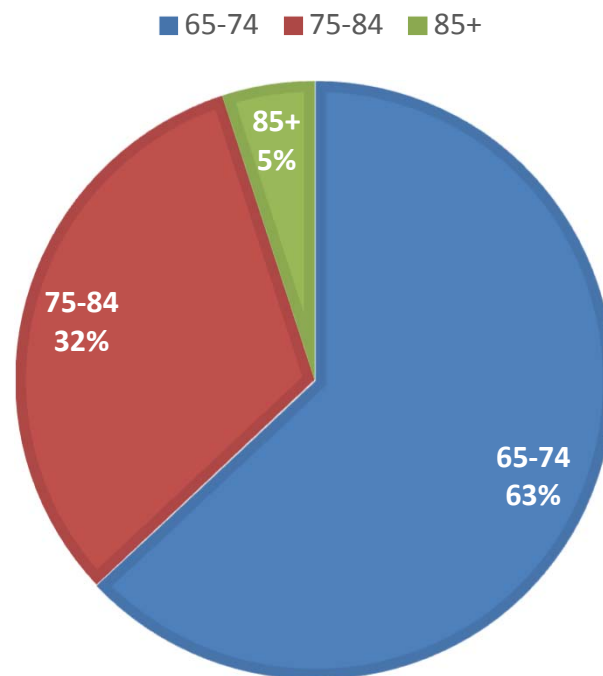
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Results - Age



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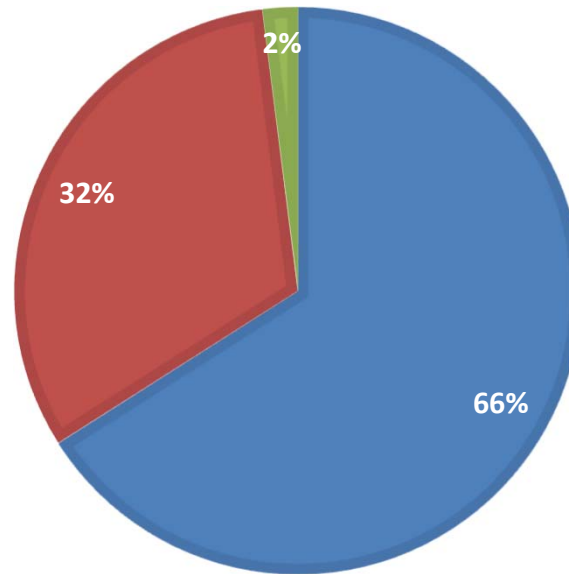
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Results – History taking

■ >80% compliance ■ <80% compliance ■ Data unavailable



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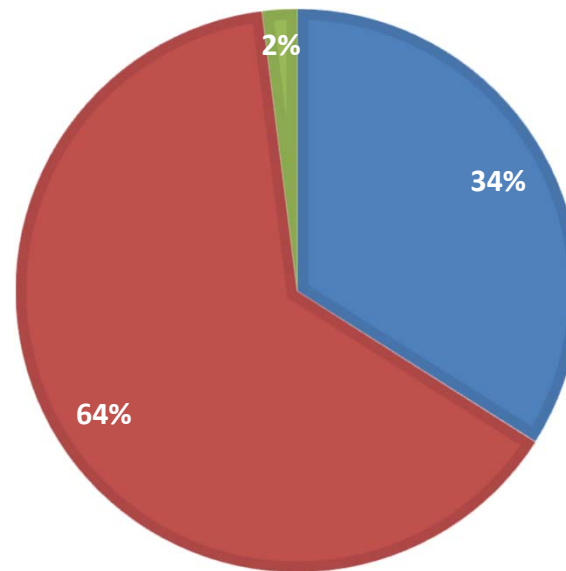
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Results - Examination documentation

■ >80% compliance ■ <80% compliance ■ Data unavailable



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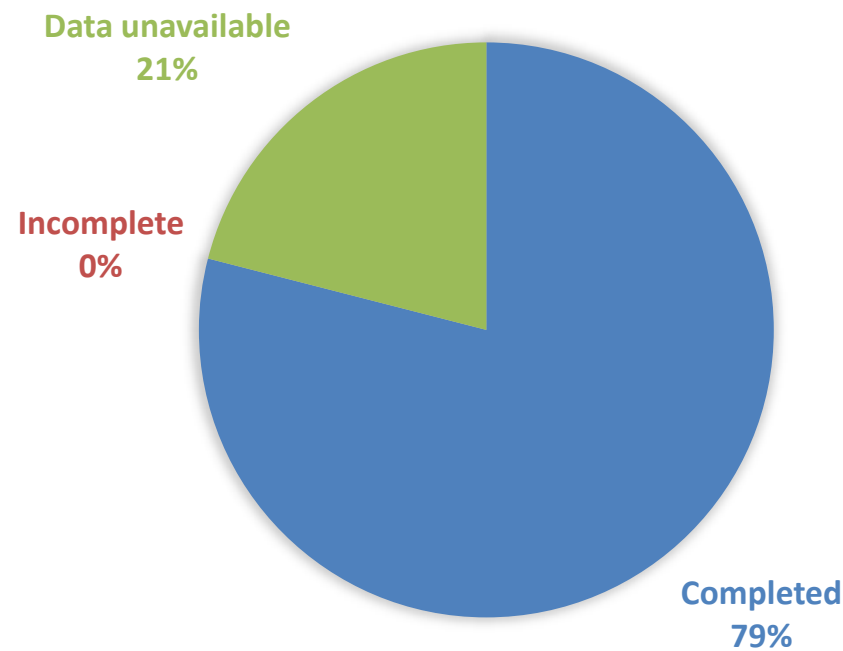
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Results – Bladder diary documentation



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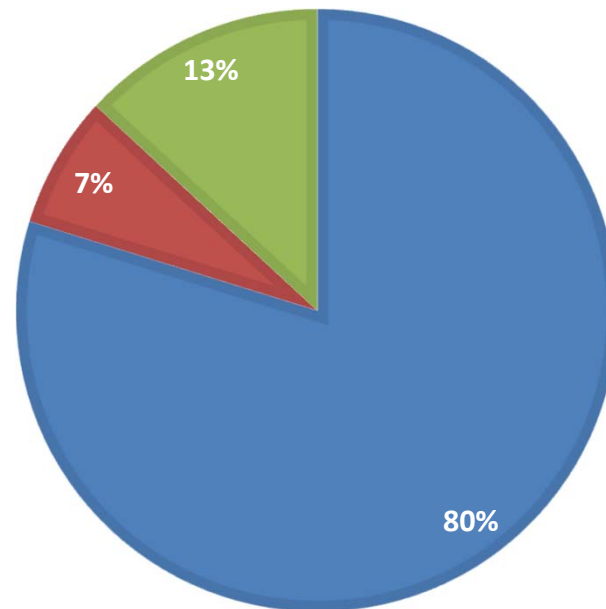
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Results – Urinalysis documentation

■ Available ■ Not completed ■ Unavailable



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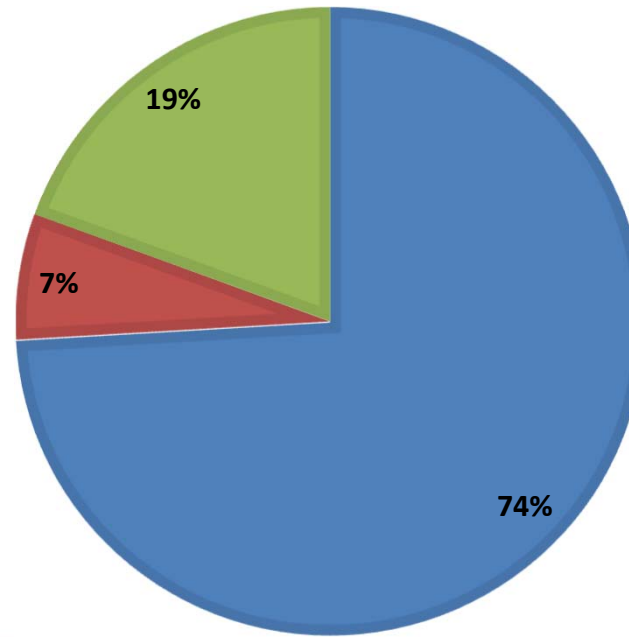
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Results – PVR documentation

■ Completed ■ Not documented ■ Data unavailable



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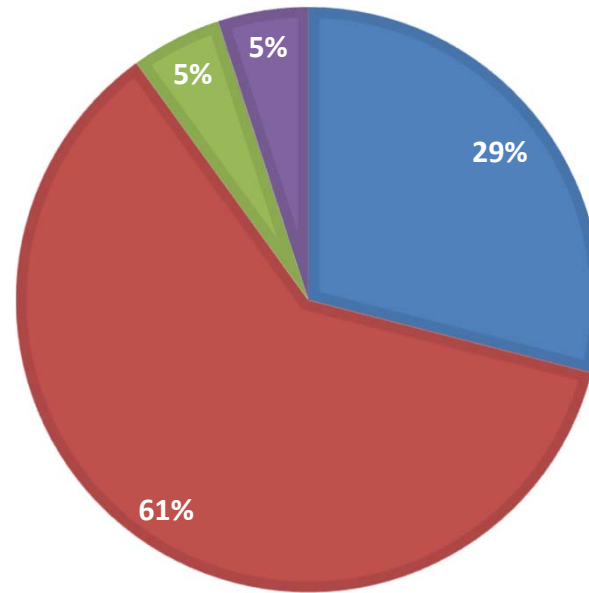
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Results – Indication for VUS

■ Symptoms did not improve ■ Diagnostic Clarity ■ Assess Severity ■ Pre surgery work-up



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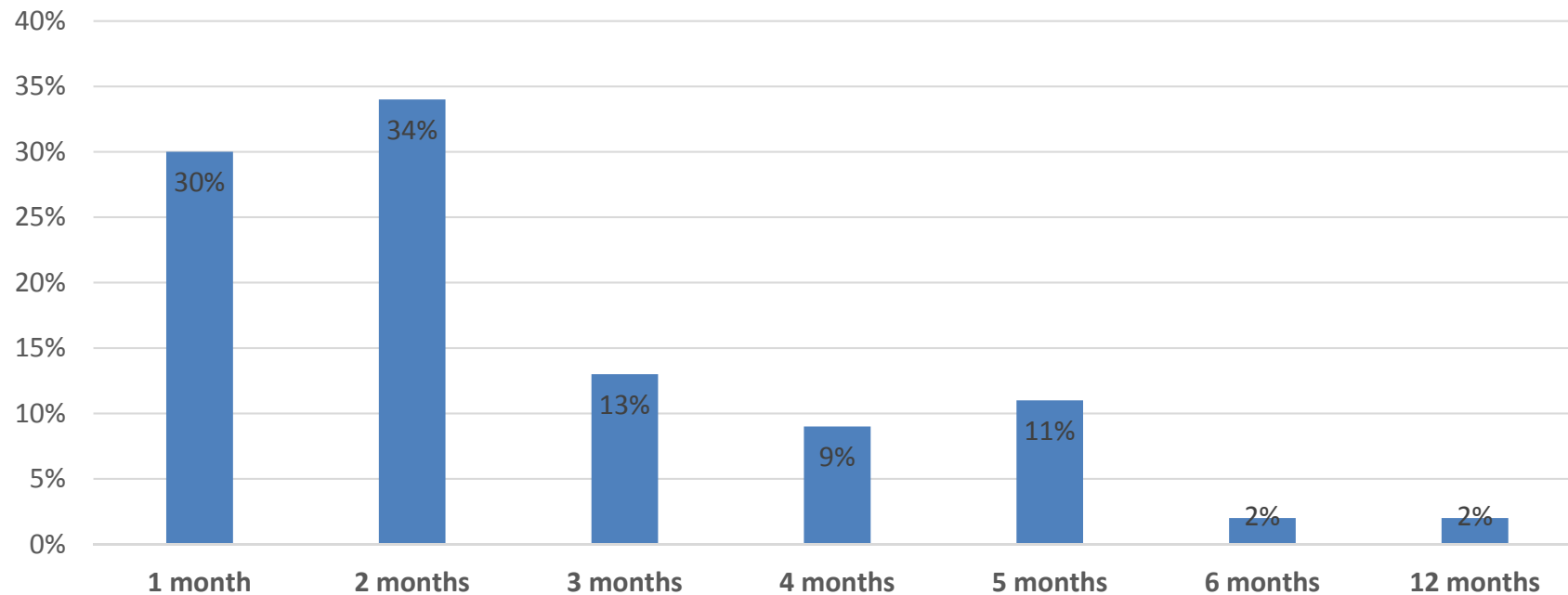
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Results – Time to VUS



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Results – Diagnosis pre and post VUS

Diagnosis	Pre VUS	Post VUS
1. Mixed Incontinence	15 (27%)	5 (9%)
2. Stress Incontinence	10 (18%)	14 (25%)
3. Urge Incontinence (including detrusor overactivity, neurogenic detrusor overactivity etc.)	20 (36%)	43 (77%)
4. Impaired Bladder Emptying (secondary to obstruction, detrusor underactivity, atonic bladder or sphincter dyssynergia)	10 (18%)	26 (46%)
5. Reduced bladder capacity	1 (2%)	10 (18%)
6. Vesicoureteric reflux/other	12 (21%)	8 (14%)

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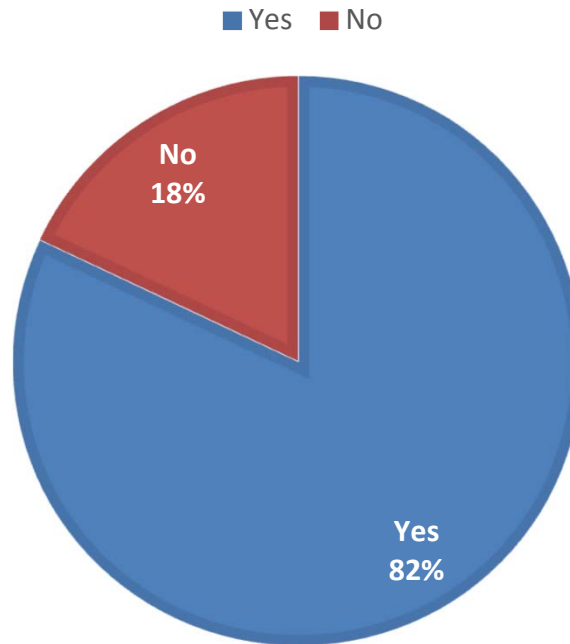
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Results – Change in Diagnosis post VUS



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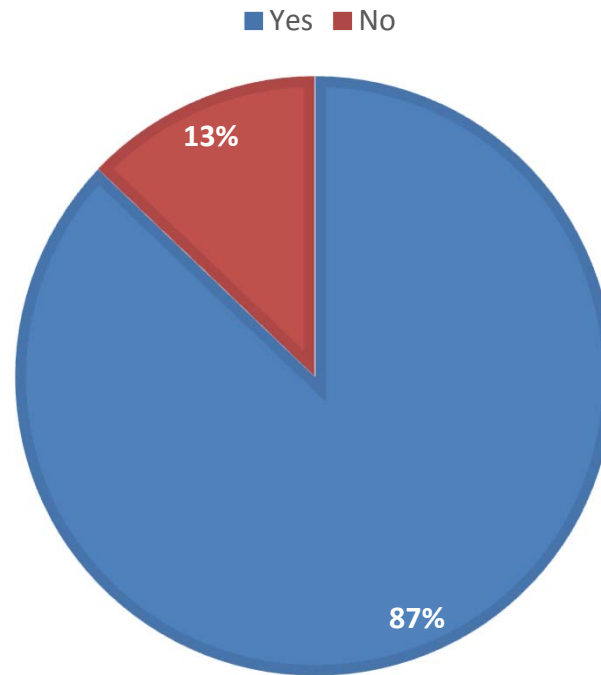


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Results – Management strategies pre and post VUS

Management	Pre VUS	Post VUS
1. Surgical referral	0	24 (43%)
2. Medication management	30 (54%)	18 (32%)
3. Pessary	2 (4%)	3 (5%)
4. Botox treatment	0	2 (4%)
5. Catheterisation – including permanent indwelling catheter and self-catheterisation	2 (4%)	6 (10%)
6. Physiotherapy	39 (70%)	13 (23%)
7. Dietary modifications	0	4 (7%)
8. Other – no prior treatment, penile clamp, MRI, ophthalmology review	4 (7%)	3 (5%)

Results – Change in Management post VUS



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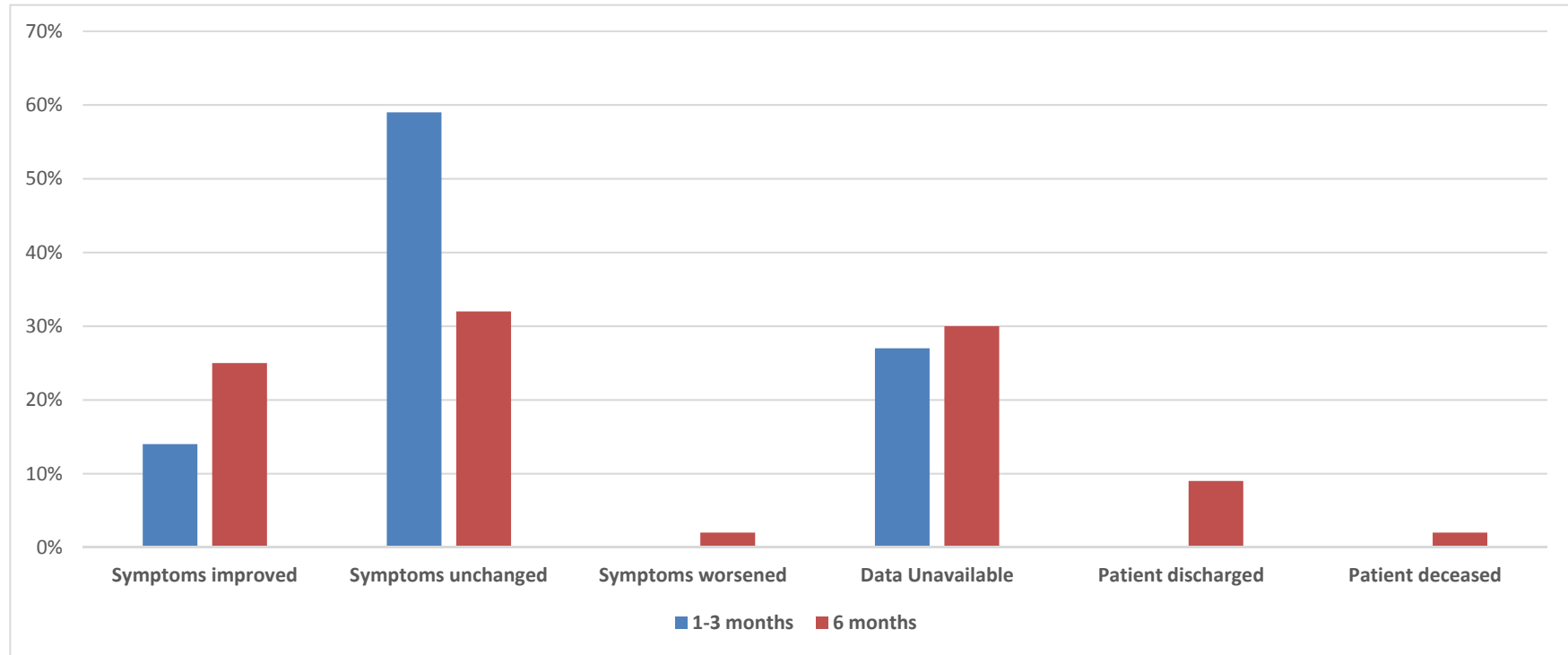
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Results – Follow up outcomes



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Limitations

- Small sample size – 56 patients
- Single centre audit
- Retrospective
- Single investigator
- Missing/unavailable data

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Conclusions

- Bladder capacity, emptying, obstruction and sphincter function assessed more accurately with VUS
- VUS changed diagnosis and management for majority of patients
- Trend for greater improvement after 6 months
- VUS an important diagnostic tool for the geriatric patient with complex symptoms
- However, study limitations make it difficult to generalize findings for all geriatric patients with LUTS



Conclusions

Further study required:

- 12 month follow up of patient outcomes
- Multi-centre study of geriatric patients undergoing VUS
- Examine role of VUS in the frail elderly cohort
- Study into patient perception of VUS

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