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Paediatric bladder dysfunction: A single centre experience of public hospital wait times

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Conflict of Interest Statement:

The authors have declared that they have no conflicts of interest to disclose.

Abbreviations:

BBD - Bladder and Bowel Dysfunction

DOB - Date of Birth

EMR - Electronic Medical Records

GP - General Practitioner

KPI - Key Performance Indicator

LUT - Lower Urinary Tract

PDSA - Plan-Do-Study-Act

RCH - The Royal Children's Hospital, Melbourne

RMS - Referral Management System

MAIN TEXT

ABSTRACT

Aim:

Paediatric bladder dysfunction, including daytime urinary incontinence and enuresis, is a common and distressing condition. Unfortunately, children with these symptoms are often on waitlists for several months. This treatment delay may significantly impact upon the child and family unit. This study aimed to quantify waiting times for children who had attended hospital outpatient clinics for symptoms of wetting.

Methods:

A retrospective review was undertaken for patients who had been referred to The Royal Children's Hospital, Melbourne outpatient clinics for symptoms of wetting (with/without bowel symptoms). Data regarding the referral and triage pathway, up to the time of the first clinic appointment, were collected. These data were compared to a previous audit conducted in the same setting.

Results:

A total of 101 clinic attendances were included in this study. The overall waiting time, from receipt of referral to the patient's first clinic attendance, was a median of 181 days (n=94 valid responses; range 7 - 695). Wait times for patients with isolated symptoms of wetting were similar to patients with mixed bowel and bladder dysfunction (187 and 171.5 days, respectively). Most patients were triaged to the Continence clinic (n=68), whilst smaller proportions of patients were seen in the Encopresis (n=14), Urology (n=13), General Medicine (n=2), Gastroenterology (n=1), and nurse-led enuresis clinic (n=3).

Conclusions:

The waiting times for patients with wetting generally exceeded five months. Alternative pathways for triage need to be explored to manage demand and improve wait times.

Keywords:

Urinary incontinence, bladder dysfunction, enuresis, waiting lists, paediatrics

What is already known on this topic:

- The balance between demand for specialist care outpatient clinics and access time is a common problem across various specialties.
- In Australia, paediatrician consultations have increased for children with enuresis from 4.3% to 4.6% over a 5-year period (2008-2013).
- Wait time data for common paediatric conditions is limited from time of referral to appointment.

What this paper adds:

- Patients referred to a public paediatric hospital outpatient clinic for symptoms of wetting waited a median of 181 days from date of receipt to first appointment.
- Wait times for appointments were marginally lower for patients with mixed bowel and bladder dysfunction (171.5 days) versus those with isolated symptoms of wetting (187 days).

INTRODUCTION

Bladder dysfunction is described by the International Children's Continence Society as any lower urinary tract disturbance, which may or may not include daytime urinary incontinence (wetting) or nocturnal enuresis (bedwetting).¹ It is a common disturbance, with 4.6% of Australian paediatrician consultations dealing with enuresis in 2013, an increase from 4.3% in 2008.² A proportion of patients with bladder dysfunction also experience associated symptoms of bowel dysfunction such as constipation and faecal incontinence (soiling). The profound effects that wetting has on quality of life (QoL) have been well established, especially with regards to self-esteem and school performance.^{3, 4} Adequate treatment of wetting has been shown to improve the QoL of patients and their families.^{5, 6}

In recent times, Australian paediatric specialist outpatient services have reported increased demand, but limited data on wait time.⁷ Data for adult clinics is useful, but the lack of studies describing wait time for public paediatric outpatient appointments highlights a significant research gap. This information is particularly important for common low-morbidity childhood conditions such as wetting, where access to alarm therapy in the community is challenging. The large number of children referred to tertiary care has been suggested to result in longer waiting times, which may lead to deterioration in both symptoms and QoL.⁸ Existing methods for managing access and triage to outpatient services may lead to inequities in service delivery, inefficiencies, and divert resources from community-based care.

The aim of this study was to quantify the waiting times for patients that attended clinics for symptoms of wetting at The Royal Children's Hospital (RCH), Melbourne.

METHODS

Study design and participants

We conducted a retrospective chart review to explore patient waiting times and referral processes at a paediatric tertiary referral centre in Victoria, Australia. The review focussed on children with symptoms of isolated symptoms of wetting (daytime urinary incontinence / enuresis) or mixed bladder and bowel dysfunction (BBD). Patients who had attended outpatient clinics at the RCH across a six-month period were retrospectively identified from the Electronic Medical Record (EMR) system through a user-generated report. The report generated clinic attendances from September 2017 to February 2018, inclusive. Each record was manually screened against the inclusion/exclusion criteria (Figure 1).

Patients were eligible if they met the following criteria:

1. aged between 5 - 18 years inclusive
2. referred for functional daytime urinary incontinence, enuresis, or BBD
3. attended one of the following clinics: General Medicine, Continence, Encopresis, Urology, Gastroenterology, or Paediatric Surgery
4. the first clinic appointment for their current referral

Patients were excluded if they:

1. had an organic cause for symptoms of daytime urinary incontinence, enuresis, or BBD (e.g. Hirschsprung disease, posterior urethral valves)
2. were known to have a syndrome that was linked to their bladder or bowel dysfunction (e.g. VACTERL association, diabetes)
3. had severe intellectual disability
4. were classified into Group IV or V of the Gross Motor Functional Classification System⁹

5. were currently undergoing chemotherapy
6. had a “vulnerable” child label on EMR
7. did not have a traceable referral form on EMR

Data were collected from the patient’s clinical record. It included demographic characteristics, referral information (date, source, reason), and triage information (clinic).

2014 retrospective audit

Prior to the 2017/8 chart review, a similar retrospective audit was undertaken in 2014. This audit reviewed outpatient clinic wait times and pathways for children with symptoms of bladder and/or bowel dysfunction (isolated bowel dysfunction, isolated wetting, and mixed BBD) who had attended an appointment during April to June 2014. The 2014 audit was conducted in the same setting as the 2017/8 review, with minor methodological differences in patient identification and screening.¹⁰ In 2014, patient records were manually screened to identify those who had been referred and seen for symptoms of wetting and/or bowel dysfunction. A detailed methodology, selection criteria, and findings from patients with isolated bowel dysfunction are provided in a related paper.¹⁰ For the purpose of this paper, we limited the data collected in 2014 to children aged ≥ 5 years and those experiencing symptoms of isolated wetting or mixed BBD. The 2014 data was compared descriptively with the 2017/8 data to provide insights into differences in waiting times for services provided at the RCH over time.

Data analysis

Basic descriptive statistics were used to summarise the data, such as demographic characteristics. Stata Statistical Software (StataCorp. 2015. Stata Statistical Software: Release 13. College Station, TX: StataCorp LP) was used to analyse the data.

Data were entered into two database platforms, Microsoft Access (Microsoft Corporation, Seattle, Washington, USA) and REDCap (Research Electronic Data Capture).¹¹

Triage process map

A process map was developed to describe triage pathways for incoming referrals. It was initially developed through discussions with relevant staff who manage referral entry and triage. Minor changes were made after direct observation. An abbreviated version of the triage process map was used to describe each administrative step from referral entry to appointment. The waiting time for each triage process/step is represented by letters A - D shown in Figure 2.

Ethics

Ethics approval was attained from The Royal Children's Hospital Human Research Ethics Committee (HREC number: 35232).

RESULTS

Screening and patient characteristics

A total of 257 patients were referred for symptoms of wetting and/or bowel dysfunction and received an initial appointment during the study period. Of these, 101 had attended a specialist clinic appointment for isolated wetting or mixed dysfunction comprising of BBD (Figure 1). According to data from clinical records, 53 patients had symptoms of isolated wetting and 48 had symptoms of mixed BBD. Patients with isolated wetting were further categorised into the following sub-groups: daytime urinary incontinence (n = 2); monosymptomatic enuresis (n = 24); and combined day (urinary incontinence) and night (non-monosymptomatic enuresis) symptoms (n = 27).

As shown in Table 1, patients with isolated wetting were older than those experiencing mixed BBD (median age 11 years and 8 years, respectively). The isolated wetting group also had a greater proportion of males (77% versus 48%).

Distribution of clinics attended

More than two-thirds of patients were triaged to the General Medicine Continence clinic for their first clinic appointment (n = 68/101) (Table 1). Smaller proportions of patients were seen in the Encopresis (n = 14), Urology (n = 13), General Medicine (n = 2), and Gastroenterology (n = 1) clinics.

Further review of the Urology referrals revealed only three out of the 13 referrals to Urology specified an additional urological concern that would warrant urologist input. The other referrals had no indication stated at all, and appeared to be triaged to Urology because a specific clinician had been requested on the referral.

Waiting time

The median total waiting time, from receipt of referral to first appointment (triage process F), was 181 days (IQR 88 - 231, range 7 - 695) for all patients seen in 2017/2018, 187 days (IQR 93 - 250, range 7 - 695) for patients with isolated wetting, and 171.5 days (IQR 77 - 220, range 12 - 344) for patients with mixed BBD.

The pathway from referral entry to appointment comprised of several processes. As shown in Figure 3, the time period from when the referral was written to acknowledgement by triage staff was relatively short (process A and B). The largest contributor to wait time was process C - time from referral acknowledgement to the date when the appointment was booked.

Wait times calculated using the date referral written to date of first appointment (triage process G) are presented alongside data from the previous audit of patients seen in 2014 (Table 2). The

longest wait times were observed for patients triaged to the Continence clinic for patients with isolated wetting and mixed BBD. The median waiting times for the Continence clinic were 102 days (IQR 93 - 160) in the 2014 audit and 199.5 days (IQR 180.5 - 251) in the 2017/8 audit.

DISCUSSION

This study revealed children that referred to public outpatient clinics at a single tertiary referral hospital with symptoms of wetting with or without bowel dysfunction wait approximately six months for an appointment. The wait time is marginally longer for children experiencing symptoms of isolated wetting versus those with mixed dysfunction.

The distribution of patients between clinics demonstrated triage variability. In 2014, the majority of isolated wetting referrals were triaged to the General Medicine clinic. Whereas, in the 2017/8 audit, isolated wetting referrals were triaged to the Continence clinic, which suggests a possible change in triage practice. However, without having access to detailed process maps that accurately reflect triage procedures, it is difficult to characterise the factors that have contributed to the change in practice.

Whilst the Continence clinic may be a suitable clinic for patients with isolated wetting, wait time for an appointment was over six months during the 2017/8 study period. The long wait time may be attributable to a range of reasons such as clinic load, demand or staffing. Unfortunately, the lack of data pertaining to clinic processes and workflow hinders our ability to explore these reasons in further detail. In order to manage demand, strategies to reduce wait times are required. In our study, approximately half of patients with isolated wetting were referred for monosymptomatic enuresis. The treatment strategy for these patients is well defined and could be delivered through a nurse-led clinic specialising in alarm therapy. Evidence in the literature suggests that the development of enuresis clinics, staffed by well-trained nurses such as clinical nurse consultants, successfully motivated families to undertake complex behavioural therapies.¹² As part of quality improvement initiatives aimed at reducing wait times across outpatient clinics, the RCH has commenced redesign of the triage and management pathway for monosymptomatic enuresis patients. Such initiatives are important to ensure children with enuresis receive timely management targeted to their needs. The role of the community provider is also worth exploring in order to try and improve outcomes for these children.

For children with symptoms of mixed BBD, those who were triaged to the Encopresis clinic during our 2017/8 audit experienced shorter waiting times compared with the previous 2014

audit. Review of clinic processes over the past couple years revealed the introduction of additional Encopresis clinics. This change is likely to have decreased wait time by providing more appointments to meet demand.

This review also identified a small number of patients with isolated wetting who were triaged to less appropriate clinics such as Urology and Encopresis. Paediatric urologists typically handle anatomical abnormalities of the urogenital tract, whilst the Encopresis clinic is targeted towards management of children with faecal soiling. However, some of the referrals to Urology appeared to be triaged to the Urology clinic for reasons other than symptomology. This suggests inconsistent and sub-optimal triage practices that could be improved by implementation of clear triage guidelines.

Triage processes A and B, the periods associated with receiving a referral and being acknowledged by triage staff fell within the key performance indicators (KPI), as defined by the Victorian Department of Health and Human Services.¹³ However, triage processes C and D had the greatest impact on overall wait time, yet have no defined KPI. Triage process C, which reflects the “waitlist”, has the widest range, which suggests that there may be multiple reasons that impact upon this. It may be affected by wide variability in booking practices and family availability during the time of the offered appointment. To unveil the factors that lead to this variable waitlist period, an intimate understanding of the back-and-forth processes between triage staff and booking staff is required. Potential strategies to reduce wait times may include offering short-notice appointments or improved scheduling.¹⁴

The majority of referrals were acknowledged and accepted quickly, and subsequently added to the queue of patients waiting to be seen in the Continence clinic. This may suggest that the content of these referrals is often insufficient to guide the triaging process, or that staff are inadequately trained to appropriately triage based on the content of the referral. Alternatively, this may indicate a lack of other suitable clinics. Previous studies have shown the benefit of using dedicated proformas in a referral system.¹⁵ Future endeavours would benefit from testing the efficacy of proformas for referrals to improve the triage of BBD referrals to the appropriate clinics.

This study was integral in identifying areas of improvement in the triage system of a major paediatric tertiary hospital. It has revealed inappropriate triaging practices, and paves the way forward for future endeavours to combat these inefficiencies. Additionally, unlike previous studies, we were able to identify specific administrative steps in the triaging process which had the largest impact on waiting times.

However, our results should be taken in the context of several study limitations. The waiting period calculations were based on varying sample sizes, due to missing data in EMR (e.g. missing time stamps for 'date acknowledged'). Therefore, comparability between waiting periods was limited, but each waiting period can be considered on its own. Comparability of waiting time data between the 2014 and 2017/8 audit is not ideal due to differences in method of calculation and screening procedure. The date of receipt of referral was not recorded in the 2014 audit, thus the total waiting time was determined from the date the referral was written to the patient's first clinic attendance (equivalent to triage process G). This may have little effect on the overall waiting time, as this study suggests that referrals were often received on the same day they were written, most likely due to electronic transfer. Additionally, there were temporal inconsistencies between dates, such that it would produce negative waiting time calculations, which were omitted from our results. This was evident in our study, and both the 2014 and 2017/8 data. This may reflect inconsistent administrative data entry, or non-conventional methods of clinic attendance (e.g. patients calling directly to seek clinic slots due to cancellations). However, this only represented a small proportion of cases in our study, and in fact, reveals a potential avenue of clinic booking that may be explored to reduce waiting times and minimise wastage of clinic resources.

In large settings, such as hospitals, implementation of quality improvement initiatives are labour-intensive and likely to be influenced by economic, social, and hospital policy-driven barriers. There are usually several strategies that may be applied to improve delivery of care and achieve better patient outcomes.⁸ As shown in this study, one of the first steps is an audit of current practice and process maps to identify areas where potential quality improvement initiatives can be applied. Wait list reduction strategies reported in the literature include pre-referral initiatives

(e.g. professional education, guideline dissemination), resource realignment (e.g. wait list audit, triage efficiency), operational efficiency (e.g. appointment scheduling), and process improvement (e.g. updated referral systems).¹⁶⁻¹⁸ Once potential strategies have been identified, Plan-Do-Study-Act (PDSA) cycles can be a useful tool to test the strategies in the current setting. Quality improvement can incorporate a range of approaches such as PDSA cycles that test small, frequent improvements, over a short period of time.¹⁹ The value of testing wait list reduction strategies via PDSA cycles is that after each cycle minor changes can be made to the strategy based on the needs of the current setting. This type of customisation is key to achieving positive changes (wait list reduction). The endpoint is hopefully the implementation of strategies with continued evaluation to achieve better care.

CONCLUSION

In conclusion, the waiting time for children experiencing wetting with or without associated bowel symptoms is approximately six months. This is concerning, since longer waiting times are associated with worsening symptoms and quality of life. Strategies to better manage demand and provide timely care is key to achieving optimal patient outcomes. Areas of improvement may include provision of clear triage decision pathways, dedicated proformas for referral, and implementation of alternative care models such as nurse-led clinics for enuresis alarm therapy.

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Table 1 Patient characteristics

Characteristic	Isolated wetting (n = 53)		Mixed BBD (n = 48)	
Age, years				
Median	11		8	
Range (min-max)	6 - 18		5 - 16	
Gender, n (%)				
Male	41 (77)		23 (48)	
IRSAD quintiles, n (%)[†]				
1 (Most disadvantaged)	3 (6)		4 (8)	
2	9 (17)		3 (6)	
3	10 (19)		9 (19)	
4	16 (30)		12 (25)	
5 (Most advantaged)	15 (28)		20 (42)	
	DUI (n = 2)	NE [‡] (n = 24)	DUI + NE [§] (n = 27)	BBD (n = 48)
Clinic attended, n				
General Medicine	-	-	-	2
Continence	1	17	20	30
Encopresis	-	-	2	12
Urology	1	6	4	2
Gastroenterology	-	-	-	1
Enuresis nurse [¶]	-	1	1	1

BBD, bladder and bowel dysfunction; DUI, daytime urinary incontinence; NE, nocturnal enuresis.

[†] IRSAD = The Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) is based on the Australian Bureau of Statistics 2016 census data. IRSAD scores are calculated by postal codes. Data are presented in quintile groups, ranked from most disadvantaged (low score) to most advantaged (high score).

[‡] Monosymptomatic = nocturnal enuresis with no daytime symptoms.

§ Non-monosymptomatic = nocturnal enuresis with associated daytime symptoms.

¶ Nurse-led clinic specialising in enuresis alarm therapy.

Table 2 Clinic wait times from referral date to first appointment (days) – two snapshots in time (2014 and 2017/8)

Characteristic	2014 dataset [†]			2018 dataset [‡]		
	Median wait time	IQR	n	Median wait time	IQR	n
Isolated wetting						
All Clinics	91	84 - 160	125	192	93 - 251	51
General Medicine	88.5	84 - 129	82	-	-	-
Continence	102	93 - 160	21	199.5	180.5 - 251	36
Encopresis	37	37	1	118.5	30 - 207	2
Urology	169	63 - 206	19	92	60 - 139	11
Gastroenterology	-	-	-	-	-	-
Renal	328	215 - 441	2	-	-	-
Enuresis nurse	Not collected	-	-	194.5	7 - 382	2
Mixed BBD						
All clinics	105	78 - 199	49	173.5	0 - 419	48
General Medicine	84	37 - 90	13	251	83 - 419	2
Continence	98	57 - 178	15	200.5	25 - 342	30

Encopresis	226	199 - 249	10	65	0 - 208	12
Urology	116.5	61 - 168.5	4	0.5	0 - 1	2
Gastroenterology	149	103 - 387	3	344	344	1
Renal	125	119 - 250	3	-	-	-
Mental Health	49	49	1	-	-	-
Enuresis nurse	Not collected			12	12	1

BBD, bladder and bowel dysfunction; IQR, Interquartile Range

† Wait time was calculated using “date referral written” - “date of first appointment”. The 2014 data only presents data for patients aged 5-18 years, referred for isolated bladder dysfunction or mixed BBD.

‡ Wait time reflects triage process G (“date referral written” - “date of first appointment”).

Figure 1 Summary of EMR patient identification and screening process

BBD, Bladder and Bowel Dysfunction; EMR, Electronic Medical Record; GMFCS, Gross Motor Functional Classification System.

Figure 2 Abbreviated triage process of an accepted referral at RCH

GP, general practitioner.

Figure 3 Waiting times between each administrative step of triage

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