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A 5-year retrospective cohort study of unplanned readmissions in an Australian tertiary paediatric hospital

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Abstract

Objective. The aim of this study was to examine the characteristics and prevalence of all-cause unplanned hospital readmissions at a tertiary paediatric hospital in Western Australia from 2010 to 2014.

Methods. A retrospective cohort descriptive study was conducted. Unplanned hospital readmission was identified using both 28- and 30-day measurements from discharge date of an index hospital admission to the subsequent related unplanned admission date. This allowed international comparison.

Results. In all, 73 132 patients with 134 314 discharges were identified. During the 5-year period, 4070 discharges (3.03%) and 3330 patients (4.55%) were identified as 30-day unplanned hospital readmissions. There were minimal differences in the rate of readmissions on Days 28, 29 and 30 (0.2%). More than 50% of readmissions were identified as a 5-day readmission. Nearly all readmissions for croup and epiglottitis occurred by Day 5; those for acute bronchiolitis and obstructive sleep apnoea requiring tonsillectomy and/or adenoidectomy occurred by Day 15 and those for acute appendicitis and abdominal and pelvic pain occurred by Day 30.

Conclusion. This study highlights the variability in the distribution of time intervals from discharge to readmission among diagnoses, suggesting the commonly used 28- or 30-day readmission measurement requires review. It is crucial to establish an appropriate measurement for specific paediatric conditions related to readmissions for the accurate determination of the prevalence and actual costs associated with readmissions.

What is known about this topic? Unplanned hospital readmissions result in inefficient use of health resources. Australia has used 28 days to measure unplanned readmissions. However, the 30-day measurement is commonly used in the literature. Only five Australian studies were identified with a focus on readmissions associated with specific paediatric health conditions.

What does this paper add? This is the first known study examining paediatric all-cause unplanned same-hospital readmissions in Western Australia. The study used both 28- and 30-day measures from discharge to unplanned readmission to allow international comparison. More than half the unplanned hospital readmissions occurred between Day 0 and Day 5 following discharge from the index admission. Time intervals from discharge date to readmission date varied for diagnosis-specific readmissions of paediatric patients.

What are the implications for practitioners? Targeting the top principal index admission diagnoses identified for paediatric readmissions is critical for improvement in the continuity of discharge care delivery, health resource utilisation and associated costs. Because 52% of unplanned readmissions occurred in the first 5 days, urgent investigation and implementation of prevention strategies are required, especially when the readmission occurs on the date of discharge.

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Introduction

Billions of dollars of additional costs are incurred with unplanned hospital readmissions.[1,2] Rehospitalisation has both a physiological and psychological effect on patients and their family or carers.[3–5] In Australia, the unplanned hospital readmission rate is defined as the percentage of unplanned readmissions to the same hospital within 28 days of discharge.[6] However, most studies in the literature use 30 days to measure readmission rates.[7–12] All-cause unplanned hospital readmission rates in children range from 3.4% to 22.4% based on 30-day to 2-year follow-up periods.[1,2,8–14] An American study[15] examined 30-day unplanned hospital readmissions across 72 children's hospitals over a 12-month period, finding that the readmission rate was 6.5% and that the three most common principal diagnoses associated with readmissions were seizure, bronchiolitis and pneumonia. Furthermore, the most common reason for readmission in nine of 10 readmissions was the same diagnosis as the index admission.[15] For condition-specific unplanned readmissions, prevalence ranges from 19% to 31% for mental health conditions based on 12-month measurements,[16–19] from 4.5% to 38% for respiratory diseases based on 28-day to 1-year measurements[20–25] and from 0.3% to 27.8% for general surgeries based on 7-day to 1-year measurements.[26–34]

There is limited published literature measuring all-cause paediatric unplanned hospital readmissions in Australia. Five Australian studies were identified with a focus on specific health condition-associated readmissions; these studies examined readmissions across mental health conditions,[16] asthma,[24,25] term live-born infants[35] and paediatric intensive care patients.[36] Unplanned readmission rates ranged from 0.8%[35] to 38%.[36] In Western Australia (WA), the prevalence of 28-day all-cause readmissions to the same hospital across all metropolitan public health services almost doubled from 2.1% in 2010–11 to 3.9% in 2014–15.[37–41]

Study aim

The aim of the present study was to characterise the frequency and nature of all-cause unplanned hospital readmissions in a tertiary paediatric hospital in WA from 2010 to 2014. Specific objectives were to: (1) determine the 5-year prevalence in paediatric admissions and characteristics of unplanned hospital readmissions; (2) examine the time interval between the paediatric unplanned hospital readmission and the initial hospitalisation; and (3) characterise principal index admission diagnoses associated with frequent paediatric readmissions.

Methods

Study design

A retrospective cohort descriptive study was conducted at the Princess Margaret Hospital for Children (PMH, which was relocated and renamed to Perth Children's Hospital on 10 June 2018), a 220-bed public acute care hospital with approximately 250 000 patient visits (in-patient and out-patient) each year. At the time of the study, the PMH was the only tertiary paediatric facility providing care for children and adolescents within WA.[42]

Data source

Patients of all ages discharged from the PMH between 1 January 2010 and 31 December 2014 were extracted as an electronic administrative in-patient dataset from the WA Hospital Morbidity Data Collection (HMDC). Emergency department presentations and/or emergency department short-stay unit admissions were excluded from the study. In addition, deceased patients and discharges of mothers attached to neonatal patients who were transferred to the PMH from maternity hospitals were excluded from the study, as were patients whose parent, guardian or carer discharged them against medical advice and those patients transferred to other hospitals (because of incomplete hospitalisation and variations in the discharge process).

Ethics approvals were sought from the human ethics research committees of the PMH, Curtin University and Department of Health, WA.

Outcome measures

Hospital readmission is measured from an index admission, the first hospitalisation for a specific clinical condition, to the subsequent unplanned admission. Subsequent admissions that are related to the index admission and occurred unexpectedly within a specified time interval are considered unplanned hospital readmissions. The identification of unplanned hospital readmissions in this study was based on the combination of admission type (emergency) and the principal diagnosis of the subsequent admission following the index admission.

Covariates of interest

Variables extracted from the HMDC included demographic and clinical information for each patients. Demographic variables included age, sex and residential postcode. Clinical data included the date of admission, date of discharge, principal discharge diagnosis, date of readmission, date of discharge from the readmission and the principal diagnosis of readmission. Age was coded into six groups: infants aged <12 months, preschool children aged 1–4 years, primary school children aged 5–8 years, late primary school children aged 9–12 years, lower secondary school children aged 13–15 years, upper secondary school children and young adults aged ≥16 years. It is also worth noting that the age limit to be admitted to PMH is <16 years unless special permission is granted by the hospital executives for patients with a pre-existing medical condition.[42]

Residential postcodes of each patient were converted into Socio-economic Indexes for Areas (SEIFA), a broad definition of relative socioeconomic status regarding people's access to material and social resources and their ability to participate in society.[43] The Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) was used in this study with scores that ranged from a percentile 0 to 100%. Lower IRSAD scores relate to households with a greater socioeconomic disadvantage.[43]

In the present study, 4403 condition-specific principal diagnoses based on the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM)[44] diagnoses codes were initially extracted from the HMDC. These ICD-10-AM codes

were then grouped according to their first three characters, resulting in 494 groups.[44]

The date of discharge from the index admission (Day 0) until 30 days after being discharged (Day 30) was examined in this study.

Identification of the top principal index admission diagnoses was based on readmission counts.

Data analysis

Data were analysed using SPSS version 23.0 (IBM Corp., Armonk, NY, USA). The baseline prevalence of index admissions and readmissions was calculated on discharge-based and patient-based data because some patients had more than one index admission and readmission during the 5-year period. If the patient had more than one unplanned readmission after being discharged within the 30 days, only the first readmission was included for the discharge-based analysis. Patient characteristics are described as the mean ± s.d. or median with interquartile range (IQR) for continuous variables, and as counts and percentages for categorical variables.

Results

In all, 137 621 discharges from the PMH between 2010 and 2014 involving 75 524 individual patients were extracted from the HMDC. Seven hundred and fifteen discharges, associated with maternity issues and attached to neonatal patients were excluded from the study, as were 192 deceased patients and 136 patients who left the hospital against medical advice. A further 2264 discharges were transfers to other hospitals and were therefore also excluded. Thus, 134 314 discharges of 73 132 patients were included in the final analysis. Of the 73 132 patients, 740 experienced more than one 30-day unplanned hospital readmission; of these 740 patients, 403 had two readmissions, 151 patients had three readmissions and 186 patients had four or more unplanned readmissions. Of the 134 314 discharges, 1479 were admitted with a principal diagnosis of T81 (complications of procedures, not elsewhere classified). In particular, patients were admitted to the PMH when they experienced postoperative complications following an initial surgical procedure that had been performed at other public or private hospitals. The top two postoperative complications were haemorrhage and haematoma ($n = 1024$) and wound infection ($n = 258$). The remaining 197 complications were varied.

Characteristics of all discharges

Based on analysis of all discharges, the number of hospitalisations was similar across the 5-year data collection period

Table 1. Summary of all discharges between 2010 and 2014 from the Princess Margaret Hospital for Children

All percentages are based on the total for a year. Data were analysed on the basis of both discharges (where patients may have multiple visit) and patients. Unless indicated otherwise, data are presented as the mean ± s.d. or as *n* (%)

	Year of discharge					Total
	2010	2011	2012	2013	2014	
Analysis based on all discharges						
Overall						
No. discharges	24 957	26 165	27 298	28 067	27 827	134 314
Mean ± s.d.	6.2 ± 5.1	6.1 ± 5.1	6.3 ± 5.1	6.3 ± 5.1	6.2 ± 5.1	6.2 ± 5.1
Age (years)						
<1	3364 (13.5)	3588 (13.7)	3675 (13.5)	3686 (13.1)	3885 (14.0)	18 198 (13.5)
1–4	8494 (34.0)	8683 (33.2)	8869 (32.5)	9191 (32.7)	9061 (32.6)	44 298 (33)
5–8	4873 (19.5)	5336 (20.4)	5539 (20.3)	5843 (20.8)	5931 (21.3)	27 522 (20.5)
9–12	4137 (16.6)	4370 (16.7)	4630 (17.0)	4691 (16.7)	4312 (15.5)	22 140 (16.5)
13–15	3227 (12.9)	3353 (12.8)	3752 (13.7)	3856 (13.7)	3666 (13.2)	17 854 (13.3)
≥16	862 (3.5)	835 (3.2)	833 (3.1)	800 (2.9)	972 (3.5)	4302 (3.2)
Sex						
Male	14 422 (57.8)	15 169 (58.0)	15 504 (56.8)	16 371 (58.3)	16 341 (58.7)	77 807 (57.9)
Female	10 535 (42.2)	10 996 (42.0)	11 794 (43.2)	11 696 (41.7)	11 486 (41.3)	56 507 (42.1)
Analysis based on patients						
Overall						
No. discharges	16 777	14 707	14 409	13 935	13 304	73 132
Mean ± s.d.	6.0 ± 5.0	5.9 ± 5.0	5.8 ± 5.0	5.6 ± 5.0	5.3 ± 4.9	5.7 ± 5.0
Age (years)						
<1	2383 (14.2)	2466 (16.8)	2543 (17.6)	2551 (18.3)	2717 (20.4)	12 660 (17.3)
1–4	5694 (33.9)	4751 (32.3)	4536 (31.5)	4390 (31.5)	4294 (32.3)	23 665 (32.4)
5–8	3323 (19.8)	2843 (19.3)	2887 (20.0)	2825 (20.3)	2562 (19.3)	14 440 (19.7)
9–12	2855 (17.0)	2505 (17.0)	2349 (16.3)	2282 (16.4)	2056 (15.5)	12 047 (16.5)
13–15	2152 (12.8)	1908 (13.0)	1927 (13.4)	1715 (12.3)	1550 (11.7)	9252 (12.7)
≥16	370 (2.2)	234 (1.6)	167 (1.2)	172 (1.2)	125 (0.9)	1068 (1.5)
Sex						
Male	9798 (58.4)	8602 (58.5)	8179 (56.8)	8140 (58.4)	7702 (57.9)	42 421 (58)
Female	6979 (41.6)	6105 (41.5)	6230 (43.2)	5795 (41.6)	5602 (42.1)	30 711 (42)

(Table 1). The total number of discharges exceeded 24 900 each year, with a mean age of 6.2 ± 5.1 years. Regarding patient-based analyses (Table 1), the number of patients hospitalised in each year of the study was similar, with a mean age of 5.7 ± 5.0 years. Overall, one-third of patients were aged from 1 to 4 years, and 1.5% of patients were aged >16 years. There were 16% more male than female patients.

Table 2. Summary of patient characteristics for those with and without unplanned hospital readmissions within 30 days of discharge
Data were analysed on the basis of both discharges (where patients may have multiple visit) and patients. Unless indicated otherwise, data are presented as *n* (%). IQR, interquartile range; LOS, length of stay of the index admission; SEIFA, Socio-economic Indexes for Areas

	Readmission within 30 days	No readmission within 30 days
Analysis based on all discharges		
Total no. patients	4070	130 244
Sex		
Male	2230 (54.8)	75 577 (58.0)
Female	1840 (45.2)	54 667 (42.0)
Age (years)		
<1	682 (16.8)	17 516 (13.4)
1–4	1219 (30.0)	43 079 (33.1)
5–8	713 (17.5)	26 809 (20.6)
9–12	640 (15.7)	21 500 (16.5)
13–15	696 (17.1)	17 158 (13.2)
≥16	120 (2.9)	4182 (3.2)
Age (years)		
Mean ± s.d.	6.3 ± 5.4	6.2 ± 5.1
Median (IQR)	5.0 (1.0–11.0)	5.0 (2.0–10.0)
LOS (days)		
Mean ± s.d.	4.7 ± 13.7	2.5 ± 7.4
Median (IQR)	1.0 (1.0–4.0)	1.0 (1.0–2.0)
SEIFA percentile		
Mean ± s.d.	62.6 ± 27.1	61.1 ± 27.5
Median (IQR)	67.0 (40.0–87.0)	65.0 (40.0–87.0)
Analysis based on patients		
Total no. patients	3330	69 802
Sex		
Male	1850 (55.6)	40 571 (58.1)
Female	1480 (44.4)	29 231 (41.9)
Age (years)		
<1	610 (18.3)	12 050 (17.3)
1–4	938 (28.2)	22 727 (32.6)
5–8	578 (17.4)	13 862 (19.9)
9–12	543 (16.3)	11 504 (16.5)
13–15	581 (17.4)	8671 (12.4)
≥16	80 (2.4)	988 (1.4)
Age (years)		
Mean ± s.d.	6.3 ± 5.4	5.7 ± 4.9
Median (IQR)	5.0 (1.0–11.0)	5.0 (1.0–10.0)
LOS (days)		
Mean ± s.d.	4.7 ± 14.1	2.4 ± 6.6
Median (IQR)	1.0 (1.0–4.0)	1.0 (1.0–2.0)
SEIFA percentile		
Mean ± s.d.	62.8 ± 27.2	61.0 ± 27.6
Median (IQR)	67.0 (40.0–87.0)	65.0 (40.0–87.0)

Characteristics of 30-day unplanned hospital readmissions

Based on analysis of all discharges, readmission rates ranged from 2.97% to 3.03%, with more male than female patients featuring in both the with- and without-readmission groups (Table 2). From a patient-based analysis perspective (Table 2), 4.55% of patients ($n = 3330$) experienced 30-day unplanned hospital readmissions, which ranged from 3.86% to 5.04% over the 5-year data extraction period. The mean age of the with-readmission group was 6.3 ± 5.4 years, compared with 5.7 ± 4.9 years in the without-readmission group. Length of stay of the index admission was almost double in the with- versus without-readmission group (4.7 ± 14.1 vs 2.4 ± 6.6 days respectively). The mean SEIFA percentile was similar in these two patient groups.

Time interval from index admission to unplanned hospital readmission

Fig. 1 shows the time interval from the discharge date of the index admission to the date of readmission of all-cause unplanned hospital readmissions. Each day from Day 0 to Day 7 accounted for more than 5% of unplanned hospital readmissions (Fig. 1*a*). The highest number of readmissions (532; 16%) occurred on Day 1, followed by Day 2 ($n = 345$; 10.4%) and Day 3 ($n = 251$; 7.5%). Of note, 208 readmissions (6.2%) occurred on Day 0. There were minimal differences in the rate of readmissions on Days 28, 29 and 30 (0.5%, 0.7% and 0.5% respectively). Fig. 1*b* shows the cumulative percentage of unplanned hospital readmissions from Day 0 to Day 30. More than half the readmissions (52%; $n = 1732$) occurred between Day 0 and Day 5, with 73.6% ($n = 2450$) occurring in the first 11 days (Days 0–10) and 86.1% ($n = 2868$) occurring in the first 16 days (Days 0–15).

The distribution of time intervals from discharge to unplanned readmission varied between each index admission diagnosis (Fig. 2). Nearly all the readmissions (98%) for the diagnosis code J05 (croup and epiglottitis) occurred by Day 5 after discharge, whereas readmissions for the G47 (sleep disorders) and J21 (acute bronchiolitis) diagnoses primarily (≥95%) occurred by Day 15. Readmissions related to other diagnoses (e.g. K35 (acute appendicitis), R10 (abdominal and pelvic pain) and R56 (convulsions) were spread across the 30 days after discharge (Fig. 2). Fig. 2*a* shows the percentage of condition-specific associated readmissions from Day 0 to Day 30, whereas Fig. 2*b* shows the cumulative percentage of readmissions.

Principal index admission diagnoses associated with frequent paediatric readmissions

The top 10 principal index diagnoses associated with unplanned readmissions are given in Table 3. The most frequent diagnosis was G47 (sleep disorders – obstructive sleep apnoea (OSA) syndrome requiring tonsillectomy and/or adenoidectomy), followed by K35 (acute appendicitis leading to appendectomy) and J21 (acute bronchiolitis). The three most common reasons for readmission are summarised in Table 3. The most common readmission diagnosis was the same diagnosis for the top 10 index admission diagnoses, especially J45 (asthma; 89%). Readmissions related to postoperative complications of initial surgical procedures ranged from 40.5% to 85.7%, with diagnoses

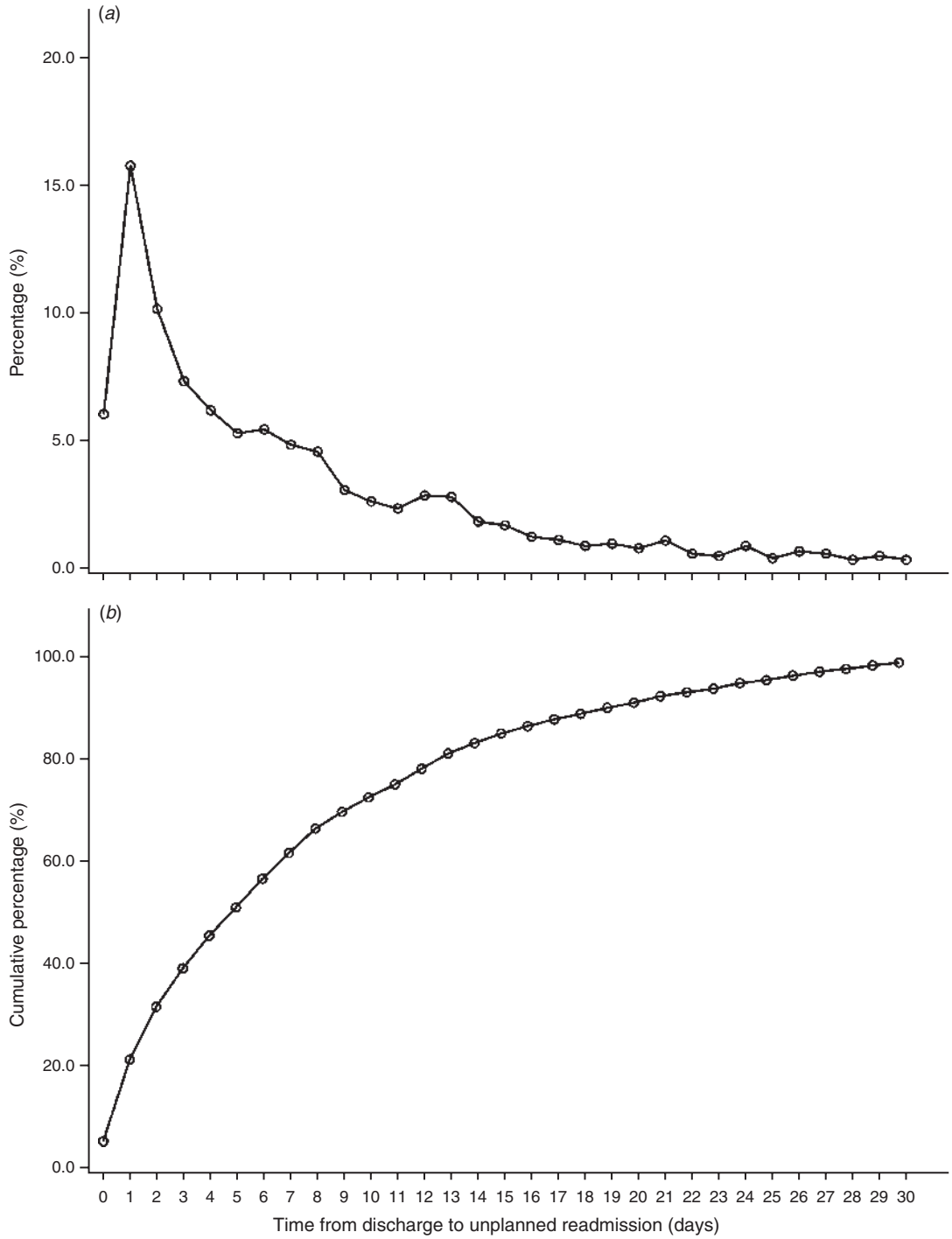

Fig. 1. Time from discharge after the index admission to the subsequent unplanned readmission showing (*a*) the percentage and (*b*) cumulative percentage of unplanned readmissions on each day after discharge.

including G47 (OSA), J35 (chronic diseases of tonsils and adenoids) and K35 (acute appendicitis).

Discussion

This study provides a baseline of the prevalence and characteristics of all-cause unplanned readmissions to the PMH using a large administrative dataset. The study identified a rate of 3.03% readmissions based on discharge analysis and a rate of 4.55% based on patient analysis. Studies conducted in other countries examining all-cause 30-day paediatric readmissions found considerable variations in prevalence rates. In terms of discharge-based analysis, three studies reported readmission rates of 10.3%,[10] 8.8%[13] and 6.5%.[15] In another three studies,

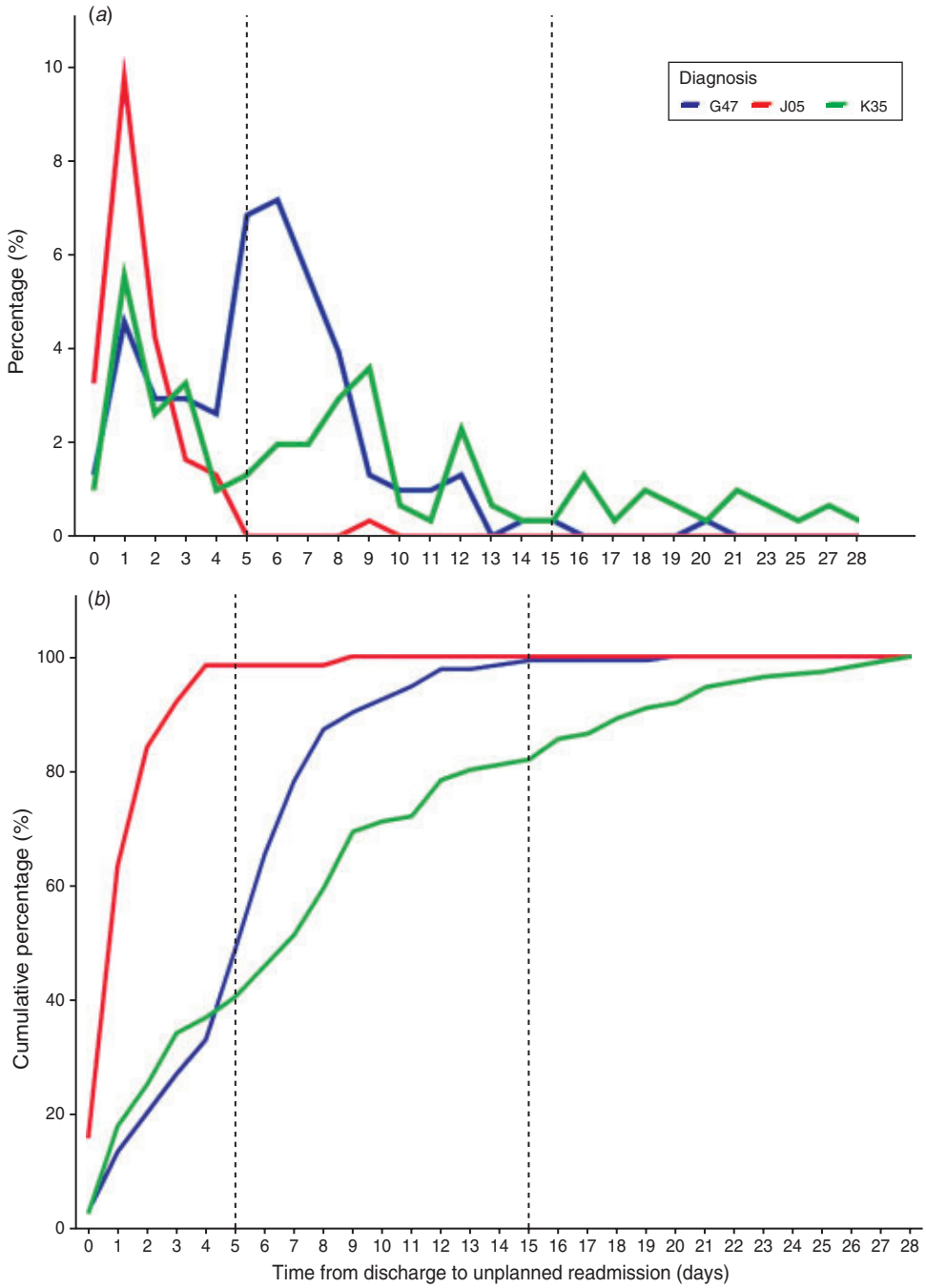

Fig. 2. Time from discharge after the index admission to the subsequent unplanned readmission for three principal diagnoses at index admission showing (*a*) the percentage and (*b*) cumulative percentage of unplanned readmissions on each day after discharge. G47, sleep disorders – obstructive sleep apnoea syndrome requiring tonsillectomy and/or adenoidectomy; K35, acute appendicitis leading to appendectomy; J05, croup and epiglottitis.

readmission rates based on patient analysis were found to be 3.4%,[12] 4.5%[9] and 18.7%.[11] Two studies described readmission rates of 6.5%[8] and 8.8%[45] based on both discharge and patient analyses. Of these eight studies, six examined readmissions to both the same and different hospitals.[8,9,12,13,15,45] The two studies[10,11] that the examined same-hospital readmissions reported much higher rates than found in this study. As highlighted in a recent systematic review,[46] caution is required when comparing readmission rates in the literature, because this is dependent on whether readmissions are based on discharges or patients, and whether readmissions are to the same or different hospitals.

Table 3. Three most common reasons for 30-day unplanned readmission for the top 10 principal index admission diagnoses

Ranking	Principal index admission diagnosis		Most common		Second most common		Third most common	
by counts	3-Digit code	Description of 3-digit code	Reason for readmission	No. (%)	Reason for readmission	No. (%)	Reason for readmission	No. (%)
1	G47	Sleep disorders (obstructive sleep apnoea syndrome requiring tonsillectomy and/or adenoidectomy)	Complications of procedures	114 (85.7)	Sleep disorders	8 (6.0)	Cysts of oral region	3 (2.3)
2	K35	Acute appendicitis (requiring appendectomy)	Complications of procedures	45 (40.5)	Abdominal and pelvic pain	25 (22.5)	Cysts of oral region	11 (9.9)
3	J21	Acute bronchiolitis	Acute bronchiolitis	64 (66.0)	Abnormalities of breathing	6 (6.2)	Viral infection	4 (4.1)
4	R06	Abnormalities of breathing (wheezing, mouth breathing)	Abnormalities of breathing	55 (57.3)	Asthma	13 (13.5)	Acute bronchiolitis	7 (7.3)
5	B34	Viral infection of unspecified site	Viral infection	38 (42.7)	Acute bronchiolitis	9 (10.1)	Acute upper respiratory infections	7 (7.9)
6	J35	Chronic diseases of tonsils and adenoids (requiring tonsillectomy and/or adenoidectomy)	Complications of procedures	68 (84.0)	Nausea and vomiting	3 (3.7)	Symptoms and signs concerning food and fluid intake or dehydration	3 (3.7)
7	S52	Fracture of forearm	Fracture of forearm	71 (88.8)	Disorder of continuity of bone	5 (6.3)	Complications of internal orthopaedic prosthetic devices, implants and grafts	2 (2.5)
8	R10	Abdominal and pelvic pain	Abdominal and pelvic pain	34 (45.9)	Other functional intestinal disorders	8 (10.8)	Non-specific lymphadenitis	7 (9.5)
9	J45	Asthma	Asthma	65 (89.0)	Abnormalities of breathing	5 (6.8)	Unspecified acute lower respiratory infection	2 (2.7)
10	Z51	Encounter for other aftercare and medical care (i.e. chemotherapy)	Neutropenia	41 (59.4)	Fever of other and unknown origin	10 (14.5)	Complications of cardiac, vascular prosthetic devices, implants or grafts	3 (4.3)

Identification of the frequent principal index admission diagnoses associated with unplanned readmissions is commonly based on total counts.[15] The top 10 diagnoses in this study (Table 3) are consistent with those found in an American study,[15] except for one diagnosis, seizure. An Australian government report stated more than 30% of patients experienced an unplanned readmission following their initial surgical procedure.[7] The most frequent surgical procedure was tonsillectomy and/or adenoidectomy, which is consistent with our findings in a paediatric population.[7] The present study also supported the findings of Berry *et al.*[15] that most readmissions are for the same diagnosis or complications associated with the initial admission. The top diagnoses identified in the present study could be targeted to improve continuity of care at discharge and therefore to reduce the readmission rate.[3–5]

Most studies in the literature use a period of 30 days to measure unplanned hospital readmissions, although some studies have used 7 days[30,45,47] to measure readmissions. Berry *et al.*[15] found that 39% of all-cause readmissions occurred in the first 7 days after discharge and that 61.6% occurred in the first 14 days. In the present study, 52% of readmissions occurred within the first 5 days after discharge, 73.6% occurred in the first 10 days and 86.1% occurred in the first 15 days. The difference in unplanned hospital readmission rates between Days 28 and 30 was 0.2%, confirming that the findings across both periods are comparable. Fig. 2 clearly shows that some diagnoses are captured as Day 30 readmissions (K35, R10 and R56), whereas others are more accurately characterised as Day 15 readmissions (G47 and J21) or Day 5 readmissions (J05). These findings support the Australian Independent Hospital Pricing Authority's[48] emphasis on the need to establish appropriate time intervals to measure readmission according to specific health conditions.[49] This will lead to accurate determination of the prevalence and true cost of readmissions.[50,51] This is particularly important because of the need to improve efficiencies in resource utilisation within the healthcare system, as directed by funders, including government and private health insurance.[48,52]

Limitations

The present study is limited by the fact WA has one tertiary paediatric hospital (the PMH). The present study did not include index admissions to the PMH but then readmitted to non-paediatric hospitals or admission and readmissions to non-paediatric hospitals with paediatric wards. A future study incorporating WA linkage data would address these omissions and enable patients admitted to both non-paediatric hospitals and then the PMH with unplanned hospital readmissions to the same or a different hospital to be captured. This study was a 5-year audit of an administrative database; individual in-patient files were not accessed to capture specific clinical information.

Conclusions

The present study is the first to date to examine paediatric all-cause unplanned same-hospital readmissions in WA based on an in-patient administrative dataset of all PMH discharges from 2010 to 2014. The study found a higher same-hospital readmission rate compared with the WA metropolitan public hospitals,[37–41] but lower than the rates in the US[8–11], UK[13] and Canada.[12] The present study identified that the commonly used 30-day readmission follow-up period requires review because there are differences in the time intervals from discharge to readmission among diagnoses. It is critical to establish the most suitable measurement for readmissions for the accurate determination of the prevalence and true costs of readmissions. Investigations and strategies to reduce the occurrence of 5-day readmissions because of their high prevalence and readmissions on the discharge date are urgently needed. Identification of top index admission diagnoses for paediatric readmissions is essential to improve continuity of care at discharge with the aim of reducing unplanned hospital readmissions.

Competing interests

None of the authors has any conflicts of interest to disclose.

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