Emergency readmissions to paediatric surgery and urology: The impact of inappropriate coding

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ABSTRACT

INTRODUCTION In England, emergency readmissions within 30 days of hospital discharge after an elective admission are not reimbursed if they do not meet Payment by Results (PbR) exclusion criteria. However, coding errors could inappropriately penalise hospitals. We aimed to assess the accuracy of coding for emergency readmissions.

METHODS Emergency readmissions attributed to paediatric surgery and urology between September 2012 and August 2014 to our tertiary referral centre were retrospectively reviewed. Payment by Results (PbR) coding data were obtained from the hospital's Family Health Directorate. Clinical details were obtained from contemporaneous records. All readmissions were categorised as appropriately coded (postoperative or nonoperative) or inappropriately coded (planned surgical readmission, unrelated surgical admission, unrelated medical admission or coding error).

RESULTS Over the 24-month period, 241 patients were coded as 30-day readmissions, with 143 (59%) meeting the PbR exclusion criteria. Of the remaining 98 (41%) patients, 24 (25%) were inappropriately coded as emergency readmissions. These readmissions resulted in 352 extra bed days, of which 117 (33%) were attributable to inappropriately coded cases.

CONCLUSIONS One-quarter of non-excluded emergency readmissions were inappropriately coded, accounting for one-third of additional bed days. As a stay on a paediatric ward costs up to £500 a day, the potential cost to our institution due to inappropriate readmission coding was over £50,000. Diagnoses and the reason for admission for each care episode should be accurately documented and coded, and readmission data should be reviewed at a senior clinician level.

KEYWORDS

Patient readmission – Paediatrics – Surgery – Clinical coding

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There has been a trend towards a progressive increase in emergency admissions and readmissions to hospitals in the UK.^{1,2} To incentivise hospitals to reduce the rate of emergency readmissions, the UK government introduced a policy in 2011 in which hospitals were penalised for avoidable emergency readmissions via commissioners withholding payment for these care episodes. Commissioners should then reinvest money from the non-payment for emergency readmissions into services that support rehabilitation and the prevention of readmission.³

In England, commissioners use a system called Payment by Results (PbR) to pay healthcare providers for each patient seen or treated, with national tariffs for admitted patient care, outpatients and accident and emergency. Following discharge from hospital, the care provided during that episode is coded by clinical coders and the provider reimbursed for the activity undertaken.⁴

Providers do not receive payment for emergency readmissions within 30 days of discharge following an elective admission, and all other readmissions within 30 days of

discharge are subject to locally agreed thresholds, with a range of exclusion criteria (Table 1).⁵ This financial penalty is intended to reduce emergency readmissions by creating an incentive for hospitals to introduce measures to improve the quality of care and patient management and discharge planning.⁵

Many NHS hospitals currently face an unprecedented challenge to save significant proportions of their budgets on a year-on-year basis. Implementing measures to reduce preventable emergency readmissions can help to avoid unnecessary fines. However, a recent study revealed a coding error rate of 18% for emergency readmissions,⁵ suggesting that hospitals may be inappropriately penalised if the underlying coding of emergency readmissions is not robust.

The purpose of this study was to assess the accuracy of coding of emergency readmissions attributed to the department of paediatric surgery and urology at a single tertiary referral centre, and determine the potential cost of inappropriately coded cases that were not excluded from PbR penalties under the emergency readmissions policy.

Table 1 Exclusions from PbR emergency readmissions policy. When any of these exclusions apply to an emergency readmission (following elective or non-elective admission) providers will be reimbursed for the episode of care.

(a) any readmission which does not have a national tariff
(b) maternity and childbirth
(c) cancer, chemotherapy and radiotherapy – where initial admission or readmission includes a spell first mentioned or primary diagnosis of cancer
(d) young children – patient aged under 4 years at time of readmission
(e) patients readmitted having self-discharged against clinical advice
(f) emergency transfers of an admitted patient from another provider
(g) cross border activity – where the initial admission or readmission is in the devolved administrations
(h) patients receiving renal dialysis
(i) patients readmitted subsequent to a transplant

Methods

Emergency readmissions attributed to paediatric surgery and urology at our institution between September 2012 and August 2014 were retrospectively reviewed. Data on emergency readmissions and PbR coding data were obtained from the Family Health Directorate. Clinical and demographic details were obtained from contemporaneous records, including the admitting specialty on initial admission and on readmission, as well as diagnoses, procedures and complications.

All readmissions were categorised as appropriately coded (postoperative or non-operative) or inappropriately coded (planned surgical readmission, unrelated surgical admission, unrelated medical admission or coding error). Data were collated and analysed using Microsoft Excel (Microsoft, Richmond, WA, USA), and are given as total (percentage) or median (interquartile range [IQR]).

Results

Two hundred and forty one patients were coded as 30-day readmissions to paediatric surgery (196; 81%) and paediatric urology (45; 19%) over the 24-month study period, with 143 (59%) meeting PbR exclusion criteria and 98 (41%) patients non-excluded.

Of the 143 patients who met one or more exclusion criteria, 105 (73%) were aged under 4 years and nine (6%) were oncology patients. Although none of these readmissions resulted in financial penalty, 54 (38%) were inappropriately coded (Figure 1).

Of the 98 non-excluded patients, 74 (75%) were appropriately coded as emergency readmissions and 24 (25%) were inappropriately coded (see Figure 2). Ten of the inappropriately coded patients (42%) were readmitted following an

elective admission, while 14 (68%) were readmitted following an emergency admission. The reasons for the inappropriate coding of these 24 patients are detailed in Table 2. The median interval between initial admission and emergency readmission for all non-excluded patients was 9 days (IQR 3–16). For unrelated medical readmissions, the observed long interval between admission and readmission precluded a surgical or anaesthetic complication (when considered possible) as the cause for readmission.

Thirty of the 74 appropriately coded non-excluded patients (41%) were emergency readmissions following a procedure during their initial admission. These readmissions were due to infection in nine (30%) cases, pain in seven cases (23%), bleeding and urinary retention in four (13%) patients each, and constipation and adhesional bowel obstruction in three (10%) cases each. Of the 44 readmissions (59%) with no procedure during their initial stay, 29 (66%) had received a diagnosis of non-specific abdominal pain on initial admission. Ten (23%) patients had specific diagnoses on readmission, including one case each of acute appendicitis, lobar pneumonia and cholecystitis. Of the remaining 15 cases, six (14%) had recurrence

Table 2A–C Inappropriately coded non-excluded patients. **A.** Planned or unrelated surgical admission. **B.** Medical readmission for non-surgical cause. Interval is number of days between initial admission date and emergency readmission date. **C.** Coding error. First five patients were never under care of paediatric surgery/urology, and last meets an exclusion criterion.

A. Initial admission diagnosis	Readmission diagnosis	Error
Foreign body in colon; endoscopy	Foreign body in colon; removal	Planned
Left hydronephrosis	Cystourethroscopy and left JJ stent insertion	Planned
Cholelithiasis	Elective laparoscopic cholecystectomy	Planned
Undescended testicle, unilateral	Elective insertion of peritoneal dialysis catheter and central line	Planned*
Vesicoureteric reflux-associated uropathy; therapeutic cystoscopy	Acute appendicitis	Unrelated
*As well as being planned, admission was unrelated and patient met an exclusion criterion due to being on dialysis.		
B. Initial admission diagnosis	Readmission diagnosis	Interval (days)
Gastrostomy change to button	Acute tonsillitis	10
Abscess of vulva	Overdose	23
Change of gastrostomy	Parainfluenza virus pneumonia	23
Non-specific abdominal pain	Paracetamol overdose	17
Change of gastrostomy	Epilepsy	13
Retention of urine and catheterisation	Mixed overdose	18
Reduction of paraphimosis	Viral upper respiratory tract infection	27
Elective removal of redundant central line	Fever	24
Removal of infected central line	Viral pneumonia	25
Elective excision of lump posterior to right ear	Increased seizure frequency	13
Elective insertion of portacath	Addisonian crisis	11
Urinary tract infection	Blocked ventriculoperitoneal shunt	10
Bladder assessment (non invasive)	Urinary tract infection	25
C. Initial admission diagnosis	Readmission diagnosis	Error
Enterocolitis due to <i>Clostridium difficile</i>	Line infection	Gastroenterology
Injury finger extensor muscle and tendon	Injury finger extensor muscle and tendon	Orthopaedic
Displaced supracondylar humerus fracture	Lesion of ulnar nerve	Orthopaedic
Right hip pain	Joint pain and fever	Orthopaedic
Viral hepatitis/ sickle cell crisis	Pain in joint, pelvic region and thigh	Paediatric
Change of central line	Line sepsis	Age 3y8m

of their original symptoms, three (7%) had ongoing symptoms after initial trauma and six (14%) were readmitted for other valid reasons.

The 98 non-excluded readmissions resulted in patients being admitted to hospital for a total of 352 days, at a median length of stay of 2 days (IQR 1–4). Of these extra bed days, 117 (33%) were attributable to inappropriately coded cases.

Discussion

Numerous studies have examined interventions aimed at preventing readmissions, with a focus on identifying

clinical risk factors and indicators of suboptimal care that may predispose to readmission.¹ However, a 2003 study on 28-day surgical readmissions reported an incorrect coding rate of 27.8%.⁶ A recent report on the classification of emergency readmissions in England revealed that the coding of almost 20% of 30-day readmissions was due to either artefact or coincidence, and these inappropriately coded readmissions accounted for over 40% of the readmissions subject to non-payment.² The emergency readmissions policy resulted in £390 million being withheld from NHS providers between 2011 and 2013, with two trusts subject to penalties of over £15 million each.⁷ These

figures suggest that many tens of millions of pounds in penalties to NHS trusts could have been avoided by identifying inappropriately coded readmissions and excluding them.

It is important to note that this does not imply that hospitals should attempt to circumvent systems that create an incentive to reduce emergency readmissions by adjusting their coding to reduce the proportions of readmissions liable for penalties.^{1,8} Rather, the underlying causes of inaccurate coding data should be addressed. While highly skilled clinical coders with excellent depth and currency of knowledge are key to minimising coding errors and maximising income, accurate medical documentation is also critical to the process.⁹ The latter can be improved by making medical staff aware of the effect their documentation has on clinical coding, which, as in our institution, should be part of the induction process for every new intake of doctors. Accurate coding is facilitated by ensuring that a principal diagnosis or procedure is clearly stated for each episode of care, with careful mention of relevant comorbidities, recent admissions or previous procedures.

The aim of this study was to determine the extent to which the inappropriate coding of emergency readmissions attributed to our department contributed to erroneous withholding of payments from our hospital trust. We identified that, over the period of study, one quarter of non-excluded emergency readmissions to paediatric surgery and urology were inappropriately coded, accounting for one third of the extra bed days. Local figures indicate that a stay on a paediatric ward costs up to £500 a day (with significantly higher costs for high dependency unit and intensive care unit stays). Thus, with in excess of 100 extra bed days attributed to them, the inappropriately coded emergency readmissions to our specialty alone had a potential cost to our hospital of over £50,000 over the 2-year period. Given that a similar level of incorrectly coded 30-day readmissions is likely to be applicable to other specialties,^{2,6} the overall cost of inappropriately coded emergency readmissions to our hospital is likely to have been many times higher. The findings of the current study were consequently disseminated to all paediatric specialties and

highlighted to hospital management. As recommended in a previous report,⁹ we suggest the need for regular audits of emergency readmissions, with the involvement of clinical staff and coders, to identify areas for improvement and reduce the proportion of inaccurate coding data.

Conclusions

Given the scale of the potential cost of inappropriate coding under the emergency readmissions policy, this study highlights the need for the accurate documentation of diagnoses and the clear reporting of elective versus emergency admission during each episode of care. Furthermore, this should be translated into accurate clinical coding. It is essential that skilled clinical coders are employed by trusts and that there is thorough clinical review of readmission data at senior clinician level to reduce the penalties on hospitals under the emergency readmissions policy.

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