Data, clinical coding and clinicians: lost in translation

As the true value of health-care data is better understood and technology facilitates capture, use and sharing of such data, there is no better time for practicing clinicians to engage in this process to improve value in health care. Each day a vast array of data is collected by the NHS and other health-care providers, both as electronic records and handwritten in patient notes. Such patient data will be used both locally within primary and secondary care provider organizations and nationally through NHS Digital to provide:

- The electronic prescription service – sends electronic prescriptions from GP surgeries to pharmacies
- Summary Care Record – an electronic record of significant patient information, created from GP medical records
- NHS e-Referral Service – the method by which all first outpatients referrals are now made
- Hospital Episode Statistics – a database containing details of all admissions, accident and emergency attendances and outpatient appointments at NHS hospitals in England.

Accurate, standardized and well-defined data is therefore central to both local and national planning of services to:

- Produce national health statistics
- Plan services, including mergers and acquisitions
- Ensure appropriate financial remuneration
- Undertake research governance and audit
- Provide key performance information and benchmarking
- Evaluate effectiveness of health policies.

This activity ensures that health-care providers are paid correctly for the work that they do and with it understand the quality and performance of the services they provide. Second, such data are important to be able to establish baseline metrics to better inform policymakers and local leaders when commissioning or reviewing services, e.g. workforce planning. Third, these data provide objective evidence for patients and health workers alike, allowing all to better understand the current status of their local health-care provision and more widely the NHS as a whole.

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What is clinical coding?

Clinical coding translates the health-care delivery process (symptoms, diagnoses, procedures, interventions and hospital episodes) into a standardized alphanumeric classification system. The majority of these systems exist as tables and databases available online. Within the NHS, clinical coding currently uses several different coding systems:

- *International Classification of Diseases and health related problems* 10th Revision (ICD-10) (currently version 2016, 5th edition), e.g. I11.0 = hypertensive heart disease with (congestive) heart failure
- Office of Population Census and Surveys, Classification of Interventions and Procedures (OPCS)(currently version 4.8), e.g. G42.3 = fibreoptic endoscopic mucosal resection of lesion of upper gastrointestinal tract
- Systematised NOmenclature of MEDicine reference terms and read Clinical Terms (SNOMED CT).

ICD-10 and OPCS-4.8 codes may then be converted into specific Healthcare Resource Group (HRG) codes. A HRG aggregates patient events according to the level of resource required (*Table 1*) to remunerate for the provision of each service. The HRG codes are used through an activity-based payment system which clinicians often recognize as payment by results. Such remuneration is applied through the national tariff, which sets out the standard cost for a HRG defined procedure or service, adjusted for local factors (NHS Improvement, 2016). The vast majority of all acute NHS trust's income is currently accounted for by payment by results (Wright et al, 2017).

SNOMED CT (*Table 2*) is a broader classification, describing anything relevant to health-care delivery, which contains more than 300 000 'active concepts'. It incorporates clinical terminology, description of situations, symptoms, diagnoses, procedures, interventions, medications, allergies, therapies and family history. SNOMED CT is particularly suited to electronic patient records, and has been implemented across primary care providers in England since April 2018. The National Information Board (2014) recommended that all coding within the NHS in

Table 1. Examples of HRG codes

Code	HRG name	Elective tariff (£)	Emergency tariff (£)
YR01Z	Complex endovascular repair of thoracic or thoracoabdominal aortic aneurysm	8960	8960
YR02Z	Endovascular repair of thoracic or thoracoabdominal aortic aneurysm	8271	8271
YR03Z	Complex endovascular repair of abdominal aortic aneurysm	7582	7582

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Table 2. Examples of SNOMED CT codes

Code	Description (from health record)
49727002	Cough (finding)
386661006	Fever (finding)
169069000	Computed tomography of chest (procedure)

England moves to SNOMED CT by April 2020. SNOMED CT is used extensively internationally and should improve standardization of clinical terminology globally; the use of SNOMED CT is free to the NHS. SNOMED CT incorporates a broader range of descriptions for the same condition and classifies these as preferred or acceptable terms.

The codification of clinical information within secondary health-care providers is most commonly undertaken by professional clinical coding teams using the written or electronic information available to them about individual patients. Every hospital has a clinical coding team who work tirelessly to translate clinical information to code. Reading and interpreting hand-written information is rarely straightforward and can lead to inaccuracies in the translation to code (Capita, 2014), although the Professional Record Standards Body is working to implement standardization of health and social care records, to enable increased accuracy of coding.

In the UK the National Clinical Coding Qualification is the minimum professional qualification required for clinical coders to work in the NHS. It enables coders to work to current clinical coding standards and includes a basic understanding of medical terminologies. The National Clinical Coding Qualification, which is awarded by the Institute of Health Records and Information Management, typically requires studying for a period of 2–3 years.

Coding departments, like many NHS departments, experience significant pressure to increase efficiencies and productivity. This in combination with increasing workload, staff shortages and inexperienced coding staff increases the risk of data inaccuracies. A failure to capture care episodes ultimately leading to a missed opportunity to remunerate, empower and inform health-care providers and their staff.

Clinical coding and clinical engagement

Payment by results data highlight the incidence of national coding errors to be between 1.1% and 45.8% and internal audits have consistently demonstrated the under-recording of patient comorbidities with all the inherent consequences (Capita, 2014). Mahbubani et al (2018) identified that clinician engagement with the coding process significantly improved coding accuracy by up to 55% in examined records. This equated to an increased remuneration of £318 per patient.

The authors' own experience and that of others is that education and training about clinical coding for doctors is limited, with extremely few opportunities for exposure to this important subject in both undergraduate and postgraduate training (Heywood and Gill, 2015). However, there is evidence of change and the Royal College of Paediatrics and Child Health has included clinical coding and SNOMED CT learning within their training curriculum. In this regard the college acknowledges the benefits to patient care and organizations of accurate data capture, correct coding and the intent to harmonise medical terminologies. Individual NHS providers have also incorporated clinical coding into trust education and training through non-mandatory e-learning packages.

Coded information cannot currently be relied upon as a source of clinical information; not only does reinterpretation of data require professional coding or analytical expertise, there is also inherent loss of information within the code itself as a broad code can cover a multitude of diagnoses (Eve-Jones, 2014).

Clinicians must contribute to improvements in coding accuracy by engaging in a number of positive actions:

- Writing clearly
- Avoiding abbreviations
- Avoiding the use of '?'
- Checking discharge summaries
- Documenting accurately and fully
- Documenting conditions, diagnoses, interventions and complications clearly
- Understanding the basics of clinical coding (for example that a 'probable' diagnosis such as 'probable pneumonia' will be coded as a definite diagnosis).

Conclusions

Clinical leaders need to do more to actively engage clinical staff in facilitating coding, costing and understanding the direct relationship between NHS finances and patient care, and individual clinicians must recognize their professional responsibility to be fully engaged in this process. Standardization of health records and data collection through evolving electronic health record technologies must now be harnessed to support this process of improvement. **BJHM**

KEY POINTS

- Engaging clinicians in the validation of coded medical activity ensures greater accuracy and allows provision of better and more informative data.
- Clinicians must be educated to understand the impact of coding failure and how to record data in a manner that accurately reflects a patient's clinical course.
- The demonstration of how accurate coding directly benefits patient care will likely improve efficiency of this process.
- With a drive towards better data collection providers must encourage active partnership with the health-care workforce, to achieve minimally burdensome and clear processes for data acquisition.

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