

Positive patient outcomes in acute care: does obtaining and recording accurate weight make a difference?

AUTHOR

Alison Evans

RN, RM, BN, GradDip Acute Care Nursing, MNursing (Clinical),
Safety & Quality Consultant, Royal Hobart Hospital,
Tasmania, Australia.
alison.evans@dhhs.tas.gov.au

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KEY WORDS

adult weight, clinical practice, risk, adverse events.

ABSTRACT

Objective

A crucial part of the assessment process is access to an accurate patient weight. To understand how health care practitioners access recorded weight it is necessary to examine the possible barriers to this in everyday practice and the relationship to patient outcomes. This paper will examine how patient weight is integrated in existing health care systems which require accurate weight to ensure positive patient outcomes.

Setting

Australian hospitals.

Primary Argument

Health care standards would suggest that accurate weight measurement is used by healthcare providers for a variety of inpatient interventions which include safe prescribing practices, radiation and chemotherapies, manual handling, skin integrity management and identifying nutritional risk. The literature supported the notion that the admission process should include the recording of an accurate weight within the primary assessment during admission. However, it is evident that implementation of evidence based screening tools that require documentation of accurate weight, within patient admission procedures, does not automatically translate into every day clinical care.

Conclusions

There may be a difference between how weight measurement should be used and how it is used in practice. All healthcare practitioners require timely access to an accurate weight to inform the planning of interventions to ensure provision of appropriate, safe and quality care. Further work is needed to understand the barriers and drivers involved in obtaining and utilising recorded weight within acute care. Future research has the potential to inform healthcare practitioners of the positive impact of an accurate patient weight on patient outcomes and guide developments in clinical practice.

INTRODUCTION

Recording accurate patient weight must be standard practice for all hospital admissions with recorded measurement informing the delivery of safe and effective patient care. Health care practitioners require accurate weight to inform safe practice but, according to evidence, compliance with this performance measure is consistently poor. How has poor compliance in obtaining a patient's weight in contemporary acute care occurred? Within the health care setting, there are a range of systems and processes that require accurate weight as a vital component of health assessment. However, there is no clear indication of how practitioners use, or access, knowledge of a patient's weight for clinical practice.

Within the acute care context, it is widely accepted that vital information gained through primary assessment is collected to ensure the quality, relevance and timeliness of decision-relevant information for healthcare practitioners. The utilisation of an accurate and recorded weight measurement is required for a range of interventions. Clinical documentation of an accurate weight guides clinicians in assessment and safe practices in radiation therapy, safe prescribing and manual handling to identify just a few. From this basis, a number of publications reviewed advise that nurses record weight measurement as an fundamental component of standard practice (Lees 2009; Partridge et al 2009; Hahler 2002). However, obtaining and recording of an accurate weight does not seem to be broadly acknowledged, or consistent, in the admission process.

Obtaining weight is traditionally a task within nursing practice, however, despite the plethora of assessments to inform decision-making weight is often not recorded (Lees 2009). Failure to obtain an accurate weight, and re-assessment of weight, poses significant risks and should be seen as an unacceptable practice within the healthcare team. During any admission to hospital patients, and their families, should have full confidence the right dose of medication is prescribed and administered, or other interventions are undertaken to ensure optimal recovery. Recorded weight informs the planning of safe and quality care and minimises the risks to both the patient and the care providers.

In order to inform broader knowledge of the function of patient weight in acute care settings, the literature was searched to provide background understandings. The literature located clearly fell into broader categories related to assessment and safe prescribing practice. No evidence based practice or review documents were found despite an understanding that patients should be weighed on admission to acute care. Although the available literature includes the rationale for obtaining accurate weight, coverage of all of the significant aspects in one article could not be sited.

DISCUSSION

Accuracy of measurement

It is evident across the literature that the practice of visual estimation of patient weight in acute care is common, however is clearly identified as a suboptimal practice. Within the research, a significant finding was the rate and consequence of inaccuracies when any health professionals estimate weight (Partridge et al 2009; Kahn et al 2007; Corbo et al 2005; Hall and Larkin 2004). Of particular interest, a key finding was the large and unacceptable variance and inaccuracy in estimates when individual practitioners estimated the same patient's weight (Hall and Larkin 2004). Goutelle et al (2009) established that the practice of averaging weight estimates on the same patient by different care providers, with the aim of achieving a more accurate weight measurement, was unreliable. Furthermore, the significance of overestimating weight is the potential risk of over dosage and related clinical consequences of a medication related adverse event.

A few studies determined that estimation of weight reported by parents of paediatric patients (Partridge et al 2009) or by the patient (Corbo et al 2005) were more accurate than estimations by health care providers, yet discrepancy and error still occurred. The overall findings within the literature supports that patient weight recorded by estimation by clinicians, or patients themselves, to inform clinical intervention is not the preferred practice based on the recognised level of error and potential of harm.

A number of strategies are recommended to shift the unsafe practice of weight estimation. However, it is apparent that significant investments are required in improved technology to support easier access to weigh obese or acutely unwell patients. Additionally, to be of value, weight needs to be measured from a reliable baseline using equipment that is presumably calibrated to maintain accuracy and precision.

Safe prescribing

Within the literature, the importance of using weight related medication dosage is featured in safe prescribing practice. Of interest, accurate recorded measurement of paediatric weight is recognised when prescribing medications in clinical practice, whereas the same emphasis is not as evident in adult patients. Without access to an accurate weight, calculation of doses based on weight or body surface area (BSA) can be problematic in overweight or underweight patients with resultant doses exceeding the safe adult dose range. According to safe prescribing practice, prescriber's must confirm accuracy of patient weight for weight-based dosages, as well as record weight on medication chart to support safe dispensing (ACSQ 2009).

Within the acute care setting, there are a number of commonly prescribed and administered medications that require accurate weight measurement for safe prescribing, such as anti-thrombotics and other medications to regulate sedation and blood pressure. An Australian cross-sectional study by Hilmer et al (2007) examined safe prescribing practices of weight-based medications and the correlation with adverse drug events in two cohorts. The study identified significant medication safety concerns and a risk of adverse events in the non-weighed patient group (Hilmer et al 2007, p.649).

High risk medicines (HRM) can be defined as those which have a heightened risk of causing significant or catastrophic harm when used in error and include heparin and other anticoagulants as well as chemotherapy (QUM 2009). Adverse outcomes and risk of complication increases when patients are not weighed in prescribing HRMs (Dembrow 2009). Dembrow (2009) cites American statistics reported by the Pennsylvania Patient Safety Authority where 479 reports, received between 2004 and 2008, principally identified incorrect weight measurement as a contributing factor in medication related errors. Of interest, this was one of the few reports located demonstrating the impact of failure to obtain accurate weight or incorrect use of the measurement. To reduce rates of medication error the report strongly suggests prescribers, and systems, support an accurate weight is obtained, and recorded, on arrival to any care setting (Dembrow 2009).

Incidence of poor compliance in obtaining and recording of patient weight measurement occurs in a range of clinical settings (Jensen et al 2003; Lees 2009). However, the importance of an accurate weight measurement is clearly recognised in relation to safe prescribing and interventions within specialisations such as bariatric medicine (Hahler 2002), intensive care medicine (Determann et al 2007) and patients with renal impairment (Dembrow 2009).

In 2007, under the direction of the Australian Commission on Safety and Quality in Health care, a standard National Inpatient Medication Chart (NIMC) was fully implemented across Australia to reduce the harm to patients from medication errors. Following routine national audits to monitor and evaluate the NIMC, scope for improvement in documentation of weight has been identified with low percentages consistently reported. Researchers, Semple and Roughead (2009) identify that systems are in place to ensure a nationally coordinated approach to the ongoing optimisation of the NIMC, which include prescriber education in relation to the documentation of patient weight as a strategy towards improving compliance and safety.

Manual handling

The acute care environment is often unpredictable and changeable; patients are frequently of high acuity and complexity requiring specialist care and equipment. A significant problem in Australian healthcare facilities is obesity which is directly associated with increased risk of morbidity and mortality. As a result of the medical complexity, the planning of appropriateness of care and patient management differs between obese and non-obese patients. It is well identified in the literature that a clinical journey for a bariatric patient admitted to an acute care setting is significantly more problematic as every aspect of their care is affected (Hahler 2002). An increase in awareness of the escalating bariatric problem in the community had led to strategies to manage the risks healthcare providers face during the patient's journey within the acute care setting.

Accurate weight for obese patients has a significant influence on the selection of equipment to manage safe care, diagnostics and ongoing assessment. The use of accurate weight measurement with manual handling is highlighted in the literature and is predominantly related to patient safety and appropriateness of equipment. Common features to manual handling are the systems for completing manual handling assessments for all primary patient care tasks to reduce associated Occupational Health and Safety risks. The systems usually consider normal weight patients as well as bariatric patients in order to inform equipment, procedural and environment changes consequently reducing the manual handling risks.

Patients with a body mass index (BMI) of greater than or equal to 30 prompts an assessment of the patient's weight, their equipment needs, their clinical needs and the staffing levels required. Selection of the correct type of equipment for the right patient is integral as equipment may be weight limited or industry rated. This step is essential to ensure care can be undertaken safely by identifying and managing risk of potential harm to the patient and others (Hahler 2002). Unknown weight can create risk to both the patient and clinicians undertaking care, diagnostic procedures or interventions where the structural features have a weight limit or restrict the application of safe handling procedures.

Based on the level of risks during the bariatric patient journey, it is evident a collaborative approach is required to ensure a flow of information, such as an accurate weight, in order to safely manage manual handling. Supportive strategies may include a clear hospital pre-admission assessments process to ensure access to accurate recorded weight. A communication strategy with system alerts for identified patients would permit timely coordination of care and preparation of appropriate equipment.

Skin integrity

There are a number of risk factors to be considered with early assessment utilising evidenced based screening tools to identify patients at risk of altered skin integrity. The recording of a baseline weight, with regular updating, is identified in the literature as a vital element for ongoing assessment of weight loss, and nutritional status, to inform a range of therapeutic interventions (Kelly et al 2000; Hahler 2002). It is evident that even a patient's own body weight can cause excess pressure, bariatric patients, like those who are underweight, are at risk of compromised skin integrity. Furthermore, of significance and a growing concern is the reported level of malnutrition in hospital patients (Kelly et al 2000; Lazarus et al 2005; Butterworth 1974). Several recent Australian studies have indicated poor recognition of malnutrition in hospitals with malnutrition prevalence rates in Australian hospitals ranging from 6% to 53% (Walton 2009).

The research identifies that in the presence of malnutrition, the risk of pressure ulcers is doubled leading to poor patient outcomes and increased length of stay (Roosen et al 2010). Furthermore, the high cost of treatment and the detrimental effects on a patient's life indicate that efforts should be directed at appropriate risk assessment and prevention rather than treatment. Rather than estimating malnutrition, the importance of recording accurate weight measurement is required to support assessments and appropriate care planning for underweight patients.

Obtaining and recording weight

Within a metropolitan acute care public hospital, a routine audit to measure thoroughness of screening using nursing risk assessment tools identified a low rate of compliance in recording patient weight, reported at 18% (n = 813) (S&QU 2010). As a result of the audit, there was evidence that patients were not being weighed despite completion of the risk assessments. To provide an understanding of practice, a further audit was performed aimed at exploring the perceived barriers, perceptions and clinical practices in obtaining, recording and utilisation of recorded weight. A range of questions surveyed why patients were or were not weighed. To publish survey data obtained from this audit, an application for ethics exception was sought and received from the institution's Human Research Ethics Committee (S&QU 2010).

An exploration of the data in the audit further supports the findings across most of the literature reviewed (S&QU 2010). Representing a range of professional groups, nursing (48.6%), medicine (29.6%) and allied health (21.8%) the preliminary review of the data revealed less than half (43.7%) checked that patient weight was recorded on admission. When asked if recording accurate weight is important for safe and effective care, 79% of respondents agreed. Of significance, 24.8% identified that they estimated patient weight; 41.2% rely on patient weight to inform clinical decisions. In terms of barriers to obtaining weight, the respondents listed the main reasons as access to appropriate equipment (47.1%) and clinical status (81.5%). Of interest, is the similarity across the identified barriers to a smaller audit of nurses (n = 36) undertaken by Lees (2009) on an acute medical unit in the United Kingdom.

A finding of interest was 80.5% of respondents identified the importance of an accurate recorded patient weight to inform safe prescribing practices. Conversely, within this setting the most recent national audit on the NIMC reported 2% of adult charts had a recorded weight. Whilst anecdotal experience suggests that patient weight may be recorded in multiple areas including unit specific charts and the medical history, the findings in the NIMC audit are suggestive of medical practice issues. The optimal time for obtaining weight was clearly identified as during the admission process, however, one significant finding was the disparity between where weight is recorded and located by health practitioners. This may be suggestive that an initiative towards standardisation of an agreed single location for documenting and updating inpatient weight would lead to improving health outcomes. Based on final review of the audit data, it is intended that a set of recommendations will be developed to inform strategies to support an increase in awareness of the admission processes and improve compliance in obtaining, and recording, accurate patient weight (S&QU 2010).

CONCLUSION

Clinical documentation of an accurate patient weight is a vital component in the initial assessment in order to determine risk factors. Timely clinical assessment is crucial to inform appropriateness of care to ensure safe and effective practices in manual handling, safe prescribing and prevent of pressure injuries. These are a synergistic trio and in an acute care setting many patients require considered management in all three areas. However, the particular clinical task of obtaining a weight remains a challenge to nurses in 2011. The literature suggests that knowledge of patient weight in day to day clinical practice is an area of practice requiring further investigation. Importantly, there appears to be consistent finding in the identified barriers to obtaining accurate weight within the acute care setting. This illustrates a necessity for nurses to review current practices and explore ways to re-organise workload to ensure initial weight is obtained and ongoing reassessments are undertaken. An interprofessional approach needs to develop and maintain open communication about assessment practices to ensure all patients are weighed on admission. While it may be concluded that appropriate utilisation of an accurate patient weight may contribute to improved patient outcomes and minimise harm, the best way to achieve a change in practice remains inconclusive. It could be suggested that improved undergraduate and postgraduate education on the value of weight to reduce risk and minimise harm to patients is essential for all members of the healthcare team.

RECOMMENDATIONS

Patient weight must be considered a mandatory element in the admission process with supported systems for compliance monitoring. Planning or designing of acute care facilities should include a range of accessible alternatives to avoid the need for estimation of weight in obtaining weight such as inbuilt floor scales for trolleys and beds with inbuilt weigh scales in Emergency Departments. Research in this area of practice should be expedited to determine whether the focus of risk assessments in the nursing process has shifted practice, potentially influencing the view of priorities in care. The research should explore the current body of knowledge about the admission process regarding the health team's use of recorded weight, to inform the education programs and identify whether focussed education facilitates practice change and makes a difference in patient outcomes.

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