

Title:

Documentation of Fluid Balance of Patients on Intravenous Therapy in a University Hospital in Ghana

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References:

- i. Acheampong, A., & Vincent, J.-L. (2015). A positive fluid balance is an independent prognostic factor in patients with sepsis. *Critical Care*, 19(1), 1.
- ii. Claywell, L. (2014). *LPN to RN transitions*: Elsevier Health Sciences.
- iii. Diacon, A., & Bell, J. (2014). Investigating the recording and accuracy of fluid balance monitoring in critically ill patients. *Southern African Journal of Critical Care (Online)*, 30(2), 55-57.
- iv. Jeyapala, S., Gerth, A., Patel, A., & Syed, N. (2015). Improving fluid balance monitoring on the wards. *BMJ quality improvement reports*, 4(1), u209890. w204102.
- v. National Institute of Health and Care Excellence, U. (2013). Intravenous Fluid Therapy in Adults in Hospitals. NICE Clinical Guidelines Number 174 <https://http://www.nice.org.uk/Guidance/cg174>.
- vi. Raghunathan, K., Shaw, A. D., & Bagshaw, S. M. (2013). Fluids are drugs: type, dose and toxicity. *Current opinion in critical care*, 19(4), 290-298.

Abstract Summary:

Infusion therapy is an integral aspect of nursing practice. However, infusion therapy-related lawsuits are among the fastest-growing category of litigation against nurses because of the invasive nature of the procedure. This abstract seeks to discuss documentation as a strategy to improve nursing care to patients requiring this therapy.

Learning Activity:

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
The learner will be able to identify some factors that affect documentation of fluid balance for patients on intravenous therapy	factors that affect documentation of fluid balance; shortage of staff, acuity of patients etc

The learner will be able to discuss some strategies to improve documentation of intravenous therapy	strategies for determining patients requiring fluid balance monitoring and development of a more user friendly fluid chart
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Abstract Text:

Introduction

Fluid makes up about 60percent of the total body weight (White, 1998). Thus, maintaining a balanced body fluid is essential and requires that the volume of fluid intake and fluid loss are similar (Diacon & Bell, 2014). The brain, the adrenal glands and the kidneys regulate the body's fluid balance through a finely balanced mechanism (Tortora & Grabowski, 2002). However, many diseases can potentially disrupt this mechanism that control the intake and output of water and solute (Verbalis, 2003). Inadequate fluid intake or excessive fluid loss may lead to dehydration, which in turn can affect renal and cardiac function as well as electrolyte management (Scales & Pilsworth, 2008). In healthy patients, increased ingestion of fluids of all kinds contributes to maintaining fluid balance, but in some patients, Intravenous (IV) therapy can be a lifesaver.

Intravenous fluids (IVF) are drugs prescribed and administered to clients who visit the hospital. According to the National Clinical Guidelines Center, UK (2013), hospitalised patients need IV fluids and electrolytes for one or more of the following reasons: fluid resuscitation, routine maintenance, replacement and fluid redistribution.

Similar to other drugs prescribed by practitioners, optimal dosing is necessary (Raghunathan, Shaw, & Bagshaw, 2013). Inappropriate IV therapy caused by the administration of incorrect volume or incorrect type of fluids, is a significant cause of morbidity and mortality among patients today. As many as one in five patients on IVF therapy may experience a complication as a result of too much, too little or the wrong type of the fluid, with some complications proving fatal (National Confidential Enquiry into Perioperative Deaths, 1999; Walsh & Walsh, 2005). According to the National Institute of Health and Care Excellence (2013) the extent of adverse events associated with IVF administration is difficult to quantify, as they are under-reported. It however reports post-operative over-hydration in 17-54% of patients, which is noted to increase morbidity and prolong hospital stay and up-to 50% of patients especially the elderly developing at least one fluid-related complication due to post-operative over-hydration. IVF administration is also reported to contribute to about 9000 deaths annually in the USA (National Institute of Health and Care Excellence, 2013).

Infusion therapy is an integral aspect of nursing practice (NMC, 2005) and nurses have a responsibility in IV therapy administration especially since optimal dose regimen for IV fluid management is rarely evidenced based (K. Holte, P. Jensen, & H. Kehlet, 2003). Claywell (2014) reiterate the fact that nurses have a responsibility of protecting patients receiving care from harm however this is often not giving the necessary attention during infusion therapy. Infusion therapy-related lawsuits are therefore among the fastest-growing category of litigation against nurses in the USA because of the invasive nature of the procedure (Rosenthal, 2005). According to the NMC (2009), the approach that the law courts adopt tends to be that "if it is not recorded, it is not done". Accurate nursing documentation of IV therapy administration is therefore essential as it provides evidence of good standards of practice and can be tended in court.

The nurse' responsibility include assessment and documentation of the hydration status of the client through physical assessment and monitoring of intake and output. The Intake and Out chart is used to record fluids infused into, ingested, or eliminated by patients in the hospital within a certain period of time usually 24 hours (Ling, 2011). The nurse caring for a patient is responsible for ensuring that intake and output charts are recorded regularly, timely and accurately, with any abnormal findings documented and reported to the nurse in charge (Scales & Pilsworth, 2008).

Bravery et al. (2006) suggests that documentation of the date, time, site of cannulae insertion as well as signs of tissue infiltration or phlebitis should be recorded.

At the end of 24 hours the nurse is responsible for calculating the fluid balance of the patient. The fluid balance is calculated as total measured output subtracted from the total measured intake. A positive fluid balance means more intake than output whilst a negative fluid balance means more output than input (Acheampong & Vincent, 2015).

Records of the fluid balance of the patient taken by the nurses at the bedside together with certain laboratory reports are essential to determine the required fluid intake levels of a client (Western Health and Social Care Trust, 2010). Accuracy of records on the intake and output charts is vital to facilitate correct prescribing and administration of IV fluids. (Western Health and Social Care Trust, 2010).

Studies have shown that adverse events that range from mild to severe such as asymptomatic decrease in lung mechanics and gas exchange (Kathrine Holte, Peter Jensen, & Henrik Kehlet, 2003), severe or permanent neurological dysfunction (Schrier, 2008) and death (Nathan, 2007) may occur. The occurrence of these incidents can be reduced or avoided if all practitioners including nurses do proper documentation of IV fluids administered as these reports serve as guides for clinical decision making. However, studies have reported failures in nursing observations, in particular inadequate and inaccurate charting (Jeyapala, Gerth, Patel, & Syed, 2015). The study therefore sought to examine nurses' documentation of IV therapy and to determine factors that influence their documentation practices.

Method

An explorative cross-sectional study was conducted. A prospective audit of the intake and output charts of the records of all patients who were on admission and had been prescribed intravenous fluids was done. Factors influencing documentation practices of nurses on duty were also explored. Two groups of participants were recruited for the study;

1. All patients on admission in the medical, surgical, intensive care and accident and emergency who had been prescribed intravenous fluids as part of their management on admission in these units.
2. Registered nurses on duty in the wards who had the legal mandate to administer IVF.

Eighty-two patients and six registered nurses were recruited for the study.

Two instruments were used in this study: a checklist and questionnaire.

1. A checklist was designed to audit the records on the intake and output charts.
2. The questionnaire was designed for the nurses to determine the factors that influence the nurses' documentation practices.

Experts in the field of clinical nursing were sought to review the content of the checklist to determine the content and construct validity of the instrument. The data was entered using Statistical Package for Social Sciences (SPSS) version 20. The instrument was deemed reliable if the Cronbach's alpha is greater than 0.70 (Radhakrishna, 2007) after a pretest.

Findings

Correlation was used to determine the relationship and direction between participants' demographic characteristics (age, diagnosis and unit/ward) and IV documentation practices. Relationships were identified between patients' high acuity and complete documentation as well as ward of admission and complete documentation. There was however no relationship identified between age or sex of the patient

and documentation. Most nurses did not complete the output for patients who were prescribed stat doses. Nurses did not sign their names for entries and therefore could not be identified if there was the need to. 24-hour fluid balancing was also not completed in some instances.

Nurses cited the increased workload and staff shortage as contributing to incomplete documentation. The design of the intake and output chart was also cited as a contributing factor. One nurse said “the way the chart is designed, it does not provide any column for signing even our initials so we take it for granted”. Another nurse also commented on the size of the sheet “ this sheet is too small, it is sometimes so difficult to document especially in the output section for those of us with big handwriting, it makes it so clumsy”. Nurses were not aware of the possibility of infusion therapy litigation. Suggestions for a newly designed intake and output charts were made.

Conclusion

Most intake and output charts are not completed. The nature of the intake and output chart contributed to the lack of proper documentation.

Recommendation

Management should institute In-service training for nursing staff on intravenous fluid documentation and design a more appropriate chart for easy documentation.