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

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Goals and Objectives

- **Session goals:**
  - Promoting Health in Clinical Setting
- **Objectives:**
  - Participants will be acquainted with Intravenous Fluid (IVF) documentation practices of nurses in a University Hospital in Ghana.
  - Participants will be exposed to factors influencing IVF documentation in a University Hospital in Ghana.

Introduction

- Fluid makes up about 60percent of the total body weight (White, 1998).
- In healthy patients, ingestion of fluids of all kinds contributes to maintaining fluid balance.
- But in some patients, Intravenous (IV) therapy can be a lifesaver.

- Hospitalized patients need IV fluids and electrolytes for one or more of the following reasons:
  - fluid resuscitation,
  - routine maintenance,
  - replacement and
  - fluid redistribution

- However, there are potential dangers associated with inappropriate IVF administration.

- 20% of patients on IVF therapy may experience a complication as a result of too much, too little or the wrong type of the fluid (National Confidential Enquiry into peri-operative Deaths, 1999).

  - Asymptomatic: decrease in lung mechanics and gas exchange (Holte et al, 2003),
  - Severe or permanent neurological dysfunction (Schrier, 2008).
  - Some complications prove fatal (Nathan, 2007).

- Post-operative over-hydration occurs in 17-54% of patients [noted to increase morbidity and prolong hospital stay].

- Up-to 50% of patients especially the elderly develop at least one fluid-related complication due to post-operative over-hydration (National Institute of Health and Care Excellence, 2013).

- IVF administration is also reported to contribute to about 9000 deaths annually in the USA (National Institute of Health and Care Excellence, 2013).

- Not much information is reported on complications associated with IVF administration in Sub-Saharan Africa and Ghana specifically.

- Nurses have a responsibility in IV therapy administration (Claywell, 2014) including ensuring
  - the correct fluid is administered.
  - the rate of flow of the fluid is correct
  - monitoring the patient during fluid administration
  - the procedure and any effects associated with the process are documented (Holte, Jensen & Kehlet, 2003)
- However these are often not given the necessary attention during infusion therapy

Problem statement

- Nurses' records of fluid balance and certain laboratory reports are essential to determine the required fluid intake levels of a client (Western Health and Social Care Trust, 2010).

- However, studies have reported failures in nursing observations, in particular inadequate and inaccurate charting (Jeyapala, Gerth, Patel, & Syed, 2015).

- In addition, studies on fluid charting in Ghana is none existent.
- The study therefore sought to examine nurses' documentation of IV therapy and to identify factors that influence their practices.

Methods
Design and Setting

- Exploratory cross-sectional study.
  - Prospective audit of intake and output records of patients on admission.
  - Semi structured individual interviews with nurses .
- The study was conducted at a University hospital in Ghana.
  - It provides primary care for university staff and residents in the nearby communities.
  - Serves as a clinical training site for;
    - BSc nursing students.
    - House officers.

Sampling

- **Patient records:**
  - Inspected patients' folders for those prescribed with intravenous fluids
  - A list was compiled of patients who had received a prescription for 24 hours or more and had received at least the first dose.
  - Sampling was done for one month
  - A total of eighty-two patients were recruited from four wards (Male, Female, Pediatric/NICU and Maternity).

Sampling –cont'd.

- **Nurses:**
  - Purposive sampling of six nurses.
  - Ward in-charges and registered nurses
  - They should have worked in the hospital for at least one year.

Data collection

- Patients record
  - Prospective audit of intake and output charts for one month using a designed checklist.
  - Sought to document completeness of records: patients' particulars
    - Date and time of administration
    - Type of fluids
    - Amounts of fluids
    - Characteristics of fluids
    - 24 hours fluid balance
    - Comments of observations
    - Signature of administering nurse

- Nurses:
  - Individual interviews were conducted using semi structured open-ended questions, that ensured participants freely shared their opinion of factors influencing their IV documentation practices.
  - This method provided rich data from the participants (Creswell, 2012).
  - Interviews were conducted in English and lasted between 30-45 minutes
  - All the interviews were audio recorded and transcribed verbatim

Ethical Approval

- KNUST Committee on Human Research Publications and Ethics, School of Medical Sciences gave ethics approval for the study
- KNUST hospital management gave approval for accessing their records and contacting the nurses.
- Written and oral consent from the nurses who were enrolled in the study after a detailed information on the study had been given.

Data Analysis

- Records Audit: Documentation Practices on intake and output chart
  - SPSS version 20: Univariate and bivariate analysis

- Nurses' interviews: Factors influencing documentation practices.
  - Verbatim transcription of data was done.
  - Content analysis. The main questions constituted the categories.

Findings: Completeness of patients' intake and output chart.

	Charting patient's intake and output (N=82)		
Variable	**Documented**		**Not documented**
IV fluid intake			
Date and time	82 (100.0)		0 (0.0)
Type of fluid	82 (100.0)		0 (0.0)
Amount of fluid set up	82 (100.0)		0 (0.0)
Fluid output			
Date and time	37 (45.1)		45 (54.9)
Type of fluid	37 (45.1)		45 (54.9)
Characteristics of the fluid	8 (9.8)		74 (90.2)
Patient's Fluid Balance			
24 hour fluid balance	16 (19.5)		66 (80.5)
Signature of the administering nurse	0 (0.0)		82 (100.0)
Night nurses records with Red pen	22 (26.8)		60 (73.2)
Parameter	**Yes**	**No**	**Not recorded**
Correct fluid balance	15 (18.3)	1(1.2)	15 (18.3)

Association b/n patients' demographics and nurses' documentation practices

Parameter	24hour intake and output balanced (N=82) Yes	No	Chi square	P-value
Age group (years)				
0-12	2 (14.3)	12 (85.7)		
13-24	5 (26.3)	14 (73.7)	-	.064**
25-36	9 (27.3)	24 (72.7)		
37-44	0 (0.0)	6 (100.0)		
=/>45	0 (0.0)	10 (100.0)		
Sex				
Male	4 (12.9)	27 (87.1)	-	.269**
Female	12 (23.5)	39 (76.5)		
Patient's diagnosis				
Medical	5 (10.9)	41 (89.1)	4.983	**.026***
Surgical	11 (30.6)	25 (69.4)		

Values were based on Pearson chi-square and Fishers exact test for categorical variables: (%) represent row percentage; *p<0.05; ** p-value estimate from Fisher's exact test because some cells have counts less than 5.

Association b/n patients' demographics & nurses' charting of output characteristics

Parameter	Documentation of Characteristics of patients' output (N=82) Yes	No	Chi square	P-value
Age group (years)				
0-12	1 (7.1)	13 (92.9)		
13-24	1 (5.3)	18 (94.7)	-	**.551****
25-36	5 (15.2)	28 (84.8)		
37-44	1 (16.7)	5 (83.3)		
=/>45	0 (0.0)	10 (100.0)		
Sex				
Male	2 (6.5)	29 (93.5)	-	.354**
Female	6 (11.8)	45 (88.2)		
Patient's diagnosis				
Medical	1 (2.2)	45 (97.8)	-	**.012****
Surgical	7 (19.4)	29 (80.6)		

Values were based on Pearson chi-square and Fishers exact test for categorical variables: (%) represent row percentage; *p<0.05; ** p-value estimate from Fisher's exact test because some cells have counts less than 5.

Qualitative data collection

- Nurses interviews:
- Six participants: Five females and one male aged 24-46 years
- Years of nursing experience ranged from two years to twelve years.

Findings: Importance of IVF documentation

All the participants agreed that documentation of IVF was essential.

A number of participants suggested that it was as essential as administering the fluid itself

"In nursing it is said that if it is not written, then it was not done… so documenting that you gave the fluid is as important as administering it…" (P 4).

- All the participants reported that the nurse must document on the intake and output chart but only one (P 2) suggested that abnormal findings should be reported to the nurse manager.

  - *The nurse is responsible for ensuring that intake and output charts are recorded as often as a new bag is administered" (P 4).*

  - *It is not just writing but when you balance and the output is more than the input you have to report to the nurse in-charge)" (P 2).*

Findings: Importance of IVF documentation

- **Safe practice**

A number of the nurses suggested that charting intake and output reduces the risk of complications.

"You see, the house officers usually prescribe the fluids and they are not really experienced so if we are not careful, we will over hydrate the patients, so filling the chart and checking it will prevent that". (P 1)

Findings: Importance of IVF documentation

- **Evidence of care delivery**

Some nurses opined that charting the patients' intake and output shows that the nurse performed the procedure and worked during the shift.

"When you chart, it is evidence that you actually gave the fluid or even gave the right dose, so you are protected in case something happens" (P 2)

Importance of IVF documentation

- **Continuity of care**

Most of the participants suggested that the chart was essential in ensuring that care provided was quality across all the shifts.

- *" … the nurses who take over from us can refer to it after we have left for home to ensure that they provide the right care without necessarily calling us". (P 5)*

Factors affecting IVF documentation

Several factors were cited as affecting IVF documentation:

- Workload during a shift,
- Delegation and supervision of IVF responsibilities,
- Condition of the patient,
- Design of the Intake and Output chart
- The size of the chart.

Factors affecting IVF documentation

- **Workload**

The nurses asserted that the volume of work during a shift affected IVF documentation.

- *"Sometimes when you come on duty, the ward is full and there is so much to be done, so if you decide to delay the charting small, you may forget" (P 4).*

- *"There are so many things to document alongside the nursing work. So sometimes we choose to rather do the work rather than to sit and write"* (P 6).

Factors affecting IVF documentation

- **Supervision of delegated care**

The participants reported that supervision of delegated IVF responsibilities influenced documentation.

  - *"due to shortage of RNs and increased workload, sometimes the responsibility of mounting a new bag of fluid is delegated to nurse assistants and if you don't follow up to ensure that they charted, they sometimes forget to chart which may lead to incomplete or non documentation". (P 5)*

Factors affecting IVF documentation

- **Condition of the patient**

All the nurses reported that the condition of the patient receiving IVF was a major reason for documenting.

- *"You know that patient's with kidney problems need to be strictly monitored. So as for that one, we consciously monitor it" (P 3).*

- *"If the patient has a condition that requires strict monitoring of the intake and output we make sure we adhere strictly to that.This is because the patient may be in danger if we don't monitor it"*

(P 6).

Factors affecting IVF documentation

- **Design of the intake and output chart**

Some nurses asserted that the columns provided on the intake and output chart do not include portions for signature and 24-hour balancing resulting in incomplete documentation.

- *" the way the chart is designed, it does not provide any column for signing even our initials, so we take it for granted". (P 4)*
- *"There is no column for balancing at the end of the day." (P 3)*

Factors affecting IVF documentation

- **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”. (P 1)

Implications of not documenting IVF administration

- **Legal implications**

Some nurses were not aware of the possibility of infusion therapy litigation. A participant responded:

"I have not heard of court case because of IVF documentation but I know that nurses' notes are tenderable in court" (P 6).

Discussion

- All the nurses knew that documentation of IVF administered to patients was an essential practice. This concurs with a study by Vicdan, (2014).

- Incidents of incomplete or non documentation of the IVF administered in the intake and output chart were recorded. This is supported by a finidings study by Ling, Ling, Chin, Wong, et al, (2011).

Discussion

- Incomplete documentation of output was high in this study.

- 24-hour balancing of fluid intake and output was omitted in most of the patients' records. This is consistent with findings of a study by Walker, Stewart-Parker, Chinthapalli, Ostermann, Dargan, Wood, (2012).

Discussion

- Workload, design of the intake and output chart and the space to document were identified as factors that negatively affected documentation of IVF administered. A similar finding was revealed by (Aslam et al, 2017; Diacon, 2012).

Conclusion

- There is incomplete and non documentation of intake and output for patients on intravenous therapy.
- Nurses do not document the output and the 24-hour balance of the patients on IVF.
- Nurses are however aware that recording intake and output for patients' on IVF is essential.

Recommendation

- Redesign the intake and output chart to include columns for 24-hour balance and signature of the nurse.

- In-service training on IV fluid therapy documentation.

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