Knowledge of Blood Transfusion Among Staff Nurses In Penang Mainland Cluster hospital

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• Hospital Seberang Jaya Pulau Pinang
Knowledge of Blood Transfusion Among Staff Nurses In Seberang Perai Cluster Hospital

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Siti Halimah Bt Ghazali
Outline Of Presentation

1. Background
2. Objectives
3. Significance
4. Research Methods
5. Results / Discussion
6. Conclusion
7. Future Plans
8. Acknowledgements
9. Bibliography
BACKGROUND

a) Blood transfusion - process of administering whole blood or blood components to a patient\(^1\).

b) Errors can lead to severe morbidity or mortality\(^2\).

c) To improve the quality is to facilitate through investigation and documenting the current state of knowledge of blood transfusion\(^3\).

d) Level of knowledge varies among individuals and healthcentres although they are trained in nursing college\(^4\).

e) Continous education and training needed to reduce variability in practice\(^5\).

5. Annual Shot Report ( Serious Hazards Of Transfusion) 2017, MHRA. Affiliated to the Royal College Of Pathologist.
SIGNIFICANCE

• National Nursing Audit Report (NNA) in Seberang Jaya Hospital reveals:

<table>
<thead>
<tr>
<th>No</th>
<th>Year</th>
<th>Standard %</th>
<th>% Of Conformance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2014</td>
<td>100</td>
<td>96.7</td>
</tr>
<tr>
<td>2</td>
<td>2015</td>
<td>100</td>
<td>90.0</td>
</tr>
<tr>
<td>3</td>
<td>2016</td>
<td>100</td>
<td>96.7</td>
</tr>
</tbody>
</table>

• Clinical audit (2016) showed that only 42.9% of nurses achieved good knowledge
Return of Blood Product to Blood Bank
from Jan - Jun 2018 @ Seberang Jaya Hospital

<table>
<thead>
<tr>
<th>Blood Product</th>
<th>No of units returned</th>
<th>No of units discarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packed cell</td>
<td>72</td>
<td>7</td>
</tr>
<tr>
<td>Platelet</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>Fresh Frozen Plasma</td>
<td>39</td>
<td>18</td>
</tr>
<tr>
<td>Cryoprecipitate</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>145</strong></td>
<td><strong>37</strong></td>
</tr>
</tbody>
</table>

25% cold chain not maintained
Unseen Costing

• Cost per blood bag  RM 350.00

• Donor Refreshment  RM 5.00

__________________________  +  RM 1,467

RM 355.00
Impact of Blood Wastage

- Financial Burden
- Patients’ Burden
- Donor
OBJECTIVES

• To determine level of knowledge in blood transfusion among staff nurses in Seberang Perai Cluster Hospital.

• To find out association between knowledge and the variables related to the professional aspects.
## RESEARCH METHODS

<table>
<thead>
<tr>
<th></th>
<th>Study design</th>
<th>Cross-sectional study</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Target Population</td>
<td>Inclusion Criteria: nurses with at least six months of experience in adult blood transfusion. Exclusion: Nurses in Paediatric &amp; A&amp;E unit.</td>
</tr>
<tr>
<td>3</td>
<td>Sampling Method</td>
<td>All nurses who were working during data collection period</td>
</tr>
<tr>
<td>4</td>
<td>Sample Size</td>
<td>652 questionnaire distributed, Respondent = 639</td>
</tr>
<tr>
<td></td>
<td>Hospital Seberang Jaya</td>
<td>n = 350;</td>
</tr>
<tr>
<td></td>
<td>Hospital Kepala Batas</td>
<td>n = 89;</td>
</tr>
<tr>
<td></td>
<td>Hospital Bukit Mertajam</td>
<td>n = 150;</td>
</tr>
<tr>
<td></td>
<td>Hospital Sungai Bakap</td>
<td>n = 50</td>
</tr>
<tr>
<td>5</td>
<td>Tool Used</td>
<td>A validated, self-administered questionnaire (Lim et al. 2016) Formula Knowledge score = ( \frac{\text{Total correct answer}}{\text{Total knowledge questions}} \times 100 )</td>
</tr>
<tr>
<td>6</td>
<td>Study Duration</td>
<td>1(^{st}) July 2017 – 30(^{th}) September 2017</td>
</tr>
</tbody>
</table>
Ethical Consideration

• This study was approved by Hospital Directors & Heads of Nursing.
• Approval from Medical Research and Ethics Committee (NMRR ID – 17-2545-388-11).
• Informed consent was obtained.
• Subjects can choose to withdraw at anytime and will not be replaced.
RESEARCH TOOL

• The questionnaire was adopted from Lim et.al.(2016).
• Consisted of 4 sections of 31 items – 9 items socio-professional factors - 22 items of knowledge
• Each item was given score 1 for right responses and 0 for wrong / no responses.
• Scoring system for knowledge

<table>
<thead>
<tr>
<th></th>
<th>Good Knowledge</th>
<th>Moderate Knowledge</th>
<th>Poor Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asmaa et.al (2017),</td>
<td>≥ 75%</td>
<td>50 - &lt;75%</td>
<td>&lt; 50%</td>
</tr>
<tr>
<td>Lim et. al. (2016)</td>
<td>≥ 80%</td>
<td>50 - &lt; 80%</td>
<td>&lt; 50%</td>
</tr>
</tbody>
</table>
Data Collection

• A briefing session with ward sisters was held.
• Verbal and written instructions were given.
• Data was collected from 15th July to 15th August 2017

Data Analysis

• Data entry and analysis were done using the Statistical Package for Social Sciences (SPSS, version 22.0)
• Descriptive analysis was used to analyse the socio-professional factors and individual items in each section.
Results

Section B: Social Professional Detail

Response Rate 98%

Questionnaires given = 652  Respondents = 639

Monthly Transfusion

- HSJ: 352
- HKB: 92
- HBM: 155
- HSB: 52

Questionnaires given: 652  Respondents: 639
Education Level (%)

- Diploma: 96.9%
- Degree: 3.1%

Respondents Years of Service (%)

- <1 year: 5.2%
- 1-5 years: 41.3%
- 5-10 years: 21.9%
- >10 years: 31.6%
**Section B:**
Knowledge Of Blood Bag Collection From The Blood Bank And Patient Preparation

<table>
<thead>
<tr>
<th>Items</th>
<th>Correct (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood products that need cross matching</td>
<td>95.8</td>
</tr>
<tr>
<td>Sample for cross matching</td>
<td>92.8</td>
</tr>
<tr>
<td>Valid duration of Group Screen &amp; Hold sample</td>
<td>16.4</td>
</tr>
<tr>
<td>Bedside labelling of sample</td>
<td>96.2</td>
</tr>
<tr>
<td>ABO and RhD compatibility</td>
<td>42.6</td>
</tr>
<tr>
<td>Transporting packed red cells</td>
<td>93.7</td>
</tr>
<tr>
<td>Details checked during collection of blood products</td>
<td>87.3</td>
</tr>
</tbody>
</table>
## Section C: Pre-transfusion Nursing Responsibilities

<table>
<thead>
<tr>
<th>Items</th>
<th>Correct (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handling of blood products at wards</td>
<td>54.6</td>
</tr>
<tr>
<td>Necessity to pre-warm blood</td>
<td>54.8</td>
</tr>
<tr>
<td>Pre-warm method</td>
<td>37.6</td>
</tr>
<tr>
<td>Solution co-administered with blood</td>
<td>97.8</td>
</tr>
<tr>
<td>Maximum delay at wards</td>
<td>79.5</td>
</tr>
<tr>
<td>Sequence of blood transfusion</td>
<td>83.9</td>
</tr>
<tr>
<td>Skipping blood checking steps</td>
<td>63.2</td>
</tr>
<tr>
<td>Use of filter</td>
<td>92.6</td>
</tr>
</tbody>
</table>
## Section D:
During And Post-transfusion Nursing Responsibilities And Management Of Adverse Reaction

<table>
<thead>
<tr>
<th>Items</th>
<th>Correct (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum time for packed red blood cell transfusion</td>
<td>97.0</td>
</tr>
<tr>
<td>Risk of exceeding recommended time</td>
<td>31.9</td>
</tr>
<tr>
<td>Vital signs monitoring</td>
<td>62.9</td>
</tr>
<tr>
<td>Transfusion reactions</td>
<td>80.8</td>
</tr>
<tr>
<td>Managing transfusion reactions</td>
<td>97.0</td>
</tr>
<tr>
<td>Transfusion-transmitted infections</td>
<td>80.6</td>
</tr>
<tr>
<td>Most common cause of fatal transfusion reaction</td>
<td>65.1</td>
</tr>
</tbody>
</table>
Knowledge Score by Percentage

Mean

<table>
<thead>
<tr>
<th></th>
<th>HSJ</th>
<th>HKB</th>
<th>HBM</th>
<th>HSB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>76.25 ± 9.75</td>
<td>66.70 ± 12.93</td>
<td>68.76 ± 8.85</td>
<td>74.91 ± 10.80</td>
</tr>
</tbody>
</table>

Total mean score 72.91%
Variables

**Significant Factors**

- Frequency of Blood Transfusion \((p=0.025)\)
- Enough Training \((p=0.001)\)
- More Training \((p=0.009)\)
- Hospital \((p=<0.0001)\)

**Non-significant Factors**

- Educations \((p=0.051)\)
- More Written Policy \((p=0.861)\)
Test of Between-Subjects Effects

- Education ($p=0.115$)
- Written Policy ($p=0.505$)
- Hospital ($p<0.0001$)
Discussion

- This study identified a moderate knowledge (72.91%) similar with previous study done locally in Penang Hospital (70.44%) \(^7,9,10\).
- International studies also identified same results \(^1,3,9,10\).
- Analysis shows that there were no association between various variables and the knowledge score except Hospital factor.
- Lower knowledge score is associated with:
  - nurses learning through experience and from colleagues who provide the same care\(^9\).
  - inadequate refreshment of knowledge periodically\(^10\).

Discussion

• Hospital is the only factor associated with the mean score in this study.
• There were some cluster hospitals share similar score. There are HKB vs. HBM while HSJ vs. HSB
• Therefore, there must have confounding factors which are not covered in this study. Further studies should be carried out in the future.
Study Limitations

Language Barrier

• English

Participants might have discussed answers with co-workers.

• Self administered questionnaire
CONCLUSION

• This study and previous local study has highlighted knowledge deficits (≤ 80%) in Seberang Perai Cluster and Penang Hospital which could be detrimental to patient safety.
• These results have implications for nursing education, policy & practice.
• Without rectifying the current situation, patient’s right to receive good quality care will continue to be violated.
Future Plans

• To have simulated exercises in all major hospitals to improve quality transfusions in all healthcare facilities.
  • Followed by interventional studies to assess pre and post training knowledge levels.

• To outline strategies to Policy makers, to include Competency as a category (A12) in myCPD log book as mandatory for each disciplines.
  • As it is a systematic maintenance, improvement and broadening of knowledge and skills necessary for the execution of professional duties throughout the individuals working life.

ACKNOWLEDGEMENTS

We would like to extend our gratitude to

• Directors of Hospital Cluster and Matrons who support us.
• Sisters & Staff Nurses who helped in data collection.
• CRC Seberang Jaya
  • En Mohd Fadzly Amar B Jamil from CRC Seberang Jaya for the valuable advice about statistical and data analysis.
  • Dr. Hor Chee Peng and Ms Liew Ai Ch’i for her guidance and advice.
Bibliography


5. Annual Shot Report (Serious Hazards Of Transfusion) 2017, MHRA. Affiliated to the Royal College Of Pathologist.


THANK YOU