The Influence and Impact of the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) on blood transfusion services in Africa
Pitman, John Patton

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2015

Link to publication in University of Groningen/UMCG research database

Citation for published version (APA):

Copyright
Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the “Taverne” license. More information can be found on the University of Groningen website: https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment.

Take-down policy
If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): http://www.rug.nl/research/portal. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Download date: 27-05-2024
Knowledge and barriers related to reporting of acute transfusion reactions among healthcare workers in Namibia

Sridhar V. Basavaraju
Britta Lohrke
John P. Pitman
Sonal R. Pathak
Benjamin P. L. Meza
Ray W. Shiraishi
Robert Wilkinson
Naomi Bock
Mary Mataranyika
David W. Lowrance

Transfusion Medicine
8.1 Introduction

Dear Sir,

In sub-Saharan Africa, only South Africa has had a long-standing national hemovigilance system to monitor acute transfusion reactions (Nel and Heyns, 2000). To improve monitoring, recognition, and reporting of acute transfusion reactions (ATR) more countries in the region have implemented or are considering national hemovigilance systems (Dahourou, Tapko et al., 2012). In Namibia, The Blood Transfusion Service of Namibia (NAMBTS) is the only organization authorized to collect, process, and distribute blood and blood components for transfusion. Since 2006, NAMBTS has invested heavily in the development of guidelines and training for doctors and nurses in the appropriate clinical use of blood. Coupled with this focus on appropriate use, in 2008 NAMBTS launched a national hemovigilance system with a standardized reporting tool backed by clinical and laboratory investigations of all reported ATR. Under this system, healthcare workers (HCW) in Namibia who order or perform transfusions (primarily nurses and physicians) are responsible for voluntary reporting of ATR to NAMBTS by phone or via a paper-based system. Reportable ATR include allergic, acute hemolytic, febrile non-hemolytic reactions, sepsis due to bacterial contamination of the donor unit, transfusion associated acute lung injury, transfusion associated circulatory overload, and transfusion associated dyspnea.

Despite extensive training and outreach by NAMBTS, under-reporting of ATR in Namibia has been observed. A recent evaluation conducted by NAMBTS found that approximately 3% of all transfusions (approximately 10,000 blood units) conducted in Windhoek in 2011 resulted in an ATR. However, NAMBTS received only eight ATR reports from Windhoek transfusion facilities in 2011 (Meza, Lohrke et al., 2013).

As observed with other public health surveillance systems, under-reporting can result in inaccurate prevalence and incidence estimates and compromise a system’s effectiveness (Alter, Mares et al., 1987). Identifying the reasons for under-reporting is a priority for blood services developing surveillance systems for ATR. We conducted a survey of HCW in Namibia to ascertain their knowledge about the hemovigilance system; their ability to recognize signs and symptoms of ATR, and; to identify barriers to reporting ATR via the hemovigilance system.

A 30 question survey based on WHO guidelines was designed to collect information from HCW about their training, knowledge, beliefs, and clinical practices related to the identification of and responses to ATR (WHO, 2002). The survey was distributed (paper and electronically) to all HCW of various grades, who order or perform blood transfusions in all 46 transfusion facilities. Due to frequent turnover of staff both within and between healthcare facilities (especially in the public sector), the exact number of HCW in Namibia who meet the inclusion criteria is unknown, but generally believed to be at least 1,000 persons (personal communication B. Lohrke, 25 July 2012). Frequency counts and percentages were calculated.
for all variables. Responses were stratified by cadre. All analyses were performed using SAS version 9.2 (SAS Institute, Cary, NC).

Additional questions asked whether respondents could correctly identify 15 signs and symptoms, based on WHO clinical guidelines, related to the following ATR (WHO, 2002): allergic, acute hemolytic, febrile non-hemolytic, sepsis due to bacterial contamination of the donor unit, transfusion associated acute lung injury, transfusion associated circulatory overload, and transfusion associated dyspnea.

Of all responses, 34% (105/311) were from physicians, 63% (197/311) from nurses, and 3% (9/311) from other cadres. Among respondents, 42% (130/307) reported previously receiving training on clinical management of ATR. Seventy-four percent (74%, 227/307) were aware that a hemovigilance system was available in Namibia, but only 12% (36/309) had previously reported an ATR to NAMBTS. The most common reason for not reporting was “having never seen a reaction.” But one third of respondents reported that a patient under their care in Namibia had ever previously experienced an ATR. Nearly three-quarters of all respondents believed there would be no negative personal or professional consequences for reporting an ATR (Table 1).

Among all respondents, 96% (298/310) indicated they were capable of identifying an ATR. However, only 5% (16/311) respondents correctly identified all 15 clinical signs and symptoms of an ATR. The most common correctly identified signs and symptoms were flushing, itching and shortness of breath. The symptoms of ATR that were most commonly not identified by respondents were back pain, unexplained bleeding and red urine.

While these findings provide some clues, they do not provide a clear explanation for the low reporting rate in Namibia, which is likely to be multi-factorial. For example, a large proportion of HCW knew that a hemovigilance system existed, and approximately 40% reported receiving some previous training in the clinical management of ATR. However, while the vast majority of respondents, including doctors and nurses, were confident they could recognize an ATR, only a small minority correctly identified all 15 common signs and symptoms in a test question included in the survey. Given previous observations that transfusion-related education and knowledge is deficient in sub-Saharan Africa, these findings underscore the importance of continued integration of courses in transfusion practice, as well as, hemovigilance monitoring and reporting into pre- and in-service medical training programs (Nebie, Ouattara et al., 2011; Tagny, Kapamba et al., 2011; Dahourou, Tapko et al., 2012).

Some reasons cited by HCW for not reporting included excessive effort required to report and a perception that reactions with minor clinical severity did not merit a report. To mitigate these factors, the reporting process could be simplified or the requirements modified such that only moderate and severe reactions are reportable. Expanding reporting responsibilities to laboratory staff and others outside the clinical wards, may contribute to increased use of the system. Previous reports have documented low reporting of other adverse events among HCW in Africa due to fear of stigma or negative consequences (Bukirwa, Nayiga et al., 2008).
None of the respondents in our study cited fear of repercussions as a reason for not reporting an acute transfusion reaction, and nearly three-fourths felt that no one would suffer negative consequences by reporting to the system. This suggests an important cultural change around a major perceived barrier (stigma) to the use of the hemovigilance system in Namibia – and potentially elsewhere in sub-Saharan Africa.

**Table 1: Experience, training, awareness of hemovigilance system, knowledge of acute transfusion reactions, and reporting practices among healthcare workers ordering and performing transfusions - Namibia, 2011**

<table>
<thead>
<tr>
<th>Years of experience (n responses)</th>
<th>Physicians n = 105 (34%)</th>
<th>Nurses n = 197 (63%)</th>
<th>Other* n = 9 (3%)</th>
<th>Total N = 311</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 5 years</td>
<td>27 (26%)</td>
<td>59 (30%)</td>
<td>1 (11%)</td>
<td>87 (28%)</td>
</tr>
<tr>
<td>6 – 10 years</td>
<td>27 (26%)</td>
<td>16 (8%)</td>
<td>2 (22%)</td>
<td>45 (15%)</td>
</tr>
<tr>
<td>10 – 15 years</td>
<td>19 (18%)</td>
<td>26 (13%)</td>
<td>3 (33%)</td>
<td>48 (16%)</td>
</tr>
<tr>
<td>&gt; 15 years</td>
<td>31 (30%)</td>
<td>93 (48%)</td>
<td>3 (33%)</td>
<td>127 (41%)</td>
</tr>
<tr>
<td><strong>Received training on clinical management of acute transfusion reactions</strong></td>
<td>104</td>
<td>195</td>
<td>8</td>
<td>307</td>
</tr>
<tr>
<td>Yes</td>
<td>57 (55%)</td>
<td>70 (36%)</td>
<td>3 (38%)</td>
<td>130 (42%)</td>
</tr>
<tr>
<td>No</td>
<td>47 (45%)</td>
<td>125 (64%)</td>
<td>5 (63%)</td>
<td>177 (58%)</td>
</tr>
<tr>
<td><strong>Knew NAMBTS had a reporting system for acute transfusion reactions</strong></td>
<td>103</td>
<td>195</td>
<td>9</td>
<td>307</td>
</tr>
<tr>
<td>Yes</td>
<td>82 (80%)</td>
<td>139 (71%)</td>
<td>6 (67%)</td>
<td>227 (74%)</td>
</tr>
<tr>
<td>No</td>
<td>21 (20%)</td>
<td>56 (29%)</td>
<td>3 (33%)</td>
<td>80 (26%)</td>
</tr>
<tr>
<td><strong>Who would suffer negative consequences of reporting</strong></td>
<td>96</td>
<td>178</td>
<td>8</td>
<td>282</td>
</tr>
<tr>
<td>Person reporting</td>
<td>0 (0%)</td>
<td>3 (2%)</td>
<td>0 (0%)</td>
<td>3 (1%)</td>
</tr>
<tr>
<td>Supervisor of reporter</td>
<td>0 (0%)</td>
<td>2 (1%)</td>
<td>0 (0%)</td>
<td>2 (1%)</td>
</tr>
<tr>
<td>No consequences</td>
<td>79 (82%)</td>
<td>123 (69%)</td>
<td>5 (33%)</td>
<td>207 (73%)</td>
</tr>
<tr>
<td>Other</td>
<td>17 (18%)</td>
<td>50 (28%)</td>
<td>3 (38%)</td>
<td>70 (25%)</td>
</tr>
<tr>
<td><strong>Believe are able to recognize acute transfusion reaction</strong></td>
<td>105</td>
<td>197</td>
<td>8</td>
<td>310</td>
</tr>
<tr>
<td>Yes</td>
<td>103 (98%)</td>
<td>188 (95%)</td>
<td>7 (88%)</td>
<td>298 (96%)</td>
</tr>
<tr>
<td>No</td>
<td>2 (2%)</td>
<td>9 (5%)</td>
<td>1 (13%)</td>
<td>12 (4%)</td>
</tr>
<tr>
<td><strong>Correctly recognized all signs and symptoms of an acute transfusion reaction</strong></td>
<td>105</td>
<td>197</td>
<td>9</td>
<td>311</td>
</tr>
<tr>
<td>Yes</td>
<td>9 (9%)</td>
<td>7 (4%)</td>
<td>0 (0%)</td>
<td>16 (5%)</td>
</tr>
<tr>
<td>No</td>
<td>96 (91%)</td>
<td>190 (96%)</td>
<td>9 (100%)</td>
<td>295 (95%)</td>
</tr>
</tbody>
</table>
It further indicates the role of adequate training, ongoing outreach activities, and refresh-er courses to influence HCW behavior. It is unlikely that such gains in healthcare worker awareness or perceptions toward the hemovigilance system could have been realized in Namibia without the accompanying comprehensive training program. To facilitate improvement in the recognition of ATR, blood services, medical and nursing schools, and in-service training providers in resource-limited settings should consider adopting elements from existing hemovigilance and transfusion training programs (Dhingra, 2002; Courbil, Fabrigli et al., 2007). These include providing access to distance learning materials, implementation of self-directed learning tools as part of training, post-training assessments, and auditing of blood transfusion practices in hospitals.

As blood services across the region continue to develop and gain recognition as an integral part of primary healthcare systems, implementing hemovigilance programs with an emphasis on patient monitoring and adverse event reporting, should be a priority. The success of these programs will rely on governmental and external organizations prioritizing the integration of hemovigilance systems into comprehensive transfusion training programs, implementing policies to identify more efficient ways to focus reporting requirements, and including both clinical and non-clinical staff in the reporting process.
8.2 References