Identifying the Educational Needs of Laboratory Professionals Regarding Factor VIII/IX Activity Assays

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Objective
To understand the current knowledge gaps and educational needs of laboratory personnel that might oversee FVIII/FIX testing

Conclusions
Most respondents (supervisors/technicians) are actively involved in factor VIII/IX testing and have familiarity with one-stage assays for diagnosis and monitoring of hemophilia, but are less aware of limitations of one-stage assays.
Most reported limited institutional availability of chromogenic FVIII/FIX assays, and were not familiar or confident in how chromogenic assays could be used to augment diagnosis and monitoring of hemophilia.
Future continuing education programs (contextual cases to illustrate use of CS-FVIII/FIX) could increase confidence with recommending and implementing broader OS-CS approaches in local laboratories and/or networks

Introduction
Diagnosis and management of hemophilia requires accurate and precise factor activity levels.
Factor activity is traditionally measured using a one-stage (OS) clot-based assay, however a chromogenic substrate (CS) assay may be needed for diagnosing patients with non-severe hemophilia and for monitoring patients prescribed newer, modified factor products.1,2

A needs assessment survey was performed to understand current knowledge gaps and learning needs of laboratory professionals who may oversee factor activity assay testing.

Methods
An internet survey was fielded three times between 11/30/2015 and 1/8/2016 to 1,496 members of the Clinical Laboratory Management Association (CLMA) who opted-in to receive email communications.
Survey questions asked the following:
– Practice patterns surrounding use of factor VIII (FVIII) and factor IX (FIX) activity assays
– Knowledge of, attitudes toward, and familiarity with chromogenic (CS) assays
– Barriers to the use of chromogenic (CS) assays
– Interest in continuing education topics

Most survey questions used 5- or 10-point response scales expressed within 3 domains; grouped scores by domain are shown in each figure legend.
Participants were compensated for their time.

Results
Demographics
57 laboratory professionals completed the survey:
– 35% directors, 28% managers, 14% supervisors
– Remainder included technicians, scientists, administrators, and “other”
respondents averaged 10 years in their position.
Most (88%) were hospital-based, and only 18% were associated with hemophilia treatment centers (HTCs).
Almost all (94%) respondents reported having input into their laboratory’s assay selection.

Practice Patterns
Overall, 36% directly perform more than 20 FVIII assays per year (diagnostic: 23%; monitoring: 24%), and 16% directly perform more than 20 FIX assays per year (diagnostic: 16%; monitoring: 12%) (Table 1).
More respondents performed OS (72%) than CS assays (10%) or both (17%).
Availability of both CS-FVIII (5%) and CS-FIX (2%) were limited.

Table 1 Number of factor assays directly performed annually

<table>
<thead>
<tr>
<th></th>
<th>FVIII (n=57)</th>
<th>FIX (n=57)</th>
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<tbody>
<tr>
<td>Total # factor assays performed annually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>39%</td>
<td>49%</td>
</tr>
<tr>
<td>1-20</td>
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<td>16%</td>
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<tr>
<td>101-500</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>&gt;500</td>
<td>10%</td>
<td>4%</td>
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Familiarity, Perceptions and Barriers Around Assays
Overall, 26% reported that they were “somewhat” or “very familiar” with use of the CS assay.
Almost half (44%) of the respondents reported no familiarity at all (Figure 1).

Figure 1 Level of familiarity with chromogenic assays

Reported confidence with interpretation of CS assay results was relatively low (11%) (Figure 2); only 11% of respondents reported understanding advantages of CS assay and 19% believed CS assays provide more accurate results than OS assays.

Figure 2 Perceptions regarding chromogenic (CS) assays

Few respondents expressed concerns regarding the reliability of OS assays for both diagnosis (9%) and monitoring (12%) (Figure 3).

Figure 3 Concerns with one-stage (OS) clotting assays

The top three frequently visited websites for medical information, frequently read professional journals, and frequently attended conferences among survey respondents is presented in Table 2.

Table 2 Frequently visited websites, journals, and conferences

<table>
<thead>
<tr>
<th>Websites (n=49)</th>
<th>Journals (n=50)</th>
<th>Conferences (n=50)</th>
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</thead>
<tbody>
<tr>
<td>CAP Today</td>
<td>24%</td>
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<tr>
<td>AACC</td>
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<td>16%</td>
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<td>NHM</td>
<td>16%</td>
<td>16%</td>
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</tbody>
</table>

Information Sources and Interest in Assay Education
Clinical guidelines (92%), colleagues (64%), peer-reviewed journals (62%), and national experts (58%) were frequently cited as influential information sources for adopting new advances (Figure 5).

Figure 5 Influential sources for adopting new practices

Most respondents were interested in CS assay education (70%). Top areas of interest were “advantages over traditional assays” (18%), “general information on chromogenic assays” (18%), and “indications for testing” (18%) (Figure 6).

Figure 6 Chromogenic (CS) assay educational interests

References

Conflicts of interest disclosure
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