Can an online educational module improve medical trainee confidence and knowledge of coagulation?

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I do not have an affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.

Je n’ai aucune affiliation (financière ou autre) avec une entreprise pharmaceutique, un fabricant d’appareils médicaux ou un cabinet de communication.
A lack of understanding around coagulation and coagulation testing has led to widespread inappropriate ordering of coagulation tests.

Despite being validated for specific clinical indications, the PT and aPTT are frequently ordered as screening tests, and often ordered together.

This suggests a gap in physician understanding of coagulation and appropriate test utilization.

To explore this further, we conducted a root cause analysis survey of 10 University of Toronto medical trainees (2 clinical clerks, 8 PGY1-3 residents).

70% of surveyed trainees did not feel comfortable with their knowledge regarding coagulation and the appropriate use of these tests.

Trainees attributed their suboptimal knowledge to the manner in which coagulation is taught in medical schools and residency programs.
Challenges with coagulation teaching:

• Use of Roman numerals
• Emphasis on memorization of coagulation cascade
• Lack of connectedness between didactic coagulation teaching and clinical application
• Scarcity of accessible resources

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PROPOSED SOLUTION

Enhancing Appropriate Coagulation Testing
An Educational Module for Medical Trainees

The content for this educational module was developed by Dr. Nadia Gabarin and edited by Dr. Michelle Sholzberg, Dr. Martina Trinkaus, Dr. Rita Selby, and Dr. Nicola Goldberg.
Participants: 50 medical trainees (11 clinical clerks, 14 PGY1, 15 PGY2, 10 PGY3)

Evaluation: 28 question pre- and post-quiz on coagulation testing and trainee comfort with appropriate use of testing

Primary objective: to determine if the educational module improves immediate medical trainee knowledge of coagulation

Secondary objectives: to determine if the educational module improves longer term medical trainee knowledge of coagulation and to evaluate if the module has an influence on trainee ordering practices
RESULTS

Median pre-module knowledge quiz score was 67% (range 24-86%).

Median post-module knowledge quiz score was 91% (range 64-100%).

94% of trainees overestimated the sensitivity and specificity of the PT and aPTT in detecting a bleeding disorder.

44% of trainees underestimated the cost of a PT test.

80% of trainees described increased confidence regarding their knowledge of coagulation and the use of coagulation tests following completion of the module.
PRELIMINARY 3 MONTH FOLLOW UP RESULTS

Median 3 month follow up knowledge quiz score was 89% (range 67-100%, n=14).

100% of trainees surveyed 3 months after the educational intervention (n=14) felt that the educational module had a positive influence on their clinical practice.
UNEXPECTED IMPACT

2,700 unique visitors worldwide:
Canada, USA, UK, Australia,
France, Saudi Arabia
Average 2.02 visits/unique visitor
We have successfully demonstrated a significant increase in trainee knowledge and confidence regarding coagulation plus appropriate use of coagulation tests with our educational intervention.

The degree to which trainees have been utilizing and re-referring to our educational module worldwide emphasizes the need for this resource and its importance in bridging a significant gap in medical training.

Next steps: creating additional tailored specialty-specific educational modules
- Emergency module (Emergency and ICU trainees)
- Perioperative module (Anesthesia and Surgical trainees)
- Ambulatory module (Family Medicine trainees)
- Comprehensive module (Hematology trainees)
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