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Blood 142 (2023) 7192–7193

The 65th ASH Annual Meeting Abstracts

ONLINE PUBLICATION ONLY

901.HEALTH SERVICES AND QUALITY IMPROVEMENT - NON-MALIGNANT CONDITIONS

Assessment of Gaps in Hematology Education in Canadian Internal Medicine Residency Programs

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Background

Across Canadian Internal Medicine residency programs, a resident's clinical exposure to hematologic disorders is highly heterogeneous depending on the residency program's curriculum, ethnic diversity of the local patient population, and access to resources. Despite this variability in clinical exposure to hematology, there is a paucity of data assessing Internal Medicine residents' competence in the various subspecialties of hematology and whether they are fulfilling the Royal College of Physicians and Surgeons' expected competencies by the end of residency [1]. Through this study, our primary aim was to assess Canadian Internal Medicine residents' perceptions of their hematology training to identify gaps in hematology education in residency curricula.

Methods

We administered a cross-sectional survey using REDCap to all Internal Medicine residents (PGY1 to PGY5) from participating sites across Canada. The survey was distributed to residents electronically by email. To increase response rates, the survey was distributed three times (every 2 weeks) over a 6-week period. An incentive ($10 Starbucks gift card) was provided to improve response rates.

The survey questions were designed based on the Royal College objectives which outline expected competencies by the end of Internal Medicine residency (Table 1). It consisted of 16 questions assessing 4 domains: respondent demographics, competence in diagnosis and management of specific hematologic disorders, competence in management of hematologic emergencies, and resident perceptions on hematology education in their program. Survey responses were anonymous and consisted of a combination of dichotomous (yes/no) and ordinal variables (Likert scale). The study was approved by the University of Toronto Research and Ethics Board (REB).

Generalized linear regression analysis was used to compare survey questions between residents in different subgroups. $p<0.05$ was considered statistically significant. Least square mean (LSM) difference (with standard error SE) and 95% confidence intervals (CI) were calculated, with positive LSM indicating a higher Likert score.

Results

Of the 17 Internal Medicine programs that were invited to participate, 13 programs participated in the survey. 208 residents responded, with 92.31% (192/208) complete responses and 7.69% (16/208) incomplete responses. The overall response rate was 15.02% (208/1,385), with breakdown as follows: 31.5% (436/1,385) PGY1s, 30.5% (423/1,385) PGY2s, 30.9% (428/1,385) PGY3s, 4.5% (62/1,385) PGY4s, and 1.6% (22/1,385) PGY5s.

84.46% (163/208) of residents felt that there was a need for more hematology education in their residency program (Table 2). Specifically, residents felt that there was a need for more education in thrombosis (62.5%, 120/208), hemostasis (75.5%, 145/208), apheresis (75.0%, 144/208), sickle cell disease (79.2%, 152/208), transfusion medicine (84.4%, 162/208), and malignant hematology (78.7%, 151/208). A simulation/workshop was rated to be the most beneficial intervention (mean score of 4.25 +/- 0.80 on Likert scale) for learning.

Conclusion

Based on a cross-national survey of Internal Medicine residents in Canada, there are significant gaps in hematology education in Canadian Internal Medicine residency programs, most pronounced in transfusion medicine, sickle cell disease, and hemostasis. Interventions targeting these gaps should be designed to improve competence in the diagnosis and management of hematologic disorders and emergencies.

References

1. Internal Medicine Competencies, Royal College of Physicians and Surgeons of Canada. 2018. Version 1.0.

Disclosures Patriquin: *Alexion, AstraZeneca Rare Disease:* Consultancy, Honoraria, Other: clinical site investigator, Speakers Bureau; *Apellis:* Consultancy, Honoraria, Other: clinical site investigator, Speakers Bureau; *Regeneron:* Other: clinical site investigator; *Takeda:* Consultancy, Honoraria, Speakers Bureau; *BioCryst:* Consultancy, Honoraria, Speakers Bureau; *Novartis:* Consultancy, Honoraria, Speakers Bureau.

Table 1: Royal College of Physicians and Surgeons - Internal Medicine Competencies in Hematology[1]

Findings/Investigations	Disorders	Therapies
Anemia Eosinophilia Lymphadenopathy Splenomegaly	Congenital and acquired bleeding disorders – hemophilia, DIC, ITP Hemoglobinopathies Hypercoagulable states Leukemia Lymphoma Multiple myeloma and other dysproteinemias Myelodysplastic syndromes Myeloproliferative syndromes Porphyria Thrombophilia Venous thromboembolic diseases	Anticoagulant therapy Prophylaxis for venous thromboembolic disease Transfusion of blood products

1: Internal Medicine Competencies, Royal College of Physicians and Surgeons of Canada. 2018. Version 1.0

Table 2: Resident Perceptions on Hematology Education in Their Residency Program

Future Directions		Total (N = 208) n (%)
A need for more hematology education in residency program	No	30 (15.54%)
	Yes	163 (84.46%)
The following Statement would be beneficial for learning (Likert)		
Future directions: simulation/workshop	N	193
	Mean ± SD	4.25 ± 0.80
	Median (Q1, Q3)	4.0 (4.0, 5.0)
	Range	2, 5
	2	7 (3.63%)
	3	22 (11.40%)
	4	79 (40.93%)
	5	85 (44.04%)
Future directions: didactic lectures	N	193
	Mean ± SD	4.13 ± 0.91
	Median (Q1, Q3)	4.0 (4.0, 5.0)
	Range	1, 5
	1	2 (1.04%)
	2	8 (4.15%)
	3	32 (16.58%)
	4	71 (36.79%)
	5	80 (41.45%)
Future directions: quiz	N	193
	Mean ± SD	3.15 ± 1.28
	Median (Q1, Q3)	3.0 (2.0, 4.0)
	Range	1, 5
	1	25 (12.95%)
	2	37 (19.17%)
	3	50 (25.91%)
	4	47 (24.35%)
	5	34 (17.62%)
Future Education Required		
Future education: Thrombosis	No	72 (37.50%)
	Yes	120 (62.50%)
Future education: Hemostasis	No	47 (24.48%)
	Yes	145 (75.52%)
Future education: Apheresis	No	48 (25.00%)
	Yes	144 (75.00%)
Future education: SCD	No	40 (20.83%)
	Yes	152 (79.17%)
Future education: Transfusion medicine	No	30 (15.63%)
	Yes	162 (84.38%)
Future education: Malignant hematology	No	41 (21.35%)
	Yes	151 (78.65%)

Figure 1

https://doi.org/10.1182/blood-2023-191019