

Electronic Mapping of Learning Activities in a Medical Toxicology Fellowship Program

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Introduction & Objective

- The 2012 Core Content of Medical Toxicology outlines the areas of knowledge considered essential for practice of medical toxicology and serve as a template for development of fellowship curricula.
- Real-time tracking of topics covered may allow program director to identify topic areas taught and educational gaps.
- Objective: To evaluate completeness of Medical Toxicology Core Contents in fellowship educational activities using purpose-build electronic data capture system.

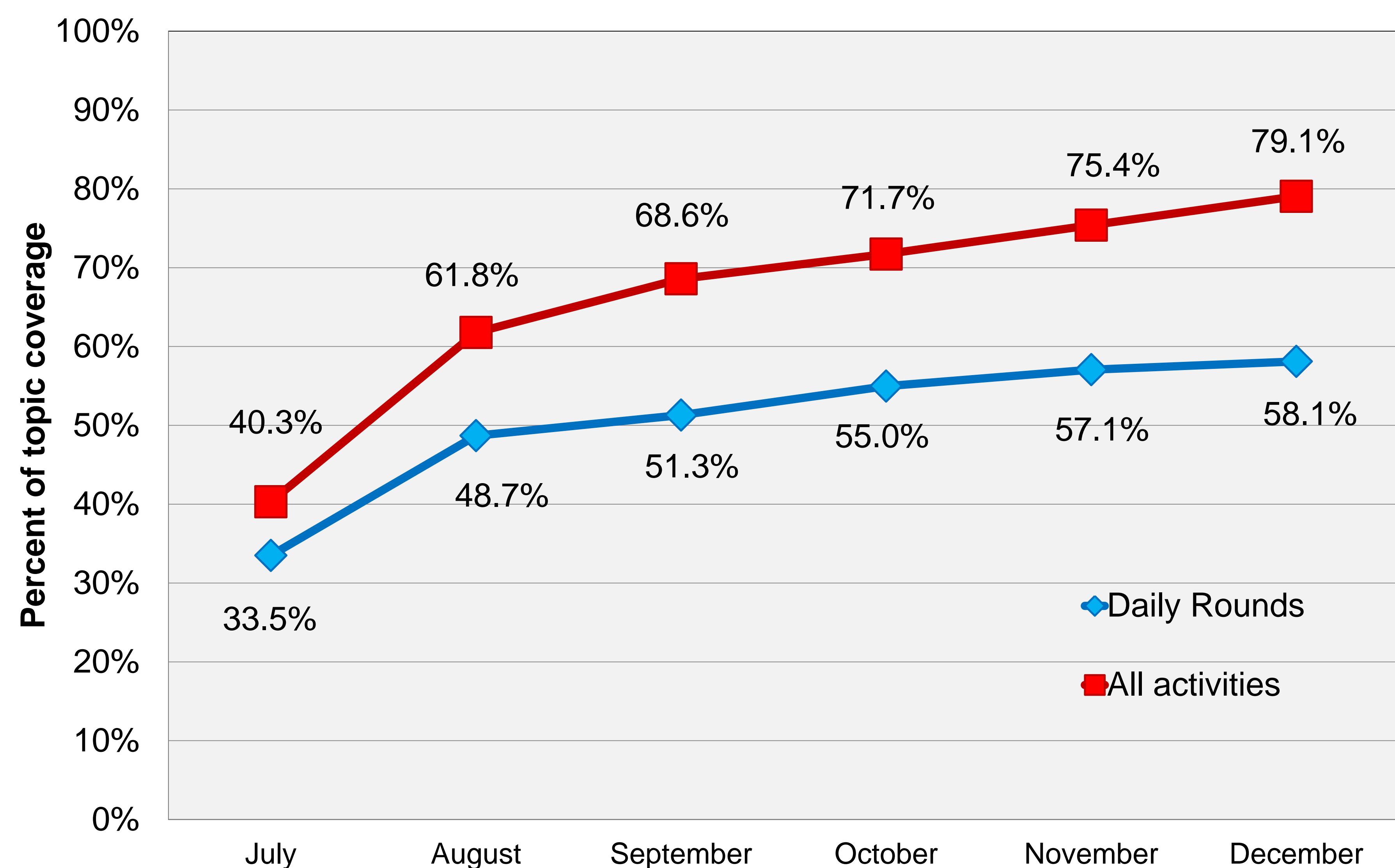
Methods

- Using Google Forms and Microsoft Excel, we developed an electronic form for recording topics that fellows had learned in each educational activity.
- Each topic covered was mapped to a specific item in the Medical Toxicology Core Content.
- A medical toxicology fellow recorded each educational activity in real-time, and the results populated an electronic database.
- We evaluated data from first 3.5 months of an academic year (July 1st – December 31st, 2014) and mapped the results to the 6 Major Categories and 196 topics of the Core Content.

Results

- Data from 109 daily rounds and 202 other educational activities were analyzed.
- Daily rounds alone covered 111 of the 191 topics (58.1%).
- With all activities, topic coverage increased to 151 topics (79.1%).
- Category 2 (“Toxins and Toxicants”) was the most covered (90% of 40 topics) with the highest frequencies per covered topic (25.5 times/topic).
- Category 6 (“Analytical and Forensic Toxicology”) was the least covered (64.7% of 34 topics).

Cumulative percentage of topic coverage by month



Number of covered topics by educational activities and average frequency per each covered topics

Topic category	Number of topics			Average frequency/covered topic
	Total	Covered with daily rounds (n, %)	Covered with all activities (n, %)	
Category 1: Principles of Toxicology	25	15 (60%)	18 (72%)	6.6
Category 2: Toxins and Toxicants	40	33 (82.5%)	36 (90%)	25.5
Category 3: Clinical Assessment	25	15 (60%)	22 (88%)	5.7
Category 4: Therapeutics	28	23 (82.1%)	25 (89.3%)	18.4
Category 5: Assessment and Population Health	39	9 (23.1%)	28 (71.8%)	2.0
Category 6: Analytical and Forensic Toxicology	34	16 (47.1%)	22 (64.7%)	6.1
Total	191	111 (58.1%)	151 (79.1%)	11.1

Discussion

- During 6 month-period, more than half of the Medical Toxicology Core Content was covered in daily teaching rounds, and other formal educational activities covered about half of the remainder.
- The database identified curriculum gaps to be addressed by supplemental educational activities and also topics that may be overtaught.
- The generalizability of these results is limited by inclusion of a portion of the academic year from a single program.

Conclusions

- In a medical toxicology fellowship program, clinically-focused daily rounds cover about half of the Core Content in a 3.5 month-period.
- It is feasible and useful to use electronic tool to track educational activities in real-time and identify educational strengths and content needs.

