

Brittany Lattanza, PGY-2

Title: Children with Medical Complexity: Improving Resident Competency with Curricular Intervention

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### **Study Purpose and Rationale**

Children with medical complexity (CMC) has been defined as “a population characterized by chronic conditions, medical fragility, and, often, technology dependence” or having “diseases involving multiple organ systems.” These patients account for <1% of the pediatric population but make up over one-third of medical care for children. These numbers are on the rise as an increased survival rate has been seen in premature infants and those with congenital anomalies, as well as those CMC who have acute illnesses requiring intensive care. This is due to increasing advances in medical technology, knowledge, and therapeutic interventions (E Cohen et al 2011).

Resident physicians often spend more hours at the bedside than senior providers across both the inpatient and outpatient setting. But it has been published that CMC learning is unstandardized. This leads to a resident lack of preparedness to meet the needs of CMC. By understanding the challenges of caring for CMC from the resident perspective, this can be used to develop educational experiences to bring about positive change in the care of CMC (JF Bogetz et al 2015). Eleven core curricular priorities in complex care were identified as essential topics to include in a standardized curriculum for pediatric residents. These include feeding difficulties and nutritional concerns, pain and irritability, dysmotility, aspiration, neuromuscular and skeletal issues, safety/emergency planning, transition, feeding tube management troubleshooting, difficult discussions, advocacy for patients/families, and team management and care coordination (K Huth et al 2020). Given the number of CMC that residents at CHONY care for, there is an opportunity to improve our learning, and potentially our delivery of care and patient interactions, through the implementation of a formal resident curriculum on CMC.

### **Study Design**

The first part of the study will be to send a needs assessment survey to current CHONY residents, PGY1-3 to assess which of those 11 topics are most needed for curriculum intervention. The top two topics will be chosen. Once they are chosen, learning goals/objectives related to these topics will be written, in consultation with senior faculty and the literature. The next step will be to choose the type of educational method best suited for these topics (traditional lecture, role-playing, case-based learning, etc.)

These two topics will be implemented during a noon conference session. Residents will be randomized to one of two sessions that will occur concurrently in different locations. All residents will take the same pre-intervention assessment. This will contain 20 knowledge-based multiple choice questions, 10 on each topic, regardless of what session they have been randomized to attend. After the conference, they will take a post-intervention assessment which will again have 20 knowledge-based questions, 10 on each topic. This will also include a Likert based assessment on their subjective reaction to the session. After approximately one month, the residents who participate in the sessions will participate in a short, standardized patient assessment on both topics. A tool will be developed to assess the residents on things such as knowledge, ease with the topic, communication, etc.

### **Statistical Procedures**

A paired t-test analysis of the knowledge-based content will be performed on the pre- and post-session assessments. Residents will be given a unique identifier to pair their results. An unpaired t-test will also be done to assess the control versus intervention groups on the knowledge-based assessments. This same analysis can be used in evaluating the standardized patient encounters.

### **Study Procedures**

Will gather data from pre- and post-conference assessments. Will also evaluate residents based on standardized patient encounters.

### **Study Drugs or Devices**

None

### **Study Instruments/Questionnaires**

Pre- and post- conference assessments:

The pre- conference assessment will contain knowledge-based questions regarding the two topics that are chosen to be implemented. There will be 10 questions on each topic for a total of 20. They will be multiple choice questions.

The post-conference assessment will again contain 20 knowledge-based questions (10 per topic) that will be multiple choice in format.

It will also include a separate section to assess the reaction to the conference. These will be a Likert scale form. This will likely be up to 5 questions assessed on a scale of 1-5 with 1=strongly disagree, 5=strongly agree). Example includes: *This session was engaging to participate in.* OR *This session was useful for me as a resident physician.*

The final portion of this project will be evaluating the residents after a standardized patient encounter. The exact components of this tool are still to be developed, but could include assessments of knowledge, perceived comfort of topic, communication skills, etc.

### **Study Subjects**

Subjects will be CHONY Pediatric Residents PGY 1-3. The sessions will be announced via the weekly residency-wide email.

### **Informed Consent**

This will be provided with the pre-conference assessment.

### **Confidentiality**

Subjects will be assigned a unique identifier that has no revealing information so that results remain anonymous.

### **Potential Risks**

None identified

### **Potential Benefits**

From participating in these conferences, residents will have improved content knowledge and skills to care for Children with Medical Complexity. This can ultimately lead to improved resident confidence and

comfort for caring for these patients. It could ultimately lead to better rapport between residents and their patients/patient families. This could lead to better health outcomes for CMC.

**Alternatives**

Not applicable

**Research at External Sites**

Not applicable

**References**

- Bogetz JF, Bogetz AL, Rassbach CE, Gabhart JM, Blankenburg RL. Caring for Children With Medical Complexity: Challenges and Educational Opportunities Identified by Pediatric Residents. *Acad Pediatr.* 2015;15(6):621-625. doi:10.1016/j.acap.2015.08.004
- Cohen E, Kuo DZ, Agrawal R, et al. Children with medical complexity: an emerging population for clinical and research initiatives. *Pediatrics.* 2011;127(3):529-538. doi:10.1542/peds.2010-0910
- Huth K, Newman L, Glader L. Core Curricular Priorities in the Care of Children With Medical Complexity: A North American Modified Delphi Study. *Acad Pediatr.* 2020;20(4):558-564. doi:10.1016/j.acap.2020.01.014