

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	The Implementation of a Virtual International Cardiology Curriculum to Address the Deficit of Cardiovascular Education in Haiti: A Pilot Study
AUTHORS	Haynes, Norrissa; Saint-Joy, Veauthyelau; Swain, JaBaris; Ezekwesili, Agnes; Vernet, Fritz; Dawson, Calixte; Laneau, Davidson; Tierney, Ann; Shea, Judy; Ambrose, Marietta

VERSION 1 – REVIEW

REVIEWER	Justin Tretter Cincinnati Children's Hospital Medical Center
REVIEW RETURNED	20-Feb-2021

GENERAL COMMENTS	<p>Haynes and colleagues report on their experience and evaluation of their adaptive international cardiology curriculum provided remotely to internal medicine residents at Hopital Universitaire de Mirebalais (HUM) in Haiti from May 2019 to 2020. The curriculum consisted of 20 total biweekly live-streamed, synchronous didactic lectures, seminars and case presentations, and was evaluated with pre- and post-lecture surveys, pre- and post-lecture knowledge assessments using multiple choice questions, and an end of year survey. The curriculum was designed by guidance from the American College of Cardiology core competency recommendations for cardiology trainees with the topics and learning objectives determined by a leadership council consisting of cardiovascular fellows and faculty at UPenn and the internal medicine program director and chief residents at HUM, and implemented using an Analysis-Design-Development-Implementation-Evaluation instructional design methodology. Results of participant performance demonstrated moderate to large improvement in the majority of the curriculum, with a larger proportion of those parts with smaller impact without ceiling effect related to lectures taught by monolingual English speaking instructors. Participants reported the curriculum was educational and relevant to medical practice in Haiti on the end of year evaluation. This is an important pilot study to demonstrate the short-term benefits of an e-learning curriculum based on live-streamed, synchronous didactic lectures in a low-income country. The authors acknowledge the limitations including the lack of demonstration of long-term retention/improvement, change in practice or impact on patient outcomes. The authors should be congratulated for this interesting and important pilot study.</p> <p>Please address the following:</p> <ol style="list-style-type: none">1. Abstract, objective: In the last sentence of the objectives it is stated that this curriculum was created to give the providers “the skills necessary to provide the best possible care with locally available resource”. This is an overstatement for a supplemental
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	<p>lecture series curriculum which cannot replace the need for hands-on, supervised clinical care training. The statement in the conclusion better recognizes the role of this curriculum as “augmenting cardiology education in LMICs by creating a virtual curriculum”.</p> <p>Please modify the statement in the objective to be realistic of the role this supplemental lecture series plays in the trainee’s overall cardiology training. This should also be better recognized in the intro and discussion of the manuscript.</p> <p>2. Methods: “medical center” should be capitalized in Mount Sinai Medical Center.</p> <p>3. Methods, Discussion: Are the authors able to elaborate specific considerations that were made to allow the curriculum to be applicable to those practicing in a low-resource setting? This will be very important if this is to serve as a model for similar curricula in other low- and middle-income country training programs.</p>
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REVIEWER	David Winchester University of Florida, Medicine
REVIEW RETURNED	22-Feb-2021

GENERAL COMMENTS	<p>In this manuscript, the authors describe a pilot experience with remote learning between a US-based academic institution and an internal medicine training program in Haiti using commercially available video conferencing solutions. They conclude that this pilot experience was a promising potential solution to augmenting education for low-middle income countries’ training programs. The authors acknowledge the primary limitations of the intervention, the small sample size and the lack of durability assessment.</p> <p>Would suggest adding some of the numerical scores/calculated data to the abstract.</p> <p>The introduction could be shortened by 1/3 to 1/2 . The first paragraph could be summarized in 1-2 sentences and combined with a shortened 2nd paragraph.</p> <p>Methods:</p> <p>The intervention is strengthened through being based on the educational priorities of the program in Haiti. This fact is repeated multiple times in the methods. Would recommend a careful read to reduce duplicative descriptions.</p> <p>The curriculum description lines 23-40 on page six may be more convenient to the reader as a table.</p> <p>Information about the participants should be moved to the results</p> <p>Spread may be facilitated if some brief details were added about how this collaboration came into being.</p> <p>Discussion</p> <p>The authors should compare/contrast how their curriculum differs from other documented remote learning programs. The plan is to expand with additional learning methods such as individual work assignments, small group activities, and flipped classrooms. How effective have these methods been in remote learning? What other methods have proven effective and could be considered?</p>
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	The authors hypothesize that some of the topics without a positive effect were taught by only-english speakers and that language may have been a barrier. Did the authors consider investigating this in the post-surveys with the trainees?
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VERSION 1 – AUTHOR RESPONSE

Reviewer Comments and Responses

Abstract, objective: In the last sentence of the objectives, it is stated that this curriculum was created to give the providers “the skills necessary to provide the best possible care with locally available resource”. This is an overstatement for a supplemental lecture series curriculum which cannot replace the need for hands-on, supervised clinical care training. The statement in the conclusion better recognizes the role of this curriculum as “augmenting cardiology education in LMICs by creating a virtual curriculum”. Please modify the statement in the objective to be realistic of the role this supplemental lecture series plays in the trainee’s overall cardiology training. This should also be better recognized in the intro and discussion of the manuscript.

- We have adjusted the wording in the abstract to reflect the augmentation of cardiology education as opposed to direct skill development.

Methods: “medical center” should be capitalized in Mount Sinai Medical Center

- Medical Center has been capitalized in Mount Sinai Medical Center

Methods, Discussion: Are the authors able to elaborate specific considerations that were made to allow the curriculum to be applicable to those practicing in a low-resource setting? This will be very important if this is to serve as a model for similar curricula in other low- and middle-income country training programs

- We provided a brief description of the specific considerations that allowed the curriculum to be applicable to those practicing in low-resource settings to the discussion section.

Would suggest adding some of the numerical scores/calculated data to the abstract

- We have included numerical values to the results section of the abstract.

The introduction could be shortened by 1/3 to 1/2 . The first paragraph could be summarized in 1-2 sentences and combined with a shortened 2nd paragraph.

- The introduction has been shortened.

The intervention is strengthened through being based on the educational priorities of the program in Haiti. This fact is repeated multiple times in the methods. Would recommend a careful read to reduce duplicative descriptions

- Repetitive mention of intervention strengthening through educational priorities in Haiti has been reduced.

The curriculum description lines 23-40 on page six may be more convenient to the reader as a table

- The curriculum description in lines 23-40 has been converted to a table shown below.

Table 1: ICARDS 2019 - 2020				
Curriculum	Topics		Frequency of sessions	Number of lectures
	Stenotic valvular lesions,	Congenital heart disease (CHD)	Bi-Weekly	20
	Regurgitant valvular lesions	Atrial septal defects		
	Heart failure (HF)	Peripheral arterial disease (PAD)		
	Peripartum cardiomyopathy (PPCM),	Syncope		
	Cardiogenic shock	Hypertension		
	Pharmacology of HF medications	Interactive EKG conferences		
	Preoperative work-up	Perioperative medication management		
	Interpretation of basic echocardiography			
	Medical/Surgical subcategories	Critical care management		
Surgical appropriateness				
Supplemental topic	Acute respiratory distress syndrome (ARDS) – in context of the COVID-19 pandemic.			

Information about the participants should be moved to the results

- Information about the participants has been moved to the results section.

Spread may be facilitated if some brief details were added about how this collaboration came into being.

- Description of how the collaboration occurred is provided in the methods section. In short, The International Cardiology Curriculum Accessible by Remote Distance Learning (ICARDS-Haiti) began as a collaboration among chief residents at HUM and cardiology trainees in the United States (US) and France. The program was

established to improve access to cardiovascular education for clinicians in Haiti. An overwhelming abundance of complex cardiovascular cases at HUM led the residents to seek assistance from a cardiology fellow at the University of Pennsylvania (UPenn) who had spent several years working at HUM. Eventually, through transcontinental collaboration, the ICARDs-Haiti initiative was formed and grew with the support of leadership from both HUM and UPenn to include cardiology fellows and faculty from institutions across the US and France.

The authors should compare/contrast how their curriculum differs from other documented remote learning programs. The plan is to expand with additional learning methods such as individual work assignments, small group activities, and flipped classrooms. How effective have these methods been in remote learning? What other methods have proven effective and could be considered?

- A few sentences have been added to the discussion in reference to the efficacy of asynchronous content, small group activities and flipped classrooms.

The authors hypothesize that some of the topics without a positive effect were taught by only-english speakers and that language may have been a barrier. Did the authors consider investigating this in the post-surveys with the trainees?

- The reviewer raises a good point. This was not investigated in the post-surveys; however, the data is suggestive that language had an impact given that multilingual lecturers had a larger proportion of moderate to large effect sizes. In the future, we plan to include this question in our assessments.

VERSION 2 – REVIEW

REVIEWER	Justin Tretter Cincinnati Children's Hospital Medical Center
REVIEW RETURNED	28-Apr-2021

GENERAL COMMENTS	The authors have adequately addressed reviewer and editorial comments. Great work!
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REVIEWER	David Winchester University of Florida, Medicine
REVIEW RETURNED	28-Apr-2021

GENERAL COMMENTS	Previous suggestions have been adequately addressed.
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