Outcomes of the first STEM Nursing/Patient Engagement Collaborative Program
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Introduction
Science, Technology, Engineering and Mathematics (STEM) Education transformed the conventional educational strategies for one that is active, participatory, and motivated by problem-solving, discovery and exploratory learning. It requires students to actively engage a situation in order to find its solution. The first STEM-Nursing collaborative patient engagement program was a global immersion bio-medical course focused on early learning and immersion in dialysis science. Students from two high schools; The Residential Center of Educative Opportunities of Mayagüez (CROEM), a magnet high school, and Linfield Christian School from California, both specialized in sciences and math participated in collaboration with The University of Puerto Rico, Mayagüez School of Nursing/Engineering, School of Bio Technology, The US Naval Academy and Atlantis Healthcare Group, Inc., engaged patients as active participants, and motivated by problem participation of 26 high school and undergraduate students were selected through a non-probabilistic sampling of a convenience type. Outcomes measures were explored at the end of the one week STEM program. The educational syllabus included workshops, stations rotations in dialysis machines, physiologic quantitative measures and the water system. It also included the physiology of kidneys, electrolytes functions as a basis to learn and basic concepts of bioinformatics. Active participation of patients in the technology and science behind the treatment of dialysis was included.

Methods
A non-experimental exploratory quantitative design with participation of 26 high school and undergraduate students were selected through a non-probabilistic sampling of a convenience type. Outcomes measures were explored at the end of the one week STEM program. The educational syllabus included workshops, stations rotations in dialysis machines, physiologic quantitative measures and the water system. It also included the physiology of kidneys, electrolytes functions as a basis to learn and basic concepts of bioinformatics. Active participation of patients in the technology and science behind the treatment of dialysis was included.

Results
A questionnaire was distributed in four areas: general aspects, gained knowledge and application, impact on future studies, and a qualitative section. 77% (n=20) of Participants rated the first STEM patient collaborative program as well organized.; 50% (n=13) thought that time was well distributed, equally rated on time allotted for speakers who were rated by all participants (100%, N=26) as well prepared with domain of topic presented. In gained knowledge and application, 96% (n=25) of participants valued the information and participation in the program and 80.8% (n=21) felt they were persuaded to put in practice some of the things they learned. Nonetheless almost 20% (n=7) felt it did not make them reflect on their own learning or practice the things they learned.

Graph 1

Qualitative Section
Almost all students expressed that their interaction with patients’ engagement was the most significant, followed by the hands-on training workshops. The second most expressed was the value of student interaction with other students of a different cultural background.

Conclusions
Overall experience was very positive for both students and patients who participated in the first STEM Nursing Patient Engagement Collaborative Program. Plans are in progress to implement the recommendations, add a research activity and disseminate further findings on the impact to students’ future studies and health.

Students had ample opportunity to share cultural and social activities, which was evident they enjoyed.

Bibliography
http://library.uprm.edu:2352/healthcomplete/docview/216535410/fulltextPDF/6C595B4078574697PQ/2?accountid=28498

Graph 1

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