



Latham Science Communication Project

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STEM at Stead

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STEM at Stead: Science Worth Exploring

Because of appointments, hospital stays, and ER visits, students with chronic health conditions miss nearly three times as much school as their healthy counterparts. A study found that “moving from missing up to 5 days to missing 6 to 10 days was associated with 7 to 10 percentage-point drops in graduation rates” (Balfanz, Byrnes, 2012). This correlation between absenteeism and academic performance is evidence that additional educational support needs to be provided in UIHC.

This project is a continuation of the original STEM at Stead outreach project developed by Angela Olvera in the spring of 2018. Angela’s project was highly effective and helped provide educational tools to most of the patients at Stead. However, I identified that there were barriers for pediatric patients who wished to participate in these events. Barriers included being treated in isolation, not feeling well during the time the events were held, and countless others. To help overcome these, I developed experiment kits that could be ready whenever the patient was feeling up to indulging in hands-on science learning.



Figure 1: This image shows the 12-floor tower that makes up the Stead Family Children’s Hospital. The Child Psych Unit is located in the main hospital.

The original target audience was patients being treated in the Child/ Adolescent Psychiatry Unit. These patients are treated in isolation and do not interact much, if at all, with the patients in the Stead Family Children’s Hospital. Later, the project broadened to include patients who are in the Stead Family Children’s Hospital as well.

This project began with developing the discussion materials to go inside of the kits. There were three age levels identified in the unit, so each experiment needed materials that were appropriate for all three levels. The three levels are beginner scientist (third grade), practiced scientist (middle school), and advanced scientist (high school). The different levels corresponded with Iowa Core standards for that given age group. Once a rough draft of the discussion materials was created, Dr. Mark McDermott from the College of Education reviewed and suggested revisions. He then had his students look over the materials during their lab to give additional feedback. The materials were then introduced into the Child Psych Unit.

As mentioned, there are two teachers leading the experiments in the hospital: JP and Megan. Exact numbers are hard to calculate for how many students have participated since the project is ongoing, so I will summarize how many patients each teacher sees. JP is responsible for 18 patients at a time and tries to perform one of the experiments once a week. Megan advises 25 students per week and tries to get most of them involved once a week.

JP and Megan have both been provided with PDFs of the discussion materials as well as a list of links to purchase supplies. Since the schools operate independently in the hospital, the kits will be able to maintain themselves as long as the teachers choose to use them. JP and Megan are both familiar with each experiment, so they have been able to teach their fellow staff how to assist students through these.

I am extremely grateful that I got to work on this project and that everyone at the children's hospital was so eager to implement it. I could not have done this without the countless people who supported this project every step of the way, and I am lucky that I get to learn in a community so focused on helping others.

References

Balfanz, Byrnes. (2012, May). "The Importance of Being in School: A Report on Absenteeism in the Nation's Public Schools." *Johns Hopkins University*. Retrieved from https://new.every1graduates.org/wp-content/uploads/2012/05/FINALChronicAbsenteeismReport_May16.pdf