

Regenerative Medicine Minnesota

2017-2018 Education Award Progress Report

Grant Title: Innovators of the Future: Youth Science Program

Grant Number: RMM-2017-K12ED-04

Requester: Anna Wirta Kosobuski, EdD

Project Timeline: 5/30/2017-5/29/2018

Brief description of project:

Innovators of the Future Youth Science Program provides outreach to area Native American students. By way of a revised project budget approved by RMM, this project enhanced and expanded two other 2017 RMM Education Awards that fund community partnerships with Bois Forte Reservation and Grand Portage Reservation. These collaborative relationships serve K-6th grade students through science, math, health and wellness and cultural enrichment. Students also explore advanced education and career options in biomedical science, health and research. The bulk of the project dollars allocated to Nett Lake helped fund the school's summer program; the remaining dollars covered science supplies. Grand Portage utilized funds to expand project activities throughout the year and also purchase needed science teaching supplies.

Where did this project take place?

Nett Lake Elementary School located on Bois Forte Reservation and Oshki Ogimaag located on Grand Portage Reservation. Both communities are located in rural northeast Minnesota.

People impacted by project and where they came from:

All Nett Lake Elementary School students (55 in total) participated in *Innovators of the Future Youth Science Program* activities. Primary school students who reside on the Bois Forte Reservation may attend either Nett Lake Elementary or the nearby Northwoods School; Northwoods is also the school all of the students attend after completing 6th grade. During the school year, Nett Lake Elementary collaborated with the Northwoods School on five activities and field trips thus expanding exposure to valuable science learning to over a combined 200 students. Additionally, the 2018 Nett Lake Elementary summer program included not only the school's students but also Northwoods elementary students and some middle school students. Thus, the funding from this project thus allowed for implementation of activities developmentally appropriate to K-6th grade students and also middle school youth. Admittedly, the presence of the older students was not planned by the school's administration and teachers; rather, with the launch of the summer program, the youth showed up unannounced. Due to some quick thinking and action on the part of the school's leaders as well as the genuine desire to serve all students, a quality program was delivered. This situation signals a critical community need. Future RMM and other potential funding requests will include opportunities for this more advanced student cohort as well as the Bois Forte primary school children who attend Northwoods.

What was the outcome of the project? (Did the project work the way you expected it to? What were the successes? What were the failures? How did it impact regenerative medicine in Minnesota?)

Since this project was modified to extend outreach to Bois Forte and Grand Portage, most of the outcomes are reflected in the *Innovators of the Future Community Based Program, Bois Forte and Grand Portage* final reports submitted in June. In brief, Grand Portage met all project goals with the exception of the target number of students cited in the proposal. The goal was to serve 35 students; the school had only 25 students enrolled during the 2017-18 academic year, thus the number fell short. Challenges cited by Grand Portage were the desire for assistance with incorporating more regenerative science and medicine in their curriculum and devising ways that students may visit the UM Medical School Duluth Campus. The student age and distance (over three hours) present a substantial barrier.

A description of Bois Forte's academic year project activities was included in the June 2018 report. The summer program funded by the *Youth Science Program* was a 15-day experience during June and July 2018 and included a full slate of science, math and cultural enrichment. Examples include:

- Students gathered and identified samples of vegetation found at a nearby lake. Samples were examined under microscopes and researched online and then integrated into art projects. An Ojibwe teacher led a discussion on traditional medicinal use of some of the plants gathered.
- Students identified a local and two nonregional animal they wanted to learn more about. They researched the creatures and created posters using the data gathered then displayed them around the school.
- Students researched online resources for toothpick bridge designs then proceeded to construct them. Socialization and successful completion of projects were facilitated as students were encouraged to assist one another with their bridges.
- Math concepts were reinforced using interactive computer games.
- A field trip to the Museum of Mining in Chisholm, MN (approximately an hour away) taught students about geology, iron mining and Iron Range history.
- Ojibwe language and culture were integrated into nearly all aspects of the summer program curriculum.

The Bois Forte project far exceeded expectations. Due to the motivation, creativity and desire for student inclusivity of the Nett Lake Elementary School Principal, the collaboration with Northwoods School allowed service to a larger, more diverse group of elementary students. The surprise (but very welcome) participation by middle school students in the summer program created the opportunity to reach even further. Across the year, student surveys showed improved science understanding; moreover, many responses reflected clear motivation for higher education, excitement for science and overall enjoyment of the learning. Survey results were submitted to RMM, they will be resubmitted upon request.

The Minnesota Department of Education reported that Nett Lake Elementary School experienced a significant rise in their 2017 state academic math and reading assessments; because only 5th grade students take the science assessment, there were too few students to measure Nett Lake results reliably and confidentially. In 2016, there had been a slight achievement drop from previous years; in 2017, the students performed admirably, far surpassing achievement levels of prior years. Making a clear link between the improvement in student performance and this project will need further evaluation, funding to support the cost of an outside evaluator is currently being sought. Nett Lake's Principal identified a number of initiatives implemented by the school, the activities and resources of this project are part of those. Moreover, the impact a project as RMM *Innovators of the Future* can have on student self-efficacy and overall achievement cannot be overlooked.

As with other *Innovators of the Future* projects, this project is designed to impact youth early in their education and social development. As such, understanding the full effect on regenerative medicine is a story that will unfold over time. The immediate impact is to instill in young people an enjoyment of science and learning and to expose them to the world of opportunities science education and careers offer.

Pictures taken during a site visit by Dr. Wirta Kosobuski to the 2018 Nett Lake summer program are included with this report.

Please list any of the following that have resulted from your Regenerative Medicine Minnesota grant funding:

- Publications and/or manuscripts submitted for publication
 - Pre-Premed: Pipeline Efforts Steer Elementary School Students into Medicine". *AAMC News*. January 9, 2018. <https://news.aamc.org/diversity/article/pre-premed-pipeline-efforts-steer-elementary-school/>. (includes interview with Dr. Wirta Kosobuski).
 - "Nett Lake Elementary Partners with the University of Minnesota Medical School, Duluth, Creative Lesson in Regenerative Medicine". *Bois Forte News*. January 2018. <http://www.boisforte.com/pdf/BFNJANUARY2018-WEB.pdf>
 - Medical Minute, University of Minnesota Medical School Duluth Campus. November 3, 2017. <https://mailchi.mp/d/medical-minute-april-21-276911?e=e72c7c020c>
 - Medical Minute, University of Minnesota Medical School, Duluth Campus, January 12, 2018. <https://mailchi.mp/d/medical-minute-april-21-326743?e=e72c7c020c>
 - Medical Minute, University of Minnesota Medical School, Duluth Campus, May 18, 2018. <https://mailchi.mp/d/medical-minute-april-21-402303?e=e72c7c020c>
 - Medical Minute, University of Minnesota Medical School Duluth Campus. May 25, 2018. <https://mailchi.mp/d/medical-minute-april-21-406843?e=e72c7c020c>

- Other grants:

- A NIH National Library of Medicine (NLM) grant awarded in May 2018 to Dr. Wirta Kosobuski is directly linked to relationships built through this RMM award. This NIH NLM project involves a partnership with Bois Forte Health and Human Services (HHS) to set up four health information kiosks with the goal of providing access for all Bois Forte band members to credible health resources and their own electronic patient health records. The collaborative relationship with Bois Forte HHS was established through visits to the Nett Lake Elementary School.

Responsible Spending: Please let us know how you spent the money. Any unspent funds must be returned.

All funds (with the exception of indirect costs) associated with this RMM project went directly to Nett Lake Elementary School for their student activities.