Regenerative Medicine Minnesota
2017-2018 Education Award Progress Report
Grant Title: Innovators of the Future: Community Based Science Program, Grand Portage
Grant Number: RMM-2016-312ED-04
Requester: Anna Wirta Kosobuski, EdD
Project Timeline: 5/30/2017-5/29-2018

Brief description of project:
Innovators of the Future: Community-Based Science Program centers on a partnership between the University of Minnesota Medical School Duluth Campus (UM MS Duluth Campus) with Grand Portage Band of Lake Superior Chippewa. The project provides year-round science, math, and research career exploration opportunities for K-6th grade Native American children at Oshki Ogimaag Charter School. Program activities integrate health, wellness and Native American culture.

Where did this project take place?
Oshki Ogimaag Charter School located on Grand Portage Reservation.

People impacted by project and where they came from:
Over 20 Oshki Ogimaag School students participated in *Innovators of the Future* activities. In addition to the students, this project brought in Grand Portage community members to help lead some activities, most often those that included cultural components such as the growth of and harvesting and processing wild rice in the fall and Sugar Bush Camp in the spring when students properly selected trees and tapped sap and made maple syrup and sugar. For both the wild rice harvest and Sugar Bush, students learned science and math involved with each step of the process.

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?)
The *Innovators of the Future Community Based Program* met project expectations (Goal 1; Activity 1.1, 1.2, 1.3). The curriculum developed by Oshki Ogimaag included math, science, health and wellness, Native American cultural components and had the added step of community involvement (Goal 1; Activity 1.2). The project served 25 children; the proposed goal (Goal 1; Activity 1.1) was 35, however the number of student participants is dictated by the school enrollment thus limiting the number.

Located in a rural and heavily wooded area, Oshki Ogimaag made full use of its natural surroundings and Ojibwe traditions, culture and community resources (Goal 1; Activity 1.2). The school used outdoor settings as an extended classroom. Students engaged in a weekly lesson where they sat in a spot outside and observed their surroundings using sight, sound and smell; acting as young scientists, they recorded their observations in their notebooks (Goal 1; Activity 1.3). Each morning, students, staff and teachers met to discuss the day's activities and played a game thus encouraging essential skills such as teamwork, effective communication and cooperation that they

will be able to carry forward into future careers (Goal 1; Activity 1.3). The morning meeting was followed by science and math lessons that integrated Ojibwe language and culture. Some examples included nature scavenger hunts, practicing “I notice, I wonder, it reminds me of” activities, learning about and identifying types of birds and their nests, and identifying trees and calculating their diameter and height. Culture was introduced into lessons through language and teaching Ojibwe traditions, such as learning about making cedar tea as part of the tree lesson. Students took part in the wild rice harvest and collection of maple sap. They learned about the science involved in each process, math components, healthy traditional foods and cultural teachings and significance. Oshki Ogimaag instructed students on regenerative science by experimenting with different seeds (oranges, avocados and acorns) and plants such as sprouted onions, the base of celery stalks and potatoes. They learned why some of these will regrow and some will not. With the plants they successfully started, students constructed, grew and harvested their own garden. The science behind deer and moose shedding and regrowing their antlers was a science lesson that was particularly meaningful to the kids as their homeland is also that of large populations of both moose and deer.

The following bullet points are a summary of successes and challenges described by the Oshki Ogimaag Director.

- Successes
    - Expansion of outdoor science and math learning
    - Expansion of cultural and language learning
    - Important lessons in sustenance, healthy diet and gardening
    - Expansion of science learning into the area of regeneration

- Challenges
    - Would like to incorporate a visit to UM MS Duluth Campus, however, because of the distance between schools and the age of the students working out the logistics is challenging
    - Would like the opportunity for increased engagement with UM MS Duluth Campus faculty and students

The first year of *Innovators of the Future Community Based Science Program, Grand Portage* was a success. As we move into the project’s second year, areas of improvement will be addressed to the extent possible. Visits by Dr. Wirta Kosobuski and UM MS Duluth Campus Biomedical Sciences faculty and a lab staff person are planned. Oshki Ogimaag has requested that one of these visits not only include a session with the students but an additional evening meeting with Grand Portage band members, an exciting proposition as it extends services to the community at large. A visit by the students to the UM MS campus will be a more challenging to plan given the distance between Grand Portage and Duluth and age of the children, however, Dr. Wirta Kosobuski and the Oshki Ogimaag Director will continue to discuss possibilities for making this happen. Connection with other professionals, including other RMM award recipients, will assist in added age-appropriate resources for regenerative medicine content. The major focus in 2018 will be to refine, expand and continue to increase quality of the project.

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-schoo/. (includes interview with Dr. Wirta Kosobuski).
    - 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 25, 2018. https://mailchi.mp/d/medical-minute-april-21-406843?e=e72c7c020c
- Disclosures/patents
    - Not applicable.
- Other grant applications and/or awards
    - Not applicable.

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 Oshki Ogimaag Charter School for their student activities.