Opioid and Diabetes Toolkit Initiative

Rutgers University School of Pharmacy

Project Description & Implementation Overview:
With the rise of the opioid epidemic and increasing percentage of Americans who are at risk for diabetes, students from the Rutgers University AMCP Chapter collaborated with Horizon Blue Cross Blue Shield and local communities to create educational materials for patients, educators, and students to use in order to spread awareness to these causes. The opioid toolkit was used to train students as well as teach high schoolers. The diabetes toolkit contained not only educational materials, but also comprised of tools necessary to conduct blood glucose screenings and HbA1c tests. The Diabetes Health Ambassador initiative was developed subsequently as a way to carry out the goal of the toolkit to reach a wider community and provide information and instruction of how to stay aware and healthy. Students were able to use these toolkits as a basis for creating new outreaches and gather data for research as well on diabetes and the opioid epidemic.

Purpose of the Project:
The purpose of the development of these toolkits was to create a resource students and healthcare professionals can utilize to create their own outreaches or projects. The toolkits also serve as a foundation for future students and educators to use and to spread awareness about the prevalence of diabetes and the opioid epidemic.

Project Budget: Expenses and Revenues:
Horizon Blue Cross Blue Shield (BCBS) of New Jersey provided the test strips and glucometers for the tests. There were no additional costs in the making of the toolkits. Students were responsible for their transportation to various sites and were subject to possible parking fees.

Who and How Many Chapter Members are Involved?
The opioid and diabetes toolkit was spearheaded by the advisors and students of the AMCP chapter at Rutgers University. AMCP's fundraising chair was also heavily involved in setting up outreaches for the Diabetes Ambassador's Initiative and volunteers came from the Eboard as well as other interested students. Coordinators also came from the Patient Care and Health Literacy Committees at Rutgers University. Overall, all 18 Eboard members were involved in using the toolkit to develop and attend outreaches.

Who Should be Targeted? Audience or Involvement? How Do You Find Them? How Do You Contact?
The target for our outreaches ranged from high school students to patients living in communities who were not able to access these educational materials and tests easily. We traveled in our local community as well as to extended areas throughout New Jersey including Newark and Somerset. Students were able to set up most outreaches independently by contacting educators in the local community. Horizon BCBS also worked with students to find areas throughout New Jersey to assemble various locations farther away from campus We used information from the toolkit to organize and promote the outreach.

What Materials are Needed? Outside Resources, Ordering, etc?

- All resources are available online with the exception of the test strips and glucometers which were provided by Horizon BCBS.

- Flyers and other educational materials were printed.

Timeline for Implementation and Execution

- Opioid Toolkit:
    - May 2016 - Initial Idea for the opioid toolkit was developed
    - August 2016 - Opioid Toolkit finalized
    - April 2017 - First Outreach from the opioid toolkit was organized at East Brunswick Public Library
- Diabetes Toolkit:
    - April 2018 - Idea for the diabetes toolkit was developed
    - August 2018 - Newark outreaches organized
    - February 2019 - Piscataway High School outreach using the toolkit

Follow-up with Faculty Members/Volunteers/Participants

A survey was developed to measure the effectiveness of the diabetes toolkit and students found that it was a useful tool to set up outreaches. However, it was not as beneficial as the American Diabetes Association website when learning about basic information on diabetes. Follow-up emails were also sent out to volunteers as well as to hosts of the educational sessions. Any diagnostic questions that patients had were directed to a preceptor at the site.

Project Evaluation:

What Went Well? What Didn't? How Would You Improve for the Next Year?

What Went Well:

- Student were able to coordinate efficiently with other educators to plan outreaches in the local community.
- Students leaders had great communication with volunteers to coordinate rides and to plan logistics.
- There was a large number of participants from the local community in the outreaches.
- Educators and professionals responded positively to the material provided.
- Many students were educated on the opioid epidemic and learned how to provide blood glucose and HbA1c tests.
- Many patients were able to receive the tests and educational material.
- Students were able to reach diverse populations in New Jersey by relocating to remote areas on both ends of the state.

What did not go well and ways we could improve for next year:

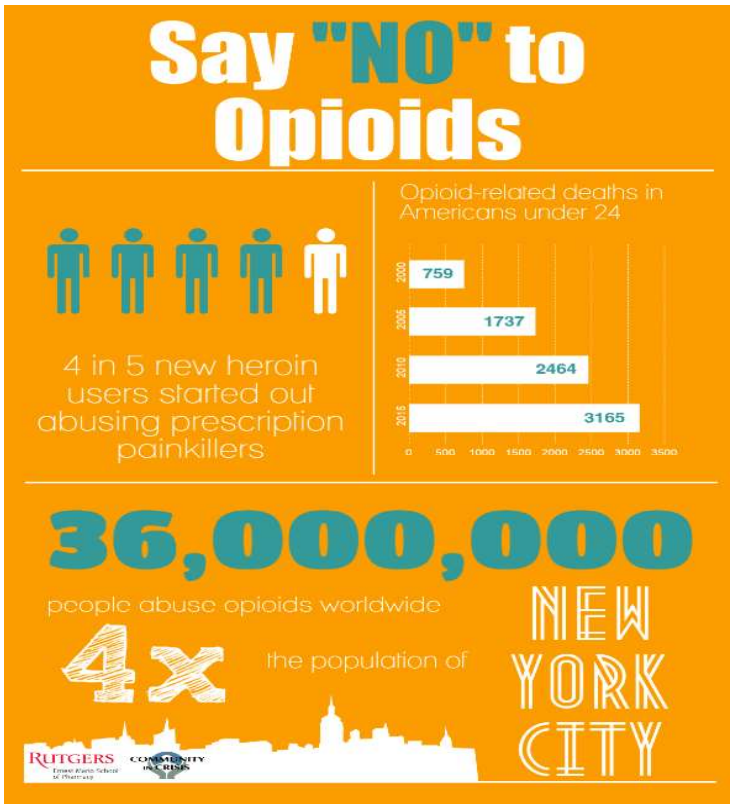
- Outreaches that were farther away from campus were occasionally canceled last minute
    - Double check and confirm times with the preceptors at least 2 weeks ahead of time and continue to remind preceptors up to the date of the outreach
- Technology issues and lack of WiFi in some areas of the outreaches
    - Make sure ahead of time that there is WiFi in the area
    - If there isn't internet, make sure to plan accordingly and change the activities

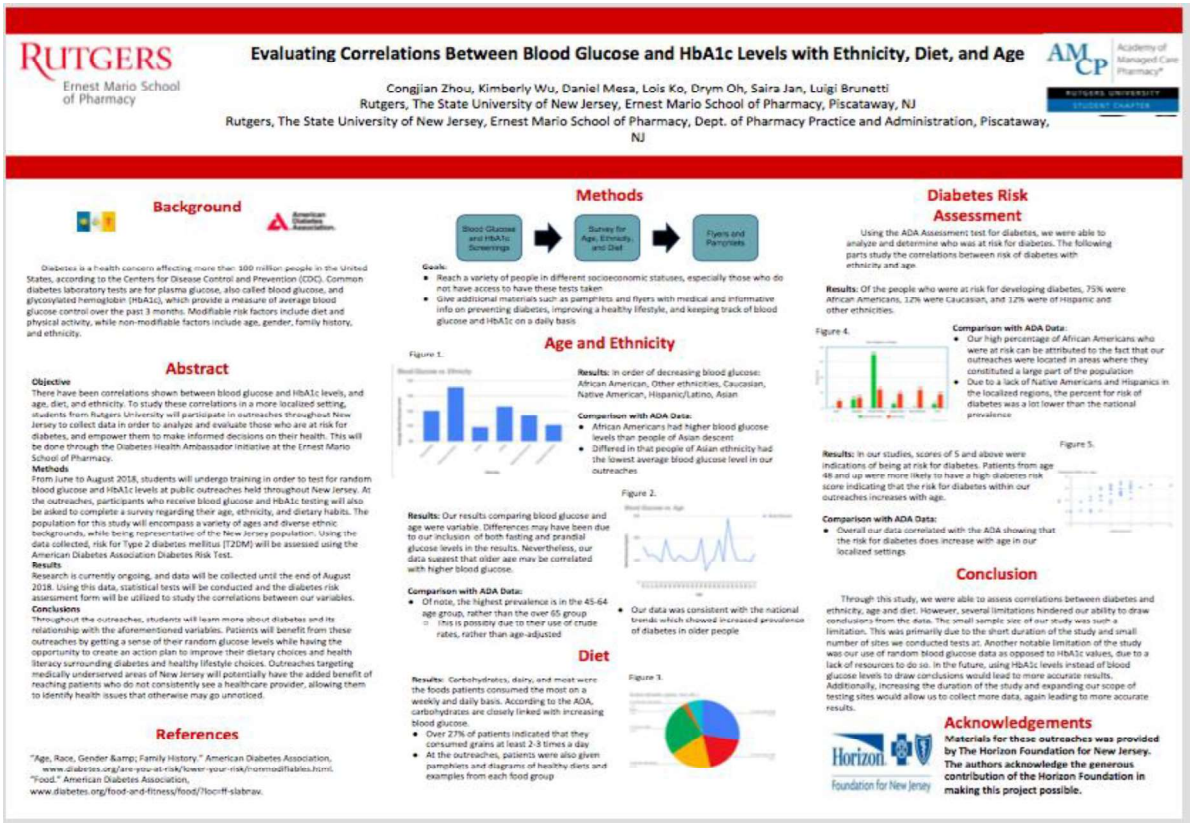
Timeline/Checklist for Project:

Date	Activity	Responsible Party
May - August 2016	Development of the Opioid Toolkit	Advisor, P4 members, clinical pharmacists at Horizon BCBS, Community in Crisis (community group)
April 2017	East Brunswick Public Library Outreach	Eboard members, and student volunteers
	Secaucus Middle School Opioid Presentation	Eboard members, Horizon BCBS pharmacists, and student volunteers
June 2017	Chinese Christian Church Outreach in Somerset	Eboard members and student volunteers
	CVS/Pharmacy East Brunswick	Eboard members and student volunteers
July 2017	Montclair YMCA and Princeton YMCA Presentation	Eboard members and student volunteers
September 2017	Covenant House Presentation on Commonly Abused Drugs	Students and Alex Wiggall (Pharm.D)
October 2017	National Pharmacists Month: -Myths about Opioids Busch Campus Tabling -Perceptions about Opioid Epidemic Large Poster -Prescription Drug Abuse Talk by Dr. William Lynch -Naloxone Training Event (for pharmacy students) with APhA -Residence Hall Opioid Awareness Talk	Eboard members and students
November 2017	Christ the King High School Newark, NJ	Rutgers Pharmacy Students and support from Horizon Affinity Group
	KIPP NJ High School	Rutgers Pharmacy Students and support from Horizon Affinity Group
	American Journal of Managed Care (AJMC) Multi-stakeholder Discussion Relating to Prevention of Opioid Addiction	AMCP Advisor (Saira Jan) with representatives from Health Systems, Kaiser Permanente, Harvard Medical

		School, etc.
March 2018	Outreach to New Brunswick High School	Health Literacy Chairs and student volunteers
April 2018	Development of the Diabetes Toolkit and Diabetes Health Ambassadors Initiative	AMCP Advisors
August 2018	Newark Outreach	AMCP Fundraising Chair and Eboard members
September 2018 to December 2018	Diabetes Prevention and Management Program in collaboration with DSRIP Clinic	AMCP Fundraising Chair, Advisors, students
October 2018	East Brunswick Day Opioid Outreach	Patient Care Chairs
December 2018	New Brunswick Nutrition Expo	Diabetes Health Ambassadors Students
February 2019	Piscataway High School Diabetes Outreach	Patient Care Chair and student volunteers

Photos and Flyers:





Evaluating Correlations Between Blood Glucose and HbA1c Levels with Ethnicity, Diet, and Age

Congjian Zhou, Kimberly Wu, Daniel Mesa, Lois Ko, Drym Oh, Saira Jan, Luigi Brunetti
Rutgers, The State University of New Jersey, Ernest Mario School of Pharmacy, Piscataway, NJ
Rutgers, The State University of New Jersey, Ernest Mario School of Pharmacy, Dept. of Pharmacy Practice and Administration, Piscataway, NJ

Background

Diabetes is a health concern affecting more than 100 million people in the United States, according to the Centers for Disease Control and Prevention (CDC). Common diabetes laboratory tests are for plasma glucose, also called blood glucose, and glycosylated hemoglobin (HbA1c), which provide a measure of average blood glucose control over the past 3 months. Modifiable risk factors include diet and physical activity, while non-modifiable factors include age, gender, family history, and ethnicity.

Abstract

Objective
There have been correlations shown between blood glucose and HbA1c levels, and age, diet, and ethnicity. To study these correlations in a more localized setting, students from Rutgers University will participate in outreaches throughout New Jersey to collect data in order to analyze and evaluate those who are at risk for diabetes, and empower them to make informed decisions on their health. This will be done through the Diabetes Health Ambassador initiative at the Ernest Mario School of Pharmacy.
Methods
From June to August 2018, students will undergo training in order to test for random blood glucose and HbA1c levels at public outreaches held throughout New Jersey. At the outreaches, participants who receive blood glucose and HbA1c testing will also be asked to complete a survey regarding their age, ethnicity, and dietary habits. The population for this study will encompass a variety of ages and diverse ethnic backgrounds, while being representative of the New Jersey population. Using the data collected, risk for Type 2 diabetes mellitus (T2DM) will be assessed using the American Diabetes Association Diabetes Risk Test.
Results
Research is currently ongoing, and data will be collected until the end of August 2018. Using this data, statistical tests will be conducted and the diabetes risk assessment form will be utilized to study the correlations between our variables.
Conclusions
Throughout the outreaches, students will learn more about diabetes and its relationship with the aforementioned variables. Patients will benefit from these outreaches by getting a sense of their random glucose levels while having the opportunity to create an action plan to improve their dietary choices and health literacy surrounding diabetes and healthy lifestyle choices. Outreaches targeting medically underserved areas of New Jersey will potentially have the added benefit of reaching patients who do not consistently see a healthcare provider, allowing them to identify health issues that otherwise may go unnoticed.

References

"Age, Race, Gender & Family History." American Diabetes Association, www.diabetes.org/are-you-at-risk/lower-your-risk/nonmodifiables.html.
"Food." American Diabetes Association, www.diabetes.org/food-and-fitness/food/?loc=ff-slabnav.

Methods

Blood Glucose and HbA1c Screenings → Survey for Age, Ethnicity, and Diet → Flyers and Pamphlets

Goals:
- Reach a variety of people in different socioeconomic statuses, especially those who do not have access to have these tests taken
- Give additional materials such as pamphlets and flyers with medical and informative info on preventing diabetes, improving a healthy lifestyle, and keeping track of blood glucose and HbA1c on a daily basis

Age and Ethnicity

Figure 1.

Results: In order of decreasing blood glucose: African American, Other ethnicities, Caucasian, Native American, Hispanic/Latino, Asian

Comparison with ADA Data:
- African Americans had higher blood glucose levels than people of Asian descent
- Differed in that people of Asian ethnicity had the lowest average blood glucose level in our outreaches

Figure 2.

Results: Our results comparing blood glucose and age were variable. Differences may have been due to our inclusion of both fasting and prandial glucose levels in the results. Nevertheless, our data suggest that older age may be correlated with higher blood glucose.

Comparison with ADA Data:
- Of note, the highest prevalence is in the 45-64 age group, rather than the over 65 group
  - This is possibly due to their use of crude rates, rather than age-adjusted
- Our data was consistent with the national trends which showed increased prevalence of diabetes in older people

Diet

Figure 3.

Results: Carbohydrates, dairy, and meat were the foods patients consumed the most on a weekly and daily basis. According to the ADA, carbohydrates are closely linked with increasing blood glucose.
- Over 27% of patients indicated that they consumed grains at least 2-3 times a day
- At the outreaches, patients were also given pamphlets and diagrams of healthy diets and examples from each food group

Diabetes Risk Assessment

Using the ADA Assessment test for diabetes, we were able to analyze and determine who was at risk for diabetes. The following parts study the correlations between risk of diabetes with ethnicity and age.

Results: Of the people who were at risk for developing diabetes, 75% were African Americans, 12% were Caucasian, and 12% were of Hispanic and other ethnicities.

Figure 4.

Comparison with ADA Data:
- Our high percentage of African Americans who were at risk can be attributed to the fact that our outreaches were located in areas where they constituted a large part of the population
- Due to a lack of Native Americans and Hispanics in the localized regions, the percent for risk of diabetes was a lot lower than the national prevalence

Figure 5.

Results: In our studies, scores of 5 and above were indications of being at risk for diabetes. Patients from age 48 and up were more likely to have a high diabetes risk score indicating that the risk for diabetes within our outreaches increases with age.

Comparison with ADA Data:
- Overall our data correlated with the ADA showing that the risk for diabetes does increase with age in our localized settings

Conclusion

Through this study, we were able to assess correlations between diabetes and ethnicity, age and diet. However, several limitations hindered our ability to draw conclusions from the data. The small sample size of our study was such a limitation. This was primarily due to the short duration of the study and small number of sites we conducted tests at. Another notable limitation of the study was our use of random blood glucose data as opposed to HbA1c values, due to a lack of resources to do so. In the future, using HbA1c levels instead of blood glucose levels to draw conclusions would lead to more accurate results. Additionally, increasing the duration of the study and expanding our scope of testing sites would allow us to collect more data, again leading to more accurate results.

Acknowledgements

Materials for these outreaches was provided by The Horizon Foundation for New Jersey. The authors acknowledge the generous contribution of the Horizon Foundation in making this project possible.