

Combating the Rise of Diabetes in Africa

Taylor Briseno (Biology), Megan Dempsey (BME), Bobby Kumar (BME), Sarah Sawatzki (RBE) Advisor: Professor Jill Rulfs (Biology), Professor Helen Vassallo (Business/Management)



"Without a major breakthrough in preventing and treating diabetes, the number of cases in sub-Saharan Africa is projected to double, reaching 24 million by 2030."
-International Diabetes Federation (IDF)

Tanzania

- Population: 36 million
- Affected by diabetes: about 450,000
- Percentage undiagnosed: over 80%
- Diabetes-related deaths per year: 15,408
- Percent of diabetic adults living in towns: 6%
- Number of diabetologists in the country: 6
- Average income per person: \$256

Type 2 Diabetes Overview

How does it happen?

- Not enough insulin produced or insulin not recognized
- Sugar builds up in blood- cells can't function

Causes

- Overweight/obesity
- Lack of physical activity
- Unhealthy lifestyle choices

Symptoms

- Fatigue
- Thirst/frequent urination
- Unexplained weight loss

Diagnosis

- A fasting blood glucose test
- An oral glucose tolerance test

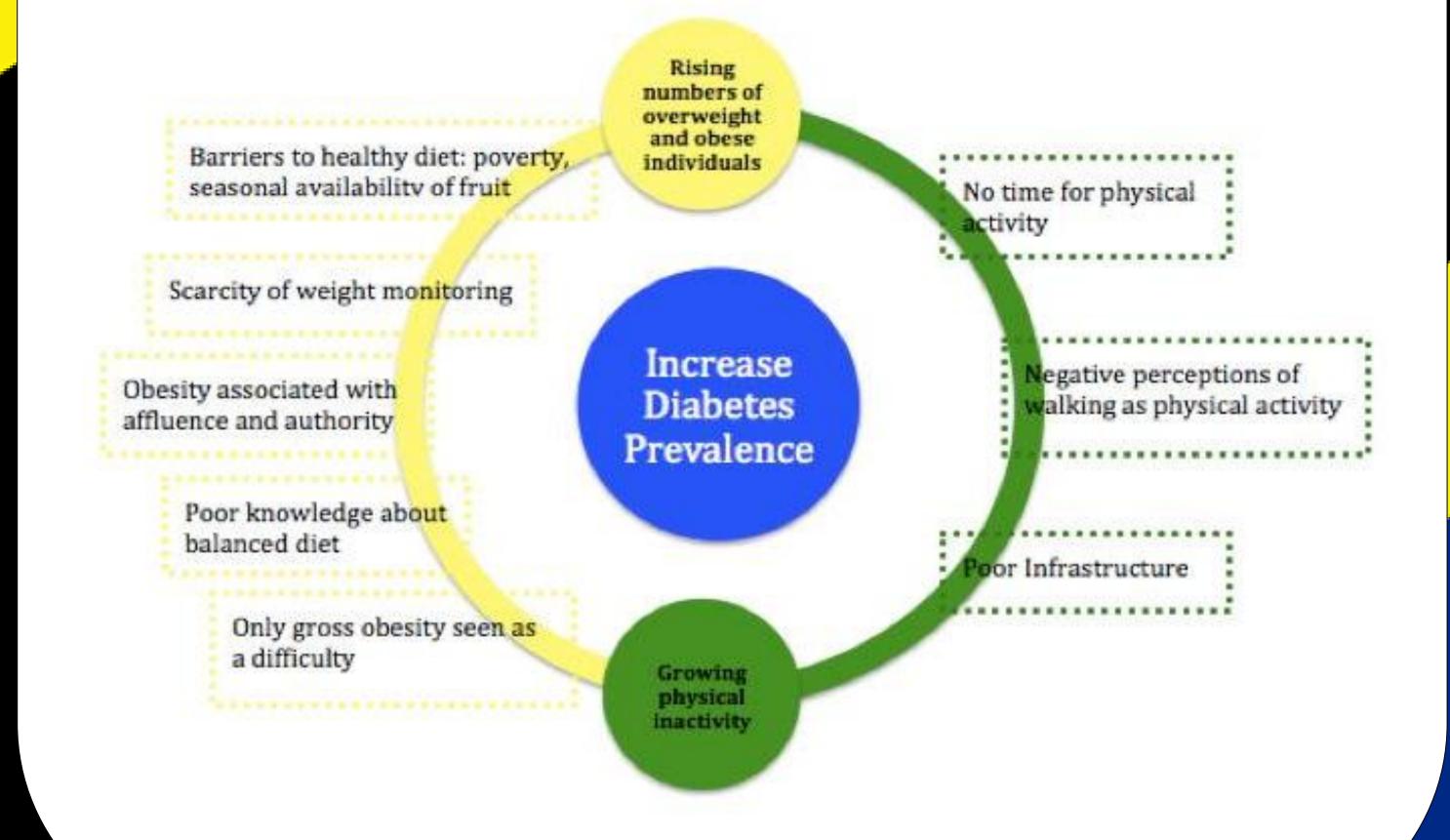
Treatments

- Diet and exercise/weight loss
- Medications (insulin if needed)

Need

Our need is to improve the education and diagnosis of Type 2 diabetes to combat the projected rise in this disease in Tanzania, Africa.

Reasons for Increase in Diabetes Prevalence



Approach .

Educate patients/doctors on:

- How to test and record your blood glucose
- What to eat and when
- How to take medications, if needed
- How to recognize/treat low and high blood sugar
- How to handle sick days
- Where to buy diabetes supplies and how to store them (if affordable)
- Role of family members/support system

How:

- Utilize an educational pamphlet for doctors
- Utilize a separate, illiterate-friendly pamphlet for patients
- Distribute pamphlets in local clinics

Breaking Down Barriers

- Belief in health benefits/fear of consequences
- Empowerment/Self-confidence
- Locus of control
- Debunk myths about diabetes
- Address illiteracy issues



Urbanization

- Experiencing fastest rate of urbanization worldwide
 - More people moving to urban areas
- Obesity as a sign of wealth
 - Increased consumption of high-fat and energy dense diets
 - High rates of obesity
 - Increased marketing from unhealthy restaurants
- Decrease in physical activity
 - Increased technology and transportation

References

A.D.A.M. "Type 2 Diabetes Overview." *Health News - The New York Times*. 20 May 2009. Web. 07 Dec. 2010. http://health.nytimes.com/health/guides/disease/type-2-diabetes/overview.html.

AFRICA: Diabetes cases to double by 2030." IRIN Africa English Service (June 28, 2010): NA. <u>Academic OneFile</u>. Gale. Worcester Polytechnic Institute. 6 Dec. 2010 http://find.galegroup.com/gtx/start.do?prodId=AONE&userGroupName=mlin_c_worpoly

Diabetes Car Ribbon Magnet. Digital image. Magnet Ribbons. Web. 7 Dec. 2010. http://www.thebargaincompany.com/208596_Diabetes_Car_Ribbon_Magnet.html.

"Diabetes Clinics in Tanzania." *WDF Home*. World Diabetes Foundation, 5 Feb. 2008. Web. 07 Dec. 2010. http://www.worlddiabetesfoundation.org/composite-127.htm.

Glucose Meter for Measuring Blood Sugar. Digital image. Health Blog for You. 30 Nov. 2010. Web. 7 Dec. 2010. http://www.futureofcollaboration.com/2010/11/diabetes-type2-and-type1/.

Kolling, Marie, Kirsty Winkley, and Mette von Deden. "'For someone who's rich, it's not a problem'. Insights from Tanzania on diabetes health-

seeking and medical pluralism among Dar es Salaam's urban poor." Globalization and Health 6 (2010): 8. Academic OneFile. Web. 7 Dec. 2010.

Mbanya MD, Jean Claude, Ayesha Motala MD, Eugene Sobngwi MD, Felix Assah MD, and Sostanie Enoru MD. "Diabetes in Sub-Saharan Africa."

The Lancet Student. 22 July 2010. Web. 22 Nov. 2010.

Price, C., Shandu, D., Dedicoat, M., and Gill, G. (2007), Diabetes education and empowerment: lessons from rural South Africa. Practical Diabetes

International, 24: 217–221. doi: 10.1002/pdi.1101

"Tanzania Map." *Ilike2learn*. Web. 07 Dec. 2010. http://www.ilike2learn.com/ilike2learn/Continent Maps/Country Maps/Tanzania.html.