

# **Diabetes Screening in India: A Family's Global Efforts**

**Presented by:**

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# Abstract

- Diabetes is an issue worldwide. The incidence is high in the Asian Indian population. Many people in India do not have access to basic health care. A free screening of 245 people in Bangalore and Devanahalli, India was undertaken by a family using blood glucose testing and the American Diabetes Association (ADA) Screening Tool. The screening was done with the help of the nursing staff of the Baptist Hospital. Identification of people at risk and basic education on diet and exercise was conducted over a three day period. Persons with a blood sugar reading over 140 and a score of 5 or higher on the risk test were counseled by the staff of the Baptist Hospital. Individuals that were identified to be at risk with higher blood glucose levels were immediately seen by an endocrinologist for further testing and treatment. All individuals were given information on the benefits of diet control, exercise and the signs and symptoms of diabetes.

# Context

- India ranks number one in the world for incidence of diabetes.
- This incidence is expected to rise to 87 million by 2030 which would make up more than one fifth of all diabetics world-wide.
- Primary and secondary prevention measures lead to decreased complications, mortality, and morbidity.

Mohan, Goldhaber-Fiebert, Radha, & Gokulakrishnan, 2011

# Objectives of the Screening Campaign

- Raise awareness of the incidence of diabetes.
- Provide needed resources to screen large numbers of residents.
- Educate population at risk.

# Logistics of the Campaign

- Conducted over three day period in two large communities accessible to medical care.
- Screened 245 people, not fasting.
- Testing occurred between 9 AM and 2 PM.
- Used ADA Diabetes Risk Screening Tool as well as glucometers to test blood sugar via finger sticks.
- Family members included mother and two sons, one son diagnosed with type I diabetes at age 6.

# Logistics Continued

- Posters hung in two hospitals.
- Participants primarily self selected though some referred by endocrinologist.
- Collaborated with local endocrinologists before screening campaign for plans on follow up for those at risk.

# ADA Diabetes Risk Screening Tool

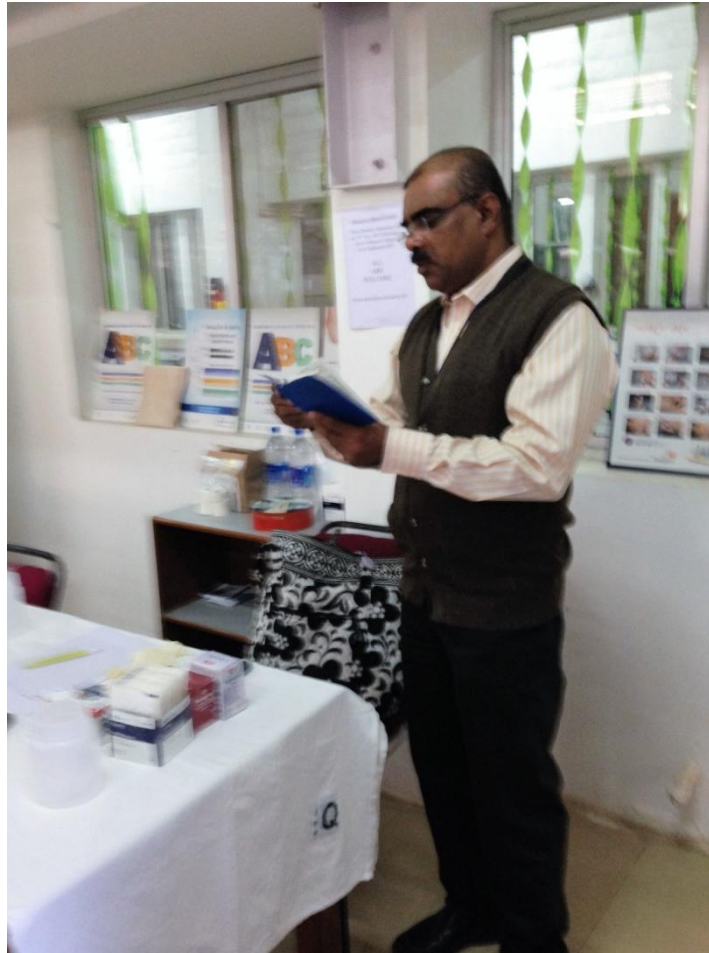
- Risk determined by scoring answers to seven questions assessing:
  - Age
  - Gender
  - Diagnosis of gestational diabetes
  - Family history
  - History of hypertension
  - Physical activity
  - Height/weight

# Results

- 245 participants
- 33 (13%) of participants diagnosed with diabetes before screening
- Of those previously diagnosed:
  - 10 (30%) presented with normal blood glucose reading (under 120)
  - 7 (21%) presented with blood glucose over 300
  - 3 (9%) presented with blood glucose over 400
- 68 (28%) referred to endocrinologist for follow up due to elevated blood glucose reading and documented risk per ADA screening tool
- One young girl rushed to hospital for treatment of blood glucose level of more than 600.



# Prayer before testing



# Blood Sugar Testing



# Dr. Sturgeon & Jared DePalma



# Participant Glucometer Readings

Glucose Reading	Raw Numbers	Percentage
Below 70	3	1%
Normal (70-120)	129	53%
Elevated (121-160)	45	18%
Elevated (161-200)	26	11%
Elevated (over 200)	42	17%

# Analysis

- 53% of participants had normal blood readings
- 47% had abnormal readings:
  - 1% hypoglycemic
  - 46% hyperglycemic
- 70% of participants previously diagnosed demonstrated abnormal glucose levels and continued risk

# Analysis Continued

- Screening program was a success:
  - At risk participants were referred for follow up and treatment
  - Education on diet and role of physical activity was provided to all participants
  - Collaborations were effectively established with local hospitals and endocrinologists



# Recommendations

- Continue screening program
- Expand assessment to further determine date of diabetes diagnosis and treatment plan along with rate of adherence.
- If patient not adherent, it would be insightful to know the reasons.

# Conclusion

- The screening program conducted by the Theiss-DePalma family was a success. It provided a foundation of collaborative assessment and teaching that can be expanded. Because the incidence of diabetes is so high in India, continued implementation of collaborative screening is warranted.



# References

Mohan, V., Goldhaber-Fiebert, J.G, Radha, V. & Gokulakrishnan, K. (2011). Screening with OGTT alone or in combination with the Indian diabetes risk score or genotyping of TCF7L2 to detect undiagnosed type 2 diabetes in Asian Indians. *Indian Journal of Medical Research*, 133(3), 294-299.