A History of Diabetes Mellitus

Zobida Ragbirsingh
SRN, SCN, DHV, CCDE, MSc.

Andrew S. Dhanoo
BSc., RPT, PhD (candidate)

Chamber of Commerce

“Measuring the Impact of Diabetes on Business”
Friday 17th April, 2015.
What is Diabetes Mellitus?

‘A group of diseases which affect how the body uses glucose (blood sugar)’
Major types of diabetes mellitus

**Type 1 DM**
- Juvenile onset /IDDM
- 5-10%
- Autoimmune destruction of β-cells
- No insulin produced
- Abrupt – Early in life
- Symptomatic
- Exogenous Insulin
- Self management

**Type 2 DM**
- Adult onset /NIDDM
- 90-95%
- Impaired glucose tolerance (IGT)
- Insulin insensitivity / resistance
- Risk Factors - Obesity
  - Poor diet
  - Sedentary
  - Smoking
  - Coloured
- Asymptomatic until complications
- Lifestyle modification
- Oral agents
- Insulin
- Self management
Normal Regulation of Blood Glucose

With diabetes
The whole body is affected by diabetes !!!

**Micro-vascular**
- Eye: Retinopathy

**Macro-vascular**
- Brain: Stoke, Cancer, Dementia
- Cardiovascular System: Coronary artery disease
- Periphery: Peripheral Neuropathy, Slow healing, Amputations

**Other**
- Kidney: Nephropathy
- Sexual Impotence
Risk factors of Type 2 DM

- Overweight
- Sedentary
- Overeating
- Hereditary
- Old-age

Diabetes
Once upon a time, a long time ago...

With 3500 years of diabetes history, only the last 100 years saw an explosion of diabetes knowledge and treatment.
1500 BC - Egypt

First written reference to diabetes by ancient Egyptian physicians
Apollonius of Memphis - The name diabetes (from Greek “to pass through”) given to the disease.
100 AD - Roman

Aulus Cornelius Celsus - First clinical description of diabetes
500 AD - India

Susruta and Charaka
- First distinction between type 1 and type 2 diabetes mellitus
- People with DM has sugary urine
Avicenna, Arab doctor, describes sugar in urine.
- Notes gangrene and impotence complications
1696 AD - England

Nicholas Culpeper -
Recommends powered mouse (with Fleas) as treatment for diabetes
Matthew Dobson-
- Discovered that Blood and urine of people with DM contains sugar
- Concludes that DM is not a disease of the Kidney but the whole body.
1788 AD - England

Thomas Cowley - First link between DM and Pancreas
1849 AD - France

Claude Bernard -
- Glucose stored in the Liver
- Hypo (low sugar) affects the brain
1869 AD - Germany

Paul Langerhans - Small clusters of cells in Pancreas, named islets of langerhans
1889 AD - Germany

Oscar Minkowski - Removed dog’s pancreas – Show DM
Georg Zuelzer-
Pancreatic extract “acomatol,” produced by Zuelzer, decreased glucosuria in dogs
1921 AD - Germany

Frederick Banting - Discovery of Insulin

Commercial Extracts of Dog pancreas used on humans
1921 AD - Germany

**Synthalin**
First oral blood sugar lowering medication, extract from French lilac flower
1934 AD - England

RD Lawrence and HG Wells - First Diabetes Association – British Diabetes Association
1936 AD - Denmark

Hans Christian Hagedorn - First Long Acting Insulin produced
1950 AD

Formation of the International Diabetes Federation (IDF)
1955 AD

Frederick Sanger - Sequences Insulin (finds the structure) – Wins Nobel prize
1970 AD

Urine testing strips introduced for easy monitoring.
1980 AD

Portable blood glucose meters become available
Diabetes Specialist Nurses (DSN) more common – One of the biggest advancements in diabetes since insulin
1993 AD

DCCT – Prove that intense blood sugar control can slow/prevent diabetes complications (type 1)
UKPDS – (Type 2) Good control of blood sugar reduces DM complications
- Healthy BP reduce Heart attacks and stroke
The Human Genome Project – Begin the search for genes linked to DM
First Genome-Wide Association Studies for Diabetes – Find genes linking to Type 2 DM
Diabetes in the world today

Number of people with diabetes by IDF Region, 2013
Diabetes in the world today

382 million people have diabetes

By 2035 this will rise to 592 MILLION

The number of people with type 2 diabetes is increasing in every country

The greatest number of people with diabetes are between 40 and 59 years of age

175 million people with diabetes are undiagnosed
World prevalence % By Country (2012- IDF)

223 countries
The state of diabetes in Trinidad & Tobago

Poon-King et al 1968
-2% IGT, 2% T2DM

T&T National Health Survey, 1996
-11% self reported diabetics

MOH/PAHO – STEPS, 2012
-13% estimated prev.
-20% IGT
-↑ glucose in 16% 15-24
2 Children <20 presented with T2DM (1962)
  Poon-King et al. 1968

18:100,000 Children 5-17 with DM and/or IGT (2009)
  Batson et al. 2013

20.6 % of sample 15-24 years showed ↑ fasting glucose (2012)
  MOH-PAHO – STEPS 2012

Photo source: UWI Today – Jan 2011
REPORT: ONE IN FIVE CHILDREN IN SOUTH TRINIDAD OVERWEIGHT OR OBESE

Findings highlight need for national surveillance, urgent interventions

3300 Students, 14 Primary Schools, 5-12 years
Cure or Curse?

Non-invasive Screening, Cure Disease, Stop Complications
Best known for Carnival, Calypso, Steel band, Reggae, Salsa, Chutney & Meringue

-and the most flamboyant and spectacular celebrations in the world
Rx PRESCRIPTION

1. Eat Healthy
2. Exercise
3. Lose Weight
DIABETES EDUCATION AWARENESS IN PRIMARY SCHOOLS (DEAPS)
DEAPS PROJECTS

- A DATT Project
- Target Group – Std 3 Students (Primary School)
- Objective - Education in a format specifically for the needs of this age group
  – Increase awareness on prevention mgt of diabetes as it relates to obesity
Skits
Singing & Dancing
Our Children
We must
protect their health
Let’s Get Moving!
I would like to thank you from the bottom of my pancreas, which is deeper than the bottom of my heart.