Ministry of Health &
HIMSS Middle East
Conference and
Exhibition 2016

Glucomail

Diabetes Care App

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E-Point, the electronic point of care

Diabetes

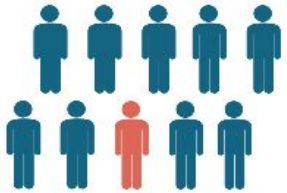
- Type 1 Diabetes
- Type 2 Diabetes
- Gestational Diabetes

Every **6 seconds** a person dies from diabetes (5.0 million deaths)

1 in 11 adults have diabetes (415 million)

1 in 7 births is affected by gestational diabetes

By 2040, **1 adult in 10** (642 million) will have diabetes



Source: Diabetesatlas.org

Children

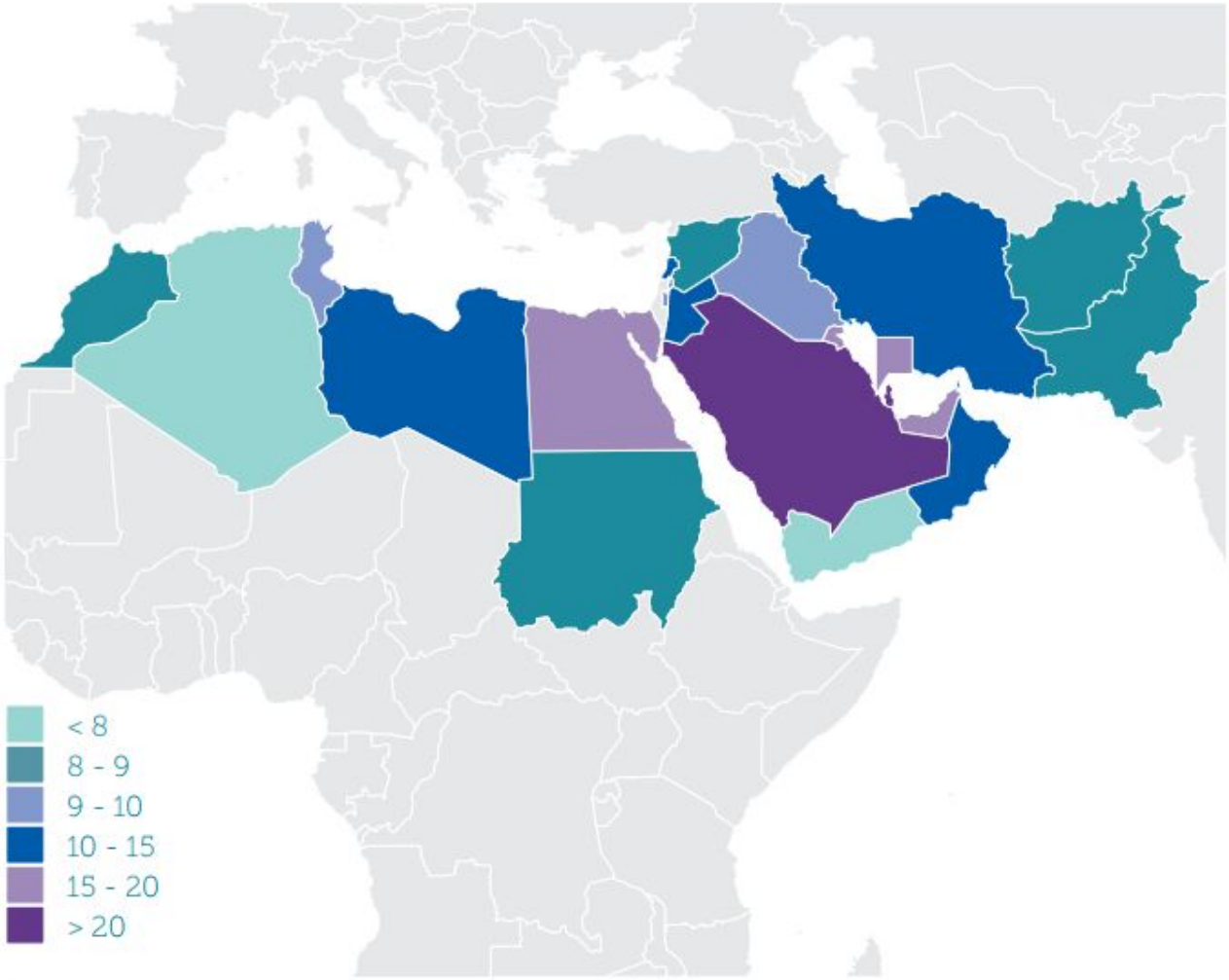
Elderly people

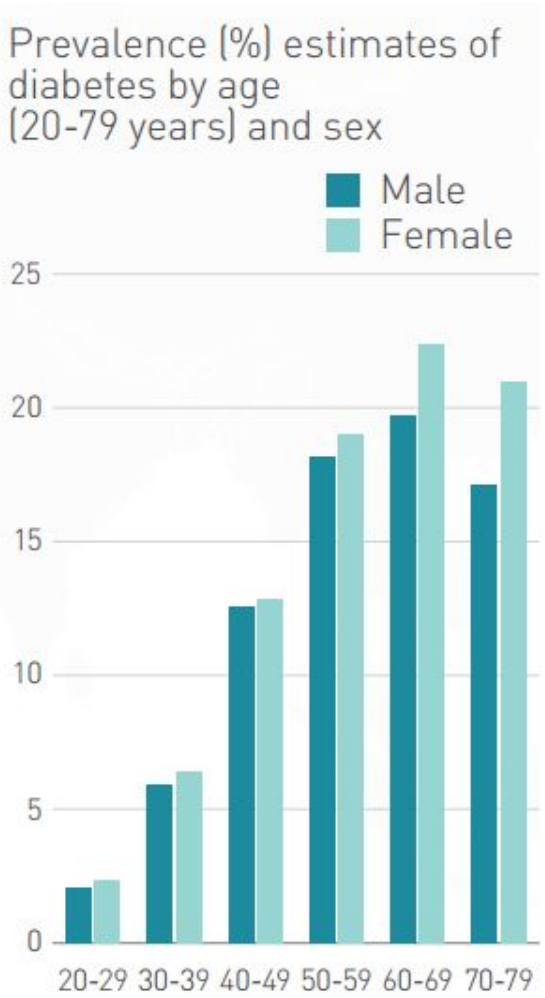
Pregnant women

Pictures: Diabetesatlas.org

Diabetes prevalence in Saudi Arabia

Map 4.3 Prevalence* (%) estimates of diabetes (20-79 years), 2015

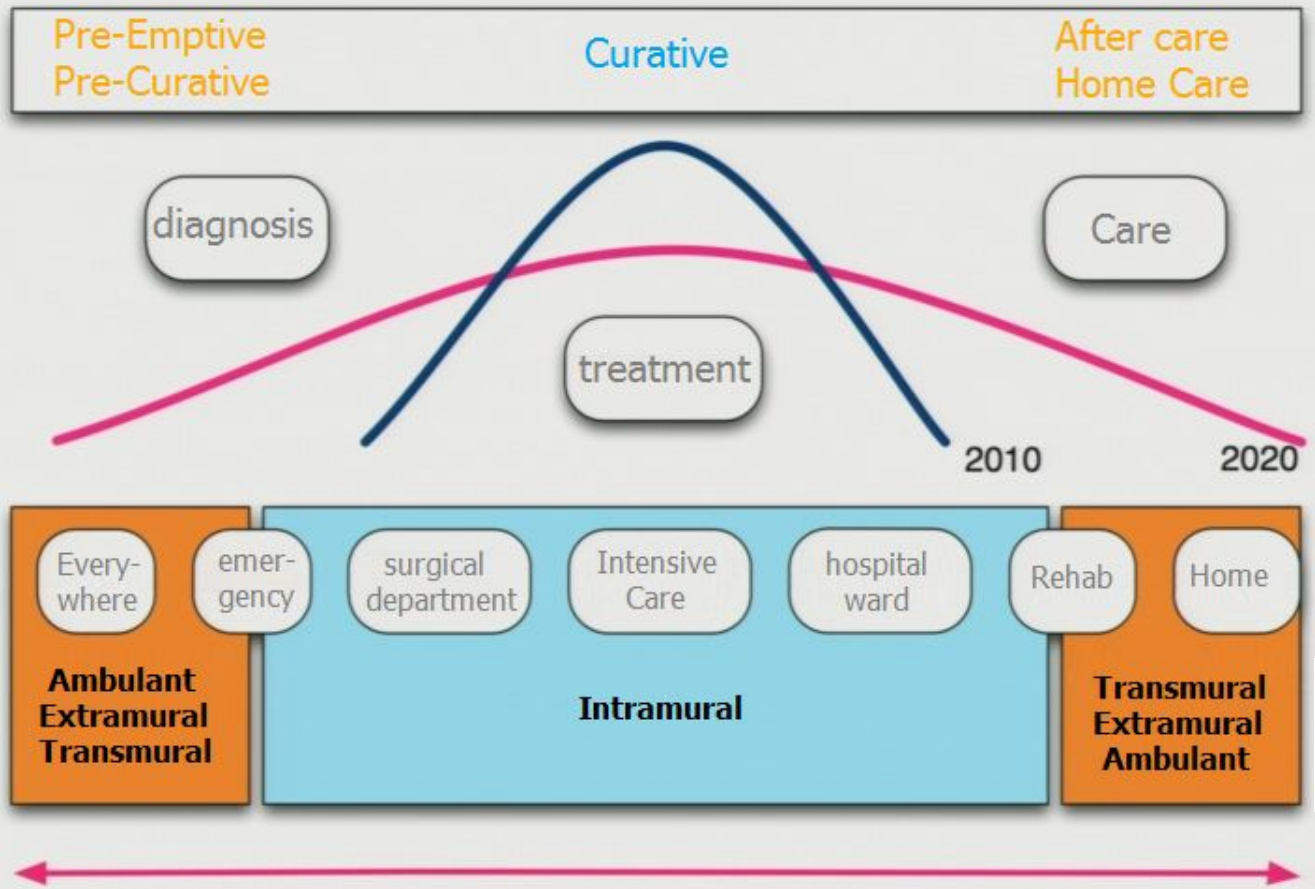




* comparative prevalence

care In Evolution

Care is in evolution there will be less Intramural care and more extramural care



Connecting the patient with the caregiver before and after intramural care

Care technology for diabetes (1)

- Patients served by telemedicine programs experienced more substantial reduction in glucose levels compared to patients not served by these programs
- Telemedicine programs focusing primarily on remote patient monitoring have not been necessarily more effective in diabetes management compared to programs primarily using teleconsultation
  - Telemedicine needs to be coupled with more personalised interactions between patients and healthcare providers to make it more effective, these interactions help to address the needs and promote patient engagement and compliance

Su, D., Zhou, J., Kelley, M. S., Michaud, T. L., Siahpush, M., Kim, J., ... & Pagán, J. A. (2016). Does telemedicine improve treatment outcomes for diabetes? A meta-analysis of results from 55 randomized controlled trials.Diabetes Research and Clinical Practice, 116, 136-148.

Care technology for diabetes (2)

- Key functionalities facilitating diabetes management
  - Automatic blood glucose data entry (faster than manual entry, simple, less manual errors)
  - Connections with food and physical exercise databases
  - Reminder function (e.g. to test blood glucose levels, have meals, do physical exercise)
  - Communication with healthcare provider
    - Tailored personalised feedback

ABU HASSAN SHAARI, N. S., MANAF, Z. A., ALI, N. M., SHAHAR, S., ISMAIL, M., & AZLIN, N. (2016). Usage of Mobile Applications in Diabetes Management: A Review. Malaysian Journal of Health Sciences/Jurnal Sains Kesihatan Malaysia, 14(2).

Glucomail – Diabetic Care App

- 24/7 Management of diabetes in order to maintain target blood glucose levels
  - Vital signs and activity/lifestyle monitoring and automatic data entry (e.g. glucose levels, blood pressure, weight, pulse)
  - Proactive coaching (between healthcare professional and patient) to balance insulin/medication, exercise and food intake
    - Feedback questionnaire, conversation map
  - Reactive coaching (automatically generated by the Glucomail system)
    - an emergency intervention/response is indicated and corrective actions for highs or lows

- *Serrano, J. A., & Holthe, H. (2014). Development and trial of ePoint. telemed-An open web-based platform for home monitoring of chronic heart failure patients. Studies in health technology and informatics, 210, 311-315.*
- *Holthe, H., & Serrano, J. A. (2015, August). ePoint. telemed-An Open Web-based Platform for Home Monitoring of Patients with Chronic Heart Failure. InMEDINFO 2015: EHealth-enabled Health: Proceedings of the 15th World Congress on Health and Biomedical Informatics (Vol. 216, p. 74). IOS Press.*

Diabetes Medical Management Plan

Diabetes Medical Management Plan should be implemented:

- developed by the patient's personal health care team and family
- informed consent from a member of patient's personal health care team
- implemented collaboratively by the Contact Care Centre of the diabetes team, including:
  - the nurse
  - the patient
  - spouse/guardians
  - others

Which platforms?

- Access independent of location
- Real time data
- Actionable alerts
- Privacy and security

- Feedback mechanism healthcare provider and patient

- Travel code

How does it work?

Diabetes Type 1 + 2

Female
Male

Gestational Diabetes

Lifestyle Monitoring & Disease Management

Smartphone Blood Glucose Meter

Medical History

File Sharing

Evaluations

Webgraphs
- Appointments
- SMS messages/day
- Calendar overview
- Measurement
- Threshold settings

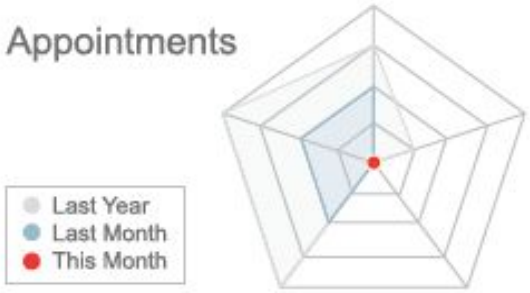
Notifications

by Email, SMS or Badge

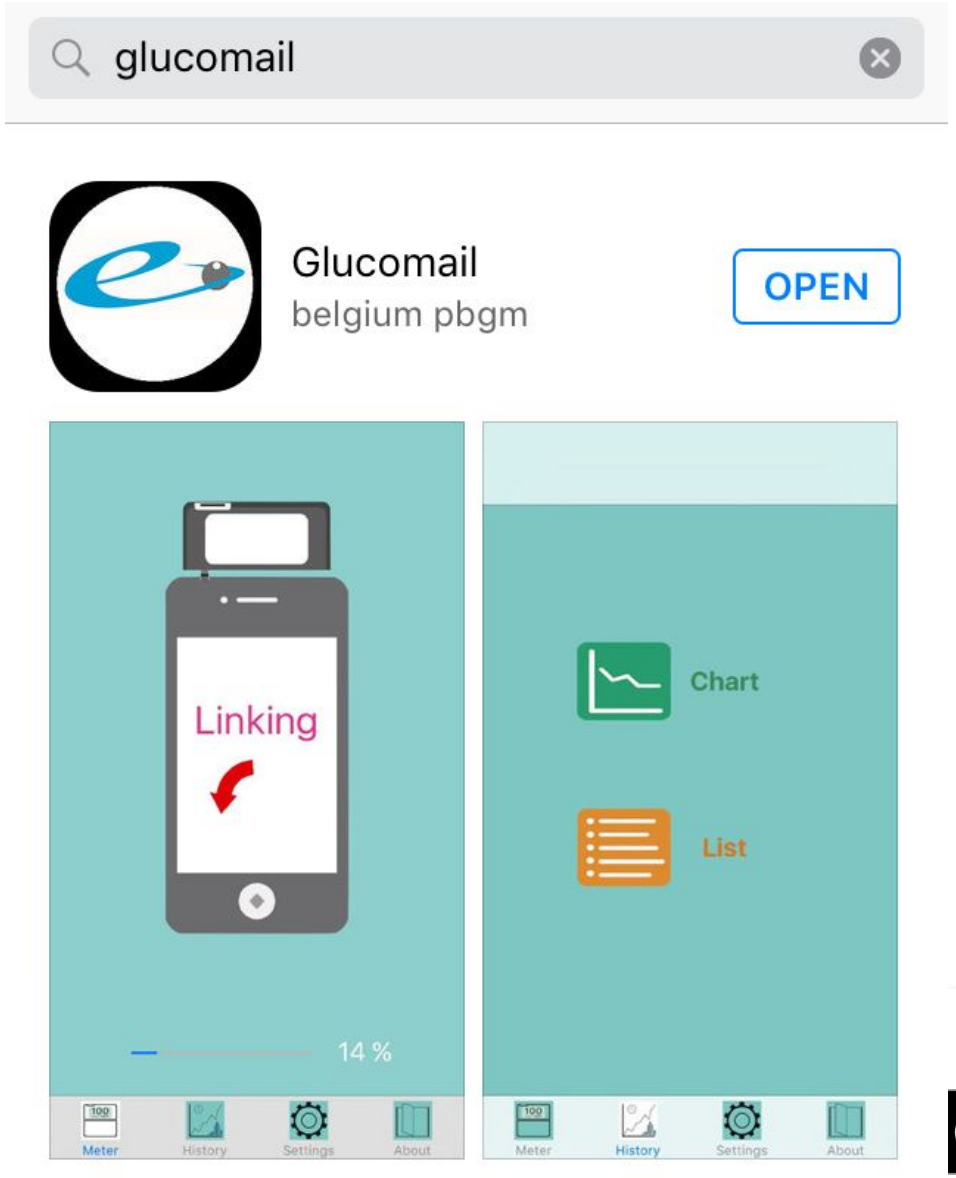
multi-platform

Dashboard

- Medication Reminder
- Threshold Notification
- Appointment Reminder



Glucomail availability



Available on the App Store

ANDROID APP ON Google play

Results

- Since the implementation of this mobile solution, there were fewer readmissions in the hospital
- Empowered **employees**; do their jobs more efficiently and effectively
- **Patient** satisfaction; they receive better care and disease management education
- Creates peace of mind for the **(in)formal caregivers**

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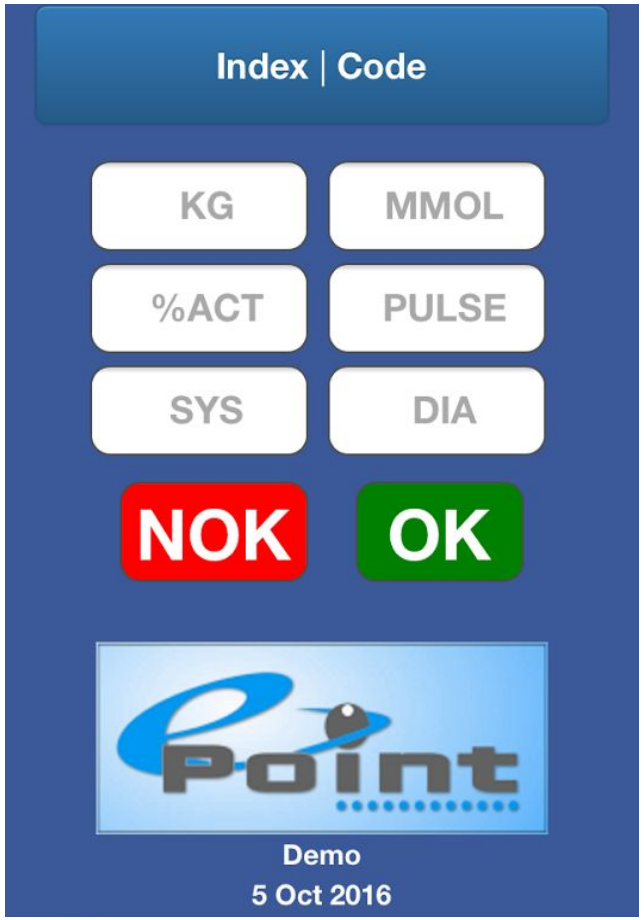
Rounding up and Next steps

- Conduct study using Glucomail with pregnant women
  - King Abdulaziz University, Department of Physiology, Faculty of Medicine, Jeddah, KSA
- Expand usage of Glucomail
  - Possibly other target groups benefit
  - Open up our system to other meters and apps
  - Glucomail electronic sharepoint



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Thank you for your attention

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Nasjonalt senter for samhandling og telemedisin

NST