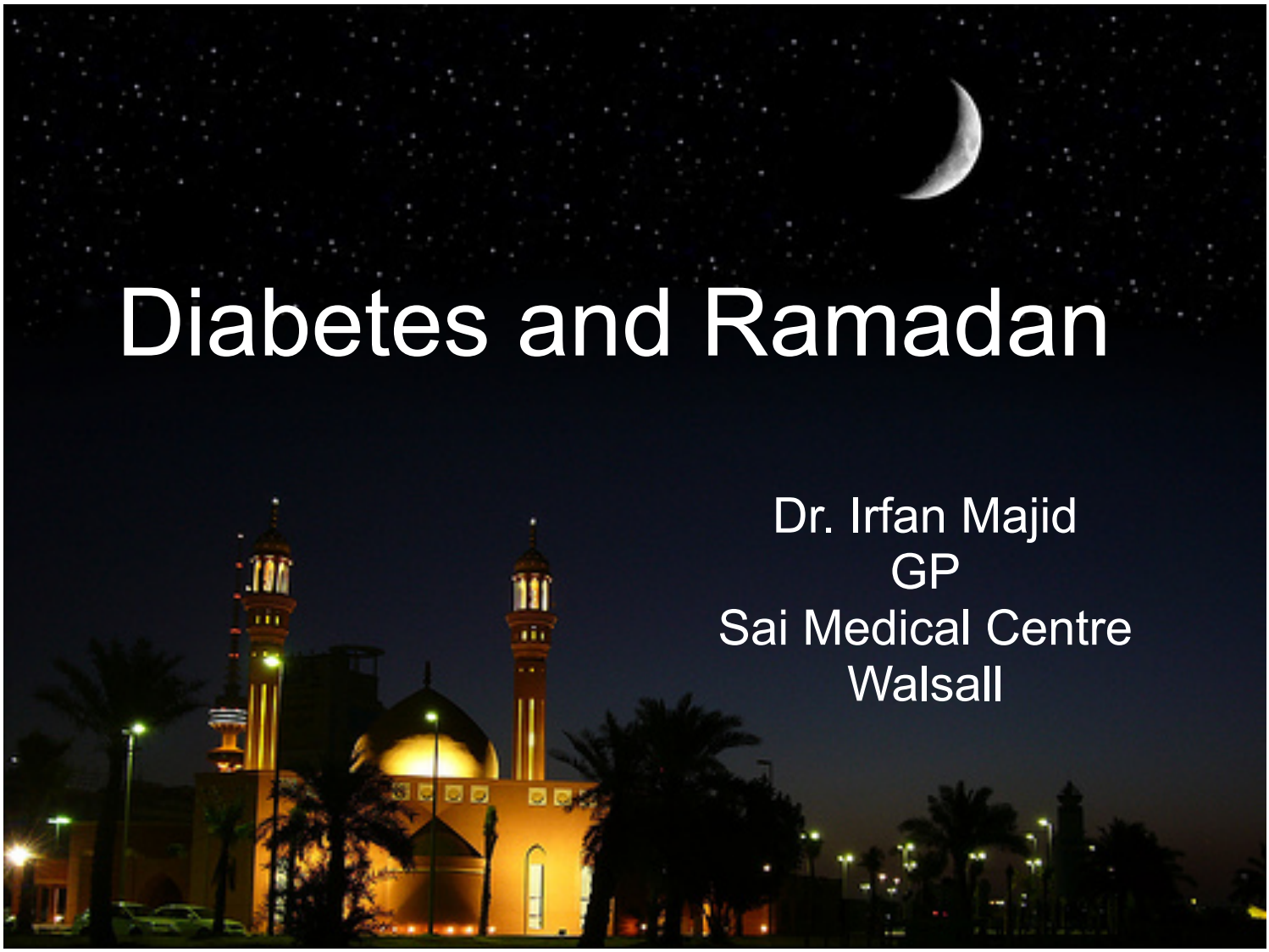
Diabetes and Ramadan
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- Islamic principles
- Fasting & Ramadan
- Prevalence
- Risks
- Education
- Medication
- Take Home Messages

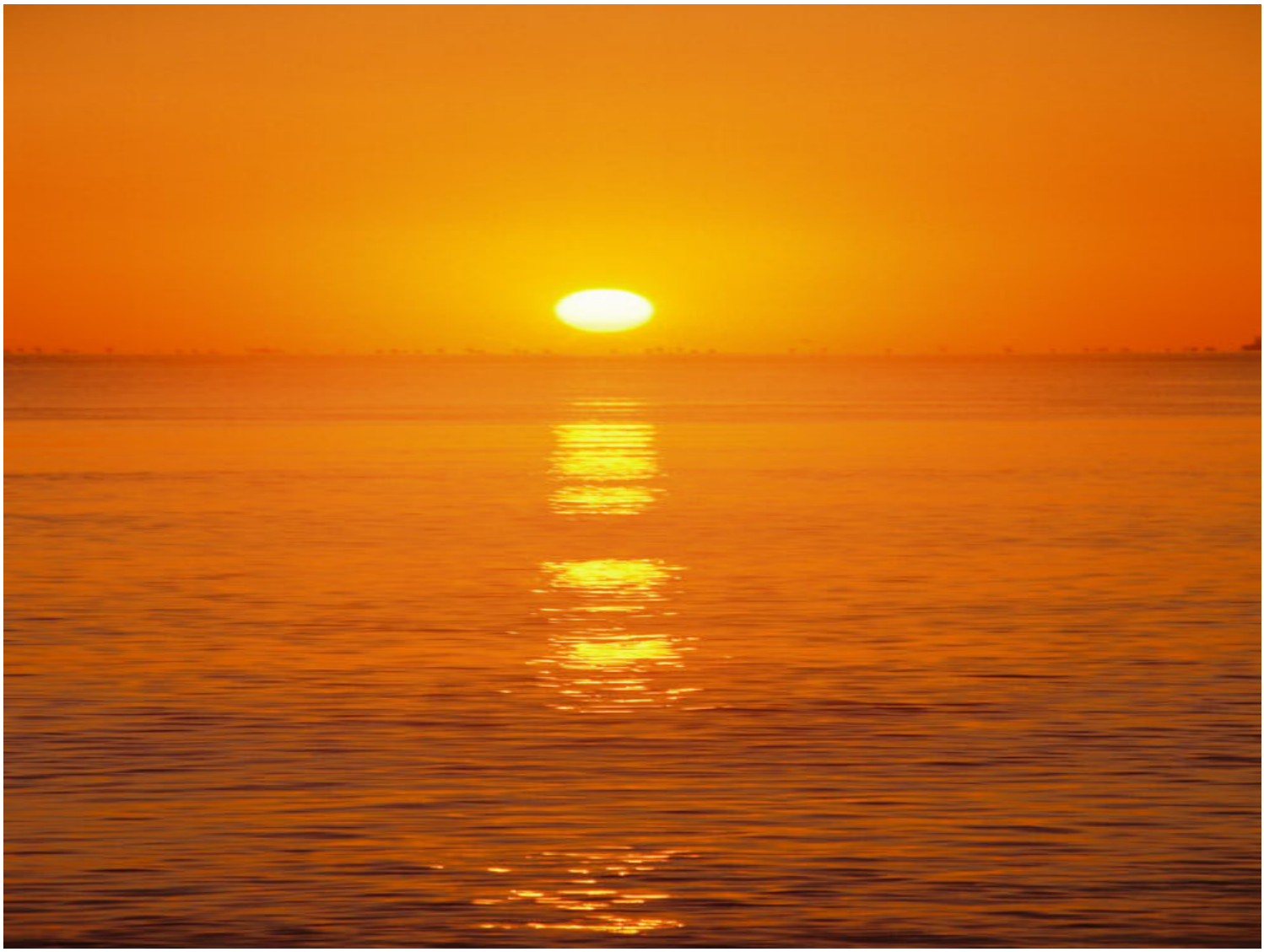
5 Pillars of Islam

- Shahadah (Faith)
- Salat (Prayer)
- Zakat (Charity)
- Sawm (Fast)
- Hajj (Pilgrimage)

History of fasting

- Fasting has been practiced for centuries in connection with religious ceremonies.

- Fasts are observed among Christians, Jews, Muslims, Confucianists, Hindus, Taoists, Jainists and Buddhism

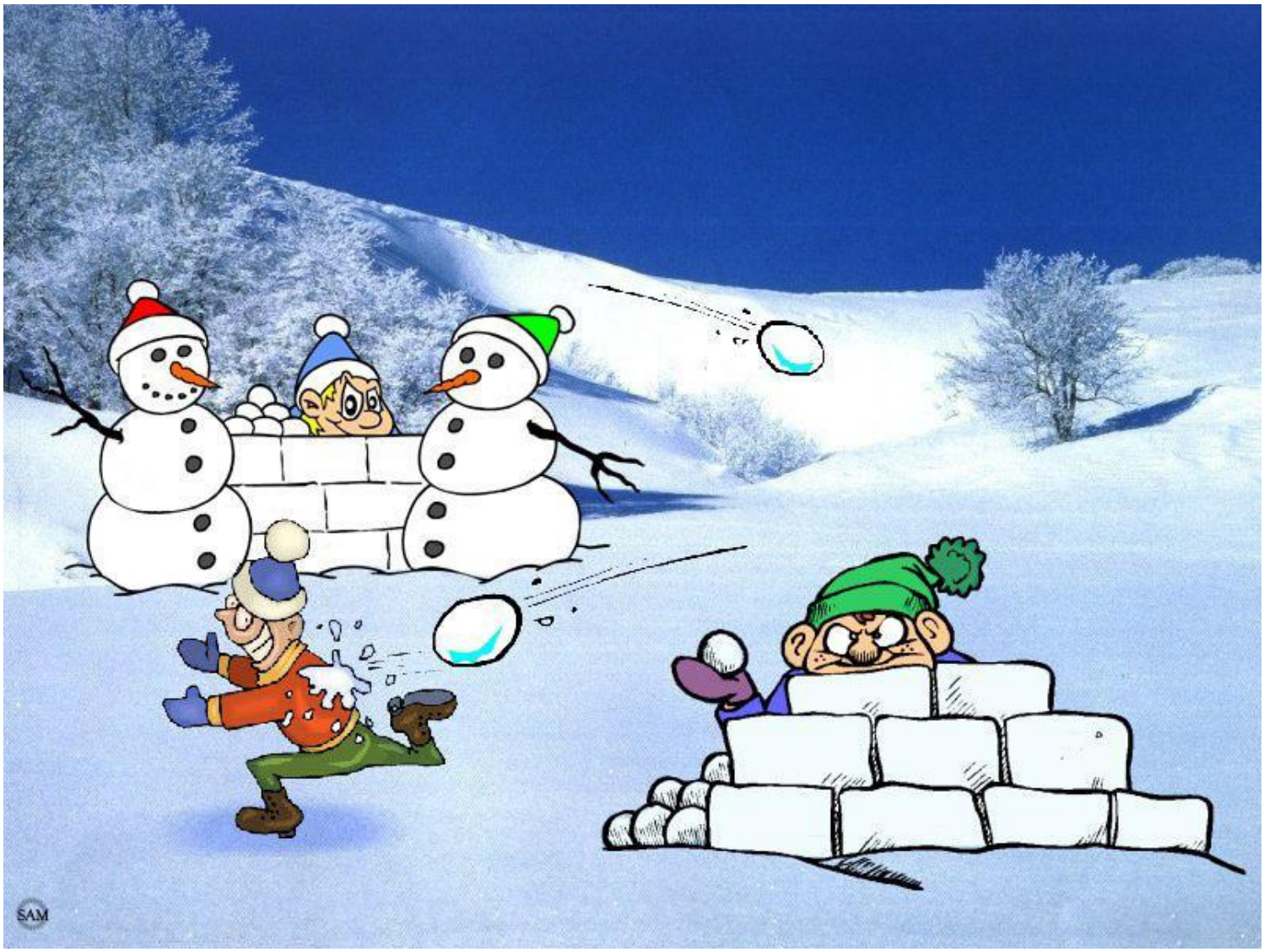


Pre-dawn meal

Sehri

Sunset meals

Iftar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Ramadan: a lunar month

- 2007: September 13 – October 12
- 2008: September 1 – September 30
- 2009: August 21 – September 19
- 2010: August 11 – September 9
- 2015: June 18 – July 17

Fasting

- For Muslims fasting is a time to go without
  - food
  - Liquids
  - Tobacco
  - sexual activity
  - and medication
    - including oral, inhaler and injection medications
    - between the hours of sunrise to sunset.

- Can eat / drink all night

- Healthy Muslims will fast whilst
  - continuing with their day to day routine
  - perform extra prayers
  - do good deeds
  - spend more time with family and friends

Who can not fast

- Children
- The sick
- The elderly
- The mentally handicapped
- People who would be putting their health at serious risk by fasting
  - those with long term conditions
    - such as diabetes, chronic kidney disease and cardiovascular disease.
    - Those who do not fast should give charity to the poor.
- Pregnant and nursing mothers
- Menstruating women
- If you are travelling
  - In these instances the person can make up the fast at a later date, or provide meals to the needy or give charity donations to the poor

- **The Quran specifically exempts the sick from the duty of fasting (Al-Bakarah 183-185)**
  - Patients with diabetes fall under this category
    - because their chronic metabolic disorder may place them at high risk for various complications
  - Nevertheless, many patients with diabetes insist on fasting during Ramadan

Prevalence

- Estimated 40-50 million people with DM observe the Ramadan fast

- There were 1.6 million Muslims living in Britain in 2001.
  - comprise 3 per cent of the total population
  - and over half (52 per cent) of the non-Christian religious population

(Ref: http://www.statistics.gov.uk)

- 20 per cent of the South Asian community has Type 2 DM
  - in contrast to 3% of the general population

(Ref: Diabetes and its management. Watkins, PJ 2003. Blackwell Publishing Oxford)

- **Estimated number of Muslims living in UK with DM is > 325,000 person**

Physiological Effects of Fasting

- On Calorie intake
- On fluid /water intake
- Effects on – Digestive System
  - Kidneys
  - Endocrine glands
  - Lipid Metabolism
  - Respiratory system
  - Neurological System

Major risks

- Hypoglycaemia
- Hyperglycaemia
- Diabetic ketoacidosis
- Dehydration and thrombosis

High Risk

- Patient with a history of recurrent hypoglycaemia
- Hypoglycemia unawareness
- Renal complications
- Hyperosmolar / hyperglycemic coma within the previous 3 months
- Living alone that are treated with insulin or sulfonylureas
- Type 1 diabetes
- Ketoacidosis within the last 3 months prior to Ramadan
- Patients who perform intense physical labor
- Old age with ill health

Better candidates

- Moderate risk
  - Well-controlled patients
    - treated with short-acting insulin secretagogues such as repaglinide or nateglinide
- Low risk
  - Well-controlled patients
    - treated with
      - diet alone
      - Metformin
      - thiazolidinedione

Before Ramadan

- Talk with your patients
- Do they want to attempt the fast?
- Share concerns

Education

- The Principles of pre-Ramadan patient review is:
  - assessment of physical well being
  - assessment of metabolic control
  - adjustment of the diet protocol for Ramadan fasting;

- change long-acting hypoglycaemic drugs to short-acting drugs to prevent hypoglycaemia

- encouragement of continued proper physical activity

- recognition of warning symptoms of dehydration, hypoglycaemia and other possible complications.

Teaching topics should include

- Home glucose monitoring.
- Checking urine for ketones.
- Teach how to take pulse, temperature and look for skin infection.
- Symptom awareness - any colicky pain, a sign for renal colic, or hyperventilation, a sign of dehydration and early Ketoacidosis.
- Where and when to seek medical help from if in any trouble.

General dietary guidelines

- Late Sehri and early Iftar
- More starchy foods
  - such as pasta, rice, chapatti, couscous and bread.
  - Include fruits, vegetables, lentils and yoghurt
- Sugar-free drinks or water
  - use sweetener where needed, e.g. Canderel, Sweetex
- Limit fried and sugary foods

Keep in mind

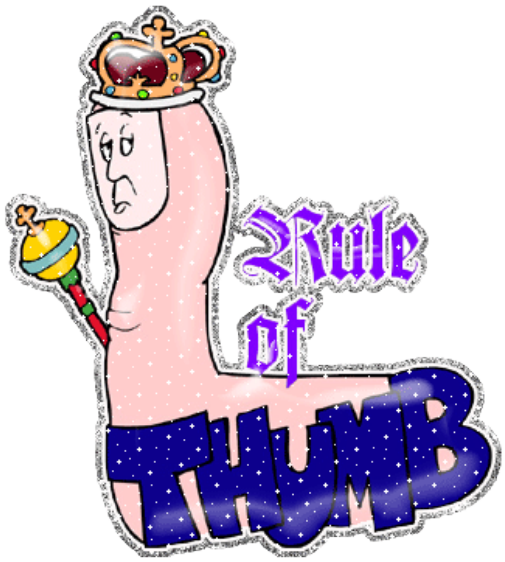
- Quantity of food consumed at the time of Sehr and Iftar

- Duration of the fast
  - Whether Ramadan falls during the summer or winter months

Patients on diet alone treatment

- Diabetes controlled by
  - diet and physical activity alone
  - should be able to fast safely.

- Food and drink carefully thought out
  - using low-calorie drinks
  - limiting sweets and fried foods.



Reverse the Schedule

Patients on Oral (tablets) treatment

- **Metformin**
  - fast safely
    - change the timing of their tablets
    - Full dose should be taken at Iftar and
    - half of normal dose at Sehri.
    - Increase or decrease accordingly

- **Glitazones (Rosiglitazone and Pioglitazone).**
  - no need to change the dose.

- **Repaglinide and Nateglinide**
  - useful for fasting because of its short action

Sulphonylureas (sulphonylureas + metformin or sulphonylurea + glitazone)

- If on Glibenclamide,
  - think about changing to Gliclazide, Glipizide
  - taken once a day
  - in evening before the break of fast meal.

- If blood sugar is highish
  - full usual dose at Iftar
  - Add half the dose at morning Sehri time

- Glimepiride would be safe
  - some dose reduction to allow for their long-acting nature.

Patients on Insulin

- **Type 1 diabetes**
  - with poor control
  - hypo unawareness
  - frequent hypo and high blood sugar
  - severe kidney
  - eye complications
  - prone to frequent diabetic ketoacidosis

advised not to fast

Type 1 diabetes on insulin treatment

- Regular blood glucose checks
  - pre dawn meals
  - 3 hours after pre dawn meals
  - pre sunset meal
  - 3 hours post sunset meals

- Recommended regimen could be
  - long acting basal insulin like Ultralente, Glargine or Detemir (In place of Isophane) at pre-dawn or sunset meal
  - giving short acting insulin analogue (Lispro or humalog)
    - usual full morning dose at sunset meals, to avoid hypoglycaemia at mid day
    - 20-30% of the usual morning dose at pre-dawn meals

- Ensure fast and easy access to their local specialist diabetic nurse and physicians

Type 2 diabetes on insulin treatment

- Don’t stop taking insulin during Ramadan

- As a general rule consider
  - usual full morning dose at sunset meals
  - lower dose (1/2 to 1/3rd of normal morning dose) at pre-dawn meals

advised not to fast

- Consider changing from
  - pre-mix insulin to long acting insulin (e.g.; Isophane, detemir or glargine)

- Short acting insulin analogues (Lispro and Novo-Rapid)
  - during break of fast meal
  - giving a lower risk of hypoglycaemia during the night

- Where possible, take rest during the day to help avoid lowering of blood glucose levels.

Other Medications

- Ear, eye drops
- Transdermals, creams, ointments
- Suppositories
- Injections (except IV feeding)
- Oxygen
- Sublingual nitroglycerin

Take Home Message

- Diabetics are exempt from fasting
- Pre-Ramadan Education regarding diet and medication
- Risk assessment
- Reverse the medication schedule
- Checking blood sugar does not break fast
- Speak to your Muslim colleague

References:

- Advice to the Diabetic Patient who wants to FAST during the Holy month of Ramadan:

  - By: Dr M Akber, Consultant Physician in Diabetes & Endocrinology University Hospital of North Staffordshire, Stoke on Trent, UK

  - Contact: mohammed.akber@uhns.nhs.uk