Thinking Beyond Sugar when Managing Diabetes

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Learning Objectives

- Explain how other factors beyond glycemic control can help reduce complication risks
- Convince others about the importance of immunizing people with diabetes
- Examine how clinicians can lower cardiovascular risk in people with diabetes
- Discuss practical lifestyle recommendations in people with diabetes

Presenter and Disclosure

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I have received speaker honoraria, conference sponsorship, unrestricted educational grants and/or attended meetings (i.e. had free dinner) sponsored by:

- Astra Zeneca, Bayer, Boehringer Ingelheim, Bristol Myer Squib, Colgate Palmolive, Eli Lilly, Glaxo SmithKline, Janssen, Lundbeck, Menarini, Merck, Napp, Novartis, Novo Nordisk, Pfizer, Sanofi Aventis, Servier, Takeda

I currently hold research grants from

- Astra-Zeneca, Bayer, Colgate Palmolive, Novartis, Novo Nordisk & Takeda

Meet our Patient - Anil

Background

- 58-year old
- Type 2 diabetes X 2 years

Medications

- Metformin 1000 mg twice daily

Laboratory Values

- HbA1c = 51 mmol/mol
- LDL-C = 3.0 mmol/L (QRISK3=20%)

Physical Assessment

- BMI = 27 kg/m^2
- BP = 146/93 mmHg

Patient Discussion

- Good glycemic control
- Feels good but would like to lose weight
- Never received flu jab

Share Your Thoughts

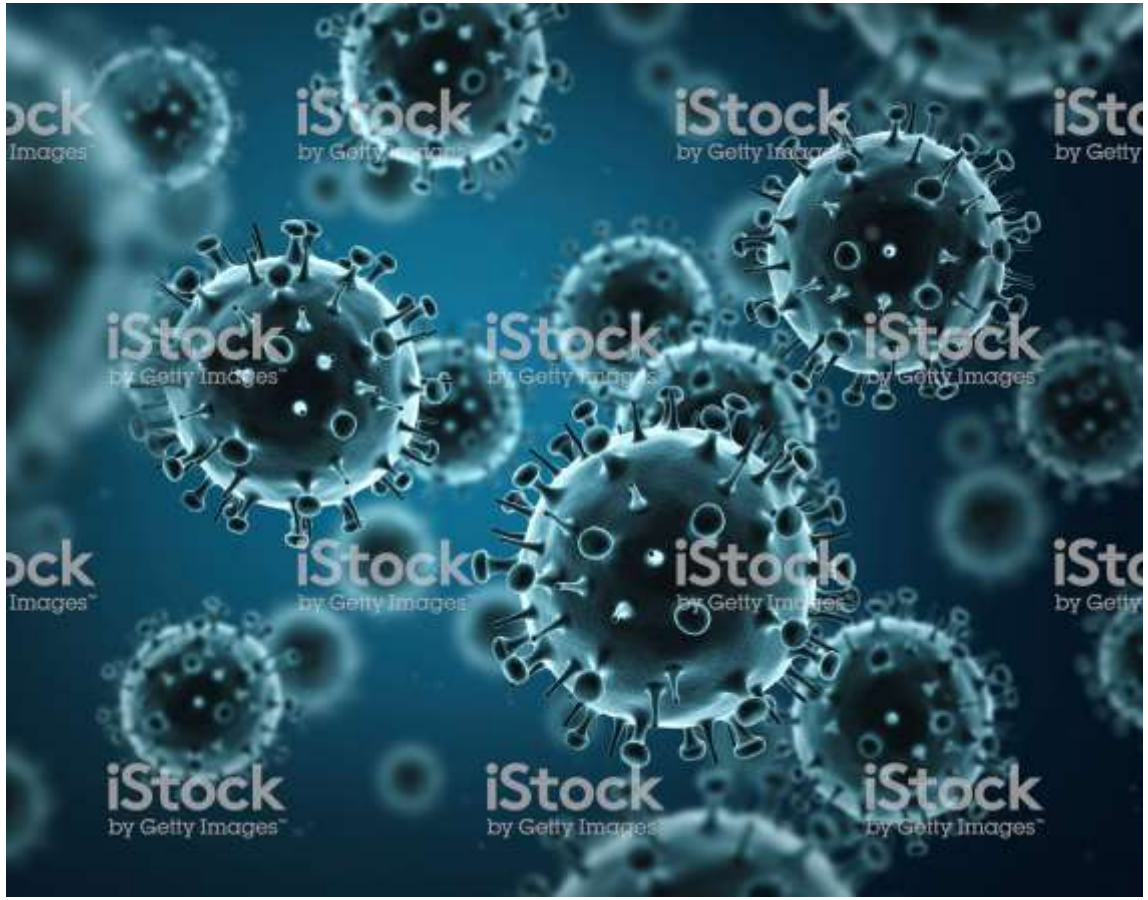
What should we address with this patient?

Focus on Quick Interventions with Proven Benefits

1. Immunisation
2. Cardiovascular Health
    a. Hypertension
    b. Dyslipidaemia
3. Lifestyle and Behavioural Modification
    a) Dietary changes
    b) Physical activity modification
    c) Adherence

Influenza

- All patients with diabetes - ↑ risk of serious influenza-related complications
  - Diabetes ↑ risk of incidence/severity of infectious disease
  - HR for death is 1.9-2.9 for infections (excluding pneumonia)
- Influenza:
  - ↑ risk of microvascular and macrovascular complications
  - ↑ risk of CVD including myocardial infarction
  - ↑ risk of hospital admission and death from influenza



Goeijenbier, M., T. T. van Sloten, L. Slobbe, C. Mathieu, P. van Genderen, Walter E. P. Beyer, and Albert D. M. E. Osterhaus. "Benefits of Flu Vaccination for Persons with Diabetes Mellitus: A Review." *Vaccine* 35, no. 38 (September 12, 2017): 5095–5101. https://doi.org/10.1016/j.vaccine.2017.07.095.

Importance of Flu Jab

- All people with diabetes (type 1 and 2) ≥ 6 months
  - High clinical risk group and require the Flu Jab annually
- Public Health England vaccine recommendations are based on age:
  - **6 to < 2 years** – Standard (IM) egg-grown quadrivalent influenza vaccine (QIVe)
  - **2 to < 18 years** – Live (intranasal) attenuated influenza vaccine (LAIV)
  - **18 to 64 years** – Either Standard (IM) egg-grown quadrivalent influenza vaccine (QIVe) or cell-grown (IM) quadrivalent influenza vaccine (QIVc)
  - **≥ 65 years** – Either adjuvanted (IM) trivalent influenza vaccine (aTIV) or cell-grown (IM) quadrivalent influenza vaccine (QIVc)
- Crucial to regularly assess influenza immunisation status and strongly recommend flu jab *every year*

Public Health England, and Department of Health and Social Care. "The National Flu Immunisation Programme 2019/20," March 22, 2019. https://www.england.nhs.uk/wp-content/uploads/2019/03/annual-national-flu-programme-2019-to-2020-1.pdf.

Pneumococcal Immunisation

- Encapsulated gram-positive bacteria
- Responsible for:
  - Invasive infection – bacteraemia, meningitis
  - Non-invasive infection – sinusitis, otitis media, pneumonia
- People with diabetes are at ↑ risk of bacterial infections and complications
- Recommendations for diabetes:
  - All patients using insulin or antihyperglycaemic agents – require pneumococcal immunisation
  - Recommendation is 23-valent polysaccharide vaccine (PPV23) once at diabetes diagnosis for people age 2 years of age and older

Public Health England. "Green Book - Chapter 25 Pneumococcal." Accessed October 8, 2019. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/674074/GB_Chapter_25_Pneumococcal_V7_0.pdf.

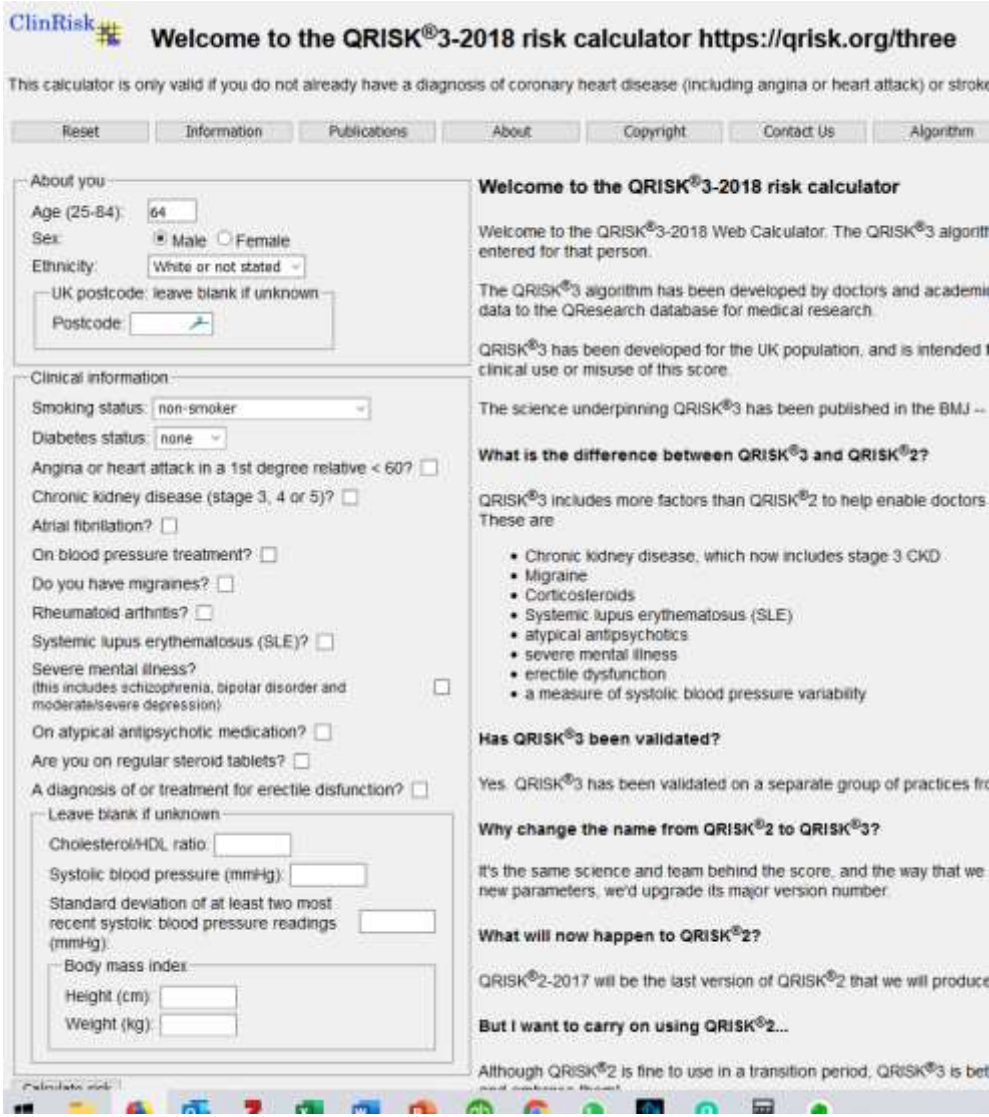
Hypertension Management

- Major risk factor for atherosclerotic cardiovascular disease (ASCVD) and microvascular complications
- Measure BP at least annually for all adults with type 2 diabetes
- Targets:
  - < 140/80 mmHg
  - < 130/80 mmHg if the patient has kidney, eye or cerebrovascular disease
- Treatment:
  - Lifestyle advice
  - Medications:
    - Generic ACE inhibitor is first-line
    - African or Caribbean origin: ACE inhibitor plus either a diuretic or generic calcium channel blocker

National Institute for Health and Care Excellence. *Type 2 Diabetes in Adults: Management*.; 2015. https://www.nice.org.uk/guidance/ng28/resources/type-2-diabetes-in-adults-management-pdf-1837338615493.

Dyslipidaemia

- Lipid abnormalities contributes to a higher risk of ASCVD
- Each mmol/L ↓ in LDL-C
  - ↓ 9% in all-cause mortality
  - ↓ 13% in vascular mortality
- NICE Guidelines – Risk assessment with QRISK3
- Primary prevention
  - Offer atorvastatin 20 mg daily – CVD 10- year risk ≥ 10%
  - Offer atorvastatin 80 mg daily for secondary prevention
- Goal
  - > 40% ↓ in non-HDL-C



American Diabetes Association. Standards of Medical Care in Diabetes—2018. *Diabetes Care*. 2018;41(Suppl 1). doi:10.2337/dc18-Sppc01. National Institute for Health and Care Excellence. *Cardiovascular Disease: Risk Assessment and Reduction, Including Lipid Modification*. https://www.nice.org.uk/guidance/cg181/resources/cardiovascular-disease-risk-assessment-and-reduction-including-lipid-modification-pdf-35109807662293

Dietary Modifications for Diabetes

- Nutritional therapy in 3 months
  - ↓ 22 mmol/mol in type 2 diabetes
  - ↓ 21 mmol/mol in type 1 diabetes
- No such thing as an ideal ‘diabetic diet’ or macronutrient composition
  - 45% of calories from carbohydrates
  - 36-40% of calories from fat
  - 16-18% of calories from protein
- Important facts
  - Less about macronutrient breakdown, but quality of food taken in the category
  - If diabetes and obesity – level of macronutrient should promote weight management goals

Evert AB, Dennison M, Gardner CD, et al. Nutrition Therapy for Adults With Diabetes or Prediabetes: A Consensus Report. *Diabetes Care*. 2019;42(5):731-754. doi:10.2337/dci19-0014

Quick Dietary Recommendations for your Patients with Diabetes

Carbohydrates

- Quality is important
- Promote high fibre intake
- Glycemic index and glycemic load may not impact HbA1c levels
- Promote carbohydrate consistency
- Sugar substitutes are ok

Fats

- No trans fat
- Replace saturated with monounsaturated or polyunsaturated fat
- Dietary cholesterol reduction is **not** required

Protein

- No evidence that adjusting protein intake from 1-1.5 g/kg/day improves health
- Patients with severe kidney disease reduce intake to 0.8 g/kg/day

Evert AB, Dennison M, Gardner CD, et al. Nutrition Therapy for Adults With Diabetes or Prediabetes: A Consensus Report. *Diabetes Care*. 2019;42(5):731-754. doi:10.2337/dci19-0014

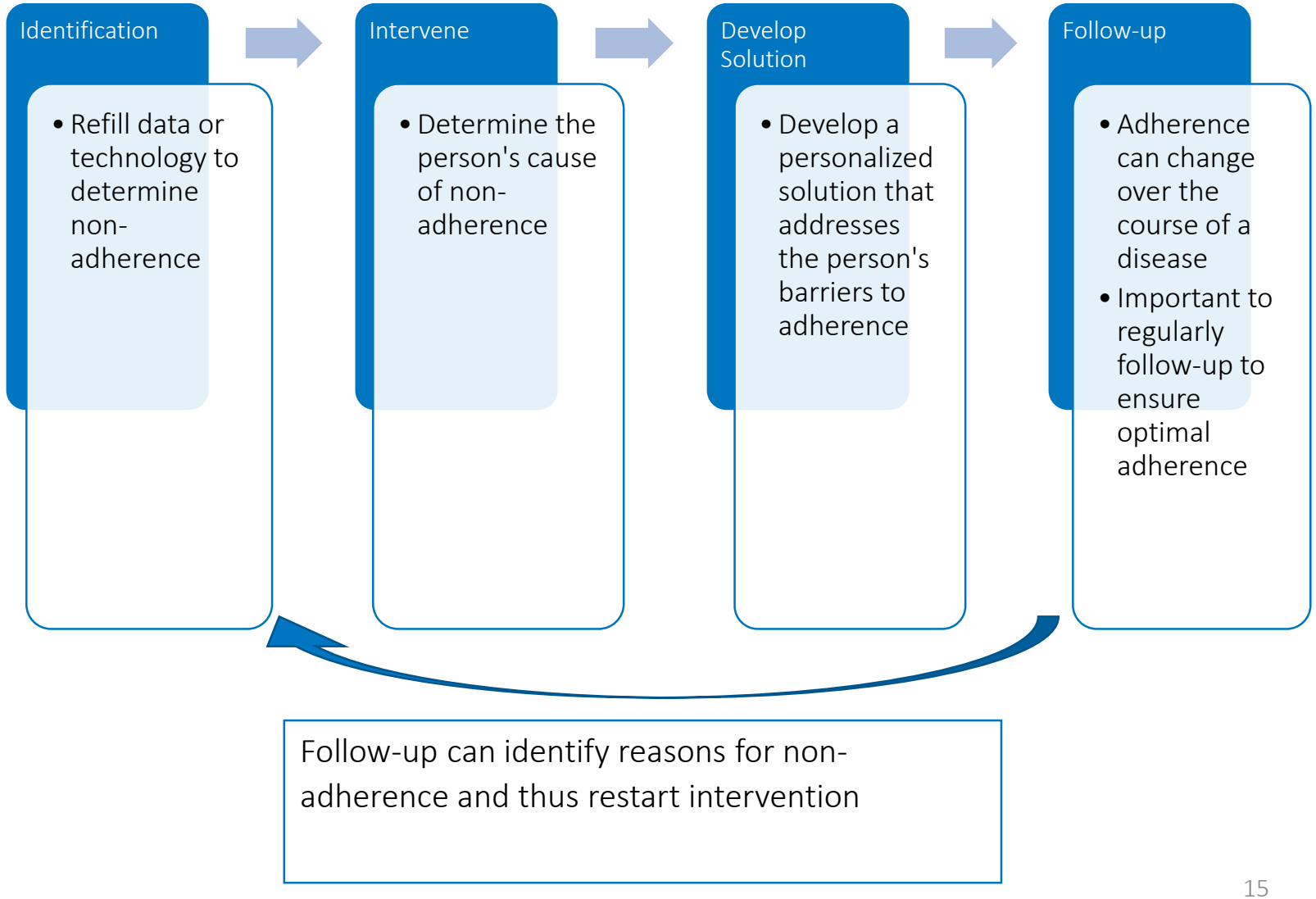
Quick List of Physical Activity Recommendations

- At least 150 minutes per week of moderate intensity
  - Can break into bouts of 10 minutes at a time
  - No more than 2 consecutive days without exercise
  - > 300 minutes per week provide additional positive health effects (e.g. heart, weight)
- Resistance exercise should be done 2-3 times per week
- Limit sitting – no more than 30 minutes sitting at a time
- Where to start?
  - Something is better than nothing
  - Slowly increase amount with time
  - Pedometers and technology can help for goals
  - Most patients with diabetes can start walking without any major risk

American Diabetes Association. Standards of Medical Care in Diabetes—2019. *Diabetes Care*. 2019;42(Suppl 1). Sigal RJ, Armstrong MJ, Bacon SL, et al. Physical Activity and Diabetes. *Canadian Journal of Diabetes*. 2018;42:S54-S63. doi:10.1016/j.jcjd.2017.10.008

Adherence

- Long-term adherence to chronic medications = 50%
- Adherence to oral antihyperglycemic therapy = 36% to 93% at 6 to 24 months
- Important to develop an individualized strategies



Boivin, Michael. “Role of the Pharmacist Certified Diabetes Educator Along the Type 2 Diabetes Care Continuum.” *Canadian Journal of Diabetes* 43, no. 6 (August 1, 2019): 429–32. https://doi.org/10.1016/j.jcjd.2019.04.017.

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Managing Anil

- Immunization
  - Flu and pneumococcal immunisation today
- Cardiovascular
  - Start atorvastatin 20 mg daily (target > 40% ↓ in non-HDL)
  - Start ramipril 5 mg daily (target < 140/80 mmHg)
- Lifestyle
  - Provide dietary and physical activity tips
  - Refer patient to dietitian for further dietary counselling
- Adherence
  - Stress the importance of long-term adherence to therapy

Key Learning Points

1. Important to **focus beyond HbA1c** when managing patients with diabetes
2. **Influenza and pneumococcal immunisations** are recommended for people with diabetes
3. Most patients with diabetes have a **BP target of < 140/90 mmHg**
4. Patients with diabetes with a QRISK3 ≥ 10% should be initiated on a statin therapy
5. Dietary and physical activity **Adherence should be regularly assessed** counselling is crucial for all people with diabetes as it is far often sub-optimal