Aim

- To **improve** the oral health beliefs, knowledge and motivation of people with type 1 and 2 diabetes.

- **Provide** diabetes educators and health care workers with the **necessary information and materials** to consolidate optimal oral hygiene behaviours.
Objectives

- Highlight complications of diabetes on overall general health
- Determine the oral health implications associated with diabetes
- Define common oral diseases and their signs & symptoms
- Understand why people with diabetes are more susceptible to oral diseases
- Identify prevention of oral disease and provide basic oral hygiene advice
- Encourage professional dental care and provide information of dental services available
- Deliver important information via oral health flyers and magnets to people with diabetes.
General health complications of diabetes

1. Cardiovascular disease
2. Foot ulcers & gangrene
3. Nephropathy (renal impairment)
4. Retinopathy (vision impairment)
5. Neuropathy – peripheral & autonomic nervous system damage
6. Periodontal (gum) disease

(ARCPOH 2011, Loe 1993)
Diabetes: oral diseases & implications

- Gingivitis - exaggerated response to poor oral hygiene
- **Periodontal (gum) disease**
- Tooth decay (dental caries)
- Dry mouth (xerostomia) – caused by high blood glucose levels and medications increasing the risk of tooth decay and gum disease
- Fungal infections i.e thrush (oral candidosis) caused by an increase of glucose in the mouth
- Bad breath (halitosis)
- Increased incidence of infections and ulcerations – high blood glucose levels can cause narrowing of blood vessels reducing blood supply to the gums
- Delayed and poor wound healing after extractions and oral surgery

Additional considerations

- Medications commonly used in people with diabetes can also affect oral health
  - ACE Inhibitors can cause a dry mouth
  - Calcium Channel Blockers can cause gingival hyperplasia
- Chemotherapy and immunosuppressant drugs can increase oral problems
- Anticholinergics used to treat asthma and COPD can cause a dry mouth
- Chewable aspirin can damage tooth enamel
- Illicit drugs can cause a dry mouth, teeth grinding, tooth decay

(Australian Medicines Handbook 2011, Better Health Channel)
What is Gingivitis?

Inflammation of the gingival (gum) margin surrounding teeth caused by bacterial plaque accumulation

Host risk factors:
- Poor oral hygiene - plaque accumulation
- Systemic conditions such as diabetes
- Hormonal response

Signs & symptoms:
- Red, swollen and tender gums that bleed spontaneously
- Soft plaque and calculus deposits present

What is periodontal (gum) disease?

Chronic inflammation that spreads from the gingival (gum) margin to the ligaments and bone supporting teeth. Loss of gingival attachment, destruction of bone and formation of pocketing around teeth leading to loss of teeth (Kapellas & Slade 2008).

The cause of periodontal disease is bacteria and several host risk factors:

- Genetic pre-disposition
- Smoking
- Poorly controlled diabetes (twice more likely to develop gum disease)
- Poor quality diet, raised Body Mass Index (BMI)
- Some medications
- Stress

What is periodontal (gum) disease?

(Chen, Tam & Takei 2010)
Periodontal disease: signs & symptoms

- Signs & symptoms of gingivitis
- Receding gums
- Bad breath
- Bad taste in the mouth
- Mobile teeth
- Pain with eating
- Calculus (tartar)
- Pus
- Tooth loss

(Jahn 2004, Wolf & Hassell 2006)
What is dental caries?

An infectious disease of the teeth caused by acid producing bacteria. Acid is produced as a by-product and causes dissolution of minerals within the tooth structure leading to cavitation.

Host risk factors:
- Poor oral hygiene
- Excess sugar consumption and exposure
- Irregular eating habits
- Dry mouth (xerostomia)

Signs and symptoms:
- Chalky white, dull brown or grey shadow discolouration
- Obvious cavitation and loss of tooth structure
- Sensitivity to hot/cold/sweet foods
- Bad breath (halitosis)

Oral disease susceptibility

- Structure of blood vessels altered, affecting blood supply
- Impaired immune defence mechanisms compromising wound healing
- Prolonged exposure to high blood glucose levels results in:
  - Cytokine (inflammatory mediator) dysfunction altering response to bacterial challenges
  - Collagen (structural fibres of periodontium connective tissue) turnover defects
  - Suppressed bone repair following damage and resorption

Prevention

- Meticulous oral hygiene
- Optimal blood glucose levels reaching target
- Visit a dental professional 6 monthly
- Maintaining a healthy balanced diet
- Keep well hydrated
- Advise and support smoking cessation

(ARCPOH 2011)
Basic oral hygiene advice

- Brush 2 x per day with fluoride toothpaste
- Cleaning between teeth using floss or interdental brushes
- Increase and maintain water consumption to overcome dry mouth
- Refer to a dental professional

(ARCPOH 2011, Phillips & Bartold 2008)

** Provide clients with oral health flyer**
** Use of flow chart **
Did you know...

People with type 1 and 2 diabetes are at higher risk of oral diseases

Poorely controlled diabetes can lead to chronic gum disease and rapid bone and tooth loss

Recurrent ulcers and infections may indicate poorly controlled diabetes

Poor oral health can increase your blood glucose levels

High blood glucose levels can lead to dry mouth consequently causing tooth decay

Smoking is detrimental to your oral health

Basic oral care at home

➢ Brush twice daily with fluoride toothpaste
➢ Keep hydrated with water
➢ Maintain a healthy balanced diet
➢ Optimal blood glucose levels reaching target
➢ If you notice any of these changes, visit your dentist:
  ➢ Tender gums that bleed easily
  ➢ Bad breath and taste
  ➢ Loose teeth, poorly fitting dentures or bridges
  ➢ Pain on biting

Remember to...
visit your dental professional 6 monthly

To locate/find your nearest dental professional contact:

➢ The Australian Dental Association on www.ada.org.au or ph (08) 8272 8111
➢ The South Australian Dental Service on www.sadental.sa.gov.au or ph (08) 8222
➢ Consult with your GP regarding eligibility to Chronic Disease Management Scheme.
Client Referral Flowchart

IS THE CLIENT AWARE OF THE LINK BETWEEN DIABETES AND ORAL HEALTH?

YES
- Reinforce basic oral hygiene
- Discuss impacts of diabetes & oral health
- Offer resources
Explore current dental attendance and encourage client to seek dental care.

NO
- Educate client on the:
  - Increased risks of oral disease
  - Implications of diabetes on oral health
  - Importance of oral health
  - Importance of dental visits
  - Offer resources
Advise client to seek regular dental care.

DISCUSS
Dental care options:

Private dental care
Contact the Australian Dental Association for a list of providers
Ph: 8272 6111
http://www.ada.org.au/

Chronic Disease Management Scheme
Contact your GP for eligibility

Public Dental Care
Contact the SA Dental Service
Ph: 8222 8332
Take home messages

1. **All clients with diabetes**, in particular those newly diagnosed, should be **seen by a dental professional** for a full examination and evaluation of their oral health.

2. It is **strongly recommended** that people with diabetes **regularly visit** their dental professional in order to observe their periodontal state.

3. You can assist by **including and emphasising oral health** in your discussion and checks when counselling clients with diabetes.

(Phillips & Bartold 2008)
Reference List

ARCPOH (Australian Research Centre for Population Oral Health) 2011, 'Special Topic No.3 – Diabetes & Oral Health’, Practice information pamphlet, on ARPOH DPERU (Dental Practice Education Research Unit) website, viewed 20th August 2011


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<http://www.drspearlmanandseidman.com/adult_care/services/toothDecayRepair.html>


