Health Screening in Developmental Disabilities: Screening for Risk of Cardiovascular Disease

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PGY3 Developmental Disabilities
Queen’s University, Kingston
Cardiovascular Disease

• Heart Attack & Stroke
Cardiovascular Disease in Adults with Developmental Disabilities

• Overall adults with DD have less risk factors and lower prevalence of cardiovascular disease compared with the general population!
<table>
<thead>
<tr>
<th>Preventive Care Checklist Form for adult females with a developmental disability (DD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name:</strong> _____________________________ (last, first)</td>
</tr>
<tr>
<td><strong>Address:</strong></td>
</tr>
<tr>
<td><strong>Tel. No.:</strong></td>
</tr>
<tr>
<td><strong>DOB (dd/mm/yyyy):</strong></td>
</tr>
<tr>
<td><strong>Health Card Number:</strong></td>
</tr>
<tr>
<td><strong>Date of Visit:</strong></td>
</tr>
</tbody>
</table>

**Etiology of DD, if known:**
- [ ] Dead
- [ ] Living

**Capacity to consent:**
- [ ] Capable
- [ ] Guardian
- [ ] Substitute Decision Maker
- [ ] Power of Attorney
- [ ] Public Guardian & Trustee

**Advance Care Planning Needs:**
- [ ] Residential
- [ ] Medical
- [ ] Rehabilitation
- [ ] Social Services

**Current Concerns**
- [ ] Fat/Cholesterol
- [ ] Fiber
- [ ] Calcium
- [ ] Sodium
- [ ] Smoking
- [ ] Alcohol
- [ ] Sleep
- [ ] Exercise

**Functional Inquiry**

<table>
<thead>
<tr>
<th>HEENT:</th>
<th>Normal</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVS:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resp:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GI:</td>
<td>Screen: GERD, constipation, H.pylori</td>
<td></td>
</tr>
<tr>
<td>GU:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexuality Issues:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSK/mobility:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall assessment (if indicated):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Derm:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuro:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Health Behaviours:**
- [ ] Folic acid (0.4-0.8 mg OD, for childbearing women)
- [ ] Adverse nutrional habits
- [ ] Dietary advice on fat/cholesterol (50-65 yrs)
- [ ] Adequate calcium intake (1000-1500 mg/d)
- [ ] Adequate vitamin D (400-1000 IU; 800-1000 IU > 60 yrs)
- [ ] Regular, moderate physical activity
- [ ] Weight loss counseling if overweight
- [ ] Avoid sun exposure, use protective clothing
- [ ] Safe sex practices/STI counseling
- [ ] Casefinding for problem drinking
- [ ] Counseling for problem drinking

**Smoking:**
- [ ] Yes
- [ ] No
- [ ] Smoking cessation
- [ ] Nicotine replacement therapy
- [ ] Dietary advice on nuts and leafy green vegetables
- [ ] Referral to validated smoking cessation program

**Oral Hygiene (q6mths):**
- [ ] Regular dental care
- [ ] Brushing/flossing teeth
- [ ] Fluoride (toothpaste/supplement)
- [ ] Toothbrushing and prophylaxis
- [ ] Smoking cessation

**Mental Health:**
- [ ] Depression screen
- [ ] +ve
- [ ] -ve

**Cognitive Changes:**
- [ ] Functional assessment (if indicated)
- [ ] Dementia screen (if indicated)

**Behavioural Changes:**
- [ ] Difficult or challenging behaviours
- [ ] Possible abuse or neglect or exploitation

**Electrolytes:**
- [ ] Sodium
- [ ] Potassium

**Blood Pressure:**
- [ ] Systolic
- [ ] Diastolic

**Lifestyle/Habits**

**Lifestyle/Habits:**

**Living Situation:**
- [ ] Family
- [ ] Group home
- [ ] Foster home
- [ ] Independent
- [ ] Other:__________________________

**Update Cumulative Patient Profile:**
- [ ] Family History
- [ ] Hospitalizations/Procedures
- [ ] Allergies

**Lifestyle/Habits:**
- [ ] Fat/Cholesterol
- [ ] Fiber
- [ ] Calcium
- [ ] Sodium
- [ ] Smoking
- [ ] Alcohol

**Recent Work:**
- [ ] Family
- [ ] Sleep
- [ ] Relationships (recent changes):

**Educational Counseling:**
- [ ] Casefinding for problem drinking
- [ ] Counseling for problem drinking

**Oral Hygiene (q6mths):**
- [ ] Regular dental care
- [ ] Brushing/flossing teeth
- [ ] Fluoride (toothpaste/supplement)
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- [ ] Smoking cessation

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Risk Factors for Cardiovascular Disease in the General Population

- Age (the major determinant of risk)
- Male sex
- Family History of premature coronary artery disease (<55 y/o in men and <65 in women)
- Overweight and obesity
- Blood pressure
- Diabetes
- Cholesterol profile
- Lifestyle: sedentary lifestyle, stress, cigarette smoking, excessive alcohol use
Measuring height for people in wheelchairs

- Demi-span
- Forearm length
- Knee height

*Pictures and formulae for these measures are from* http://www.mna-elderly.com/user_guide.html
Demi-span

Calculate height from the formula below:

• **Females:**
  
  Height in cm = (1.35 x demispan in cm) + 60.1

• **Males:**
  
  Height in cm = (1.40 x demispan in cm) - 57.8

*For further information see www.bapen.org.uk (http://www.bapen.org.uk/pdfs/must/must_explan.pdf)
Forearm (Ulna) Length

![Diagram showing the measurement of forearm length between olecranon and mid-styloid process.]

<table>
<thead>
<tr>
<th>Height (m)</th>
<th>Men (&lt;65 years)</th>
<th>1.94</th>
<th>1.93</th>
<th>1.91</th>
<th>1.89</th>
<th>1.87</th>
<th>1.85</th>
<th>1.84</th>
<th>1.82</th>
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<th>1.78</th>
<th>1.76</th>
<th>1.75</th>
<th>1.73</th>
<th>1.71</th>
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<tr>
<td></td>
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<td>1.84</td>
<td>1.82</td>
<td>1.81</td>
<td>1.79</td>
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<td>1.73</td>
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<td>1.70</td>
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<td>32.0</td>
<td>31.5</td>
<td>31.0</td>
<td>30.5</td>
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<tr>
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<td>1.84</td>
<td>1.83</td>
<td>1.81</td>
<td>1.80</td>
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<tr>
<td>Height (m)</td>
<td>Men (&lt;65 years)</td>
<td>1.69</td>
<td>1.67</td>
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<td>1.64</td>
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<td>19.5</td>
<td>19.0</td>
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<tr>
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<td>Women (&lt;65 years)</td>
<td>1.65</td>
<td>1.63</td>
<td>1.62</td>
<td>1.61</td>
<td>1.59</td>
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<tr>
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<td>Women (≥65 years)</td>
<td>1.61</td>
<td>1.60</td>
<td>1.58</td>
<td>1.56</td>
<td>1.55</td>
<td>1.53</td>
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<td>1.48</td>
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<td>1.45</td>
<td>1.44</td>
<td>1.42</td>
<td>1.40</td>
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*For further information see www.bapen.org.uk (http://www.bapen.org.uk/pdfs/must/must_explan.pdf)
Knee Height

- Use a sliding knee caliper to get the best measure

<table>
<thead>
<tr>
<th>Population/ Gender</th>
<th>Equation</th>
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<tbody>
<tr>
<td>White Men</td>
<td>78.31 + (1.94 \times \text{knee height}) - (0.14 \times \text{age})</td>
</tr>
<tr>
<td>Black Men</td>
<td>79.69 + (1.85 \times \text{knee height}) - (0.14 \times \text{age})</td>
</tr>
<tr>
<td>White Women</td>
<td>82.21 + (1.85 \times \text{knee height}) - (0.21 \times \text{age})</td>
</tr>
<tr>
<td>Black Women</td>
<td>89.58 + (1.61 \times \text{knee height}) - (0.17 \times \text{age})</td>
</tr>
</tbody>
</table>

* All measures are in cm

Chumlea et al. 1998
## Classification of obesity

<table>
<thead>
<tr>
<th></th>
<th>BMI (kg/m²)</th>
<th>Obesity Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>&lt;18.5</td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>18.5-24.9</td>
<td></td>
</tr>
<tr>
<td>Overweight</td>
<td>25-29.9</td>
<td></td>
</tr>
<tr>
<td>Obesity</td>
<td>30-34.9</td>
<td>Class I</td>
</tr>
<tr>
<td></td>
<td>35-39.9</td>
<td>Class II</td>
</tr>
<tr>
<td></td>
<td>&gt;40</td>
<td>Class III</td>
</tr>
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</table>
Abdominal Obesity

<table>
<thead>
<tr>
<th>Normal Waist Circumference</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;80 cm (Asian Women)</td>
<td>&lt;90 cm (Asian Men)</td>
<td></td>
</tr>
<tr>
<td>&lt;88 cm (Caucasian Women)</td>
<td>&lt;102 cm (Caucasian Men)</td>
<td></td>
</tr>
</tbody>
</table>

*If African or Middle Eastern Descent use Caucasian values*
Waist Circumference Measurement Guidelines - Healthcare Professional

Step 1
Ask the patient to place themselves in the following manner:
- Clear the abdominal region
- Feet shoulder-width apart
- Arms crossed over the chest

Step 2
It is suggested to kneel down to the right of the patient in order to measure waist girth.
- Palpate the patient’s hips to locate the top of the iliac crest.
- Draw a horizontal line halfway between the patient’s back and abdomen.

Step 3
- Place the measuring tape horizontally around the patient’s abdomen.
- To work comfortably, it is suggested to wrap the tape around the patient’s legs and then move it up.

Step 4
- Align the bottom edge of the tape with your marked point.

Step 5
It is recommended to use a measuring tape with a spring handle, such as the Gulick measuring tape, in order to control the pressure exerted on the patient’s abdomen.
- Gently tighten the tape around the patient’s abdomen without depressing the skin.

Step 6
- Ask the patient to take 2 or 3 NORMAL breaths.
- Measure from the zero line of the tape (to the nearest millimetre) at the end of a NORMAL expiration.

Calibration point

International Chair on Cardiometabolic Risk
www.cardiometabolic-risk.org
Blood Pressure

- Normal blood pressure \( <140/90 \)
- Normal blood pressure if the person has diabetes \( <130/80 \)
- High blood pressure can damage blood vessel walls, strain the heart and burst blood vessels in the brain
How to measure BP

- Wrap the blood pressure cuff snugly around your bare upper arm.
- The edge of the cuff must be 1 or 2 cm above your elbow.
- Place your arm on a table or a firm surface. The cuff must be at the level of your heart.
People at Risk for Diabetes

- Age >40 years
- First degree relative with type 2 diabetes
- Members of a high-risk population (people of Aboriginal, Hispanic, South Asian, Asian or African descent)
- Impaired fasting glucose
- Presence of complications associated with diabetes

- Vascular disease
- History of gestational diabetes mellitus or macrosomic baby
- Hypertension
- Dyslipidemia
- Overweight/Abdominal obesity
- Polycystic Ovarian Syndrome
- Acanthosis nigricans
- Schizophrenia
Medications Associated with Increased Risk of Diabetes

- Atypical Antipsychotics
  - Zyprexa, Risperidal, Seroquel
- Glucocorticoids
  - Prednisone
- Phenytoin
- Nicotinic Acid
- Estrogens
- Thyroid medication
Screening for Diabetes

• Fasting blood glucose blood test
  – Diabetes if >7
  – Normal if <5.6
  – May need more testing if 5.6-7
Screening for High Cholesterol

• Fasting lipids blood test

• Framingham 10-year risk of cardiovascular disease
  – Total cholesterol and HDL (“good cholesterol”)
  – Blood pressure
  – Smoking
  – Diabetes
  – Age
  – Gender
Lifestyle Screening

Sedentary Lifestyle is a Risk Factor for CVD:

• **Children**: 90 minutes of activity every day
• **Pregnant Women**: 30 minutes of activity every day
• **Adults**: 30-60 minutes every day
References


