**Chronic Condition Storyboard for FHIR Clinical Connectathon**

**Goal/Objective**:

The purpose of the chronic conditions storyboard is to illustrate the clinical documentation by a care provider and communication flow between a patient, his or her care providers involved in his long term care. The chronic condition selected for this storyboard is Type II Diabetes Mellitus

**Primary Actor**:

Patient’s Primary Care Physician (PCP) – Dr Patricia Primary

**Other Actors**:

Patient – Mr Bob Anyman

Diabetic nurse educator – Ms Leanne Wells

Dietitian – Ms Nutrish Foods

Pharmacist – Mr Heath Pills

Podiatrist – Mr Nat Foote

Exercise physiologist – Mr Active Works

**Assumptions**:

All actors have access to electronic systems/applications for documenting and exchanging health information

**Precondition**:

Patient Mr. Bob Anyman attends his primary care physician (PCP) clinic because he has been feeling generally unwell in the past 18 months. His recent blood test results reveal abnormal glucose challenge test profile

**Trigger(s)**:

Mr Bob Anyman presents at his PCP clinic for review of his blood glucose profile and further assessment of his chief complaints

**Flow of Events**:

1. Dr. Patricia Primary reviews Mr. Anyman’s presenting complaints, the fasting blood glucose and oral glucose tolerance test results and concludes the patient suffers from Type II Diabetes Mellitus (Type II DM).
2. Documentation in EMR:

* Chief complaints = general fatigue; polydipsia; polyuria; episodes of headache, sweating, trembling, confusion; cold feet with decreased sensation
* Fasting blood glucose = 8.9 mmol/L
* OGTT 2 hours after 75 gm glucose load = 15.2 mmol/L
* Diagnosis = Type II DM

1. Dr Primary also reviews the patient’s medical history and identifies that he also has hypercholesterolemia and hypertension
2. The medication management record reveals that the patient is quite often non-compliant in taking his anti-hypertensive and cholesterol lowering medications
3. Dr Primary performed a physical measurement assessment. The results indicate that Mr Anyman is also overweight:

* Height = 170 cm
* Weight = 98 kg
* BMI = 33 (30+ = obese)

1. Dr Primary discusses with the patient the potential serious health risks (cardiovascular and neurovascular).

The patient agrees to have a DM care plan drawn up to include the following:

* **Health Concern/Problem 1** = inability to maintain effective glycaemic control

**Goal 1** = achieve glycaemic control – aiming at fasting blood glucose level to 3.0 - 5.5 mmol/L; HbA1c below 6%

**Intervention**:

* + Medication = metformin extended release: begins with 1000mg taken with evening meal (and reviewed weekly for dose titration to no more than 2500mg/day) [Mayo clinic protocol]
    - A prescription was also generated for the patient
  + Exercise: refer to exercise physiologist to develop a weight reduction plan optimised for glycaemic control
  + Diet: refer to dietitian to develop a diabetic nutrition plan optimised for glycaemic control
* **Health Concern/Problem/need** 2 = need to adhere to an optimised diabetic diet for effective glycaemic and weight control

**Goal 2** = conformance to optimise diabetic diet (in conjunction with exercise plan to achieve glycaemic and weight control)

**Intervention**: refer to dietitian for Type II DM diet plan – goal weight of 72 KG to reach a BMI of 25, controlled carbohydrate, high fiber (30 grams per day), low saturated fat, low sodium (less than 2000 mg per day)

* **Health Concern/Problem 3** = obesity compromising effective glycaemic, cholesterol and blood pressure control

**Goal 3** = conformance to weight loss program (in conjunction with diet plan): aim at 5-10% weight reduction in first 6 months taking the weight down to 90kg (BMI = 31); thereafter maintain weight and if possible further reduce weight by another 5%

**Intervention**: refer to exercise physiologist for supervised Type II DM and weight loss plan – active exercise at least 30 min/day

* **Health Concern/Problem 4** = peripheral vascular and neuropathy risks leading to heightened foot complication risks

**Goal 4** = improve and maintenance of optimal foot health: aim at early detection of peripheral vascular problems/angiopathy and neuropathy; and prevention of diabetic foot ulcer, gangrene

**Intervention**: refer to podiatrist for diabetic foot care plan. Patient to be educated on and regularly perform foot self-examination, use proper footwear, regular exercises, attend scheduled follow-up

* **Health Concern/Problem 5** = non-conformance to medication management regime resulting in potential risks of glycaemic control failure and heightened cardiovascular risks inherent to Type II DM and cardiovascular problems

**Goal 5** = improve medication management conformance and patient knowledge on medications

**Intervention**: refer to community pharmacy for effective medication management plan. Patient to be educated on the risks of non-conformance and benefits of adherence to medication regimes for proper control of blood cholesterol, hypertension, glycaemic level and HbA1c; also education on potential medication side effects, management and reporting

* **Health Concern/Problem 6** = health literacy deficit which may impact on self-care willingness and ability

**Goal 6** = address patient knowledge deficit on diabetic self-care: aim at addressing patient’s knowledge deficit, ensure optimal self-care and prevention/minimization of complications

**Intervention**: refer to diabetic nurse educator to assess level of knowledge deficit and implement a diabetic patient education plan. Patient to be educated on his conditions – Type 2 DM and the extrinsic (additional) health risks that DM can impact on hypercholesterolemia and hypertension; the importance of glycaemic control, diet control, weight loss, foot care, eye care; prevention and emergency care of hyperglycaemic and hypoglycaemic episodes etc

**Alternate Flows**:

<!—US realm specific Community Pharmacist referral scenario. Kevin Coonan to provide contents -->

**Post-Condition(s)**:

1. PCP EMR updated with

* blood glucose results: fasting blood glucose and glucose tolerance test results
* patient’s chief complaints
* new diagnosis (Type II DM)

1. Type II DM Care Plan created that includes a set of:

* Health concerns/problems/needs
* Health goals to mitigate/manage identified health concerns/problems/needs
* Interventions/care activities to achieve set health goals

1. Referral requests to relevant health care providers. The referral contents include:

* Problem/Diagnosis: Type II DM; non-conformance to medication management therapy; health literacy deficit
* Co-morbidity: hypertension; hypercholesterolemia; obesity
* Reasons for referral: effective management/implementation of diet plan, exercise regime, medication management and conformance, foot care, patient education
* Allergy/Intolerance and adverse reaction information
* Medication regime
* Current Type II DM care plan

1. A prescription for metformin is also generated for the patient
2. A copy of care plan is generated for patient with relevant instructions given