# Table of Contents

1.0 Background & purpose of document ................................................................. 2  
2.0 Kidney Care Clinic goals .................................................................................. 3  
3.0 KCC referral and repatriation to primary care criteria ........................................ 4  
   3.1 Referral criteria ........................................................................................... 4  
   3.2 Criteria for repatriation to nephrologist/primary care ........................................ 4  
4.0 Target waiting times ....................................................................................... 5  
5.0 Tasks and timelines ....................................................................................... 5  
   5.1 KCC patient flow algorithm ........................................................................... 5  
   5.2 KCC milestones ........................................................................................... 7  
   5.2.1 Referral to KCC ....................................................................................... 7  
   5.2.2 Orientation to KCC .................................................................................. 7  
   5.2.3 KCC team assessment, education, goal-setting & treatment planning .......... 8  
   5.2.4 Active monitoring, treatment and psychological/social support .................... 9  
   5.2.5 Modality option education and selection .................................................. 9  
   5.2.6 Transition to selected modality ................................................................. 10  
   5.3 KCC team member roles............................................................................... 10  
6.0 Recommended allocation of resources for KCCs .............................................. 15  
   6.1 BCPRA CKD funding model ......................................................................... 15  
   6.2 Application of the BCPRA CKD funding model ............................................. 16  
7.0 References ...................................................................................................... 19  
   Appendix 1: Referrals to Nephrology from Primary Care based on GFR and Albuminuria ... 20  
   Appendix 2: Prognosis of CKD by GFR and Albuminuria Category (KDIGO 2012) ..... 22  
   Appendix 3: Transition from KCCs to Renal Replacement Therapy/Conservative Care ... 23  
   Appendix 4: Transition Guideline for KCC to Transplant ..................................... 26  
   Appendix 5: Transition Guideline for KCC to Peritoneal Dialysis ............................ 28  
   Appendix 6: Transition for KCC to Hemodialysis ................................................ 30  
   Appendix 7: Transition to Conservative Care ...................................................... 37  
   Appendix 7a: Predictors of Poor Prognosis in End-Stage-Kidney-Disease ............... 39  
   Appendix 8: BCPRA CKD Funding Formula ...................................................... 40
1.0 Background & purpose of paper

- Chronic kidney disease (CKD) has been recognized as a prevalent chronic disease. In BC, approximately 10% of the population has been estimated to have chronic kidney disease (BC Provincial Renal Agency Web Site, 2013). Similar or higher rates have been noted in the literature for the United States (13%; Coresh J. et al., 2007) and Australia (16%; Chadban, S.J. et al, 2003). Note: figures are not comparable as the definition of chronic kidney disease is not standardized.

- Early identification and care is thought to be cost effective to (1) delay progression of CKD; and (2) optimize the management of co-morbidities such as cardiovascular disease (BCMA & MOH, Sept 15, 2008). The awareness and knowledge about CKD amongst primary care providers has increased significantly in recent years.

- Interprofessional CKD programs are predicated on the idea that the combination of skills offered to patients will improve outcomes for both patients and the system. Studies have shown that interprofessional CKD care results in: (Curtis, BM et al, 2005) (Levin, A, 1997) (Goldstein, M et al, 2004)
  - Greater likelihood of starting dialysis on a home-based therapy.
  - Greater likelihood of starting dialysis with a fistula, if hemodialysis (HD) is chosen.
  - Significantly fewer urgent dialysis starts.
  - Fewer hospital days in the first months of dialysis.
  - Improved survival once on dialysis.

- CKD programs provide repeated, regular, interprofessional team visits for patients with a chronic condition.

- Patient exposure and experience in their CKD care varies across BC CKD programs, including the physical location (clinic/office/both) and with whom the patient interacts (physician only/CKD team). Some programs operate in a formal manner with set algorithms and others use a more informal approach.

- A Renal Resource Management Model (RRMM) for CKD programs was developed in 2003/04 in collaboration with service providers across health authority renal programs. The RRMM was rolled out across BC by the Provincial Renal Agency (BCPRA) in 2005/06. BCPRA provides funding to health authorities (HAs) on a cost per patient basis for patients registered in PROMIS. As of 2013, there were 9,505 CKD patients managed in 13 CKD clinics in BC. This compares to 2,306 patients in 2003, an increase of 312% during the ten-year period. Current patient numbers are available on the BC Renal Agency website.

- Each program has evolved differently within each HA, and within different centres. Similarities and differences in the programs are described in a document under a separate cover (Meetings with BC Kidney Care Teams, FINAL January 15, 2012).
The purpose of this document is to utilize the expertise and experience within BC, in combination with the CKD literature, to describe the role of Kidney Care Clinics (KCCs) in supporting “best practices” in the provision of CKD care.

2.0 Kidney Care Clinic goals

Considerations

• Methods to identify patients with CKD have improved (reporting of eGFR and widespread use of dipstick urine testing to detect albuminuria); therefore, more patients are being identified with CKD and at earlier stages.
• There is an abundance of literature which highlights the complications and adverse outcomes associated with CKD.
• There is a reasonable amount of literature that demonstrates that early identification and appropriate management of CKD (especially cardiovascular risks) reduces these adverse consequences and delays disease progression\(^1\); this creates pressure on the health care system to identify and collectively provide appropriate care for patients with CKD.
• There is growing awareness and knowledge about CKD amongst primary care providers. This knowledge is supported by the availability of evidence-based CKD guidelines and education.
• Most patients with CKD will not progress to later stage kidney disease\(^2\) and can be appropriately managed by their primary care provider +/- consultation with a nephrologist and access to education about kidney disease and chronic disease management.
• A small proportion of patients with CKD, however, will progress to later stage kidney disease and/or be at significant risk of progression. These patients are the most likely to benefit from the services of an interprofessional team and are the primary focus of KCCs.
• Predicting those that will progress to later stage kidney disease and/or are at significant risk of progression and, therefore, most likely to benefit from KCC services, is a challenge. This paper utilizes the KDIGO guidelines (Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group, 2013) as a guide to identify this patient group.

Target Population

The target population for Kidney Care Clinics is patients with later stage CKD and/or CKD which is likely to progress rapidly.

Goals

KCCs work collaboratively with patients with later stage CKD and/or at risk of rapidly progressing CKD and their families to provide evidence-based, interprofessional care which aims to:

1. Provide specific therapy based on diagnosis to slow/arrest CKD progression.

\(^1\) This assumption has not been proven in appropriately powered randomized trials.

\(^2\) Only 1% of people with CKD will require dialysis and/or kidney transplantation (Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group, 2013)
2. Prevent, evaluate and/or manage:
   a. Cardiovascular disease.
   b. CKD endocrine and metabolic complications (e.g. malnutrition, anaemia, bone disease, acidosis).
   c. Other co-morbid conditions.

3. Maximize the confidence and abilities of patients and families to:
   a. Adjust to and self-manage their disease.
   b. Actively participate in and optimize treatment decisions.

4. Support planning and preparation for:
   a. Renal replacement therapy (e.g. choice of modality, access-placement and care, pre-emptive transplantation).
   b. Conservative care and palliative care options where required.
   c. Advance care planning.

Source: Adapted from (Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group, 2013).

3.0  **KCC referral and repatriation to primary care criteria**

3.1 **Referral criteria**

Patients are referred to KCCs by a nephrologist (see Appendix 1 for KDIGO recommendations for referral from primary care to a nephrologist). Considerations by the nephrologist in the decision to refer to a KCC include:

1. Medical conditions including:
   a. Recurrent or extensive nephrolithiasis.
   b. Glomerular disorders.

2. GFR 30-60 mL/min/1.73 m²:
   a. Albuminuria (see Appendix 2 for KDIGO prognostic categories based on GFR and albuminuria).
   b. Patient at nutrition risk or with metabolic abnormalities thought secondary to their kidney disease.
   c. Patient has apparent barriers to self-management that require the support of the interprofessional team in order to manage their kidney disease and related complications. Barriers may include language, low literacy and/or mental health issues.

3. GFR <30 mL/min/1.73 m².

3.2 **Criteria for repatriation to nephrologist/primary care**

Patients who may no longer require KCC support and may be appropriate to discharge back to their nephrologist/primary care provider (PCP) include patients who:

1. Have a GFR less than or equal to 30 mL/min/1.73 m² and have had slow to no GFR progression over at least a one year period (e.g., change in GFR greater than 3 mL/min/1.73 m² per year) AND have no worrisome predictors of progression (e.g., albuminuria).

2. Have opted for conservative treatment, have a care plan and the nephrologist/PCP and the patient are comfortable in the arrangements for ongoing care.
Considerations prior to discharge from clinic:
• Availability of physician to receive/manage patient after discharge (GP or nephrologist).
• Written discharge plan provided to patient.

Note: If required at a later date, the patient may be re-referred to the clinic (by the nephrologist).

4.0 Target waiting times

KCCs are expected to have a mechanism in place and the capacity to see referrals designated as “urgent” by the referring nephrologist within 2 weeks of the date the referral is received.

If the nephrologist has not identified the referral as “urgent”, guidelines for target time from receiving the referral to first appointment are as follows:
• If GFR is less than 15 mL/min/1.73 m², ability to see in less than 2 weeks.
• If GFR is 15 - 20 mL/min/1.73 m², ability to see within 2-4 weeks.
• If GFR is greater than 20 mL/min/1.73 m², ability to see within 4-6 weeks.

It is recognized that waiting times may be impacted by patient’s schedule, coordination with other appointments and education.

5.0 Tasks and timelines

5.1 KCC patient flow algorithm

The algorithm in Table 1 (page 6) outlines the major tasks and timelines involved from receipt of KCC referral through to transition to a renal replacement therapy or conservative care.
**Table 1: KCC Patient Flow Algorithm**

**KCC Algorithm, Tasks & Timelines**

1. Referred to KCC

2. **Orientation to KCC**: KCC goals, team members & logistics (handout, group session &/or individual session)

3. KCC interdisciplinary team assessment & education about kidney disease.

4. Goal & treatment plan developed mutually with patient.

5. Active monitoring, treatment, education & social & psycho-emotional intervention.

---

**May occur simultaneously**

**Options:**
- Discharge to PCP
- Continue to manage in KCC

---

**As appropriate to patient, preferred order:**
- Preemptive transplant
- PD
- Home HD
- Community HD
- In-centre HD

---

- **GFR <25 mL/min/1.73 m²?**
  - **Yes**
    - **Modality option education (individual or group) & selection**
    - **Preferred modality identified?**
      - **Goal: GFR = 20 mL/min/1.73 m²**
      - **Yes**
        - Prepare for transition

---

- **Conservative care**
- **PD**
- **Hemodialysis**
- **Transplant**

---

**See transition algorithms: Transplant (Appendix 4), Peritoneal Dialysis (Appendix 5), Hemodialysis (Appendix 6) & Conservative Care (Appendix 7)**
5.2 KCC milestones

The major milestones for patients referred to KCC include:
1. Referral to KCC.
2. Orientation to KCC.
3. KCC team assessment, education about kidney disease and mutual goal-setting and treatment planning with patient.
4. Active monitoring, treatment and social/psychological intervention.
5. Modality option education and selection
6. Transition to preferred modality.

5.2.1 Referral to KCC

The form used to refer patients from the nephrologist to KCCs is clinic-specific. Suggested components for inclusion on the referral form:
• Demographics.
• Primary renal diagnosis.
• GFR category (3a, 3b, 4 or 5) and serum creatinine.
• Co-morbidities which include, at a minimum, those required for the CORR data checklist:
  • Angina
  • Cerebrovascular accident
  • Chronic obstructive lung disease
  • Congestive heart failure
  • Coronary revascularization (CABG)
  • Current smoker (history/packs per day)
  • Diabetes
  • Hypertension
  • Malignancy
  • Myocardial infarction
  • Peripheral vascular disease
  • Pulmonary disease
  • Primary renal disease
  • Transient ischemic attack
• Urgency (as per target waiting times in Section 4.0).
• Treatment modality, if known; if HD, provide option to refer for vascular access.
• Communication barriers/language/interpreter required.
• Orders for medications, vaccinations and laboratory tests.

Include a notation to attach consult letters/clinical summaries, updated medication list and relevant laboratory and diagnostic tests with the referral.

5.2.2 Orientation to KCC

Orientation to KCC includes information to the patient on KCC goals, KCC programs and services, KCC team roles and logistics (clinic hours, appointment times).

Information may be provided in a variety of ways, such as:
• A written handout/letter that is given/mailed to the patient.
• Group session (some KCCs also include education on basic kidney education at this session).
• Individual session (some KCCs combine this with the initial KCC team assessment appointment).
5.2.3 KCC team assessment, education, goal-setting & treatment planning

KCC team assessment:
The KCC team assessment is an integrated assessment incorporating the perspectives of all KCC team members: physician, RN, dietitian, social worker and pharmacist.

Education about the earlier phases of kidney disease:
Education about kidney disease may be covered in a variety of ways, including education session (individual or group), discussed as part of a KCC team appointment(s) and written materials. Education is best phased-in over time.

Suggested elements to include:
- Provide copy and review contents of Book #1 of Living with Reduced Kidney Function (The Kidney Foundation of Canada).
  - Introduction
  - Chapter 1: Your Kidneys
  - Chapter 2: Kidney Disease
  - Chapter 3: Supporting Your Kidney Health
  - Chapter 4: Medications for Kidney Health
  - Chapter 5: Diet and Nutrition
  - Chapter 6: Living Well with Reduced Kidney Function
  - Chapter 7: Developing a Personal Plan of Action
  - Chapter 8: If Your Kidneys Fail
- Hepatitis screening and appropriate timing and resources for vaccinations.
- Vein preservation: review key points and provide bracelet and wallet card.*
- Medications: review BCPRA pamphlets on Medications and Your Kidneys and Medication Changes When You are Sick.*
  - Laboratory work, the meaning of test results and how to obtain copies of results: review BCPRA pamphlet on Get to Know Your Kidney Lab Work.*
  - Introduction to the concept of advance care planning.
  - Smoking cessation.
  - BC resources: review Kidney Care Clinic: Useful Internet Sites for Patients.*

*Available at www.bcrenalagency.ca.

Goal-setting and treatment planning:
Goal-setting and treatment planning are important components of kidney care. When done in collaboration with patients (best practice), goal setting and treatment planning supports patients in the self-management of their kidney disease.

Important concepts to teach patients in relation to goal-setting/treatment planning/self-management include:
- What is self-management? Why is it important?
- What is goal-setting and treatment planning? How can they support self-management?
- Information about the stages of change and the relationship to setting and achieving goals.
- How to set goals. e.g., blood pressure, physical activity, eating, smoking, quality of life.
- How to develop an action plan to meet goals: breakdown into a series of small steps and identify barriers and ways to overcome those barriers. Assess self-confidence in ability to

3 See section 5.2.5 for education related to modality options (for those in the later phases of kidney disease).
meet goals and discuss ways that will make the goals seem more achievable.

- Review community resources that will help to support meeting goals.

### 5.2.4 Active monitoring, treatment and psychological/social support

#### Frequency of KCC visits

Table 1 provides guidelines for the frequency of KCC visits based on the severity and stability of the patient’s kidney disease. Other factors in determining visit frequency include:

- Geographic distance to KCC
- Ability of patient to self-manage
- Patient care needs and preferences
- Nephrologist practice (some nephrologists see patients in their offices between KCC visits)

#### Table 1:

**Guidelines for Frequency of KCC Visits Based on Severity and Stability of Kidney Disease**

<table>
<thead>
<tr>
<th>CKD</th>
<th>Visit Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable G3a (45-59 mL/min)</td>
<td>Annually</td>
</tr>
<tr>
<td>Stable G3b (30-44 mL/min)</td>
<td>Q6mo</td>
</tr>
<tr>
<td>Stable G4 (15-29 mL/min)</td>
<td>Q3mo</td>
</tr>
<tr>
<td>G5 (&lt;15 mL/min)</td>
<td>Q2mo</td>
</tr>
</tbody>
</table>

**KCC treatment protocols/guidelines**

See individual guidelines (www.bcrenalagency.ca) for:

- Lab work & follow-up protocols
- Medication reconciliation
- Depression/anxiety (in progress)

### 5.2.5 Modality option education and selection

Suggested elements to include:

- Provide copy and review contents of reference materials (see below).
- Refresher about the kidneys
- Making decisions re treatment options
- Placement on the continuum of kidney function
- Kidney treatment options:
  - Dialysis options (PD and HD)
    - PD: What is it? Benefits? Points to consider?
    - HD: What is it? Delivery options (dependent and independent)? Benefits? Points to consider? Options for creation of vascular access?
  - Transplant: What is it? Options (living and deceased donor)? Benefits? Points to consider?
  - Conservative care: What is it? Points to consider?

**Reference materials:**

- Book #2 of *Living with Kidney Failure* (The Kidney Foundation of Canada)
- Dialysis Options in BC: A guide to making the treatment choice that is right for you (www.bcrenalagency.ca).
- Modality options education (being developed).
5.2.6 Transition to selected modality

The principles of transition from KCCs to renal replacement therapy or conservative care are available in Appendix 3. Detailed algorithms for the transition from KCCs to transplant, PD, HD and conservative care are outlined in Appendices 4, 5, 6 and 7 respectively.

5.3 KCC team member roles

Shared Team Functions

- Prioritizes intake of new referrals, with consideration to nephrologist input provided on the referral.
- Collaborates with patients/families in developing self-management plans, goal setting and treatment planning related to CKD guidelines.
- In support of continuity of care, communicates discipline-specific information, care plans and concerns to physician(s) and other health care team members and services who are involved with the patient (e.g., Diabetes Education Centre, Heart Health, Acute Care).
- Communicates patient-specific information to appropriate modality team when transitioning to PD, HD or transplant.
- Refers patients to other health care professionals/services as needed. e.g., Diabetes Education Centre, Heart Health, Home Care.
- Acts as a resource to other health professionals in the area of chronic kidney disease and related treatments/supports.
- Participates in program planning and quality improvement activities.
- Educates peers, students and other learners about chronic kidney disease.

Registered Nurse

Assessment and Care Planning:

- Assesses health condition, symptoms, diagnosis and medications.
- Reviews the CORR data checklist completed by referring nephrologist/NP at time of KCC referral. Enters into PROMIS if not done by NP and/or Unit Coordinator (Unit Clerk).
- Monitors fluid status, skin integrity and blood pressure.
- Monitors lab results and follows-up as per BCPRA protocols. e.g., anemia, declining eGFR.
- If fistula in place, monitors status.
- If pharmacist not available (best practice is that these functions be done by a pharmacist):
  - Updates the patient’s medication list at each KCC visit.
  - Conducts medication reconciliation at the intervals outlined in the BCPRA KCC Medication Reconciliation guideline.
  - Ensures currency of PROMIS medication profile after each clinic visit.
- Follows up with patient post-modality education (to support decision making) and, if requested by the patient and/or health care provider, post-medication changes and post-hospital admissions.
- Completes appropriate nursing care planning as indicated.
- Actively participates with patient in advance care planning within their scope of practice.
- Initiates discussions and educates patients/families about advance care planning [Shared
Role with SW and nephrologist/NP].
- Reviews patient chart after each clinic visit to ensure all orders have been processed completely and accurately.

Patient education (individual and/or group):
- Educates patients/families about treatment options and, along with Social Work, supports patients in modality and end-of-life decision-making.
- Provides education on medication information: anemia management, medications to avoid and symptom management.
- Educates patients/families about recommended timing of hepatitis, influenza and pneumococcal vaccinations and refers to appropriate resource for follow-up.

Preparation for renal replacement modality:
- Reviews treatment choice and readiness for transition regularly.
- Assists with initiating referral for/coordinates:
  - If PD, referral to PD team and PD tube insertion.
  - If HD, referral to VA Clinic and home HD team (if home HD) or HD unit (if facility-based HD).
  - If transplant, referral to transplant team and selection of back-up dialysis option.
  - If conservative care, ongoing assessment and monitoring, education about symptom control and management. Works with SW to initiate referrals to home care and palliative care as appropriate.

Registered Dietitian

Assessment and care planning:
- Assesses nutritional status, including an initial and ongoing review and analysis of medical and diet history, lab values and anthropometric measurements.
- Addresses signs and symptoms related to oral intake and nutritional status; reviews protein/potassium/phosphorus, sodium, lipids and other pertinent nutrients.
- Reviews vitamins and minerals and makes recommendations based on nutritional status, lab values and stage of CKD.
- Recommends appropriate therapeutic diet(s) and establishes a diet plan.
- Evaluates diet plan through clinic follow up and telephone.
- Conducts regular dietary reviews and provides self-management support.
- Follows up abnormal lab results (as per BCPRA lab work guideline) and answers questions.
- Reviews and assesses initial and ongoing need for nutrition supplements. Orders as appropriate.
- Identifies potentially harmful herbal products [Shared role with Pharmacy].
- Collaborates with Nephrologist to optimize bone health.
- Seeks out and liaises with, if necessary, the services of a Home and Community Care Dietitian and/or a Dietitian in assisted living or long term care.
- Refers patients, families and caregivers to appropriate resources to assist in coping with diet/related concerns. This may include recommendations to various meal programs.
- Responds to patient, family and caregivers’
potential or expressed food security. As appropriate and necessary, prepares and completes a letter on behalf of the patient to apply for a nutrition or diet supplement under the Provincial Nutrition Benefits Program.

- Responds to patient, family and caregivers’ emotional/lifestyle adjustment issues re: therapeutic renal diet/CKD status in general. [Shared role with SW]

**Patient Education (individual and/or group):**
- Educates and counsels patient on food choices and meal ideas. Individualizes education and counseling regarding CKD, diabetes, heart disease, weight loss, etc.
- Instructs on topics such as label reading, menu planning and phosphate additives.
- Reinforces appropriate use of medications including phosphate binders and iron supplements.
- Develops renal specific nutrition resources, as needed, based on a variety of factors which may include ethnicity, identified language barrier and education level.
- Provides nutrition resources based on the nutrition care plan, patient goals and stage of CKD.

**Preparation for renal replacement modality:**
- Provides information and answers questions about how the renal diet may change depending on treatment choice.
- Ensures continuity of nutritional care if patients’ renal care is transferred to another service area.

**Registered Social Worker**

**Assessment and care planning:**
- Conducts initial and ongoing social work assessments - gathers/analyzes social and psycho-emotional data on patient/primary “support” system.
- Provides assessment, consultative and direct services related to psycho-emotional factors - cognitive decline, anxiety, depression, caregiver burden and other assessments that impact education, adaptation and decision making.
- Provides assessment/referrals for social determinants of health related to self-management of CKD - functional status, finances and housing situations.
- Assesses health literacy — interpretations/constructed meanings/implications.
- Provides therapeutic interventions - individual, couples and group related to emotional response to diagnosis, adjustment, traumatic stress, crisis and grief & loss.
- Mediates conflict between patient, patient’s primary support and the health care team.
- Supports goals of care by enhancing problem-solving capacity and facilitating positive changes in management styles with interventions related to behaviour, attitudes, and feelings that challenge self-efficacy.
- Facilitates meetings/care conferences - documents social work aspects of care plans.
- Fulfills mandates per Adult Guardianship Legislation, Mental Health, Child Protection, Freedom of Information and other relevant legislation as needed while managing complex patient situations.
- Refers beyond scope for further assessment/services to family physician, mental health and
Kidney Care Clinic

community health programs, social agencies and government ministries.
• Provides resource counselling for patients/families on services and benefits (e.g., medical insurance, medication coverage, transportation programs, death benefits to overcome barriers and address current/future needs).
• Fosters partnerships and helps patients to develop partnership within the renal community, especially the Kidney Foundation, for the purposes of advocacy, self-advocacy and accessing programs that benefit renal patients.

Treatment decisions
• Supports CKD patient education and provides patients/support/SDM with psycho-education and modality options ameliorating distress related to medical education.
• Actively participates with patient in advance care planning within their scope of practice.
• Engages patient/support in end-of-life care planning (conservative care decision making, end of life plans and referrals or co-management.

Preparation for transitions
• Reviews patient’s social and psycho-emotional readiness for transitions regularly and provides clinical counselling for patient/support system related to transitions.
• Ensures discipline specific transfer of information to strengthen continuity of care.

Pharmacy Services (Pharmacist +/- Registered Pharmacy Technician)

Assessment and care planning
• Completes initial medication history (pharmacist or pharmacy technician).
• Reviews patient’s allergies and intolerance to medications (pharmacist or pharmacy technician).
• Completes review of medications at each visit.
  • Reviews medications for renal dosage adjustments and drug interactions (pharmacist).
  • Helps to interpret drug levels (pharmacist).
  • Makes recommendations to nephrologist/nurse practitioner to optimize treatment (e.g., blood pressure, glycemia, lipids, acidosis, gout, anemia, etc) (pharmacist).
• Detects and resolves actual and potential drug therapy problems (pharmacist).
• Ensures currency of PROMIS medication profile after each clinic visit (pharmacist or pharmacy technician).
• Where approved by the HA/KCC, manage the anemia or other approved protocols.

Patient education
• Educates patients about:
  • Their medications and reviews medication adherence (pharmacist).
  • The local renal pharmacy and what medications are covered by BCPRA (pharmacist or pharmacy technician).
  • Nephrotoxic medications to avoid and what to do when sick (refer to BCPRA handout) (pharmacist).
  • The use of over the counter medications, including herbs products (refer to BCPRA...
Kidney Care Clinic

handout) (pharmacist).

- Provides ongoing medication education and support as needed (pharmacist).

Medication reconciliation & external linkages
- Conducts medication reconciliation as per the process and timing outlined in the BCPRA medication reconciliation guideline (may be completed by RN if no pharmacist available; best practice is for pharmacist to do).
- Liaises with community pharmacies if needed (pharmacist or pharmacy technician).
- Facilitates medication coverage with fair Pharmacare and private insurance plan (pharmacist or pharmacy technician).

Unit Co-ordinator (Unit Clerk)
- Establishes and maintains patient charts (e.g., files consults, lab work, etc).
- Admits and discharges patients in hospital system.
- Enters patients into PROMIS and inputs initial and ongoing data (e.g., labs, co-morbidities).
- Enters CORR data checklist into PROMIS (based on information provided by the RN and/or nephrologist/NP).
- Books patients for KCC appointments/education sessions. Sets up system for patient reminders.
- Assists team in preparing for clinic visits (e.g., obtains requested consults, books interpreters).
- Obtains and sorts blood work.
- Coordinates patient flow during KCC visits.
- Updates medications post clinic visit (entries validated by pharmacist or RN).
- As requested, books and coordinates appointments with other clinics (including vascular access), consultants, diagnostics, and community resources and arranges mobile labs.
- Triage patient concerns with team. [Shared Role]
- Prepares patient chart for transfer to other renal programs (e.g., PD).
- Maintains clinic supplies and learning materials.

Nephrologist (+/- Nurse Practitioner)
- Performs initial medical assessment.
- Assesses changes in medical condition of patients at each visit.
- Performs at least annual medical reassessment, including review of events/hospitalizations.
- Actively participates with patient in advance care planning within their scope of practice.
- Reinforces education efforts by team. Supports patients in decision-making.
- Determines protocol and frequency of lab testing and KCC visits.
- Follows up abnormal laboratory results as per BCPRA lab work guideline.
- Makes adjustments as necessary re: erythropoietin hormone therapy; iron; calcium; etc.
- Completes the CORR data checklist for entry into PROMIS by RN/NP and/or Unit Coordinator (Unit Clerk).
- Documents all communications in chart (dictated and/or written).
6.0 Recommended allocation of resources for KCCs

6.1 BCPRA CKD funding model

BCPRA provides funding to HAs to support CKD patients using an activity-based funding model. The funding model was developed several years ago and was intended to reflect best CKD practices. It is included in this paper for consideration by programs when assigning staffing allocations (see Appendix 8).

The amount of funding provided to a KCC depends on actual volumes for:

1. Numbers of new cases per year: $424/case.
2. Numbers of cases discharged per year: $115/case.
3. Numbers of cases maintained as CKD patients per year:
   a. GFR greater than 30 mL/min/1.73m²: $556/case
   b. GFR 15-30 mL/min/1.73m²: $788/case
   c. GFR less than 15 mL/min/1.73m²: $1,525/case

The amount of funding provided for new, discharged and/or maintenance cases is based on the:

1. Tasks/activities required by patients under each case category (the intensity of medical care depends on renal function status).
2. Most appropriate type of staff to do each task.
3. Amount of time to complete each task.
4. Frequency of completing the task (e.g. every month, upon entry, upon discharge etc); and
5. Probability that the task will be required for the patient population.

New cases per year ($424 and 6.5 staff hours per case) includes time for:

- Clerk to prepare file, enter information in computer, retrieve blood work, make appointment, order supplies and enter outside lab information into PROMIS.
- RN, SW, diettitian, pharmacist to introduce themselves and explain role in care and RN to discuss vaccinations.

Discharged cases ($115 and 1.7 staff hours per case) includes time for:

- RN to orientate patient to treatment options and prepare for chosen option; if HD, follow-up after fistula at 2 and 8 weeks post creation
- Clerk to complete referral and paperwork.
- If conservative treatment chosen, SW to arrange meetings with palliative care.

Maintenance cases includes time for:

a) GFR greater than 30 mL/min/1.73m² ($556 and 8.5 staff hours per case):
   - 4 follow-up assessments per year by the RN, dietitian and pharmacist.
   - Time for the clerk to book follow-up appointments and arrange lab work and enter medications post-appointment.
   - 1 follow-up assessment per year by the SW.
   - Medication teaching and administration and organizing and following-up annual blood work by the RN.

b) GFR 15-30 mL/min/1.73m² ($788 and 11.7 staff hours per case):
   - Same as for GFR greater than 30 mL/min/1.73m² except that time is provided for 6 follow-up assessments per year. The time per assessment provided for the
dietitian and pharmacist is longer than for the patients with GFR greater than 30 mL/min/1.73m².

c) GFR less than 15 mL/min/1.73m² ($1,525 and 22.1 staff hours per case):
  • Same as for GFR greater than 30 mL/min/1.73m² except that time is provided for 12 follow-up assessments per year. The time per assessment provided for the RN is longer than for the patients with GFR greater than 30 mL/min/1.73m².

In addition to the amounts for new, discharged and maintenance cases, there are block allocations of funds for specific functions (e.g., pharmacy time for medication reconciliation).

### 6.2 Application of the BCPRA CKD funding model

Table 2 provides an example of BCPRA funded staffing levels if the funding model is applied to a large centre. Table 3 provides similar information for a small centre. Both tables are calculated using the average provincial acuity level of: 51.65% under Category 1 (GFR greater than 30); 35.85% under Category 2 (GFR 15-30) and 12.50% under Category 3 (less than 15). See Appendix 8 for the specifics of how the hours and dollars per case in the funding model were derived.
# Table 2: Application of the BCPRA CKD funding model to a large centre

<table>
<thead>
<tr>
<th>Volume</th>
<th>Cases</th>
<th>Hrs/case/year</th>
<th>Hrs/year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Clerk</td>
<td>RD</td>
<td>Pharm</td>
</tr>
<tr>
<td>New cases</td>
<td>468</td>
<td>1.25</td>
<td>2.5</td>
<td>0.52</td>
</tr>
<tr>
<td>Discharged cases</td>
<td>222</td>
<td>0.35</td>
<td>1.34</td>
<td>1.69</td>
</tr>
<tr>
<td>Maintenance Cases</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFR&gt;30 mL/min</td>
<td>1206</td>
<td>1.00</td>
<td>1.00</td>
<td>0.52</td>
</tr>
<tr>
<td>GFR15-30 mL/min</td>
<td>837</td>
<td>1.50</td>
<td>1.98</td>
<td>1.02</td>
</tr>
<tr>
<td>GFR&lt;15 mL/min</td>
<td>292</td>
<td>3.00</td>
<td>3.00</td>
<td>1.55</td>
</tr>
<tr>
<td>Total direct hours / year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4000</td>
<td>4909</td>
<td>2177</td>
</tr>
</tbody>
</table>

### Note 4

A: Factors were developed to convert direct hours to worked hours that considered an allowance for personal fatigue and delay factors (1.15 times direct hours) and indirect time (typically in the range of 1.25 to 1.35 times direct hours, and sick, holiday, vacation and development time - typically 1.18 times worked hours).
# Table 3: Application of the BCPRA CKD funding model to a small centre

<table>
<thead>
<tr>
<th>Volume</th>
<th>Cases</th>
<th>Hrs/case/year</th>
<th>Hrs/year</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Clerk</td>
<td>RD</td>
<td>Pharm</td>
<td>RN</td>
<td>SW</td>
<td>Total</td>
<td>Clerk</td>
<td>RD</td>
<td>Pharm</td>
</tr>
<tr>
<td>New cases</td>
<td>79</td>
<td>1.25</td>
<td>2.50</td>
<td>0.52</td>
<td>0.56</td>
<td>1.70</td>
<td>6.53</td>
<td>93</td>
<td>185</td>
<td>38</td>
</tr>
<tr>
<td>Discharged cases</td>
<td>49</td>
<td>0.35</td>
<td></td>
<td>1.34</td>
<td></td>
<td>1.69</td>
<td></td>
<td>17</td>
<td></td>
<td>66</td>
</tr>
<tr>
<td>Maintenance Cases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFR&gt;30 mL/min</td>
<td>174</td>
<td>1.00</td>
<td>1.00</td>
<td>0.52</td>
<td>2.57</td>
<td>3.40</td>
<td>8.49</td>
<td>174</td>
<td>174</td>
<td>90</td>
</tr>
<tr>
<td>GFR15-30 mL/min</td>
<td>150</td>
<td>1.50</td>
<td>1.98</td>
<td>1.02</td>
<td>3.77</td>
<td>3.40</td>
<td>11.67</td>
<td>225</td>
<td>297</td>
<td>153</td>
</tr>
<tr>
<td>GFR&lt;15 mL/min</td>
<td>41</td>
<td>3.00</td>
<td>3.00</td>
<td>1.55</td>
<td>11.17</td>
<td>3.40</td>
<td>22.12</td>
<td>123</td>
<td>123</td>
<td>64</td>
</tr>
<tr>
<td>Total direct hours / year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>632</td>
<td>779</td>
<td>345</td>
</tr>
</tbody>
</table>

Note A:

- Personal fatigue factor
  - 1.15 1.15 1.00 1.15 1.15
- Indirect factor
  - 1.45 1.35 2.18 1.35 1.20
- Paid factor
  - 1.18 1.19 1.19 1.18 1.18
- Paid hr/FTE
  - 1872 1879 1879 1872 1879
- Staffing- Funded FTEs
  - 0.66 0.76 0.48 1.54 1.18 4.63

Note: Figures exclude time for nephrologist.
7.0 References


Beaulieu, M et al. (n.d.). Kidney Disease, Dialysis and Transplantation; Chapter 6 The Role of the Chronic Kidney Disease Clinic.


Appendix 1: Referrals to Nephrology from Primary Care based on GFR and Albuminuria

KDIGO recommends that primary care physicians refer patients to a nephrologist in the following circumstances (Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group, 2013):

1. People with CKD in the following circumstances (evidence grade 1B except where noted):
   - AKI or abrupt sustained fall in GFR.
   - GFR less than 30 ml/min/1.73 m² (GFR categories G4-G5).5
   - A consistent finding of significant albuminuria (ACR 300 mg/g [greater than or equal to 30 mg/mmol] or AER greater than or equal to 300 mg/24 hours, approximately equivalent to PCR greater than or equal to 500 mg/g [greater than or equal to 50 mg/mmol] or PER greater than or equal to 500 mg/24 hours).
   - Progression of CKD based on one or more of the following (not graded).
     - Decline in GFR category (greater than or equal to 90 [G1], 60-89 [G2], 45-59 [G3a], 30-44 [G3b], 15-29 [G4], less than 15 [G5] ml/min/1.73 m²). A certain drop in eGFR is defined as a drop in GFR category accompanied by a 25% or greater drop in eGFR from baseline.
     - Rapid progression is defined as a sustained decline in eGFR of more than 5 ml/min/1.73 m²/year.
     - The confidence in assessing progression is increased with increasing number of serum creatinine measurements and duration of follow-up.
   - Urinary red cell casts, RBC greater than 20 per high power field sustained and not readily explained.
   - CKD and hypertension refractory to treatment with 4 or more antihypertensive agents.
   - Persistent abnormalities of serum potassium.
   - Recurrent or extensive nephrolithiasis.
   - Hereditary kidney disease.

2. Planning renal replacement therapy (RRT) in people with progressive CKD in whom the risk of kidney failure within 1 year is 10-20% or higher6, as determined by validated risk prediction tools (evidence grade 1B). See Appendix 1a for referral recommendations based on albuminuria and GFR status.

---

5 If this is a stable isolated finding, formal referral (i.e., formal consultation and ongoing care management) may not be necessary and advice from specialist services may be all that is required to facilitate best care for the patients. This will be health-care system dependent.

6 The aim is to avoid late referral, defined here as referral to specialist services less than 1 year before start of RRT.
Appendix 1a: Recommendations for Referral to Nephrology from Primary Care

### Persistent Albuminuria Categories: Description and Range

<table>
<thead>
<tr>
<th>Description</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal to mildly increased</td>
<td>Modestly increased</td>
<td>Severely increased</td>
<td></td>
</tr>
<tr>
<td>less than 30 mg/g</td>
<td>30-300 mg/g</td>
<td>greater than 300 mg/g</td>
<td></td>
</tr>
<tr>
<td>less than 3 mg/mmol</td>
<td>3-30 mg/mmol</td>
<td>greater than 30 mg/mmol</td>
<td></td>
</tr>
</tbody>
</table>

#### GFR categories (ml/min/1.73m²) Description and Range

<table>
<thead>
<tr>
<th>G1</th>
<th>Normal or high</th>
<th>greater than or equal to 90</th>
<th>Monitor</th>
<th>Refer*</th>
</tr>
</thead>
<tbody>
<tr>
<td>G2</td>
<td>Mildly decreased</td>
<td>60-89</td>
<td>Monitor</td>
<td>Refer*</td>
</tr>
<tr>
<td>G3a</td>
<td>Mildly to moderately decreased</td>
<td>45-59</td>
<td>Monitor</td>
<td>Monitor</td>
</tr>
<tr>
<td>G3b</td>
<td>Moderately to severely decreased</td>
<td>30-44</td>
<td>Monitor</td>
<td>Monitor</td>
</tr>
<tr>
<td>G4</td>
<td>Severely decreased</td>
<td>15-29</td>
<td>Refer*</td>
<td>Refer*</td>
</tr>
<tr>
<td>G5</td>
<td>Kidney failure</td>
<td>less than 15</td>
<td>Refer</td>
<td>Refer</td>
</tr>
</tbody>
</table>

* Referring clinicians may wish to discuss with their nephrology service depending on local arrangements regarding monitoring or referring.

Source: (Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group, 2013)
Appendix 2: Prognosis of CKD by GFR and Albuminuria Category (KDIGO 2012)

<table>
<thead>
<tr>
<th>GFR categories (ml/min/1.73m²) Description and Range</th>
<th>Persistent Albuminuria Categories: Description and Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1 Normal or high greater than or equal to 90</td>
<td>A1 Normal to mildly increased</td>
</tr>
<tr>
<td>G2 Mildly decreased 60-89</td>
<td>A2 Moderately increased 30-300 mg/g 3-30 mg/mmol</td>
</tr>
<tr>
<td>G3a Mildly to moderately decreased 45-59</td>
<td>A3 Severely increased greater than 300 mg/g greater than 30 mg/mmol</td>
</tr>
<tr>
<td>G3b Moderately to severely decreased 30-44</td>
<td></td>
</tr>
<tr>
<td>G4 Severely decreased 15-29</td>
<td></td>
</tr>
<tr>
<td>G5 Kidney failure less than 15</td>
<td></td>
</tr>
</tbody>
</table>

Source: (Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group, 2013)
Appendix 3:
Transition from KCCs to Renal Replacement Therapy/Conservative Care (page 1 of 3)

Why focus on transitions?
Creating a provincial, systematic approach to selecting and transitioning patients from non-dialysis dependent treatment to renal replacement therapy (RRT) will:
1. Provide patients with consistent information to help them make an informed selection about their preferred modality, given their unique situation.
2. Encourage patients to select a preferred modality by the time their GFR reaches 20 mL/min/1.73 m².
3. If appropriate to their situation, encourage patients to select preemptive transplant, peritoneal dialysis or home hemodialysis as their preferred modality.
4. Increase the involvement of patients in modality decisions.

How will we measure improvement?

<table>
<thead>
<tr>
<th>Indicator</th>
<th>April 1, 2013 - September 30, 2013</th>
<th>October 1, 2011-March 31, 2012</th>
<th>Target Where Established</th>
</tr>
</thead>
<tbody>
<tr>
<td>CKD pts (period end)</td>
<td>12597</td>
<td>11799</td>
<td>100%</td>
</tr>
<tr>
<td>KCC pts</td>
<td>9742</td>
<td>8821</td>
<td>75%</td>
</tr>
<tr>
<td>MD pts</td>
<td>2523</td>
<td>2530</td>
<td>21%</td>
</tr>
<tr>
<td>Missing f/u locations pts</td>
<td>332</td>
<td>448</td>
<td>4%</td>
</tr>
<tr>
<td>KCC pts (period end)</td>
<td>9742</td>
<td>8821</td>
<td>100%</td>
</tr>
<tr>
<td>KCC pts with eGFR less than 20mL/min</td>
<td>1500</td>
<td>1288</td>
<td>15%</td>
</tr>
<tr>
<td>Planned modality identified</td>
<td>1192</td>
<td>1057</td>
<td>82%</td>
</tr>
<tr>
<td>• Pre-emptive transplant</td>
<td>82</td>
<td>65</td>
<td>5%</td>
</tr>
<tr>
<td>• PD</td>
<td>459</td>
<td>406</td>
<td>32%</td>
</tr>
<tr>
<td>• HD</td>
<td>426</td>
<td>406</td>
<td>32%</td>
</tr>
<tr>
<td>• Conservative care</td>
<td>225</td>
<td>180</td>
<td>14%</td>
</tr>
<tr>
<td>Planned modality undecided</td>
<td>105</td>
<td>84</td>
<td>7%</td>
</tr>
<tr>
<td>Planned modality missing</td>
<td>203</td>
<td>147</td>
<td>11%</td>
</tr>
<tr>
<td>KCC pts discharged during period (6 months)</td>
<td>911</td>
<td>895</td>
<td>10% of KCC pts</td>
</tr>
<tr>
<td>Transplanted</td>
<td>18</td>
<td>14</td>
<td>2%</td>
</tr>
<tr>
<td>Started dialysis§</td>
<td>285</td>
<td>258</td>
<td>29%</td>
</tr>
<tr>
<td>Deceased</td>
<td>236</td>
<td>299</td>
<td>33%</td>
</tr>
<tr>
<td>Discharged to GP</td>
<td>209</td>
<td>195</td>
<td>22%</td>
</tr>
<tr>
<td>Other</td>
<td>163</td>
<td>129</td>
<td>14%</td>
</tr>
</tbody>
</table>

Continued...

§ This includes common approaches to education, goal setting, care planning and standardizing tools and resources.

CKD patients who ended CKD and the reason entered in PROMIS was that they were to start dialysis. In reality, some of these patients may not actually start dialysis because something happened between being discharged from KCC and the planned dialysis start date (e.g., patient deceased). This explains the discrepancy between the number of patients who started dialysis in this grouping of numbers and the next.
Appendix 3:
Transition from KCCs to Renal Replacement Therapy/Conservative Care (page 2 of 3)

Continued...

<table>
<thead>
<tr>
<th>Indicator</th>
<th>April 1, 2013 - September 30, 2013</th>
<th>October 1, 2011- March 31, 2012</th>
<th>Target Where Established</th>
</tr>
</thead>
<tbody>
<tr>
<td>Of those starting on dialysis during period (6 months)*</td>
<td>299</td>
<td>248</td>
<td>3%</td>
</tr>
<tr>
<td>Planned modality identified</td>
<td>262</td>
<td>211</td>
<td>85%</td>
</tr>
<tr>
<td>Started on planned modality</td>
<td>190</td>
<td>147</td>
<td>70%</td>
</tr>
<tr>
<td>eGFR&lt;20 and started on planned modality</td>
<td>252</td>
<td>200</td>
<td>81%</td>
</tr>
<tr>
<td>PD starts</td>
<td>93</td>
<td>66</td>
<td>27%</td>
</tr>
<tr>
<td>Transferred from HD to IHD within 90 days</td>
<td>5</td>
<td>6</td>
<td>2%</td>
</tr>
</tbody>
</table>

Principles of transitions (all modalities)

Entry point for modality education and selection:

1. Nephrologist refers patients to KCC (if not already a KCC patient) when the patient’s CKD is progressing &/or anticipated to progress and RRT is anticipated to be required within the next year (e.g., GFR is 20 - 25 mL/min & albuminuria is present).
   - KCC is the entry point for the majority of CKD patients who are anticipated to require RRT.
   - KCC supports patients through modality education, decision-making, follow-up with an interprofessional team and coordination of the transition to the planned modality.

Modality education and identification of preferred modality:

2. KCC team initiates discussions with the patient about modality options when the patient's GFR is 20-25 mL/min. Goal is to have a preferred modality identified at a GFR of 20 mL/min.
3. Modalities options include transplant, peritoneal dialysis, hemodialysis (dependent or independent) and conservative care. Inclusion and exclusion criteria for different modalities and delivery methods are determined by the modality teams (e.g., PD, HHD, transplant, HD).
4. The focus of the modality discussion is on modalities appropriate to the patient's circumstances.
5. If the patient meets the inclusion criteria, preemptive transplants and/or independent dialysis options are encouraged and the rationale explained. Promoting independent dialysis is consistent with the KCC philosophy of promoting self-care where appropriate.
6. Patient identifies preferred modality (if unsure, KCC team may refer patient to the appropriate modality team for additional information/discussion). If the preferred modality is transplant, patients are also asked to select a dialysis option as a back-up.

*CKD patients who started dialysis during the period according to dialysis data.
Appendix 3:
Transition from KCCs to Renal Replacement Therapy/Conservative Care (page 3 of 3)

Confirmation of suitability of preferred modality (not required if chose conservative care):
7. Modality team confirms suitability of patient for preferred modality (assessment, organizes additional testing, specialty consultations, etc).
8. If patient is not suitable, patient is referred back to the KCC team to identify a different modality option.

Provision of ongoing care up to the point of transfer to modality (may be for an indefinite period of time, depending upon the speed of progression):
9. KCC team actively monitors, treats and provides physical care and psychosocial support up to the point of hand-off to the receiving modality team (see #16 - #20).
10. KCC team advises the modality team of significant changes in the patient status. Modality team reassesses suitability of the patient for the planned modality.
11. Modality teams work with KCCs to establish processes to regularly review the number and status of KCC patients waiting for the relevant modality.

Decision to start modality (not required if chose conservative care):
12. The patient, nephrologist, KCC and modality teams jointly determine the appropriate modality start date.

Preparation for transition once the modality date is known (not required if chose conservative care):
13. KCC or modality team prepare patient for pre-modality tests/consults/procedures (incl access creation), if required. Specific responsibilities will be identified in modality-specific algorithms.
14. KCC team prepares and forwards a current patient summary to the modality team and a “handover” summary to the patient’s primary care provider.
15. KCC team makes arrangements to cancel services no longer required post transition (e.g., standing lab orders, mobile lab to home, etc).

Transfer date:
16. If PD, ongoing care is assumed by the PD team at the time the PD catheter is inserted (goal is two weeks prior to start of PD).
17. If HHD, ongoing care is assumed by the HHD team on the first day of home HD training.
18. If facility-based HD, ongoing care is assumed by the HD team on the first day of dialysis.
19. If transplant, ongoing care is assumed by the transplant team on the date of transplant.
20. If conservative care, care may continue to be provided by KCC team or patient may be discharged to their primary care provider.
### Appendix 4:
**Transition Guideline for KCC to Transplant** (page 1 of 2)

* Tasks that may be done by **KCC** or **HOME TRANSPLANT TEAM**. Division of duties is arranged locally.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Major Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Home KCC Team</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Recipient Services</strong></td>
</tr>
</tbody>
</table>

1. **Active KCC Care**
   - Actively monitors, treats, educates & provides psychological & social support for kidney disease.

2. **Modality education provided & preferred modality identified (goal: GFR = 20 mL/min).**
   - Identifies patients eligible for transplant. Provides education about transplant as a RRT option (transplant process, living donor option, risks & benefits, medications & side effects, follow-up requirements & lifestyle adj).
   - Provides adjustment counselling as required.
   - Initiates referral in PROMIS (referral status automatically updates to “referral initiated”).
   - Receives calls from potential donors.
   - Conducts additional tests, if required by transplant team.

3. **Suitability for transplant assessed & confirmed**
   - Submits PPROMIS referral to SPH/VGH transplant team. Updates referral status in PROMIS to “referral submitted”.
   - Reviews referral, initiates transplant chart & triages urgency (based on multiple factors including whether living donor identified, blood type, sensitization & age).
   - Updates referral status in PROMIS to “referral received” or “referral not accepted” & reason (e.g., tests still needed & /or test result not acceptable).
   - If referral accepted, contacts patient to provide information on triage process, timelines & status.
   - Helps arrange additional tests, if requested by transplant team.

Continued...
### Appendix 4:
**Transition Guideline for KCC to Transplant**
(page 2 of 2)

The following table outlines the major tasks for each phase in the transition from Kidney Care Clinics (KCC) to transplant. The table is structured to illustrate the coordination between Home KCC Team, Transplant Team (SPH or VGH), Recipient Services, and Donor Services.

#### Table: Transition Guideline for KCC to Transplant

<table>
<thead>
<tr>
<th>Phase</th>
<th>Home KCC Team</th>
<th>Transplant Team (SPH or VGH)</th>
<th>Recipient Services</th>
<th>Donor Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Major Tasks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Arranges appt for evaluation by transplant team in clinic at VGH or SPH. Updates referral status to “appt booked”.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Patient assessed by transplant team (RN, transplant neph &amp; urologist &amp; SW). Referral status updated to “patient seen”</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Helps arrange additional tests, if requested by transplant team.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Determines suitability of patient for transplant. If patient accepted, communicates acceptance to home KCC/transplant team and patient. If patient not accepted, notifies home KCC/transplant team &amp; develops plan to notify patient.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>If patient not suitable, supports &amp; discusses other options &amp; refers to relevant modality team.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>If no living donor identified, refers patient to local PD/HD team (refer to appropriate algorithm). Transplant will not occur until after dialysis starts.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Supports patient in preparing for transplant (e.g., liaises with transplant team to ensure plan in place for travel, accommodation, etc, provides patient psycho emotional support/transition counselling as required).</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Communicates transfer of care to patient.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Communication across teams is critical in supporting a smooth transition for patients from CKD to Transplant. This includes optimizing all communication avenues, including documentation at each stage in PROMIS.
Appendix 5:
Transition Guideline for KCC to Peritoneal Dialysis

PD can be done as self-care or care by companion/caregiver in a patient’s home or care facility.

* = Tasks that may be done by KCC or PD TEAM. Division of duties is arranged locally.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Major Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>KCC Team</strong></td>
</tr>
<tr>
<td>Active KCC Care</td>
<td>Actively monitors, treats, educates &amp; provides psycho-emotional &amp; social support for kidney disease.</td>
</tr>
<tr>
<td>Modality education provided &amp; preferred modality identified (goal: GFR = 20 mL/min).</td>
<td>Identifies patients eligible for PD (see Appendix 5a). PD is considered prior to HD.</td>
</tr>
<tr>
<td></td>
<td>If eligible &amp; no barriers (i.e., suitable for PD), forwards name to PD team. Updates PROMIS.</td>
</tr>
<tr>
<td></td>
<td>If eligible but potential barriers (see Appendix 5a), refers to PD team for suitability assessment. Updates PROMIS after assessment.</td>
</tr>
<tr>
<td></td>
<td>If ineligible or unsuitable, discusses other modality options &amp; refers appropriately.</td>
</tr>
<tr>
<td></td>
<td>Adds eligible patients with no barriers (i.e., suitable for PD) to PD list.</td>
</tr>
<tr>
<td></td>
<td><em>KCC or PD TEAM</em> Liaises with KCC team re timing &amp; arrangements for PD tube insertion.</td>
</tr>
<tr>
<td>2</td>
<td>Dialysis start anticipated within 6 months.</td>
</tr>
<tr>
<td></td>
<td>Regularly reviews status of patients with PD as planned modality.</td>
</tr>
<tr>
<td></td>
<td>If status or home situation changes that may impact suitability for PD, notifies PD team.</td>
</tr>
<tr>
<td></td>
<td>Ensures advance care planning discussion has been initiated &amp; documented.</td>
</tr>
<tr>
<td></td>
<td>Books appt for PD tube insertion (goal: if bedside insertion, 2 wks prior to starting PD; if OR insertion, at GFR 12 -15 mL/min12). Advises patient &amp; PD team.</td>
</tr>
<tr>
<td></td>
<td><em>KCC or PD TEAM</em> Prepares patient for PD tube insertion &amp; PD appointments (teaching re procedure, location, timing, transportation, medications).</td>
</tr>
<tr>
<td></td>
<td>Reviews medications &amp; updates PROMIS.</td>
</tr>
<tr>
<td></td>
<td>Completes transfer documentation (transition package, arranges for relevant sections of chart to copied, reviews mobile labs).</td>
</tr>
<tr>
<td>3</td>
<td>Transfer to PD team</td>
</tr>
</tbody>
</table>

Note: Communication across teams is critical in supporting a smooth transition for patients from CKD to PD. This includes optimizing all communication avenues, including documentation at each stage in PROMIS.

10 Changes in: living status/accommodation, availability of support to assist with PD, ability to self self-manage, physical status, cognitive status, decision to do PD, awareness of knowledge to comprehend and carry out responsibilities associated with PD.

11 This may include a home visit if part of the local KCC/PD programs’ assessment process.

12 Timing of bedside insertion is more flexible and is decided between the patient, nephrologist and PD team.
Appendix 5a:
Assessment of Eligibility for PD

Benefits of PD
- Ability to do dialysis at home
- Patient is in charge
- More flexibility in diet and fluid intake
- Portable (more ability to travel)

Assessment of a KCC Patient for PD
- Patients must not have any contraindications to PD (see list below).
- Patients (or their caregiver) need to have the physical and mental capacity to manage their PD treatments and problem solve as issues arise.
  - Physical ability: Manual dexterity to button a shirt.
  - Mental capacity: Ability to follow straight-forward directions.
- Patients need access to a telephone and space available to store supplies.

Process for Assessment of Suitability for PD
- The KCC team conducts an initial assessment regarding PD suitability.
- If there are no identified barriers (see below for examples of barriers), the PD team is made aware of the patient’s choice.
- If there are potential barriers, the PD team conducts an in-depth assessment and confirms suitability/unsuitability of the patient for PD.

Contraindications to PD
- Unmanaged, active psychiatric disorders
- Active diverticulitis

Examples of Barriers to PD that require an in-depth assessment by the PD team
- Limited mobility or manual dexterity, limited use of hands
- Poor vision
- Obesity (may be candidate for pre-sternal catheter)
- Multiple previous abdominal surgeries
- Colostomy (may be candidate for pre-sternal catheter)
- Active chemical dependency
- Concerns about psycho-emotional capacity (e.g., lack of judgement, cognitive decline, issues with caregiver being able to take on more)

Additional References:
- Match-D tool for information about assessing the suitability of patients for PD: http://homedialysis.org/match-d
### Appendix 6: Transition Guideline for KCC to Hemodialysis

#### Process prior to transfer to HD team.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Major Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Active KCC Care</td>
<td>Actively monitors, treats, educates &amp; provides psychological &amp; social support for kidney disease.</td>
</tr>
<tr>
<td><strong>2</strong> Modality education provided &amp; preferred modality identified (goal: GFR = 20 mL/min).</td>
<td>Identifies patients eligible for HD. PD is always considered prior to HD. Provides education about potential HD locations (home, CDU &amp; in-centre) &amp; local options available to maximize independence (dependent/self-care, day/nocturnal HD), as appropriate to patient. Supports patient in selecting preferred HD location &amp; maximizing independence (refer to Appendices 1-4 for HHD &amp; CDU eligibility/suitability criteria). Documents patient’s HD preferences in PROMIS. If eligible for HHD (see Appendix 6a), advises HHD team. If ineligible or unsuitable, discusses CDU &amp; in-centre options. Maintains list of patients eligible for HHD. Prioritizes list for timing of assessment for HHD suitability. Assesses suitability for HHD (refer to Appendix 6a). Advises patient &amp; KCC team of outcome. Initiates HHD documentation &amp; updates PROMIS.</td>
</tr>
<tr>
<td><strong>3</strong> Dialysis start anticipated within 12 months.</td>
<td>Refers to VA Clinic as per VA guideline at <a href="http://www.bcrenalagency.ca/node/492">www.bcrenalagency.ca/node/492</a>. Once fistula/graft created, assesses at each visit (shared function with VA team). Refers to VA Clinic if issues. Reinforces teaching re care of fistula/graft (shared function with VA team). Ensures advance care planning discussion has been initiated &amp; documented. If HHD, notifies HHD team of anticipated timing of dialysis. Conducts initial home assessment &amp; confirms of suitability for HHD. Advises KCC.</td>
</tr>
</tbody>
</table>

13 HD is provided during waking hours at all in-centre units. At some units, HD is also available during the night. Care is provided by staff (dependent care) although patients are encouraged to be as involved as they are able. In some units, patients who are able to do most or all of their own care are grouped together and staff/patient ratios adjusted accordingly (independent or involved care).

14 Changes in: living status/accommodation, availability of support to assist with HHD, ability to self self-manage, physical status, cognitive status, decision to do HHD, awareness of knowledge to comprehend and carry out responsibilities associated with HHD.

---

Continued...
Appendix 6: Transition Guideline for KCC to Hemodialysis (page 2 of 2)

Process prior to transfer to HD team.

Continued...

<table>
<thead>
<tr>
<th>Phase</th>
<th>KCC Team</th>
<th>In-Centre Team</th>
<th>Community Dialysis Unit Team (CDU)</th>
<th>Home HD Team (HHD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Dialysis start anticipated within 3 months.</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td></td>
<td>If HHD, updates HHD team of anticipated timing of dialysis start.</td>
<td>Conducts home visit to plan for HHD start. Works with patient to arrange home renovations (plumbing, electrical, etc). Updates KCC team.</td>
<td>Prepares patient for 1st HD apt (location, timing, transportation, medications) Arranges tour of in-centre HD unit &amp; if eventual placement in CDU likely, tour of CDU.</td>
<td>Reviews medications &amp; updates PROMIS.</td>
</tr>
<tr>
<td></td>
<td>Conducts home visit to plan for HHD start. Works with patient to arrange home renovations (plumbing, electrical, etc). Updates KCC team.</td>
<td>Completes transfer documentation (transition package, arranges for relevant sections of chart to copied, reviews mobile labs etc). Advises patient re next steps. Updates PROMIS.</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td></td>
<td>If CDU candidate (see Appendix 6b), requests space in appropriate CDU.</td>
<td>Notices in-centre unit when CDU space available.</td>
<td>Accepts transfer &amp; orientates to CDU (new team, schedule, logistics, visitors, etc). Advises patient’s primary care physician re CDU plans. Reconciles medications.</td>
<td>↓</td>
</tr>
<tr>
<td></td>
<td>When space available, advises patient. Reviews medications, completes documentation, advises patient’s primary care physician re next steps. Transfers to CDU.</td>
<td>Revisits suitability for HHD and CDUs (or PD). If appropriate, refers. Updates PROMIS.</td>
<td>↓</td>
<td>↓</td>
</tr>
</tbody>
</table>

Note: Communication across teams is critical in supporting a smooth transition for patients from CKD to HD. This includes optimizing all communication avenues, including documentation at each stage in PROMIS.

15 HD is provided during waking hours at CDUs. Care may be provided by staff (dependent) or in some units, some patients may do some or all of their own care (independent or involved care). Staff is present in both situations although the staff/patient ratio may be adjusted depending upon the proportion of independent to dependent patients.

16 In specific circumstances, first run may occur in CDU with nephrologist present (e.g., long travel distance for patient from CDU to in-centre unit).
Appendix 6a:
Assessment of Eligibility for HHD

Benefits of HHD
- Flexibility of dialysis schedule
- Patient is in charge
- More flexibility in diet and fluid intake
- Get more dialysis, which means feeling better
- Potential reduction in some medications

Assessment of a KCC Patient for HHD
- Patients must not have any contraindications to HHD (see list below).
- Patients (or their caregiver) need to have the physical ability and mental capacity to manage their HD treatments and problem solve as issues arise.
  - Physical ability: Manual dexterity to button a shirt.
  - Mental capacity: Ability to follow straightforward directions.
- Patients need access to a telephone (telephone needs to be available during treatments), space available to store supplies and a reliable sewer/septic system.

Process for Assessment of Suitability for HHD
- The KCC team conducts an initial assessment regarding HHD suitability.
- Patients who meet the criteria for HHD are referred to the HHD for an in-depth assessment and to confirm suitability/unsuitability of the patient for HHD.

Contraindications to HHD
- Unstable angina or myocardial infarction in past 3 months
- Unmanaged, active psychiatric disorders
- Uncontrolled seizure disorder

Note: Stable vascular access (fistula, graft or tunnelled catheter) is required for HHD. If not already in place at the time the referral to HHD is made, the KCC and HHD teams will work together to make this happen prior to the transition to HHD.

Additional References:
- Match-D tool for information about assessing the suitability of patients for PD: http://homedialysis.org/match-d
Appendix 6b:
Suitability Criteria for Community Dialysis Units (page 1 of 2)

Principles
• Patient Focused: Assignment to the most appropriate service (i.e. in-centre vs. community) is based on the patients' primary needs.
• Continuity of Care: Important to continue involvement of renal interdisciplinary team regardless of location of patient.
• Communication: Timely communication between and amongst hemodialysis units is paramount.

Guidelines
• Assignment of the most responsible and appropriate service (i.e. in-centre vs. community) is based on the clinical needs of the patient and the most appropriate expertise required to deal with the issues. Criteria used to assess the level of care are described in the following section.
• CDUs that are far away from in-centre units may require special consideration when determining patient suitability.
• CDU stations are assigned based on availability and patient suitability.

Inclusion Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 BCPRA acuity level 1 - 3 (see Appendix 6c),</td>
<td>Level 4 patients are assessed on an individual, unit-specific basis and may be suitable for a CDU depending on unique factors.</td>
</tr>
</tbody>
</table>
| 2 Patient has a functioning vascular access. | Initial dialysis runs (up to 3) to be done in-centre.  
• Perm-catheters are accepted in CDU’s.  
• Temporary CVC’s are suitable for short-term use only as a bridge to other permanent access if patient deemed capable of managing safety precautions e.g. preventing accidental disconnection. |
| 3 Patient is able to participate in care to best of their ability. | Continuum of responsibilities include:  
• Infection control precautions for MRSA, VRE, MRSA/VRE.  
• Taking own weight, BP, collecting supplies, setting up & monitoring machine.  
• Self cannulation, if able. |
| 4 Patient is capable of understanding expectations of patients receiving dialysis in a CDU. | • Arrive on time for dialysis or notify team of required changes to dialysis schedule.  
• Maintain Infection Control precautions.  
• Notify team of any changes to health status including exposure to communicable diseases.  
• Maintain 2-week supply of medications and re-order as needed.  
• Arrange own lab visit for any tests that CDU is not able to perform.  
• Engage in respectful and collaborative behaviour with all staff, patients and visitors. |
## Appendix 6b:
### Suitability Criteria for Community Dialysis Units

(page 2 of 2)

### Exclusion Criteria

Patients falling into any of the categories below need special considerations for treatment in a CDU:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BCPRA acuity level greater than 3 (see Appendix 6c)</td>
</tr>
</tbody>
</table>
| 2 | Unable to maintain Antibiotic Resistant Organism precaution standards | • VRE patients with active diarrhea are not suitable in CDU’s.  
• Patient unable to do own hand washing, or toilet self, or who has not family member able to assist. |
| 3 | Communicable diseases | Requiring respiratory isolation (TB) |
| 4 | Medical instability | Must be assessed on an individual basis by Nephrologist and unit team:  
• Uncontrolled hemodynamic instability.  
• Uncontrolled pain.  
• Infected, draining wounds. |
| 5 | Sepsis | With hemodynamic instability |
| 6 | Requires plasma exchange | With or without HD |
| 7 | Requires blood products | May not apply if near in-hospital location & access to blood bank. Must be assessed on individual basis |
| 8 | Current admission to acute care hospital | Exceptions made be made dependant on reason for admission. For example, if, despite current admission the patient is still suitable for dialyzing in CDU, then arrangements may be made to accommodate the patient:  
• Able to transfer & dialyze in chair  
• Hemodynamically stable  
• Able to maintain regular dialysis prescription  
CDU Nephrologist & Charge RN to determine patient suitability & liaise with in-centre unit and sending hospital |
| 9 | Actual or threatened inappropriate behaviour &/or safety issue that may be distressing to other patients and staff. | • Serious unresolved psychosocial problems  
• Verbal or physical violence |
| 10 | Ambulation | • Unable to dialyze in chair  
• Requires total assistance to transfer to chair |
### Appendix 6c: Acuity Levels (page 1 of 2)

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>HEMODYNAMICS</th>
<th>ADL</th>
<th>ACCESS</th>
<th>TREATMENT</th>
<th>NURSING INTERVENTIONS</th>
<th>TEACHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HYPOTENSION</td>
<td>Not Present</td>
<td>Independent (might use walking aides, w/c etc. without assistance)</td>
<td>TYPE</td>
<td>AVF or Graft</td>
<td>MEDICATION</td>
</tr>
<tr>
<td></td>
<td>HYPERTENSION</td>
<td>Not Present</td>
<td></td>
<td>COMPLICATIONS</td>
<td>No Complications</td>
<td>DRESSINGS</td>
</tr>
<tr>
<td></td>
<td>ANGINA</td>
<td>Not Present</td>
<td></td>
<td>PRU</td>
<td>Greater than 70</td>
<td>OTHER</td>
</tr>
<tr>
<td></td>
<td>DIFFICULTY REMOVING FLUID</td>
<td>Not Present</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>O2 THERAPY</td>
<td>No O2 Therapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>HYPOTENSION</td>
<td>Occasional</td>
<td></td>
<td>TYPE</td>
<td>Permcath OR Temporary Line OR Dual Access</td>
<td>MEDICATION</td>
</tr>
<tr>
<td></td>
<td>HYPERTENSION</td>
<td>Occasional</td>
<td>L1: Independent (might use walking aides, w/c etc. without assistance)</td>
<td>COMPLICATIONS</td>
<td>L1: No Complications</td>
<td>DRESSINGS</td>
</tr>
<tr>
<td></td>
<td>ANGINA</td>
<td>Occasional</td>
<td></td>
<td>PRU</td>
<td>65-70</td>
<td>OTHER</td>
</tr>
<tr>
<td></td>
<td>DIFFICULTY REMOVING FLUID</td>
<td>L1: Not present</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>O2 THERAPY</td>
<td>L1: Not present</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>HYPOTENSION</td>
<td>Weekly</td>
<td>Minimal assistance (to bear weight, weigh, transfer to bed/Chair)</td>
<td>TYPE</td>
<td>Any access type</td>
<td>MEDICATION</td>
</tr>
<tr>
<td></td>
<td>HYPERTENSION</td>
<td>Weekly</td>
<td></td>
<td>COMPLICATIONS</td>
<td>Occasional Complications</td>
<td>DRESSINGS</td>
</tr>
<tr>
<td></td>
<td>ANGINA</td>
<td>Occasional</td>
<td></td>
<td>PRU</td>
<td>60-65</td>
<td>OTHER</td>
</tr>
<tr>
<td></td>
<td>DIFFICULTY REMOVING</td>
<td>Occasional</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>O2 THERAPY</td>
<td>Occasional</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Updated March 3, 2014**
## Appendix 6c: Acuity Levels (Page 2 of 2)

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>HEMODYNAMICS</th>
<th>ADL</th>
<th>ACCESS</th>
<th>TYPE</th>
<th>TREATMENT</th>
<th>NURSING INTERVENTIONS</th>
<th>TEACHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>HYPOTENSION</td>
<td>Each Run</td>
<td>Any access Type</td>
<td>TPA pulsed, infusion, IDPN</td>
<td>TIME ELEMENT 45-60 Min</td>
<td>TEACHING Teaching Started/Initial Instructions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HYPERTENSION</td>
<td>Each Run</td>
<td>Weekly complications</td>
<td>Post-op Major</td>
<td>ISOLATION L3: Confirmed Positive (Spatial Isolation / Curtain)</td>
<td>PHYSICAL BARRIERS TO SELF DIALYSIS Moderate</td>
<td></td>
</tr>
<tr>
<td>ANGINA</td>
<td>Weekly</td>
<td>PrU 55-60</td>
<td>OTHER</td>
<td>Healed Trach Care/Blood Products/Ostomy Care</td>
<td>SWABS/ BLOOD STUDIES Each Run</td>
<td>EMOTIONAL BARRIERS TO SELF DIALYSIS Moderate</td>
<td></td>
</tr>
<tr>
<td>DIFFICULTY REMOVING FLUID</td>
<td>Weekly</td>
<td></td>
<td></td>
<td></td>
<td>SELF CARE SUFFICIENCY L3:Limited Self Care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O2 THERAPY</td>
<td>Weekly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>HYPOTENSION</td>
<td>Each Run, resistant to Current Therapy</td>
<td>Any access type</td>
<td>S/L antihypertensives / IV mannitol / IV ACDA</td>
<td>TIME ELEMENT 60-90 Min</td>
<td>TEACHING Untrained Chronic Patient</td>
<td></td>
</tr>
<tr>
<td>HYPERTENSION</td>
<td>Each Run, resistant to Current Therapy</td>
<td>Complications Each Run</td>
<td>Dressings</td>
<td>Major, infected draining wound</td>
<td>Isolation Room</td>
<td>PHYSICAL BARRIERS TO SELF DIALYSIS Serious</td>
<td></td>
</tr>
<tr>
<td>ANGINA</td>
<td>Each Run</td>
<td>PrU 50-55</td>
<td>OTHER</td>
<td>Plasma Exchange</td>
<td>SWABS/ BLOOD STUDIES Multiple Per Run</td>
<td>EMOTIONAL BARRIERS TO SELF DIALYSIS Serious</td>
<td></td>
</tr>
<tr>
<td>DIFFICULTY REMOVING FLUID</td>
<td>Each Run</td>
<td></td>
<td></td>
<td></td>
<td>SELF CARE SUFFICIENCY L3:Limited Self Care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O2 THERAPY</td>
<td>Each Run</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>HYPOTENSION</td>
<td>L5: Each Run, Resistant to Current Therapy</td>
<td>Any access type</td>
<td>Inotropes</td>
<td>TIME ELEMENT 1-1 Nursing</td>
<td>TEACHING Untrainable Patient</td>
<td></td>
</tr>
<tr>
<td>HYPERTENSION</td>
<td>L5: Each Run, Resistant to Current Therapy</td>
<td>Major, Ongoing Complications</td>
<td>Dressings</td>
<td>L5: Major, infected draining wound</td>
<td>Isolation Room</td>
<td>PHYSICAL BARRIERS TO SELF DIALYSIS Extreme</td>
<td></td>
</tr>
<tr>
<td>ANGINA</td>
<td>Uncontrollable</td>
<td>PrU Less than 50</td>
<td>OTHER</td>
<td>Suction/Airway Management</td>
<td>SWABS/ BLOOD STUDIES L5: Multiple per Run</td>
<td>EMOTIONAL BARRIERS TO SELF DIALYSIS Extreme</td>
<td></td>
</tr>
<tr>
<td>DIFFICULTY REMOVING FLUID</td>
<td>Unable to Remove Fluid</td>
<td></td>
<td></td>
<td></td>
<td>COGNITIVE BARRIERS TO SELF DIALYSIS Extreme</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O2 THERAPY</td>
<td>O2 Dependant</td>
<td></td>
<td></td>
<td></td>
<td>SELF CARE SUFFICIENCY Full Care Required</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>6</td>
</tr>
<tr>
<td>II</td>
<td>7-12</td>
</tr>
<tr>
<td>III</td>
<td>13-18</td>
</tr>
<tr>
<td>IV</td>
<td>19-24</td>
</tr>
<tr>
<td>V</td>
<td>25-30</td>
</tr>
<tr>
<td>VI</td>
<td>31-36</td>
</tr>
</tbody>
</table>

Updated March 3, 2014
Appendix 7: Transition to Conservative Care (Page 1 of 2)

Phases 1 and 2 on this algorithm describe “usual” KCC care that is provided to all patients regardless of their decision to pursue (a) renal replacement therapy (RRT) or (b) conservative care. Phases 3, 4 and 5 describe activities that are specific to patients who have decided on conservative care and have reached End Stage Kidney Disease (ESKD). ESKD is when dialysis would be initiated if that patient was not on a conservative care path (GFR usually less than 10-15 mL/min). Refer to Appendix 7a for ESKD prognostic indicators.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
</tr>
</thead>
</table>
| **1** | **Active KCC care**
| | Actively monitors, treats, educates & provides psycho-emotional & social support for kidney disease. |
| **2** | **Review of RRT options & decision to receive conservative care (goal: GFR = 20 mL/min)**
| | Provides information to patient/family about pros and cons of (1) renal replacement therapies (if appropriate); and (2) conservative care. |
| | Ensures advance care planning discussion has been initiated and documented. Refers patient to BC Advance Care Planning website & ACP Planning Guide, My Voice at www2.gov.bc.ca.  
| | Suggests patient identify Temporary Substitute Decision Maker(s) or complete Standard Representation Agreement for when patient unable to make own health care decisions.  
| | Discusses & documents conservative care decision. |
| **3** | **Determination of ESKD by KCC team (point of dialysis initiation if patient was NOT on conservative care path; GFR usually <10-15 mL/min)**
| | Assesses symptoms using valid, structured tool(s) (e.g., modified ESAS or POS), manages symptoms (www.bcrenalagency.ca/healthcare-professionals/guidelines-protocols-clinical-tools/pharmacy-formulary#symptom) and provides appropriate psycho-emotional & social support to patient/family. Refers for spiritual support, if desired. |
| | Reviews & updates medications. |
| | Reviews & updates laboratory testing protocol (frequency & types of tests). |
| | Revisits & updates advance care plan, Temporary Substitute Decision Maker(s)/Representative & documentation.  
| | If patient does not wish CPR, completes No CPR Form, gives copy to patient & places copy in patient’s file.  
| | https://www.health.gov.bc.ca/exforms/bcas/302.1fil.pdf |
| | Discusses end-of-life care desires with patient/family, including place of death (home, hospice or hospital). |

- **If patient has primary care provider (PCP):**
  - Contacts patient’s PCP to discuss desires of patient/family & agree on role of KCC team & PCP.  
  - In most cases, PCP will be the main contact for the patient/family & will arrange home care/support & referral to local Palliative Care Hospice team, if appropriate. |

- **If patient does not have primary care provider (PCP):**
  - Works with patient/family to develop end-of-life care plan. |

---

17 Patient may choose to complete an “Advance Directive.” Advance Directive provides written instructions to health care providers about accepting or refusing health care treatments, including life support or life-prolonging medical interventions.  
18 Standard Representation Agreement identifies a person that can make routine financial management decisions, personal care decisions and some health care decisions if patient is unable. An Enduring Power of Attorney identifies a person that can make financial and legal decisions if patient becomes incapable. An Enduring Power of Attorney cannot make health care decisions.  
Appendix 7: Transition to Conservative Care (Page 2 of 2)

<table>
<thead>
<tr>
<th>Phase</th>
<th>KCC Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Final stages</td>
</tr>
<tr>
<td></td>
<td>• Provides advice to the PCP, home care/support &amp; palliative care hospice</td>
</tr>
<tr>
<td></td>
<td>team about pain &amp; symptom management, as requested.</td>
</tr>
<tr>
<td></td>
<td>• Supports patient/family to minimize burden/stress.</td>
</tr>
<tr>
<td></td>
<td>• Refers to hospital &amp; community resources, as appropriate.</td>
</tr>
<tr>
<td></td>
<td>• Arranges referrals for home care/support &amp; referral to local Palliative</td>
</tr>
<tr>
<td></td>
<td>Care Hospice team, if appropriate.</td>
</tr>
<tr>
<td></td>
<td>• Works with home care/support &amp; local Palliative Care Hospice Team to</td>
</tr>
<tr>
<td></td>
<td>manage pain &amp; symptoms.</td>
</tr>
<tr>
<td></td>
<td>• Supports patient/family to minimize burden/stress.</td>
</tr>
<tr>
<td></td>
<td>• Refers to hospital &amp; community resources, as appropriate.</td>
</tr>
<tr>
<td>5</td>
<td>Grief &amp; bereavement</td>
</tr>
<tr>
<td></td>
<td>After patient’s death, acknowledges with phone call, letter or card to</td>
</tr>
<tr>
<td></td>
<td>family.</td>
</tr>
<tr>
<td></td>
<td>If required, provides grief &amp; bereavement counselling &amp; appropriate</td>
</tr>
<tr>
<td></td>
<td>support.</td>
</tr>
<tr>
<td></td>
<td>Provides information on community supports for managing grief and</td>
</tr>
<tr>
<td></td>
<td>bereavement. e.g., BC Bereavement Helpline (<a href="http://www.bcbereavementhelpline">www.bcbereavementhelpline</a>.</td>
</tr>
<tr>
<td></td>
<td>com), local counseling/grief support resources, local Hospice Society</td>
</tr>
<tr>
<td></td>
<td>&amp; PCP.</td>
</tr>
<tr>
<td></td>
<td>Creates opportunities for staff to discuss &amp; reflect upon the patient’s</td>
</tr>
<tr>
<td></td>
<td>death.</td>
</tr>
</tbody>
</table>

Notes:
1. Several End-of-Life Resources, including the BCPRA End-of-Life Framework document, are available at: www.bcrenalagency.ca/healthcare-professionals/end-life-resources
2. Communication within the KCC team is critical in supporting a smooth transition to conservative care. This includes optimizing all communication avenues, including documentation in PROMIS.
Appendix 7a:
Predictors of Poor Prognosis in
End-Stage Kidney Disease

1. Nutritional status: Serum albumin
   • The lower the level, the shorter the patient’s survival.
   • Serum albumin less than 35g/L:
     • ~50% mortality at 1 year
     • 17% mortality at 2 years

2. Comorbid Illnesses: Modified Charlson Comorbidity Index (CCI)
   • Widely accepted, validated tool that quantifies co-morbid illness.
   • Higher the comorbidity, the shorter the patient’s survival.
   • Refer to BCPRA End-of-Life Framework (Appendix 1) for a copy of the tool: www.bcrenalagency.ca/sites/default/files/documents/files/EOL-Framework.pdf

3. “Surprise” Question
   • As the clinical team “Would you be surprised if this patient were to die in the next 12 months?”
   • Odds of dying (within 1 year) for patients in the “No, I would not be surprised” group were 3.5 times higher than for patients in the “Yes, I would be surprised” group.
   • Mortality at 1 year = 29.4% vs 10.6%; OR 3.5 times.

4. Age
   • The older the patient, the shorter the patient’s survival.

5. Functional Status
   • Greater functional impairment, the shorter the patient’s survival.

For details, refer to BCPRA End-of-Life Framework document at: www.bcrenalagency.ca/documents/end-of-life-framework
## Appendix 8: BCPRA CKD Funding Formula (page 1 of 2)

### Direct hours per new and discharged case

<table>
<thead>
<tr>
<th>Activity</th>
<th>Task</th>
<th>Staff</th>
<th>Probability</th>
<th>Minutes</th>
<th>Probability adjusted minutes</th>
<th>Per</th>
<th>Patient year factor</th>
<th>Hours per patient year</th>
<th>Direct Hours per Staff Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CKD Registration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entry</td>
<td>Prepare file, enter information into ADT system, retrieve blood work from lab, and make appointment</td>
<td>Unit Clerk</td>
<td>100%</td>
<td>50</td>
<td>50 New case</td>
<td>1</td>
<td>0.83</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>Entry</td>
<td>Order supplies and stock supplies</td>
<td>Unit Clerk</td>
<td>100%</td>
<td>10</td>
<td>10 New case</td>
<td>1</td>
<td>0.17</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td>Entry</td>
<td>Enter outside lab report information manually into system</td>
<td>Unit Clerk</td>
<td>25%</td>
<td>20</td>
<td>20 New case</td>
<td>1</td>
<td>0.08</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td><strong>CKD Introduction Learning</strong></td>
<td>Session 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support self management</td>
<td>Introduction to each team member and their role in care</td>
<td>Nurse</td>
<td>100%</td>
<td>30</td>
<td>30 New Case</td>
<td>1</td>
<td>0.50</td>
<td>0.50</td>
<td></td>
</tr>
<tr>
<td>Support self management</td>
<td>Introduction to each team member and their role in care</td>
<td>Social Worker</td>
<td>50%</td>
<td>204</td>
<td>204 New Case</td>
<td>1</td>
<td>1.70</td>
<td>1.70</td>
<td></td>
</tr>
<tr>
<td>Support self management</td>
<td>Introduction to each team member and their role in care</td>
<td>Dietitian</td>
<td>100%</td>
<td>150</td>
<td>150 New Case</td>
<td>1</td>
<td>2.50</td>
<td>2.50</td>
<td></td>
</tr>
<tr>
<td>Support self management</td>
<td>Introduction to each team member and their role in care</td>
<td>Pharmacist</td>
<td>100%</td>
<td>31</td>
<td>31 New Case</td>
<td>1</td>
<td>0.52</td>
<td>0.52</td>
<td></td>
</tr>
<tr>
<td>Support self management</td>
<td>Entry of patient's information in PROMIS</td>
<td>Unit Clerk</td>
<td>100%</td>
<td>10</td>
<td>10 New Case</td>
<td>1</td>
<td>0.17</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td>Support self management</td>
<td>Discussion of Hepatitis vaccination and possible vaccinations</td>
<td>Nurse</td>
<td>25%</td>
<td>15</td>
<td>3.75 New Case</td>
<td>1</td>
<td>0.06</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td><strong>Entry per new case</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>1.25 2.50 0.52 0.56 1.70</strong></td>
</tr>
</tbody>
</table>

**Cost per New Case** $424

<table>
<thead>
<tr>
<th>Activity</th>
<th>Task</th>
<th>Staff</th>
<th>Probability</th>
<th>Minutes</th>
<th>Probability adjusted minutes</th>
<th>Per</th>
<th>Patient year factor</th>
<th>Hours per patient year</th>
<th>Direct Hours per Staff Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treatment Option Session</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare for RRT</td>
<td>Orientation to treatment options</td>
<td>Nurse</td>
<td>75%</td>
<td>24</td>
<td>24 discharged case</td>
<td>1</td>
<td>0.30</td>
<td>0.30</td>
<td></td>
</tr>
<tr>
<td>Prepare for RRT</td>
<td>Further education for Parachute patients (ER admits or in-patient)</td>
<td>Nurse</td>
<td>25%</td>
<td>50</td>
<td>50 discharged case</td>
<td>1</td>
<td>0.21</td>
<td>0.21</td>
<td></td>
</tr>
<tr>
<td><strong>Exit to Treatment Option</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exit (general)</td>
<td>Referral and corresponding paper work</td>
<td>Unit Clerk</td>
<td>100%</td>
<td>20</td>
<td>20 discharged case</td>
<td>1</td>
<td>0.33</td>
<td>0.33</td>
<td></td>
</tr>
<tr>
<td>Exit (general)</td>
<td>Discussion/Preparation for patient</td>
<td>Nurse</td>
<td>100%</td>
<td>10</td>
<td>10 discharged case</td>
<td>1</td>
<td>0.17</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td>Exit (for HD)</td>
<td>Follow up after fistula at 2 and 8 weeks after surgery</td>
<td>Nurse</td>
<td>80%</td>
<td>20</td>
<td>20 discharged case</td>
<td>1</td>
<td>0.27</td>
<td>0.27</td>
<td></td>
</tr>
<tr>
<td>Exit (for transplant)</td>
<td>Referral to Transplant team and corresponding paper work</td>
<td>Unit Clerk</td>
<td>5%</td>
<td>20</td>
<td>20 discharged case</td>
<td>1</td>
<td>0.02</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>Exit (for HD)</td>
<td>Implement treatment plan, arrange meetings with palliative</td>
<td>Social Worker</td>
<td>0%</td>
<td>30</td>
<td>30 discharged case</td>
<td>1</td>
<td>0.40</td>
<td>0.40</td>
<td></td>
</tr>
<tr>
<td>Exit (for conservative treatment)</td>
<td>Implement treatment plan, arrange meetings with palliative</td>
<td>Social Worker</td>
<td>0%</td>
<td>30</td>
<td>30 discharged case</td>
<td>1</td>
<td></td>
<td></td>
<td><strong>0.35 - - - - -</strong></td>
</tr>
</tbody>
</table>

**Cost per Discharge** $115
Appendix 8: BCPRA CKD Funding Formula (page 2 of 2)

### Direct hours per maintained case

<table>
<thead>
<tr>
<th>Activity</th>
<th>Task</th>
<th>Staff</th>
<th>Probability</th>
<th>Minutes</th>
<th>Probability adjusted minutes</th>
<th>Per</th>
<th>Patient year factor</th>
<th>Hours per patient year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CKD Clinic Follow-up</td>
<td>Follow-up Assessment</td>
<td>Nurse</td>
<td>100%</td>
<td>15</td>
<td>15</td>
<td>patient quarter</td>
<td>4</td>
<td>1.00</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Follow-up Assessment</td>
<td>Dietitian</td>
<td>25%</td>
<td>60</td>
<td>15</td>
<td>patient quarter</td>
<td>4</td>
<td>1.00</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Follow-up Assessment</td>
<td>Social Worker</td>
<td>100%</td>
<td>204</td>
<td>204</td>
<td>patient year</td>
<td>1</td>
<td>3.40</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Follow-up Assessment</td>
<td>Pharmacist</td>
<td>25%</td>
<td>31</td>
<td>7.75</td>
<td>patient quarter</td>
<td>4</td>
<td>0.52</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Enter medications, lab work, new appointments and book</td>
<td>Unit Clerk</td>
<td>100%</td>
<td>15</td>
<td>15</td>
<td>patient quarter</td>
<td>4</td>
<td>1.00</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Medication Administration Teaching and communication</td>
<td>Nurse</td>
<td>80%</td>
<td>15</td>
<td>12</td>
<td>patient quarter</td>
<td>4</td>
<td>0.80</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Blood work follow-up</td>
<td>Nurse</td>
<td>60%</td>
<td>15</td>
<td>9</td>
<td>patient quarter</td>
<td>4</td>
<td>0.60</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Annual Blood work</td>
<td>Nurse</td>
<td>100%</td>
<td>15</td>
<td>15</td>
<td>patient year</td>
<td>1</td>
<td>0.17</td>
</tr>
</tbody>
</table>

#### Maintenance per patient year - Category 1 (GFR => 30ml/min)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Task</th>
<th>Staff</th>
<th>Probability</th>
<th>Minutes</th>
<th>Probability adjusted minutes</th>
<th>Per</th>
<th>Patient year factor</th>
<th>Hours per patient year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CKD Clinic Follow-up</td>
<td>Follow-up Assessment</td>
<td>Nurse</td>
<td>100%</td>
<td>15</td>
<td>15</td>
<td>patient bi-month</td>
<td>6</td>
<td>1.50</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Follow-up Assessment</td>
<td>Dietitian</td>
<td>33%</td>
<td>60</td>
<td>19.8</td>
<td>patient bi-month</td>
<td>6</td>
<td>1.98</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Follow-up Assessment</td>
<td>Social Worker</td>
<td>100%</td>
<td>204</td>
<td>204</td>
<td>patient year</td>
<td>1</td>
<td>3.40</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Follow-up Assessment</td>
<td>Pharmacist</td>
<td>33%</td>
<td>31</td>
<td>10.23</td>
<td>patient month</td>
<td>6</td>
<td>1.02</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Enter medications, lab work, new appointments and book</td>
<td>Unit Clerk</td>
<td>100%</td>
<td>15</td>
<td>15</td>
<td>patient bi-month</td>
<td>6</td>
<td>1.50</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Medication Administration Teaching and communication</td>
<td>Nurse</td>
<td>80%</td>
<td>15</td>
<td>12</td>
<td>patient bi-month</td>
<td>6</td>
<td>1.20</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Blood work follow-up</td>
<td>Nurse</td>
<td>60%</td>
<td>15</td>
<td>9</td>
<td>patient bi-month</td>
<td>6</td>
<td>0.90</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Annual Blood work</td>
<td>Nurse</td>
<td>100%</td>
<td>15</td>
<td>15</td>
<td>patient year</td>
<td>1</td>
<td>0.17</td>
</tr>
</tbody>
</table>

#### Maintenance per patient year - Category 2 (GFR = 15-30ml/min)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Task</th>
<th>Staff</th>
<th>Probability</th>
<th>Minutes</th>
<th>Probability adjusted minutes</th>
<th>Per</th>
<th>Patient year factor</th>
<th>Hours per patient year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CKD Clinic Follow-up</td>
<td>Follow-up Assessment</td>
<td>Nurse</td>
<td>100%</td>
<td>30</td>
<td>30</td>
<td>patient month</td>
<td>12</td>
<td>6.00</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Follow-up Assessment</td>
<td>Dietitian</td>
<td>25%</td>
<td>60</td>
<td>15</td>
<td>patient month</td>
<td>12</td>
<td>3.00</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Follow-up Assessment</td>
<td>Social Worker</td>
<td>100%</td>
<td>204</td>
<td>204</td>
<td>patient year</td>
<td>1</td>
<td>3.40</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Follow-up Assessment</td>
<td>Pharmacist</td>
<td>25%</td>
<td>31</td>
<td>7.75</td>
<td>patient month</td>
<td>12</td>
<td>1.55</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Enter medications, lab work, new appointments and book any required tests</td>
<td>Unit Clerk</td>
<td>100%</td>
<td>15</td>
<td>15</td>
<td>patient month</td>
<td>12</td>
<td>3.00</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Medication Administration Teaching and communication with pharmacy</td>
<td>Nurse</td>
<td>80%</td>
<td>15</td>
<td>12</td>
<td>patient month</td>
<td>12</td>
<td>2.40</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Blood work follow-up</td>
<td>Nurse</td>
<td>60%</td>
<td>15</td>
<td>9</td>
<td>patient month</td>
<td>12</td>
<td>1.80</td>
</tr>
<tr>
<td>Delay Progression</td>
<td>Annual Blood work</td>
<td>Nurse</td>
<td>100%</td>
<td>15</td>
<td>15</td>
<td>patient year</td>
<td>1</td>
<td>0.17</td>
</tr>
</tbody>
</table>

#### Additional infrequent tasks

<table>
<thead>
<tr>
<th>Activity</th>
<th>Task</th>
<th>Staff</th>
<th>Probability</th>
<th>Minutes</th>
<th>Probability adjusted minutes</th>
<th>Per</th>
<th>Patient year factor</th>
<th>Hours per patient year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevent complications</td>
<td>Home visits</td>
<td>Nurse</td>
<td>20%</td>
<td>30</td>
<td>6</td>
<td>patient quarter</td>
<td>4</td>
<td>0.40</td>
</tr>
<tr>
<td>Prevent complications</td>
<td>Long term care facility visit</td>
<td>Nurse</td>
<td>20%</td>
<td>30</td>
<td>6</td>
<td>patient quarter</td>
<td>4</td>
<td>0.40</td>
</tr>
</tbody>
</table>

#### Maintenance per patient year - Category 3 (GFR = <15ml/min)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Task</th>
<th>Staff</th>
<th>Probability</th>
<th>Minutes</th>
<th>Probability adjusted minutes</th>
<th>Per</th>
<th>Patient year factor</th>
<th>Hours per patient year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Maintenance cost

- **Category 1 (GFR => 30ml/min)**: $556
- **Category 2 (GFR = 15-30ml/min)**: $768
- **Category 3 (GFR = <15ml/min)**: $1,525