**Kidney Health – Educational and Preventative Health Event**

**Participant Guide**

**Introduction**

Pharmacists are well-positioned to provide education and preventive health initiatives for the benefit of patients and the public.

This guide describes a Kidney Health service that has been successfully prototyped by pharmacists and pharmacy students at the UBC Pharmacists Clinic. The clinical and procedural materials have been modified to enable any pharmacist to provide a similar service using equipment and materials routinely available in a community pharmacy.

The service includes the following components:

* Information on the structure and function of the kidneys, and factors that impact kidney health
* Explanation of kidney function using existing serum creatinine or eGFR values

(if available to the participant)

* Assessment of personal risk factors
* A personalized plan for maintaining healthy kidneys and managing kidney conditions when present.

To ensure accountability and compliance with regulatory requirements, all health care services should be provided by licensed pharmacists, pharmacy students supervised by a licensed pharmacist or other regulated health care professionals.

NOTE - This guide does not cover logistic and business aspects of organizing a health event such as: advertising, where to hold the event, identifying participants, booking appointments, charging fees, liability issues, offering service to local businesses, etc.

**About the Pharmacists Clinic**

The Pharmacists Clinic, located at the UBC Faculty of Pharmaceutical Sciences, is a university-affiliated, licensed, pharmacist-led patient care clinic with a mandate to:

* Be a model of patient care best-practices
* Provide learning and skill development opportunities for health professionals and students
* Be a living lab that contributes service models, systems, processes, research and program evaluation for the health care community.

More information about the Clinic is available here: <https://pharmsci.ubc.ca/pharmacists-clinic>

**Service Approach**

Participants are typically scheduled at 15-minute intervals with the total appointment time being about 20 minutes, although this may vary.

Two options for service delivery are:

* Participants move from station to station and receive part of the service at each station
* Participants receive all services from one person

If enough pharmacists/students are available, 2 or 3 participants can receive service at the same time in parallel service streams.

Participants receive a Kidney Health Passport where information about their health is recorded and they will take home. NOTE – the pharmacy needs to also keep a record of service provided. This can be done using an excel spreadsheet, taking a copy of the completed passport or using an electronic record.

The order of service is at *your* discretion however, experience has shown that the following step-wise approach provides a logical flow.

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| **Station\* (if used)** | **Step in Passport** | **Service Description**  |
| A |  | Register participant in pharmacy record and give passport |
|  | 1 | Confirm age and gender |
| B |  | Explain the structure and function of the kidneys |
|  |  | Check CKD diagnosis status, height, weight, BMI, and blood pressure |
|  | 1-3 | Complete the “About Me”, “My Body Mass”, and “My Blood Pressure” |
| C | 4 | Use participant lab values (if available) to calculate eGFR and indicate where participant falls on eGFR spectrum  |
|  | 5 | Complete the “Current Medications” section |
|  | 6 | Complete the “My Risk Factors” section |
| D | 7 | Interpret results and establish “My Plan” with the patient |
|  | 8-9 | Complete “Recommended Follow-Up” and Pharmacist signs the passport  |

\*If service offered in stations, Station A can be staffed by an administrative person. Stations B and C can be staffed by pharmacy students with pharmacist supervision or other registered health care professionals. Station D is for the licensed pharmacist.

**Materials**

In addition to this Guide, materials provided for use at a Kidney Health event are:

* Kidney Health Passport
* Images (to print or load onto an iPad and have available at Station B)
* Clinical Resources (to have available at Stations C and D)
* Recommended list of supplies to have on-hand
* Sample feedback survey questions

**Preparatory Readings**

Clinical people who will be providing service in the Kidney Health event are encouraged to read the following materials as a refresher on the elements of kidney health being measured and discussed at this event:

1. Overview of kidney anatomy and kidney disease

National Kidney Foundation – Kidneys and Kidney Disease

<https://www.kidney.org/sites/default/files/11-10-0101.pdf>

HealthLinkBC – Serum creatinine and glomerular filtration rate:

<https://www.healthlinkbc.ca/health-topics/stc123819#stc123819-sec>

<https://www.healthlinkbc.ca/health-topics/aa154102>

Video – Pathology, Symptoms, Diagnosis and Treatment of CKD

<https://www.youtube.com/watch?v=E1myFSlpy-A>

1. CKD in Primary Care

Pragmatic and Observational Research - Chronic Kidney Disease: Identification and Management in Primary Care

<https://www.ncbi.nlm.nih.gov/pubmed/27822135>

**Service Delivery: Step-by-Step**

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| **Station A:** Registration, About Me  |

*“Welcome to our Kidney Health event. You will be receiving information about kidney disease and your health. This information will be recorded in a passport for you to take with you. To start, we will record your name, year of birth, your gender and today’s date. Please proceed to station B.”*

-End of Station A-

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| **Station B:** Education, My Body Mass, My Blood Pressure  |

*“At this station we will talk a little bit about what the kidney is, what it does for us and why kidney health is so important. Then we will take some body mass measurements as well as a blood pressure reading. Do you have any questions before we start?”*

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| **Diagnosis**  | * Ask participant if they have a known diagnosis of chronic kidney disease
	+ If yes, document by checking off the box found in the “About Me” section of the passport
 |
| **Education**  | * Use the following resources for this component:
	+ Image of kidney anatomy
	+ Image of kidney function
* Where are the kidneys located – Key Messages:
	+ Your kidneys are two bean-shaped organs that are about the size of your fists
	+ They are found on either side of your spine and are responsible for filtering the waste out of your blood
	+ The waste products leave the body as urine via the ureters
	+ The ureters are connected to the bladder – this is where the urine is stored until you go to the bathroom
	+ The stored urine leaves the bladder and your body via the urethra
* The kidney and its role – Key Messages:
	+ Help to maintain the right amount of fluid and electrolytes in our bodies
		- The kidney filters ~180 L of fluid each day, this means that all the blood in your body (~3 L) is filtered 60 times per day!
	+ Help to balance the minerals in our body (e.g., excess salt)
	+ Produce important hormones for our body
		- These hormones help us to make red blood cells and control our blood pressure
	+ Activate vitamin D which is required to absorb calcium – this helps to keep our bones healthy
* The importance of kidney health – Key Messages:
	+ 1 in 10 Canadians have kidney disease
	+ It is important to test for kidney function because we may not experience any symptoms of kidney disease (e.g., fatigue, appetite loss) even if we have it
		- In some cases, individuals can lose more than 50% of their kidney function before they start to experience symptoms
	+ Early detection is beneficial:
		- It can help slow down the progression
		- It gives us an opportunity to reduce the complications which may arise from kidney disease (e.g., anemia, cardiovascular disease, electrolyte imbalances, bone disorders)
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| **Body Mass**  | * Supplies: digital scale, stadiometer (or other measurement device for height), BMI calculator on iPad
	+ CCS Lipid Guidelines BMI Calculator - https://apps.apple.com/ca/app/iccs/id932264994
* *“Our weight can influence our risk for developing or worsening risk factors which can lead to kidney disease, two examples of such risk factors include high blood pressure and diabetes”*
* Record the following information in passport:
	+ Weight (kg)
	+ Height (cm)
	+ BMI (= kg/m2) – *to be calculated using app on iPad*
	+ *Note: participants may choose to leave footwear on or off*
 |
| **Blood Pressure Reading**  | * Supplies: automated blood pressure cuff
* *“Long term uncontrolled blood pressure can damage the filtering system of your kidneys and increase your risk for kidney disease.”*
* Taking blood pressure:
	+ Ask the participant if they are aware of what their normal blood pressure reading is
	+ Confirm which arm to take reading on with participant
	+ Proper position – seated, back supported, feet flat on the floor, arm supported and at heart level
	+ Ask participant to not talk while the reading is being done
	+ Confirm that you are starting before pressing “start” on the machine
* Only take one measurement unless the reading is abnormally high and the participant does not have a history of hypertension in which case repeat the reading
* Describe the appropriate target for the participant
	+ Systolic blood pressure
		- < 120 mmHg – if participant has been advised by physician to maintain tighter control due to heart health problems (e.g., heart attack)
		- < 130 mmHg – if participant has diabetes
		- < 140 mmHg – if participant cannot tolerate a lower target (e.g., experiences symptoms of dizziness, fainting, orthostatic hypotension, falls risk)
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-End of Station B-

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| **Station C:** eGFR, Medications, Risk Factors |

*“At this station, we are going use your lab results (if available) to measure your kidney function. We will also be going over any medications you are taking as well as any risk factors you may have for kidney disease. Do you have any questions before we start?”*

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| **eGFR** | * Educational points – key messages:
	+ We will be using your serum creatinine levels from lab results (if available) to measure kidney function
	+ Creatinine is a waste product formed by our bodies
	+ Our kidneys filter creatinine out of our blood and remove it from our body in the urine
	+ If our kidneys are not functioning normally, the amount of creatinine found in our urine will be lower than normal, while the amount found in our blood will be higher than normal
	+ By using our serum creatinine level, we can determine the rate at which our kidneys are filtering our blood and removing excess wastes and fluids – this rate is known as glomerular filtration rate, or GFR for short
* Documenting serum creatinine in the participant passport:
	+ Canadian labs will report serum creatinine using the International System of Units – which are μmol/L
	+ As such, if lab values are in mg/dL, please document the participant’s serum creatinine using these units (μmol/L), the conversion is as follows:
		- μmol/L = (mg/dL) x (88.4)
* Determining eGFR using the CKD-EPI equation
	+ National Kidney Foundation Calculators - <https://apps.apple.com/ca/app/egfr-calculators/id483182385>
	+ CKD-EPI also available from MedCalc App:

<https://www.mdcalc.com/ckd-epi-equations-glomerular-filtration-rate-gfr> * + Use the participant’s serum creatinine, race, age and sex to determine their eGFR
	+ Record value obtained in participant’s passport
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| **Medications**  | * Write down the names of all the medications (strengths/directions not needed) that the participant is taking for them in their passport, please include:
	+ Prescription medications
	+ Non-prescription medications
	+ Supplements/vitamins
	+ Natural health products
 |
| **Risk Factors\***  | * Review list of risk factors with participant and check off all that apply to them
* Checklist in passport:
	+ Diabetes
	+ High blood pressure
	+ Heart disease (history of heart attack, stroke)
	+ Family history of kidney disease
	+ Aboriginal, Asian, South Asian, African, Caribbean, Pacific Islander, Hispanic descent
	+ Current or recent (within the last 6 months) tobacco use
	+ BMI ≥ 30 kg/m2
	+ Use of medications that may potentially be harmful to the kidney
	+ Past urine test positive for protein
	+ Physical Inactivity (< 30 minutes/day)
	+ Personal history of concerns involving the urinary system (e.g., kidney stones, kidney surgery, cancer of kidney or prostate gland)
 |

**\*Risk Factors**

*Note: Listed below are explanations for why these are considered to be risk factors*

* Diabetes
	+ The filtering system of our kidneys can be damaged by uncontrolled blood sugar
	+ Of those individuals who have diabetes, as many as 50% may show signs of kidney damage
* High blood pressure
	+ When our blood pressure is too high for too long, it can damage the filtering system of our kidneys
	+ One of the leading causes of chronic kidney disease
* Heart disease (e.g., heart attack, stroke)
	+ Individuals with a history of heart disease may have arteries that have hardened over time – this affects the blood flowing into the kidneys which in turn can cause damage to the kidney
* Ethnicity
	+ Certain ethnic groups are at a higher risk of developing diabetes or hypertension – two of the greatest risk factors for kidney disease
* Tobacco use
	+ Smoking is a common risk factor for many chronic conditions
	+ Smoking increases the risk of individuals developing diabetes, it can also increase blood pressure which can damage blood vessels and harden arteries
* BMI ≥ 30 kg/m2
	+ Having an unhealthy weight increases risk for developing diabetes and high blood pressure
* Medications that may be harmful to kidney
	+ Taking non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen or naproxen regularly for long periods of time
	+ Other examples: lithium, cisplatin, cyclosporine, tacrolimus, herbs (e.g., aristolochic acid), contrast dye
* Urine test positive for protein
	+ When our kidneys work normally, waste products are filtered out from our blood to form urine – but if the filtering system is damaged then proteins from our blood can end up in the urine
* Physical inactivity
	+ Can contribute to unhealthy weight and the development of chronic conditions such as diabetes (type 2) and hypertension
* Personal history of concerns involving the urinary system
	+ Past problems related to the urinary system (such as kidney stones, frequent urine infections, cancer) can put excessive strain on the kidneys which could lead to further kidney damage

*“You are ready to move on to Station D where we will review the information we’ve gathered, discuss your results and answer your questions.”*

-End of Station C-

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| **Station D:** Results/Interpretation, Plan, Follow-Up  |

*“At this station we will review the results of your kidney function test, make a follow-up plan and answer any questions you may have.”*

Note: At this station you will be required to document the participant-specific content within the Kidney Health Passport onto a record that will be kept at the Pharmacy. The participant will be taking their Passport away with them.

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| **Interpretation of results**  | * Take participant’s eGFR reading and compare where they stand with the Kidney Disease Improving Global Outcomes (KDIGO) chronic kidney disease staging system: https://kdigo.org/wp-content/uploads/2017/02/KDIGO\_2012\_CKD\_GL.pdf

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| **eGFR range**(mL/min/1.73m2) | **Terms** |
| ≥ 90 | Normal or high |
| 60-89 | Mildly decreased |
| 45-59 | Mildly to moderately decreased |
| 30-44 | Moderately to severely decreased |
| 15-29 | Severely decreased |
| < 15 | Kidney failure |

* Educate participants that an eGFR ≥ 60 mL/min/1.73m2 does not necessarily confirm the absence of chronic kidney disease
	+ It is just one component of the overall assessment when determining kidney function/risk for kidney disease
	+ A complete evaluation would also include assessment of the participant’s albumin to creatinine ratio (ACR)
		- Not possible to complete during the Kidney Health Awareness event due to logistical reasons
		- This test assesses how much albumin (protein) can be found in the urine. When the kidney is functioning normally it will not allow protein to pass into the urine, however, a damaged kidney will allow protein to be detected in the urine.
 |
| **Plan**  | * Tailor discussion based on participant’s risk factors for chronic kidney disease
	+ Modifiable risk factors
		- Reinforce positive lifestyle measures (e.g., eating a healthy diet, exercising ≥ 150 minutes/week)
		- Reinforce/encourage smoking cessation
	+ Known chronic kidney disease
		- Reinforce/encourage positive lifestyle measures (e.g. healthy diet, physical activity, smoking cessation)
		- Educate diabetic and hypertensive participants on the importance of keeping their condition in control through lifestyle modifications and medication use/adherence as appropriate
		- Advise participants that the dosages of their medications may need to be adjusted given their kidney function (important to ensure all prescribers are aware of kidney function)
		- Encourage regular check-ups with family physician
 |
| **Follow-Up** | * Types of participants appropriate for referral to GP:
	+ Those with an eGFR reading of < 60 mL/min/1.73m2 who are not aware of their kidney health
		- Encourage these participants to see their doctor within the next month
	+ Those with previously undetected medication or modifiable risk factors
* Types of participants appropriate for referral to pharmacists:
	+ Those with modifiable risk factors for kidney disease
	+ Those with uncontrolled diabetes
	+ Those with uncontrolled hypertension
	+ Those who are interested in quitting smoking
	+ Any individuals with further questions and concerns regarding their health and/or medications
* For participants who are otherwise healthy:
	+ Encourage regular checkups with physician
	+ A future assessment of kidney function may be completed depending on the presence of risk factors (e.g., increasing age, changes in conditions, changes in lifestyle habits)
	+ <https://www2.gov.bc.ca/assets/gov/health/practitioner-pro/bc-guidelines/ckd-full-guideline.pdf>
		- See guideline page 4 for more information about screening frequency
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Note: At this station you may display various handouts available for participants to take should they wish to do so. Please bring handouts that may be applicable to them to their attention.

* <https://www2.gov.bc.ca/assets/gov/health/health-drug-coverage/pharmacare/pc-scp.pdf>
* <https://www.healthlinkbc.ca/hlbc/files/documents/healthfiles/hfile68b.pdf>
* <https://www2.gov.bc.ca/assets/gov/health/practitioner-pro/bc-guidelines/ckd-patient-info.pdf>

*“You’ve now completed the kidney health assessment. Thank you for taking the time to invest in your health.”*

*OPTION – ask participants for feedback to assist you in understanding how this event worked.*

-End of Station D-