Supplemental File 4. Challenges and potential solutions to CKD management identified by study participants by professional role categories

Professional role	**What are the biggest challenges you face in managing CKD patients in your practice?**	**How do you/could you overcome these challenges (i.e., types of supports that would be helpful)?**
Dietitian	Limited communication with the SARP team or nephrologist.	Facilitating communication lines between specialist clinics and PCN clinic staff for our mutual patients.
	Managing protein and fluid intake.	
	Communicating effectively with their family physician Understanding when a referral is necessary	Clear guidelines for referrals. Better communications with the physicians
	Getting patients to adhere to nutrition guidelines	Regular follow-ups; client-centered approach.
	Confidence in identifying those with; when a referral is necessary.	
Nurse Practitioner	patient compliance	patient education, goal setting, regular follow up, increased financial support for medications would be beneficial
	Lack of knowledge, lack of confidence in implementing the CKD pathway	Reading over the CKD pathway, critical thinking, further education (such as this workshop)
	BP monitoring, medication compliance	
	readiness of the patient to make changes, physician referral to nephrology when indicated according to the pathway.	I try to set small achievable goals with patient to make a healthy change. I quote the CKD pathway in my letters back to physician when needing to advocate for nephrology referral.
	Having physician's complete referral to nephrology when indicated.	More education for physicians on CKD Pathway.
	knowing the direction/path to follow and facilitating appropriate referrals by physicians	key phrases to include in letters to physicians supporting CKD pathway use?
	Pt information	More handouts regarding phosphorous and how often to monitor eGFR if abnormal

Nurse Practitioner	Distraction from other issues..ex hyperglycemia, tend to focus on optimal glycemic control; education-long term complications or self care.	Reviewing guidelines.
	Specifically medication dosages in regards to diabetes medications	The newly found CKD pathway and timed right. Online group of peers.
	Appropriate timely referrals	Participate in Educational Opportunities
	maintenance of patient continuity of care; patient returning to same provider time and time again, completing screening labwork, making recommended dietary and lifestyle modifications, medication compliance	establishment of a meaningful, therapeutic relationship with each CKD patient; making myself available for any questions or concerns, assisting with the booking of follow-up appointments with myself while patient is still in the examination room with me (vs. leaving patient responsible for initiation of follow-up visits)
Pharmacist	compliance and access to timely referral follow up. Timely consult info to be received from specialists	
	I manage warfarin therapy and CKD patients tend to be more unstable. I would like to spend more time to review the medications but am only involved with warfarin adjustment.	Access to a 'specialist' if there are any questions about drug therapy for patients in our acute care hospital
	Lack of thorough, in-depth knowledge of current guidelines to confidently manage/suggest medication adjustments.	More education re: same topic and a resource to refer to as needed.
	Helping patients get access to CKD care	Understanding the CKD pathway and system, and better utilizing the resources available on Netcare
Physician	Knowing when is best to refer to nephrology	Guidelines with this - sounds like this presentation will provide this
	need for diuretics, ace inhibitors	more guidance from specialists
	CONVINCING THEM TO ATTAIN GOOD CONTROL OF THEIR CONCURRENT DM, HTN	PCN DIABETIC CARE GROUP AND DNCP ARE OF GREAT HELP, THOUGH SOME PATIENT SIMPLY DO NOT CARE
	Distance needed to travel to see nephrology and to go for dialysis if required	Telehealth with nephrology, have a few dialysis units closer to home

Physician	medications, patient compliance	better online guidelines about CKD and comorbidities
	complex patients with multiple medical problems	pcn nurse, nephrologist, treatment guidelines
	getting advice from nephrologist, I would like to get recommendation on the first visit (and letter) then when I need, most of the time yearly or less frequently	I cannot, it is the system I have to live with
	knowing how adjust some of the medications as Crcl declines: ie metformin, ACE ARB, NOACs, antibiotics	good APPS, and Netcare info
	Time needed to manage their health care needs	Involvement of the PCN more in the renal failure
	lack of available timely referral to nephrology	central coordinating
	I am a locum now and do not see pts on a longitudinal basis, though I work in the same 2 clinics most of the time ...when I had my own practice here, a main problem was and still remains getting access to nephrology. our system had only one nephrologist and I did not find him helpful. The prov renal programme does follow pat's regularly and the nurse sends follow-up notes , very rarely from the nephrologist re his long term thinking or plans.	More use is now being made of tele med. the closest actual out reach clinic is 1.5 hrs away, which is a huge issue for the commonly elderly and debilitated pts. our local dialysis unit was removed.
	compliance	engage family members
	Knowing when to refer and most optimal monitoring and treatment	UpToDate reading and occasional referrals
	Compliance with disease modification strategies.	Education supports for patients in the form of healthy living education similar to what we have for obesity and diabetes or any other resources developed for the same purpose that have been successful.
	Long waiting times	More nephrologists in the country
	access to resources	better referral system locally
	timely access to nephrology	more nephrologists available in Red Deer
	Delayed referral	

Physician	adherence to therapy	Patient education for patients prior to deteriorating to the point of requiring referral to a nephrologist.
	Adjusting doses	would like to hear from you
	young population in our community means lower numbers of ckd patients which doesn't encourage development of expertise.	Locally rum Diabetic nephropathy prevention clinic has been super helpful.
	access to dialysis	move the patients to Calgary!
	keeping track of their renal function and ensure appropriate care	more clear guidelines in regards to appropriate referral
	Compliance	Have local PCN nurse follow up patients in this regard
	Identifying total risk	Learn
	Referral access to Nephrology Effective interventions	More specific criteria for acceptance for special populations
	Knowing how to manage their medications, remembering to titrate the doses of other medications	Setting a pop up in the EMR to remind me to consider renal clearance when writing any prescription for a patient would be helpful
	Providing care for patients on dialysis	Telehealth
	Not knowing exactly when to refer to nephrology as eGFR is slowly trending down.	Teachings!
	Helping them manage their chronic pain with limited choices of medications where NSAIDS are choice. Poorly controlled hypertension, poorly controlled hyperglycemia.	Identifying barriers to improving, barriers are multifaceted as well.
	medication, fluid	simple hand out easy access to specialist advise
	Controlling their risk factors	Our good health team
	Knowing when to refer. How to monitor	Guidelines

Physician	Control of diabetes/BP/phosphate intake, prevention/management of renal osteodystrophy and management of anemia.	Expansion of service provided by diabetic nephropathy prevention clinic to become more of a nephropathy prevention clinic (include non-diabetics with nephropathy as well as diabetics who do not yet have nephropathy).
	Getting too much diuretics from other sources (walk-in clinics, hospital ER doctors). Patients failed to follow up BP.	Educating the patients.
	Keeping the kidney function from declining even further	Referral to a nephrologist
	Lifestyle changes	Lifestyle help - weight loss / diabetes
	WHEN TO REFER AND BEST MEDICATION PRACTICES	ANTICIPATE THIS EDUCATIONAL SESSION WILL BE VERY HELPFUL
	long wait to see a specialist	means for getting advice faster
	Educating patients about what CKD is, motivating them to take medication or make lifestyle changes.	Easy access to nursing education support and help monitoring patients for adherence and follow up. Occasionally, quick access to Nephro for non-urgent advice.
	Losing patients to regular follow up.	Utilization of reminders for patients to follow up.
	managing other medications patients might be on	booklet of other drugs that may need dosage adjustments have one for antibiotics
	Figuring out what the cause of their CKD is to explain it to patients.	I'm not sure.
	diabetes management, compliance, patient understanding of their disease	PCN supports, specialist involvement, regular follow up
	Compliance to chronic medications	Bubble pack, support groups
	Identifying patients requiring specialist referral Preventing progression of CKD dose adjusting medication for patients with CKD	Better use of CKD pathway

Physician	Getting specialist input	Learn more about the Netcare ereferral and eadvice
	dose adjustments for common medications and what alternatives to use for comorbidities requiring NSAID treatment	
	time to manage, referral always out of town	Telehealth, more feedback from the specialists
	Lack of continuity as resident	Graduate and have my own practice
	little experience, knowledge of renal dosing of drugs	look it up! use the CKD pathway!
	Lack of resources in the community; unclear pathway-to refer or not to refer	more education/training regarding resources available; Patient education programs
	Rural location; Patient location-pt. on reserve	Dialysis in our own community; utilize our CDM Team
	poor diabetes control, traveling for dialysis-missed appt.	frequent contact with pt.
	pt. compliance; Delay in response of specialist	Training
Other Clinic staff	Understanding CKD, patient education. Accessing resources. Variable recommendations/ guidelines. Patient access (rural area) - pts lost to follow up.	Closer monitoring of patients - improve use of EMR database to track and monitor testing/follow ups etc. Clear and consistent guidelines Improved/timely access to specialist Improve my understanding and use of netcare resources
	One of the biggest challenges I have faced is waitlists for patients to be seen by some nephrologists in the Edmonton area.	Within some of our clinics we have in house nephrologists that we have referred to who have been able to have patients be assessed in am ore timely fashion.
	When to refer	More education
	lack of knowledge	become more educated
	REFERRALS- WAIT TIMES	CALL MANY PLACES