Care of patients at risk for or with chronic kidney disease

Quality Measure	Recommendations/Resources and Tools	Business Case
Identification – the hospital has a mechanism in place to calculate and report an eGFR on all patients age 18 and older with a serum creatinine.	KDOQI – NKF 1. Definition and Stages of Chronic Kidney Disease: Adverse outcomes of chronic kidney disease (CKD) (defined as either kidney damage or GFR < 60 ml/min/1.73 m^2) can often be prevented or delayed through early detection and treatment. http://www.kidney.org/professionals/KDOQI/guidelines_ckd/toc.htm KDOQI – NKF 4. Estimation of GFR CKD Stage 1 – GFR ≥ 90 ml/min/1.73 m^2 CKD Stage 2 – GFR 60 – 89 ml/min/1.73 m^2 CKD Stage 3 – GFR 30 – 59 ml/min/1.73 m^2 CKD Stage 4 – GFR 15 – 29 ml/min/1.73 m^2 CKD Stage 5 – GFR < 15 ml/min/1.73 m^2 (or dialysis) Tools: Midwest CKD Coalition Position Paper on GFR Reporting	Potential to reduce need for frequent ER visits or inpatient admissions for kidney related complications.
Identification – the hospital has an alert flag for a patient with a laboratory value eGFR 45 – 59 (Stage 3 CKD). Patients with Stage 3 CKD are at risk for progression to kidney failure (Stage 4 or Stage 5 CKD). It is important to pay attention in order to prevent further avoidable damage to the kidneys during hospital stay.	Trigger (eGFR 45 - 59) is used to alert staff to implement Kidney Care Protocols which include: 1. Patient education - basic information related to chronic kidney disease. 2. Pharmacy review/alert – current and proposed medications. 3. Radiology/Pharmacy alerts – nephro-toxic agents and IV contrast. 4. Dietary consult – basic renal diet information. 5. Discharge plan to include summary of pertinent information including serum creatinine and eGFR results to be communicated back to the Primary Care Physician via a copy of the Discharge Summary. 6. Discharge plan to include appointment (or at least a recommendation for appointment) with Nephrology as outpatient for patients with complicated Stage 3 CKD[1]. Tools: GFR calculator Discharge Communication Sheet	Communication back to the Primary Care Physician can ensure timely follow-up of abnormal lab value and confirmation of chronic kidney disease. Early referral to Nephrology can result in enhanced coordination of kidney care management and kidney disease complications co-management. Effective kidney care management can prevent the need for frequent ER visits or inpatient admissions.

[1] Complicated Stage 3 CKD patients include patients with poorly controlled hypertension, heavy proteinuria, young age at onset of CKD, rapid progression of renal failure and autoimmune disease.

Treatment – an eGFR 30 – 45 (Stage 3 CKD) triggers a plan of action (Kidney Care Protocol). Patients with Stage 3 or Stage 4 CKD are at risk for progression to kidney failure (ESRD or Stage 5). It is important to pay attention in order to prevent further avoidable damage to the kidneys during hospital stay.	Trigger (eGFR 30 – 45) will alert staff to implement Kidney Care Protocols which include all aspects listed above plus: 1. Discussion with patient about current knowledge levels and education related to renal replacement options. (Acute care dialysis team may be able to provide patient education resources) 2. Vessel preservation - limiting use of veins to below the wrists until vessel mapping can be arranged. Use of below wrist veins if there is a critical need for IV infusions (ex: in ER, middle of night with no surgical services). Consider alternative central venous catheter options such as tunneled IJ if there is need for long-term IV medication. 3. Vessel preservation – review of PICC line protocols – tie to nephrology consult prior to placement – reduce or eliminate use. Maintaining vessel integrity is essential to provide a future dialysis permanent access placement site. PICC Team should assess renal function as well as any prior history of venous access device sites. Consider Alert language on PICC Line Order Sheet such as: “All patients with abnormal BUN or creatinine require nephrology clearance for PICC Line placement”. 4. Nephrology consult during inpatient stay. 5. Vessel mapping during inpatient stay. Vessel mapping can identify the most appropriate extremity for vessel preservation. 6. Discharge plan for outpatient vessel mapping if unable to complete while inpatient. 7. Discharge plan to include follow-up appointment with Nephrology. 8. Discharge plan to include recommendation for Access Surgeon consult. 9. Discharge plan to include social service assessment and recommendations for resources to address additional needs such as financial resources, transportation, and education. Tools: What Hospital Professionals Can Do Recommendations for minimal use of PICC Lines Guidelines for PICC Avoidance Reducing the use of PICC Lines in CKD Algorithm Vein Preservation and Hemodialysis Fistula Protection	Effective kidney care management can prevent need for frequent ER visits or inpatient admissions.

Treatment – an eGFR 15 – 29 (Stage 4 CKD) triggers a plan of action (Kidney Care Protocol).	Trigger (eGFR 15 – 29) will alert staff to implement Kidney Care Protocols which include all aspects listed above plus: 1. Vessel mapping as inpatient. 2. Arrangements for vascular access surgeon consult. 3. Discharge plan to include coordination of appointment for outpatient AV Fistula placement if patient elects hemodialysis as RRT. 4. Discharge plan which includes coordination with Dialysis Center staff to initiate patient/family orientation and education. Tools: Saving Vasculature Reducing Central Line Catheter Infections Diagram	Decreased use of central lines can avoid costs related to infection. Effective kidney care management can prevent need for frequent ER visits or inpatient admissions.
Treatment – for patients already at eGFR less than 15 (Stage 5) and/or on dialysis there is an action plan (Kidney Care Protocol)	Trigger (eGFR < 15) will alert staff to implement Kidney Care Protocol which includes: 1. Review of current therapy and access site. 2. Discussion of AV fistula if not already in place for those on hemodialysis. 3. Vessel mapping. 4. Arrangements for vascular access surgeon consult. 5. Discussion of possibility for AV fistula placement during stay. 6. Discharge plan to include coordination of appointment for outpatient vessel mapping and AV fistula placement if not done during inpatient stay. Tools: Temporary Catheter Alert Vein Preservation and Hemodialysis Fistula Protection Reducing Central Venous Catheter Infections Diagram	Conversion to permanent dialysis access will decrease risk of infection and need for frequent ER visits or inpatient admissions.

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