NATIONAL KIDNEY FOUNDATION® of Michigan

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CHRONIC KIDNEY DISEASE PLAYBOOK

OVERVIEW

The Michigan Primary Care Association, in collaboration with the National Kidney Foundation of Michigan, has developed a comprehensive playbook to enhance the screening, diagnosis, and management of chronic kidney disease. This playbook incorporates Azara and other clinical support tools, along with a wealth of resources and educational materials, to assist health centers in effectively addressing chronic kidney disease.

APPLICABLE HEALTH CENTER STAFF

- Clinical support staff (registration, CHWs, MAs, nurses, etc.)
- Providers (MDs, NPs, PAs, residents)
- Care managers/care coordinators
- Quality improvement
- Pharmacy

Contents

I. Introduction

What is Chronic Kidney Disease (CKD)?

Chronic kidney disease is the loss of kidney function over time. CKD can lead to heart attack, stroke, anemia, kidney failure, and death and there are usually no symptoms of CKD until later stages of disease. Individuals with diabetes and/or hypertension, have a family member with CKD or are African American, Hispanic, Native American, Asian, or Pacific Islander are at higher risk for CKD, with 64% of kidney failure in the United States being caused by diabetes or hypertension.

Over 30 million Americans have CKD, which is costly, accounting for over $100M of expenditures for Medicare beneficiaries. Kidney disease is the 9th leading cause of death in the United States and only 25% of individuals with CKD even know they have it.

There is no cure for CKD, but progression may be slowed down with early detection, medication, healthy eating, and exercise. If an individual reaches end-stage renal disease (ESRD) or kidney failure, they would require dialysis or a kidney transplant[1].

CKD Diagnosis

Laboratory tests (both required for diagnosis)	Diagnosis criteria
1. Estimated glomerular filtration rate (eGFR) (CPT code 81235)	Abnormalities of kidney structure or function, which must be present for 3 or more months with health implications
2. Albumin-creatinine ratio (uACR) (CPT code 82043 and 82570)	Either of the following must be present for more than 3 months • eGFR: <60mL/min/1.73m^2 • Markers of kidney damage (one or more) such as albuminuria (>30mg/g), glomerular hematuria, kidney biopsy abnormalities, or polycystic kidney disease on imaging studies

[1] https://www.kidney.org/kidney-topics/chronic-kidney-disease-ckd

Once CKD has been diagnosed, based on the test results and diagnosis criteria, utilize the CKD Heat Map to determine staging and appropriate follow-up. The eGFR and albuminuria grid depicts the risk of progression, morbidity, and mortality by color, from lowest to highest (green, yellow, orange, red, deep red). The numbers in the boxes are a guide to the frequency of assessment annually. Green: annual assessment for those at risk. (Green can reflect CKD with normal eGFR and albumin-to-creatinine ratio (uACR) only in the presence of other markers of kidney damage, such as imaging showing polycystic kidney disease or kidney biopsy abnormalities); Yellow suggests assessment at least once per year; Orange suggests assessment twice per year; Red suggests assessment three times annually; Deep red suggests assessment four times annually. These are general parameters only, based on expert opinion and must consider underlying comorbid conditions and disease state, as well as the likelihood of impacting a change in management for any individual patient[2]

CKD is classified based on: • Cause (C) • GFR (G) • Albuminuria (A)				Albuminuria categories Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severely increased
				<30 mg/g <3 mg/mmol	30-299 mg/g 3-29 mg/mmol	≥300 mg/g ≥30 mg/mmol
GFR categories (mL/min/1.73 m^2) Description and range	G1	Normal to high	≥90	1 if CKD	Treat 1	Refer* 2
	G2	Mildly decreased	60-89	1 if CKD	Treat 1	Refer* 2
	G3a	Mildly to moderately decreased	45-59	Treat 1	Treat 2	Refer 3
	G3b	Moderately to severely decreased	30-44	Treat 2	Treat 3	Refer 3
	G4	Severely decreased	15-29	Refer* 3	Refer* 3	Refer 4+
	G5	Kidney failure	<15	Refer 4+	Refer 4+	Refer 4+

CKD Stage	ICD-10 Codes
Stage 1	N18.1
Stage 2	N18.2
Stage 3	N18.3
Stage 4	N18.4
Stage 5	N18.5
CKD unspecified	N18.9

[2] https://nkfm.org/wp-content/uploads/2023/07/NKF-KED-HEDIS-Flyer1.pdf

Importance of CKD Screening

In Michigan, more than a million adults have CKD and most of them don't even know it[3].

Early recognition of CKD has many benefits, including, the opportunity to support kidney protective care by improving the management of modifiable risk factors, limiting patient safety risks associated with CKD, and encouraging appropriate and timely referral to nephrology.

The National Kidney Foundation (NKF) has developed a clinical workflow to support providers in increasing CKD screening and management in primary care.

Primary Care and CKD

Primary care professionals play a large role in chronic kidney disease, including early detection/screening, proper treatment, and providing patient education. Focusing on CKD in primary care can improve patient outcomes through screening, management of modifiable risk factors, and management of CKD prior to a referral to nephrology.

Goals of CKD screening and management in primary care[4]

Ensuring screening based on risk factors	Ensuring diagnosis of CKD is in the patient chart	Slowing decline in kidney function	Achieving blood pressure control
Achieving glucose control	Use of ACEi or ARB, SGLT2i medications	Modification of cardiovascular risk factors (smoking, weight reduction, exercise, lipid-lowering therapy)	Detecting and management of CKD complications (anemia, CKD mineral and bone disorder, metabolic acidosis, hyperkalemia)

[3] https://nkfm.org/conditions/kidney-disease/
[4] https://www.kidney.org/sites/default/files/CKDinform%20-%20Module%201%20-%20Core%20Slides%2011.16.15.pdf

Team Based Care and Phases of Care

Team-based care is a model of care that strives to meet patient needs and preferences by actively engaging patients as full participants in their care, while encouraging and supporting all healthcare professionals to function to the full extent of their education, certification, and licensure. Team-based care includes provider staff (MD, DO, NP, PA), nursing staff (RN, LPN), care management/care coordination, clinical support staff (medical assistants, CHWs, front desk/registration, etc.), pharmacy, dental, behavioral health, etc. Team-based care is associated with decreased workload, increased efficiency, improved quality of care, improved patient outcomes, and decreased clinician burnout/turnover[5].

Team Members Impact on CKD

Community Health Workers (CHWs) are trained to address SDoH and other barriers a patient may face. CHWs can address and raise awareness of risk factors for CKD (such as hypertension and diabetes), and connect patients to testing, diagnosis, education, pharmacy services, etc.

[5] https://www.acponline.org/practice-resources/patient-and-interprofessional-education/team-based-care-toolkit#:~:text=Academy%20of%20Medicine-,What%20Is%20Team%2DBased%20Care%3F,education%2C%20certification%2C%20and%20licensure.%E2%80%8B

Care Managers can reduce the risk of CKD complications to the patient's overall health, ensure medication compliance, address barriers and provide support. Care managers can provide support and impact patients through patient education, by developing trust with the patient, building a personalized care plan, helping patients manage their diet and managing their medications.

Pharmacists can impact CKD by assisting patients with managing their medications, through renal dosing, changing medications if indicated, managing side effects, blood pressure and blood glucose control and monitoring for drug interactions. Pharmacists play a role in being a resource for physicians and care teams in regard to CKD medication management and are a resource for patients for education and navigating insurance barriers.

Utilizing a Phases of Care Approach in Primary Care

Phases of care is an approach utilizing different processes and phases for the care of a patient to ensure continuity of care and engage all team members throughout the process. Staff members involved may include front desk/registration/scheduling, clinical support staff (CHWs, MAs, population health team members), nurses, providers (MD, DO, NP, PA), and quality staff.

Phases of Care

Pre-Engagement	Pre-Visit	Rooming	Visit	Post-Visit
A patient may or may not have an appointment. Patients have open gaps in care. Outreach occurs during this phase.	The Patient has an appointment and is going to be seen today/tomorrow/etc. Chart prep occurs here. Azara PVP utilized during this phase.	The patient has been taken back to the room and MA/nurse is completing health history/vitals/etc. Standing orders utilized during this phase.	The provider is seeing the patient. Clinical support tools are used during this phase; education occurs during this phase	Lab results may be in, and staff review results and follow up with patients as needed. Staff may use this phase to monitor trends/quality metrics/referrals/etc.

Table Overview of CKD Tools

	Pre-Engagement	Pre-Visit	Rooming	Visit	Post-Visit
Team Member	• Clinical support staff • Quality improvement	• Clinical support staff • Providers	• Clinical support staff • Providers	• Clinical support staff • Providers	• All team members
Identification	• Registry: MPCA Chronic Kidney Disease • Dashboard: MPCA DM, HTN & CKD	• Automated patient outreach			
Screening	• Dashboard: MPCA CKD Screening Gaps	• Alerts: CKD Screening for Patients with DM or HTN	• Standing Orders • Quest Kidney Profile	• Quest Kidney Profile • Clinical Decision Tool for CKD	• Measures: Kidney Profile for DM or HTN • Measure: Lab Volume • Measure: Alert Closure (POC) • Dashboard: MPCA CKD Screening
Diagnosis	• Registry: MPCA Undiagnosed CKD			• Clinical Decision Tool for CKD • CKD Heat Map	• Cohort: High-Risk Kidney Profile • Registry: MPCA Undiagnosed CKD
Management & Monitoring					• Dashboard: MPCA DM, HTN & CKD • Care Effectiveness Report (CER): customized

Most of these tools require Azara utilization. If you do not have or use a certain feature of Azara, please consider your center's structure and resources such as EHR alerts or patient visit huddle templates.

II. CKD Tools in Azara DRVS

Measures

Kidney Profile for DM & Kidney Profile for HTN Measure

What is the tool?	Azara measures align with HEDIS criteria to track patients who received both the eGFR and uACR screening tests within the last 12 months.
Who would use the tool?	• Clinical support staff (registration, CHWs, MAs, nurses, etc.) • Care managers/care coordinators • Quality improvement
When would they use the tool?	Pre-Engagement & Post-Visit: • Track which patients have had their kidney profile screenings completed or due for screenings • Track the results of kidney profile screenings
How would they use the tool?	• Go to the Detail List of the measure to sort by gap (patients due for screening), numerator (patients already screened), results (sort by patients in high kidney risk), next appointment (sort by patients already coming in or without an appointment scheduled) • Click 3 dot ellipses in the top right corner to export the Detail List to Excel or send to automated patient outreach to create working lists for staff (i.e., patients in the gap could receive text notification) • Add a diagnosis filter to either measure to apply the other diagnosis to look at patients with both diabetes and hypertension

Kidney Profile for Patients with Diabetes

Patients aged 18-85 with an active diagnosis of Diabetes within the measurement period who have received an estimated glomerular filtration rate (eGFR) and a urine albumin-creatinine ratio (uACR) test within the last 12 months.

Numerator:
Patients who have received an estimated glomerular filtration rate (eGFR) and a urine albumin-creatinine ratio (uACR) test within the last 12 months.

- Urine albumin-creatinine ratio (uACR) test in the last 12 months
  - Or Urine albumin and Urine Creatinine results that are collected within 4 days of each other in the last 12 months
- AND
- Estimated glomerular filtration rate (eGFR) result in the last 12 months

Denominator:
Patients aged 18-85 with an active diagnosis of Diabetes at the beginning of the measurement period with a qualifying encounter in the last 12 months.

- Ages 18-85
- Active diagnosis of Diabetes Type 1 or Type 2
- Qualifying encounter in the last 12 months

Kidney Profile for Patients with HTN

Patients aged 18-85 with an active diagnosis of Hypertension within the measurement period who have received an estimated glomerular filtration rate (eGFR) and a urine albumin-creatinine ratio (uACR) result within the last 12 months.

Numerator:
Patients who have received an estimated glomerular filtration rate (eGFR) and a urine albumin-creatinine ratio (uACR) test within the last 12 months.

- Urine albumin-creatinine ratio (uACR) test in the last 12 months
  - Or Urine albumin and Urine Creatinine results that are collected within 4 days of each other in the last 12 months
- AND
- Estimated glomerular filtration rate (eGFR) result in the last 12 months

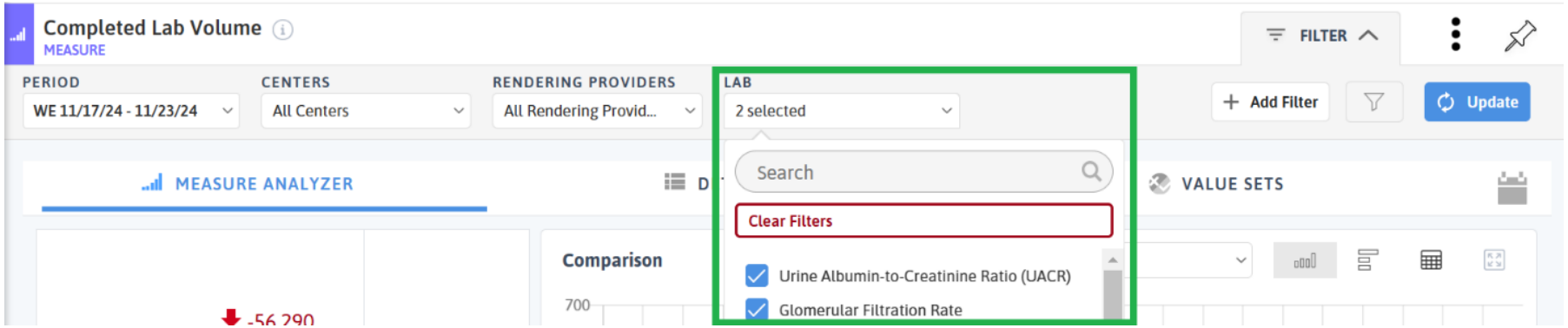
Denominator:
Patients aged 18-85 with an active diagnosis of Essential Hypertension at the beginning of the measurement period with a qualifying encounter in the last 12 months.

- Ages 18-85
- Active diagnosis of Essential Hypertension
- Qualifying encounter in the last 12 months

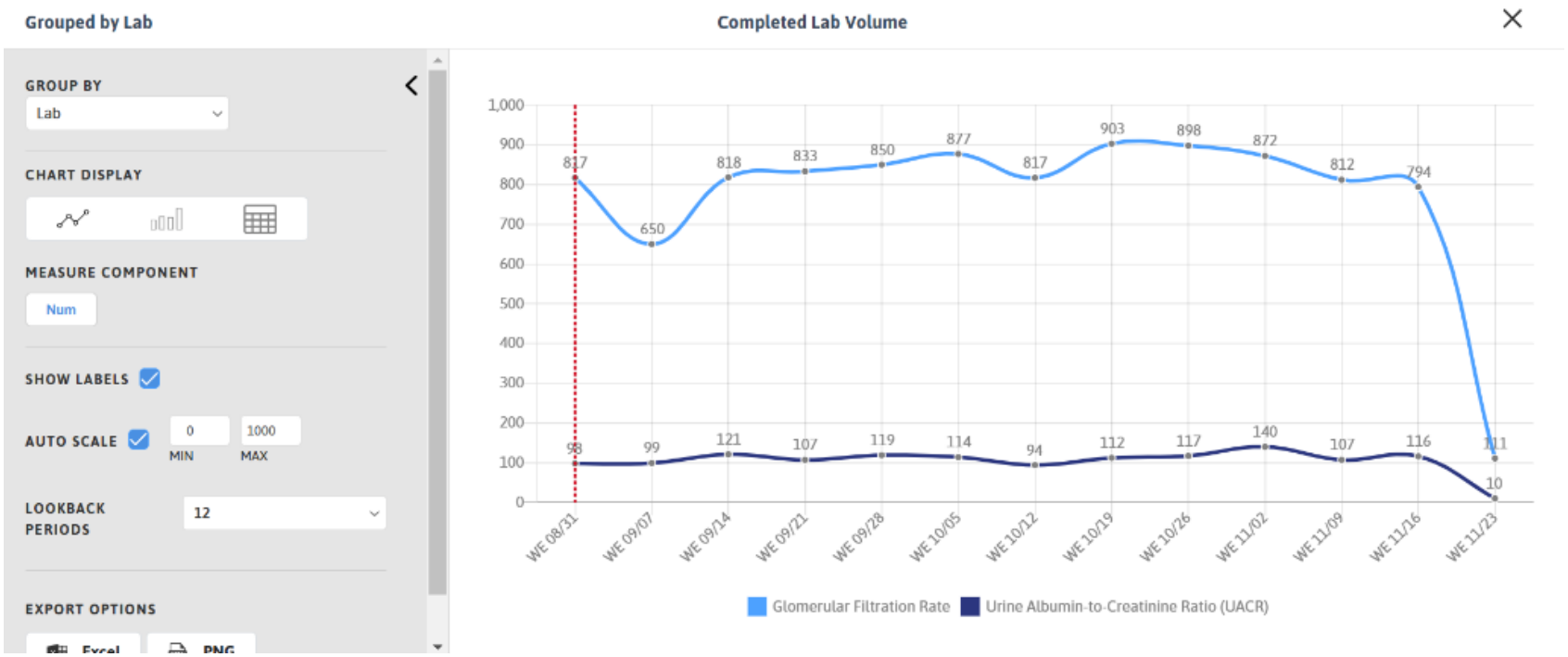
Completed Lab Volume Measure

What is the tool?	Azara measure that shows the number of completed labs in a set time period
Who would use the tool?	• Clinical support staff (registration, CHWs, MAs, nurses, etc.) • Care managers/care coordinators • Quality improvement
When would they use the tool?	Post visit: • Track the number of completed labs • Compare differences in both screeners required to meet measure requirements

How would they use the tool?	• Select time period
	• Select "Lab" from the dropdown menu (see screenshot below)
	  ○ Glomerular Filtration Rate
	  ○ Urine Albumin-to-Creatinine Ratio (UACR)
	• Group by lab type in the trendline or comparison window (see screenshot below) to ensure patients are getting both tests (UACR rates lower across the MPCA network)

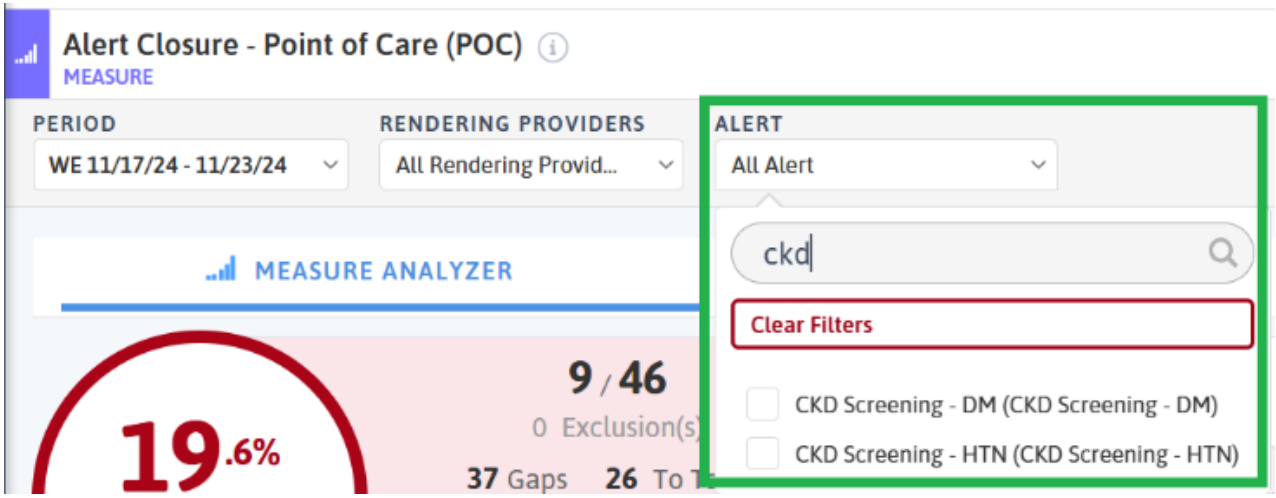


Completed Lab Volume Measure Continued

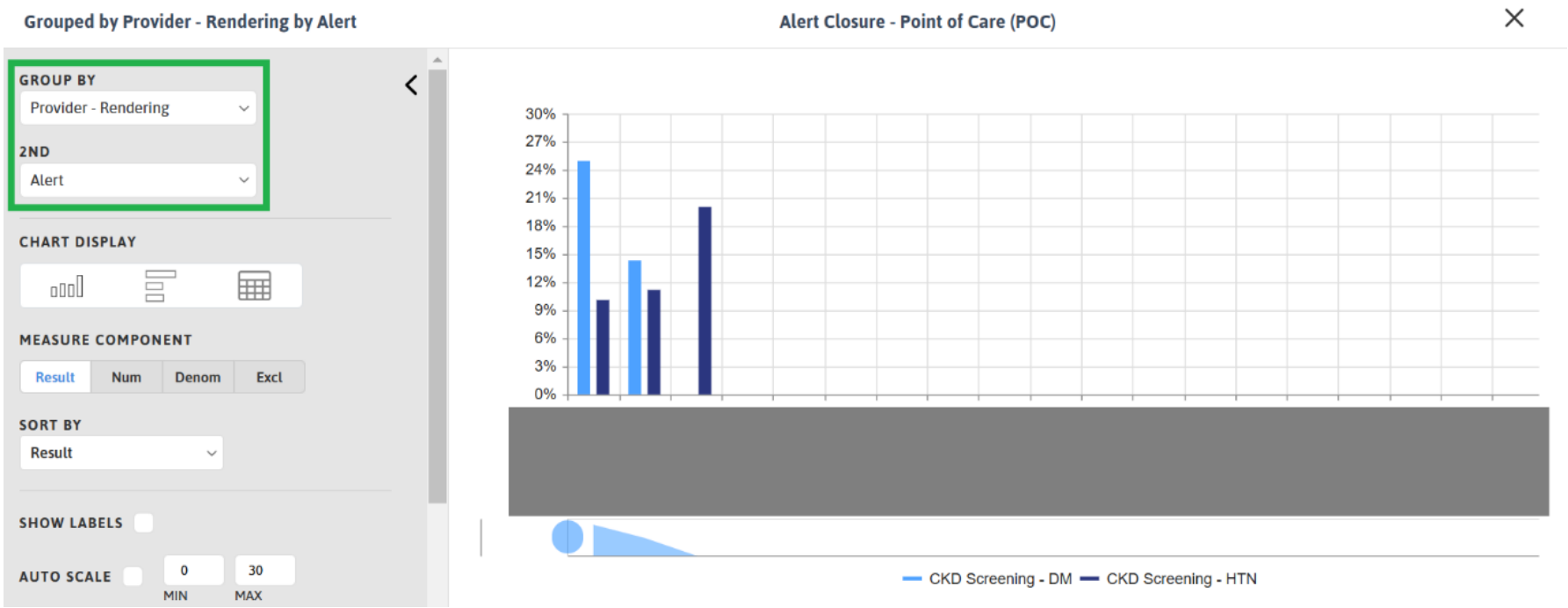


Alert Closure – Point of Care (POC) Measure

What is the tool?	Azara measure that shows the percentage of alerts on the Patient Visit Planning (PVP) report that are closed by the end of the week, only those alerts that can be closed by the end of the visit. This is a *process* measure.
Who would use the tool?	• Clinical support staff (registration, CHWs, MAs, nurses, etc.) • Quality improvement
When would they use the tool?	Post-Visit: • Track the number of closed alerts to see who/how staff are using alerts and PVP • Track missed opportunities for CKD screening
How would they use the tool?	• Remember to enable CKD alerts first (see details in the Alerts section) • Open alerts = missed opportunities, meaning that a patient came into your office for a visit and did not get their CKD screening done • Group by provider to see who is closing alerts (grey box in screenshot below) and alert type in comparison window analyzer (screenshot below)



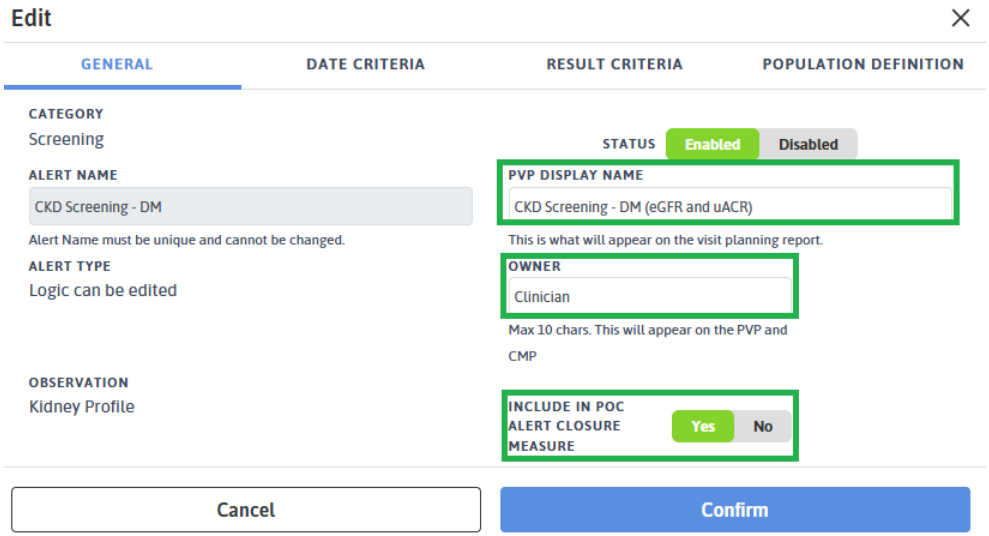
Alert Closure – POC Measure Continued



Alerts

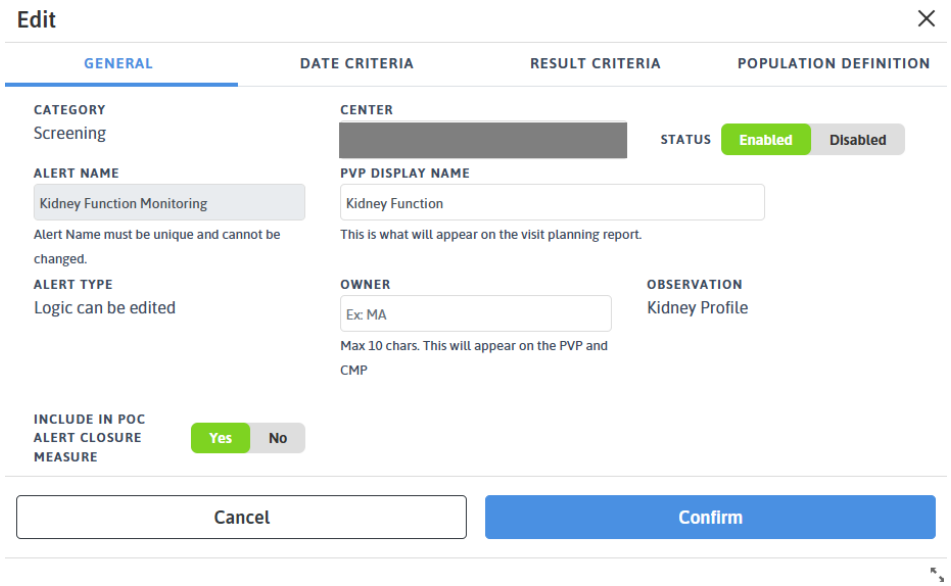
CKD Screening for DM & CKD Screening for HTN Alerts

What is the tool?	Azara has alerts related to measures to notify your team in the Patient Visit Planning (PVP) section of DRVS when a patient is due for screening for their upcoming/current appointment.
Who would use the tool?	• Clinical support staff (registration, CHWs, MAs, nurses, etc.) • Providers
When would they use the tool?	Pre-Visit: • Easily see which patients are due for CKD screening when reviewing the daily schedule
How would they use the tool?	• Enable/manage alerts in the Admin section, click Alerts, search for "CKD", and click the gear icon on the far right to enable/edit alerts "CKD Screening – DM" and "CKD Screening – HTN" • Edit the PVP Display Name to include the order set information for your staff to easily know what labs to order (see screenshot below) • Assign "Owner" so staff know who is responsible for tracking and closing alerts (see screenshot below) • Include in POC alert closure measure for tracking (see screenshot below) • Review patients due for CKD screening during team huddles or schedule review



Kidney Function Alert

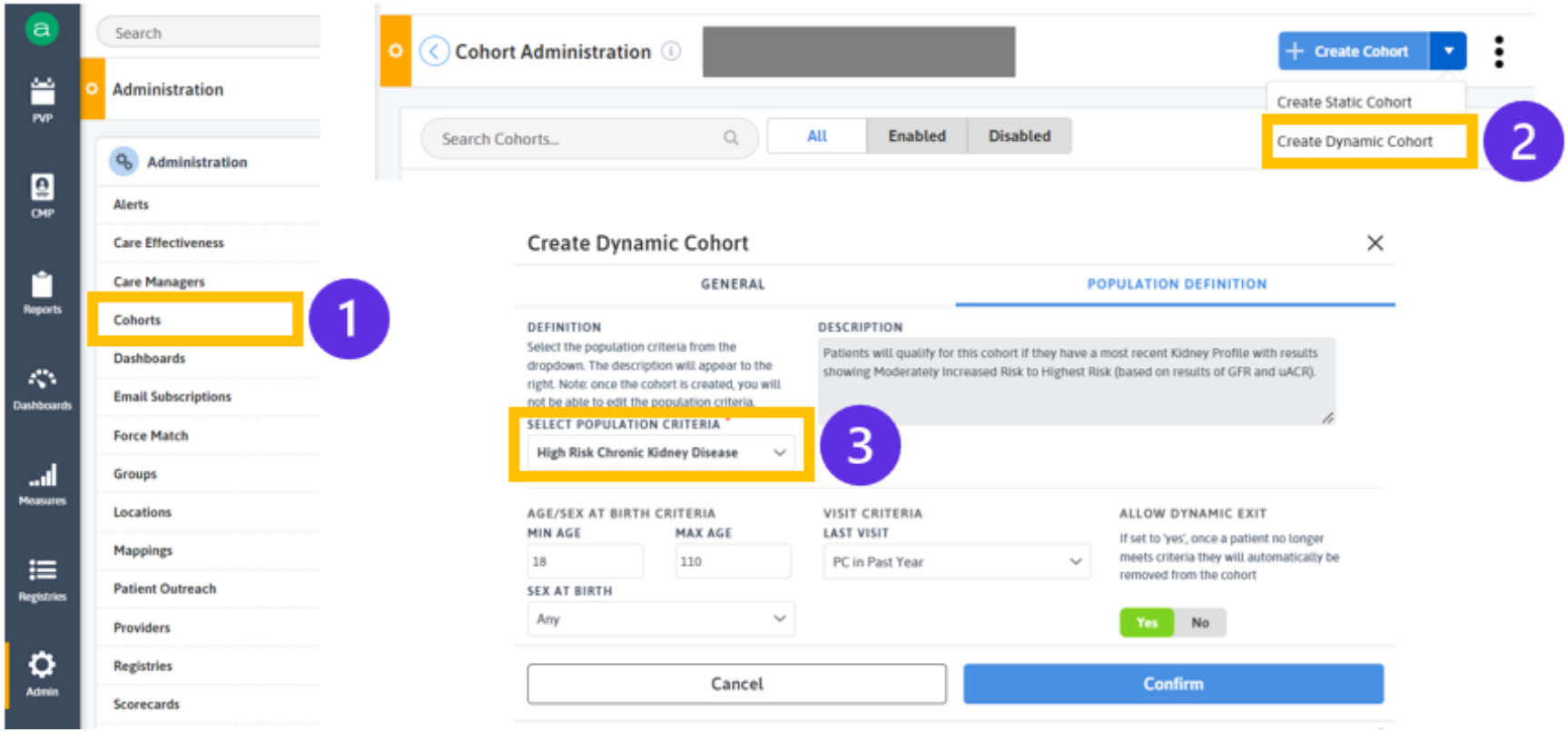
What is the tool?	Azara alert (released in December 2024) notifies health center staff when patients are due for annual CKD screening and are diagnosed with diabetes, hypertension, and/or CKD Stage 1-5.
Who would use the tool?	• Clinical support staff (registration, CHWs, MAs, nurses, etc.) • Providers
When would they use the tool?	Pre-Visit: • Easily see which patients are due for CKD screening when reviewing the daily schedule
How would they use the tool?	• Enable/manage alerts in the Admin section, click Alerts, search for "Kidney", and click the gear icon on the far right to enable/edit the alert "Kidney Function Monitoring" • Edit the PVP Display Name to include the order set information for your staff to easily know what labs to order (see screenshot above) • Assign "Owner" so staff know who is responsible for tracking and closing alerts (see screenshot above) • Include in POC alert closure measure for tracking (see screenshot below) • Review patients due for CKD screening during team huddles or schedule review



Cohorts

What is the tool?	Azara cohorts are a group of patients with a shared characteristic defined by your criteria. **Dynamic cohorts** are Azara-defined populations, updated nightly. **Static cohorts** are created by the practice, and manually maintained. Displayed anywhere you find the Cohort filter.
Who would use the tool?	• Clinical support staff (registration, CHWs, MAs, nurses, etc.) • Care managers/care coordinators • Quality improvement
When would they use the tool?	Post-Visit: • Identify and track patients whose kidney health is declining to ensure they get follow-up care
How would they use the tool?	• Create and manage cohorts in the Admin section. Enable the High-Risk Kidney Profile dynamic cohort in Admin (see screenshots below). • Identify patients whose CKD screening results show their kidney health is in the moderate to highest risk categories based on the CKD heat map. • Cohort name displayed in PVP to easily identify patients in a high-risk cohort. • Track patient outcomes by applying cohort filter to measures, registries (described in the section below), and Care Effectiveness Reports (CERs, described in the section below) • From the Cohort Admin page, click the gear icon to view patients in the cohort. Click 3 dot ellipses in the top right corner to export the cohort list to Excel to create working lists for staff

Enable Dynamic Cohort



Registries

MPCA Chronic Kidney Disease Registry

What is the tool?	Azara registry to align with HEDIS criteria that include patients with diabetes and/or hypertension with relevant data elements related to diagnosis, CKD stage, eGFR and uACR tests, Kidney risk profile, referrals, and many others.
Who would use the tool?	• Clinical support staff (registration, CHWs, MAs, nurses, etc.) • Quality improvement
When would they use the tool?	Pre-Engagement: • Identify patients with at-risk diagnoses who should have CKD screening completed annually.
How would they use the tool?	• Registries can be set to any date range (past, present, and future) so they can align with other events or projects • Can apply other filters, including patient risk, to filter to high-risk patients • Can sort and filter individual columns, including sorting by kidney profile risk • Registry data elements now include a second eGFR score to see the historical score; nephrology referral to track if a patient received a specialist referral (check referral mappings) • Click 3 dot ellipses in the top right corner to export the Detail List to Excel or send to automated patient outreach to create working lists for staff

MPCA Chronic Kidney Disease Registry Continued

MPCA Chronic Kidney Disease

Created By: hrennaker@mpca.net
Created On: 2/13/2023 3:38:34 PM

Modified By: hrennaker@mpca.net
Modified On: 6/12/2024 1:15:58 PM

Patients with Type 1 or Type 2 Diabetes and/or hypertension to see if they've been screened for CKD.

The Chronic Kidney Disease registry provides a method to identify patients of all ages with active diagnoses of chronic kidney disease from stage 1 to end stage renal disease (ESRD). The registry provides data to review information pertinent to evaluating the patient's severity of disease and current management. Currently that includes the most recent tests results of urine microalbumin, urine albumin/creatine ratio (UACR), serum creatinine, hemoglobin, LDL, and estimated glomerular filtration rate (eGFR). The results of UACR and eGFR tests are evaluated using the kidney profile assessment from The National Kidney Foundation and the American Society of Clinical Pathology to report the patients current risk for progression, morbidity and mortality. For more information see the National Kidney Foundation's description of theCKD Risk Assessment Tool. The patient's BMI and recent blood pressure readings are also provided along with an indication that the patient is taking an ACE or ARB medication.

Inclusion Criteria: Patients with an active diagnosis of diabetes and/or hypertension, primary care encounter, ages 18-85 years

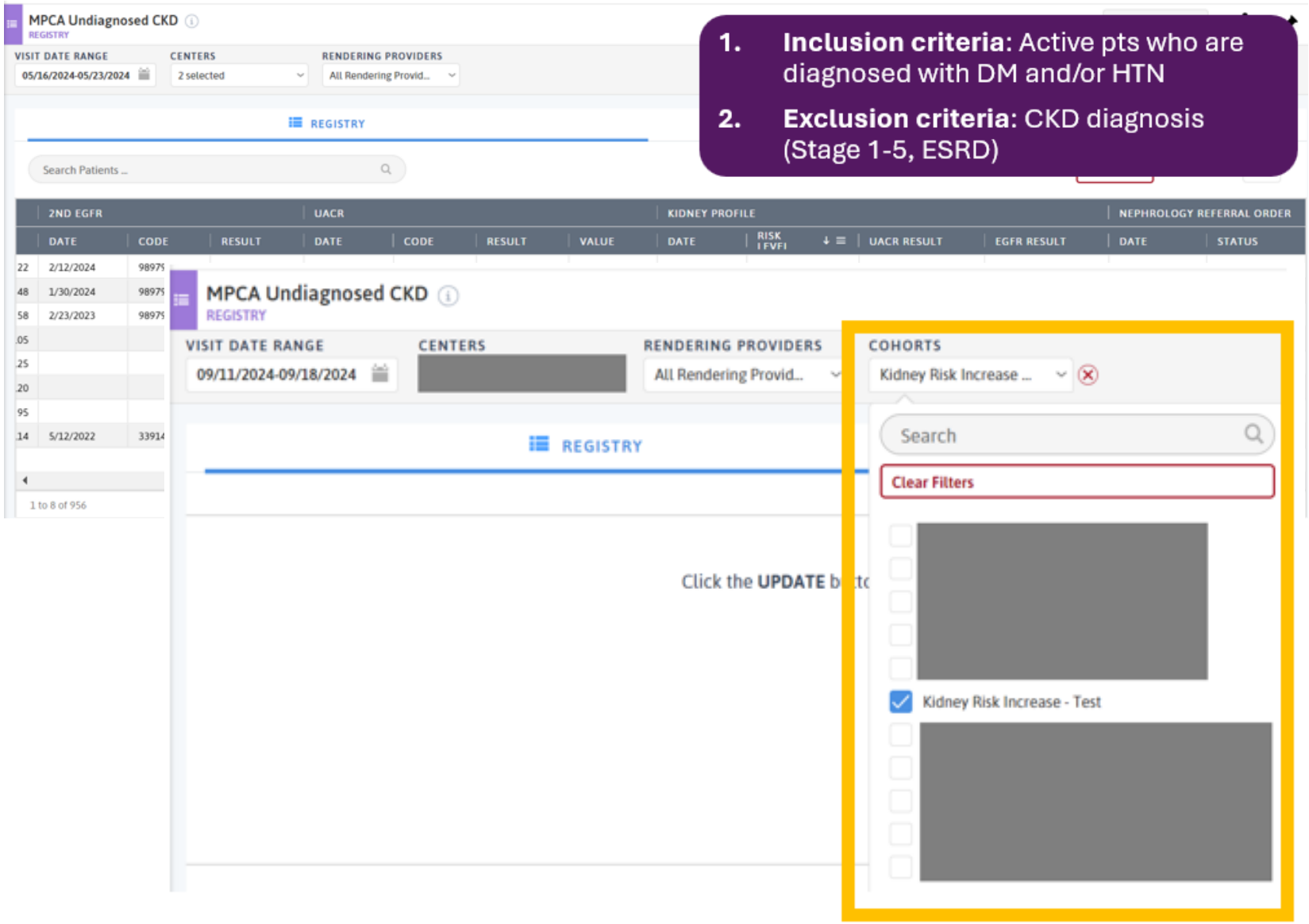
Exclusion Criteria: ESD, palliative care

MPCA Undiagnosed CKD Registry

What is the tool?	Azara registry that includes patients with diabetes and/or hypertension but excludes patients with CKD diagnosis to find patients who need follow-up appointments.
Who would use the tool?	• Clinical support staff (registration, CHWs, MAs, nurses, etc.) • Quality improvement
When would they use the tool?	Pre-Engagement & Post-Visit: • Identify patients whose kidney health is at an increased risk who do or do not have another appointment scheduled (PCP or specialist)

How would they use the tool?	• Apply the High-Risk Kidney Disease dynamic cohort filter (once enabled) to the Undiagnosed CKD registry to get a list of patients with:
	  ○ DM and/or HTN diagnosis
	  ○ No CKD diagnosis
	  ○ Kidney health declining
	• Can sort individual data columns by scores, risk levels, or appointment
	• Click 3 dot ellipses in the top right corner to export the Detail List to Excel or send to automated patient outreach to create working lists for staff

MPCA Undiagnosed CKD Registry Continued

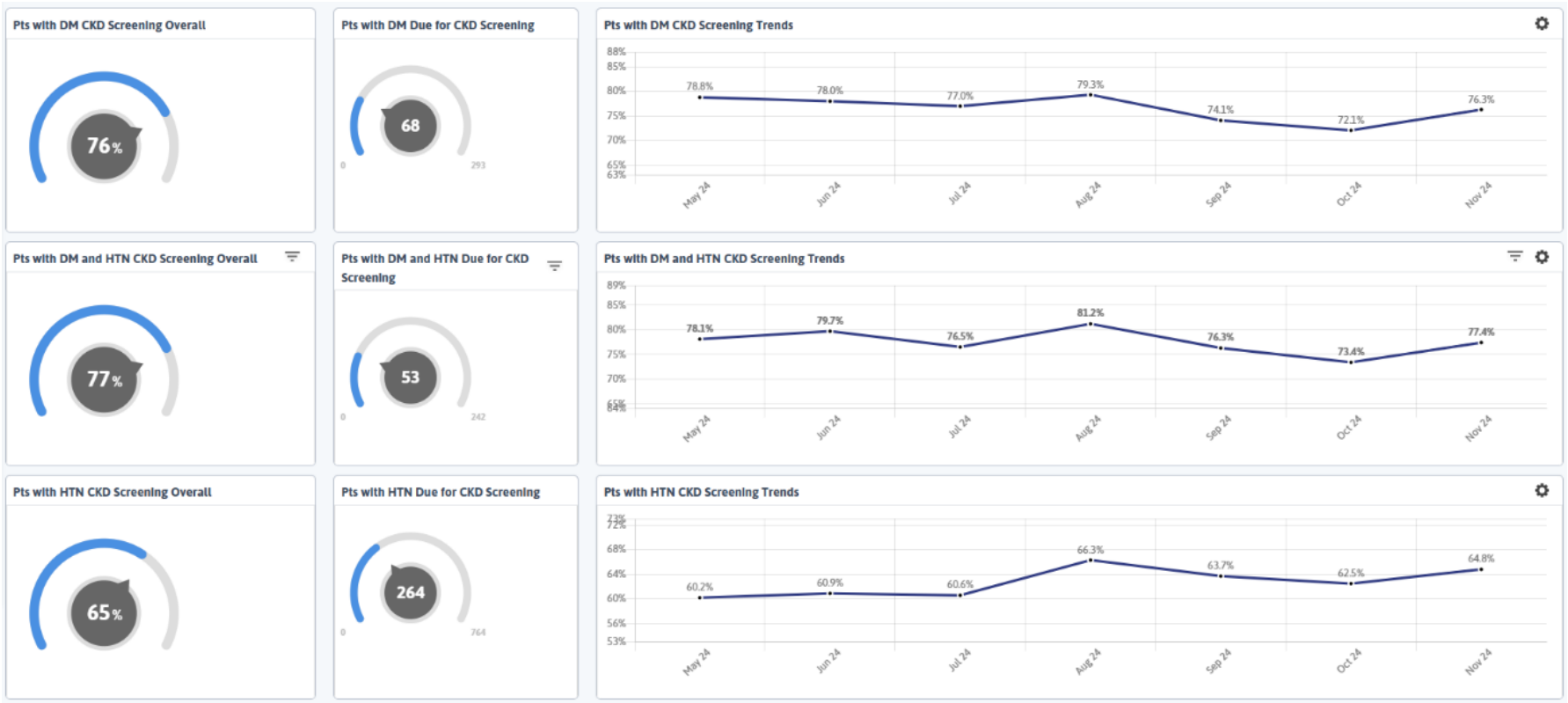


Dashboards

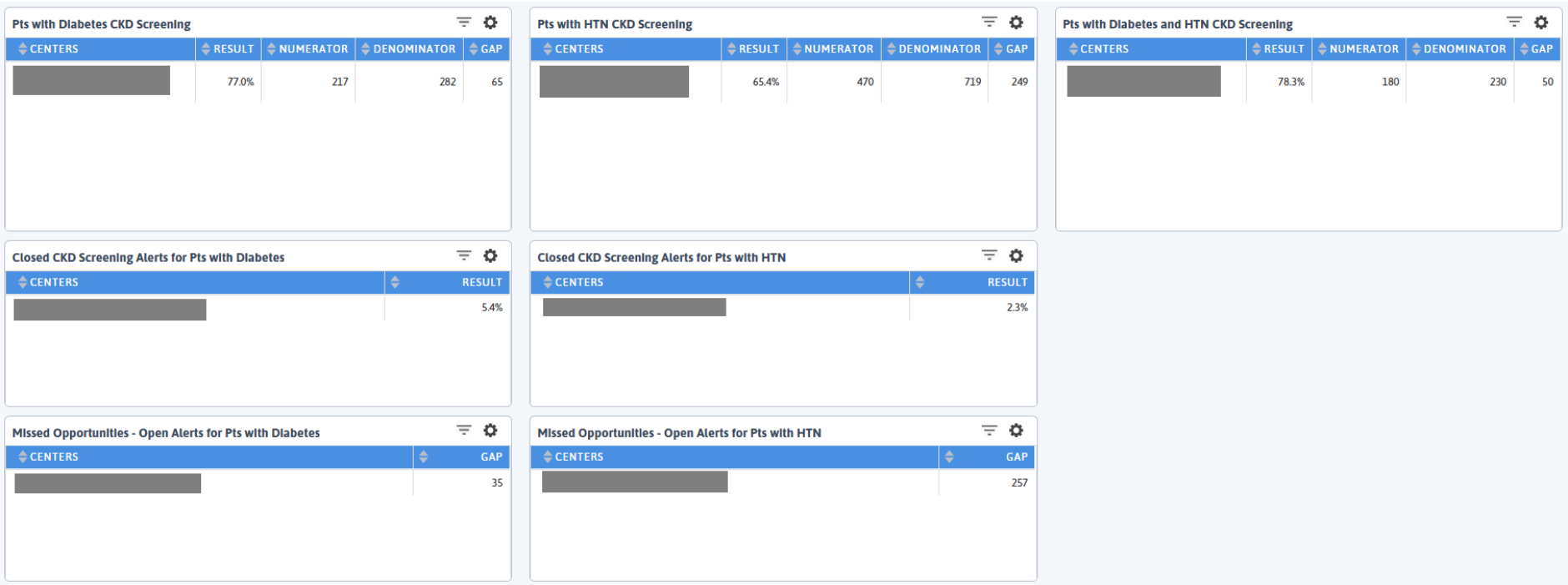
MPCA CKD Screening Dashboard

What is the tool?	Azara dashboard that includes screening rates for patients with diabetes, hypertension, or both diagnoses; and CKD alert closure (patients who had an alert appear on PVP and had screens completed) and open alerts (patients who are due for screens).
Who would use the tool?	• Clinical support staff (registration, CHWs, MAs, nurses, etc.) • Care managers/care coordinators • Quality improvement
When would they use the tool?	Post-Visit: • Track screening rates, gaps, closed alerts and missed opportunities (open alerts)
How would they use the tool?	• Review monthly trends in CKD screening for patients with diabetes, hypertension, and both diagnoses. • If alerts are enabled, you can track closed alerts (meaning a patient came in for a visit and received CKD screening) and missed opportunities (meaning a patient came in for a visit, was due for CKD screening, and did not get their CKD screening completed)

MPCA Screening Dashboard Continued



MPCA CKD Screening Dashboard Continued



Pts with Diabetes CKD Screening

CENTERS	RESULT	NUMERATOR	DENOMINATOR	GAP
[redacted]	77.0%	217	282	65

Pts with HTN CKD Screening

CENTERS	RESULT	NUMERATOR	DENOMINATOR	GAP
[redacted]	65.4%	470	719	249

Pts with Diabetes and HTN CKD Screening

CENTERS	RESULT	NUMERATOR	DENOMINATOR	GAP
[redacted]	78.3%	180	230	50

Closed CKD Screening Alerts for Pts with Diabetes

CENTERS	RESULT
[redacted]	5.4%

Closed CKD Screening Alerts for Pts with HTN

CENTERS	RESULT
[redacted]	2.3%

Missed Opportunities - Open Alerts for Pts with Diabetes

CENTERS	GAP
[redacted]	35

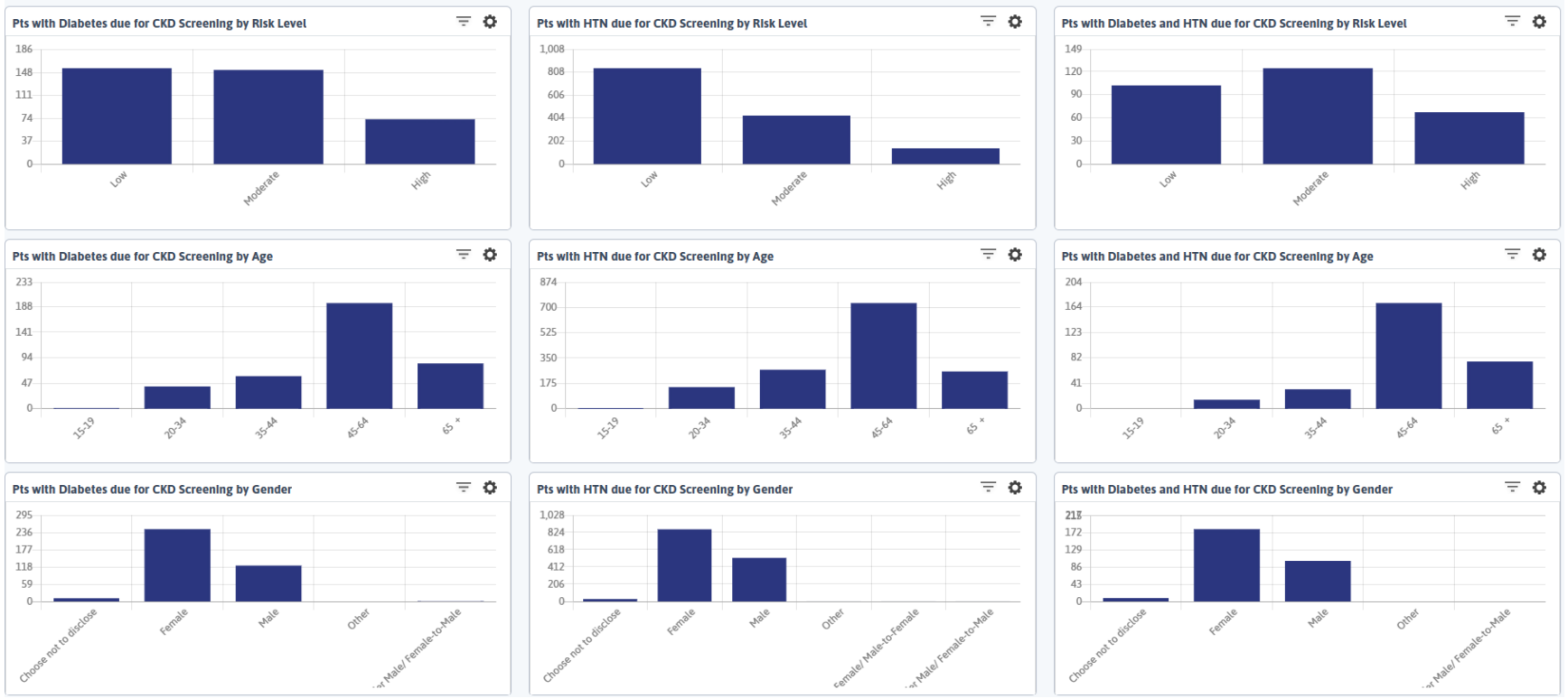
Missed Opportunities - Open Alerts for Pts with HTN

CENTERS	GAP
[redacted]	257

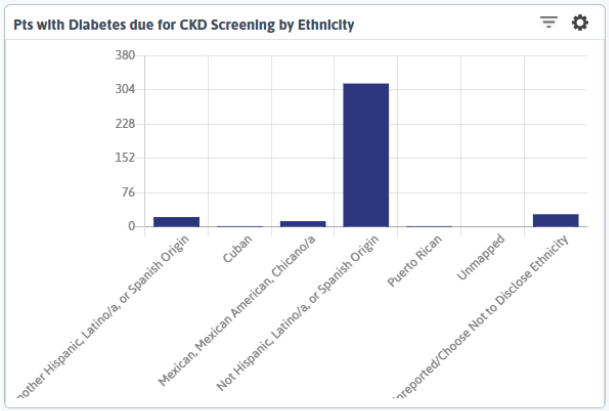
CKD Screening Gaps Dashboard

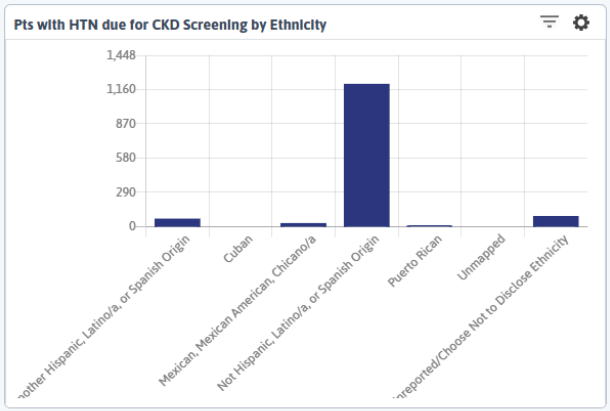
What is the tool?	Azara dashboard that includes patients with diabetes, hypertension, or both diagnoses who are due for CKD screening (i.e., in the gap) by age, race, and risk level.
Who would use the tool?	• Care managers/care coordinators • Quality improvement
When would they use the tool?	Pre-Engagement: • Identify specific patient populations due for CKD screening
How would they use the tool?	• Look at different groupings that align with other initiatives at your center • Review gap data with other team members to brainstorm how you can access and engage with patients due for CKD screening • Specialize outreach to specific patient populations due for CKD screening

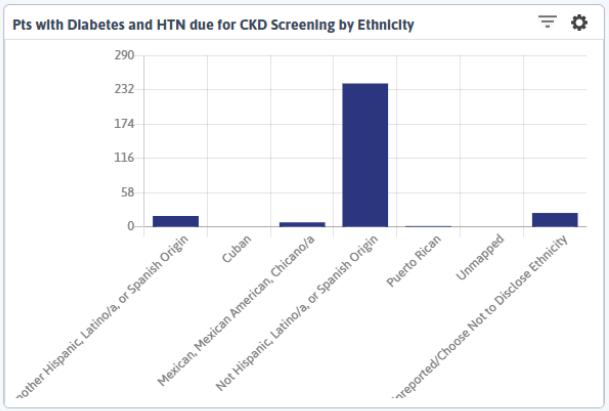
CKD Screening Gaps Dashboard Continued

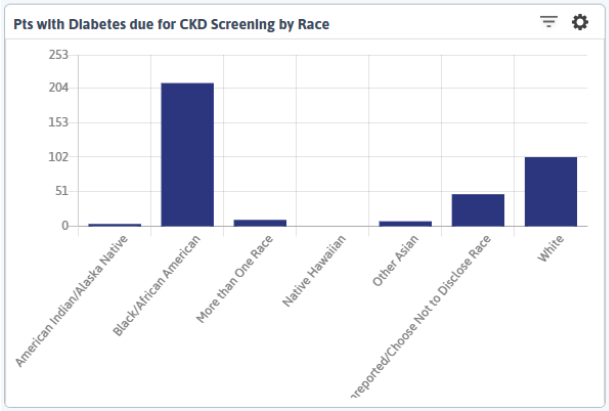


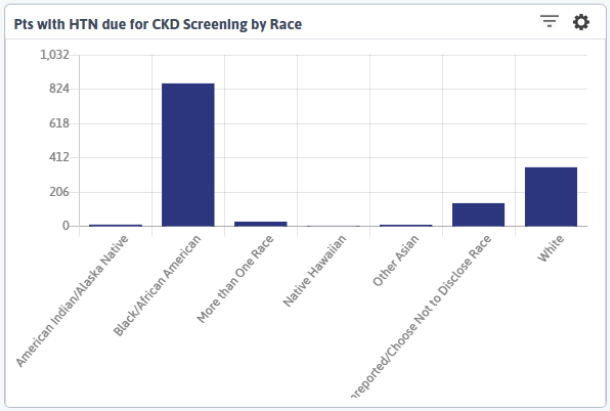
CKD Screening Gaps Dashboard Continued

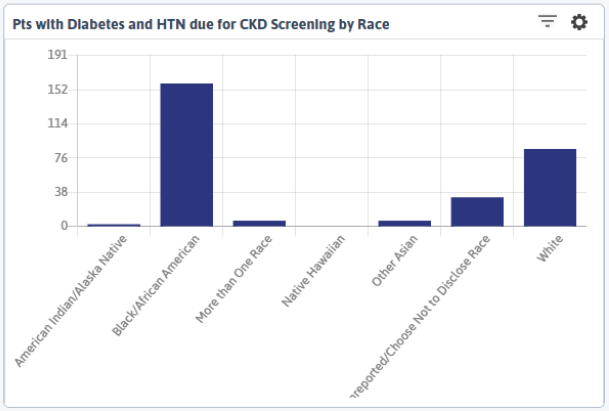






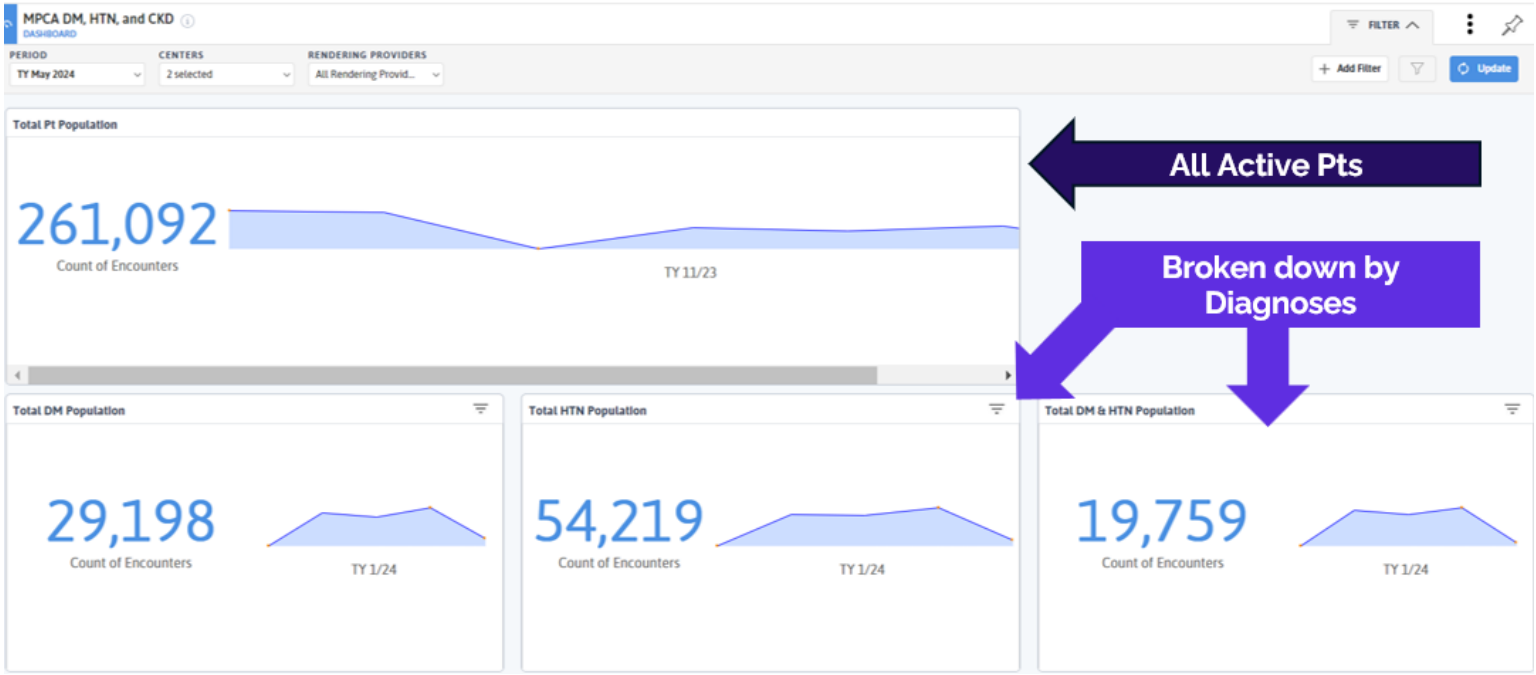




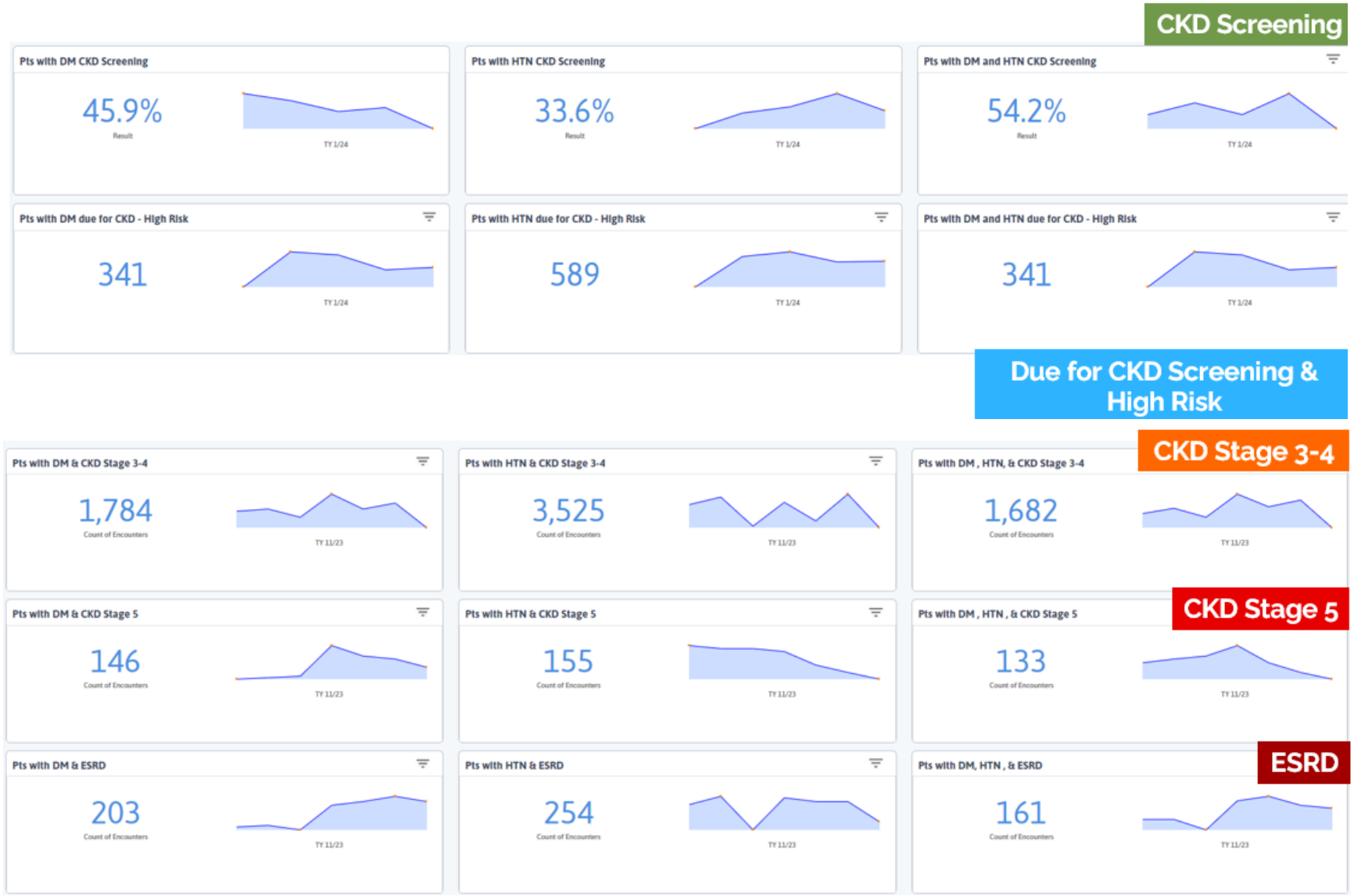


MPCA DM, HTN, and CKD Dashboard

What is the tool?	Azara dashboard to track and manage the CKD screening and staging diagnosis trends for patients with diabetes and/or hypertension.
Who would use the tool?	• Care managers/care coordinators • Quality improvement
When would they use the tool?	Post-Visit: • Improve care management of patients with diabetes and/or hypertension
How would they use the tool?	• Review • Customize the data elements to include appointments, behavioral health, or medications to better understand the care needs of this population • Close screening gaps to ensure patients have A1c, blood pressure, and CKD results



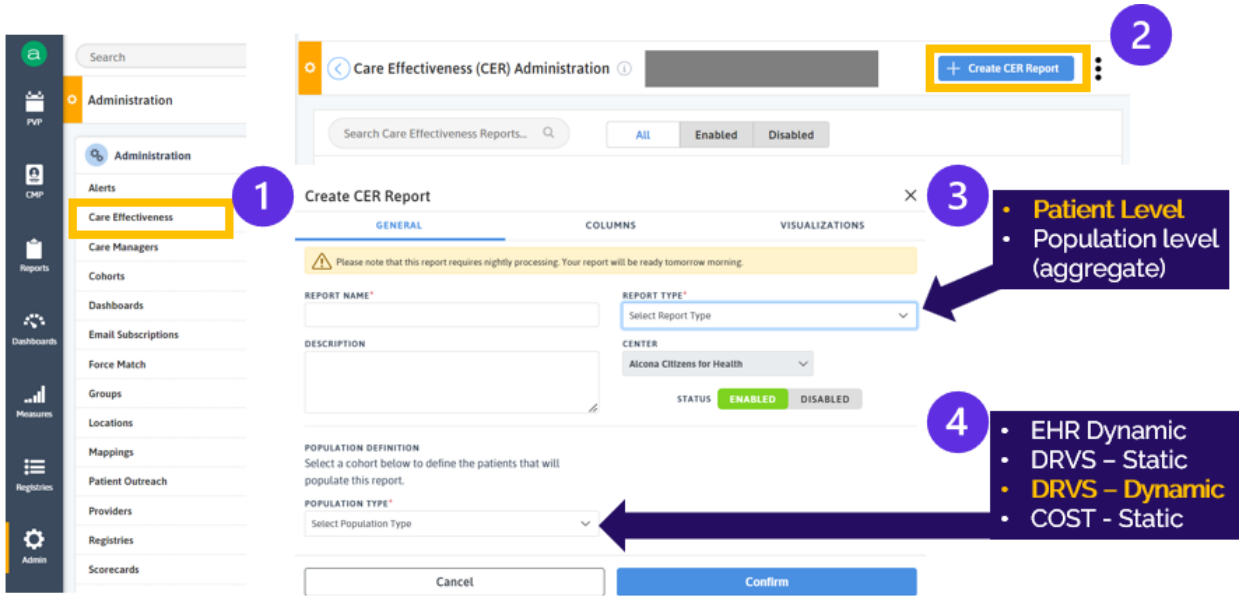
MPCA DM, HTN, and CKD Dashboard Continued



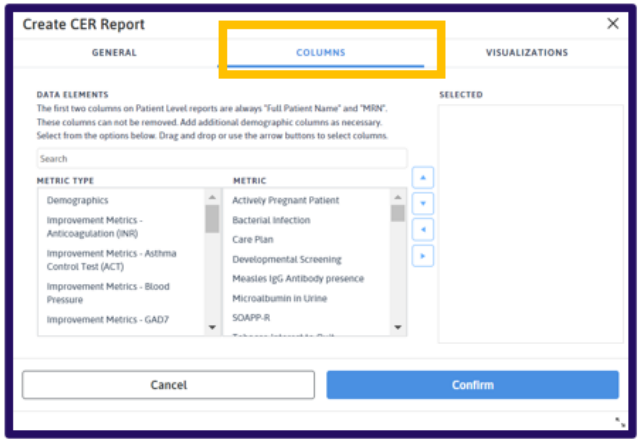
Care Effectiveness Reports (CERs)

What is the tool?	Azara CERs are patient-based operational reports and help you evaluate clinical improvement at the patient and program levels. Custom CERs can be built for an enabled cohort.
Who would use the tool?	• Care managers/care coordinators • Quality improvement
When would they use the tool?	Post-Visit: • Improve care management of patients with high-risk kidney screening results
How would they use the tool?	• Once the High-Risk Kidney Profile cohort is enabled (see earlier section), build a custom CER from your Admin section (see screenshots and steps below). • Customize the data elements to include appointments, behavioral health, or medications to better understand the care needs of this population • Close screening gaps to ensure patients have A1c, blood pressure, and CKD results • Click 3 dot ellipses in the top right corner to export the Detail List to create working lists for staff

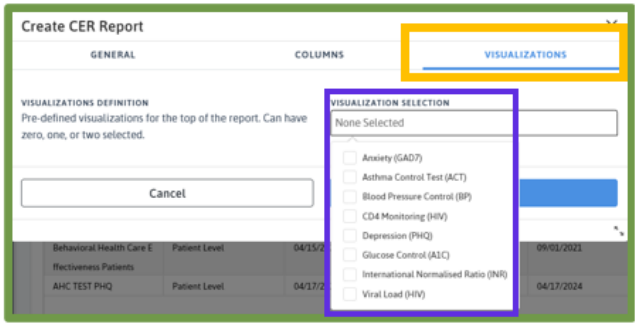
Care Effectiveness Reports (CER) Continued



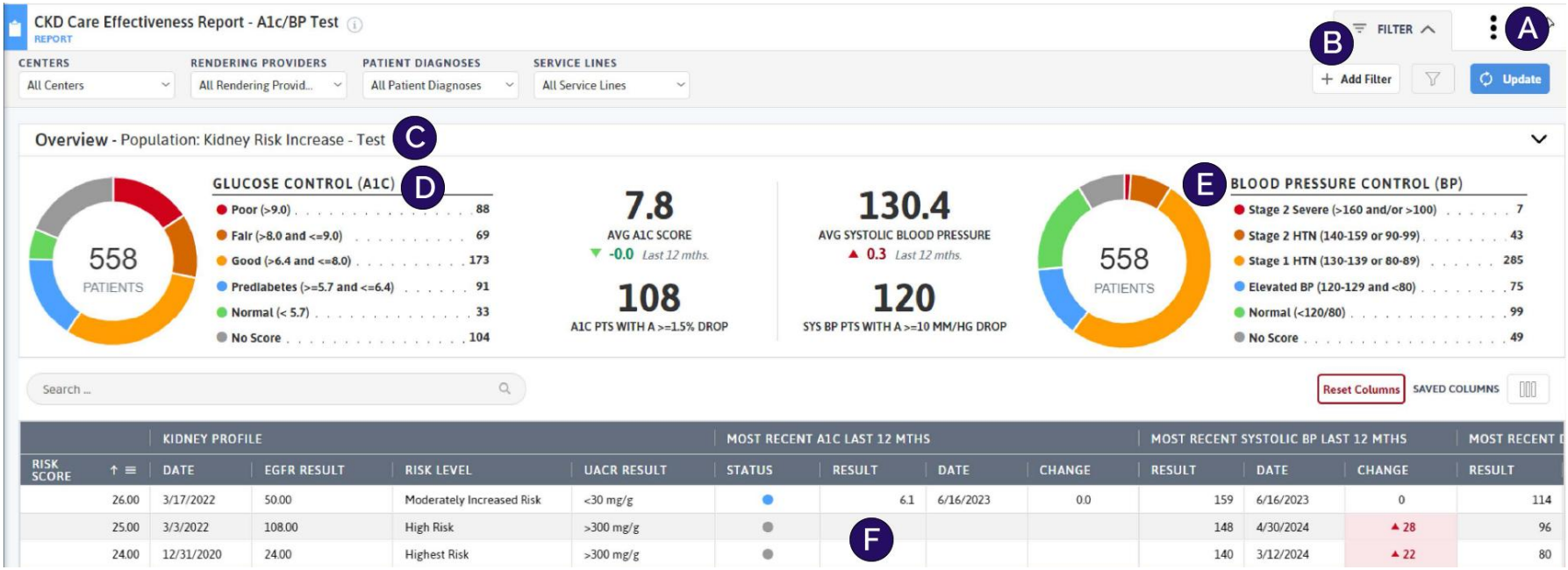
5. Customize data element columns like registry data elements



6. Customize visualizations by selecting up to 2 images



Sample Custom CER for CKD



A: 3 dot ellipses to export the patient list to Excel or CSV file to create a working list for staff

B: Apply filter(s) to the entire CER if you want to view certain diagnoses, payers, providers, etc.

C: Population or cohort name displayed here

D: Glucose control visualization shows the breakdown of A1c scores, no scores, average score, change in score over the last 12 months, and number of patients with a drop in their A1c

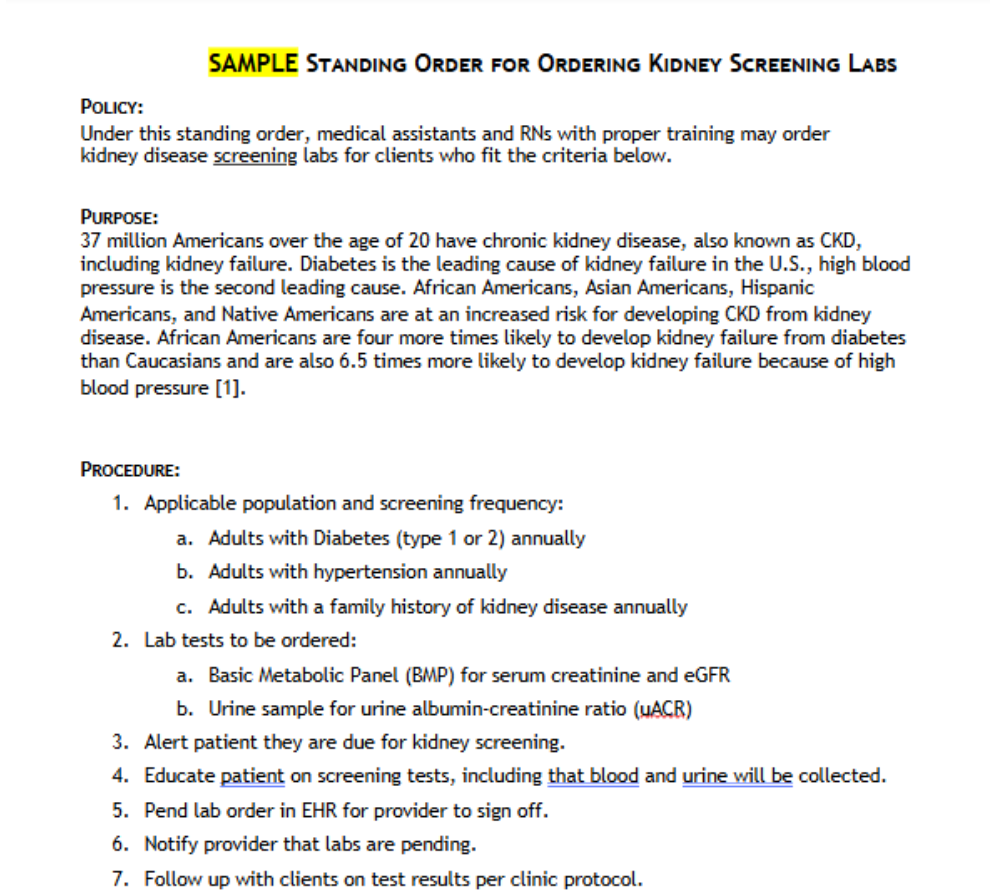
E: Blood pressure control visualization shows breakdown of HTN stages, no scores, average score, change in score over the last 12 months, and number of patients with a drop in their systolic BP

F: Data elements function like a registry where you can sort and filter within each data column

III. Clinical Support Tools for CKD Screening & Diagnosis

Standing Orders

What is the tool?	The standing order allows appropriate personnel to order laboratory tests for CKD screening based on standardized recommendations
Who would use the tool?	• MAs, nurses
When would they use the tool?	• When a patient has been roomed during phases of care and screening is appropriate • Care manager ordering laboratory tests based on recommendations for screening
How would they use the tool?	• Order labs (eGFR and uACR) in the EHR following lab order protocol.



SAMPLE STANDING ORDER FOR ORDERING KIDNEY SCREENING LABS

POLICY:
Under this standing order, medical assistants and RNs with proper training may order kidney disease screening labs for clients who fit the criteria below.

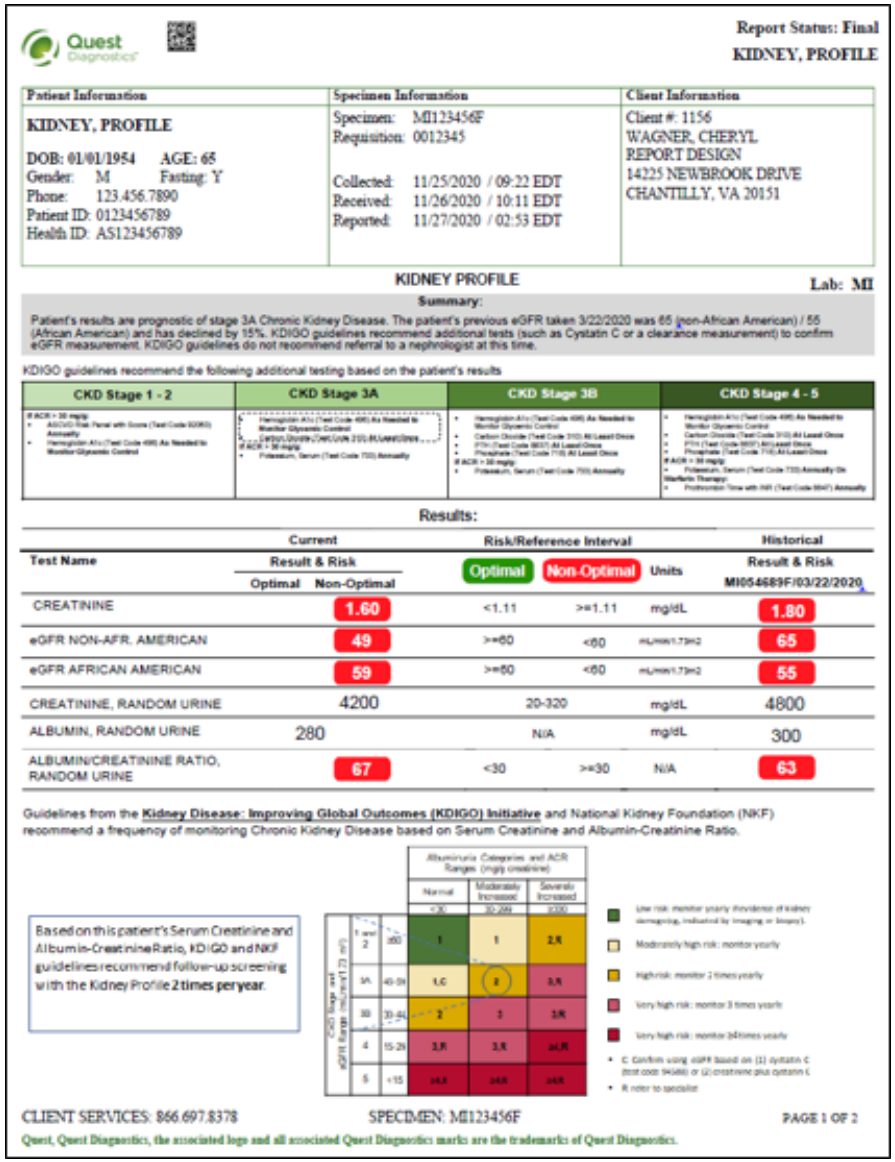
PURPOSE:
37 million Americans over the age of 20 have chronic kidney disease, also known as CKD, including kidney failure. Diabetes is the leading cause of kidney failure in the U.S., high blood pressure is the second leading cause. African Americans, Asian Americans, Hispanic Americans, and Native Americans are at an increased risk for developing CKD from kidney disease. African Americans are four more times likely to develop kidney failure from diabetes than Caucasians and are also 6.5 times more likely to develop kidney failure because of high blood pressure [1].

PROCEDURE:

1. Applicable population and screening frequency:
   a. Adults with Diabetes (type 1 or 2) annually
   b. Adults with hypertension annually
   c. Adults with a family history of kidney disease annually
2. Lab tests to be ordered:
   a. Basic Metabolic Panel (BMP) for serum creatinine and eGFR
   b. Urine sample for urine albumin-creatinine ratio (uACR)
3. Alert patient they are due for kidney screening.
4. Educate patient on screening tests, including that blood and urine will be collected.
5. Pend lab order in EHR for provider to sign off.
6. Notify provider that labs are pending.
7. Follow up with clients on test results per clinic protocol.

Kidney Profile – Quest Labs

What is the tool?	Streamlined way to order both CKD screening laboratory tests in one panel.
Who would use the tool?	• MAs, providers, nurses
When would they use the tool?	• When ordering CKD screening laboratory tests through Quest labs
How would they use the tool?	• Utilize codes on kidney profile to order CKD screening laboratory tests in HER • By ordering the Kidney Profile rather than separate tests, Quest provides a detailed report with the CKD heat map and guideline-based recommendations



Quest Diagnostics

Report Status: Final
KIDNEY, PROFILE

Patient Information	Specimen Information	Client Information
KIDNEY, PROFILE DOB: 01/01/1954 AGE: 65 Gender: M Fasting: Y Phone: 123.456.7890 Patient ID: 0123456789 Health ID: AS123456789	Specimen: MI123456F Requisition: 0012345 Collected: 11/25/2020 / 09:22 EDT Received: 11/26/2020 / 10:11 EDT Reported: 11/27/2020 / 02:53 EDT	Client #: 1156 WAGNER, CHERYL REPORT DESIGN 14225 NEWBROOK DRIVE CHANTILLY, VA 20151

KIDNEY PROFILE — Lab: MI

Summary:

Patient's results are prognostic of stage 3A Chronic Kidney Disease. The patient's previous eGFR taken 3/22/2020 was 65 (non-African American) / 55 (African American) and has declined by 15%. KDIGO guidelines recommend additional tests (such as Cystatin C or a clearance measurement) to confirm eGFR measurement. KDIGO guidelines do not recommend referral to a nephrologist at this time.

KDIGO guidelines recommend the following additional testing based on the patient's results

CKD Stage 1 - 2	CKD Stage 3A	CKD Stage 3B	CKD Stage 4 - 5
If ACR > 30 mg/g: • ASCVD Risk Panel with Score (Test Code 92883) Annually • Hemoglobin A1c (Test Code 490) As Needed to Monitor Glycemic Control	• Hemoglobin A1c (Test Code 490) As Needed to Monitor Glycemic Control • Carbon Dioxide (Test Code 310) At Least Once If ACR > 30 mg/g: • Potassium, Serum (Test Code 700) Annually	• Hemoglobin A1c (Test Code 490) As Needed to Monitor Glycemic Control • Carbon Dioxide (Test Code 310) At Least Once • PTH (Test Code 9937) At Least Once • Phosphate (Test Code 715) At Least Once If ACR > 30 mg/g: • Potassium, Serum (Test Code 700) Annually	• Hemoglobin A1c (Test Code 490) As Needed to Monitor Glycemic Control • Carbon Dioxide (Test Code 310) At Least Once • PTH (Test Code 9937) At Least Once • Phosphate (Test Code 715) At Least Once If ACR > 30 mg/g: • Potassium, Serum (Test Code 700) Annually Warfarin Therapy: • Prothrombin Time with INR (Test Code 9947) Annually

Results:

Test Name	Current Result & Risk: Optimal	Current Result & Risk: Non-Optimal	Risk/Reference Interval: Optimal	Risk/Reference Interval: Non-Optimal	Units	Historical Result & Risk MI0546B9F/03/22/2020
CREATININE		1.60	<1.11	>=1.11	mg/dL	1.80
eGFR NON-AFR. AMERICAN		49	>=60	<60	mL/min/1.73m2	65
eGFR AFRICAN AMERICAN		59	>=60	<60	mL/min/1.73m2	55
CREATININE, RANDOM URINE		4200	20-320		mg/dL	4800
ALBUMIN, RANDOM URINE	280		N/A		mg/dL	300
ALBUMIN/CREATININE RATIO, RANDOM URINE		67	<30	>=30	N/A	63

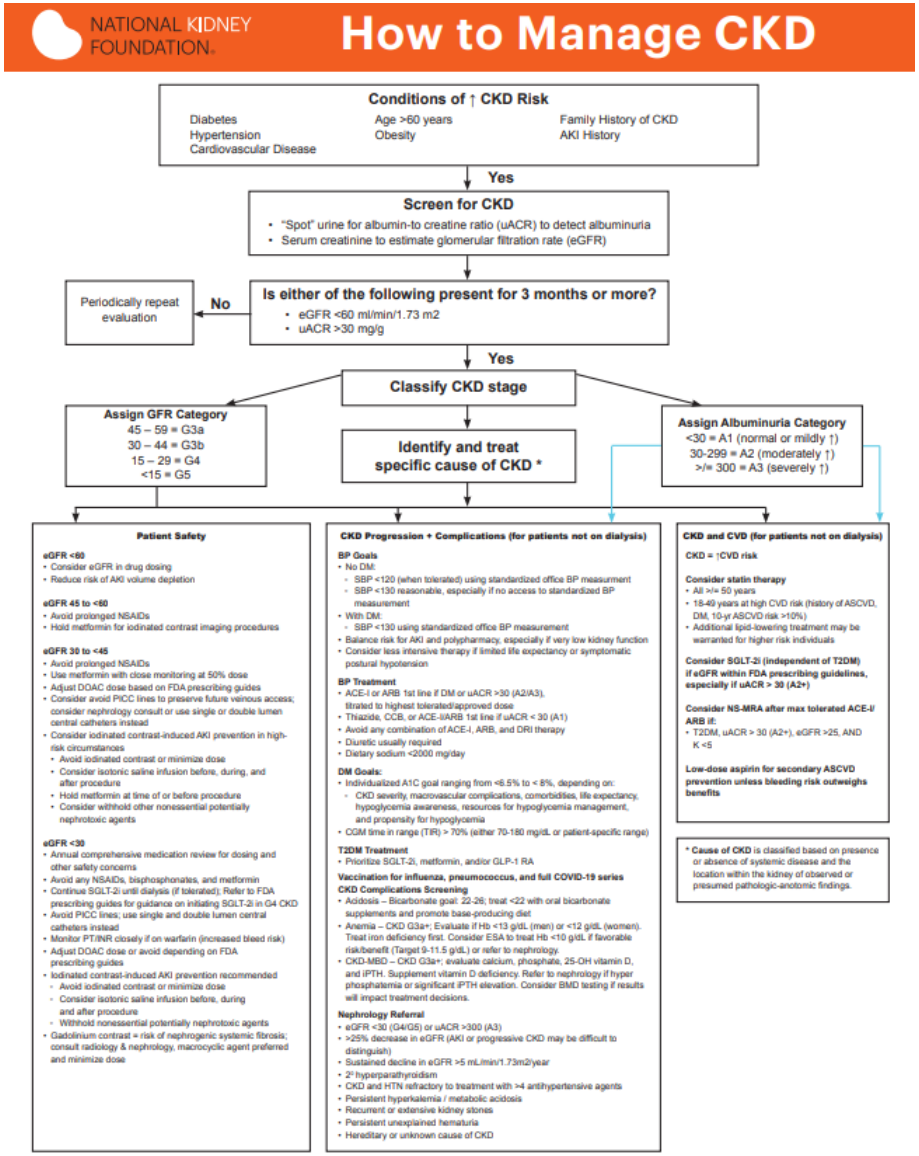
Guidelines from the Kidney Disease: Improving Global Outcomes (KDIGO) Initiative and National Kidney Foundation (NKF) recommend a frequency of monitoring Chronic Kidney Disease based on Serum Creatinine and Albumin-Creatinine Ratio.

Based on this patient's Serum Creatinine and Albumin-CreatinineRatio, KDIGO and NKF guidelines recommend follow-up screening with the Kidney Profile **2 times per year**.

CLIENT SERVICES: 866.697.8378 SPECIMEN: MI123456F PAGE 1 OF 2

Clinical Decision Support Tool

What is the tool?	Provides an overview of screening, identifying, classifying, and managing CKD in primary care
Who would use the tool?	• Providers
When would they use the tool?	• During point of care and/or after laboratory test results • During follow-up
How would they use the tool?	• Utilize the tool and follow the algorithm for managing CKD in patients



Clinical Decision Support Tool Continued

How to Evaluate for Chronic Kidney Disease

Know the criteria for CKD

- Abnormalities of kidney structure or function, present for >3 months, with implications for health
- Either of the following must be present for >3 months:
  - Markers of kidney damage (one or more)
  - eGFR <60 ml/min/1.73 m^2

Screen for CKD with two simple tests.

- "Spot" urine for albumin-to-creatinine ratio (uACR) to detect albuminuria
- Serum creatinine to estimate glomerular filtration rate (eGFR)

What if CKD is detected?

- Classify CKD based on cause, GFR category, and albuminuria category
- Implement a clinical action plan based on patient's CKD classification (See flip side)
  - Consider co-management with a nephrologist if the clinical action plan cannot be carried out
  - Refer to a nephrologist when eGFR <30 mL/min/1.73 m^2 or uACR >300 mg/g
- Learn more at **kidney.org/professionals**

Why should you classify CKD?

- To have a more precise picture of each patient's condition
- To guide decisions for testing and treatment
- To evaluate patient's risk of progression and complications
- Because neither the category of GFR nor the category of albuminuria alone can fully capture prognosis of CKD

References

Anemia: Am J Kidney Dis. 2013;62(5):849-859. **BP:** Am J Kidney Dis. 2022;79(3):311-327. & Kidney Int. 2021;99(3S):S1-S87. **CKD Management:** Am J Kidney Dis. 2014;63(5):713-735. & Kidney Inter, Suppl. 2013;3:1-150. **CKD-MBD:** Am J Kidney Dis. 2017;70(6):737-751. & Kidney Int, Suppl. 2017;7(1):1-59. **DM:** Kidney Int. 2022;102(5S):S1-S127. & Diabetes Care. 2022;45(12):3075-3090. **Gadolinium-based contrast media:** Kidney Med. 2020;3(1):142-150. **Iodinated contrast media:** Kidney Med. 2020;2(1):85-93. **Lipid management:** Am J Kidney Dis. 2015;65(3):354-366. **Metabolic acidosis:** Am J Kidney Dis. 2019;74(2):263-275. **Vascular access:** Am J Kidney Dis. 2020;75 (4 Suppl 2):S1-S164.

NATIONAL KIDNEY FOUNDATION®

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New York, NY 10016
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kidney.org

How do you classify CKD?

- Identify cause of CKD*
- Assign GFR category
- Assign albuminuria category

*Cause of CKD is classified based on presence or absence of systemic disease and the location within the kidney of observed or presumed pathologic-anotomic findings.

GFR categories in CKD

Category	GFR (ml/min/1.73 m^2)	Terms
G1 †	≥90	Normal or high
G2 †	60-89	Mildly decreased*
G3a	45-59	Mildly to moderately decreased
G3b	30-44	Moderately to severely decreased
G4	15-29	Severely decreased
G5	<15	Kidney failure

*Relative to young adult level.
† In the absence of evidence of kidney damage, neither GFR category G1 nor G2 fulfill the criteria for CKD.

Albuminuria categories in CKD

Category	uACR (mg/g)	Terms
A1	<30	Normal to mildly increased
A2	30–299	Moderately increased*
A3	≥300	Severely increased†

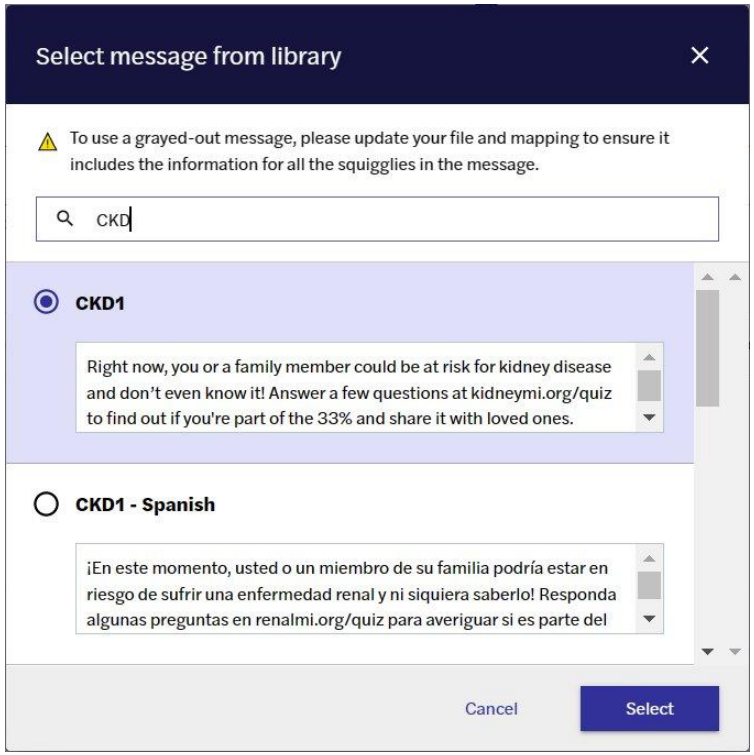
*Relative to young adult level.
†Including nephrotic syndrome (uACR >2220 mg/g)
uACR >30 for >3 months indicates CKD.

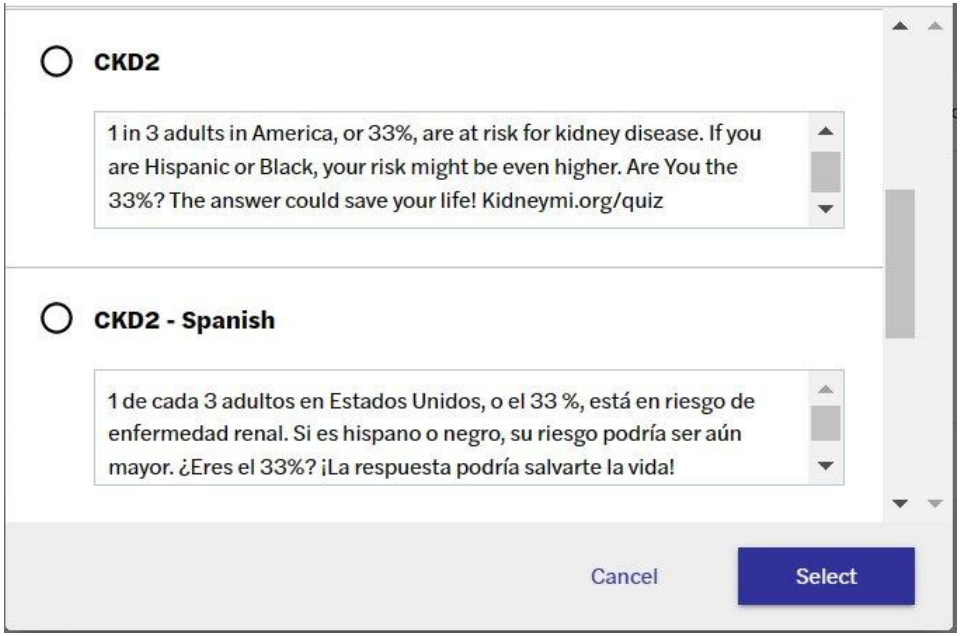
Abbreviations

25-OH Vitamin D, 25-hydroxy vitamin D; **A Stage**, albuminuria category; **ACE-I**, angiotensin-converting-enzyme inhibitor; **AKI**, acute kidney injury; **ARB**, angiotensin receptor blocker; **ASCVD**, atherosclerotic cardiovascular disease; **BMD**, bone mineral density; **BP**, blood pressure; **CCB**, calcium-channel blocker; **CKD**, chronic kidney disease; **CGM**, continuous glucose monitoring; **CKD-MBD**, chronic kidney disease mineral and bone disorder; **COVID-19**, coronavirus disease 2019; **CVD**, cardiovascular disease; **DM**, diabetes mellitus; **DOAC**, direct-acting oral anticoagulant; **DRI**, direct renin inhibitor; **eGFR**, estimated glomerular filtration rate; **ESA**, erythropoietin-stimulating agent; **FDA**, Food & Drug Administration; **G Stage**, GFR category; **GLP-1 RA,** glucagon-like peptide 1 receptor agonist; **Hb**, hemoglobin; **HTN**, hypertension; **iPTH**, intact-parathyroid hormone; **NS-MRA**, non-steroidal mineralocorticoid receptor antagonist; **NSAIDs**, nonsteroidal anti-inflammatory drugs; **PICC**, peripherally inserted central catheter; **PT/INR**, prothrombin time/international normalized ratio; **SBP**, systolic blood pressure; **SGLT-2i**, sodium-glucose cotransporter-2 inhibitor; **T2DM**, type 2 diabetes mellitus; **uACR**, urine albumin-to-creatinine ratio.

Patient Outreach (Luma or EHR)

What is the tool?	Automated outreach to patients with open care gaps, appointment reminders, follow-up
Who would use the tool?	• Outreach staff • Front desk/registration/scheduling • CHWs
When would they use the tool?	• During the pre-engagement phase of care to reach patients who have open care gaps • Remind patients of appointments
How would they use the tool?	• Utilize the Luma platform to perform outreach • Utilize EHR or other automated platform for outreach





IV. Educational Materials & Resources

Resources for Providers

- National Kidney Foundation of Michigan Provider Resources
- National Kidney Foundation Chronic Kidney Disease Change Package
- How to Manage CKD Infographic
- Azara DRVS User Guide for MPCA Members

Materials for Patients

- National Kidney Foundation of Michigan “Are You the 33% Campaign”
- How Well Are Your Kidneys Working?
- African Americans Chronic Kidney Disease Infographic
- Hispanics and Chronic Kidney Disease Infographic
- Native Americans and Chronic Kidney Disease Infographic
- Take Care of Your Kidneys Infographic