Managing Chronic Kidney Disease Using Laboratory Generated Diagnostic Insights

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Disclosures

- Employee of TriCore Reference Laboratories
- Conflicts Of Interest: None

Learning Objectives

At the end of this presentation the Attendee will be able to:

1. Understand how laboratory insights when presented in an actionable format can be used to manage patients with Chronic Kidney Disease.
2. List three laboratory insights that can be used to monitor the progression of Chronic Kidney Disease.
3. Describe the advantage of using longitudinal laboratory insights in chronic diseases.

Objectives

Step 1 Why: Disease burden & economic impact of CKD

Step 2 Who: Defining the provider's objectives

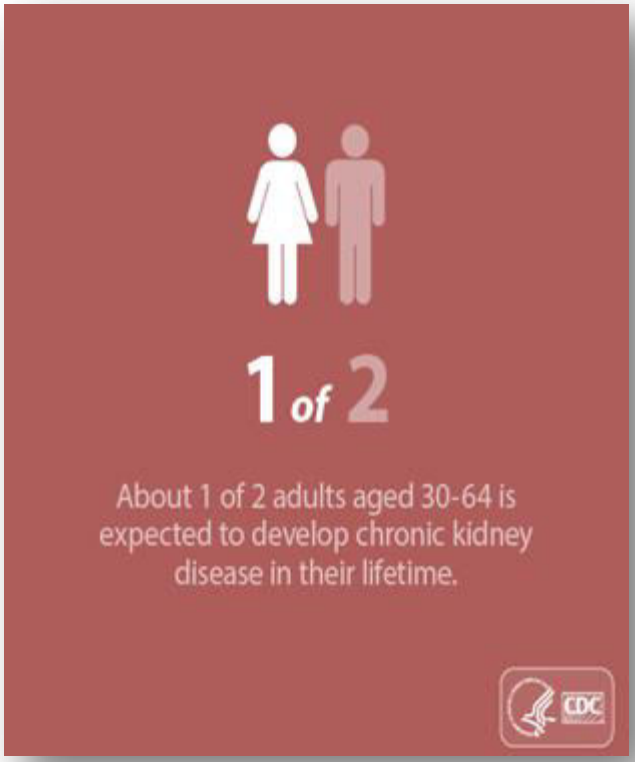
Step 3 What: Clinical insights with laboratory data

Step 4 Your Role: National Public Health Priority

Step 5 Learning Lessons: Keeping patients on track

Why Chronic Kidney Disease (CKD) Disease Burden

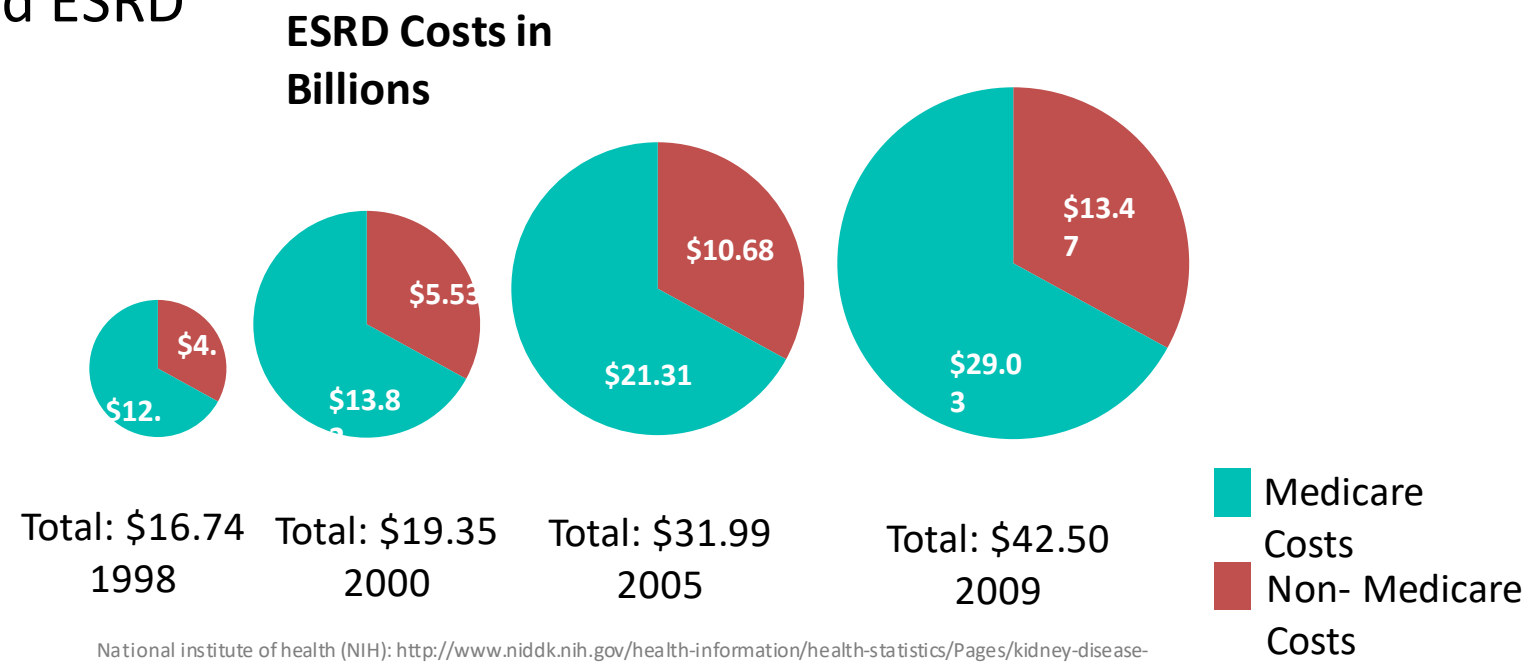
- 1 in 10 American adults
- 26 million have some level of CKD
- End stage renal disease (ESRD) is the ninth leading cause of death
- No cure for CKD, interventions are aimed at slowing progression to ESRD
- **97% of patients with stage 3 CKD are asymptomatic**



Honeycutt AA, Segel JE, Zhuo X, Hoerger TJ,etal. Medical cost of CKD in the Medicare population. J AM Soc Nephrol. 2013 Sep; 24 (9):1478-83.

Why Chronic Kidney Disease (CKD) Economic Impact

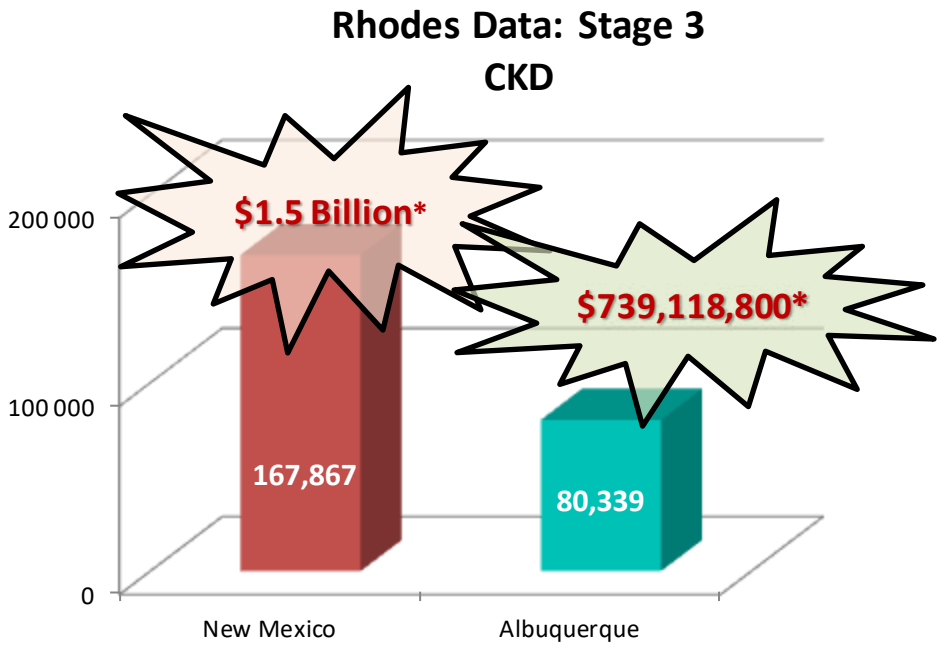
- **$57.5 billion**
- **28%** of the Medicare budget is used to treat people with CKD and ESRD



National institute of health (NIH): http://www.niddk.nih.gov/health-information/health-statistics/Pages/kidney-disease-statistics-united-states.aspx

Why in New Mexico

CKD Burden and Economic Impact

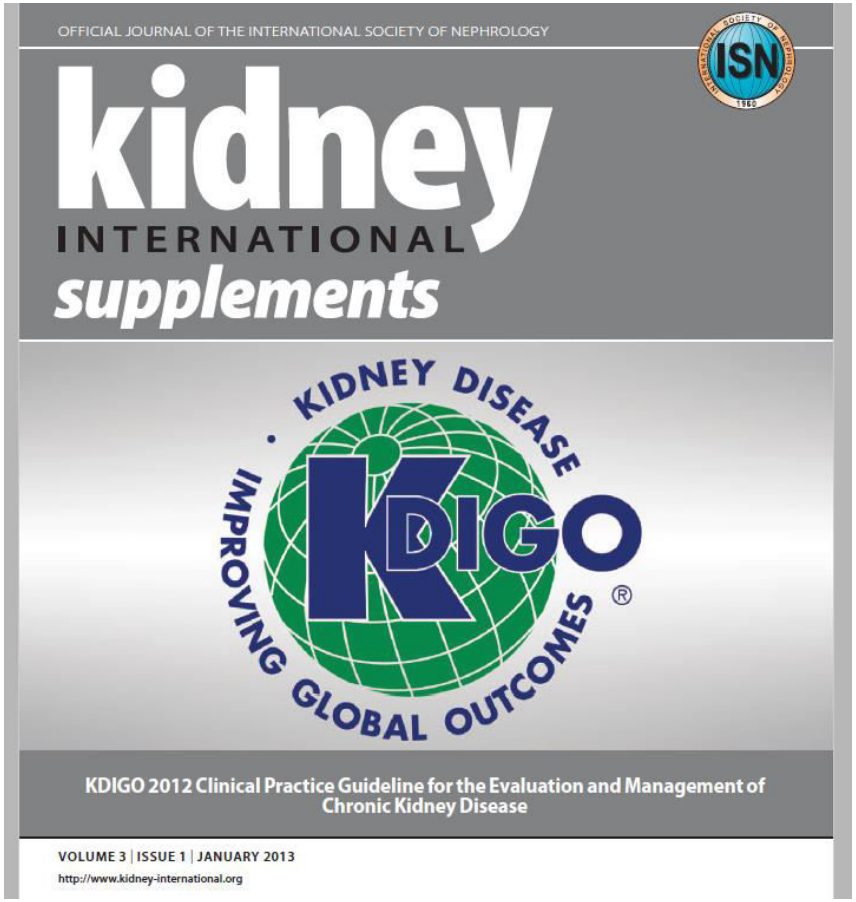


*Annual cost savings of preventing progression from stage 3 to stage 4 CKD

- Annual cost of care per patient with stage 3 CKD: $3,500
- Annual cost of care per patient with stage 4 CKD: $12,700

Honeycutt AA, Segel JE, Zhuo X, Hoerger TJ,etal. Medical cost of CKD in the Medicare population. J AM Soc Nephrol. 2013

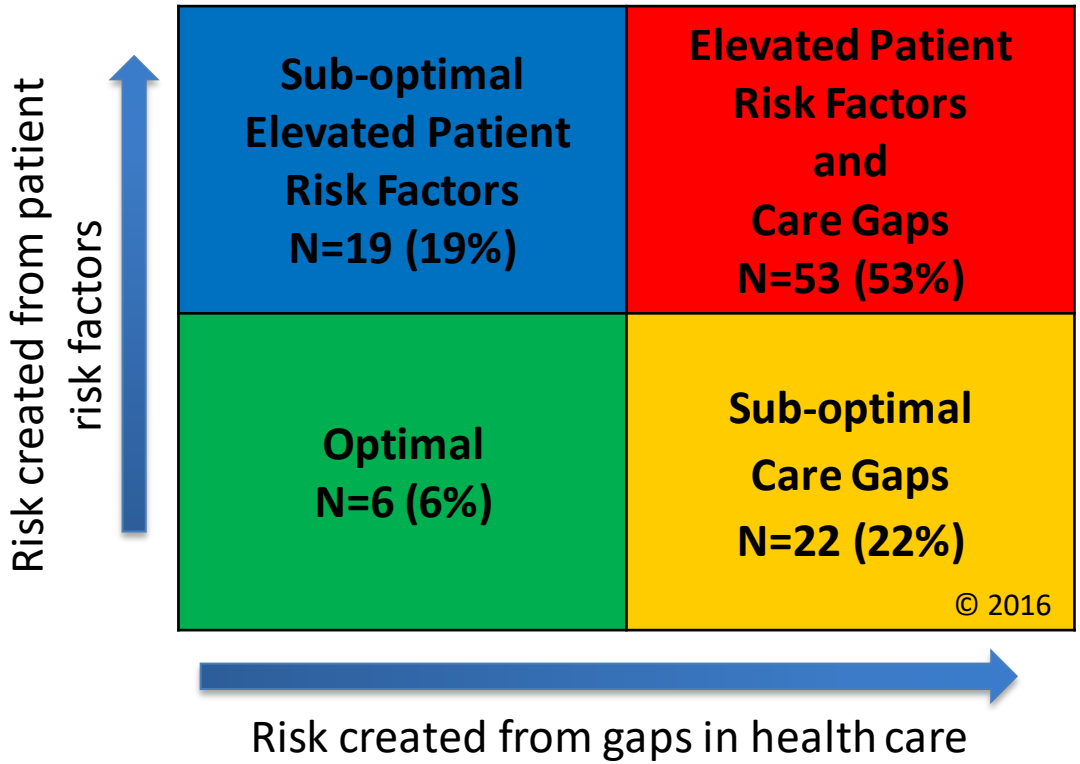
Why Chronic Kidney Disease (CKD) Complexity of Disease Management



- 150 pages
  - 45 tables
  - 22 figures

Why: Pre-Intervention

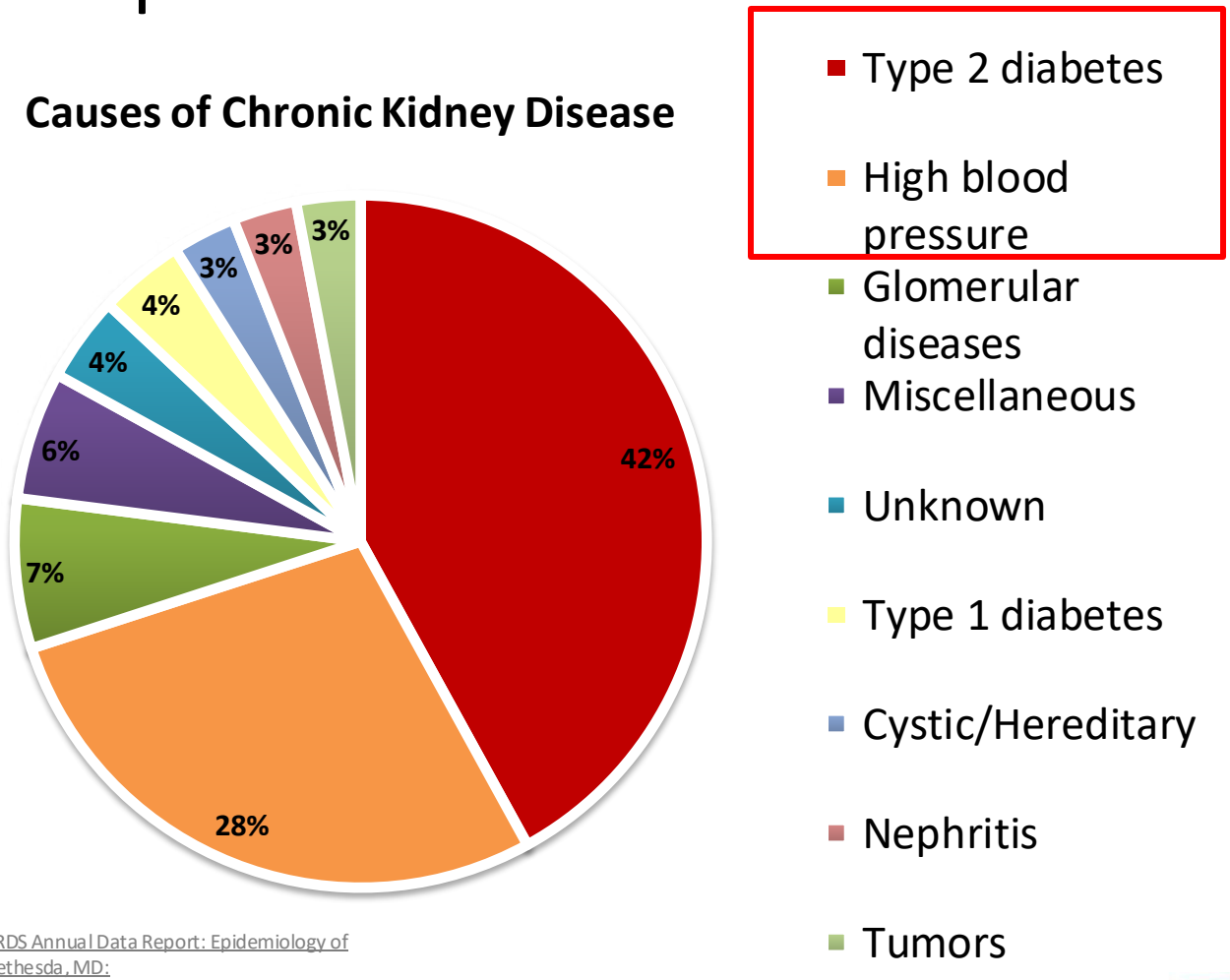
CKD Patients at University Clinics



Random sample of 100 patients managed by primary care - May 2017

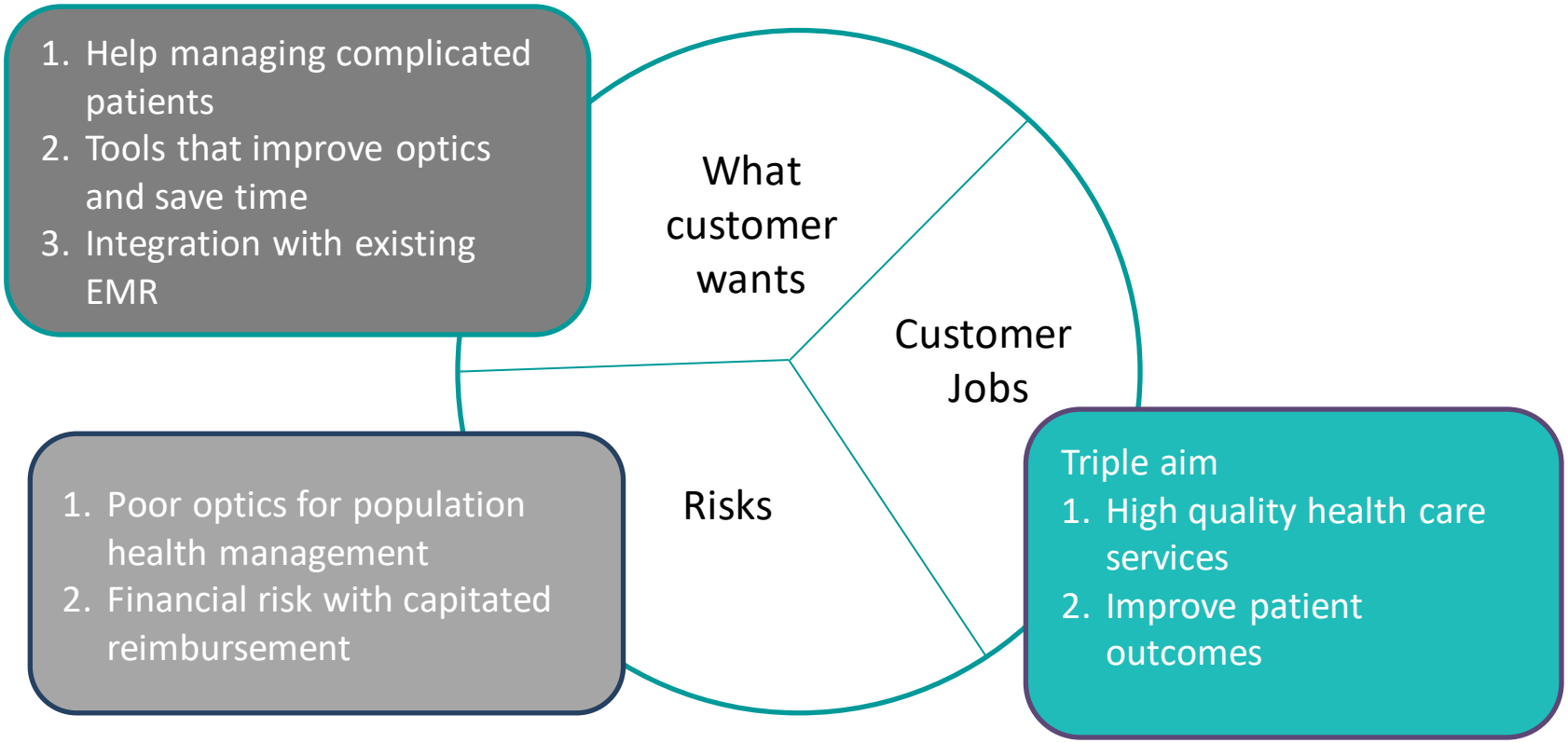
Why: CKD for Office Based Providers

Targeted Population



National Institutes of Health. 2016 USRDS Annual Data Report: Epidemiology of Kidney Disease in the United States. Bethesda, MD: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases;2016

Who - Defining the Customer & Objectives Office Based Primary Care Physicians

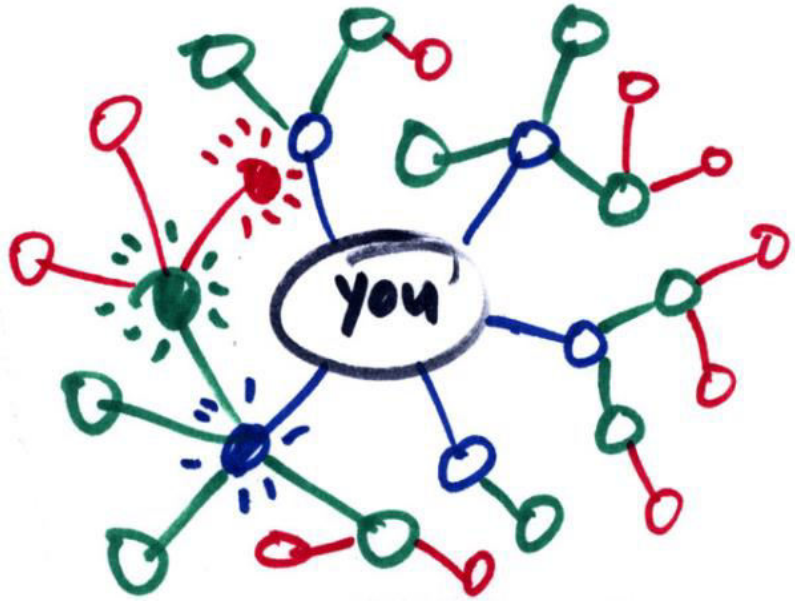


Osterwalder, A. (2014). Value Proposition Design. New Jersey: John Wiley & Sons, Inc.

What: Customer Objectives

Defining clinical value:

- ✓ ID early progression
- ✓ Optimize primary care monitoring
- ✓ Referrals to specialist
- ✓ Concomitant conditions

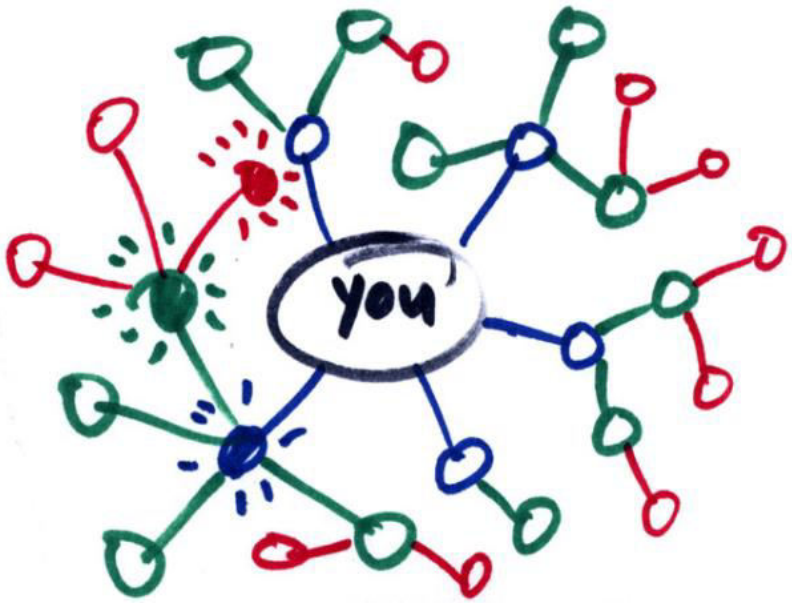


Defining economic value:

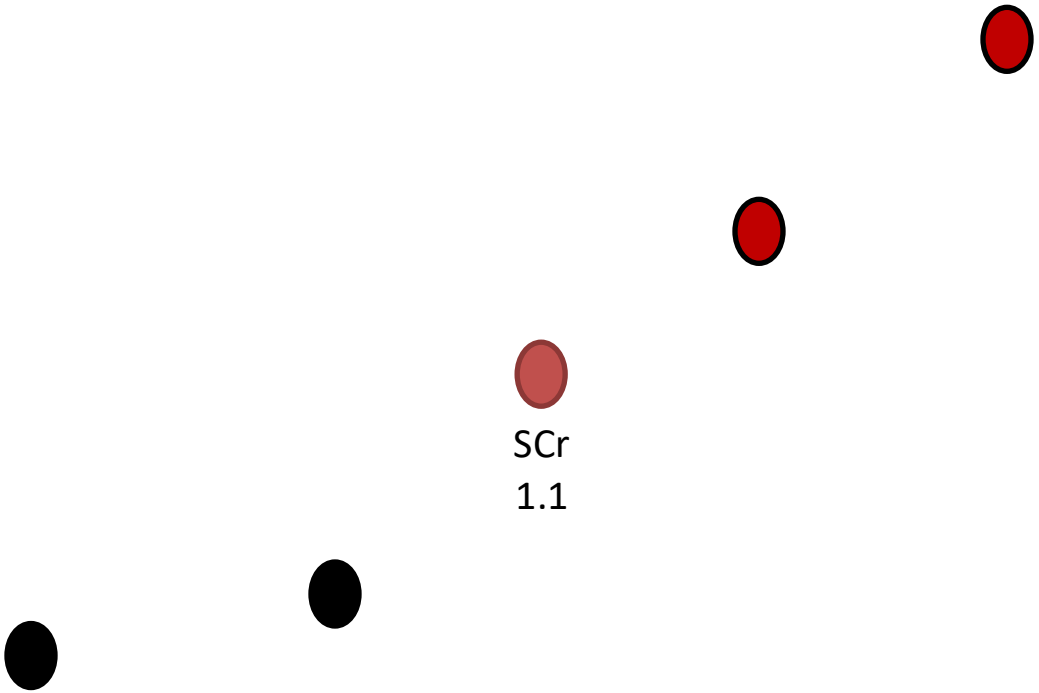
- ✓ Support disease management program
- ✓ Quality metrics
- ✓ Reduce total cost of care

What: Laboratory's Objective

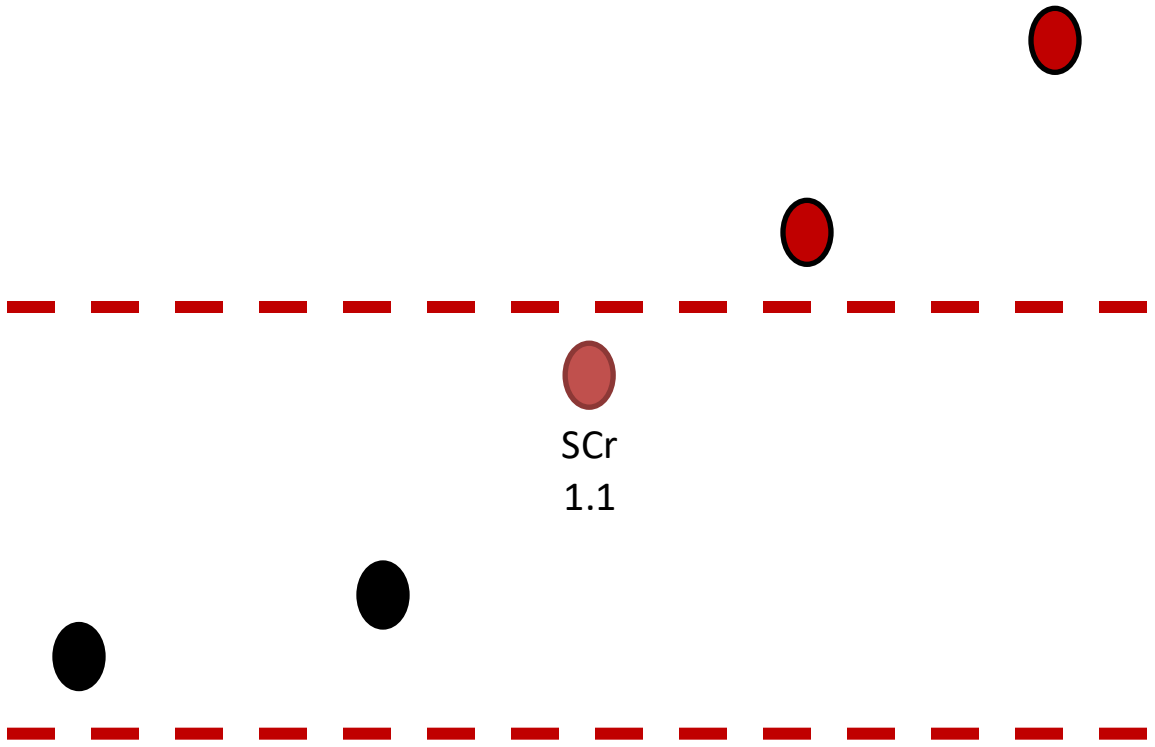
Provide clinical and economic value through longitudinal, real time, clinical insights for CKD patients using laboratory data.



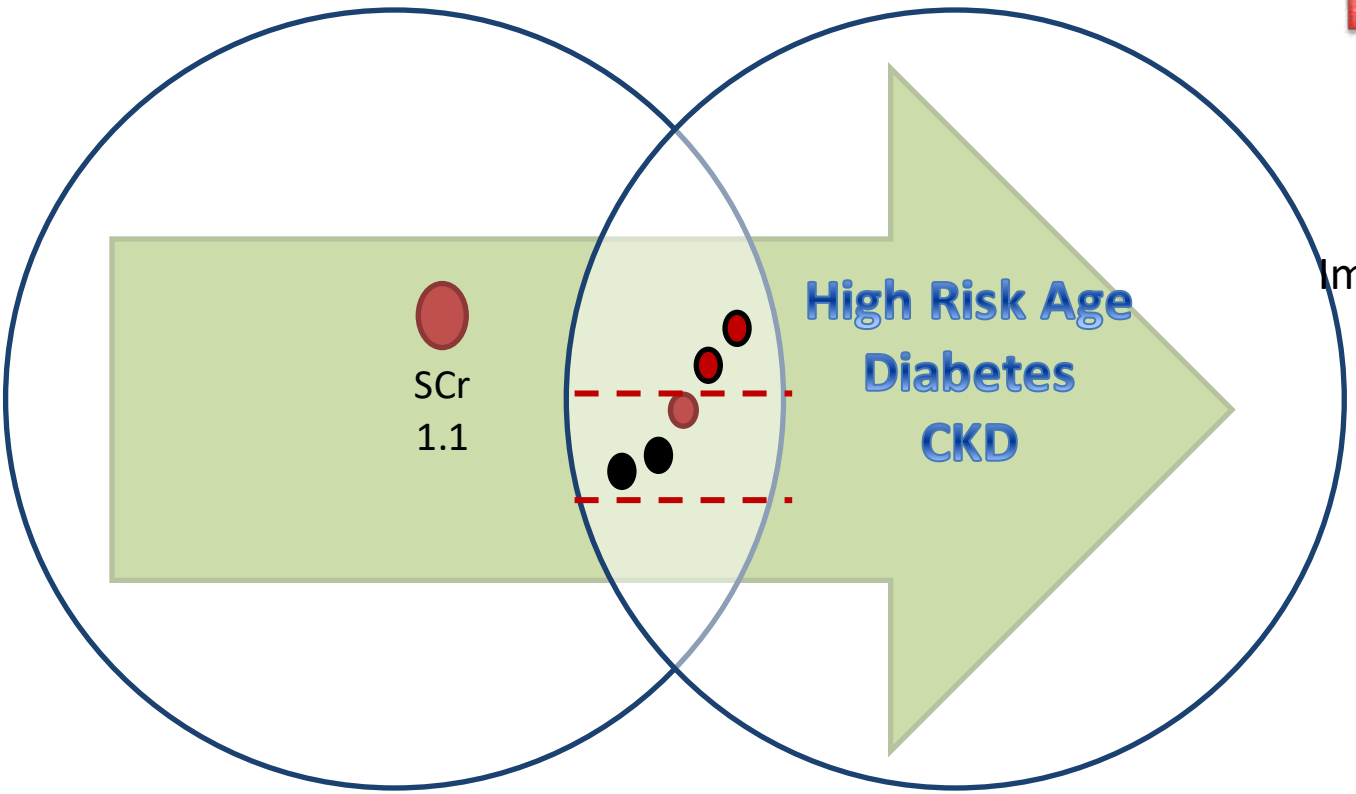
Lab 1.0 - Transactional



Lab 1.5 - Longitudinal



Lab 2.0 - Translational



Population Health

Identify High Risk

↓ Cost

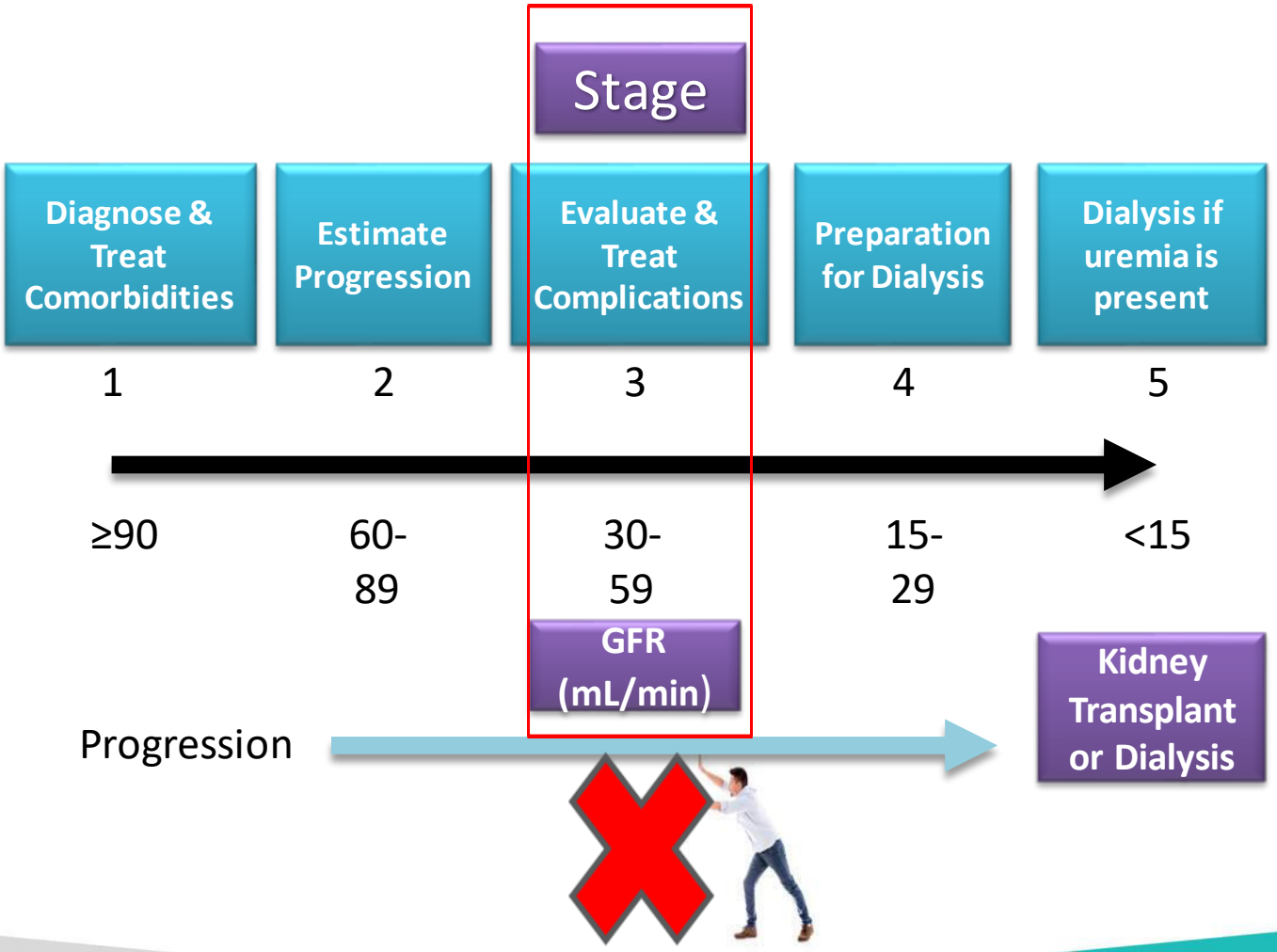
Improve Care Coordination

Interpretation

Diabetic patient with progressive CKD

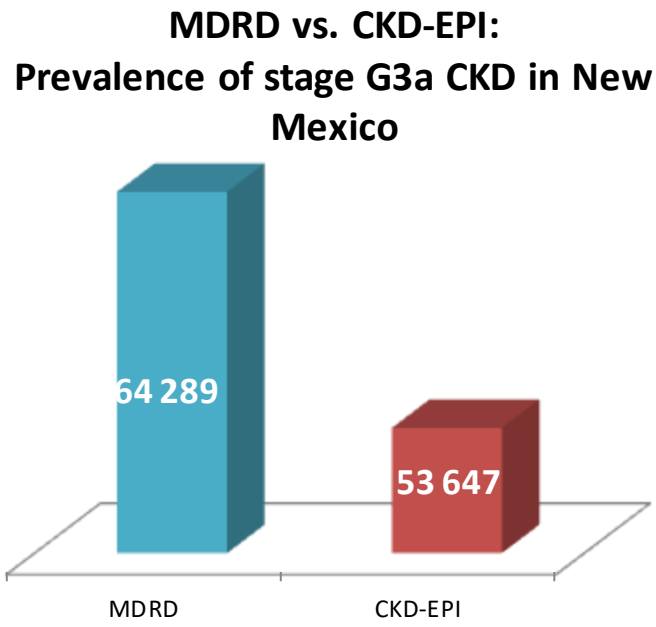
What: Methods

Early Identification



What: Pre-Intervention

Risk Population Using CKD-EPI



- MDRD equation in use for adult outpatients
- CKD-EPI recommended by National Kidney Foundation
- Reduced variation

What: Methods

Risk Stratification

KDIGO Monitoring Guidelines

Guide to Frequency of Monitoring (number of times per year) by GFR and Albuminuria Category

GFR categories (ml/min/1.73 m²) Description and range				Persistent albuminuria categories Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severely increased
				<30 mg/g <3 mg/mmol	30–300 mg/g 3–30 mg/mmol	>300 mg/g >30mg/mmol
	G1	Normal or high	≥90	1 if CKD	1	2
	G2	Mildly decreased	60–89	1 if CKD	1	2
	G3a	Mildly to moderately decreased	45–59	1	2	3
	G3b	Moderately to severely decreased	30–44	2	3	3
	G4	Severely decreased	15–29	3	3	4+
	G5	Kidney failure	<15	4+	4+	4+

Eknoyan, Garabed, Lameire, Norbert, et al. Official Journal of the International Society of Nephrology. KDIGO 2012 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. January 2013.

What: Methods

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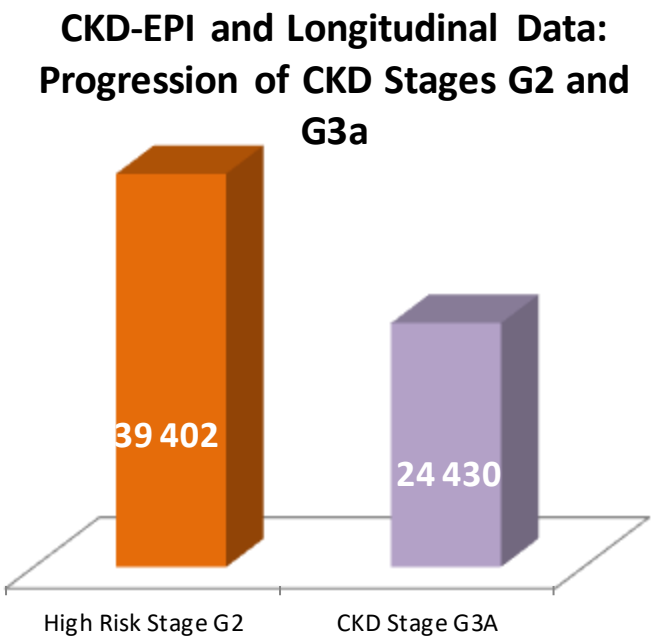
What: Pre-Intervention

Risk Population Using CKD-EPI

- Improved accuracy for eGFR values between 60-120ml/min/1.73m^2
- Identification of risk factors with eGFR values in normal range
- Change to CKD-EPI in December 2017

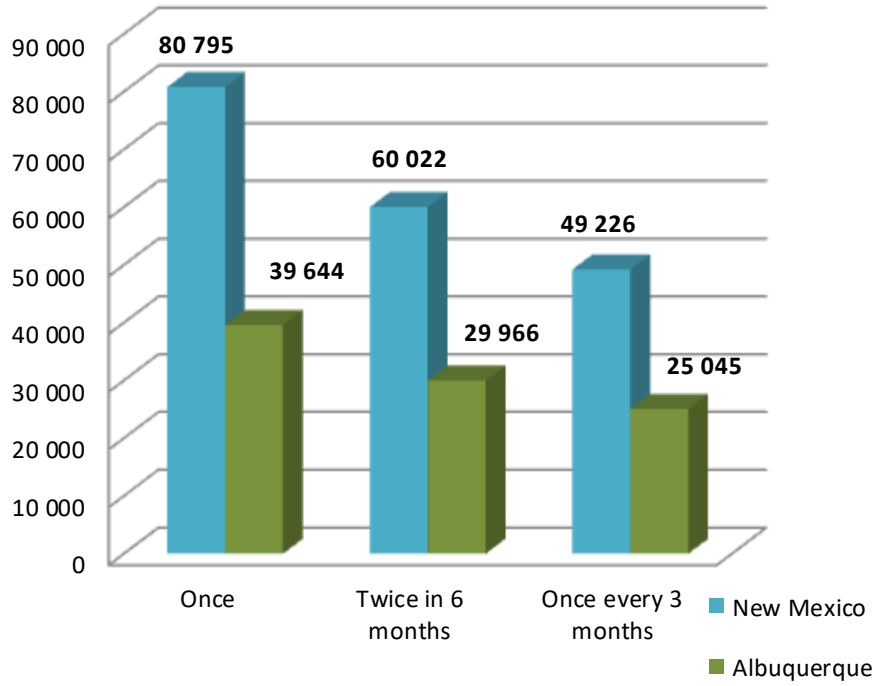


What: Methods

Gaps in Care

- Based on KDIGO
- Categorize patients into monitoring categories
- Patients who met monitoring
- Patients without monitoring

TriCore Data: eGFR Monitoring Frequency in CKD Patients

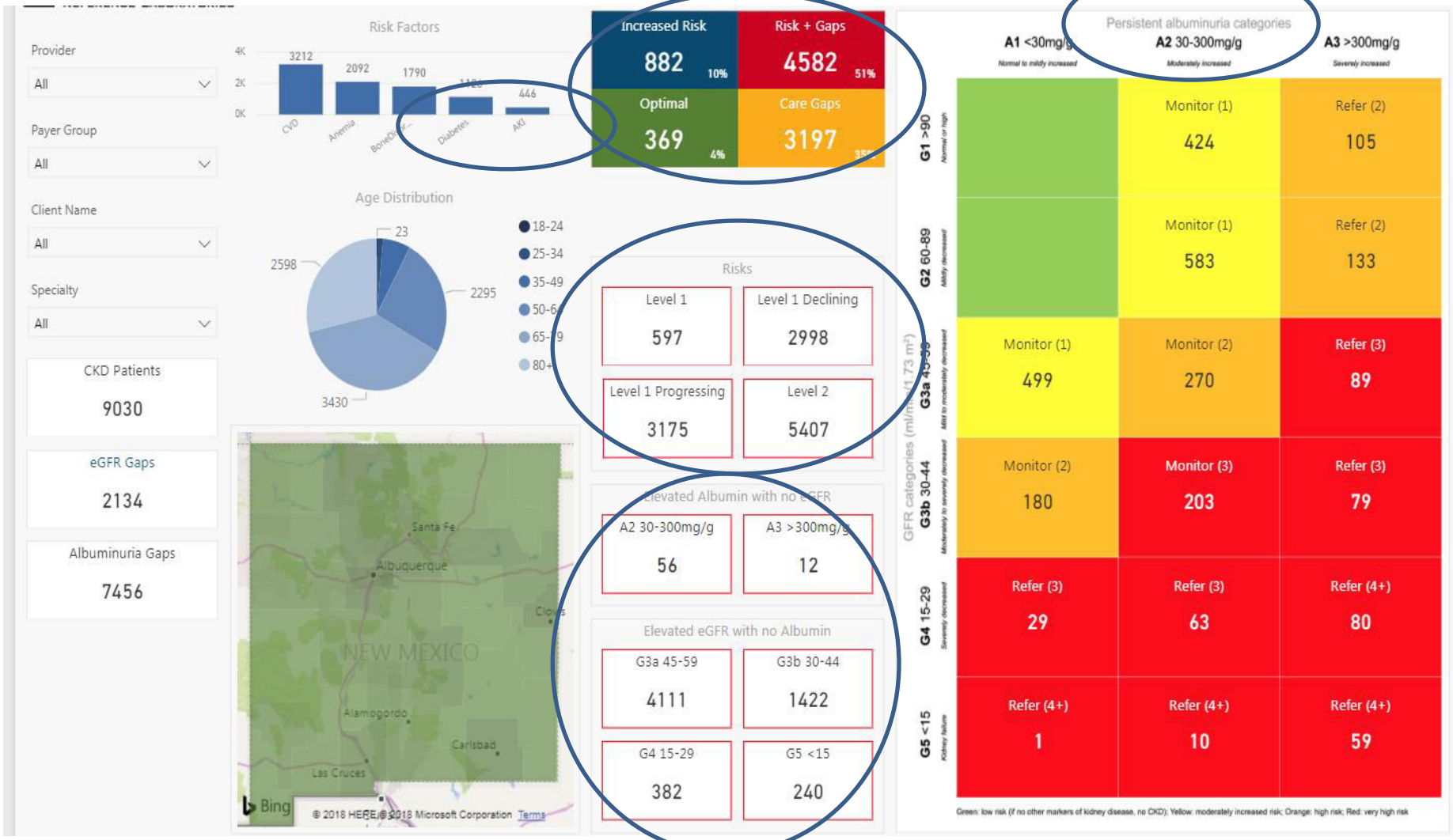


Eknoyan, Garabed, Lameire, Norbert, et al. Official Journal of the International Society of Nephrology. KDIGO 2012 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. January 2013.

National Public Health Priority:
Routine Part of Primary Care

- Focus on diabetes and hypertension
- Order correct tests for screening and diagnosis
  - Microalbumin and urinary creatinine
- Monitor even if within normal range for high risk patients
- Identify risks: anemia, AKI, bone and mineral, cardiovascular

CHRONIC KIDNEY DISEASE ACTIONABLE DATA



TRICORE REFERENCE LABORATORIES

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Learning Lessons:
Keeping Patients on Track

- High prevalence & high cost chronic diseases
  - Early identification
  - Identify at risk patients
  - Look for gaps in care
  - Follow up, follow up

Questions

Acknowledgements:
Aya Haghamad, PharmD
Rick VanNess, MS