

Shifting the AKI Paradigm from Diagnosis to Prevention

New Strategies for Personalized Medicine to Address Your Complex and Uncertain Critical Care Environment





Decisions Vital to Patient Outcomes are Being Made with Inadequate Tools

Dozens of daily treatment decisions affect multi-organ systems:



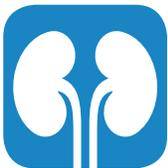
DRUG REGIMEN



FLUIDS MANAGEMENT



TARGET BLOOD PRESSURE



SPECIALTY CONSULTS



DOZENS OF OTHERS

Serum creatinine and urine outpt are two lagging indicators of renal function because:

- Values change after 50% of renal function is lost¹
- They are inconsistently measured and do not provide adequate information to predict renal injury^{2,3}

Incomplete and Lagging Renal Diagnostic Toolset: Damage is Underway

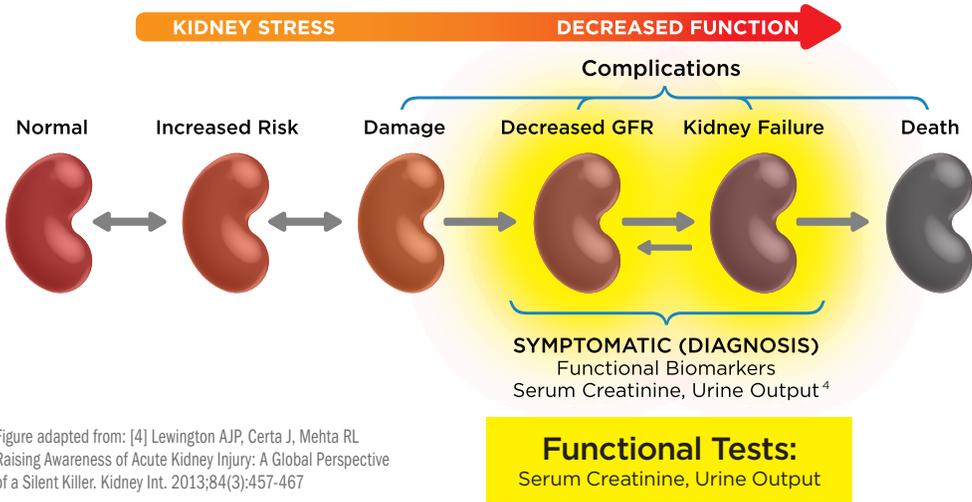


Figure adapted from: [4] Lewington AJP, Certa J, Mehta RL. Raising Awareness of Acute Kidney Injury: A Global Perspective of a Silent Killer. *Kidney Int.* 2013;84(3):457-467

What should better AKI tools look like?

- Predict AKI in advance
- Specific to AKI
- Fast, simple to use
- Complementary to HAI and QI initiatives
- Supported with peer-reviewed evidence
- FDA cleared^{5,6}
- Easy to implement

[1] Martensson J et al. Novel Biomarkers of Acute Kidney Injury and Failure: Clinical Applicability. *Brit J Anesth.* 2012;109(6):843-50 [2] Wlodzimirow KA, et al. A comparison of RIFLE with and without urine output criteria for acute kidney injury in critically ill patients. *Critical Care.* 2012;16:R200 [3] Gould CV, et al. Guideline for Prevention of Catheter-Associated Urinary Tract Infections. HICPAC. 2009 [5] Uettwiller-Geiger, DL, et al. Analytical characteristics of a biomarker-based risk assessment test for acute kidney injury (AKI). *Clin Chim Acta.* 2016; 455; 93-98 [6] Vasan, RS. Biomarkers of Cardiovascular Disease. *Circulation.* 2006; 113; 2335-2362

Without Better Tools, the Best Doctors are Challenged with AKI: Acute Kidney Injury is Costly, Deadly and Prevalent

In a peer-reviewed study of over 50,000 postoperative patients, 39% developed Acute Kidney Injury.⁷ Patients with moderate to severe AKI experienced:



LENGTH OF STAY
7 additional days Hospital,
4 additional days ICU



ICU ADMISSION
Doubled likelihood
of Intensive Care



ADDED HOSPITAL COSTS
Incremental costs average
\$21,000 - \$38,000 higher



**90-DAY
MORTALITY**
Adjusted risk up 50%



**HOSPITAL
MORTALITY**
Adjusted risk up 100%

The #1 Clinically Addressable Potential Inpatient Complication (PIC)⁸

The impact to you, your patient and the ICU Team:

At ICU admission

- Stabilize patient
- Identify specific disease states
- Input orders for care
- Communicate, set expectations with patient and family
- Essential communication and hand-off at shift change

Renal function changes

- Urine output has decreased...
- ...but serum creatinine has not elevated significantly
- Kidneys may be going down

Shift in care strategy

- Re-think fluids, drugs, perfusion... reactive to damage
- Call for renal consult?
- Communicate with family: new complication could affect condition, prognosis and length of ICU stay

Length of Stay (LOS)

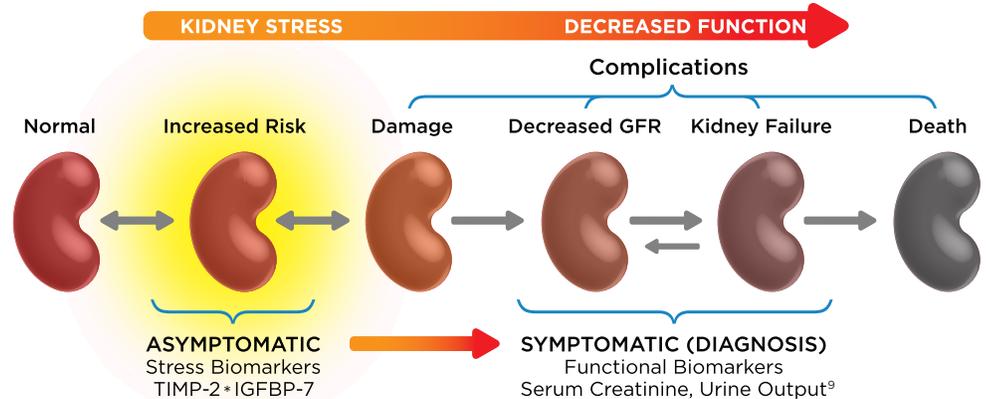
Getting Ahead of AKI: Identify Kidney Stress Before Damage Occurs



Enabling Physician Insight

The NephroCheck® Test

- Specific to AKI¹⁰
- Fast, simple 20 minute urine test¹⁰
- Commercially available in the USA¹⁰
- Peer-reviewed evidence¹⁰
- Complementary to HAI and QI initiatives
- Easy and cost effective to implement



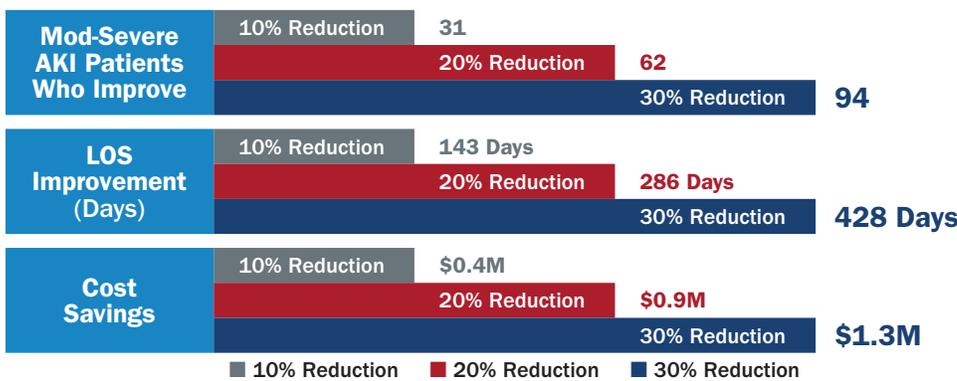
NephroCheck®

Figure adapted from: [9] Lewington AJP, Certa J, Mehta RL Raising Awareness of Acute Kidney Injury: A Global Perspective of a Silent Killer. *Kidney Int.* 2013;84(3):457-467 [10] NephroCheck® Test Kit Package Insert. PN 300152 Rev E

The Opportunity to Intervene Proactively

Small Reductions in Incidence and Severity of AKI Can Have Dramatic Impact

Estimated impact of reducing moderate/severe AKI in ICU by one level: 350-bed hospital^{11,12,13*}



NephroCheck®

Assess AKI Risk. Now.

*Calculated using assumptions published in AHA Database (ICU beds per hospital bed), Wunsch et al. (ICU LOS, % cardiovascular/respiratory compromised), and Hobson et al. (% moderate/severe AKI, incremental LOS/cost). [11] Hobson CE, Ozrazgat-Baslanti T, Kuxhausen A, et al. Cost and Mortality Associated With Postoperative Acute Kidney Injury. *Annals of Surgery.* 2014;00:1-8 [12] American Hospital Association Database, accessed Jan 2014 on 6,416 hospitals [13] Wunsch H, et al. Comparison of Medical Admissions to Intensive Care Units in the US & UK. *Am J Respir Crit Care Med.* 2011;183:1666-1673.

Intended Use for the NephroCheck® Test System: The NephroCheck® Test System is intended to be used in conjunction with clinical evaluation in patients who currently have or have had within the past 24 hours acute cardiovascular and/or respiratory compromise and are ICU patients as an aid in the risk assessment for moderate or severe acute kidney injury (AKI) within 12 hours of patient assessment. The NephroCheck® Test System is intended to be used in patients 21 years of age or older.

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