



Shifting the AKI Paradigm from Diagnosis to Prevention

The NEPHROCHECK[®] Test

Lab Innovation for Critical Care

www.orthoclinicaldiagnostics.com

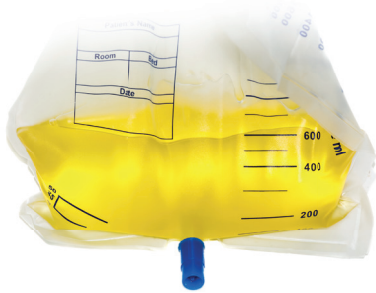
Current renal assessment tools are no longer sufficient

Impacts dozens of ICU treatment decisions affecting multi-organ systems.

SERUM CREATININE

- Lagging indicator – only elevates after 50% of function lost¹
- Identifies only 52% of moderate/severe AKI*
- Inconsistencies due to muscle mass, hydration, etc³

*When compared to that measured in combination with urine output



URINE OUTPUT

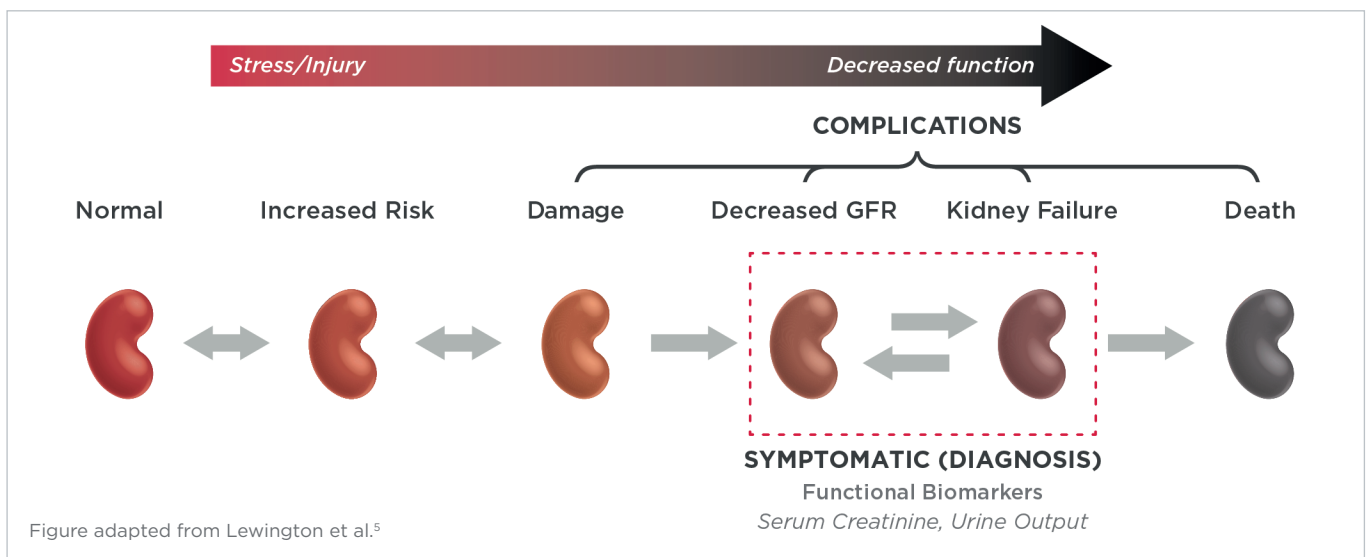
- Lagging indicator²
- Not consistently measured²
- Compromised by HAI initiatives (eg, early foley removal)⁴

Incomplete and lagging renal diagnostic toolset: Damage is underway

Late, damage-dependant information compromises Physician's ability to anticipate consequences and mitigate further damage.

WHAT SHOULD BETTER AKI TOOLS LOOK LIKE?⁶

- Predict AKI in advance
- Complementary to HAI and QI initiatives
- Specific to AKI
- Supported with peer-reviewed evidence
- Fast, simple to use
- Easy to implement



[1] Martensson J, Martling C-R, Bell M. Novel biomarkers of acute kidney injury and failure: clinical applicability. *Brit J Anaesth.* 2012;109(6):843-850. [2] Wlodzimirow KA, Abu-Hanna A, Slabbekoom M, Chamuleau RAFM, Schultz MJ, Bouman CSC. A comparison of RIFLE with and without urine output criteria for acute kidney injury in critically ill patients. *Crit Care.* 2012;16(5):R200. [3] Baxmann A, Ahmed MS, Marques, VB. Influence of muscle mass and physical activity on serum and urinary creatinine and serum cystatin C. *Clin J Am Soc Nephrol.* 2008; 3(2):348-354. [4] Gould CV, Umscheid CA, Agarwal RK, Kuntz G, Pegues DA; Healthcare Infection Control Practices Advisory Committee. Guideline for Prevention of Catheter-Associated Urinary Tract Infections 2009. Atlanta, GA: Centers for Disease Control and Prevention; 2009. [5] 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. [6] Vasan RS. Biomarkers of cardiovascular disease: molecular basis and practical considerations. *Circulation.* 2006;113(19):2335-2362.

The deadly and costly burden of Acute Kidney Injury

In a peer-reviewed study of over 50,000 postoperative patients, 39% developed Acute Kidney Injury.⁷

Patients with moderate to severe AKI experienced:



THE #1 CLINICALLY ADDRESSABLE POTENTIAL INPATIENT COMPLICATION (PIC)¹¹

Impact on you and your laboratory team



The Lab is vital to patient outcomes. Lab innovation in critical care is an important component to patient care. 70% of medical decisions are made based on lab results.

[7] Hobson C, Ozrazgat-Baslanti T, Kuxhausen A, et al. Cost and mortality associated with postoperative acute kidney injury. *Ann Surg*. 2015;261(6):1207-1214. [8] Dasta JF, Kane-Gill SL, Durtschi AJ, Pathak DS, Kellum JA. Costs and outcomes of acute kidney injury (AKI) following cardiac surgery. *Nephrol Dial Transplant*. 2008;23(6):1970-1974. [9] Brown JR, Parikh CR, Ross CS, et al; for the Northern New England Cardiovascular Disease Study Group. Impact of perioperative acute kidney injury as a severity index for thirty-day readmission after cardiac surgery. *Ann Thorac Surg*. 2014;97(1):111-117. [10] Heung M, Steffick DE, Zivin K, et al. Acute kidney injury recovery pattern and subsequent risk of CKD: an analysis of Veterans Health Administration data. *Am J Kidney Dis*. 2015;67(5):742-752. [11] Complications research, a new Premier methodology for identifying hospital-wide harm associated with increased cost, length of stay and mortality in U.S. hospitals. Premier, Inc. 2015. [12] NephroCheck Test Kit [package insert]. San Diego, CA: Astute Medical Inc; 2014. [13] American Hospital Association Database. Accessed December 2016. [14] Wunsch H, Angus DC, Harrison DA, Linde-Zwirble WT, Rowan KM. Comparison of medical admissions to intensive care units in the United States and United Kingdom. *Am J Respir Crit Care Med*. 2011;183(12):1666-1673.

Identify Kidney Stress before damage occurs

The **NEPHROCHECK® Test** measures Kidney Stress before damage occurs. Opportunity to consider kidney-preserving strategies before its too late.

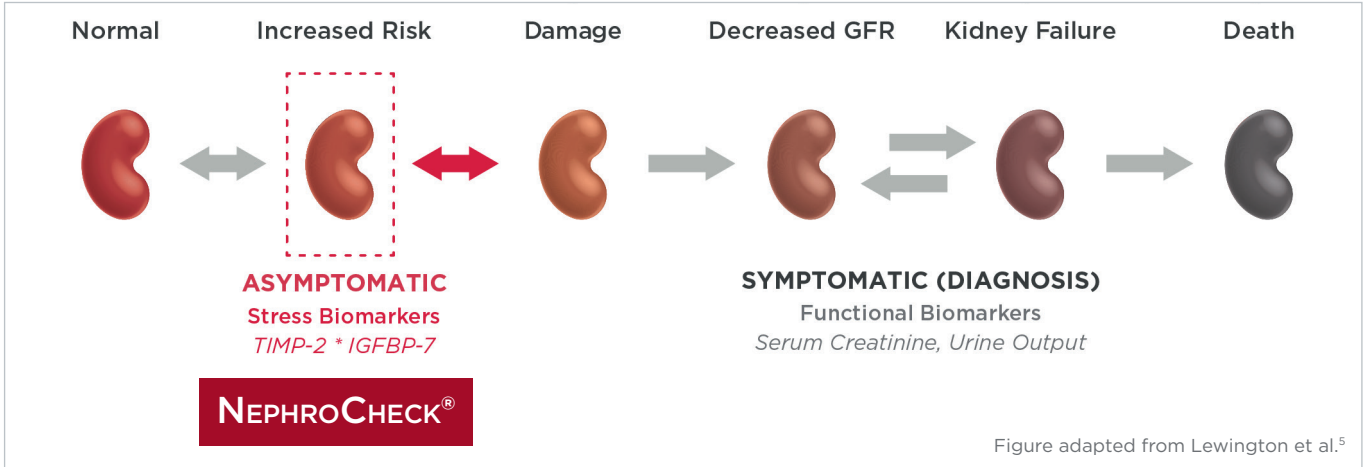


Figure adapted from Lewington et al.⁵

The test is available through Ortho Clinical Diagnostics as a simple urine test, providing a result in approximately 20 minutes.

Small reductions in AKI can have dramatic impact

Peer-reviewed literature can provide a model for estimating the clinical and financial impact of AKI reduction.

Estimated impact of reducing moderate to severe AKI in ICU by one severity level:
350 bed hospital^{7,13,14*}

Moderate/severe AKI patients who improve	10% REDUCTION	31 PATIENTS
	20% REDUCTION	62 PATIENTS
	30% REDUCTION	94 PATIENTS
LOS improvement (days)	10% REDUCTION	143 DAYS
	20% REDUCTION	286 DAYS
	30% REDUCTION	428 DAYS
Cost savings	10% REDUCTION	\$0.4M
	20% REDUCTION	\$0.9M
	30% REDUCTION	\$1.3M

*Calculated using assumptions published in AHA Database (ICU beds per hospital bed),¹⁴ Wunsch et al (ICU LOS, % cardiovascular/respiratory compromised),¹⁵ and Hobson et al (% moderate/severe AKI, incremental LOS/cost).⁸

CONTACT YOUR ORTHO SALES REPRESENTATIVE OR VISIT WWW.ORTHOCLINICALDIAGNOSTICS.COM AND LEARN HOW WE CAN HELP YOU TO SHIFT THE AKI PARADIGM.