Maryland
Hospital Association

REQUEST FOR COMMENT:

Recommendations of the Acute Renal Failure (ARF) / Acute Kidney Injury (AKI) Workgroup

The Maryland Hospital Association *is seeking comment on clinical criterion used to define Acute Renal Failure Acute Kidney Injury (ARF/AKI). Medical and quality leadership are asked to review this document with appropriate staff and stakeholders. It is the workgroup's goal that the recommended criterion be considered by each hospital's Medical Executive Committee for adoption. Please submit your feedback to Justin Ziombra at jziombra@mhaonline.org by Thursday, March 26th.*

Background

The 30% reduction in complications required under the new hospital waiver and the annual targets outlined within the Maryland Hospital Acquired Condition (MHAC) payment policy[1] are based on 65 Potentially Preventable Complications (PPCs).[2] Because PPCs are based on administrative data, the assignment of a PPC is derived from clinical documentation and coding. While hospitals have dedicated significant resources to improving clinical documentation and coding, it has become apparent that variability in the criteria used to define the occurrence of specific clinical conditions across hospitals is hindering our ability to accurately quantify complications and collaborate to prevent them. The premise of this work is that use of consistent criteria to define specific conditions will provide the necessary 'level setting' from which to truly measure performance and support collaboration on quality improvement opportunities. For these reasons, hospital leaders requested that MHA convene a group of clinical and quality representatives to consider criteria currently used across hospitals, review

[1] The statewide reduction target for 2015 is 7% comparing FY2014 to CY2015 risk adjusted PPC rates; The proposed amount at risk for the MHAC program is 3% of inpatient revenue

[2] 3M Health Information Systems developed PPCs; The PPC software relies on present on admission indicators from administrative data to calculate the actual versus expected number of complications for each hospital

evidence, relevant literature and guidelines, and work to develop consensus definitions.[3]

Process

Informed by data analyses of PPC performance, hospital medical and quality leaders identified a subset of diagnoses that were widely agreed upon to have varied diagnostic and documentation patterns. The diagnoses were then prioritized based on volume and variability in performance and grouped into four categories: urinary tract infections, obstetric hemorrhages and lacerations, pneumonia/respiratory failure and acute renal failure/kidney injury. A workgroup was convened around each of the four categories and was comprised of physicians, non-physician clinicians, and documentation and coding professionals from a cross-section of Maryland's community and teaching hospitals and health systems.[4] Over a series of meetings each workgroup was charged with developing a proposed definition informed by published criteria and existing practice. Hospitals were engaged in the process through submission of hospital-based definitions as well as offering comment on the workgroups' proposed definitions. The workgroups' recommendations account for inpatient coding guidelines[5] and apply to any occurrence of the diagnosis, not only scenarios that would trigger a PPC under the MHAC policy.

Each workgroup's proposed criterion are intended to serve as a guideline for provider and coder consideration and are not intended to restrict provider judgment when diagnosing a patient or alter coder assignment based on established guidelines. This clinical definition will not supplant the need for providers to clearly document a diagnosis. Provider documentation will continue to be the basis for inpatient coding of diagnoses as is required by coding guidelines. Coders will continue to use provider documentation as the source of the coded diagnosis. The workgroup encourages hospitals to utilize approved definitions to guide coders and clinical documentation

[3] This activity was approved by MHA's Council on Clinical Quality Issues as well as the Executive Committee
[4] Workgroup meeting material and rosters available at http://www.mhaonline.org/quality
[5] ICD-9 Official Coding Guidelines, approved by four organization that make up the Cooperating Parties for the ICD-9-CM: the American Hospital Association (AHA), the American Health Information Management Association (AHIMA), the Centers for Medicare and Medicaid Services (CMS) and the National Center for Health Statistics

specialists to query physicians when the documented diagnoses lack the respective supporting clinical indicators.

Acute Renal Failure / Acute Kidney Injury (ARF/AKI)[6] Work Group Deliberations

To arrive at a proposed definition, the workgroup, over a series of meetings, based their deliberations on the following:

- *Current practice at Maryland hospitals*
  - Medical and Quality leads at all Maryland acute care hospitals were asked to submit the policies used at their facilities to define ARF/AKI
- *Relevant literature and published guidelines by respected bodies, including the Acute Dialysis Quality Initiative (ADQI), the Acute Kidney Injury Network (AKIN), and the Kidney Disease Improving Global Outcomes (KDIGO) organization*
- *Expertise of workgroup members*

The workgroups recognize that any definition or guideline will not apply to every patient, and therefore each hospital and/or provider is expected to use appropriate professional judgment when applying this guideline. While the workgroup strongly encourages the use of standardized criteria within and across hospitals, any guideline that is adopted will not negate the use of the provider's documentation, which is the basis for inpatient coding.

Proposed ARF/AKI Definition Criterion

The workgroup concluded that the defining criterion for ARF/AKI for adult patients is:

Defining Criteria for ARF/AKI
A Greater Than 50% Rise in Serum Creatinine from Baseline Occurring Over the Course of a Single Hospital Stay

The workgroup reached this conclusion by considering the three principal definitions for ARF/AKI accepted by providers. These definitions include:

[6] For purposes of this workgroup, the terms Acute Renal Failure and Acute Kidney Injury are used synonymously and abbreviated (ARF/AKI)

1) The RIFLE criteria (Risk, Injury, Failure, Loss and End Stage Renal Disease)[7]

2) The AKIN criteria [8]

3) The KDIGO criteria[9]

A greater than 50% rise in serum creatinine is a common element to all three criteria. The MHA workgroup refrained from recommending that the RIFLE, AKIN or KDIGO criteria be wholly adopted by practitioners in Maryland hospitals as these criteria are most relevant when determining consistent inclusion standards or endpoints for epidemiologic studies.[10,11] The workgroup instead determined that it would be more appropriate to adopt this single element from within these guidelines as it is simpler (which will aid adoption) and more clinically relevant. This definition may need to be revisited in the future as new, more reliable testing of kidney function is widely available.

Applicability

The workgroup felt that the definition for ARF/AKI detailed above should be used even for those patients who have a consistently elevated serum creatinine due to chronic kidney disease or another condition. The only population for which this definition will not apply is the pediatric patient population. The rationale for consistent application is that for any starting creatinine level, a 50% rise consistently indicates an approximately 25% decrease in the Glomerular Filtration Rate (GFR), a clinically significant loss of renal function. The relationship between serum creatinine and GFR is depicted in the graph below.[12]

[7] Bellomo R, Ronoco C, Kellum JA, et al. Acute renal failure definition, outcome measures, animal models, fluid therapy and information technology needs: the Second International Consensus Conference of the Acute Dialysis Quality Initiative (ADQI) Group. Crit Care 2004; 8:R204

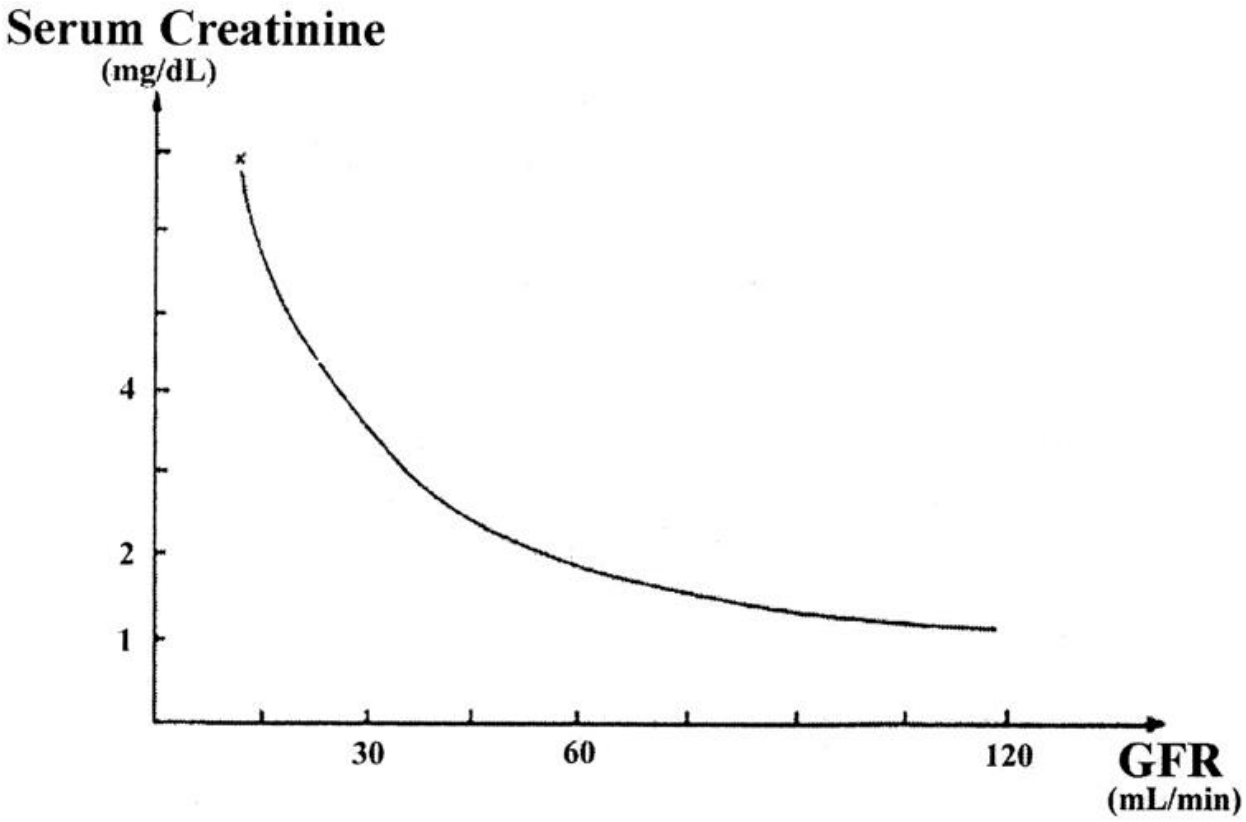
[8] Mehta RL, Kellum JA, Shah SV, et al. Acute Kidney Injury Network: Report of an initiative to improve outcomes in acute kidney injury. Crit Care 2007; 11:R31

[9] KDIGO Clinical Practice Guideline for Acute Kidney Injury. Kidney Int Suppl 2012; 2:8

[10] Palevsky PM, Liu KD, Brophy PD, et al. KDOQI US commentary on the 2012 KDIGO clinical practice guideline for acute kidney injury. American Journal of Kidney Disease 2013; 61:649

[11] James M, Bouchard J, Ho J, et al. Canadian Society of Nephrology commentary on the 2012 KDIGO clinical practice guideline for acute kidney injury. American Journal of Kidney Disease 2013; 61:673

[12] Salomon, L., et al. Assessing Residents' Prescribing Behavior in Renal Impairment. The International Society for Quality in Health Care 2003; 15:3



The workgroup considered, and purposefully omitted, including specific mg/dL shifts in creatinine (e.g. a 0.3 mg/dL increase) and instead decided to only utilize rates of change (e.g. a 50% increase) in its definition. The workgroup's rationale was that a rate of change better relates the measure of serum creatinine levels to a patient's baseline. For example, a 0.4 mg/dL increase in a patient with a baseline creatinine of 2 mg/dL only represents a 20% increase while a 0.4 mg/dL increase is a 50% increase for a patient with a baseline of 0.8 mg/dL. Additionally, incorporating a 0.3 mg/dL increase as a definitional element, such as used in AKIN and KDIGO, would create too sensitive a definition for those patients with chronically elevated creatinine levels and likely lead to some patients being improperly diagnosed with ARF/AKI. Because it only considers the rate of change, this workgroup's definition is relevant for those patients with baseline kidney dysfunction, including chronic kidney disease.

Urinary Output

The workgroup also considered, and purposefully omitted, consideration of urinary output as a necessary part of the definition for ARF/AKI because many hospitalized

patients do not have an indwelling catheter, and the accurate measurement of urinary output is often impractical. Though urinary output is not a component of this proposed definition, a provider may choose to consider this component, if available, as an element for decision making.

Time Period

The workgroup purposefully refrained from defining ARF/AKI such that a greater than 50% rise in serum creatinine must take place over a specific number of days. The workgroup's rationale, based on the expertise and experience of workgroup members, is that an incidence of ARF/AKI may evolve over several days or possibly even longer than a week. The workgroup therefore concluded that a rise in creatinine over the threshold taking place during any time within a single hospital stay be considered ARF/AKI.

Instructions for Submitting Comments

Please utilize the 'track changes' function to make line-item comments or suggestions. Additionally, the 'General Comments' section located below the appendix can be used to write longer notes and provide general feedback. Please refer to a page and line number when writing comments. The workgroup is seeking both clinical feedback as well as comments that address feasibility or other practical considerations regarding implementation. Please submit your feedback to Justin Ziombra at jziombra@mhaonline.org by **Thursday, March 26th.**

Appendix – Appropriateness of ARF/AKI for Quality-Based Payments

The workgroup had considerable discussion around use of ARF/AKI for quality based payment programs because not all incidences of ARF/AKI are avoidable or preventable. In some instances, patients may experience an unavoidable kidney injury and associated increase in serum creatinine over the 50% threshold secondary to an underlying disease or condition. In other circumstances, patients may experience an unavoidable kidney injury and associated increase in serum creatinine secondary to an appropriate, necessary and timely treatment for another disease or condition. MHA will continue to collaborate with this workgroup to bring these concerns to HSCRC and 3M.

The workgroup suggested that, for patients diagnosed with one of the conditions or requiring one of the treatments enumerated in the list below, a subsequently appropriate diagnosis of ARF/AKI may not be preventable. The list includes:

- -Primary renal disease, Including acute glomerulonephritis and acute interstitial nephritis
- -Shock of any etiology
- -Hypertensive crisis
- -Sepsis or septicemia
- -Congestive heart failure and treatment (diuretic therapy)
- -Preeclampsia
- -Emergent studies using contrast dye
- -Renal surgery
- -Hemorrhage
- -Burns
- -Liver failure

The workgroup requests that 3M and HSCRC weigh the potential of considering this list as exclusions to ARF/AKI given that many instances of ARF/AKI may be inherent to these conditions or treatments.

General Comments