Maryland
Hospital Association

Final Document

Recommendations of the Respiratory Workgroup

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 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 as having 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, infection preventionists and documentation and coding professionals from a cross-section of

[1] The statewide reduction target for 2015 is 7% comparing FY2014 to CY2015 risk adjusted PPC rates; The 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

[3] This activity was approved by MHA's Council on Clinical Quality Issues as well as the Executive Committee

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

Respiratory Workgroup 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 internal policies or guidelines used at their facilities to define pneumonia, aspiration pneumonia and respiratory failure

[4] Workgroup meeting material and rosters available at http://www.mhaonline.org/quality/complications-work-groups

[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

- *Relevant literature and published guidelines including, but not limited to, the Centers for Disease Control and Prevention's National Healthcare Safety Network (CDC NHSN)*
- *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 Defining Criteria for Pneumonia

In forming defining criteria for pneumonia, workgroup members considered the *Pneumonia (Ventilator-associated [VAP] and non-ventilator-associated Pneumonia [PNEU]) Event* criteria developed by CDC NHSN.[6] Members had reservations about wholly endorsing these algorithms as the workgroup agreed that it would be more appropriate to form a single set of criteria to broadly define pneumonia, as opposed to creating multiple definitions for specific etiologies (i.e., viral versus bacterial).

[6] CDC NHSN "Pneumonia (Ventilator-associated [VAP] and non-ventilator-associated Pneumonia [PNEU]) Event," January 2015

The workgroup's proposed definition for pneumonia is:

Defining Criteria For Pneumonia	
Patient Must Meet One Element From A, One Element From B, and C	**Signs, Symptoms and Lab Values**
A*	
-Temperature > 38 or < 36	
-Leukopenia (<4000 WBC/mm3) or leukocytosis (>12,000 WBC/mm3)	
And	
B*	
-Purulent sputum	
-Cough	
-Dyspnea	
-Tachypnea	
-Supportive findings through physical exam	
-Worsening gas exchange	
And	
C**	**Imaging**
-Supportive imaging	

*When other attributable causes have been ruled out

**'Supportive Imaging' is defined as radiographic evidence of persistent infiltrates. The workgroup notes that initial chest X-rays can sometimes fail to show evidence of pneumonia due to such conditions as dehydration, however subsequent chest X-rays may indicate its presence

Proposed Defining Criteria for Aspiration Pneumonia

Workgroup members noted that there is no single, validated and comprehensive definition for aspiration pneumonia that could be readily endorsed. The workgroup also noted that aspiration pneumonia is sometimes diagnosed when in fact the patient may

have a different and more transient condition such as laryngotracheobronchitis, or other condition such as chemical pneumonitis.[7] To distinguish between aspiration pneumonia and other conditions, the workgroup concluded that a time element should be considered. A true case of aspiration pneumonia would meet the definition of 'Pneumonia' detailed above, with the requirement that signs and symptoms (i.e. elements from 'A' and 'B') persist for longer than 48 hours and are supported through radiographic imaging ('C'). Workgroup members also noted that an aspiration event is rarely witnessed.[8] Therefore, the group agreed that a reasonable suspicion that an aspiration event occurred prior to the pneumonia sufficiently qualifies for the definitional criteria of aspiration pneumonia.

The workgroup's proposed definition for aspiration pneumonia is:

Defining Criteria For Aspiration Pneumonia
For patients where there is a reasonable suspicion of aspiration, as determined by the provider, a case of Pneumonia (as defined in the 'Pneumonia' Criteria' above) in which the signs and symptoms last longer than 48 hours after a suspected or witnessed aspiration event

Respiratory Failure

The workgroup concluded that an appropriate definition for acute respiratory failure for use in hospitals should be more holistic than customary definitions that rely principally on lab results and pulse oximetry to define respiratory failure. The group sought to craft a relevant definition that provides clinicians with a useful prospective tool, and noted that defining respiratory failure principally through Arterial Blood Gas (ABG) results is more appropriate as a retrospective screen for chart reviews and epidemiological surveillance. Relying principally on blood gas values is also problematic because:

1) Many patients do not receive routine ABGs

[7] Xiaowen H. Joyce S. et al. Aspiration-Related Pulmonary Syndromes *Chest* 147:3 818-819
[8] Xiawon H. et al, 818-819

2) Some patients, particularly those in post-operative recovery, may have an abnormal ABG, however the result often normalizes in a short period of time and is not necessarily indicative of respiratory failure

3) Some patients with chronic respiratory conditions have baseline ABGs that are abnormal

The workgroup agreed that the defining criteria for acute respiratory failure should include lab values and other signs and symptoms, and should also incorporate the intervention required as this is an important consideration in defining respiratory failure and better captures the resource utilization required to treat the condition.

The workgroup sought to create a comprehensive definition for acute respiratory failure that would identify an instance of the condition regardless of etiology, and therefore the group refrained from creating multiple definitions that distinguish by subtype (e.g. hypercapnic respiratory failure). The exception is post-operative respiratory failure, for which the workgroup concluded that the length of time mechanical ventilation is required after surgery should be considered (see below).

The workgroup's definition of acute respiratory failure is:

Defining Criteria For Acute Respiratory Failure	
Patient Must Meet One Element From A, One Element From B, and One Element From C	**Signs, Symptoms and Lab Values**
A -Altered mental status -Tachypnea or lowered respiratory rate -Dyspnea or increased work of breathing -Hemodynamic instability	
And	
B* -SpO2 < 92% or a dependence on at least 4L/min of O2 through nasal cannula to prevent SpO2 from dropping below 92% and further decompensation -Acute respiratory acidosis: either a pH<7.35 from an arterial sample or a pH<7.3 from a venous sample	
And	
C -The unanticipated need for an intervention to support ventilation and/or gas exchange that is physiologically required to prevent decompensation; These interventions may include the use of a mechanical ventilator, BiPAP, or CPAP; These interventions may also include the use of milder support interventions such as oxygen delivered via high flow therapy, non-rebreather mask or nasal cannula delivering at least 4L/min provided that the milder intervention is required for at least 2 hours or longer	**Intervention**

*Assuming these findings are deviations from the patient's baseline

The presence of an element from Section A or Section B before treatment (Section C) is initiated can be considered to be symptomatic of respiratory failure.

The transient need for milder interventions (including oxygen delivered via high flow therapy, non-rebreather mask or nasal cannula delivering at least 4L/min) resolving in the space of 2 hours or less should not be considered respiratory failure.

The workgroup emphasizes that the above criteria are for acute respiratory failure (including acute on chronic cases) only. Instances of chronic respiratory failure, as indicated by the chronic reliance on invasive or non-invasive support for ventilation, should be clearly differentiated by the provider. The workgroup would like to stress that failing to properly distinguish among instances of acute, chronic and acute-on-chronic respiratory failure in documentation may impact patient care and could inappropriately record (or fail to record) an occurrence of a PPC.

Post-Operative Respiratory Failure

The workgroup noted that many patients are expected to remain on a ventilator following surgery, and these patients should not be considered to have respiratory failure. A patient may remain intubated post-operatively (or be re-intubated during the immediate post-operative period) solely to assure competency of the upper airway. This may happen, for example, following upper airway surgery that has led to edema or following a neurosurgical procedure that has impaired swallow or gag reflexes or requires the patient to remain in a medically-induced coma.

Workgroup members concluded that one important distinguishing characteristic between a common course of recovery following surgery and an unexpected case of respiratory failure is time. The workgroup therefore recommends that patients who remain intubated for 48 hours or less should not be diagnosed as having respiratory failure. For patients who have undergone certain procedures, such as open abdominal surgeries or the aforementioned neurosurgical procedures or surgeries with upper airway involvement, there may be an expected post-operative ventilator period of greater than 48 hours. Such instances of prolonged mechanical ventilation, even in excess of 48 hours, should not be characterized as post-operative respiratory failure in the absence of significant compromise of pulmonary gas exchange. Providers are encouraged to clearly document the expected ventilator-assist period and, once the patient is extubated, document if the period was expected or unexpected.

Appendix A – Response to Comments on the Workgroup's Draft

The workgroup would like to thank all who submitted comments on its draft. The workgroup carefully considered each commenter's submission. Commenters touched on many of the same points, and the workgroup's responses to those points are detailed below.

One commenter pointed out that, with respect to outpatients, a supportive imaging requirement to define pneumonia may not be reasonable given that serial imaging, which is often required, is likely infeasible for this patient population. In response, the workgroup would like to clarify that its criteria to define pneumonia were crafted with the inpatient population in mind and are primarily applicable to this population. The workgroup would encourage practitioners to use these criteria for outpatients when possible, but concedes that this may not always be practical.

Some commenters highlighted that the group's definition for pneumonia may fail to capture those cases where patients present with atypical signs and symptoms due to advanced age, the use of antibiotics, comorbidities or other factors. The workgroup agreed that its definition will not apply to all patients and all clinical scenarios; however, members were reasonably confident that these criteria will identify most cases of pneumonia. To further broaden the criteria to make the definition all-inclusive risks affecting its usability (and could therefore inhibit adoption) and is outside the scope of this workgroup.

One commenter suggested that the workgroup clarify whether its definition for respiratory failure applies to chronic respiratory failure or acute respiratory failure (including acute-on-chronic cases). The workgroup agreed with this commenter that more clarity is needed, and adjusted the document accordingly. The workgroup members emphasized that provider documentation should clearly label whether a patient has acute, chronic or acute-on-chronic respiratory failure as ambiguity in this regard may impact patient care and could inappropriately record (or fail to record) the occurrence of a complication.

One commenter suggested that the workgroup clarify its rationale for post-operative respiratory failure to explain that, for some patients, the need for mechanical ventilation beyond 48 hours may still be an expected course of recovery. The workgroup agreed with this commenter and the language in the document was modified accordingly.

One commenter suggested that the 'intervention' component of the workgroup's respiratory definition be limited to mechanical assist devices, and refrain from including such interventions as oxygen delivered through nasal cannula or non-rebreather masks. The workgroup did not believe that such interventions, when employed in the presence of the signs, symptoms and lab values also required by the definition, should be excluded as indications for respiratory failure. In light of this comment, however, the workgroup clarified that a transient need for milder interventions which resolves in the space of 2 hours or less should not be considered respiratory failure. The document was modified accordingly.

Some commenters stated that the workgroup's definition of aspiration pneumonia, which dictates signs and symptoms persist for longer than 48 hours, could mischaracterize present-on-admission cases as hospital acquired. In a scenario where a provider suspects aspiration pneumonia and the patient otherwise meets the criteria but for the time element, the workgroup agreed the provider should make this diagnosis. If the infiltrate or syndrome subsequently resolves within 24-48 hours, then the documentation should be amended to indicate that the initial diagnosis was incorrect and that the patient instead suffered from chemical pneumonitis or some other condition.