

## Episode overview: Ambulatory URI

*Ambulatory Upper Respiratory Infections (URIs) represent one of several clinical areas prioritized for inclusion in the 2012 Arkansas Payment Improvement Initiative. This working paper summarizes the core concepts of this episode and explores the potential challenges and implications of adopting an episode-based payment across five topic areas:*

- *Overview of ambulatory URI*
- *Baseline utilization and cost patterns*
- *Opportunities for improved quality, patient experience, and efficiency*
- *Clinical, operational, and economic challenges*
- *Key design decisions for new payment model(s)*

*This document will be refined with input from participants in the Primary Care Workgroup, independent experts and other interested parties.*

### **OVERVIEW OF AMBULATORY URI**

Ambulatory URIs are acute infections to the upper respiratory tract that are predominantly treated within the outpatient setting, the most prevalent of which is the common cold. Examples of Ambulatory URIs include rhinitis, sinusitis, laryngitis, nasopharyngitis, and pharyngitis.

Ambulatory URIs have a high incidence rate, with the average adult contracting 2-4 URIs per year and the average child contracting 3-8 URIs per year.<sup>1</sup> Most Ambulatory URIs are treated outside of the healthcare setting, with patients self-managing symptoms using over the counter (OTC) medication. Still, every year, approximately 17% of adults and 33% of children who experience a URI will visit a physician for a URI.

A patient's first point of contact with the healthcare setting for an ambulatory URI is typically via the initial assessment, which may occur via phone or email consultation, in an office-based visit, or in a visit to the Emergency Room (ER).

<sup>1</sup> Fendrick, Mark et al. The Economic Burden of Non-Influenza-Related Viral Respiratory Tract Infection in the United States. 2003 February. *Arch Intern Med*.

In this initial assessment, the clinician diagnoses the URI and identifies potential risk factors or complications. Such risk factors or complications may include very young or old age, comorbidities such as cancer or chronic lung disease, or physical findings indicative of a different diagnosis. We expect to exclude patients with high risk factors from this episode.

The primary mode of diagnosis is a physical exam based on patient symptoms and physical findings. Additional work-up (e.g., blood work, chest x-ray, throat culture) may be indicated based on patient symptoms. A high fever and abnormal lung sounds may indicate need for chest x-ray to check for presence of pneumonia. For patients with pharyngitis, choice of whether to pursue rapid strep test and/or throat culture is based on the presence of Centor criteria (fever, tonsillar exudates, tender anterior cervical adenopathy, absence of cough)

Based on the clinician's assessment, a treatment strategy is recommended. The majority of URIs are viral infections and do not respond to antibiotics. Antibiotics may be prescribed for patients who are known to have a bacterial infection (e.g., pharyngitis patients with a positive strep test result) or for patients who demonstrate symptoms indicating high likelihood of bacterial infection (e.g., sinusitis patients with facial pain, URI > 7 days, and purulent discharge). The type of antibiotic prescribed varies according to the nature of the infection and the patient's history.

Patients receiving no antibiotic treatment manage symptoms using over-the-counter or prescription drugs. The course and length of the disease will differ by type of URI, but most URIs are resolved within 10 days. Over the course of that time, some patients will make follow-up clinician visits to monitor and manage risk factors, such as persistent cough or fever.

If the disease has not resolved itself within 10 days, a follow-up visit is often scheduled, at which point the clinician re-assesses the prescription strategy.

For purposes of episode-based payment, we may consider that an ambulatory URI episode begins at initial diagnosis and includes follow-up visits in the ambulatory setting for a fixed length of time (e.g., 14-21 days). During the episode, some (but not necessarily all) services provided related to the diagnosis would be included. This could include office visits, diagnostic testing and imaging, and medication.

## **BASELINE HEALTHCARE SPENDING PATTERNS**

We estimate that non-drug spending on ambulatory URIs in Arkansas in 2010 was at least \$100M across Medicaid and Commercial populations, with Medicaid accounting for > \$40M.

56% of total costs were concentrated in primary care physician / specialist fees, with 20% in outpatient fees, 15% in inpatient fees, and 8% on ancillary categories.

## **OPPORTUNITIES FOR IMPROVED QUALITY, PATIENT EXPERIENCE, AND EFFICIENCY**

In recent weeks, we have surveyed available clinical and health economics literature to better understand the likely opportunities to improve quality, experience, and efficiency for treatment of ambulatory URIs. Combined with early input from experts both within Arkansas and outside of Arkansas, we believe the following likely represent the most meaningful opportunities for improvement:

### **1) Encourage cost-effective utilization of care settings and providers**

Clinician visits and visits to the ER, together, account for ~70% of total ambulatory URI costs. The high cost of visits can be addressed in 3 ways:

- *Reimburse for limited office visits or their alternatives:* Reimbursing for an episodic care of a URI might allow for clinicians to use alternative clinical interactions to manage patients' symptoms.
- *Avoid high cost care settings and providers for treatment of URIs:* the average cost of an in-person clinician contact can differ significantly according to the care setting, with an office-based clinician visit and ER visit costing on average \$90 and \$400, respectively. Clinic visits can be effective settings for the initial assessment and most follow-up visits.
- *Delegation of care to appropriate level of clinician:* Physicians are involved in the majority of URI cases, though nurse practitioners are capable of performing the initial assessment and prescribing medication.

### **2) Select appropriate diagnostic strategy**

Opportunities for improved efficiency include reducing use of diagnostics when not indicated by physical exam and, when physical exam suggests risk of bacterial infection, using diagnostics to determine appropriate use of antibiotics.

- *Reduce use of diagnostic testing and imaging when not indicated by physical exam:* In most ambulatory URI cases, a physical exam is sufficient to conclude that a patient does not have complicating conditions and that symptom management is the appropriate course of therapy. For patients with a cough but no fever, pneumonia is unlikely and a chest x-ray is not

warranted. For pharyngitis, a strep test is indicated only for patients for whom a physical exam reveals 2 or more positive Centor criteria.

- *Increase use of diagnostic testing prior to antibiotic prescription when indicated by physical exam:* 58% of ARKids children receiving antibiotics for strep throat in 2010 did not receive an appropriate diagnostic test prior to prescription. For pharyngitis, antibiotics should be prescribed without strep test or throat culture only if physical exam reveals 4 positive Centor criteria. For patients with 2 or 3 positive Centor criteria, antibiotics should only be prescribed upon a positive strep test result.
- For patients with cough but no fever, normal physical exam, as pneumonia is unlikely.

### **3) Select appropriate prescription strategy**

Nationally, studies suggest overutilization of antibiotics, with antibiotics prescribed for >50% of ambulatory URIs<sup>2,3</sup>

If a clinician chooses to prescribe antibiotics, an effective strategy will be appropriately matched to the type of infection and the patient's history of taking antibiotics. Broad spectrum antibiotics comprise a significant proportion of prescriptions written for URIs, despite limited evidence that broad spectrum antibiotics are more effective than narrow-spectrum, e.g. amoxicillin/ penicillin.<sup>4</sup>

Within Arkansas, studies suggest that a large proportion of patients receive antibiotics for URIs. Across ARKids A and B, 31.7% of children with a URI received prescriptions for antibiotics, with rates over 50% in 14 counties,<sup>5</sup> suggesting an opportunity to improve antibiotic prescribing patterns.

## **CLINICAL, OPERATIONAL, AND ECONOMIC CHALLENGES**

*Following is a preliminary assessment of the key challenges associated with capturing the clinical and operational improvement opportunities outlined above. In the weeks ahead, we will further qualify these challenges, and determine the*

<sup>2</sup> Gonzales, Ralph; Steiner, John; Sande, Merle. Antibiotic prescribing for adults with colds, upper respiratory tract infections, and bronchitis. JAMA 1998.

<sup>3</sup> Gill, James; Fleischut, Peter; Haas, Scott; Pellini, Brian; Crawford, Al; Nash, David. Use of Antibiotics for Adult URI Infections in Outpatient Settings. 2006.

<sup>4</sup> Changing Use of Antibiotics in Community-Based Outpatient Practice, 1991–1999,

<sup>5</sup> SFY 2010 Healthcare Effectiveness Data and Information Set (HEDIS) figures for Arkansas.

*implications for payment design as well as other promising solutions that might be deployed in conjunction with the new payment model.*

Changing behavior around choice of setting of care requires significant patient education around relative urgency of URIs and appropriate consultation with healthcare professionals. In addition, primary care physician practices may need to redefine relationships with patients to allow and encourage consultations over phone or email. Practices may need to be reorganized to develop a larger role for physician assistants and/or nurse practitioners.

Designing a payment bundle to encourage appropriate use of antibiotics may require additional IT infrastructure. Since antibiotic spending occurs at the point-of-sale in retail pharmacies, linking drug purchases with patient visits to = clinics or hospitals is challenging using current systems.

## **KEY DESIGN DECISIONS FOR NEW PAYMENT MODEL(S)**

*Following is a non-exhaustive list of the key design decisions that Medicaid, Medicare, and Commercial health insurers will need to make (either jointly or individually) in arriving at their new payment model(s) for CHF.*

- 1. Episode definition:** clearly identifying when an episode begins and ends, which services are included; and criteria for patient inclusion/exclusion based on demographics, health status, diagnoses/procedures, and geographic regions*
- 2. Payment model:** prospective payment of a single bundled amount vs. retrospective payment that rewards high-performing providers; criteria for provider inclusion or exclusion based on scale, capabilities, performance, or other factors; pricing model to adjust for clinical severity, patient and/or provider geography, or other factors; level of financial risk (upside/downside)*
- 3. Administrative enablers:** requirements for data exchange, performance reporting, and/or management of inter-party financial flows necessary to enable new payment model*