Use of Spirometry Testing in the Assessment and Diagnosis of COPD

The percentage of members 40 years of age and older with a new diagnosis or newly active chronic obstructive pulmonary disease (COPD) who received appropriate spirometry testing to confirm the diagnosis.

Impact:

According to the American Lung Association, Chronic Obstructive Pulmonary Disease (COPD) refers to a group of lung diseases characterized by obstruction to airflow that interferes with normal breathing. Two common conditions that are included in the diagnosis of COPD are emphysema and chronic bronchitis. The National Heart Lung and Blood Institute (NHLBI) states that COPD is the fourth leading cause of death and disability in the United States following after only heart disease, cancer, and stroke. Spirometry is a simple, inexpensive test that can diagnose COPD and, according to the NHLBI, is a crucial test to distinguish asthma from COPD - which points to large implications as both treatment and prognosis for the two diseases differ.

Improvability:

The Agency for Healthcare Research and Quality (AHRQ) states that early detection of COPD can improve health outcomes for patients by increasing smoking cessation rates, administering necessary vaccines and allowing for the earlier initiation of important treatments.\(^1\) AHRQ also suggests that spirometry is especially useful in adults with bothersome symptoms. When used with a clinical examination, spirometry improves diagnostic accuracy.

An evidence review conducted by U.S. Preventive Services Task Force in 2008 found that one out of every 14 adults in the US has airflow obstruction that qualifies for a diagnosis of COPD and that this is under diagnosed in a primary care setting. It was also concluded that giving a diagnosis of COPD on symptoms alone “results in over diagnosis of COPD” and that the use of spirometry eliminated this over diagnosis.\(^2\)

A key finding published in *Pulmonary Reviews* adds to the evidence that spirometry is underused in the diagnosis of COPD. This study found that: Less than one-third of COPD patients from five health plans underwent spirometry testing following their new diagnosis, and the rate of testing decreased with patient age.\(^3\)

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However, AHRQ also suggests that spirometry may not be beneficial for *ALL* adults. They state:

“Spirometry for case finding among all adults with persistent respiratory symptoms or those with a history of exposure to pulmonary risk factors as well as for monitoring individuals or adjusting treatment is *unlikely to be beneficial* unless future studies establish that spirometry improves smoking cessation rates, treatments other than smoking cessation benefit individuals with airflow obstruction who do not report respiratory symptoms, or that relative effectiveness between therapies varies according to an individual’s baseline or follow-up spirometry. Widespread spirometric testing is likely to label a large number of individuals (many who do not report respiratory symptoms) with disease and result in considerable testing and treatment costs and health-care resource utilization.”

The same task force issued a statement, also in 2008, recommending against screening adults for COPD using spirometry: “The USPSTF concludes that there is at least moderate certainty that screening for COPD using spirometry has no net benefit”. However, this recommendation applies to healthy adults, not those who recognize or report respiratory symptoms to a clinician. This recommendation states: “For individuals who present to clinicians reporting chronic cough, increased sputum production, wheezing, or dyspnea, spirometry would be indicated as a diagnostic test for COPD, asthma, and other pulmonary diseases”.

### Inclusiveness:

COPD is generally caused by smoking and symptoms often do not occur until after 10 years of smoking. The *American Lung Association* states that symptoms often get more severe with age and that it is usually after age 40 that shortness of breath with exertion begins. While this may worsen with time it is often thought of as a result of aging, and not the disease which points to the necessity of spirometric testing for adults over age 40.

### National Consensus:

This measure is NQF endorsed.

Overall, national and international guidelines on the use of spirometry support the recommendation to use spirometry as a diagnostic tool in individuals who are symptomatic or have other characteristics (as outlined below).

### Guidelines:

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• ICSI (2009) – Priority Aim: Increase the quality and use of spirometry testing in the diagnosis of patients with COPD.\(^7\)

• American College of Physicians (2007) – “spirometry should not be used to screen for airflow obstruction in asymptomatic individuals” including those with COPD risk.\(^8\)

• Global Initiative for Chronic Obstructive Lung Disease (2007) – “diagnosis [of COPD] should be confirmed by spirometry”.\(^9\)

• American Thoracic Society and European Respiratory Society (2004) recommends performing spirometry on all persons with tobacco exposure, a family history of chronic respiratory illness, or respiratory symptoms\(^{10}\)

### Degree of Performance Variation:

Statewide, HEDIS 2008 rates for five MSHO plans ranged from 9.7%-24.1%. HEDIS 2009 rates ranged from 3.5%-25.0%. HEDIS 2008 rates for two plans serving commercial populations ranged from 35.7%-43.7% and 40.3%-46.6% for HEDIS 2009.

Nationally, the NCQA State of Health Care Quality Report: 2008 reported variation in the commercial population increased from 34.8% in 2005 to 35.7%. In the Medicaid population the rate increased from 26.5% in 2005 to 28.4% in 2007.

### Recommendation:

Add this HEDIS measure for 2010 reporting.

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\(^7\) Institute for Clinical Systems Improvement (2009). *Chronic Obstructive Pulmonary Disease (COPD), Diagnosis and Management of (Guideline).* Available online at http://www.ici.org/guidelines_and_more/gl_os_prot/respiratory/chronic_obstructive_pulmonary_disease/chronic_obstructive_pulmonary_disease__guideline_.html.


Use of High-Risk Medications in the Elderly

This measure provides two rates:

- The percentage of Medicare members 65 years of age and older who received at least one high risk medication.
- The percentage of Medicare members 65 years of age and older who received at least two different high risk medications.

*For both rates, a lower rate represents better performance

Impact:

Inappropriate medication use in the elderly is a serious medical problem. According to the State of Health Care Quality: 2008 report, the rates of high-risk medications and harmful drug-disease interactions rose in 2007. The cost of prescription drug use in the elderly is disproportionately high in adults over age 65 – the same population that is twice as likely to experience adverse drug events. The Institute of Medicine’s aim of patient safety is the central focus of this measure.

Improvability:

The State of Health Care Quality: 2008 report states that reducing the number of inappropriate prescriptions in the elderly can lead to improved patient safety and significant cost savings. One study by Fu (2004) estimated that inappropriate medications in the elderly cost an average of 7.2 billion dollars a year.

The same report also states that up to 80 percent of adverse drug events in the elderly are preventable as found by MacKinnon (2003). Moreover, a study published in Journal of American Geriatrics Society found that one out of 20 prescriptions filled by the elderly are for drugs that are classified as “always avoid” – suggesting an extreme need for improvement in patient safety.

The Agency for Healthcare Research and Quality states that the prescription of inappropriate drugs include a “higher risk of harmful side effects, hospitalization, increased length of illness, nursing home placement and falls and fractures that can hasten physical, functional and social decline.”

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15 Agency for Healthcare Research and Quality (2009). Use of high-risk medications in the elderly: percentage of Medicare members 65 years of age and older who received at least two different high-risk medications –
**Inclusiveness:**

NCQA reports that despite widespread medical consensus that some drugs increase the risk of harm to the elderly, “studies have found that 21 to 37 percent of elderly patients filled at least one potentially inappropriate prescription and more than 15 percent filled at least two”.\(^\text{16}\)

The same report also states that “this population is twice as likely as others to experience adverse drug events and seven times as likely to be hospitalized”.

**National Consensus:**

This measure is NQF endorsed.

**Degree of Performance Variation:**

Statewide, 2008 HEDIS measure rates for four major health plans ranged from 19.2 to 25.6\(^*\) in the Minnesota Senior Health Option (MSHO) plan for seniors receiving at least one high risk medication and 13.7-16.6\(^*\) for the Medicare Advantage population. For the measure of receiving at least two different high risk medications, results varied from 3.1 – 5.9\(^*\) in the MSHO population and 1.4-2.6\(^*\) in the Medicare Advantage population.

2009 HEDIS rates from four major health plans in the MSHO population ranged from 17.6-29.0\(^*\) for receiving at least one high risk medication and from 2.9-6.0\(^*\) for receiving 2 or more medications.

Nationally, rates for seniors receiving at least one high risk medication varied from 15.6\(^*\) in the New England region to 27.1\(^*\) in the South Central region. Rates for seniors receiving at two high risk medications varied from 2.7\(^*\) in the New England region to 8.0\(^*\) in the South Central region.

\(^*\)Lower rate indicates a better performance.

**Recommendation:**

Add this HEDIS measure for 2010 reporting.

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Follow-Up Care for Children Prescribed ADHD Medication

The percentage of children newly prescribed attention-deficit/hyperactivity disorder (ADHD) medication who have at least three follow-up care visits within a 10-month period, one of which is within 30 days of when the first ADHD medication was dispensed. Two rates are reported:

- **Initiation Phase.** The percentage of members 6-12 years of age as of the Index Prescription Episode Start Date with an ambulatory prescription dispensed for ADHD medication, who had one follow-up visit with practitioner with prescribing authority during the 30-day Initiation Phase.

- **Continuation and Maintenance (C&M) Phase.** The percentage of members 6-12 years of age as of the Index Prescription Episode Start Date with an ambulatory prescription dispensed for ADHD medication, who remained on the medications for at least 210 days and who, in addition to the visit in the Initiation Phase, had at least two follow-up visits with a practitioner within 270 days (9 months) after the Initiation Phase ended.

### Impact:

ADHD is the most commonly treated childhood neurobehavioral disorder. Approximately 2.5 million children and adolescents take ADHD medication.

An article in the *Journal of Pediatrics* found that children who are prescribed stimulant medication rarely receive proper follow-up and are no more likely to receive follow-up care than children who are not prescribed medicine.\(^{17}\)

### Improvability:

A good treatment plan for the best care for children with ADHD requires close follow-up and monitoring – especially in cases where medication is prescribed. Follow-up visits and close monitoring provides doctors and families the opportunity to make adjustments in the treatment plan as well as to monitor progress and response to medications.

*The State of Health Care Quality Report (SOHCQ)*\(^{18}\): 2008 states that children with ADHD who receive appropriate follow-up for medication treatment have been shown to have significantly less frequent and less costly emergency department visits. The SOHCQ report cites that only one in four patients have a follow-up visit with their primary care physician within 30 days of their first prescription for ADHD. If a patient is receiving a prescription from a psychiatrist only three in 10 reported a follow-up visit.

### Inclusiveness:

\(^{17}\) Journal of Pediatrics, December 2004, 145: 767-771. William Gardner et al, Children's Research Institute and Department of Pediatrics, Ohio State University, Columbus, Ohio.

NCQA’s *State of Health Care Quality Report 2008* reports that about 2.5 million children and adolescents take ADHD medication – and about 4% of school age children have ADHD.

**National Consensus:**

This measure is NQF endorsed.

National guidelines are consistent in reinforcing the importance of maintenance of care and follow-up monitoring for children with ADHD.

- American Academy of Child and Adolescent Psychiatry (AACAP) Guideline – Recommendation 6: A well-thought-out and comprehensive treatment plan should be developed which includes a treatment plan that “should be reviewed regularly and modified if the patient’s symptoms do not respond.”  
  
- American Academy of Pediatrics- The clinician should periodically provide a systematic follow-up for the child with ADHD. Monitoring should be directed to target outcomes and adverse effects, with information gathered from parents, teachers, and the child.

- Institute of Clinical Systems Improvement – Guidelines for Maintenance and Continuing Care state:
  
  “Recent evidence suggests that worsening clinical status during adolescence may be due to environmental and/or concurrent causes rather than inadequate doses of psycho stimulant medication. The clinician should evaluate these possibilities before prescribing higher doses of stimulants to adolescents. For these reasons, close monitoring and follow-up are recommended for all children and adolescents diagnosed with ADHD, whether or not medication is used.”

**Degree of Performance Variation:**

Statewide, HEDIS 2008 rates from five major health plans (commercial) and four major health plans (Medicaid) varied as follows:

*Initiation Phase:* 32.2-43.3% in the commercial population and 36.1-40.9% in the Medicaid population.

*Continuation and Management Phase:* 36.1-45.2% in the commercial population and 41.2-50.6% in the Medicaid population.

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21 Institute for Clinical Systems Improvement (2007). Health Care Guideline for Patients and Families: Diagnosis and Management of Attention Deficit Hyperactivity Disorder in Primary Care for School Age Children and Adolescents. Available online at http://www.icsi.org/adhd_for_patients_families/adhd_pf_0307.html
Recent HEDIS 2009 rates from two major health plans (commercial) and five major health plans (Medicaid) in Minnesota varied as follows:

Initiation Phase: 34.3-36.2% in the commercial population and 28.6-50.0% in the Medicaid population.

Continuation and Management Phase: no range of rates in the commercial population and 24.0-50.0% in the Medicaid population.

Nationally, the SOHCQ Report 2008: states that for follow-up care for children prescribed ADHD medication in the initiation phase, rates vary from 29.1 to 43.5% in the commercial population and 31.6-36.5% in the Medicaid population. For follow-up in the continuation phase, rates range from 30.1-47.4% in the commercial population and 26.1-57.2% in the Medicaid population.

Recommendation:

Test an attribution methodology for this measure and, depending on test results, add this HEDIS measure for 2011 reporting.
MNCM Comparison of Convenience Care Clinics/Stand-alone Urgent Care to Primary Care Medical Groups for Preventive Care Measures

**Purpose:** To review Preventive Care rates for convenience care clinics/stand-alone urgent care as compared to primary care medical groups. For the purposes of this paper, we will refer to convenience care clinics/stand-alone urgent care as convenience care clinics.

**Hypothesis:** There is a significant difference (p < .05) between convenience care medical group average rates as compared to primary care/multispecialty medical group average rates for the following Preventative Care measures: Breast Cancer Screening, Cervical Cancer Screening and Chlamydia Screening for Women.

**Background:** Convenience care medical groups are reported on for Appropriate Testing for Children with Pharyngitis and Appropriate Testing for Children with Upper Respiratory Infection measures, medical conditions that are treated at these types of clinics.

For report year 2008 (2007 DOS), some convenience care medical groups met the minimum threshold for preventive care measures (Breast Cancer Screening, Cervical Cancer Screening and Chlamydia Screening for Women). The Reporting Advisory Committee reviewed this issue and recommended that MNCM report on the convenience care medical groups for these measures. After review and comment by the medical groups, MNCM decided not to report on convenience care medical groups for preventive care rates for the 2008 Health Care Quality Report since these providers had not had time to review and speak to the committee about these new results.

This report is a review of the data for the Preventive Care measures (Breast Cancer Screening, Cervical Cancer Screening and Chlamydia Screening for Women); in which convenience care medical groups and primary care medical groups rates are compared.

**Methodology:**

**Convenience Care Clinics Medical Group Definition**

A convenience care medical group is defined for this study as a medical group with a Tax ID Number (TIN) that consist of only urgent care or convenience care medical services. Urgent Care centers are primarily used to treat injury or illness that require immediate care, but is not serious enough to warrant a visit to an ER. Most urgent care centers treat sprains, small cuts, strains, sore throats, mild asthma attacks, rashes, and minor infections. While, Convenience Care centers typically treat only common infections and minor skin conditions. Please note, the convenience care medical groups for this analysis are considered stand-alone entities. Whereas, some of the primary care medical groups have convenience care or urgent care clinics contained within their suite of medical services.

**Patient Attribution Methodology**

The patient attribution methodology attributes members in the eligible population for each measure to a medical group using a claims/encounters (visits) frequency-based algorithm. Based on the algorithm, each member is attributed to one medical group. The federal tax ID number (TIN) is utilized as the common identifier for a medical group.
Unattributed Definition

Members that have no claims/encounters during the measurement year or have claims/encounters that are not associated with one of the listed specialties for attribution (general practice, family practice, internal medicine, pediatrics, geriatric medicine, obstetrics and gynecology, cardiology, physician assistant, nurse practitioner) are placed in the Unattributed category.

Re-attribution Methodology for Convenience Care Medical Groups

A separate analysis was completed by two health plans that had more than 90% of the convenience care clinics medical group members for the Preventive Care measures. In this analysis, the purpose was to review what would happen to members originally attributed to convenience care medical groups, if these members were re-attributed as described below using the following methodology.

The health plans conducted a re-attribution of the members who were attributed to convenience care medical groups. In the re-attribution, convenience care medical group federal tax ID numbers (TIN) were removed as a selection from the Medical Group Aggregation Matrix. The re-attribution process resulted in members becoming attributed to another medical group or placed in the unattributed category.

Statistical Analysis

Mean rates were compared between convenience care clinics and primary care medical groups using Proc GLM (General Linear Model). Also, total number and percent of patients were reviewed by product for convenience care clinics and primary care medical groups (data not shown).

Results:

Patients attributed to convenience care medical groups represented less than 1% of patients for each Preventive Care measure, in which Cervical Cancer Screening had the most convenience care clinic patients (N=1604). For the convenience care medical groups, the majority of members were represented by convenience care clinics (69%-80%). More than 90 percent of convenience care medical group patients had commercial insurance for the Preventive Care measures (data not shown).

Figure 1 shows the mean rates (95% CI) with significance levels comparing convenience care clinics and Primary Care medical groups. Also included for comparison are mean rates (95% CI) for patients that are unattributed (patients not attributed to a medical group due to no claims data for measurement year) (see definition in methodology section).

For Preventive Care measures, primary care Breast Cancer Screening rates were 19 percentage points higher than convenience care clinics rates (p < 0.0001). And, primary care Cervical Cancer Screening rates were 8 percentage points higher than convenience care clinic rates (p=0.004) (Figure 1). Also included for comparison are the Unattributed rates for the Preventive Care measures, which are significantly lower for Breast Cancer Screening and Cervical Cancer Screening. As expected, Acute Care Illness measures (Appropriate Testing for Children with Pharyngitis and Appropriate Testing for Children with URI) were not significantly different between convenience care clinics and primary care medical groups.
Re-attribution Methodology for Convenience Care Medical Groups

An analysis of re-attribution of women ages 16-69 (N=3027) who were originally attributed to convenience care medical groups for the Preventive Care measures showed that 89% of the patients would become Unattributed if not attributed to the convenience care clinics (N=2706). In other words, for patients who were reclassified as Unattributed, these clinics were the only source of attributable care in that year.

Conclusion:

In conclusion, Breast Cancer Screening and Cervical Cancer Screening rates were significantly different between convenience care clinics and primary care medical groups. The 2008 results for Preventive Care measures show that patients who are attributed to convenience care clinics are less likely to receive preventive care services than patients attributed to primary care clinics.

Analysis:

A possible reason why patients attributed to convenience care clinics have lower rates for preventive care services are that these patients are not receiving the same level of support to seek this care as those seen in the primary care clinics. Alternately, these results could be driven by patient self selection, rather than performance of the convenience care clinics. Since patients cannot receive these screening services at the convenience care clinics, they are more likely to be attributed to the primary care clinic upon receiving the service. Due to the current attribution process, we are unable to compare if patients seen in convenience care clinics who are attributed to primary care have higher rates of screening.

Further Study:

The following are further studies that are proposed based on the findings:

1. MNCM will review and track convenience care medical groups over the next few years to determine if there is a similar trend for Preventive Care measures as reported in our analysis.

2. MNCM will explore methods to review data for all patients who were ever seen at a convenience care medical group, because patients attributed to convenience care medical groups are a subpopulation of all patients seen at these types of clinics.

Recommendations:

MNCM recommendation is to not report convenience care clinics results for Preventive Care measures by clinic site. Instead, MNCM will produce a white paper for consumers to review and for potential media coverage. The message for consumers is that patients who are seen only in convenience care clinics are less likely to obtain adequate preventive care screening.
Figure 1: Convenience Care Clinics/Stand-alone Urgent Care Medical Groups as Compared to Primary Care Medical Groups

<table>
<thead>
<tr>
<th>Measure Rate</th>
<th>Breast Cancer Screening</th>
<th>Chlamydia Screening for Women</th>
<th>Cervical Cancer Screening</th>
<th>Pharyngitis</th>
<th>URI</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>114,323</td>
<td>242,725</td>
<td>11,031</td>
<td>46,908</td>
<td>9,122</td>
</tr>
<tr>
<td>p-value</td>
<td>p &lt; 0.0001</td>
<td>p = N.S.</td>
<td>p = 0.004</td>
<td>p = N.S.</td>
<td>p = N.S.</td>
</tr>
</tbody>
</table>

Note: Unattributed patients displayed for comparison purposes only

LS Means with 95% Confidence Interval

p-value: Convenience Care Clinics/Stand-alone Urgent Care Medical Groups vs Primary Care Medical Groups

Note: Unattributed patients displayed for comparison purposes only
MNCM DDS Reporting Policy – Clinic site level reporting

The Reporting Advisory Committee supports reporting Direct Data Submission (DDS) rates at the clinic site level. This involves reporting one rate per measure per clinic site combining primary care provider data with specialty care provider data (e.g., primary care with endocrinology; primary care with cardiology; primary care with psychiatry/behavioral health, etc). However, reporting a separate rate for a specific specialty within a clinic may be possible if the following criteria are met:

- The clinic is large and has a significant number of providers from this specialty and
- The specialty providers sell their services under a separate service line within the clinic and
- The specialty providers have their own separate reception area and support services.

Medical groups must contact MNCM to obtain approval for reporting a separate rate for a specific specialty located within the same clinic as primary care providers.