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The 6-Minute Walk Test: Indications and Guidelines for Use in Outpatient Practices

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A B S T R A C T

The 6-Minute Walk Test (6MWT) is a standardized tool used to measure lung impairment. It is used in outpatient primary and pulmonary practices to objectively assess functional exercise capacity and hypoxemia in patients with chronic lung disease. Screening for functional decrease in exercise tolerance and hypoxemia aids in initiating and maintaining the use of oxygen supplementation to improve functional improvement in chronic lung patients. It has new applications for recovering COVID-19 pneumonia patients to assess for clinical compromise. Discussion includes elements and guideline recommendations for 6MWT, indications for use, appropriate patient populations appropriate, safety, coding, and current reimbursement insurance guidelines.

Chronic hypoxemia has long been recognized as a hallmark of chronic cardiac and lung disease. The need for oxygen supplementation to treat hypoxemia is often assessed in primary and pulmonary outpatient clinics through use of a standardized objective measuring tool recognized by the Centers for Medicare and Medicaid (CMS).[1-4] This recognition is used to reimburse practices and patients both in utilization of the tool and in the issuance of oxygen for home use by patients with documented hypoxemia.[2,5-7]

The purpose of this article is to familiarize providers, predominantly in the primary and pulmonary outpatient arenas, of the definitions, requirements, and documentation for the purposes of prescribing oxygen for patients for use with activity to prevent hypoxemia and its associated clinical signs and symptoms. This report discusses hypoxemia and oxygen determination needs based on a standardized tool, the 6-minute walk test (6MWT) for use in practice for providers that is recognized as valid by CMS and private insurance companies for the purposes of reimbursement.

Indications and Guidelines for Management

Hypoxemia and oxygen need are defined by the CMS and include provider evaluation, timing of determination of oxygen need, and supporting clinical criteria.[6,7,13,15,18] In an era of limited health care and—often limited personal resources—appropriate use and burden of cost need to be addressed to provide maximum benefit to the patient and practices involved. Awareness of the definitions, elements, and documentation required for recognition and reimbursement by insurance providers allows optimal benefit while minimizing out-of-pocket costs for patients and providers.

The first element of provider evaluation is initial oxygen determination assessment and is based on the results of a clinical test that has been ordered and evaluated by the treating practitioner.[6-8] Two methods for this assessment include a preferred method, which is the arterial blood gas, specifically the partial pressure of oxygen in arterial blood (PO_2) or an ear or pulse oximetry ordered by the treating practitioner and performed under their supervision or when performed by a qualified provider or supplier of lab services.[6]

The second element required for CMS determination of oxygen need is the time of need, further defined as “during the patient’s illness when the presumption is that the provision of oxygen in the home setting will improve the patient’s condition.”[5,6] In inpatient settings, this must be done within 2 days of discharge. For outpatient settings, the time of need is during the time period when the treating practitioner documents signs and symptoms of illness that can be relieved by oxygen in the patient who is to be treated at home.[6,7]

The third element includes clinical criteria for oxygen use as determined by CMS. This is defined by 2 subgroups. The first subgroup includes those patients with an arterial $PO_2 \leq 55$ mmHg, or an arterial saturation $\leq 88\%$, taken at rest and breathing room air or taken during exercise using a formal exercise test while breathing room air.[6] Additional elements in this category are listed in the

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criteria that do not pertain to the discussion in this report but may prove to be of benefit to providers. In these instances, oxygen can be provided to those patients to improve the hypoxemia demonstrated during exercise on room air. The second subgroup includes those patients with arterial PO_2 is 56–69 mm Hg or whose arterial blood oxygen saturation is ≤89% if there is either dependent edema suggesting congestive heart failure; patients with pulmonary hypertension or cor pulmonale as determined by measurement of pulmonary artery pressure in cardiac testing, such as cardiac catheterization or echocardiogram; or patients with erythrocythemia with a measured hematocrit greater than 56%.[1,6]

Tool Development

The 6MWT was developed by the American Thoracic Society, and it was officially introduced in 2002 with a comprehensive guideline. It was originally designed to help in the assessment of the patient with cardiopulmonary issues and has since been introduced for use in numerous other conditions. The 6MWT is a low-intensity, submaximal exercise test used to assess aerobic capacity and endurance and oxygen saturation.[1,8] A subsequent literature review and technical standard update by a joint European Respiratory Society and American Thoracic Society collaboration in 2014 that endorsed its continued use in clinical settings.[3,9]

The focus of this report is to discuss the role of the 6MWT in oxygen prescribing and use for patients with documented hypoxemia with exercise. The 6MWT is considered unencouraged and self-paced, occurring at a lower exercise level. The patients decide their own effort intensity, which more accurately reflects each person's everyday activities. The 6MWT is recognized at a national and global levels for evaluation of aerobic activity and oxygen determination and does not specify the source of the limitation. Current clinical uses of the 6MWT are for patients with chronic obstructive lung disease, idiopathic pulmonary fibrosis, and pulmonary artery hypertension.[1,2,4,5] A newer application of the 6MWT is noted for patients who have had COVID-19 pneumonia with prolonged respiratory symptoms.[11-14]

Test Procedure

Standardization of a 6MWT is essential for reproducible and reliable results. The 6MWT is to be performed along a minimally trafficked flat, straight corridor ideally ≥30 m in length to be consistent with established reference equations. Reference equations exist for shorter tracks, including 20- and 10-m lengths, to reflect space limitations in practice.[1,2,4,6,15,16] Continuous walks in various shapes (circular, oval, or square) layouts resulted in greater walk distances than noncontinuous according to Agarwala and Salzman.[2] Treadmills offer an advantage in compact space requirements, but lack of familiarity with the machine could influence walk length and are not considered interchangeable.[2,16] Verbal encouragement is a tool that is used to promote participation by the patient. The scripted instructions in the guideline state that standardized encouragement phrases are to be exclusively used at 1-minute intervals because frequency of encouragement can also affect walk distance.[1,2] Table 1 provides a summary of procedural guidelines.

Coding and Reimbursement

Primary and pulmonary practices that use tools such as the 6MWT require the support of staff; additional time for patient visits to use the tool; and, when properly coded and billed, allow for those practices to be reimbursed for the cost of use. The American Medical Association developed the current procedural terminology (CPT), which provides identification codes for uniform reporting of medical services and procedures.[2,6] The CPT codes in current use are 5-digit codes and can have the addition of 2-digit codes as modifiers to attach to a visit. CMS and other insurance payers recognize the technical component of the test, such as cost of technicians, equipment, and space requirements and is indicated by a technical component (TC) modifier. The current 6MWT code was updated in 2018 and is now current CPT code 94618.[5,7] This code can be used for pulmonary stress testing, which covers the 6MWT. Reimbursement is based on CMS guidelines; require proper use of coding, including the additional use of modifier to support additional services performed during a visit, such as a 6MMWT, and subsequent medical needs for home oxygen; and is, at time of writing of this brief, approximately $35 for Medicare and Medicaid patients.[2,5]

Safety Considerations

The 6MWT is a safe test with rare complications.[17,18] It is a practical, simple test that requires, in ideal circumstances, a 100-foot hallway, no exercise equipment, and no advanced training for technicians. Walking is a daily activity for all but severely impaired patients and so can be used by most patients in a practice. Patient involvement is based on voluntary participation, is self-directed, and is easily terminated in the event of a complication.

Table 1
Procedural Guidelines for 6-Minute Walk Test[1,2,6]

Starting point is marked with tape and every 3 m.
Turn around points are clearly marked with cone or tape.
Patients should be wearing comfortable clothing and use their usual walking aids.
Patients should be using their prescribed oxygen therapy device and manage their own oxygen delivery devices if already utilizing oxygen. (If this is not possible, the assessor is to walk slightly behind to avoid setting the pace.)
Notations made if patient is assisted, and repeat tests are done in a similar fashion.
Oxygen is not to be titrated during the walk.
The patient is to be at rest for 10 minutes before walk.
Documentation of blood pressure, heart rate, oxygen saturation, and baseline dyspnea done at rest.
Continuous SpO_2 should be used to capture nadir SpO_2 because it does not always correlate with end test SpO_2.
If the patient stops during testing, the timer is not stopped, but a notation on the time of stopping and restarting should be noted.
Reason for premature cessation of testing by patient documented (e.g., chest pain, intolerable dyspnea, joint, or back or leg pain).
Assessor can terminate testing based on patient appearance or if oxygen saturation is <80%.
Walk distance is measured by counting the number of full laps and rounding up to the nearest meter for the partial final lap.
Repeat the parameters measured pretest at time of cessation.
Safety considerations include, but are not limited to the following:
Assessors should be certified in basic life support and cardiopulmonary resuscitation.
Access to emergency equipment should be available. This can include a crash cart, sublingual nitroglycerin, and bronchodilators.

Table 2
Absolute and Relative Contraindications to the use of the 6-Minute Walk Test[1]

Contraindication	Absolute	Relative
Unstable angina in past 30 days	X	
Myocardial infarction in past 30 days	X	
Resting heart rate >120		X
Systolic blood pressure >180		X
Diastolic blood pressure >100		X

Safety considerations when administering the 6MWT include both technical and clinical aspects.[1] Technical aspects for safety include proper training and knowledge for the person administering the test, adequate facility provision, and emergency provisions. Clinical aspects of safety considerations for the 6MWT include knowledge of absolute and relative contraindications and conditions requiring immediate cessation of the 6MWT. Study documentation of adverse effects reveal oxygen desaturation as the most common adverse effect, with desaturation to less than or equal to 80% in approximately 5% of testing, and patient symptoms prematurely terminating the test in 1% of testing.[17] Table 2 lists the absolute and relative contraindications, and Table 3 the reasons for cessation according to the ATS guideline.[1]

Discussion and Recommendations for Future Use

The 6MWT was introduced in 2002 and has become a reliable measure for hypoxemia and functional performance capacity that is both simple to perform and easy to interpret. It maintains its role in clinical determination by strict adherence to standardized guidelines introduced by the ATS and revised by ATS and the European Respiratory Society in 2010 and 2014. Reimbursement to practices for use requires knowledge of coding and billing under current guidelines. Coding and reimbursement are standardized in requirement and numbering, using CPT code 94618, designated in 2018, with an appropriate modifier when used in conjunction with a provider visit.[10] It is acknowledged for use with patients with chronic lung and cardiac conditions. It provides a platform for the use of oxygen for home and for long-term pulmonary management.[7,19] The recent pandemic has created a relatively new patient population that requires assessment and evaluation for hypoxemia and further management as these individuals recover from COVID-19 pneumonia.[11,13,14] It may require the guideline addition of the diagnosis of COVID-19 as an indication for use for those patients who have had COVID-19 pneumonia with prolonged symptoms of pulmonary compromise.

Pulmonary outpatient clinics use the 6MWT, and as such, awareness of the guidelines, requirements for inclusion in documentation, and coding and billing considerations need to be understood and known to be compliant with coding and billing and to maximize reimbursement in a time of limited resources and reimbursement. The 6MWT can also be used in primary outpatient clinic settings, and this article has discussed elements of the 6MWT so that a primary office could begin to incorporate the 6MWT in clinical care or increase awareness of the need for further testing and follow-up at an outpatient pulmonary practice for patients who meet the guideline qualifications for testing. The 6MWT is used as a clinical basis for prescribing oxygen for home use. The principal goal for provider care is accurate assessment of client or patient needs, and provision of care based on such assessment. The 6MWT is a useful tool for patients with chronic pulmonary compromise.

Table 3
Reasons for Immediate Cessation of 6-Minute Walk Test[1]

Chest pain
Intolerable dyspnea
Leg cramps
Staggering
Diaphoresis
Pale or ashen appearance

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