

09-E0000-36

Original Effective Date: 12/07/00

Reviewed: 12/08/23

Revised: 01/01/24

## Subject: Home Spirometry

THIS MEDICAL COVERAGE GUIDELINE IS NOT AN AUTHORIZATION, CERTIFICATION, EXPLANATION OF BENEFITS, OR A GUARANTEE OF PAYMENT, NOR DOES IT SUBSTITUTE FOR OR CONSTITUTE MEDICAL ADVICE. ALL MEDICAL DECISIONS ARE SOLELY THE RESPONSIBILITY OF THE PATIENT AND PHYSICIAN. BENEFITS ARE DETERMINED BY THE GROUP CONTRACT, MEMBER BENEFIT BOOKLET, AND/OR INDIVIDUAL SUBSCRIBER CERTIFICATE IN EFFECT AT THE TIME SERVICES WERE RENDERED. THIS MEDICAL COVERAGE GUIDELINE APPLIES TO ALL LINES OF BUSINESS UNLESS OTHERWISE NOTED IN THE PROGRAM EXCEPTIONS SECTION.

[Position Statement](#)

[Billing/Coding](#)

[Reimbursement](#)

[Program Exceptions](#)

[Definitions](#)

[Related Guidelines](#)

[Other](#)

[References](#)

[Updates](#)

### DESCRIPTION:

Spirometry is a noninvasive pulmonary function test that measures the volume and flow of air entering and leaving the lungs. Home spirometry (also known as ambulatory spirometry) uses battery-operated spirometers that permit regular daily measurement of pulmonary function including forced expiratory volume in 1 second (FEV-1) and forced vital capacity (FVC). The device has been primarily investigated among lung transplant recipients as a technique to provide early diagnosis of infection and rejection. Home spirometers should not be confused with incentive spirometers or peak flow meters.

Telespirometry utilizes a small hand-held device that provides testing for both spirometry and oximetry. The device records the results, which can then be sent via telephone in much the same way that a pacemaker transmits information to the healthcare provider. It has been proposed as a means to monitor sleep apnea, lung function, or desaturation occurrences.

### POSITION STATEMENT:

Home spirometry is considered **experimental or investigational** for home monitoring of pulmonary function. The evidence is insufficient to determine the effects of the technology on health outcomes.

**NOTE:** Home spirometry used for monitoring post-lung and post-lung/heart transplantation recipients is included in the global case rates for the transplantation.

## BILLING/CODING INFORMATION:

### CPT Coding

94014	Patient-initiated spirometric recording per 30-day period of time; includes reinforced education, transmission of spirometric tracing, data capture, analysis of transmitted data, periodic recalibration and review and interpretation by a physician or other qualified health care professional ( <b>Investigational</b> )
94015	Patient initiated spirometric recording per 30 day period of time; recording (includes hook-up, reinforced education, data transmission, data capture, trend analysis, and periodic recalibration) ( <b>Investigational</b> )
94016	Patient-initiated spirometric recording per 30-day period of time; review and interpretation only by a physician or other qualified health care professional ( <b>Investigational</b> )

### HCPCS Coding

A9284	Spirometer, non-electronic, includes all accessories ( <b>Investigational</b> )
E0487	Spirometer, electronic, includes all accessories ( <b>Investigational</b> )

## REIMBURSEMENT INFORMATION:

Refer to section entitled [POSITION STATEMENT](#).

### PROGRAM EXCEPTIONS:

**Federal Employee Program (FEP):** Follow FEP guidelines.

**State Account Organization (SAO):** Follow SAO guidelines.

**Medicare Advantage products:** No National Coverage Determination (NCD) and/or Local Coverage Determination (LCD) was found at the time of the last guideline reviewed date.

### DEFINITIONS:

**Incentive spirometer:** device used in pulmonary function testing for measuring the volume of gas moving in and out of the lungs.

**Peak flow meter:** portable device that measures air flow or peak expiratory flow rate (PEFR); routinely used in the management of asthma for determining airway status.

### RELATED GUIDELINES:

None applicable.

### OTHER:

None applicable.

## REFERENCES:

1. American Association for Respiratory Care (AARC) Clinical Practice Guideline: Spirometry 1996 update; accessed at [aarc.org](http://aarc.org).
2. Baroi S, McNamara RJ, et al. Advances in Remote Respiratory Assessments for People With Chronic Obstructive Pulmonary Disease:A Systematic Review. *Telemed J E Health*, 24 (6), 415-424 Jun 2018; PMID: 29083268.
3. Bell JM, Sivan S, et al. Quality of home spirometry performance amongst adults with cystic fibrosis. *J Cyst Fibros*. 2021 Nov 10;S1569-1993(21)02114-7. PMID: 34774443.
4. Dew MA, Dimartini AF, De Vito Dabbs A, Zomak R, De Geest S, Dobbels F, Myaskovsky L, Switzer GE, Unruh M, Steel JL, Kormos RL, McCurry KR. Adherence to the medical regimen during the first two years after lung transplantation. *Transplantation*. 2008 Jan 27;85(2):193-202.
5. Fadaizadeh L, Najafizadeh K, et al. Using Home Spirometry for Follow up of Lung Transplant Recipients: "A Pilot Study". *Tanaffos*. 2013;12(1):64-9.
6. Finkelstein SM, Scudiero A, Lindgren B, Snyder M, Hertz MI. "Decision support for the triage of lung transplant recipients on the basis of home-monitoring spirometry and symptom reporting." *Heart Lung*. 2005 May-Jun; 34(3): 201-8.
7. Finkelstein, Stanley M, MD, et al. Clinical Investigations, "Staging of Bronchiolitis Obliterans Syndrome Using Home Spirometry". *Chest* 1999; Vol 116 (07/99).
8. Fuehner T., et al. Indicators for steroid response in biopsy proven acute graft rejection after lung transplantation. *Respiratory Medicine* (2009) 103,1114-1121.
9. Graham BL, Steenbruggen I, et al. Standardization of Spirometry 2019 Update. An Official American Thoracic Society and European Respiratory Society Technical Statement. *Am J Respir Crit Care Med*. 2019 Oct 15;200(8):e70-e88.
10. Kupczyk M, Hofman A, et al. Home Self-Monitoring in Patients With Asthma Using a Mobile Spirometry System. *J Asthma*, 1-7 2020 Jan 6[Online ahead of print]; PMID: 31877056.
11. Lechtzin N, Mayer-Hamblett N, et al. Home Monitoring of Patients With Cystic Fibrosis to Identify and Treat Acute Pulmonary Exacerbations.eICE Study Results. *Am J Respir Crit Care Med*, 196 (9), 1144-1151 2017 Nov 1.
12. Levine, Stephanie M, MD. "Can Bronchiolitis Obliterans Syndrome Be Diagnosed By Phone From The Comfort of Home?" *Chest* 1999; Vol 116 (07/99).
13. Maher TM, Home spirometry for idiopathic pulmonary fibrosis: ready for prime time? *Eur Respir J*. 2017 Jul 20;50(1).
14. Noth I, Cottin V, et al. Home spirometry in patients with idiopathic pulmonary fibrosis: data from the INMARK trial. *Eur Respir J*. 2021 Jul 8;58(1):2001518.
15. Pangarakis SJ, Harrington K, Lindquist R, Peden-McAlpine C, Finkelstein S. Electronic feedback messages for home spirometry lung transplant recipients. *Heart Lung*. 2008 Jul-Aug;37(4):299-307.
16. Pelkonen AS, Nikander K, Turpeinen M. "Reproducibility of home spirometry in children with newly diagnosed asthma." *Pediatr Pulmonol*. 2000 Jan; 29(1): 34-8.
17. Robson KS, West AJ, Improving survival outcomes in lung transplant recipients through early detection of bronchiolitis obliterans: Daily home spirometry versus standard pulmonary function testing. *Can J Respir Ther*. 2014 Spring;50(1):17-22.
18. Russell AM, Adamali H, et al. Daily Home Spirometry: An Effective Tool for Detecting Progression in Idiopathic Pulmonary Fibrosis. *Am J Respir Crit Care Med*. 2016 Oct 15; 194(8): 989–997.
19. Tagliente I, Trieste L, et al. Telemonitoring in Cystic Fibrosis: A 4-year Assessment and Simulation for the Next 6 Years. *Interact J Med Res*. 2016 Apr-Jun; 5(2): e11.

20. Turner J, He Q, et al. Home Spirometry Telemonitoring for Early Detection of Bronchiolitis Obliterans Syndrome in Patients with Chronic Graft-versus-Host Disease. *Transplant Cell Ther.* 2021 Jul;27(7):616.e1-616.e6. PMID: 33781975.
21. Welsh CH, Wang TS, et al. An international ISHLT/ATS/ERS clinical practice guideline: summary for clinicians. Bronchiolitis obliterans syndrome complicating lung transplantation. *Ann Am Thorac Soc.* 2015 Jan;12(1):118-9.
22. Wensley D, Silverman M. "Peak flow monitoring for guided self-management in childhood asthma: a randomized controlled trial." *Am J Respir Crit Care Med.* 2004 Sep 15; 170(6): 606-12. Epub 2004 Jun 7.
23. Wensley DC, Silverman M. "The quality of home spirometry in school children with asthma." *Thorax.* 2001 Mar; 56(3): 183-5.

### COMMITTEE APPROVAL:

This Medical Coverage Guideline (MCG) was approved by the Florida Blue Medical Policy and Coverage Committee on 12/08/23.

### GUIDELINE UPDATE INFORMATION:

12/07/00	New Medical Coverage Guideline.
01/01/01	Reviewed – no changes.
12/15/02	Reviewed and revised.
11/15/03	Reviewed; no change (investigational).
10/15/04	Scheduled review; no change in coverage statement.
11/15/05	Scheduled review; no change in coverage statement; references updated.
11/15/06	Scheduled review; no change in coverage statement; added S8190.
08/15/07	Scheduled review; reformatted guideline; updated references.
11/15/08	Scheduled review; no change in position statement; add S8190 to the guideline; updated references.
01/01/09	Annual HCPCS coding update: added A9284 and E0487.
04/01/09	HCPCS 1st quarter coding update: remove S8190 – discontinued effective 03/31/09.
11/15/09	Scheduled review; position statement unchanged; references updated.
03/15/10	Revision of Position Statement regarding the use of home spirometry with lung and lung/heart transplant recipients; Description section revised; references updated.
01/01/13	Annual HCPCS coding update: revised descriptors for 94014 and 94016
05/11/14	Revision: Program Exceptions section updated.
11/01/15	Revision: ICD-9 Codes deleted.
03/15/18	Review; investigational position maintained; description, position statement, and references updated.
04/15/20	Review; Position statement maintained and references updated.
04/15/22	Review: Position statement maintained; references updated.
01/01/24	Position statements maintained.