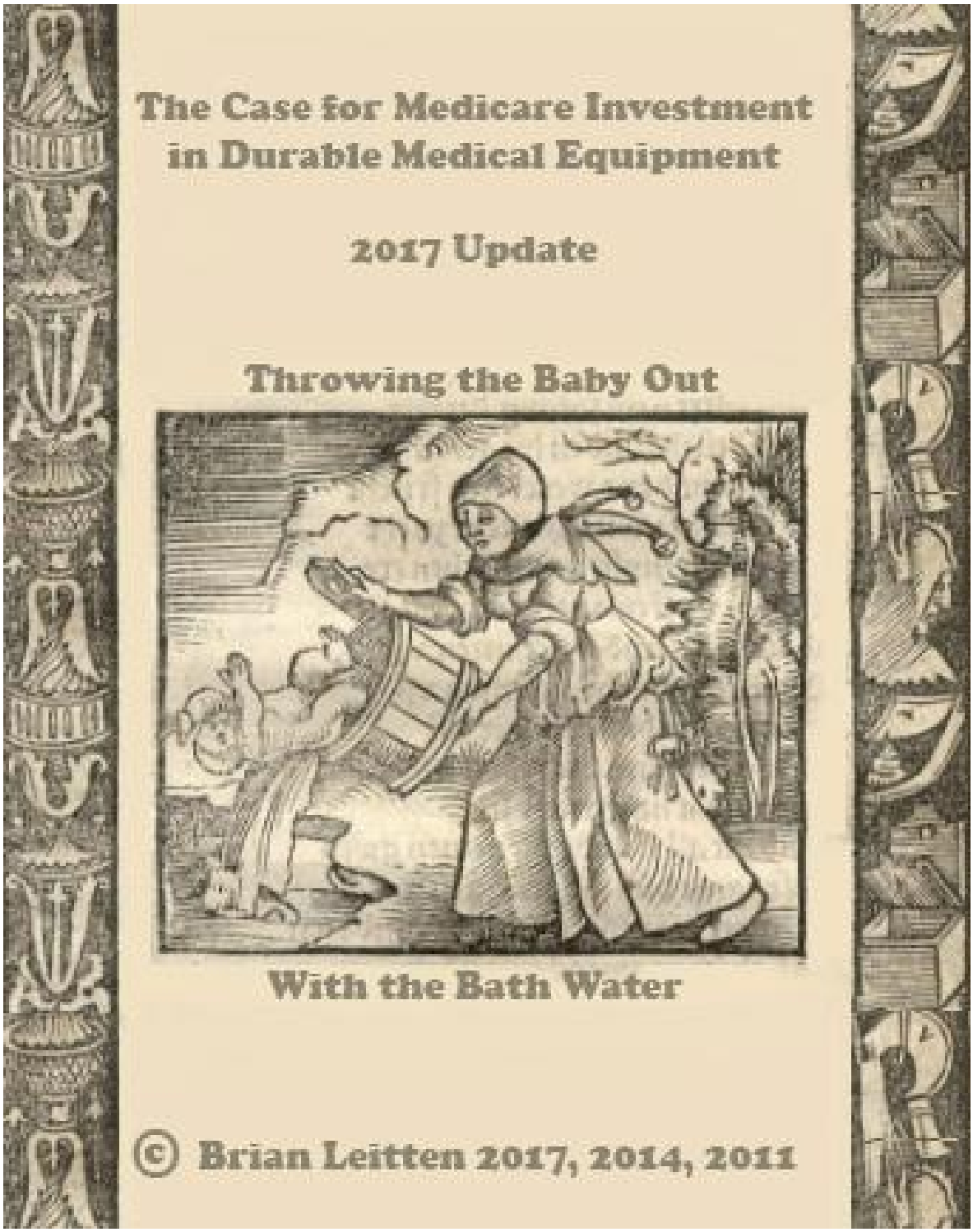
How America Can Cut Waste, Save Billions & Improve Healthcare



How America Can Cut Waste, Save Billions & Improve Healthcare

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The Case for Medicare Investment in DME – 2017 Update

"Don't focus on cost cutting. Focus on waste cutting."
Jamie Dimon – CEO J.P. Morgan at J.P. Morgan Annual Healthcare Conference January 2017

With the incoming administration targeting major healthcare change and cost saving, it is the ideal time for CMS to end its focus on DME cost cutting and take immediate steps to drive down the massive payments it now makes to treat the very problems that DME is designed to avoid. This study shows that such a shift makes clear economic and practical sense – every dollar Medicare spends providing DME to beneficiaries can save CMS from $11 to $29 in direct treatment payments.[1] Overall annual savings for the U.S. healthcare system (which takes into account the dynamic macroeconomic impact of future investing in DME) ranges from $23 to $41 for every dollar invested. Drops in access to DME that have occurred since competitive bidding was initiated support the ability of CMS to effectively spend on DME going forward.

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In 2011, we began to study Medicare spending for DME to determine if it made sense for CMS to increase its investments in DME to drive reductions in treatment costs for injuries and illnesses that resulted from Medicare recipients not having the right DME. The initial study showed that spending to provide DME to beneficiaries saves Medicare much more in reduced treatment costs than the actual payments it makes for the equipment.[2]

That study was updated in 2014[3] to reflect a period that saw the launch and then expansion of the competitive bidding program and continued attacks by CMS on payments for power chairs, oxygen therapy and CPAP therapy. The 2014 update showed that three years later it made even more sense for CMS to invest in DME. Since the 2014 update, CMS has continued to expand its attacks on DME pricing, applying the pricing model to rural areas not covered by the earlier versions of the program. The recent CURES Act further extends competitive bidding pricing to the federal portion of Medicaid.[4] This has all led to a dramatic drop in DME providers serving the Medicare population, profit margins that are often thin or non-existent and reduced access to equipment by beneficiaries.[5]

Through it all, CMS has focused on cost cutting and has failed to recognize the positive leverage of its spending potential. In part, its misplaced focus is the result of its initial impetus for reducing spending on equipment – elimination of fraud. By the end of the 2nd year of competitive bidding, CMS had succeeded putting in place a wide range of fraud prevention

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efforts to eliminate the bulk of fraud in the system[6]. Instead of refocusing on prudent and reasonable investment in DME, CMS has continued its pricing attacks. It has 'thrown the baby out with the bath water'.

The current version of the study shows that the massive Medicare payments for ER visits, hospital stays, doctor visits, medicines, outpatient treatment and other treatment payments have increased or been relatively stable while spending on DME has dropped drastically. It again confirms that spending on treatment could be significantly reduced by providing DME that decreases falls and leaves diseases like COPD and obstructive sleep apnea unchecked. As CMS continues its squeeze on the cost side of DME, the relative value of the potential DME investment savings has grown by orders of magnitude.

Background. Over the past twenty-plus years, The Centers for Medicare & Medicaid Services (CMS) of the U.S. Department of Health & Human Services (HHS) have treated payments for durable medical equipment as a cost burden to be watched over and continually reduced or eliminated. These payments, which comprise approximately 1% of overall Medicare spending[7], have been periodically driven downward. CMS has implemented a "competitive bidding" program for DMEPOS (Durable Medical Equipment; Prosthetics; Orthotics; and Supplies) and has since expanded that program across the country. DMEPOS has resulted in the number of beneficiaries receiving DME being decreased; the number of available suppliers being slashed; and claims from CMS of substantial drops in DME payments.[8]

Rather than simply assume that Medicare spending on DME is a cost burden, this study considers both costs of and benefits (i.e., cost avoidance) derived from providing DME to Medicare beneficiaries. Looking at three major categories of DME [mobility equipment, oxygen [O_2] and continuous positive airway pressure [CPAP], the study identifies cost avoidance that results from providing equipment and compares that savings to the direct cost of providing the equipment. While focusing on costs borne directly by Medicare, the study also considers spending by Medicare beneficiaries and their private insurers, which when combined with Medicare spending constitutes the direct expense or cost savings to the overall U.S. healthcare system.

The original study showed that DME dramatically reduces the impact of injuries and other serious medical conditions that would result if the DME was not provided. This reduces the amount Medicare would otherwise have to pay to treat those conditions in amounts that are orders of magnitude larger than the cost savings that CMS is chasing. The updates to the study reveal that this gap continues to grow. This update shows that *every dollar Medicare has pared from DME spending can be reinvested to create from $11 to $29 in reduced treatment payments*.

Falls continue to be the leading cause of fatal and non-fatal injuries in the United States among adults aged 65 years and over.[9] When Medicare pays for the mobility DME to Medicare

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beneficiaries, falls are reduced and Medicare payments for fall-related treatments drop. Fall avoidance leads directly to cost avoidance. When a fall is avoided, direct Medicare payments for doctor visits, emergency room visits, hospital stays, ambulance transport, rehabilitation and long term care are avoided. The updated study shows that:

- **For every dollar that Medicare currently spends providing mobility DME, Medicare actually avoids paying an additional $29.00 over a five-year equipment life period for fall-related emergency room visits, hospital stays, doctor visits and outpatient care that would result without that equipment**. This number is up dramatically from the original study and has been driven by significant reductions in Medicare spending under DMEPOS for power chairs, manual wheelchairs, walkers and other mobility DME.
- **The breakeven period based on the first year's return alone is 61 days.**
- **Every dollar that Medicare now spends providing mobility DME results in an additional minimum out-of-pocket cost savings to Medicare beneficiaries over five years of $5.80, for a cumulative five-year cost payment savings of $34.80.**
- **Direct costs do not account for the long-term impact of these injuries, such as disability, dependence on others, lost time from work and household duties, and reduced quality of life. These indirect costs add substantially to the overall cost of falls, bringing the total direct and indirect savings to the U.S. healthcare system to $41.67 over a five-year equipment life period.**

COPD remains the 2nd leading cause of disability and the 3rd leading cause of death in the United States.[10] Supplemental oxygen therapy is used to treat individuals who have difficulty breathing as a result of COPD. When Medicare pays for supplemental oxygen therapy, Medicare payments to treat medical complications created by COPD drop dramatically and significant net savings are realized. The study shows that:

- **For every dollar that Medicare pays to provide supplemental oxygen therapy, Medicare avoids paying $14.30 for treatment of COPD-caused medical complications and comorbidities in one year that would result if the oxygen therapy was not provided**.
- **The breakeven period for this return is 26 days.**
- **Every dollar that Medicare now pays to provide supplemental oxygen therapy results in an additional minimum out-of-pocket cost savings to Medicare beneficiaries in the first year of $2.64 for a cumulative cost one-year payment savings of between $16.94.**
- **Direct costs do not account for the long-term impact of COPD-caused medical complications and comorbidities, such as the value of lost wages; labor productivity; morbidity; and mortality. These indirect costs add substantially to the overall cost of treating COPD, bringing the total annual direct and indirect savings to the U.S. healthcare system to $23.72.**

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Obstructive Sleep Apnea (OSA) occurs in a majority of men and women over 65.[11] More importantly, OSA is a contributing factor in a range of medical conditions, including coronary artery disease; congestive heart failure; atrial fibrillation; stroke; hypertension; diabetes; asthma; insomnia; and certain mental health conditions. Continuous positive airway pressure (CPAP) therapy is used to treat individuals who have breathing interruptions and sleep disruptions as a result of OSA. CPAP therapy has been shown to significantly decrease the medical costs related to the range of medical conditions to which OSA contributes. When Medicare pays for CPAP therapy, the cost of treating this myriad of medical complications drops dramatically and significant net spending reductions are realized. The study shows that:

- **For every dollar that Medicare pays to provide CPAP therapy, Medicare avoids spending a minimum of $11.38 for treatment of OSA-caused medical complications in one year that would result if the CPAP therapy was not provided**.
- **The breakeven period for this return is 33 days.**
- **Every dollar that Medicare now pays to provide CPAP therapy results in an additional minimum out-of-pocket cost savings to Medicare beneficiaries in the first year of $0.86, for a cumulative cost one-year payment savings of $12.25.**
- **Direct costs do not account for the long-term impact of treating OSA-caused medical complications, such as the value lost from motor vehicle accidents, workplace accidents, labor productivity and reduced quality of life. These indirect costs add substantially to the overall cost of treating OSA, bringing the total annual direct and indirect savings to the U.S. healthcare system to $24.48.**

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The Case for Medicare Investment in Durable Medical Equipment

Total Direct & Indirect Saving to Overall U.S. Healthcare System

Mobility DME	Oxygen Therapy	CPAP Therapy
$41.76 *	$23.72	$24.48

* Over a 5-year equipment life period

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An Important Note on Access.

A key premise of any call for CMS to increase spending on DME is that CMS is in a good position to shift its focus from cost cutting to waste cutting. A solid indicator that the timing is right for such a shift is the substantial decline in beneficiary access to DME that occurred while the overall Medicare population concurrently grew. Having already addressed major fraud problems in the system in the early years of competitive bidding[12], a continued decline in beneficiary counts for key DME products would strongly suggest that access to DME is being somehow restricted. We know that the underlying causes of treatment needs have not suddenly disappeared: people who smoked for years didn't instantly recover; beneficiaries didn't suddenly stop falling; and while CPAP machines may have become more available, the great undiagnosed population (still projected to be running in the 80% range) continued to suffer from OSA comorbidities even if not yet diagnosed with OSA. To the contrary, all these problems have persisted while access to the proper DME has dropped.

To understand access to and availability of DME, we conducted a review of beneficiary data for key competitive bidding areas (we chose the original nine CBAs, where the most data was available) and Comparator areas (we chose the nine Comparator areas paired with the original CBAs) from 2008 through 2013 (the range of years for which CBA and Comparator data is available).[13] During this period, Medicare population consistently rose:

- 2008-2013 - up 14.1%
- 2010-2013 - up 10.3%
- 2011-2013 - up 7.2%

While the number of Medicare beneficiaries rose, utilization and access dropped.

Beneficiary data was available in the CBAs from 2008-2013 for walkers (HCPCS Code E0143)

- beneficiary count went down 29.7%.

Beneficiary data was available in the CBAs from 2011-2013 (they were not originally included in the program) for wheelchairs (K0001 and K0003 combined)

- beneficiary count went down 16.2%.

Beneficiary data was available in the CBAs from 2008-2013 for oxygen equipment (Class A and C combined)

- beneficiary count went down 31.3%.

Beneficiary data was available in Comparator areas from 2010-2013:

- for walkers - beneficiary count went down 20.5%
- for combined wheelchairs - beneficiary count went down 9.1%

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- for combined oxygen equipment - beneficiary count went down 18.5%

In all instances for CBAs and Comparator areas, allowed units also went down, in most cases in very similar amounts.

According to the GAO 2nd Year update on competitive bidding[14], initial utilization drops may have been due in some part to weeding out fraud, but by that time CMS had already put in place a number of policies that attacked fraud. It seems very plausible to conclude that continued drops in utilization were not due to fraud reduction but to diminished access. We are looking at net 25-40% deltas from 2010-2013 (+10% beneficiary population and -15-30% beneficiary counts in various categories). It is simply not reasonable to argue that disparities of this magnitude were attributable to ongoing fraud reductions.

CPAP is the only outlier but this is easily and plausibly explained. Awareness of sleep apnea grew dramatically during the period in question. Medicare started paying for home studies in 2008[15], which helped spur a spike in diagnoses. Sleep clinics grew in number from 2280 to 2800 from 2010-2015, up 22.8%[16]. This led to increased diagnoses, which would account for a substantial portion of the increases in beneficiary counts. It all makes logical sense.

CPAP machines (E0601) went up:

In CBAs:

- from 2008-2013, beneficiary count went up 24.1%

In Comparator areas:

- from 2010-2013, beneficiary count went up 15.9%

Allowed units were also up in all areas.

Introduction. The CMS have historically been pressured to cut the cost of providing durable medical equipment (DME) to Medicare beneficiaries. The Government Accountability Office (GAO) and HHS's Office of Inspector General (OIG) have regularly applied pressure on CMS for decades to manage reimbursements and lower overall costs. A driving force behind the push by the GAO and the OIG has been the reduction and elimination of fraudulent claims. When HHS and GAO recommend a cost reduction initiative or a new cost savings program, they typically promote the cost savings that will be realized by Medicare beneficiaries, rationalizing that their 20% co-pays will be reduced as part of the initiative.[17] With the continual focus on the **cost** of providing essential DME to those in need and at risk in the Medicare population, the value of

providing DME and the cost **benefit** that results has been generally overlooked, ignored or not adequately considered.

This study analyzed three areas of DME that constitute a significant portion of Medicare spending in this overall category – mobility equipment (e.g., wheelchairs, walkers, power chairs, transfer benches, crutches); oxygen [O_2] therapy; and continuous positive airway pressure [CPAP] therapy. For each area, a model was developed to analyze annual Medicare spending and to project the annual spending savings benefit that results from providing equipment and supplies.[18] This savings also applies to any future investments to provide more DME equipment to those Medicare beneficiaries at risk in the analyzed areas.

In this update of the study, efforts have been made to simplify the calculations of Medicare treatment spending and to rely on the most recent and accurate data available. The most recent, accurate data has been adjusted by cost-of-living and Medicare population size changes to 2016 levels.

Mobility Equipment

Overview. When a Medicare beneficiary falls, a resulting chain of events is triggered. This chain can include numerous links which are both (a) medical treatment events and (b) Medicare spending events. Approximately 28% of all Medicare beneficiaries fall at least once each year[19], resulting in 7.5 million annual falls.[20] 40% of those falls result in serious injuries requiring treatment in an emergency room [ER][21]. ER visits for falls by Medicare beneficiaries in 2016 exceeded 3,000,000.[22] Medicare pays for these treatments.

Over 25% of those who visit the ER for a fall are admitted for a hospital stay.[23] After a set deductible, Medicare pays for these stays. A significant portion of those patients are transported to the ER/hospital by a Medicare-funded ambulance. Medicare pays the bulk of this cost. Almost half (45.8%) of fall injuries for adults 65 and over result in a doctor visit or visit to a clinic.[24] Medicare pays for these visits.

The majority of adults 65 and over admitted to a hospital as the result of a fall are discharged to a rehabilitation facility or skilled nursing facility for recovery and transported there by Medicare-funded ambulance. Medicare pays for a portion of that rehab. Approximately one in five Medicare beneficiaries hospitalized for a fall requires a longer stay to recover from the fall injuries and be able to return home. Medicare pays a substantial portion of the extended stay. Every step along the path to recovery, Medicare pays, through Parts A and B, but mostly through Part A.

Discussion. Numerous studies have been conducted over the years attempting to assess elements of the cost matrix of falls and to analyze attempts to reduce falls. While there is no single source document that comprehensively lays out the cost analysis of Medicare falls and the

impact of DME on fall costs, recent data has improved the comprehensive nature of available data. This study seeks to construct a model that incorporates information from a large number of disparate data points, studies, surveys and research that span over two decades into a useful analytic framework.

All portions of the study incorporate data from a wide variety of sources. Our research focused on identifying the most reliable data available. In many cases, the most relevant data was not the most current. Commonly available tools like the Consumer Price Index [CPI] (published by the Federal Reserve Bank of Minneapolis)[25] and Census Bureau population data and projections were employed to adjust data to a common year for analysis. When multiple data sources were available, we used all available information and our best analytical judgment to select the data source or sources to be used. In a few instances, no identifiable data was uncovered. In these instances, the author has used his best judgment to select estimates expected to conservatively understate outcomes. This approach is purposeful and is intended to obtain overall results that are supportable and conservative in nature and not skewed toward any particular conclusion.

The model described here does not attempt to incorporate every cost associated with Medicare beneficiary falls. Such a model would be an interesting exercise in frustration designed to quantify cost numbers to extreme levels not particularly useful in addressing the important issues – **do Medicare's payments for mobility DME make sense financially and what is the order of magnitude of any overall cost savings that results?**

The model includes key direct cost estimates for the major Medicare cost elements of the fall-triggered chain of events: emergency room visits; hospital admissions; doctor and clinic visits; and a range of outpatient services required by beneficiaries to reacquire their mobility and return home. A recent study addresses this agglomeration of costs and Medicare payments and is used as a basis for calculating Medicare fall-related treatment payments.[26] This simplifies the model used in earlier versions of the study.

Medicare treatment payments for falls are complied for the 5-year effective life of the DME. This involves calculating the number of falls avoided each year for the 5-year period and the average overall payment by Medicare for each Medicare patient fall. To determine the Medicare Falls Payments Avoided, the model uses a 60% falls reduction ratio when proper DME is provided and an average of 1.1falls/year. The DME provided is assumed to have a useful life of five years and a factor of 5% per year is incorporated to account for decreased utilization of equipment in years 2-5.

After determining the Medicare treatment payments for falls, the model also considers fall-related costs that will need to be paid for by co-pays, deductibles and non-covered expenses. These costs are typically borne directly by Medicare beneficiaries or by a secondary insurer. They

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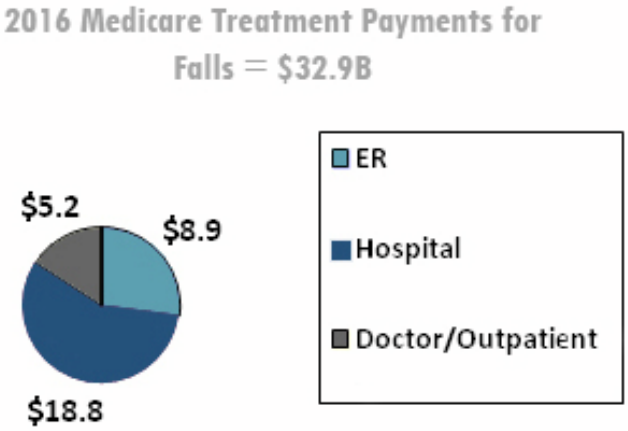
are none the less real costs that add to the burden on the U.S. healthcare system and are costs that would be avoided simultaneously with any Medicare payment savings achieved.

The model next calculates annual Medicare spending and potential saving on DME equipment. Dividing the total saving on DME equipment by the Medicare spending on DME yields a ratio of Medicare payment savings per dollar invested in medical mobility equipment. Simply stated, this ratio shows the number of dollars saved by CMS each time it invests $1 on providing mobility DME to Medicare beneficiaries who need the equipment to avoid falls.

A second ratio is calculated to project the overall healthcare system payment savings realized by every Medicare dollar invested in medical mobility equipment. This ratio adds back co-pays, deductibles, premiums and other long-term costs for recovery that are not paid for by Medicare. These are all real, direct costs paid by Medicare beneficiaries and their insurers.

Mobility Equipment Model. The model calculates current total Medicare falls payments for mobility equipment. **For 2016, the total Medicare payments for falls are projected to be $32.9 Billion.**[27] This total comprises $8.9B in ER visit payments; $18.8B in Hospital payments; and $5.2B in doctor/clinic and other outpatient payments.



For 2016 it is projected that:

- **the medical mobility equipment paid for by Medicare will result in a reduction of approximately 1.4 million falls for each of the five years the DME is in use.**
- **Medicare payments for DME equal $578.89 Million.**[28]
- **Medicare Falls Payments Avoided during those five years in 2016 dollars equal $16.79 Billion from 2016-2020.**

The yearly savings is projected as:

2016	$3.47 Billion
2017	$3.42 Billion
2018	$3.36 Billion
2019	$3.30 Billion
2020	$3.24 Billion
2016-20	$16.79 Billion

For 2016, the ratio of Medicare falls payments avoided to Medicare spending on DME is calculated to be 29.00. **This means that for every dollar that Medicare currently spends providing mobility DME to beneficiaries in need, Medicare actually avoids paying an additional $29.00 in current dollars for fall-related medical treatments** over the five-year equipment life period.

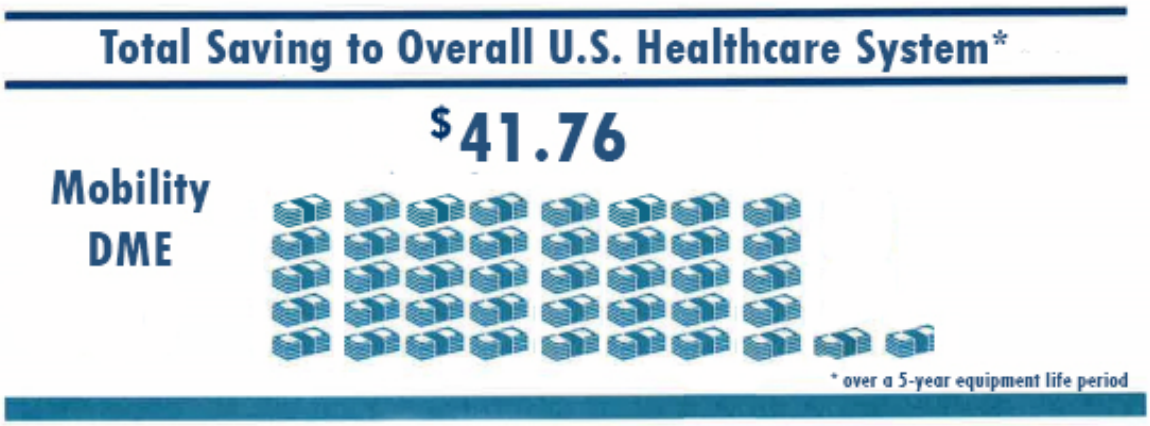
2016 savings alone mean that Medicare spending on medical mobility equipment can essentially be self-funded in the first 61 days of the year! The breakeven period is calculated by dividing the first year's savings by 365 to determine the daily saving and then dividing that number into the amount Medicare pays for the equipment in the first year.

The ratio of overall healthcare system payment savings per Medicare dollar paid for medical mobility equipment is calculated by dividing the value of Medicare falls payments avoided plus addbacks by the total Medicare spending on DME. Addbacks represent co-pays, deductibles, premiums and other costs not covered by Medicare that are paid by Medicare beneficiaries and private insurers.

For 2016, the ratio of overall healthcare system dollars saved per Medicare dollar paid for medical mobility equipment is 34.80, an incremental 5.85 from the total Medicare cost of falls. **This represents a direct cost savings to the overall U.S. healthcare system over five years of an additional $5.80, for a total five-year savings of $34.80 for every dollar that Medicare spends on medical mobility equipment.**

These savings from cost avoidance for Medicare and the overall U.S. healthcare system are derived from direct spending by CMS, beneficiaries and private insurers. Savings in all years subsequent to 2016 take into account projected increases in the Medicare population and consumer prices.

To understand the complete financial impact of reversing course and implementing an aggressive CMS spending program on mobility DME, one needs to include the effect of indirect or macroeconomic costs (the value of disability, dependence on others, lost time from work and household duties, labor productivity and reduced quality of life) when attempting to assess the total costs of falls.[29] The report most referenced in the literature on economic costs for falls suggests that economic costs add another 20% to the overall cost of falls for the 65 and older age group.[30] This results in a total annual saving to the overall U.S. healthcare system of $41.76.



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It should be noted that any future efforts by CMS to cut spending on DME through expansion of competitive bidding or other means will reduce the denominator in the savings ratios above and result in even more opportunity for responsible spending on DME.

Oxygen Therapy

Overview. Chronic Obstructive Pulmonary Disease (COPD) is 2nd leading cause of disability and the 3rd leading cause of death in the United States.[31] COPD refers to two chronic lung diseases, chronic bronchitis and emphysema. Only heart disease and cancer take more lives each year. The overall cost of treating medical complications caused by COPD in the U.S. in 2016 is estimated at over $89 Billion.[32] Medicare payments comprise approximately 38.4% of this total, approximately $34.3 Billion.[33]

Supplemental oxygen therapy helps individuals who have difficulty breathing as a result of COPD. Often quoted research estimates that providing supplemental oxygen therapy to COPD patients with chronic hypoxemia (low blood oxygen) reduces hospital stays by 45%.[34]

Discussion. The model described here does not attempt to incorporate every cost associated with treating Medicare beneficiaries for COPD. It does address the important issues – **do Medicare's payments for supplemental oxygen therapy make sense financially and what is the order of magnitude of any overall cost savings that results?**

The model, which is explained and described in greater detail in the *Supplemental Oxygen Therapy Model* section, calculates annual total Medicare payments for the treating COPD and COPD exacerbations, which comprises the payments for ER visits, hospital admissions, doctor/clinic visits, prescription medications and other outpatient services. The model also considers COPD exacerbation treatment costs that will need to be paid for by co-pays, deductibles and non-covered expenses. These costs are typically borne by directly by Medicare beneficiaries or by a secondary insurer. They are none the less real costs that add to the burden on the U.S. healthcare system and are costs that would be avoided simultaneously with any Medicare cost savings achieved.

The model determines the total Medicare payments for CPAP equipment and supplies and then compares this cost to the annual savings in treatments for COPD and COPD exacerbations that result from providing CPAP equipment, yielding a ratio of Medicare payment savings per dollar invested in oxygen therapy. Simply stated, this ratio shows the number of dollars saved by Medicare each time it invests $1 to provide supplemental oxygen therapy to Medicare recipients. A second ratio is calculated by dividing the overall healthcare system dollars saved by the Medicare dollars paid to provide supplemental oxygen therapy. This ratio adds back the co-pays, deductibles and other direct costs paid by Medicare beneficiaries and their insurers.

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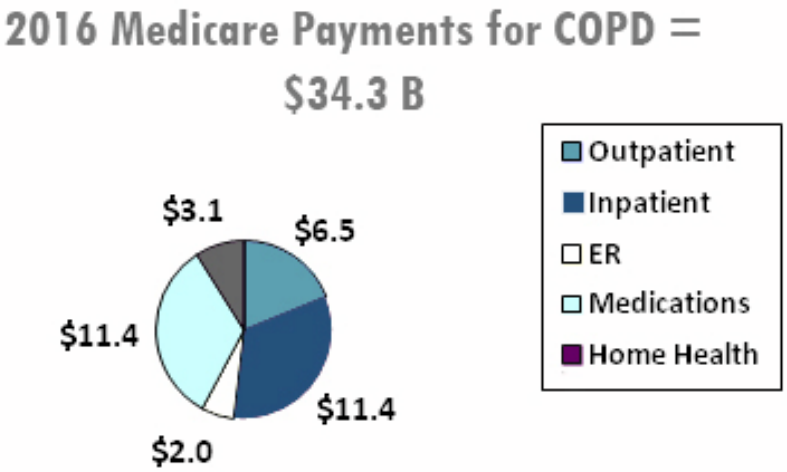
2016 savings mean that Medicare spending on oxygen therapy can essentially be self-funded in the first 26 days of the year. The breakeven period is calculated by dividing the 2016 savings by 365 to determine the daily saving and then dividing that number into the amount Medicare pays for the equipment.

For 2016 it is projected that:

- **Total Medicare Payments for treating COPD and COPD exacerbations will be $34.3 Billion. This total comprises $6.5B in outpatient payments; $2.0B in ER payments; $11.4B in inpatient payments; $11.4B in prescription medicine payments; and $3.1B in home healthcare payments.**
- **The total annual saving realized from providing supplemental oxygen therapy is $15.4 Billion.**
- **Medicare payments for oxygen equipment and supplies equal $1.08 Billion.**



These results mean that for every dollar that Medicare currently spends providing supplemental oxygen therapy to beneficiaries in need, it avoids paying an additional $14.30 for medical treatments for COPD exacerbations.

For 2016, the overall healthcare system payment savings ratio is 16.94. This ratio adds back the co-pays, deductibles and other direct costs paid by Medicare beneficiaries and their insurers. **This represents an additional cost saving to the overall U.S. healthcare system of an additional $2.64, for a total savings of $16.94 for every dollar that Medicare invests in supplemental oxygen therapy.**

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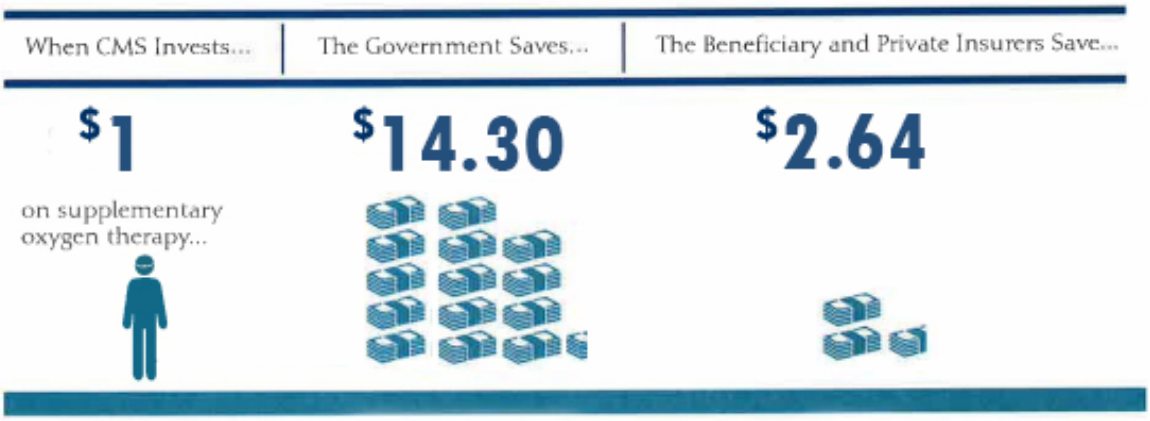

2016 savings from reducing treatment costs for COPD exacerbations mean that Medicare spending on supplemental oxygen therapy can essentially be self-funded in the first 26 days of the year. The breakeven period is calculated by dividing the annual savings by 365 to determine the daily saving and then dividing that number into the annual amount Medicare pays for oxygen therapy.

These savings from cost avoidance for Medicare and the overall U.S. healthcare system are derived from direct spending by CMS, beneficiaries and private insurers. To understand the complete financial impact of reversing course and implementing an aggressive CMS spending program on oxygen therapy, one needs to include the effect of indirect or macroeconomic costs (the value of lost wages; labor productivity; morbidity; and mortality) when attempting to assess the total costs of COPD. These economic costs of COPD-related treatment for the entire U.S. population are wide-ranging but in any event, constitute a significant portion in the overall cost of COPD, possibly in the range of 40%, to treat COPD.[35] This results in a total annual saving to the overall U.S. healthcare system of $23.72.

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Finally, the oxygen therapy equipment provided to Medicare beneficiaries will have an effective life greater than one year. While no reliable data was uncovered to accurately quantify this number, it can be assumed that the calculations in this study understate to some extent the overall cost saving realized since after one year, only the cost of supplies will be incurred for some beneficiaries.

CPAP Therapy

Overview. Obstructive Sleep Apnea (OSA) was first defined over forty years ago. In the decades that followed, the healthcare costs related to diagnosis and treatment of breathing disorders during sleep have grown dramatically. Even today, some 80% of patients with clinically significant and treatable sleep apnea may not yet have even been diagnosed.[36] The portion of OSA patients who do receive treatment may represent the 'tip of the iceberg' of OSA prevalence and the understanding of the true cost of OSA.

Unlike many other conditions, emergency room visits, hospital admissions and other significant medical cost events are typically not attributed directly to OSA. There are, however, a wide range of serious illnesses to which OSA is a contributing factor. These conditions include coronary artery disease, congestive heart failure, atrial fibrillation, stroke; hypertension; diabetes; asthma; insomnia; and mental health conditions.[37] Patients with these conditions who also have OSA incur dramatically higher medical costs, including costs for emergency room and hospital treatments, doctor and clinic visits, prescription drugs and home health and nursing home care.[38] In 2016, estimated $46.0 Billion was spent to treat OSA and the medical complications of OSA.[39] Medicare's portion of those payments is estimated to be $25.3 Billion.[40] The total Medicare annual payment for CPAP therapy is estimated to be $892 Million.[41]

Discussion. The model described here does not attempt to incorporate every cost associated with treating Medicare beneficiaries for OSA. It does address the important issues – **do Medicare's payments for supplemental CPAP therapy make sense financially and what is the order of magnitude of any overall cost savings that results?**

Earlier versions of the model were complex and involved a series of calculations based on multiple data sets. The revised model is much simpler and draws much of its data from a recently published Frost and Sullivan study commissioned by the American Academy for Sleep Medicine.[42]

The model also considers OSA therapy costs that will need to be paid for by co-pays, deductibles and other non-covered expenses. These costs are typically borne directly by Medicare beneficiaries or by a secondary insurer. They are real costs that add to the burden on the U.S. healthcare system and are costs that would be avoided simultaneously with any Medicare cost savings achieved.

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CPAP Therapy Model. In earlier versions of the study, the model calculated annual the total Medicare payments for OSA-related treatment, which comprised the payments for hospital admissions, ER visits, doctor/clinic visits, prescription medications and other outpatient services for the major OSA-triggered conditions. Savings from providing CPAP equipment were calculated by adjusting the treatment cost numbers by a comorbidity factor for OSA, a CPAP cost saving factor, and a CPAP compliance factor.

The model looked at the number of Medicare beneficiaries who are annually admitted to a hospital for the four conditions, i.e., the Medicare population that generates the bulk of annual Medicare expenditures where OSA is a significant contributing factor. To create a minimum savings estimate to Medicare payments ratio, the model assumed that all hospital admissions are beneficiaries who are not receiving CPAP therapy at the time of admission. While this is certainly not the case, it is a reasonable approximation that yields a low-end, conservative result.

Since the last update, a new study has surfaced that provides a more comprehensive model that takes into account several more comorbidities – heart disease; hypertension; asthma; diabetes; insomnia; and mental health issues, including depression and anxiety.[43] Based on this model, $46.0 Billion was spent to treat OSA and the medical complications of OSA in 2016.[44]

For 2016, the total Medicare payments for OSA-related direct costs were estimated to be $25.3 Billion and projected Medicare payment savings from CPAP use are $10.2 Billion.

A ratio for Medicare saving is calculated that shows the number of dollars saved by Medicare each time it pays $1 to provide CPAP therapy to Medicare beneficiaries. A second ratio is calculated to project to the overall healthcare system payment savings from every Medicare dollar paid to provide CPAP therapy. This ratio adds back the co-pays and deductibles and other direct costs paid by Medicare beneficiaries and their insurers.

For 2016, the Medicare payment savings ratio is 11.38. The overall healthcare system payment savings ratio is 12.25. This ratio adds back the co-pays, deductibles and other direct costs paid by Medicare beneficiaries and their insurers. **This represents an annual direct spending savings to Medicare of $11.38 for every dollar that Medicare pays for CPAP therapy. The annual direct cost savings to the overall U.S. healthcare system is an additional $0.86, for a total savings of $12.24 for every dollar that Medicare pays for CPAP therapy.**

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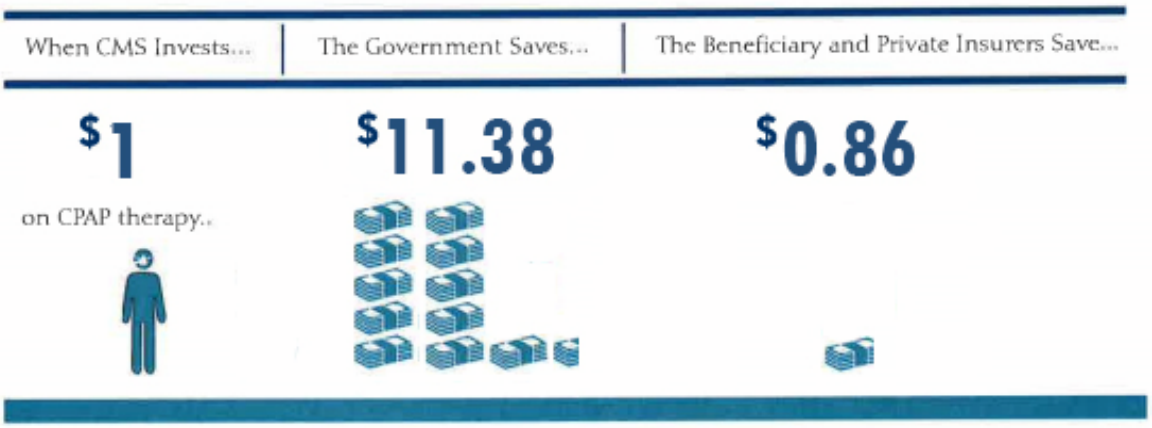

2016 savings from reducing treatment costs for OSA mean that Medicare spending on CPAP therapy can essentially be self-funded in the first 33 days of the year. The breakeven period is calculated by dividing the annual savings by 365 to determine the daily saving and then dividing that number into the annual amount Medicare pays for CPAP therapy.

These savings from cost avoidance for Medicare and the overall U.S. healthcare system are derived from direct spending by CMS, beneficiaries and private insurers. To understand the complete financial impact of reversing course and implementing an aggressive CMS spending program on CPAP therapy, one needs to include the effect of indirect or macroeconomic costs (the value lost from motor vehicle accidents, workplace accidents, labor productivity and reduced quality of life) when attempting to assess the total costs of OSA. The literature suggests that, for the entire U.S. population, economic costs for OSA may be as much as double the direct cost of treating OSA.[45] This results in a total annual saving to the overall U.S. healthcare system of $24.48.

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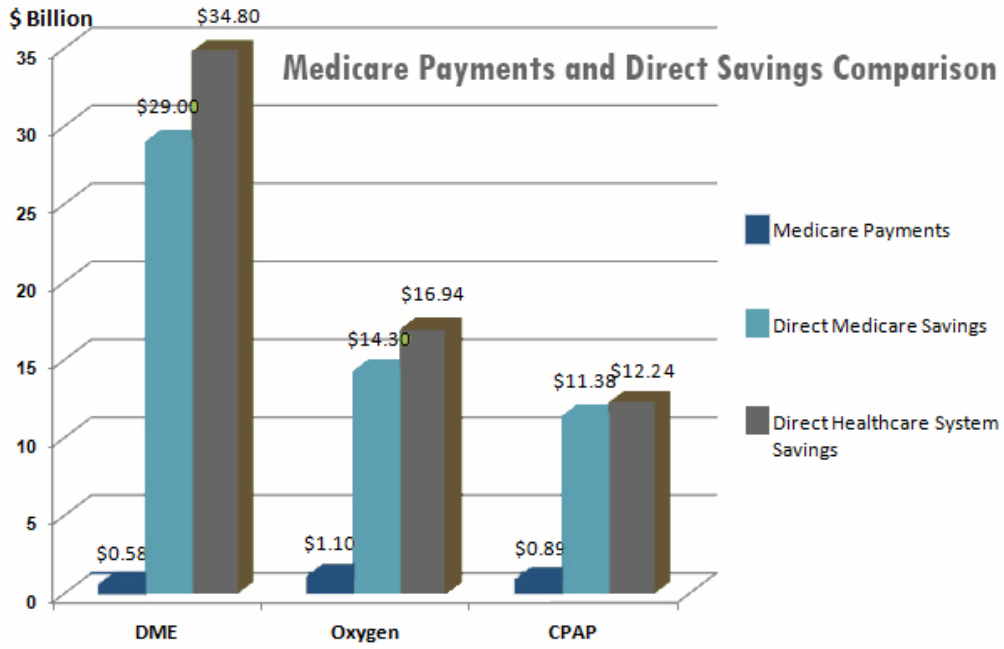
Conclusion

It is now time for CMS to reverse its direction, stop focusing on cutting DME costs and invest in DME. The result of reversing its course will drive Medicare Part A treatment payments down dramatically. Medicare can achieve significant direct cost savings by providing Mobility Equipment, Supplemental Oxygen Therapy and CPAP Therapy to Medicare beneficiaries in need. The Part A cost of treating COPD and COPD complications, OSA and OSA complications and injuries resulting from falls is orders of magnitude greater than the payments made by Medicare to provide that equipment and therapy and the leverage of every dollar that CMS can wisely invest has grown dramatically since the inception of competitive bidding.

For every dollar Medicare pays for:	It avoids paying:
Mobility Equipment	$29.00 for treating falls that would result
Supplemental O_2 Therapy	$14.30 for treatment of COPD and COPD-caused medical complications
CPAP Therapy	$11.38 for treatment of OSA and OSA-related complications

Medicare directly saves its beneficiaries and their secondary insurers additional dollars that would otherwise have to be spent on these treatments and indirectly saves significant amounts in economic costs that would otherwise be incurred. Direct treatment savings estimates and equipment costs are shown in the following graph for each of the three categories considered in this analysis:



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When taking into account the indirect macroeconomic costs that are likely to result from implementing an aggressive CMS spending program for DME, the overall direct and indirect savings from every dollar spent by CMS will amount to:

$41.76 for mobility DME
$23.72 for oxygen therapy
$24.48 for CPAP therapy

CMS is in a good position to shift its focus from cost cutting to waste cutting. A solid indicator that the timing is right for such a shift is the substantial decline in beneficiary access to DME that occurred while the overall Medicare population concurrently grew.

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[1] Including the impact of macroeconomic costs that are likely to result from implementing an aggressive CMS spending program for DME, the overall savings from every dollar spent by CMS results in a savings of $41.76 for mobility DME; $23.72 for oxygen therapy; and $24.48 for CPAP therapy.

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[18] The availability of new and more accurate data since the publication of the original study has allowed the simplification of elements of the original model.

[19] See Note 7.

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[22] See Note 13.

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https://meps.ahrq.gov/data_stats/tables_compendia_hh_interactive.jsp?_SERVICE=MEPSSocket0&_PROGRAM=MEPSPGM.TC.SAS&File=HCFY2014&Table=HCFY2014_CNDXP_D&_Debug=, adjusted to 2016 using CPI and CMS population data.

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