

The HomePod's cost savings arise from three sources: reductions in the number of hospital admissions, a reduction in the number of home visits by the GP, and a reduction in the number of appointments at the GP surgery -- all by increasing the stability of the patient and enabling a more rapid response to a destabiling event.

This document shows the calculation behind Telehealth Solutions' estimate that the HomePod could save the UK over £70 million in two years, from the cost of COPD patient care alone -- not including potential cost savings for a number of other chronic conditions: heart failure, stroke, diabetes and more.

This appendix demonstrates the saving created by reducing hospital admissions for COPD , but if the additional benefits from reduced home visits and applying the Home Pod to other care pathways were taken into account, benefits would be multiplied by at least three times.

From the tables below, the average cost of a single hospitalisation is £2,426.

The cost of the HomePod is £1,550 in the 1st year, and £250 per year thereafter.

Assuming that HomePods are given to patients who are expected to have 2 or more hospital admissions a year, we would estimate a net saving of approximately £2,800 per HomePod user in the first year, and £4,600 in subsequent years.

That's nearly a 3:1 return on investment in the first year, and a 17:1 return on investment each year thereafter.

The net saving for the most unstable COPD patients could scale up by 10,680 (the number of frequent hospital attendees) multiplied by the per unit savings; £30 million in the first year, and over £70 million for the first two years.

Total Number of COPD Sufferers in UK	900,000
Estimated Number of COPD Sufferers with more than 2 hospitalisations per year	10,680
Cost per day from Costs and Outcomes of an Extra-Care Housing Scheme in Bradford	£231
Range of hospital stay bed-days from British Lung Foundation briefing September 2006	9-12
Average number of bed-days, based on 9-12 Range estimated by British Lung Foundation	10.5
Cost of Hospitalisation, taking the above into account	£2,426

Below details the distribution of COPD sufferers according to severity. The Global initiative for chronic Obstructive Lung Disease (GOLD) classifies COPD sufferers into five 'stages', from zero to four, with four being the most debilitating, and zero being the least. We've extrapolated that distribution, to estimate how many sufferers of each stage there might be in the UK.

	Figures from Ekberg-Aronsson et al			Estimated by Telehealth Solutions	
	Men (n)	Women (n)	Total (n)	Distribution of sufferers (%)	Estimated population in UK (n)
Total	2962	887	3849	100%	900,000
GOLD 0	318	175	493	13%	115,000
GOLD 1	1443	336	1779	46%	416,000
GOLD 2	1010	316	1326	34%	310,000
GOLD 3	149	48	197	5%	46,000
GOLD 4	42	12	54	1.4%	13,000
GOLD 3+4			251	6.5%	59,000

GOLD 3 and 4 have some of the highest rates of hospitalisation, and stand to benefit most from telehealth. Above, we've highlighted those stages, and given their combined total.

We used the proportion of GOLD stage 3 and stage 4 patients who had an admission in a 12 month period, and the proportion of those who might have a repeat admission, to estimate the fraction that had 2 or more admissions in a 12-month period.

Based on the telehealth's researched ability to reduce hospital admissions, and the typical £2,400 cost per hospital admission, we've estimated the aggregate cost saving created by using HomePods in COPD care.

COPD sufferers hospitalised in 12 month period by disease severity (%) from Vestbo et al	COPD sufferers in UK with at least one hospitalisation per year (n)	COPD sufferers who have a hospital readmission in 1 year (%) from Gudmundsson et al	COPD sufferers in UK with 2 or more hospitalisations per year (n)	Total hospital admissions avoided	Cost Saving Per Admission Avoided	Aggregate 1st Year Cost Saving	Aggregate 2 Years' Cost Saving	
GOLD III	24.00%	11,040	60%	6,624	9,274	£2,426	£24 million	£48 million
GOLD IV	52.00%	6,760	As above	4,056	5,678	As above	£15 million	£30 million
Total	-	17,800	-	10,680	14,952	-	£39 million	£78 million

Calculations based on a 70%

COPD References:

1. Ekberg-Aronsson et al, 'Mortality in GOLD stages of COPD and its dependence on symptoms of chronic bronchitis' , 2005, <http://respiratory-research.com/content/pdf/1465-9921-6-98.pdf>
2. Vestbo et al, 'One-year exacerbation frequency and treatment in the ECLIPSE study cohort', 2009 http://www.ersnet.org/learning_resources_player/abstract_print_09/files/318.pdf
3. Gudmundsson et al, 'Risk factors for rehospitalisation in COPD: role of health status, anxiety and depression', 2005, <http://erj.ersjournals.com/content/26/3/414.abstract>

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1. Capomolla, 2004, RCT, http://eurheartjsupp.oxfordjournals.org/content/6/suppl_F/F91.full
2. Jerant, 2004, RCT, <http://www.ncbi.nlm.nih.gov/pubmed/12749524>