

What is the economic burden of delayed axial spondyloarthritis diagnosis in the UK?

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INTRODUCTION

Timely diagnosis of axial spondyloarthritis (axial SpA) remains challenging and delays result in harmful consequences. No studies have evaluated the cost of delayed axial SpA diagnosis in the UK. This study aims to develop an economic model to determine the annual cost of delayed diagnosis, adopting both NHS (UK) and societal perspectives.

METHODS

We developed a Markov economic model (See figure 1) to estimate the costs of delayed axial SpA diagnosis in the UK. The cohort of patients within the model comprised a mixed population (cohort size: 1,000 patients, 64% males), with a mean age of symptom onset of 26 years. The model captured the resources used and costs related to diagnosing and managing axial SpA symptoms until the disease was diagnosed. The related costs were comprised of NHS costs (e.g., healthcare visits, medical tests) and societal costs (e.g., out-of-pocket expenses, productivity losses).

Table 1. Nationwide total cost of delaying axial SpA diagnosis based on axial SpA prevalence.

Results	Total cost - Modelled	Total cost – NASS pop*	Prevalence of 0.3% Total cost – UK adult pop**	Prevalence of 1.2% Total cost – UK adult pop**
DSA	£23,104.17	£4,236,794,775	£3,115,805,703	£12,463,222,813
PSA	£24,025.06	£4,431,645,007	£3,259,101,637	£13,036,406,549
95% LCI	£14,568.52	£2,703,455,437	£1,988,163,769	£7,952,655,079
95% UCI	£36,950.02	£6,595,614,347	£4,850,518,822	£19,402,075,288

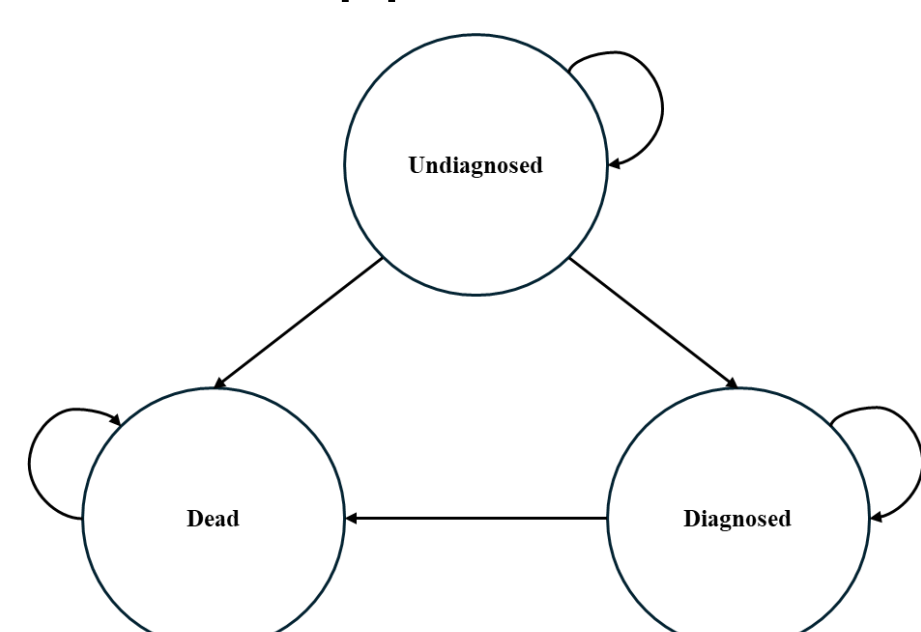
* NASS estimate population: 220,000 patients

** UK adult population (2022): 53,930,490

DSA: deterministic sensitivity analysis, LCI: low confidence interval, pop: population,

PSA: probabilistic sensitivity analysis: UCI: upper confidence interval

Figure 1. Markov economic model



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Figure 3. Graphical representation of economic results per patient and global UK economy

RESULTS

Our economic analysis shows the cost of delayed axial SpA diagnosis is substantial and falls mainly on the individuals (see figure 4) concerned in the form of productivity losses, out-of-pocket medical expenses, non-prescribed drug expenses, and travel costs to healthcare services. These costs are higher in younger patients but remain substantial in older groups (figure 2).

With a symptom onset at the age of 26 and an average time to diagnosis of 8.5 years, we estimate that the cumulative cost of delayed diagnosis per person living with axial SpA is £193,512 (95% CI: 108,769-306,789). The total annual cost that accrues to delay before the diagnosis of axial SpA in the UK was £3.1 billion and £12.5 billion, based on a prevalence of 0.3% (ASAS classification criteria) and 1.2% (ESSG classification criteria), respectively (Table 1).

Our results corroborate findings from other studies, showing that patients with a late diagnosis of axial SpA had higher costs and a reduced capability for work (e.g. reduced hours or unable to maintain a job).

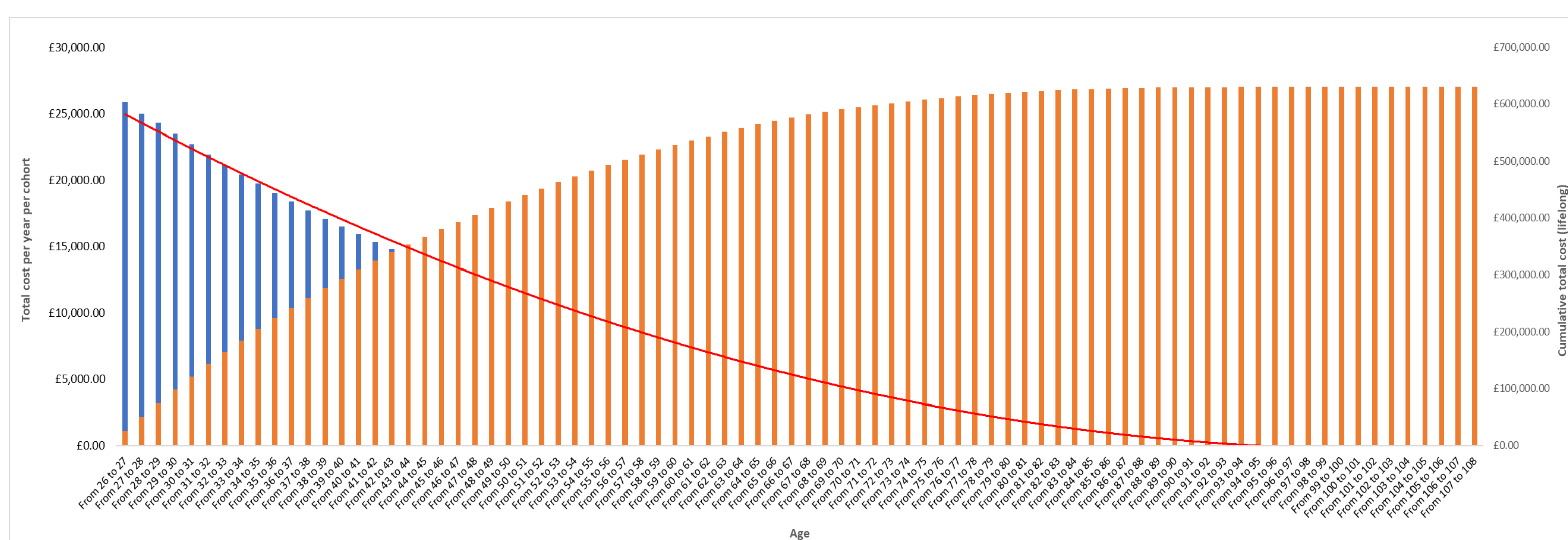


Figure 2. Cost per year and cumulative costs (lifetime)

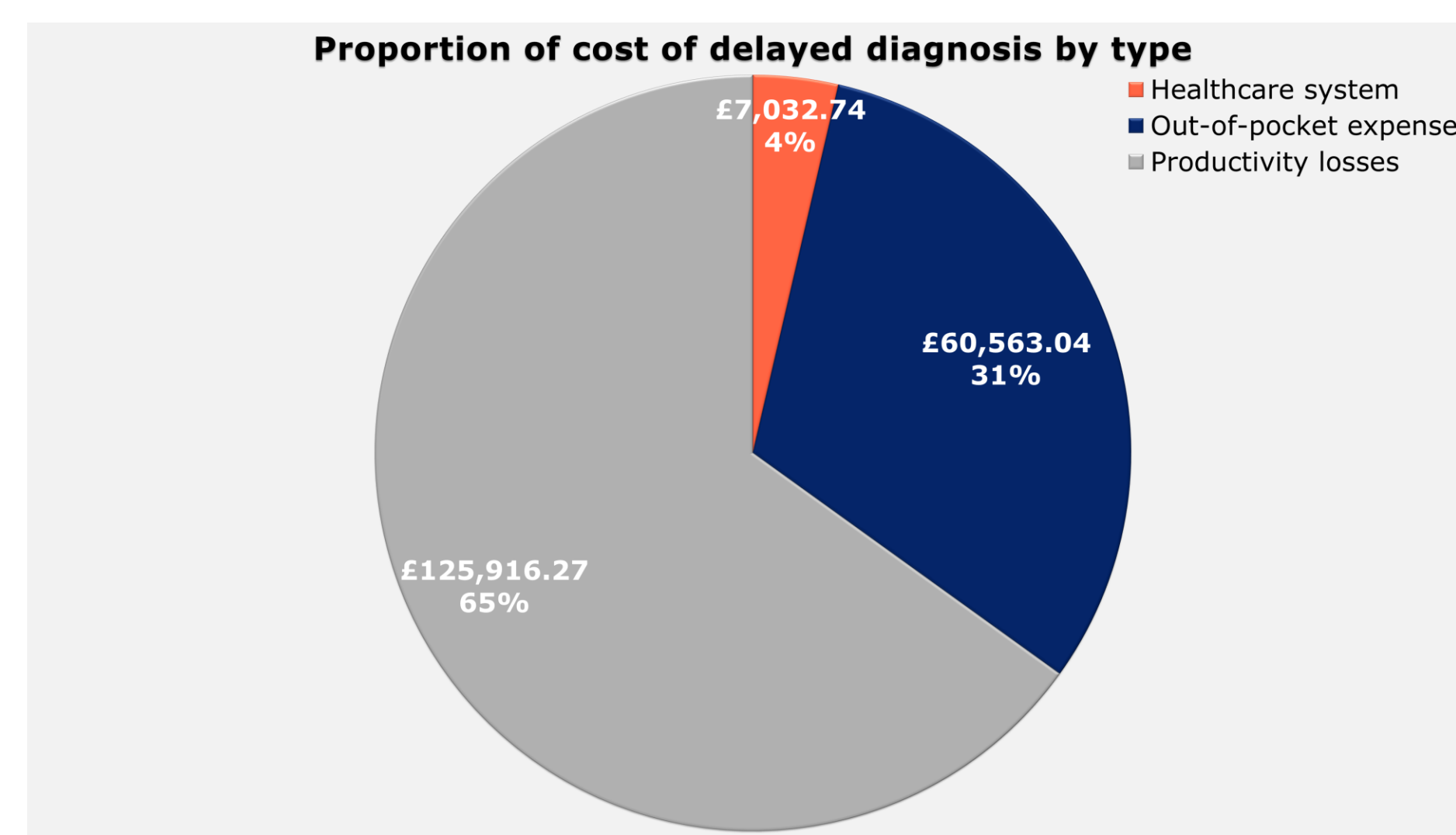


Figure 4. Proportion of cost of delay to diagnosis split by category

CONCLUSION

To our knowledge, this is the first UK-specific study and the first internationally to develop an economic analysis to determine the annual cost of delayed diagnosing axial SpA, adopting both NHS and societal perspectives.

Delayed axial SpA diagnosis is associated with high costs for the healthcare system and society, mainly due to productivity losses. This highlights the importance of early diagnosis of axial SpA to reduce the extensive financial burden on the healthcare system, people with the condition, and society.

Earlier diagnosis is essential in order to reduce healthcare needs, improve resource utilisation, and enhance the quality of life for people living with axial SpA.