

## DYSPEPSIA MANAGEMENT

# Clinical and economic consequences of dyspepsia in the community

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Dyspepsia is a common problem where many sufferers do not seek healthcare. The clinical impact of the condition in the community and the economic costs were assessed using data from a large cross sectional survey. Dyspepsia may be costing society £1 billion each year in the UK. Thus dyspepsia is a huge clinical and economic burden and cost effective management strategies and treatments are urgently required.

there is an effective intervention for a symptom or disease, then the proportion of the population that would benefit from this should be identified. Resource implications of the intervention should also be evaluated so that the health service can use this information to provide cost effective healthcare for those most likely to benefit.

Dyspepsia is a good example of this concept, as it is a common problem and many sufferers do not seek healthcare. The purpose of this review is to define the extent of the problem by quantifying the clinical and economic burden of dyspepsia in the community using data from a large cross sectional survey.

### SUMMARY

Dyspepsia is very common, with a point prevalence of 25–40%; however, many sufferers do not seek healthcare. To assess the clinical impact of the condition in the community, 8330 individuals between the ages of 40 and 49 years, randomly selected from 36 primary care centres, were interviewed using a validated dyspepsia questionnaire. Quality of life was assessed using the psychological general well being (PGWB) index. In this survey, 3172 (38%) individuals had dyspepsia and their PGWB scores were significantly lower (mean 98.7 (SD 5.8)) than those in the group without dyspepsia (106.4 (13.6);  $p < 0.0001$ , Mann-Whitney U test). To assess the economic costs of dyspepsia in the community, information on time taken off work and the use of over the counter (OTC) medications was collected for 8473 individuals participating in the Leeds HELP study. Within this population, dyspepsia was costing society £21 per person per year. If this is representative of the population as a whole, dyspepsia is costing society £1 billion each year in the UK. To establish the costs to the health service, 5056 primary care notes were reviewed for 1992–1994 to collect data on the costs of clinician time, endoscopies, and dyspepsia medications. Within this population, dyspepsia was costing £11.25 per person per year, which if representative gives a total cost to the health service of £500 million each year in the UK. Thus dyspepsia is a huge clinical and economic burden and cost effective management strategies and treatments are urgently required.

### INTRODUCTION

Traditionally, medicine has focused on providing care for patients who present to a doctor, with the implicit assumption that those not seeking help are not in need of healthcare. This approach has been challenged over the latter half of this century with the understanding that many individuals with symptoms do not seek medical assistance. The reasons for this are unclear but if

### CLINICAL BURDEN OF DYSPEPSIA IN THE COMMUNITY

Dyspepsia is very common, with surveys reporting a point prevalence of 25–40%.<sup>1–3</sup> This would only be important if dyspepsia resulted in a reduction in the length or quality of life. Unfortunately, although the usual causes of dyspepsia are rarely fatal, it may be associated with a reduction in quality of life. The problem is that while mortality values are easy to obtain, quality of life is a much more complex measure.

There are two types of instrument that attempt to assess well being: disease specific and generic. The advantage of disease specific questionnaires is that particular features of the disease relating to quality of life can be addressed and quantified. The disadvantage of this approach is that the instrument is specific for the condition and results cannot be compared with other diseases. Generic questionnaires measure broader dimensions of well being, such as “distress” and “disability”, which are common to most diseases. These instruments can be used to compare the impact that different disorders have on quality of life although they may be less sensitive to change than disease specific measures.

Generic and disease specific instruments have been used to evaluate the quality of life of dyspeptic patients referred for endoscopy.<sup>4–6</sup> These patients were found to have a lower quality of life than the normal population but, as symptoms are likely to be more severe in such patients, the results may not be applicable to the community. However, as part of a larger trial investigating the medical benefits and health economics of *Helicobacter pylori* eradication in general practice (the Leeds HELP study), we were able to assess the

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**Abbreviations:** OTC, over the counter; PGWB, psychological general well being.

**Table 1** Cost of dyspepsia to society in a cross sectional survey of 8473 randomly selected individuals

Variable	No of individuals (%)	Total cost over 2 years (£)	Cost per person per year (£)
OTC antacids	3328 (39)	30 000	1.77
OTC H <sub>2</sub> receptor antagonists	314 (4)	22 800	1.35
Time off work	188 (2)	303 600	17.92

OTC, over the counter.

association between dyspepsia and quality of life in a cross sectional survey of the community. A generic questionnaire was used so that the impact of dyspepsia on quality of life in the community could be compared with that of other gastrointestinal and non-gastrointestinal diseases.

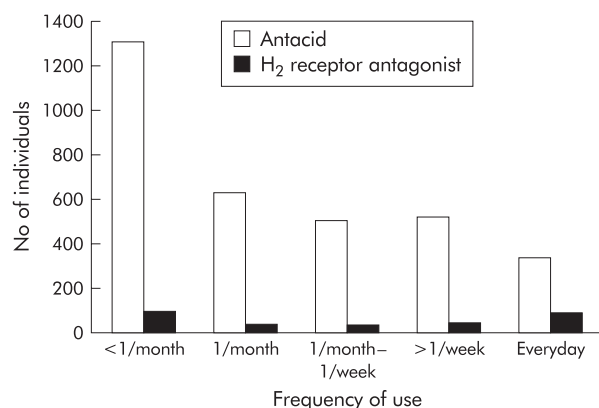
A total of 32 929 individuals between the ages of 40 and 49 years were randomly invited from 36 primary care centres to participate in the study; 8330 (25%) were eligible and agreed to take part. A research nurse then interviewed participants using a validated dyspepsia questionnaire,<sup>6</sup> and quality of life was assessed using the psychological general well being (PGWB) index. The PGWB measures six domains of quality of life: anxiety, depressed mood, positive well being, self control, general health, and vitality. A higher score indicates a better quality of life, and the usual population score is slightly higher than 100.<sup>7</sup> In this survey, 3172 (38%) individuals had dyspepsia and their PGWB scores were significantly lower (mean (SD), 98.7 (5.8)) than those in the group without dyspepsia (106.4 (13.6);  $p < 0.0001$ , Mann Whitney U test). The difference remained after adjusting for employment status, social class, sex, car ownership, smoking, marital status, and education using a linear regression model.<sup>8</sup> The fall in PGWB score is similar to that seen in patients with mild heart failure and climacteric women,<sup>9</sup> suggesting that dyspepsia is an important health problem to the community.

### ECONOMIC BURDEN OF DYSPEPSIA IN THE COMMUNITY

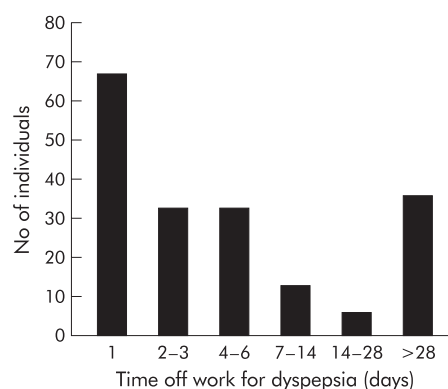
Investigations and treatments for dyspepsia continue to become more sophisticated and expensive. Resources however are limited and healthcare decision makers are increasingly under pressure to contain costs. The costs that should be addressed depend on the perspectives being taken. The most appropriate and wide ranging perspective is that of society as a whole. Thus governments are interested in the loss of productivity that dyspepsia causes. Individuals may be concerned with their loss of earnings but are also concerned with their loss of leisure time, and costs of travelling for treatment and of OTC medications. Healthcare purchasers on the other hand are more concerned about the cost of drugs, investigations, and clinician time. The cost of dyspepsia will therefore vary according to which perspective is being taken.

#### Cost of dyspepsia from a societal perspective

Accurately estimating the overall cost of dyspepsia to society is a difficult task. Information in this area is limited as most of the data needed are not routinely obtained. We have therefore collected information on the time taken off work and the use of OTC medications for 8473 individuals participating in the Leeds HELP study. The proportion of those taking time off work because of dyspepsia and the use of OTC antacids and H<sub>2</sub> receptor antagonists for dyspepsia are summarised in table 1. The use of drugs and time taken off work were both positively skewed, with most events occurring infrequently (figs 1, 2). This represents a problem when estimating the cost of loss of productivity. Traditionally, the cost has been taken as the individual's salary but this may result in an overestimate when



**Figure 1** Frequency of over the counter medication use in the Leeds HELP study.



**Figure 2** Days off work for dyspepsia in the Leeds HELP study.

only a small amount of time from work is lost. Colleagues can often perform additional duties for short periods with individuals completing any outstanding work on their return. To reflect this, we have arbitrarily taken the cost of loss of productivity to be the UK legal minimum wage (£4 per hour). Time off work still represents a huge financial burden (table 1) and, overall, dyspepsia is costing society £21 per person per year. This is probably an underestimate as it does not include the cost to patients of travelling to obtain healthcare and their loss of leisure time. Nevertheless, if this sample of 40–49 year olds is representative of the population as a whole, then dyspepsia is costing society almost £1 billion each year in the UK.

#### Cost of dyspepsia from a health service perspective

Data on healthcare consumption are often routinely collected and the cost of dyspepsia to the health service can be measured using a “top down” or “bottom up” approach. The “top down” method uses national values for endoscopy rates and drug prescriptions for dyspepsia and estimates the proportion of primary and secondary care consultations that relate to dyspepsia. This approach reflects national resource

**Table 2** Cost of dyspepsia to the health service in a primary care note review of 5056 individuals, 1992–1994

Variable	No of individuals (%)	Total cost over 2 years (£)	Cost per person per year (£)
GP visits	763 (15)	35 200	3.48
Medication*	708 (14)	51 000	5.04
Endoscopy	154 (3)	27 600	2.73

GP, general practitioner.

\*H<sub>2</sub> receptor antagonists and proton pump inhibitors.

consumption but may be inaccurate as it includes endoscopies performed on asymptomatic patients (for example, for the investigation of anaemia) and the occasional drug prescription that is not for dyspepsia (for example, proton pump inhibitors as prophylaxis for high risk users of non-steroidal anti-inflammatory drugs). The “bottom up” method identifies dyspepsia costs from a survey of individual patients and multiplies this value to reflect the national population. The method is less likely to include inappropriate endoscopies and drug prescriptions but local fluctuations in medical practice can give an inaccurate estimate of national resource use. However, if both methods give similar results, then the values can be considered robust.

We have estimated the “bottom up” cost of dyspepsia to the health service as part of the Leeds HELP study. A total of 5056 primary care notes were reviewed in 1994 for the previous two years. The costs of clinician time, endoscopies, and dyspepsia medications are summarised in table 2. The primary purpose of this review was to collect baseline data on the cost of dyspepsia in patients infected with *H pylori* and to compare this with the cost in uninfected individuals. The proportion of the sample infected with *H pylori* is approximately 50% and therefore not representative of the population. However, the influence of *H pylori* on dyspepsia is small,<sup>10</sup> and these data should provide a reasonable estimate. Thus annually, dyspepsia costs the health service £11.25 per person, and we estimate that if this is extrapolated to the UK population, more than £500 million is spent on dyspepsia each year. These figures are similar to calculations we have performed using the top down approach.<sup>11</sup> The costs relate to the period 1992–1994 and are likely to be even higher with the present increase in proton pump inhibitor prescriptions.

Strategies for managing dyspepsia have focused on attempting to reduce the endoscopy workload although in fact this procedure accounts for only a modest proportion of the total costs of dyspepsia. Future approaches to dyspepsia should also address the drugs used to treat symptoms, as this could potentially result in more cost savings.

## CONCLUSION

Dyspepsia is common in the population and is associated with a significant reduction in quality of life. Furthermore, dyspepsia causes a considerable financial burden to society. This could be improved if patients with dyspepsia are encouraged to visit a clinician. However, dyspepsia is already expensive to

the health service, and encouraging individuals to visit their doctor would only be appropriate if there are cost effective management strategies and treatments for the various diseases that cause dyspeptic symptoms. This is addressed by other articles in this supplement.

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