

Dysphagia

Difficulty swallowing (dysphagia) imposes a heavy burden on the NHS and patients, and can undermine nutrition, result in aspiration pneumonia, compromise quality of life, and hinder administration of solid medications. This article investigates the prevalence of dysphagia in the UK and underscores the importance of improving care for this common, often distressing, and sometimes life-threatening symptom.

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Swallowing is a biological function that we take for granted. Difficulty swallowing, or dysphagia, imposes a heavy burden both on the NHS and on patients. Dysphagia is increasingly common with advancing age, and complicates care across a range of conditions.

Dysphagia encompasses numerous symptoms, including pain when chewing or swallowing; dry mouth due to lack of saliva (xerostomia); coughing or choking; feeling as if there is an obstruction in the oesophagus; and regurgitation of undigested food. Swallowing problems can undermine nutrition, result in potentially life-threatening aspiration pneumonia, compromise quality of life, and hinder administration of solid medications.

This article uses NHS and other data sources to produce a first approximation of the prevalence of dysphagia in the UK and the impact on services. For example, the analysis suggests that around 4 million elderly people in England might not take solid medicines as prescribed because of problems swallowing the formulations.

Dysphagia can emerge at any age, and may herald cancer or one of several other serious diseases. Indeed, local protocols and procedures should ensure that health-care professionals always refer, for urgent further

investigation, patients of any age that report difficulties swallowing food.¹ Hospital Episode Statistics for outpatients, available from 2003, show that attendances for dysphagia peaked in 2006–07, when dysphagia

accounted for one in every 500 appointments. Figure 1 and table 1 show the number of appointments for dysphagia over the past 5 years.

Figure 2 shows that the number of admissions for dysphagia as

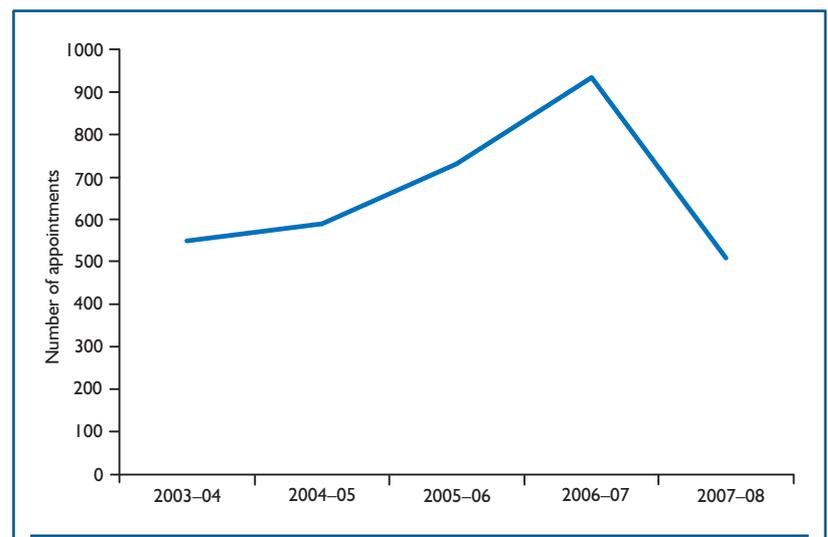


Figure 1: Time trends in outpatients' appointments for dysphagia

	First appointment	Subsequent appointment	Total
2003-04	404	143	547
2004-05	412	174	586
2005-06	469	262	731
2006-07	528	388	934
2007-08	334	176	510

Table 1: Time trends in outpatients' appointments for dysphagia

primary diagnosis increased steadily from 19,077 finished episodes in 1998–99 to 26,647 in 2007–08. An episode is defined as a period of continuous admitted care under one consultant. If responsibility for a patient's care is transferred to another consultant that is counted as a separate episode, and so the total for finished episodes is higher than that for admissions. The number of bed days rose and then declined over the same time. The median waiting time (from decision to admit the patient to their admission to hospital) in 2007–08 was 14 days, possibly reflecting dysphagia's status as an alarm symptom for serious disease. The mean length of stay was 6.8 days. Dysphagia accounted for 48,302 bed-days.

Admissions for dysphagia occur across all ages: in 2007–08, 278 patients aged 0–14 years were admitted with problems swallowing, compared with 8881 patients aged 15–59 years. Nevertheless, dysphagia is especially common

among elderly patients. The median age at admission was 65 years and people older than 75 years accounted for 35% of admissions. Between 30%² and 60%³ of residents of nursing homes have dysphagia, with 176,000 nursing beds registered in English care homes.⁴ Therefore, between 52,800 and 105,600 people in nursing homes in England could have dysphagia.

Dysphagia is also common among people living in the community, as two surveys illustrate. One survey⁵ conducted in 2005 reported that 60% of patients presenting to community pharmacists experienced problems swallowing tablets or capsules. Manipulating certain formulations, such as modified-release preparations, can undermine clinical efficacy, increase the risk of adverse events, and shift liability from the manufacturer to the clinician if a health-care professional suggests opening a capsule or crushing a tablet.⁵ Furthermore, 68% of

patients admitted opening a capsule or crushing a tablet to swallow their medication, while 69% reported non-adherence because medications were difficult to swallow.⁶ Non-adherence undermines outcomes and increases the burden on health services.

A follow-up survey⁷ in 2008 showed broadly similar results: 49% of elderly people presenting to community pharmacists had problems swallowing tablets or capsules, 53% opened a capsule or crushed a tablet to swallow their medication, and 56% reported non-adherence because medications were hard to swallow.⁷ Consensus guidelines suggest that health-care professionals should consider alternative formulations, such as liquids, before suggesting that patients manipulate the preparation.⁸

Table 2 gives an estimate of the number of elderly people in England who do not take solid formulations because of difficulty swallowing. The data come from the final mid-2006 population estimates for primary-care organisations published by the Office of National Statistics.⁹ In the absence of age-specific prescribing data for each authority, table 2 uses the mid-point of the age-standardised rates for self-reported longstanding illness in the 2005 Health Survey for England in men and women¹⁰ as a surrogate for prescription rates. The estimate of the proportion of patients that do not adhere uses the mid-point of the two community pharmacy surveys mentioned above.

Because the age boundaries of the various sources of data are not coterminous, the estimate is a first approximation. However, the figures suggest that some 4 million elderly people in England do not comply with solid formulations because of swallowing difficulties. Studies are needed to ascertain

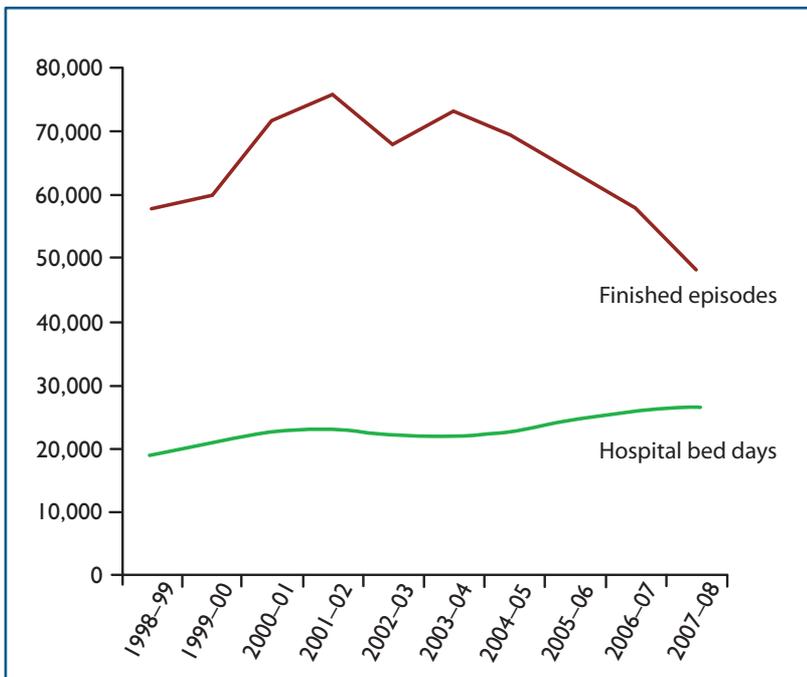


Figure 2: Time trends in number of finished episodes of dysphagia and number of hospital bed days for dysphagia

the proportion of patients whose swallowing difficulties undermine clinical outcomes. Nevertheless, the size of the affected population suggests that enquiring about difficulties swallowing medicines, and considering alternative formulations, as outlined in consensus guidelines,⁵ should be part of best prescribing practice. Making this enquiry is especially important because difficulty swallowing may be symptomatic of several diseases that warrant urgent referral.

The rising frequency of dysphagia with increasing age arises from the interaction of several factors. First, gastrointestinal motility alters as part of physiological senescence. One study found that only 16% of elderly patients showed normal swallowing when measured objectively, although none had reported dysphagia or problems

eating.¹¹ Second, several commonly prescribed drugs may either influence gastrointestinal motility or induce xerostomia. These include some antidepressants and other agents with anticholinergic actions, opioids, and calcium antagonists.¹²

Third, several diseases associated with dysphagia, including certain carcinomas, stroke, and advanced Alzheimer's disease, become more common with advancing age. For example, almost half of patients with Parkinson's disease show some degree of dysphagia,³ which seems to arise from impaired muscle control. Since around 120,000 individuals have Parkinson's disease in the UK,¹³ this disorder alone could account for up to 72,000 cases of dysphagia. Each general practitioner cares for, on average, three patients with Parkinson's disease,¹⁴ one or two of whom will probably have dysphagia.

Cancer and dysphagia

Certain malignancies (eg, those of the throat, stomach, and oesophagus) as well as some cancer treatment regimens can induce dysphagia. As might be expected anatomically, dysphagia is common, often debilitating, and potentially life-threatening in patients who undergo chemoradiotherapy for cancers of the head and neck.

One study noted that during an average follow-up of 17 months, 45% of patients who received chemoradiotherapy for locally advanced head and neck cancer developed severe dysphagia, most of whom required tube feeding for more than 3 months.¹⁵ In another study, 84% of disease-free survivors of nasopharyngeal carcinoma reported swallowing difficulties, which markedly undermined health-related quality of life.¹⁶ As

Region	Elderly population*	Proportion with long-standing illness	Estimated number taking medicine	Estimated number not taking medicine due to swallowing difficulties‡
North east	500,800	76.0%	380,600	237,900
North west	1,295,300	77.0%	997,400	623,400
Yorkshire and the Humber	962,800	79.0%	760,600	475,400
East Midlands	833,700	74.0%	616,900	385,600
West Midlands	1,027,400	71.5%	734,600	459,100
East of England	1,098,400	69.0%	757,900	473,700
London	1,034,800	63.5%	657,100	410,700
South-east coast	881,000	63.0%	555,000	346,900
South-central England	709,000	70.0%	496,300	310,200
South West	1,119,000	66.0%	738,500	461,600

Table 2: First-approximation estimates of the number of elderly people that did not take medicines due to difficulty swallowing

*Age 65 years for men, 60 for women. ‡Based on mid-point of pharmacy studies.

a final example, 50.6% of head and neck cancer patients treated with surgery and radiotherapy or chemoradiotherapy showed dysphagia when evaluated an average of 28.5 months after surgery.¹⁷

According to Cancer Research UK, doctors diagnose around 7800 cases of oesophageal cancer¹⁸ and 7980 cases of stomach cancer¹⁹ each year. Around half of these patients have dysphagia—around 8000 people each year.¹

Prescribers need to ascertain local disease patterns to meet their community's needs. For example, the incidence of oesophageal cancer is highest in western Scotland, urban north-west England, and north Wales. This pattern seems to reflect the impact of lifestyle factors (eg, nutrition and smoking) associated with deprivation. In England and Wales, rates of oesophageal cancer are around 30% higher in the most deprived groups. Among Scottish men, the risk of oesophageal cancer is two-fold higher in the most deprived areas.²⁰ Rates of stomach cancer also vary across the UK, with higher rates in the Midlands and north of England, and lower rates in the south and east of England. Rates are above average in Scotland. Again, this geographical distribution appears to reflect the influence of socioeconomic deprivation.²¹

Stroke and dysphagia

Dysphagia is also a common, life-threatening complication after stroke. In some cases, dysphagia leads to aspiration of food, which encourages the growth of bacteria, leading to pneumonia. Indeed, the risk of pneumonia is almost 12-fold higher (relative risk 11.56) among stroke survivors with dysphagia who exhibit aspiration. However, the

recorded prevalence of dysphagia among stroke survivors varies depending on the diagnostic method: 37–45% with cursory screening; 51–55% with clinical testing; and 64–78% with instrumental testing.²²

Tables 3–5 show a first-approximation of the prevalence of dysphagia among stroke survivors across the UK. The upper and lower estimates reflect variations in prevalence, which vary depending on the time of assessment, the diagnostic method used, and case mix. The estimates in table 3 assume that between 22% and 65% of acute stroke patients develop dysphagia.²³ However, about half of patients with dysphagia die or recover spontaneously in the 14 days after stroke. The remainder have swallowing deficits that can significantly impair patients' ability to perform the normal activities of daily living, hinder recovery, and undermine quality of life.²⁴ Therefore, in tables 3–5, the lower boundary is 11%, and the upper limit is 32%.

Dementia and dysphagia

Dysphagia is also common among people with advanced Alzheimer's disease. A report for the Alzheimer's Society estimated that around 1.1% of the UK population has dementia. However, dementia is generally more common in rural and coastal areas than in urban and metropolitan authorities. For example, the prevalence varies from 0.51% in Newham to 2.09% in Torbay.²⁵ Such variations seem to reflect the population's age-structure. Doctors diagnose approximately 180,000 new cases of dementia each year in England and Wales, and no definitive evidence shows any variation in incidence

across the UK.²⁶

Overall, the report estimated that 683,597 people in the UK have dementia. Of these, 62% (416,967) have Alzheimer's disease, which is more common in women (67% of dementia cases are Alzheimers disease) than among men (55% of dementia cases are Alzheimer's disease). Vascular and mixed dementia account for 31% of dementia cases among men. This compares with 25% of cases in women and 27% overall.²⁵ Furthermore, the burden imposed by dementia is set to rise by 38% in the next 15 years, and by 154% over the next 45 years.²⁵

Many patients with dementia have swallowing problems. For example, 20% of vascular dementia patients experience dysphagia.²⁷ This suggests that around 37,000 people suffer dysphagia due to vascular and mixed dementia in the UK. Indeed, almost all patients with degenerative central nervous system disease develop some degree of dysphagia. Typically, it occurs early in the course of Alzheimer's, amyotrophic lateral sclerosis and Parkinson's disease, and its severity may not reflect directly the severity of the neurological disease.²⁸ However, dysphagia is particularly common and problematic in advanced dementia. The Alzheimer's society suggests that 12.5% of patients with late onset disease have severe dementia, equivalent to 83,801 people across the UK,²⁵ which offers a first approximation of the burden of illness imposed by dysphagia in this population.

Conclusion

Against this background, individual clinicians, primary-care organisations, and secondary-care Trusts should consider

Region	Number of stroke patients*	Number of stroke patients with dysphagia	
		Lower estimate	Upper estimate
England	782,733	86,101	250,475
Norfolk, Suffolk, and Cambridgeshire	36,009	3961	11,523
Bedfordshire and Hertfordshire	21,844	2403	6990
Essex	21,723	2390	6951
North-west London	17,929	1972	5737
North-central London	12,322	1355	3943
North-east London	15,050	1656	4816
South-east London	16,658	1832	5331
South-west London	13,349	1468	4272
Northumberland, Tyne and Wear	30,109	3312	9635
Country Durham and Tees Valley	21,823	2401	6983
North and East Yorkshire and Northern Lincolnshire	29,401	3234	9408
West Yorkshire	34,098	3751	10,911
Cumbria and Lancashire	36,221	3984	11,591
Greater Manchester	40,617	4468	12,997
Cheshire and Merseyside	42,482	4673	13,594
Thames Valley	29,734	3271	9515
Hampshire and Isle of Wight	26,969	2967	8630
Kent and Medway	22,975	2527	7352
Surrey and Sussex	41530	4568	13,290
Avon, Gloucestershire, and Wiltshire	36,610	4027	11,715
South-west Peninsula	32,710	3598	10,467
Dorset and Somerset	24,677	2714	7897
South Yorkshire	25,111	2762	8036
Trent	46,397	5104	14,847
Leicestershire, Northamptonshire, and Rutland	21,198	2332	6783
Shropshire and Staffordshire	25,902	2849	8289
Birmingham and the Black Country	33,686	3705	10,780
South-west Midlands	25,599	2816	8192

Table 3: First-approximation estimate of stroke patients with dysphagia in England

implementing protocols and procedures that ensure the adequate management of patients with swallowing problems. However, managing overt dysphagia, such as problems swallowing food, often requires a multi-disciplinary approach,²⁸ which clinicians could encourage their local management teams to facilitate. Prescribers should address the more common problems posed by difficulty swallowing solid medication by following consensus guidelines regarding the choice of formulation.⁵

All clinicians should maintain a high index of suspicion for dysphagia, which is an alarm symptom for certain cancers, such as malignancies of the mouth, throat, or oesophagus, and other

gastrointestinal disorders. Therefore, enquiring about swallowing difficulties should be a standard part of the assessment of older people. Clinicians should consider asking about swallowing difficulties opportunistically during each consultation with an older person. Such questioning will also help to identify patients who have problems swallowing solid medications.

Despite dysphagia's well-established status as an alarm symptom, in the two studies performed in community pharmacy, a third of patients and carers reported that their health-care professional never asked about difficulties swallowing before issuing a prescription. Recollection bias probably

compromises the accuracy of these results; nevertheless, the relatively high proportion suggests that health-care professionals do not regularly enquire about swallowing difficulties. This lack of opportunistic surveillance probably contributes to a lack of awareness among many health professionals about the scale of the problem posed by dysphagia. The survey suggested that 42% of patients said that they do not inform a health-care professional if they do not adhere to their prescribed medication because of dysphagia.²⁹ As such, every clinician needs to remain alert for, and improve the care of, this common, often distressing, and sometimes life-threatening symptom.

Region	Number of stroke patients*	Number of stroke patients with dysphagia	
		Lower estimate	Upper estimate
Scotland	86,432	9508	27,658
Argyll and Clyde	7756	853	2482
Ayrshire and Arran	7133	785	2283
Borders	2206	243	706
Dumfries and Galloway	3008	331	963
Fife	5974	657	1912
Forth Valley	4587	505	1468
Grampian	7065	777	2261
Greater Glasgow	16764	1844	5364
Highland	3679	405	1177
Lanarkshire	8521	937	2727
Lothian	11,221	1234	3591
Orkney	174	19	56
Shetland	32	4	10
Tayside	8172	899	2615
Western Isles	140	15	45

Table 4: First-approximation estimate of stroke patients with dysphagia in Scotland

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Region	Number of stroke patients*	Number of stroke patients with dysphagia	
		Lower estimate	Upper estimate
Wales	54,031	5943	17,290
North Wales	11,817	1300	3781
Mid- and west Wales	20,803	2288	6657
South-east Wales	21,413	2355	6852

Table 5: First-approximation estimate of stroke patients with dysphagia in Wales