

# Reducing reconsultations for acute lower respiratory tract illness with an information leaflet: a randomized controlled study of patients in primary care

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## SUMMARY

**Background.** General practitioners (GPs) prescribe antibiotics to three-quarters of patients who consult with a lower respiratory tract illness (LRTi). In spite of this management, around a quarter of patients reconsult for the same symptoms within a month.

**Aim.** To investigate the impact of providing a simple leaflet regarding the natural history of lower respiratory tract symptoms on reconsultation rates for previously well adults presenting to their GP with an LRTi.

**Method.** Seventy-six GPs studied 1014 previously well adults presenting with an illness defined as an LRTi. Management was left to the GP's discretion. Half of the patients were randomly allocated to receive an information leaflet at the end of the consultation, blinded from the GP. The endpoint was reconsultation for the same symptoms within one month.

**Results.** Follow-up data was available for 1006 adults, of whom 182 (18%) reconsulted. Fewer patients who received the leaflet (75/505; 14.9%) returned to the surgery compared with those who did not (107/501; 21.4%;  $P = 0.007$ ). The same benefit was found for the 723 (72%) adults treated initially with antibiotics; 16% (60/369) in the leaflet group returned compared with 23% (81/354) in the no leaflet group ( $P = 0.02$ ).

**Conclusion.** Informing previously well patients about the natural history of LRTi symptoms is an effective strategy for reducing reconsultations, benefiting the patient and the GP; it is likely to reduce antibiotic prescriptions and future patient consultation habits.

**Keywords:** respiratory disorders; reconsultation; randomized controlled trials; prescribing habits; antibiotics.

## Introduction

THE commonest reason for general practitioner (GP) consultation is respiratory illness, usually labelled as an infection; its frequency has risen by 14% in the past 10 years.<sup>1</sup> GPs prescribe antibiotics to three-quarters of patients who present with an acute lower respiratory tract illness (LRTi), often influenced by patient pressure or the expectation of reducing reconsultation.<sup>2-4</sup> Despite

this, about a quarter of adults reconsult, most receiving a second, often more expensive, antibiotic.<sup>5,6</sup> We have investigated whether a patient information leaflet reduces reconsultation.

## Method

Seventy-six GPs were asked to recruit up to 16 consecutive, previously well adults (defined as adults aged 16 years or over who were not under supervision or treatment for an underlying disease) who consulted with an LRTi (defined as a new cough and at least one other LRT symptom, including sputum production, dyspnoea, wheeze, or chest pain, for which there was no other explanation). Management was left to the GP's discretion.

During the consultation, the GP completed a previously designed data sheet, recording details of the presenting illness and the GP's management.<sup>3</sup> At the end of the consultation, each patient received a sealed envelope with instructions to open it at home. Half of the envelopes were randomly allocated (in blocks of 16 and blinded from the GP) to include an information sheet describing the natural history of acute cough and respiratory symptoms, which we designed with the advice of the GP researchers and some patients (Box 1). Every envelope also contained a questionnaire and reply envelope as part of a separate study to assess the patient's views of their illness,<sup>7</sup> which also served to conceal information on leaflet allocation from the GP. GPs recorded whether the patients were seen again for the same symptoms within the four weeks following the index consultation.

Dear Patient,

We hope you find this information sheet will help you understand why your cough is troublesome, and what you can expect to happen.

*What does a cough mean?*

A cough is not a 'bad' thing: it is there for a reason. It helps defend your lungs by making sure that any secretions your tubes produce are coughed up, rather than settling in the lower lungs where they would cause trouble. Similarly, 'phlegm' or 'sputum' is there to act as a barrier to catch the dust and germs that we breathe in.

Because your cough is part of your body's defence mechanisms, it is likely to be the last symptom of your current illness to go back to normal.

The process of recovery, even with any treatment that your doctor may have prescribed, is likely to take up to two to three weeks to complete. Assuming you are otherwise feeling well, you need not worry if your cough and phlegm take this time to settle, especially if you are getting gradually better every day.

*Is there anything I should look out for?*

Should you find that you develop any new or worsening symptoms, or if you start to cough up any blood, it would be sensible to telephone the surgery and make an appointment for a further check.

**Box 1.** Patient guidelines for cough management.

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## Results

The 76 GPs entered 1014 eligible patients; 69 GPs entered between 10 and 16 patients, and seven GPs entered between six and nine. Follow-up data was available for 1006 patients; of the remaining eight patients, four had moved away and four had only been temporarily resident in the practice. Seven hundred and twenty-three patients (72%) received an antibiotic; the remaining 283 (28%) did not.

The results are summarized in Table 1. Of the patients studied, those patients who did (505) and did not (501) receive a leaflet were well matched, except that the symptoms of dyspnoea, wheeze, and chest pain were slightly more prevalent in the 'no leaflet' group.

Reconsultation in the following four weeks for the same symptoms was common; overall, 18% (182/1006) of patients returned. For the whole group, patients who received the leaflet had significantly fewer reconsultations for the same symptoms over the following month (14.9%) than those who did not receive a leaflet (21.4%); (Odds ratio [OR] = 1.56; 95% CI = 1.11–2.19;  $P = 0.007$ ). Stratified analysis revealed no confounding effect for the presence of LRT symptoms (Mantel-Haenszel weighted OR = 1.52; 95% CI = 1.10–2.11;  $P = 0.007$ ).

The relationship between the use of antibiotics and the effect of the leaflet on reconsultation is shown in Table 2. For the 723 patients who were treated with antibiotics, significantly fewer

patients receiving a leaflet reconsulted (60/369, 16%), compared with those (81/354, 23%) who did not receive the leaflet (OR = 1.53; 95% CI = 1.03–2.26;  $P = 0.02$ ). In the smaller group who were *not* prescribed antibiotics initially, the same trend for a reduction in reconsultations in the leaflet group was seen, but the difference was no longer significant.

## Discussion

In primary care, lower respiratory tract infection (LRTI) is a presumptive diagnosis made on history and examination. Few patients undergo any laboratory investigations.<sup>8</sup> There is clearly an inherent difficulty in defining LRTI where no infection is proven — a problem long recognized in primary care.<sup>9,10</sup> Consequently, in this study we have used a definition that reflects how the problem typically presents to GPs: a complex of cough and other lower respiratory symptoms, where there is no obvious alternative explanation and where infection may be suspected but rarely proven. This definition of LRTI is very similar to that previously used and validated in epidemiological and clinical studies.<sup>11,12</sup> In addition, we recruited only patients who were previously well, specifically excluding patients with conditions such as asthma and chronic pulmonary disease, which may affect the initial diagnosis and management and reconsultation rates.<sup>3,13</sup>

The GPs were asked to recruit *consecutive* patients who ful-

**Table 1.** Characteristics and outcome of previously well patients with lower respiratory tract illness who did or did not receive the information leaflet (numbers in parentheses are percentages unless otherwise indicated). (Only significant differences indicated.)

	Leaflet received ( <i>n</i> = 505)	Leaflet not received ( <i>n</i> = 501)
Initial Consultation		
Median age in years (range)	45 (16–88)	46 (16–89)
Male : female	39% : 61%	41% : 59%
Current smokers	155 (31)	162 (32)
Symptoms		
Median duration in days (interquartile range)	7 (4–14)	7 (5–14)
Cough: dry	115 (23)	124 (25)
clear sputum	130 (20)	88 (18)
discoloured sputum	287 (57)	289 (58)
Other lower respiratory symptoms (Dyspnoea, wheeze and/or chest pain)	310 (61)	344 (69) $P < 0.02$
Upper respiratory symptoms	282 (56)	249 (50)
Systemic symptoms	220 (44)	235 (47)
Signs on chest examination		
Clear	328 (66)	316 (64)
Generalized signs	107 (21)	116 (24)
Focal signs	47 (9)	51 (10)
Chest not examined	17 (4)	11 (2)
Antibiotics prescribed on first visit		
Number of patients	369 (73)	354 (71)
Reconsultations within 4 weeks		
Number who reconsulted	75 (14.9)	107 (21.4) $P = 0.007$
Total no. of further visits <sup>a</sup>	83	117
No. of antibiotic prescriptions given at 1st reconsultation	46/75 (61)	57/107 (53)
Total no. of antibiotic prescriptions given at first and second reconsultations (further visits)	51	62
Median days to reconsultation (interquartile range)	8.5 (6–14)	9.5 (6–17)

<sup>a</sup>Eight patients in leaflet group and 10 patients in no leaflet group reconsulted twice for LRT symptoms.

**Table 2.** Relationship between antibiotic prescriptions given at GP's discretion, reconsultation, and leaflet use. (Only significant differences shown.)

	Reconsulted (%)	Did not reconsult (%)	
Given antibiotic (723)			
Leaflet given (369)	60 (16)	309 (84)	<i>P</i> = 0.02
Leaflet not given (354)	81 (23)	273 (77)	
Not given antibiotics (283)			
Leaflet given (136)	15 (11)	121 (89)	
Leaflet not given (147)	26 (18)	121 (82)	
Whole group together			
Given antibiotics (723)	141 (19.5)	582 (80.5)	
Not given antibiotics (283)	41 (14.5)	242 (85.5)	

filled the entry criteria, but we cannot be certain if some patients were excluded either by their wish or that of the GP. However, the randomized study design should prevent this from making the result unrepresentative.

In this group of patients presenting to their GP for the first time in an episode of respiratory illness, we confirmed that antibiotics were prescribed to three-quarters, and that subsequent reconsultation for the same symptoms was common. Both findings confirmed our earlier studies of LRT illness and LRT infection.<sup>5,6</sup> We have previously reported on issues that influence both the GP's decision to prescribe and the patient's to reconsult.<sup>3,14</sup>

Our findings suggest that informing patients about the natural history of acute lower respiratory tract symptoms is an effective strategy for reducing the need for patients to return for a second consultation. Providing such a leaflet to a thousand patients consulting with an LRTi should save both patient and GP around 70 repeat visits and further antibiotic prescriptions. On a national scale, the savings for consultations and antibiotic prescriptions could be substantial. The recent National Study of GP Morbidity Statistics<sup>1</sup> recorded 2 900 000 annual consultations for acute bronchitis (i.e. acute LRTi in previously well adults) in this age group, which suggests that around 200 000 consultations might be saved by this cheap, simple, and quick strategy. In GP consultation costs alone, this amounts to a potential saving of £1.46 million,<sup>15</sup> as well as removing the need for extra antibiotic prescriptions and the inconvenience to patients of extra visits. The longer-term benefits may also be cumulative by modifying patient consultation habits for future mild respiratory illnesses. In an open comparative study, Little showed that patients who received an antibiotic for sore throat were more likely to consider consulting with future episodes than those who did not, even though antibiotics did not significantly influence resolution of local symptoms.<sup>16</sup>

Some patients who were given a leaflet did reconsult, but the period elapsing before their next consultation was similar to that for patients who reconsulted but who had not been given a leaflet. This suggests that the leaflet did not adversely delay representation of patients who still wished to see their GP again.

Because repeat consultations for acute respiratory symptoms are common, GPs are vulnerable to pressure to prescribe newer antibiotics at the initial contact as a potential solution to the problem of multiple consultations,<sup>5</sup> whereas discussion and education may be the safer and cheaper alternative. Overprescribing of antibiotics for respiratory illness is an important factor in the rise of antibiotic resistance and NHS prescribing costs.<sup>4,17</sup> This study did not assess the *value* of antibiotics in LRTi, although those prescribed antibiotics reconsulted more frequently (19.5%) than those who did receive antibiotics (14.5%). The leaflet reduced reconsultation in both groups. Expert opinion has stated

that antibiotics are rarely, if ever, indicated in otherwise fit adults with 'acute bronchitis',<sup>4</sup> and controlled studies also show little or no benefit for antibiotics in this situation.<sup>18</sup>

These results should encourage GPs to follow the advice first given 25 years ago that doctors should move towards educating, and away from prescribing, for acute respiratory symptoms.<sup>2</sup> Providing this in the form of a simple leaflet appears to be an investment that is effective and beneficial for patient and doctor.

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