Developing a measure for the appropriateness of prescribing in general practice
N Britten, L Jenkins, N Barber, C Bradley, F Stevenson

Objective: To explore the feasibility of using a broader definition of the appropriateness of prescribing in general practice by developing ways of measuring this broader definition and by identifying possible relationships between different aspects of appropriateness and patient outcomes.

Design: A questionnaire study of patients and general practitioners before and after study consultations, supplemented by data collected from patients’ medical records and telephone interviews with patients 1 week later.

Setting: General practices in the south of England.

Participants: 24 general practitioners and 186 of their consulting patients.

Main outcome measures: Unwanted, unnecessary, and pharmacologically inappropriate prescriptions; patients’ adherence.

Results: Before the consultation 42% of patients said they wanted or expected a prescription for their main problem. Prescriptions were written in two thirds (65%) of study consultations, and 7% of the patients had not been granted or expected beforehand. Doctors recorded that one in five prescriptions they wrote were not strictly indicated. Of the 92 independent assessments of these prescriptions, four were judged to be inappropriate and in 19 cases the assessors were uncertain. 41% of prescriptions written were wanted, necessary, and appropriate. Subsequently, 18% of patients for whom a prescription had been written were potentially non-adherent and 25% had worries or concerns about their medication.

Conclusion: The attempt to measure appropriateness of prescribing along the three dimensions of patients’, prescribers’, and pharmacological perspectives is both feasible and likely to yield valuable insights into the nature of general practice prescribing and patients’ use of medicines.

The appropriateness of prescribing in general practice is usually defined solely in pharmacological terms. Population based measures of prescribing appropriateness or quality are generally based on limited data (such as PACT data in England) which may not include diagnostic or other individualised information. Various instruments have been developed for measuring the appropriateness of prescribing at the individual patient level. The Medication Appropriateness Index (MAI) was based on a review of the literature and consists of 10 questions to be asked of any prescription recorded in a patient’s notes. These questions cover issues such as indication for the drug, efficacy, and interactions. Buetow and colleagues subsequently developed a method on the basis of an expert panel, an extensive literature review, and a two round Delphi consultation exercise. The resulting instrument consists of nine indicators which can be used to judge prescribing by general practitioners (GPs) on the basis of what is recorded in patients’ records. This instrument is known as the Prescribing Appropriateness Index (PAI). Neither of these instruments takes account of patients’ perspectives on the prescribing process.

In order to explore the value of these two instruments more broadly, they have been applied to data from a qualitative study of doctor-patient communication about prescribing. Most prescribing in this study was judged to be appropriate and was classified as such by these two instruments. However, it can be argued that in some cases their application would lead to misleading conclusions. Some prescriptions could be classified as appropriate where a detailed study of the circumstances of the prescription indicated that there were in fact problems.

Barber and Cribb have proposed a wider definition of the appropriateness of prescribing that also includes prescribers’ and patients’ perspectives, but this suggestion has not yet been developed empirically. Research comparing GP and patient perspectives has demonstrated the influence of the latter on prescribing decisions in primary care. It is also well established that a proportion of general practice prescriptions are not thought by the prescriber to be strictly necessary, and that some prescriptions are unwanted by the patients for whom they are prescribed. Any wider measure of appropriateness, which takes account of the ways in which medicines are actually used, needs to take these considerations into account. Population based measures of pharmacological appropriateness need to be supplemented by measures of clinical appropriateness and measures which include patients’ perspectives. One reason for taking a wider view of appropriateness is that it may provide a method for predicting patients’ subsequent use of medicines and potential or actual non-adherence. To be most useful, measures of the appropriateness of prescribing should help ensure effective use, minimisation of harm, and reduction of waste.

This study was undertaken to explore the feasibility of using a broader definition of the appropriateness of general practice prescribing, firstly by developing ways of measuring this broader definition and, secondly, by identifying possible relationships between aspects of appropriateness and patient outcomes. The eventual goal, which is beyond the scope of this paper, is the development of a more global measure of the appropriateness of general practice prescribing. The study on which this work was based was the second phase of a two phase project funded by the Department of Health entitled “Improving doctor patient communication about drugs”.

METHODS
The study was a questionnaire based survey of general practice patients supplemented by data from patients’ records and
Developing a measure for the appropriateness of prescribing in general practice

Table 1 Data required to identify unwanted, unnecessary, and inappropriate prescriptions

<table>
<thead>
<tr>
<th>Category</th>
<th>Data from patient</th>
<th>Data from doctor</th>
<th>Data from medical record</th>
<th>Measure refers to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unwanted prescription</td>
<td>Before the consultation the patient disagrees with the statement &quot;I want a prescription&quot; for a specified health problem</td>
<td>The doctor records that a prescription was written for the same health problem</td>
<td>A specific health problem</td>
<td></td>
</tr>
<tr>
<td>Unnecessary prescribing</td>
<td>–</td>
<td>The doctor records that a specific prescription that has been written is not strictly indicated</td>
<td>A specific prescription</td>
<td></td>
</tr>
<tr>
<td>Inappropriate prescribing</td>
<td>–</td>
<td>Doctor’s record of all prescriptions written in the consultation</td>
<td>Concurrent prescribing and diagnoses from patient medical record</td>
<td>The patient’s diagnosis and therapy</td>
</tr>
</tbody>
</table>

telephone interviews with patients. Questionnaires were designed to measure patients’ prior expectations of the consultation, doctors’ assessments of their prescribing decisions, and patients’ use of medicines 1 week later. Ethical approval was granted by the South Thames MREC and all the relevant local research ethics committees.

Sampling
The fieldwork involved 24 GPs in 13 practices belonging to four participating groups: the pilot group, a trainers’ group, and two practice based groups. These groups were located in a range of areas including a deprived inner city and rural areas. Groups were recruited via personal contact with the researchers or by GPs who were already participating. The intention was to work with both practice based and non-practice based groups, with GPs of varying degrees of experience, and in geographically contrasting areas.

Data collection
Data were collected in the GPs’ waiting rooms by one or two researchers depending on the number of patients being seen. The researchers aimed to give questionnaires to all consulting patients. The questionnaires were based on the findings of the first qualitative phase of the project and as well as on previously validated instruments. The patients’ pre-consultation questionnaire asked about their health problems and the reasons they were consulting their GP. It consisted of 20 items, and patients were asked if they agreed, disagreed or were uncertain if they wanted these to occur. As well as asking patients if they wanted a diagnosis, tests, examinations, referral and reassurance, it asked about medicines (6 questions) and communication, participation and shared decision making (7 questions). The questionnaire had to be completed by patients before they were called into their consultation. After the consultation a shorter but similar questionnaire asked the doctors to describe the consultation. The doctors’ post-consultation questionnaire asked about each patient’s concerns, their expectations for prescriptions, and the medicines prescribed (if any). In the telephone interview, which was adapted from Barber et al., patients were asked about their use of any medicines prescribed in the study consultation, any concerns or problems with these medicines, and their general views of medicines. Draft versions of the questionnaires were developed with the help of a pilot group of vocationally trained assistant GPs. Data were collected by the three main groups from 186 consultations (representing an 86% response rate from the 216 patients invited to take part) between July 2000 and May 2001. Data about drugs prescribed in the study consultations were extracted from patients’ medical records and used for the independent assessments of pharmacological appropriateness. Patients were telephoned a week after the consultation to find out about their use of medicines and any problems they had encountered. The four questionnaires and the data extraction sheet are available on the Thorax website (www.thoraxjnl.com/supplemental).

Measurement of appropriateness of prescribing
The data enabled the identification of prescriptions with poor outcomes: those which were unwanted (by the patient before the consultation), unnecessary (in the doctor’s opinion), or pharmacologically inappropriate (as judged by the researchers). Unwanted prescriptions were identified using patients’ pre-consultation questionnaires. They could only be measured for the first problem that the patient expected to raise with the doctor and were only identified for those patients who did subsequently receive a prescription. In contrast, unnecessary prescriptions were measured for all problems recorded by doctors on the basis of doctors’ assessments of their own prescriptions. As these two measures (unwanted and unnecessary) were derived from specific problems or medications, it was important to ensure that any comparisons referred to the same problem or medication. Thus, for the purposes of comparison, patients were selected if they received a prescription and if the patient’s first problem could be located on the doctor’s questionnaire.

Judgements of appropriateness could only be made in cases where sufficient data were available to do so. These independent judgements were made by two authors (NBa and CB) using the Pharmacological Appropriateness Rating of Medicines (PARM) devised for the purpose. This was an instrument which combined the common elements of the MAI and PAI to capture as many aspects of pharmacological appropriateness as possible. It rated prescriptions on indication, dosage, regimen, contraindications, and risk of interactions. Only one overall assessment was made for each patient, so the assessment was not necessarily linked to a specific medication or problem. The judgement of appropriateness was made whether or not a prescription was written so, for example, an inappropriate decision not to prescribe would be included. The identification of prescriptions which were unwanted, unnecessary, and inappropriate was made by excluding patients without prescriptions, those without any assessment of appropriateness due to incomplete data, and those prescriptions written for problems other than the patient’s first problem. As a result, the sample size for assessing prescriptions in relation to all three dimensions was small.

These three aspects of appropriateness require data from a number of sources—patient, doctor, and medical record. These are summarised in table 1.

Analysis of data
The results were analysed in order to establish the extent to which it was possible to identify unwanted, unnecessary, and
inappropriate prescriptions, and to identify the ways in which these variables related to patient characteristics and outcomes. χ² tests were used to measure association between two dichotomous variables, or Fisher’s exact test when there were fewer than five cases in cells of 2 × 2 tables.

RESULTS

Patients’ expectations
When questioned beforehand, most patients wanted to participate in treatment decisions and emphasised the importance of communication. Before the consultation 42% of patients said they wanted or expected a prescription for their main problem, and fewer than one in five (18%) said they did not want a prescription. This left over a quarter (28%) who did not answer. Nearly half (47%) agreed that they would rather not have a prescription if it was not really necessary.

After the consultation no patient recorded that they were at all dissatisfied and none was unhappy with the prescribing decision. Most patients received what they wanted, and their expectations of the consultation were exceeded.

Unwanted prescriptions
Prescriptions were written in two thirds of consultations (121 out of 185, 65%). Patients received unwanted prescriptions in 7% of cases in which a prescription was written, which was approximately one per GP per clinic session. Although unwanted prescriptions—defined on the basis of patients’ prior expectations—were more common in pre-booked consultations, when the presenting problem was not a new one, for patients who did not want a choice of treatment, for patients exempt from prescription charges, for patients who were subsequently adherent, and for those who had no problems with their medication, none of these differences was of statistical significance (table 2).

Doctors’ assessments
In five out of six consultations (84%) doctors felt they understood patients’ views about their illness and nearly as many felt that they understood the treatment the patient would like (79%). Doctors were only correct 53% of the time when asked whether patients wanted a prescription or not. When doctors thought they understood the patients’ treatment preferences, in 80% of cases the patient also felt that the doctor had listened to the treatment the patient thought they wanted.

In 3% of consultations doctors felt “very pressurised” by the patient to prescribe and in nine consultations (5%) they reported feeling slightly or definitely uncomfortable about their prescribing decisions.

Unnecessary prescriptions
In most cases (90%) doctors recorded whether the prescription they had written was strictly indicated or not. On average, GPs recorded that one in five prescriptions was not strictly indicated. Prescriptions thought to be unnecessary were more common in pre-booked consultations, with patients consulting with a new problem, with those wanting to be offered a choice of treatment, with patients under 25 years of age, with patients who did not answer prescription charges, with patients experiencing a belief barrier (see below), and with patients who were subsequently non-adherent (table 3). None of these differences was statistically significant.

Pharmacological measure of appropriateness
The pharmacological measurement of appropriateness is problematic due to the difficulty of reliably capturing all the relevant information. Data required to make this assessment could only be extracted from the records of 92 patients. Of the 92 independent assessments, four were judged to be inappropriate and in 19 cases the assessors could not determine appropriateness because there was insufficient information.

Combined measures of appropriateness
Considering the separate assessment of unwanted, unnecessary, and technically inappropriate prescriptions, there were 58 prescriptions for which data on all three outcome measures were available (fig 1). For these prescriptions there was no overlap between all three categories. Thus, no prescription in this study was judged to be unwanted, unnecessary, and technically inappropriate. There were 42 prescriptions judged to have none of these poor outcomes, of which 24 (41% of the total) were wanted, necessary, and appropriate and 18 included cases where either the patient was uncertain or the independent assessors were unsure. There were 16 cases (28% of the total) with at least one poor outcome as follows: nine prescriptions judged to be unnecessary only; four judged to be unwanted only; two judged to be inappropriate only; and one judged to be both inappropriate and unnecessary. Thus, 23% of unnecessary prescriptions were wanted by the patient (table 4). All the other unnecessary prescriptions were given to patients who were uncertain about whether they wanted a prescription or not.

Patients’ subsequent use of medicines
Telephone interviews were carried out with 105 patients. The questions asked in the telephone interview related specifically to the medication prescribed at the study consultation a week earlier. Nearly one in five patients (18%) were potentially non-adherent because they had not started taking the medicine, had stopped early, had missed doses, or had altered the dosages. Patients who were using previously prescribed medication or who were taking medicines on an as-needed basis were not counted as non-adherent. A larger proportion (28%) indicated there was a belief barrier with the prescribed medication—that is, they thought it did not work well or had one of a number of worries or

Table 2: Percentage (and number) of prescriptions that were unwanted by selected variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes (%)</th>
<th>No (%)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency consultation</td>
<td>0% (0)</td>
<td>9% (8)</td>
<td>0.09</td>
</tr>
<tr>
<td>New problem</td>
<td>3% (1)</td>
<td>10% (7)</td>
<td>0.19</td>
</tr>
<tr>
<td>Patient wanted to be offered choice of treatment</td>
<td>9% (3)</td>
<td>14% (4)</td>
<td>0.27</td>
</tr>
<tr>
<td>Patients pay for prescription</td>
<td>4% (2)</td>
<td>10% (6)</td>
<td>0.16</td>
</tr>
<tr>
<td>Patients non-adherent</td>
<td>3% (1)</td>
<td>8% (7)</td>
<td>0.25</td>
</tr>
<tr>
<td>Patients experienced belief barrier</td>
<td>2% (1)</td>
<td>9% (7)</td>
<td>0.11</td>
</tr>
</tbody>
</table>

*“Yes” in the first cell indicates that this cell refers to people with emergency consultations and “No” in the second cell indicates that this refers to people without emergency consultations, etc.

Table 3: Percentage (and number) of prescriptions that were considered unnecessary by selected variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes (%)</th>
<th>No (%)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency consultation</td>
<td>19% (5)</td>
<td>24% (23)</td>
<td>0.68</td>
</tr>
<tr>
<td>New problem</td>
<td>34% (12)</td>
<td>18% (12)</td>
<td>0.15</td>
</tr>
<tr>
<td>Patient wanted to be offered choice of treatment</td>
<td>24% (8)</td>
<td>14% (4)</td>
<td>0.18</td>
</tr>
<tr>
<td>Age under 25</td>
<td>33% (6)</td>
<td>22% (21)</td>
<td>0.44</td>
</tr>
<tr>
<td>Patients pay for prescription</td>
<td>39% (14)</td>
<td>18% (11)</td>
<td>0.28</td>
</tr>
<tr>
<td>Patients non-adherent</td>
<td>31% (10)</td>
<td>20% (18)</td>
<td>0.31</td>
</tr>
<tr>
<td>Patients experienced belief barrier</td>
<td>29% (12)</td>
<td>20% (16)</td>
<td>0.38</td>
</tr>
</tbody>
</table>

*“Yes” in the first cell indicates that this cell refers to people with emergency consultations and “No” in the second cell indicates that this refers to people without emergency consultations, etc.

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Key messages

- It is possible to identify unwanted, unnecessary, and pharmacologically inappropriate prescriptions.
- Less than half the prescriptions in this study were wanted, necessary, and appropriate.
- Some prescriptions were both wanted and unnecessary but were not taken as prescribed.
- These measures need further development.

The limitations of this study include its small size when investigating rare events and the fact that the participating doctors were an unrepresentative group. Compared with other studies, the patients in this sample were somewhat less likely to hope for prescriptions. However, the proportion of consultations in which prescriptions were written was comparable to that in other studies, suggesting that, in terms of prescribing at least, these consultations were not atypical. The proportion of prescriptions thought by the prescriber to be not strictly necessary is remarkably similar to the proportions found in other studies. The proportion of patients categorised as non-adherent to the new medicine is less than the results of the study by Barber and colleagues using similar methods which found that 30% of patients were non-adherent 10 days after receiving a new prescription for a chronic condition. The measure of wanted prescriptions was based on patients’ pre-consultation questionnaires, and it could be argued that patients might change their minds during the course of the consultation. While this is obviously true, no research has yet explored whether patients’ use of medicines is more closely related to their pre- or post-consultation assessments of their medication. It may be harder for patients to say that they did not want a prescription after they have received one than to say they do not want a prescription in a pre-consultation questionnaire.

Given the reality of everyday practice in which patients may present several problems in a single consultation, researchers developing these measures will need to ensure that any comparisons refer to the same presenting problem and/or prescribed medicine. Such measures will also need to allow for the fact that some patients will be uncertain about what they want. Sufficient data to enable judgments of pharmacological appropriateness will need to be collected.

If these preliminary results are confirmed in larger studies, they suggest that further investigation of the reasons why GPs write prescriptions they deem not strictly necessary would be fruitful. This would need to include a consideration of the ways in which diagnoses are attributed in these cases. The results also suggest that the measurement of patients’ beliefs would be useful in relation to the prediction of non-adherence. As well as being useful for research purposes, the further development of the instruments used in this study could enable GPs to carry out routine monitoring of their own prescribing decisions. However, the data in this study were collected by funded outside researchers and, if these measures were to be used in routine practice, practice staff would need to be given extra time for data collection. These measures might also have a role to play in relation to clinical governance. On the basis of this work, we have developed an educational pack to help GPs to monitor communication and prescribing in their own practices.

ACKNOWLEDGEMENTS

The study on which this paper is based was funded by the Department of Health as part of their Prescribing Research Initiative. The views expressed in this paper are those of the authors and not the Department of Health. Fiona Stevenson was supported by the Sir Siegmund Warburg’s Voluntary Settlement. We would like to thank the participating patients, general practitioners, and practice staff, and would also like to thank Kate Cox for help with the data collection.

Table 4 Numbers of patients receiving wanted and necessary prescriptions

<table>
<thead>
<tr>
<th>Wanted medication (pre-consultation)</th>
<th>Necessary prescribing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No 8</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes 5</td>
</tr>
<tr>
<td>Uncertain or no answer</td>
<td>17 34</td>
</tr>
<tr>
<td>Total</td>
<td>22 99</td>
</tr>
</tbody>
</table>

Figure 1 Venn diagram showing intersections between unwanted, unnecessary, and pharmacologically inappropriate prescriptions from a sample of 58.

Figure 1: Venn diagram showing intersections between unwanted, unnecessary, and pharmacologically inappropriate prescriptions from a sample of 58.

Table 4: Numbers of patients receiving wanted and necessary prescriptions.
The four questionnaires used in this study and the data extraction sheet are available on the Thorax website at www.thoraxjnl.com/supplemental.

References


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Data Extraction Sheet - ver. 3

Date of consultation______________________________________ Time____________________

Name of patient _________________________________________ Date of Birth/ Age_________

<table>
<thead>
<tr>
<th>Reason for Encounter/ Problem Presented (at this consultation)</th>
<th>Additional comments</th>
<th>Action taken (if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rx</td>
</tr>
</tbody>
</table>

List all medicines prescribed or recommended **at this consultation** (including repeats)

<table>
<thead>
<tr>
<th>Medicine prescribed/ recommended (incl. Dosage, regimen and duration)</th>
<th>What prescribed for (Indication)</th>
<th>When started*</th>
<th>Comments†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

* ‘n’ = new; ‘<1m’ = less than a month ago ‘>1m’ = more than a month ago if <1m give date started;
† if only otc recommendation write ‘otc’; if medication to be dispensed later only if needed write ‘deferred’

**Other actions taken at this consultation**
e.g. drug stopped/ dose altered (state drug); tests ordered; referral made etc.
List all other medications the patient is on  
(see repeat prescription card or equivalent - if available)

<table>
<thead>
<tr>
<th>Medication 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication 2</td>
</tr>
<tr>
<td>Medication 3</td>
</tr>
<tr>
<td>Medication 4</td>
</tr>
</tbody>
</table>

List of co-existing medical conditions  
(see Summary card/ Problem List - if available)

<table>
<thead>
<tr>
<th>Condition 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition 2</td>
</tr>
<tr>
<td>Condition 3</td>
</tr>
<tr>
<td>Condition 4</td>
</tr>
</tbody>
</table>

Please provide any other information you feel may help the research team understand the context of this particular patient or consultation or use of medicines
Doctor questionnaire

*To be completed after consultations with consenting patients. Please circle the answer that best applies*

Patient’s name or identification no. ..................................................

Q1. How did the consultation go?  
   Very well ☐  
   OK ☐  
   Not particularly well ☐  
   Badly ☐

Q2. Do you think the patient raised all the health concerns they wanted to today?  
   Yes ☐  
   No ☐  
   I don’t know ☐

Q3. Did you need to encourage the patient to raise the concerns they had come with today?  
   Yes ☐  
   No ☐

Q4. What was the **main health problem** raised? ........................................

Q5. Did you feel you understood the patient’s views about this health problem?  
   Yes ☐  
   No ☐  
   I don’t know ☐

Q6. Did you feel you understood the patient’s views about the treatment they would find acceptable?  
   Yes ☐  
   No ☐  
   I don’t know ☐

Q7. Did you think the patient wanted a prescription for this health problem?  
   Definitely ☐  
   Probably ☐  
   Probably not ☐  
   Definitely not ☐  
   I don’t know ☐  
   Don’t think patient knew ☐

Q8. Did you feel pressured by the patient to write a prescription?  
   Definitely pressured ☐  
   A little pressured ☐  
   Not at all pressured ☐

Q9. Did you write a prescription for this problem?  
   Yes ☐  
   No ☐

If yes, please give details of drug and dose, please circle whether new or repeat and whether this was strictly indicated on strictly medical grounds

<table>
<thead>
<tr>
<th>Drug (block capitals)</th>
<th>Dose</th>
<th>New or repeat?</th>
<th>Strictly indicated?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>New / Repeat</td>
<td>Yes / No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New / Repeat</td>
<td>Yes / No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New / Repeat</td>
<td>Yes / No</td>
</tr>
</tbody>
</table>

Q10. Did you feel comfortable about this prescribing decision?  
   Definitely comfortable ☐  
   Fairly comfortable ☐  
   Slightly uncomfortable ☐  
   Definitely uncomfortable ☐
If a second health problem was raised, please complete this side.

Q11 What was the second health problem raised? ..............................................

Q12 Did you feel you understood the patient’s views about this health problem?  Yes □
                                No □
                                I don’t know □

Q13 Did you feel you understood the patient’s views about the treatment they would find acceptable?  Yes □
                                No □
                                I don’t know □

Q14. Did you think the patient wanted a prescription for this health problem?  Definitely □
                                Probably □
                                Probably not □
                                Definitely not □
                                I don’t know □
                                Don’t think patient knew □

Q15. Did you feel pressured by the patient to write a prescription?  Definitely pressured □
                                A little pressured □
                                Not at all pressured □

Q16. Did you write a prescription for this problem?  Yes □
                                No □

If yes, please give details of drug and dose, please circle whether new or repeat and whether this was strictly indicated on strictly medical grounds

<table>
<thead>
<tr>
<th>Drug (block capitals)</th>
<th>Dose</th>
<th>New or repeat?</th>
<th>Strictly indicated?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New / Repeat</td>
<td>Yes / No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>New / Repeat</td>
<td>Yes / No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>New / Repeat</td>
<td>Yes / No</td>
<td></td>
</tr>
</tbody>
</table>

Q17. Did you feel comfortable about this prescribing decision?  Definitely comfortable □
                                Fairly comfortable □
                                Slightly uncomfortable □
                                Definitely uncomfortable □

Thank you for completing this. Please add any further comments you would like to make on this consultation.
AFTER THE CONSULTATION

On your way out would you take a minute to answer these questions by circling which answer best describes your recent consultation with the doctor. Your response will be treated in confidence and will not be seen by the doctor.

Thank you for completing this. Please put it in the box at reception before you leave, or use the freepost envelope

1. Did you raise all the health problems you wished to with the doctor?          Yes       No

2. What was the main health problem discussed?

In connection with your main health problem:-

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. The doctor diagnosed my problem</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4. The doctor talked with me about my problem</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5. The doctor gave me emotional support</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>6. The doctor listened to what I think is wrong</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7. I was reassured that nothing is wrong with me</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8. The doctor helped me with my emotional problems</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>9. The doctor gave me advice on medications</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>10. The doctor explained the nature of my problem, and any side-effects</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>11. The doctor explained the treatment to me</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>12. The doctor listened to my views on the treatment I think I need</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>13. I was offered a choice of treatments</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>14. I participated in decisions about my treatment</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>15. How satisfied were you with the consultation?</td>
<td>Very satisfied</td>
<td>Fairly satisfied</td>
<td>A little dissatisfied</td>
</tr>
<tr>
<td>16. Did you feel your opinions were valued?</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>17. Did you receive a new prescription?</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>18. Were you happy with the prescribing decision?</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Thank you for completing this. Please leave it in the box on your way out.
REASONS FOR CONSULTING THE DOCTOR

Here are some statements about the reasons why people go to see their doctor, and about what they want or expect from the doctor. Sometimes people have more than one health problem to discuss and we would like you to complete this questionnaire for your main reason and up to two others.

Thinking only about today’s visit, please will you take a minute or two to answer each question. Your answers will be treated in confidence and will not be seen before you see the doctor.

____________________________________________________________________________________

A. What is the main health problem you wish to raise with the doctor today?

Please state problem....................................................................................................................................

.................................................................................................................................................................

Is it a new problem? Yes No

Please answer all the questions for this problem. Circle 2 if you agree with the statement, 0 if you disagree, and 1 if you are uncertain or the question does not apply to you

<table>
<thead>
<tr>
<th></th>
<th>AGREE</th>
<th>UNCERTAIN</th>
<th>DISAGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I want the doctor to diagnose what is wrong with me</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2. I want the doctor to talk with me about my problem</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3. I want some tests done to find out what is wrong with me</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4. I would like emotional support from the doctor</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5. I want the doctor to listen to what I think is wrong</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>6. I want to be reassured that nothing is wrong with me</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7. I want to be referred to a specialist</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8. I have emotional problems for which I would like help</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>9. I want to be examined for the cause of my condition</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>10. I want a prescription for some medication</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>11. I would like to be taken off some medication I am taking</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>12. I want to change the medication I am taking</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>13. I want advice about medical treatment</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>14. I want advice on medication/ medicines</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
15. I want the doctor to explain the nature of my problem, and any side-effects  
   AGREE  UNCERTAIN  DISAGREE  
   2  1  0

16. I want the doctor to explain the treatment to me  
   AGREE  UNCERTAIN  DISAGREE  
   2  1  0

17. I want the doctor to hear my views on the treatment I think I need  
   AGREE  UNCERTAIN  DISAGREE  
   2  1  0

18. I would rather not have a prescription unless it is really necessary  
   AGREE  UNCERTAIN  DISAGREE  
   2  1  0

19. I would like the doctor to offer me a choice of treatments  
   AGREE  UNCERTAIN  DISAGREE  
   2  1  0

20. I would like to participate in decisions about treatment  
   AGREE  UNCERTAIN  DISAGREE  
   2  1  0

21. Do you have any other needs not covered by the above, eg you only require a sick note, medical certificate or are attending for a routine check-up?  
   ...........................................................................  
   ...........................................................................

B. Is there a second health problem you wish to raise with the doctor today?  
   Please state problem ...........................................................................  
   ...........................................................................  
   Is it a new problem?  Yes No

C. Is there a third problem you wish to raise with the doctor today?  
   Please state problem ...........................................................................  
   ...........................................................................  
   Is it a new problem?  Yes No

D. When did you answer this?  
   Before seeing the doctor ☐  After seeing the doctor? ☐
**USE OF MEDICATION**

Hello, you may remember being asked to take part in our research when you saw Dr ........
My name is Linda Jenkins from Kings College London, the researcher working on the study.

Would it be OK to ask you a few questions about your use of medicines - it should only take a few minutes. If it’s inconvenient to talk at the moment I can call back at a more convenient time.
[The information you give is confidential]

We are interested in what happens after doctors write prescriptions, and know that for various reasons prescriptions may not be cashed or used as anticipated.

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patient initials and id</td>
</tr>
<tr>
<td>GP code</td>
</tr>
<tr>
<td>2. Can you tell me the name of the <strong>medication you were prescribed</strong> a week ago? (Take one medication at a time and do not prompt if possible)</td>
</tr>
<tr>
<td>3. For what reason were you prescribed it?</td>
</tr>
<tr>
<td>4. Do you still have the problem that your medicine was prescribed for?</td>
</tr>
<tr>
<td>5. Have you managed to collect your prescription? (If 'no', go to question 12)</td>
</tr>
<tr>
<td>6. Have you started taking the medicine?</td>
</tr>
<tr>
<td>7. Have you finished the course of treatment?</td>
</tr>
<tr>
<td>8. How many days did you take it?</td>
</tr>
<tr>
<td>9. How many times a day did you take it?</td>
</tr>
<tr>
<td>10. How many pills did you take each time?</td>
</tr>
<tr>
<td>11. How many times did you miss taking a pill?</td>
</tr>
<tr>
<td>12. How well does this medicine work for you?</td>
</tr>
<tr>
<td>13. Have you any concerns or experienced any problems with this medication?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Answer Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>03/01/01 phoneADHER+</td>
</tr>
</tbody>
</table>
14. Please give the names of any other medication you have taken in the last week for this problem?

..........................................................................................................................

..........................................................................................................................

15. Would you have liked more information about your medicine?

If so, more on…

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>How to take your medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How long you will need to be taking it</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whether the medicine has any unwanted side-effects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whether the medicine will interfere with other medicines</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Repeat questions for second and third medication using back pages)

16. Finally I would like to ask you about how you use medicines in general.

Many people find a way of using their medicine which suits them. This may differ from the instructions on the label or from what their doctor has said.

Here are some ways people have said they use their medicines. For each of the statements, please say how often they apply to you.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>I avoid using taking medicine if I can</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>I alter the dose of medicines</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>I decide to miss out a dose</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>I take less than instructed</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>I forget to take my medicine</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Thank you for helping us.

Just one thing - If you had not taken your medication would you have told me?

Do you have any comments you would like to add?

..........................................................................................................................

..........................................................................................................................

THANK YOU FOR YOUR TIME

Linda Jenkins, Department of General Practice and Primary Care, King’s College London, 5 Lambeth Walk, London SE11 6BR. Tel no 020 7735 8881
**Questions for those who received more than one prescription**

22. Can you tell me the name of the second medication you were prescribed a week ago?  
   *(Take one medication at a time and do not prompt if possible)*

   ………………………………………………….. Was it? New / Repeat

23. For what reason were you prescribed it?

   ……………………………………………………………………………………………..

24. Do you still have the problem that your medicine was prescribed for?  
   if 'yes', please say whether

   the problem has improved  
   the problem has not changed  
   the problem has got worse

25. Have you managed to collect your prescription?  
   *(If 'no', go to question 12)*

   Yes □  No □

26. Have you started taking the medicine?  

   Yes □  No □

27. Have you finished the course of treatment?  

   Yes □  No □

28. How many days did you take it?  

   …….. days

29. How many times a day did you take it?  

   ……..

30. How many pills did you take each time?  

   ……..

31. How many times did you miss taking a pill?  

   ……..

32. How well does this medicine work for you?  

   Very well □  OK □  Not well □

33. Have you any concerns or experienced any problems with this medication?  
   The medication has not worked / does not work  
   It gives me unwanted effects (side-effects)  
   It is difficult to use / take  
   I worry about long-term use of this medication  
   I am concerned this medication may be harmful  
   Any other problems *(please specify)*  

   ……………………………………………………………..

34. Please give the names of any other medication you have taken in the last week for this problem?

   ……………………………………………………………………………………

35. Would you have liked more information about your medicine?  
   If so, more on…

   How to take your medicine  
   How long you will need to be taking it  
   Whether the medicine has any unwanted side-effects  
   Whether the medicine will interfere with other medicines

   Yes □  No □
Repeat if a third prescribed medication, or go back to q16
42. Can you tell me the name of the third medication you were prescribed a week ago? (Take one medication at a time and do not prompt if possible)

………………………………………………………………………………………………………………………….. Was it? New / Repeat

43. For what reason were you prescribed it?

………………………………………………………………………………………………………………………………..

44. Do you still have the problem that your medicine was prescribed for?

if ’yes’, please say whether

the problem has improved ☐
the problem has not changed ☐
the problem has got worse ☐

45. Have you managed to collect your prescription? Yes ☐ No ☐

(If ‘no’, go to question 12)

46. Have you started taking the medicine? Yes ☐ No ☐

47. Have you finished the course of treatment? Yes ☐ No ☐

48. How many days did you take it? ……... days

49. How many times a day did you take it? ….....

50. How many pills did you take each time? ….....

51. How many times did you miss taking a pill? ….....

52. How well does this medicine work for you? Very well ☐ OK ☐ Not well ☐

53. Have you any concerns or experienced any problems with this medication?

Yes ☐ No ☐

The medication has not worked / does not work ☐
It gives me unwanted effects (side-effects) ☐
It is difficult to use / take ☐
I worry about long-term use of this medication ☐
I am concerned this medication may be harmful ☐
Any other problems (please specify) ……………………

54. Please give the names of any other medication you have taken in the last week for this problem?

…………………………………………………………………………………………………………………………..

55. Would you have liked more information about your medicine?

If so, more on…

How to take your medicine ☐
How long you will need to be taking it ☐
Whether the medicine has any unwanted side-effects ☐
Whether the medicine will interfere with other medicines ☐

………

Go back to q16

23/11/00 phoneADHER_N&G