Measuring Long-Term Conditions in Scotland

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Figures:

Using this report

Long-term condition (LTC) is a very broad term with a range of definitions. Existing routine databases generally give limited information regarding either the duration or severity of individual diseases. As a generic group, LTCs are difficult to measure.

This report aims to provide an epidemiologically-based resource for those who are involved with planning, monitoring and managing services for people with LTCs. The report:

- provides insight into how useful are routine databases for investigating different LTCs – what proportion of diagnoses are LTCs, how accurate the measures are likely to be etc. (pages 10 - 15);
- gives prevalences of major LTCs from different data sources and interprets these (pages 16 - 43);
- identifies the most prevalent LTCs/LTC groups (pages 44 - 46);
- applies individual estimates to obtain measures of multiple LTCs (pages 47 - 50);
- applies this information to provide prevalence estimates split by age, sex and deprivation groups (page 51 - 52).

Because the definition of LTC is broad, what is considered to be a "significant" LTC varies, and routine data sources give different prevalences this resource does not:

- dictate what should and should not be considered a LTC;
- give an account of all LTCs;
- give exact prevalences of LTCs.

Key Findings

1) There are numerous definitions of what constitutes a long-term condition. Conditions which require ongoing medical care, limit what a person can do for a year or more and have a clear diagnosis are generally included (e.g. coronary heart disease, diabetes), but this definition also includes many conditions which, although long-term and life-limiting in some cases, can also be acute or easily managed in others (e.g. back pain, skin disorders). All analysis of long-term conditions should be interpreted according to the definition used.

2) Estimates of the prevalence of long-term conditions can be derived from a number of sources. The richest sources of information are the primary care data collected for the Quality and Outcomes Framework (QOF) and Practice Team Information (PTI). The Scottish Health Survey (SHS) asks respondents about any long-term conditions they have, and so offers some insight into people's perceptions of which conditions are long-standing and what impact these have on their lives.

3) Using these data sources, the most common long-term conditions are asthma, depression and hypertension, each affecting over 5% of the population. The following conditions affect 2-5% of the population: coronary heart disease (CHD), diabetes mellitus, hypothyroidism, and stroke. Chronic obstructive pulmonary disease (COPD) affects just under 2%. Skin and musculoskeletal disorders (particularly osteoarthritis and back pain) are also very common conditions, but it is difficult to ascertain the prevalence of those that constitute a long-term illness at a population level (see Fig. 1).

4) Estimates for the number of people with a long-term condition vary widely depending on the definitions and data sources used. According to PTI, approximately 47% of the population (54% of those aged 16 and over) consult a member of the GP practice team for a potential long-term condition in a 1-year period, but this includes many individuals who are able to manage their conditions so that their illness does not unduly affect the quality of their lives. In the SHS, around 37% of the population reported some form of long-term illness, health problem or disability, and 11% said that they have a condition that limits their day to day activities (see Table 4).

5) Data from QOF show one-fifth of the population registered with a GP have one or more of the following conditions: asthma; COPD; CHD; stroke; diabetes; hypertension .

6) Prevalence of long-term conditions increases with age. For example, the SHS shows that 65% of the over 65's reported some form of long-term illness, health problem or disability, with 35% reporting two or more conditions. In the over 75's these rise to 67% and 36% respectively (see Table 4).

7) Over 25% of people with CHD, diabetes mellitus, osteoarthritis or stroke also have hypertension. Other common combinations of long-term conditions include COPD and asthma, although this could be a coding artefact (see Fig. 3).

Background/Introduction

The Better Health, Better Care action plan includes a section on LTCs with a renewed focus on improving their management.

Measuring LTCs provides a number of challenges. Using routine data to identify LTCs has usually involved either describing a limited number of conditions, or using broad diagnostic categories which include acute diseases. The scientific literature includes little information on the epidemiology of multiple LTCs and tends to only identify the prevalence of individual conditions in specific population groups, rather than in the whole population.

The aim of this work has therefore been to provide a more detailed epidemiological basis for LTC work, by untangling what LTCs are prevalent in the population and how a picture of their overall impact can be developed. A pragmatic approach has been taken because of the complexity of LTCs. Where assumptions have been made these are described in the report. It is hoped that this document provides a tool on which further work can be based to develop an understanding of the prevalence of LTCs and their burden on the population.

Aims and Objectives

Aim

To estimate the whole population prevalence of LTCs in Scotland and the patterns of these on a person, as well as individual disease, basis.

Objectives

1. Assess the data available to measure the prevalence of LTCs in Scotland.
2. Assess the prevalence of individual LTCs at a national level in Scotland.
3. Assess the prevalence and patterns of multiple LTCs at a national level in Scotland.

Definition of Long-term Conditions

The major difficulty in assessing LTCs as a whole is the lack of an agreed definition. Most definitions include a time criterion, but the inclusion of whether the condition should have an impact on an individual's life or should require medical care is variable.

For example:
'A long-term condition can be defined as one of prolonged duration that may affect any aspect of the person's life.' (Long-Term Conditions Alliance Scotland)

'Long-term conditions are those conditions that cannot, at present, be cured, but can be controlled by medication and other therapies.' (National Library for Health, DH)

'A long-term condition is one that requires ongoing care, limits what one can do and is likely to last longer than a year.' (Long-Term Conditions Collaborative)

Hypothyroidism is usually a lifelong condition, but once controlled may have minimal impact on an individual's life. Thus, hypothyroidism would be considered to be a LTC under the second definition, would not be a LTC under the third definition, and may or may not be using the first definition.

Back pain may constitute a very important LTC with a major impact on life for some individuals, but will be a transient problem with limited impact for others. Even at an individual level, eczema may be lifestyle-limiting a one point in time, but have no impact on the same person's life during another period – is this a LTC?

Methods

Objective 1 – Available data were assessed to measure the prevalence of LTCs in Scotland

1. A list of conditions/disorders/disabilities was produced.

The aim was to develop a list of a sample of LTCs which included the most prevalent LTCs, but also a wide variety of conditions with different attributes which may affect the way in which the various data sources measured them. This was carried out in order to develop an idea of the usefulness of each data source for estimating the prevalence of most types of LTCs.

To achieve this, most of the disease registers used by the Quality Outcomes Framework (QOF) were considered, and Practice Team Information data were used to identify the most prevalent LTCs. This list was arbitrarily supplemented by other conditions believed to be useful for this exercise, and was further discussed with the ISD Delivering for Health Information Programme Steering Group.

2. Main data sources were identified to be used for assessing the prevalence of these conditions, and an understanding of their strengths and weaknesses in terms LTCs developed. Other sources of information to supplement these were also identified.

3. Prevalence data were gathered for the conditions from these sources, and this information was used to understand variations in prevalence rates between each data source for each condition.

Objective 2 - Prevalence of individual LTCs assessed at a national level in Scotland

1. The collated information from the databases and literature reviews regarding various aspects of the conditions was used to make best estimates of individual conditions, including how much of these constitute a LTC, how much is undiagnosed etc.

2. Scottish Health Survey (SHS) and Practice Team Information (PTI) data were used to identify other prevalent conditions.

This was achieved initially by looking at the LTC categories given by the SHS in order of prevalence and identifying those that were not included in the original list of conditions. The SHS categories are broad and of limited use in some cases, therefore PTI was also used to look at this. However, PTI includes 266 Read Code Groups (RCGs) and over 70,000 Read Codes, so a methodology was developed for making a quick assessment of the most prevalent conditions in a way that would also allow us to assess the number of people with more than one LTC. The technique utilises the fact that in terms of prevalence, most RCGs in PTI are dominated by a relatively small number of Read Coded conditions. Essentially the technique is one of excluding acute conditions and then assessing how many of the remaining people have at least one LTC in an iterative process, as follows:

- Read Code Groups that contain mostly acute conditions were removed (the criteria for this are given below), to produce a shortened database which should contain most prevalent LTCs (but some may have been excluded) and some acute conditions;
- Some conditions were then regrouped to produce a list of 'LTC groups' which were subsequently used for all PTI analyses;
- These remaining groups were listed in order of prevalence, and highly prevalent acute conditions were removed from the top categories, so that these categories represented mostly LTCs;
- This was repeated with the remaining categories, refining them in this way, until the number of people with more than one of these or the original list of diseases represented at least 95% of the individuals in the shortened database.

This, then, should provide us with an estimate of the number of people with more than one LTC (as most of the people in the shortened database have at least one of the disease categories that should represent mostly LTCs), without working through every Read Code and removing all acute conditions. This method can also be used to identify the most prevalent LTC categories.

<u>Notes on criteria for removing conditions</u>
RCGs were removed if the prevalence of acute conditions outweighed the prevalence of LTC. However, inclusion of LTCs was more important than exclusion of acute conditions, and so a cautious approach was taken as follows:

- if the RCG contained important (depending on prevalence or our judgement regarding clinical importance) LTCs, this was left in;
- if an acute condition was felt to potentially give an indication of a likely LTC, this was considered as a possible LTC.

There were a number of difficulties with this process:

- many RCGs contain a mixture of acute and long-term conditions;
- diagnostic codes often give little information on whether a condition is acute or long-term i.e. while diabetes is always a long-term condition, back pain may be acute or chronic.

Some judgements therefore had to be made about what constituted a LTC. For this report an inclusive approach was used and many conditions which may or may not be long-term and which may have a minimal impact on a person's life were left in. Conditions that were excluded were those that were clearly acute, likely to be mostly acute (e.g. headaches), or too vague to translate into a LTC (e.g. pain in limb). In the case of the latter, if a LTC is present, then a diagnosis should lead to a code of a LTC being recorded (e.g. osteoarthritis).

LTC 'monitoring' categories were retained if it was felt that these were likely to give useful information on LTCs (e.g. CHD monitoring). Surgically correctable diseases were included if these were felt to represent potential long-term conditions in many cases (e.g. varicose veins) but excluded if in most cases they are likely to be corrected (e.g. inguinal hernia, cataracts).

There are therefore a number of limitations with this process:

- although no LTCs with high prevalence should have been excluded, it is possible that removing a high number of less common LTCs could lead to a significant underestimation of the prevalence of LTCs overall;
- any conditions that are not picked up adequately by PTI may be underestimated;
- RCGs were used, and so the exercise depends on relatively broad groups of conditions rather than individual diagnoses;
- clearly this exercise does not provide a list of all LTCs.

In order to address some of these issues, the list of most prevalent conditions given by this revised PTI database was checked against SHS and also against a list of the top 400 individual Read Codes on the PTI database prior to any removal of RCGs.
The original list of PTI RCGs and the list of LTC groups produced from this are given in the appendices.

Objective 3 - Prevalence and patterns of multiple LTCs assessed at a Scotland level

1. The number of people reporting one or more LTCs on SHS, and what proportion of this group has one or more of the original list of conditions (to assess the importance of other conditions not on the list) was ascertained.

2. The number of people reporting one or more LTCs on PTI, and what proportion of this group have one or more listed conditions, using the LTC groups with the PTI database was ascertained by making different assumptions of what are considered to be LTCs.

3. These estimates were interpreted in light of the information gathered earlier relating to the individual conditions and databases.

4. Common combinations of multiple LTCs were identified.

Results

List of Conditions (Objective 1)

CHD
Atrial Fibrillation
Heart Failure
Stroke
Hypertension
COPD
Asthma
Diabetes
Hypothyroidism
Osteoarthritis
Rheumatoid Arthritis
Back Pain
Depression
Schizophrenia
Dementia
Parkinson's disease
Chronic fatigue syndrome/myalgic encephalomyelitis
Multiple sclerosis
Epilepsy
Cancer
Chronic kidney disease
Inflammatory bowel disease

Visual impairment
Hearing impairment
Learning disability
Urinary incontinence

It is important to note that in assessing PTI for prevalence of conditions, RCGs were used rather than individual Read Codes, and clearly this will affect which diseases are included. Although some of the categories above will include both short and long-term conditions, most are relatively specific.

Data Sources (Objective 1)

The most useful data sources for LTCs were identified. Consideration was given to their accessibility within ISD. Other sources were investigated.

Practice Team Information (PTI)

These are data obtained from general practices regarding all patient consultations (except telephone consultations) with a member of the practice (from 2006/07, only consultations with GPs and practice nurses are recorded). Reasons for consulting, diagnoses and actions taken are coded by the healthcare professional. Other medical problems not directly relevant to the consultation are not recorded.

The data can be analysed at individual level, and so multiple conditions in the same individual can be identified. Multiple consultations for the same condition can also be assessed within the estimate of prevalence i.e. four consultations by the same patient within the year gives a prevalence of one. However, if a patient does not consult within a single year for a particular condition, they will not be counted within the overall prevalence estimate for that condition.

The reason for PTI analysis being based on a one year period is that data are obtained from a number of participating practices over this duration (44 practices in 2005/06). Each year there may be a turnover, with some practices entering the scheme and some leaving, and hence the population changes between years. However, relying on consultations within a single year may miss many LTCs. Therefore, data were obtained from a reduced number (34) of practices who consistently submitted data to PTI for a three year period from 2003 to 2006, and reviewed to assess how often patients consulted within this period. This showed that for many LTCs, a large proportion of patients did not consult annually and therefore estimates based on a single year's consultations would underestimate prevalence. This must be weighed against other weaknesses in the database which may affect the prevalence estimates.

Strengths

- Provides individual level data, including co-morbidities (not possible with national QOF data).
- Provides information on specific read-coded diseases and read code groups (not possible with SHS).
- Useful for conditions which are managed by and lead to regular contact with GPs/practice nurses.
- Gives information regarding number of contacts with primary care.
- Diseases which are included in QOF are particularly well recorded.

Weaknesses

- Depends on accurate coding from a large amount of read codes.
- Diagnoses which are later proved wrong cannot be revised.
- Gives no direct information on the duration or severity of a diagnosis.
- Coding of a condition depends on a consultation taking place relating to that illness, and is therefore less useful for conditions which require mostly specialist care, or which are unlikely to lead to regular primary care consultations.
- Based on a small sample of general practices.
- One year database may underestimate prevalence due to a lack of consulting on an annual basis.
- Three year database may overestimate prevalence due to the practice population being based on a single CHI count, which does not take account of changes in this denominator (as a result of new registrations, un-registered patients using the practice etc.). The population denominator is therefore lower than the true number of patients using the practice in a three year period.

For more information, see the PTI section of the ISD website http://www.isdscotland.org/isd/1044.html.

Quality Outcomes Framework (QOF)

These are data obtained from the majority of general practices in Scotland in order to meet clinical targets as part of the new General Medical Services (nGMS) contract. Data are collected for 20 registers that are mostly disease-based. Patients within a practice who are diagnosed as having a disease for which a register exists should be recorded on the practices' QOF disease registers. This allows calculation of the numbers of people with those individual diseases. However, these data are not stored by individual, but by register, and so it is not generally possible to assess co-morbidities in individual patients.

Specific criteria exist regarding entry of a patient onto a register. For example, a patient should be removed from the asthma register if they have not been on treatment for the past 12 months, and the diabetes register includes only patients aged 17 years and over. Notwithstanding these criteria, patients with LTCs will remain on registers following a diagnosis, and so prevalence counts are not dependent on regular consultations. This, along with the limited number of registers and financial incentives to maintain these, should mean that QOF is relatively reliable.

Strengths

- Requires single entry onto a register and is not dependent on consultation.
- Patients receiving mostly specialist care should be registered, but in some cases the criteria aim to exclude these individuals from registration.
- Provides information on specific diseases.
- Registers can be adjusted to remove patients where appropriate.
- Data collected from most practices in Scotland.
- Criteria may give extra information about a patient i.e. gives prevalence of asthma patients who are registered and require current treatment, whereas PTI gives prevalence of all patients who have been diagnosed with asthma (some of whom may have transient wheeze, for example).

Weaknesses

- Cannot assess co-morbidities due to lack of individual level data.
- Gives only information regarding the diseases for which registers exist.
- Does not give information on numbers of consultations.
- Although age groups are specified in some disease registration criteria, the whole practice population is used as the denominator (the effect of this will depend on differences in prevalence between the included and excluded age groups).
- Recently established registers may underestimate prevalence.

For more information, see the QOF section of the ISD website http://www.isdscotland.org/isd/3305.html.

Scottish Health Survey (SHS)

This survey is carried out every few years on a small sample (over 10,000) of individuals across Scotland. The last survey was carried out in 2003. Respondents are interviewed in order to complete a questionnaire, and in some cases body measurements including blood samples are taken by a nurse. One of the questions on the survey specifically relates to LTCs;

'Do you have any long-standing illness, disability or infirmity? By long-standing I mean anything that has troubled you over a period of time, or that is likely to affect you over a period of time.'

Up to six long-standing illnesses can be recorded. There is also a question asking respondents about the severity of their LTCs;

'Does this illness or disability limit your activities in any way?'

For a number of conditions, the respondent is also asked specifically whether they have 'ever had' that disease and whether this was diagnosed by a doctor, for example;

'Have you ever had angina?'

'You said that you had angina. Were you told by a doctor that you had angina?'

It was confirmed that most individuals who reported these specific diseases said that they were diagnosed by a doctor, and have included data on the number of doctor diagnosed cases in our analysis.

The SHS therefore gathers data specifically on conditions which individuals perceive to be LTCs, and some information on how these impact on lifestyle. The free text collected on the questionnaires is coded directly into one of over 40 broad disease categories, which are then aggregated into groups based on ICD-10.

Strengths

- Provides information on comorbidities.
- Detection does not depend on use of health services.
- Asks specifically about presence of LTCs, and so overcomes the difficulty in differentiating between how much of a condition is acute and how much is chronic.
- Gives information on conditions that individuals themselves believe are significant LTCs, as well as giving an estimate of severity/life limitation.
- Analyses can be broken down by all ages or 16+ years only, using appropriate denominators.

Weaknesses

- Some disease categories are very broad, and so individual diseases cannot always be assessed.
- Patients beliefs about which LTCs they have may not match with medical diagnoses, and patients may under or over-report conditions.
- Survey participants may not be representative of the whole Scottish population (response bias).
- Based on a relatively small sample of individuals.

For more information, see
http://www.scotland.gov.uk/Publications/2005/11/25145024/50251.

Scottish Morbidity Record (SMR) 01

These are data obtained for every admission to hospital in Scotland. The main reason for admission is coded along with up to five other conditions. Prevalence data can be obtained by using the ISD linked dataset to identify all admissions for a specific condition over a 10 year period (the same individual being admitted more than once counts as a prevalence of one), and removing data on those who are no longer alive. Data were collected for the period 1996-2006. The linked dataset was used to look at SMR 04 (mental health admissions) data, both separately and in combination with SMR 01.

For more information, see http://www.isdscotland.org/isd/4159.html.

Strengths

- Comprehensive - based on all admissions to hospital.
- Can give an indicator of severity (requiring hospital admission).
- Good for conditions which commonly require hospital admission.
- Detailed level of coding based on the International Classification of Diseases.
- Can be broken down by age group.

Weaknesses

- Only detects those individuals who are admitted to hospital for the specific condition.

Scientific and other literature

A literature search was undertaken for each condition on Medline using the MeSH (Medical Subject Heading) terms 'condition', 'prevalence' and 'Great Britain'. Where this gave few studies, the search was widened by removing 'Great Britain.' Related articles were reviewed.

The aim of this was not to carry out a systematic literature review for each condition, but to inform the interpretation of the estimates given by the routine data. The studies found varied in terms of the population groups investigated (for example, only certain age groups were looked at), the methods used to identify cases, the definitions used for individual conditions etc. Changes in prevalence over time may also affect the estimates given by studies, as can location, including regional and national variations (for example, the discrepancy between Scotland and England for cardiovascular disease). Large variations in prevalence figures are evident between studies, and the reasons for these discrepancies were useful in understanding differences in the routine data. In a small number of cases, useful whole population prevalences were found in studies.

Pharmacy data

Consideration was given to this data source, but its use for estimating prevalence is limited. This is because data are collected regarding drugs dispensed rather than individuals. Prevalence can be estimated using 'defined daily doses' (DDD) which is an assumed average maintenance dose per day for a drug used on its main indication in adults. This can then be applied to the total amount of drugs dispensed to work out an estimated number of people taking the medication. However, there are a number of limitations with this approach, there are drugs for which there is no DDD (e.g. topical preparations), the lack of DDDs for children, use of multiple drugs for a single condition, use of drugs for multiple conditions (non-specific to the condition of interest). Additionally, the prescribing and dispensing of a drug does not necessarily mean the patient will take the drug or complete a course which may lead to more GP prescribing and pharmacy dispensing for extra drugs thereby falsely increasing the prevalence estimation.

Other Information Sources

Information from any other surveys/organisations identified were also taken into consideration, but this search was not comprehensive. Where appropriate, literature reviews were conducted to gain information from other studies of prevalence and information was also gathered from relative charitable organisations. Please refer to the list of references for furher information.

Interpretation of information from data sources (Objective 1)

Based on this review of multiple conditions and the process of working with these data, a number of observations may be made about each database. If QOF is taken as being the most accurate measure (bearing in mind the criteria for registration), it appears that in general:

- Three year PTI tends to overestimate prevalence;
- One year PTI tends to underestimate prevalence;
- SHS tends to underestimate prevalence;
- SMR 01 tends to underestimate prevalence;

In understanding the estimates given by each database for any one condition, it is important to remember that various criteria relating to the disease will affect these figures, including:

- specificity of diagnosis (osteoarthritis non-specific, AF specific);
- whether the condition is often short term or long-term (back pain will often be short term, diabetes is always long-term);
- the requirement for regular specialist care/regular GP care/no medical care;
- likelihood of the condition presenting to a GP or requiring hospital admission;
- patient awareness of the condition (patients will usually be aware they have acute-onset diabetes and will seek help but may be less aware they have hypertension).

It is also important to bear in mind that prevalence estimates will depend on the coding and registration criteria used, and this will account for some of the differences between data sources. In most cases, analysis of PTI used whole Read Code Groups rather than individual Read Codes, but the latter were used where necessary. RCGs were often found to be dominated, in terms of prevalence, by a few major RCs, and large numbers of acute conditions were removed where necessary.

In addition to comparing like with like, the databases also give complimentary views of some conditions. For example, for a condition which may be acute or chronic (e.g. back pain), using PTI and SHS together can give information on the number of people consulting with the condition, and what proportion of these are likely to have long-term problems (as SHS only asks about long-term conditions). The work also shows that in most cases SHS underestimates prevalence, and so this finding can be built in, in order to develop a better picture of chronic back pain.

It is important to note when applying these estimates to populations that most conditions increase in prevalence with deprivation and age.

Prevalence of individual LTCs (Objective 2)

The estimates from data sources for each individual condition are given below. It is important to note that the data are used to estimate prevalence of conditions in the whole population (as opposed to specific age groups).

The PTI databases used were the 2005/06 single year database using information from 44 practices, and the 2003-06 3 year database from 34 practices, and our LTC groups were applied to these. The former has data from more patients, but the latter has a longer time period for detection of conditions (but does not take account of turnover of patients on the practice lists).

2006/07 data were used for the QOF estimates to allow for inclusion of information from new disease registers, but clearly the figures may be slightly different from PTI data due to changes in prevalence over time. Time may also contribute to differences between other data sources.

SHS data are given using information derived from the open question asking patients about any LTCs they have. Where possible, prevalences obtained from specifically asking a patient whether they have a condition are also given.

Exclusions of data from databases may be due to lack of an appropriate disease category in SHS, and lack of a disease register in QOF. PTI and SMR 01 data are given as a minimum (other than for the four 'disabilities', as ICD codes used for SMR 01 are disease-based and would require extensive work to obtain all relevant codes). SHS categories provided a reasonable match to the listed condition in some cases, in others the closest related category was used for comparison, but for some LTCs there were no useful groups.

Data are also given for those aged 16 years and over only, as this was available from a number of the data sources and gives a better estimate of prevalence in the 'adult population'. In addition, some of the QOF registers include only patients who are aged 16+, 17+ or 18+, and in these cases the QOF figures may be more comparable with the 16+ tables. However, it should be noted that for these QOF measures, the whole practice population is used as the denominator (whereas calculations for 16+ years for PTI and SHS should use the 16+ population as the denominator).

Estimates are given as rates per 1000 people in the whole population (or in the population aged 16+). Specific references to the literature are given where these are particularly useful and relevant, but the above limitations in interpreting these must be borne in mind.

The commentaries give some views and suggestions as to the reasons for differences between the databases, based on experience of these and insights provided by the research literature. Based on this interpretation, suggested prevalence estimates for each condition (usually using QOF data where available) are given at the end of this section. However, other explanations and interpretations may also be valid, and it is hoped that by presenting the information in this way, readers can question the interpretation and produce their own estimates if required.

Arthritis- Osteoarthritis

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**19**	**23**	Based on RCG 128 (osteoarthrosis)
3 year PTI 2003-06	**50**	**61**	
SHS 2003 (LTC)	**69**	**98**	Based on SHS LTC group 'arthritis, rheumatism, fibrositis'
SMR 01 1996-2006	**0.8**	**1.0**	Based on ICD-10 code M15

Commentary

Assessing prevalence of osteoarthritis is problematic. The scientific literature uses a range of measures, including pain, disabling pain, need for arthroplasty, radiological changes etc. The diagnosis is often made clinically based on a subjective measure of pain, and patients may seek help early or late in the course of the disease.

The Arthritis Research Council estimate that around eight million people in the UK are affected (ARC, 2008). Prevalence is higher in lower socio-economic groups, women (Steel et al., 2006) and black and minority ethnic groups (Allison et al., 2002).

Arthritis - Rheumatoid Arthritis

Database	Prevalence estimate		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**4.1**	**5.0**	Based on codes taken from RCG 127
3 year PTI 2003-06	**6.9**	**8.5**	
SMR 01 1996-2006	**3.9**	**4.6**	Based on ICD-10 codes M05, M06, M08, M45

Commentary

Prevalence in those aged 16+ has been estimated at 0.44% for men and 1.16% for women (0.81% overall) based on an arthritis register in England (Symmons et al., 2002). PTI may be expected to give relatively lower estimates due to patients receiving specialist care.

Asthma

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**57**	**54**	Based on RCG 103 (asthma)
3 year PTI 2003-06	**94**	**89**	
QOF 2006-07	**55**	**58**	Excludes patients who have not had a prescription for asthma medications in the past 12 months
SHS 2003 (LTC)	**62**	**-**	Based on SHS LTC group 'asthma'
SHS 2003 (doctor diagnosed)	**136**	**128**	
SMR 01 1996-2006	**22**	**19**	Based on ICD-10 codes J45-J46

Commentary

Estimates from the research literature vary widely, depending on the criteria being used. Wheeze is relatively common in children, and studies that measure wheeze in the past year can give prevalence estimates of up to 30% in children (Rees, 2005). This probably accounts for the relatively high estimates given by PTI and SHS. The figure of 136 per 1000 of the population given by SHS probably represents those who have had episodes of wheeze or a diagnosis of asthma, but who do not have ongoing asthma (or who are not receiving treatment).

Atrial Fibrillation (AF)

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**7**	**9**	Based on RCs 662S., G573., G5730, G5731, G5732, G5733, G573z
3 year PTI 2003-06	**13**	**16**	
QOF 2006-07	**13**	**-**	
SMR 01 1996-2006	**17**	**21**	Based on ICD-10 code I48

Commentary

The higher estimate given by SMR 01 compared with PTI and QOF may be partly due to patients receiving treatment in hospital which resolves the AF, and so the QOF figure may be a more accurate measure of people with ongoing AF. PTI may be relatively low due to patients not consulting specifically for this problem following initiation of treatment, or may be due to more specialist care for their AF.

The QOF estimate fits well with those found in the research literature. Prevalence increases with age and may be as high as 7.2% in those aged over 65 years (Hobbs et al., 2005). There are associations with heart failure, hypertension and ischaemic heart disease (Lip et al., 1997; Davies et al., 2001).

Back Pain

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**79**	**95**	Based on RCG 130 (back and neck disorders)
3 year PTI 2003-06	**190**	**228**	
SHS 2003 (LTC)	**39**	**55**	Based on SHS LTC group 'back problems, slipped disc, spine, neck'
SMR 01 1996-2006	**8.0**	**9.6**	Based on ICD-10 codes M54.5, M54.8, M54.9, F45.5

Commentary

PTI estimates include those who consult for acute back pain, and this probably accounts for the large discrepancy between the one year and three year PTI figures. SHS therefore gives the only useful estimate of chronic back pain, but this is likely to be an underestimate.
The research literature gives a range of prevalence for chronic back pain, again depending on the criteria used to define this. Many of the issues discussed for osteoarthritis are also pertinent to back pain (and other musculoskeletal disorders), and so it is problematic to give prevalence estimates.

Cancer

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**8**	**10**	Based on RCGs 10-38 and 33B, but excludes RCG 22 (all malignant neoplasms excluding non-melanoma skin cancer)
3 year PTI 2003-06	**18**	**22**	
QOF 2006-07	**9**	**-**	Excludes patients who were diagnosed before 1st April 2003
SHS 2003 (LTC)	**12**	**17**	Based on SHS LTC group 'cancer (neoplasm) including lumps, masses, tumours and growths'
SMR 01 1996-2006	**59**	**69**	Based on ICD-10 codes C00-D48
Scottish Cancer Registry	**25**	**-**	

Commentary

Non-melanoma skin cancers are excluded from the PTI figures because they are common and often 'curable', and so could potentially skew the prevalence estimates. The Scottish Cancer Registry does not record data on non-melanoma skin cancers.. PTI is probably relatively low due to patients receiving specialist care, and QOF includes only those who have a relatively recent diagnosis, so these may both underestimate prevalence.

For further explanation of the Scottish Cancer Registry data see http://www.isdscotland.org/isd/cancer-faqs.jsp?pContentID=1328&p_applic=CCC&p_service=Content.show&

The SMR 01 codes used include benign neoplasms, and so should be more comparable with SHS (which includes lumps, masses etc.) than with PTI/QOF/Scottish Cancer Registry data which represent cancers only.

Chronic Fatigue Syndrome (CFS)/Myalgic Encephalitis (ME)

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**1.3**	**1.5**	Based on RC F286.
3 year PTI 2003-06	**2.9**	**3.4**	
SMR 01 1996-2006	**0.54**	**0.59**	Based on ICD-10 codes G04-G05, G93.3

Commentary

There are a number of definitions for CFS, but they generally include seriously impairing fatigue for a duration of more than six months and no other cause for the fatigue. Diagnostic and coding inaccuracies will affect prevalence estimates. Depending on the definitions and criteria used, studies have found a prevalence of between 0.007 and 2.6% (Ranjith, 2005) in the general population.

Chronic Kidney Disease (CKD)

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**2.2**	**2.8**	Based on RCG 136 (renal failure)
3 year PTI 2003-06	**5.0**	**6.1**	
QOF 2006-07	**18**	**-**	Includes those aged 18 years and over with stages 3-5 CKD (determined by estimated Glomerular Filtration Rate (eGFR))
SHS 2003 (LTC)	**6**	**7**	Based on SHS LTC group 'kidney complaints'
SMR 01 1996-2006	**2.3**	**2.8**	Based on ICD-10 codes N18 and I12

Commentary

The prevalence of stages 3-5 CKD have been estimated at 4.9% of the population registered with a general practice in England (de Lusignan et al., 2005). There are clearly large discrepancies between sources, and while the reasons for this are not clear, the above estimates may be low due to a lack of use of the eGFR measurement, under diagnosis of early disease, specialist treatment, and coding anomalies.

Chronic Obstructive Pulmonary Disease (COPD)

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**17**	**21**	Based on RCG 102 (bronchitis, emphysema and other chronic obstructive pulmonary diseases)
3 year PTI 2003-06	**28**	**35**	
QOF 2006-07	**18**	**-**	
SHS 2003 (LTC)	**8**	**10**	Based on SHS LTC group 'bronchitis, emphysema'
SMR 01 1996-2006	**11**	**13**	Based on ICD-10 codes J41-J44 and J47

Commentary

There is considered to be significant under-diagnosis of COPD. The relatively high prevalence given by PTI compared to QOF may be because many of these patients have severe disease and so require regular care (the relatively high SMR 01 figure possibly also reflects this).

Coronary Heart Disease (CHD)

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**32**	**39**	Based on RCGs 76-78 (angina, acute myocardial infarction, ischaemic heart disease)
3 year PTI 2003-06	**55**	**68**	
QOF 2006-07	**45**	**-**	
SHS 2003 (LTC)	**23**	**33**	Based on SHS LTC group 'heart attack, angina'
SHS 2003 (doctor diagnosed)	**58**	**82**	
SMR 01 1996-2006	**38**	**47**	Based on ICD-10 codes I20-I25

Commentary

QOF should include all CHD patients, including those who have not been admitted to hospital or consulted primary care recently, as a result of their CHD, which probably explains the higher figure compared to PTI and SMR01. The 58 per 1000 population given by SHS could suggest that QOF is underestimating, but may include inaccurate reporting by respondents.
A prevalence of 3.7% of the general population was found in England using QOF data. (Saxena et al., 2007). Prevalence is higher in men, lower socio-economic groups and black and minority ethnic groups (Murphy et al., 2006; Congdon, 2008).

Dementia

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**2.7**	**3.4**	Based on RCG 50 (dementia including Alzheimer's disease), RC E00.. (senile/presenile organic psychosis) and RCEu02z (unspecified dementia)
3 year PTI 2003-06	**7.3**	**9.0**	
QOF 2006-07	**6**	**-**	
SHS 2003 (LTC)	**0**	**0**	Based on SHS LTC group 'Alzheimer's and degenerative brain diseases, senile dementia'
SMR 01 1996-2006	**2.7**	**3.4**	Based on ICD-10 codes F00-F03

Commentary

It is likely that QOF and PTI underestimate prevalence due to under diagnosis in early disease and because these patients may not consult specifically for this condition (consultations may be commonly due to co-morbidities).
A report by Alzheimer Scotland reviewed three studies which give prevalence of dementia, and estimates that between 58,000 and 65,000 people in Scotland had dementia in 2007 (which equates to around 11-13/1000) (Alzheimer Scotland, 2007).

Depression

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**52**	**64**	Based on RCG 54 (depression and other affective disorders)
3 year PTI 2003-06	**117**	**143**	
QOF 2006-07	**62**	**-**	Excludes patients aged under 18 years and those with postnatal depression
SHS 2003 (LTC)	**33**	**38**	Based on SHS LTC group 'mental illness, anxiety, depression, nerves (nes)'
SMR 01 1996-2006	**0.05**	**0.05**	Based on ICD-10 code F34.1
SMR 04 1996-2006	**0.16**	**0.20**	

Commentary

The QOF figure should include only those diagnosed since 1st April 2006 (so may be an underestimate), but may in fact include patients diagnosed prior to this. As this includes individuals who have not been coded as having recovered from their depression, this should estimate current active cases, but not all of these patients will necessarily have long-term depression. One study gives an estimated prevalence of 5% in the general population with a higher rate in women (Ohayon et al., 1999).

Diabetes Mellitus

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**37**	**46**	Based on RCG 46 (diabetes)
3 year PTI 2003-06	**48**	**58**	
QOF 2006-07	**35**	**-**	Excludes those aged under 17 years, gestational diabetes, impaired glucose tolerance, and individuals not coded specifically as type I or II diabetes
SHS 2003 (LTC)	**24**	**34**	Based on SHS LTC group 'diabetes including hyperglycaemia'
SHS 2003 (doctor diagnosed)	**31**	**43**	
SMR 01 1996-2006	**16**	**19**	Based on ICD-10 codes E10-E14
Scottish Diabetes Survey (SDS) 2006	**39**	**-**	

Commentary

When compared to the age 16+ table, the QOF figure appears to be an underestimate, with similar figures given by one year PTI and SHS. This could be partly due to a coding issue, as patients who are not coded as having specifically type I or type II diabetes are not included in these figures.
These data only include those who have been diagnosed. The total population prevalence for all ages in England, including diagnosed and undiagnosed cases, has been estimated at 4.41% in 2001 (Forouhi et al., 2006). Prevalence is higher in black and minority ethnic groups, women and the elderly (Forouhi et al., 2006).

Epilepsy

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**5.8**	**6.8**	Based on RCG 60 (epilepsy)
3 year PTI 2003-06	**9.8**	**11.4**	
QOF 2006-07	**7**	**-**	Includes only patients aged 18 years and over who are currently receiving treatment
SHS 2003 (LTC)	**7**	**7**	Based on SHS LTC group 'epilepsy, fits, convulsions'
SMR 01 1996-2006	**6.4**	**6.6**	Based on ICD-10 codes G40-G41

Commentary

Prevalence is usually estimated in the research at 5 to 10 per 1000 in the general population but over-diagnosis may be a problem (Sander, 2003). This is consistent with the above estimates.

Hearing Loss

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**8**	**9**	Based on RCG 73 (hearing loss)
3 year PTI 2003-06	**23**	**25**	
SHS 2003 (LTC)	**10**	**12**	Based on SHS LTC group 'poor hearing, deafness'

Commentary

As with visual impairment, most individuals detected by the three year PTI database are seen for this problem only once during this period. Hearing loss covers a wide spectrum, and there is likely to be under-diagnosis of milder cases. The Royal National Institute for Deaf People estimates that there are almost nine million hard of hearing and deaf individuals in the UK (RNID, 2008).

Heart Failure

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**4**	**5**	Based on RCG 82 (heart failure)
3 year PTI 2003-06	**12**	**14**	
QOF 2006-07	**9**	**-**	
SMR 01 1996-2006	**12**	**15**	Based on ICD-10 codes I50.0, I50.1, I50.9

Commentary

A diagnosis of heart failure depends on a patient having symptoms of breathlessness (dyspnoea) along with cardiac dysfunction (AF, heart valve disease or systolic dysfunction). However, many patients with left ventricular systolic dysfunction (LVSD) may not yet have symptoms (Davis et al., 2002). The difference between SMR 01 and QOF may be due to patients receiving medical tests in hospital which show LVSD but not heart failure, whereas QOF may be more representative of those who are also symptomatic. Both figures may underestimate the number of people who have LVSD and who would benefit from treatment, (Morgan et al., 1999).
Prevalence is higher in lower socio-economic groups, (Mc Alister et al., 2004) and men (Morgan et al., 1999). There are associations with coronary heart disease (CHD) and diabetes mellitus (DM). (Davis et al., 2002) Estimates of heart failure vary depending on the methods and diagnostic criteria used, but it had been suggested that the prevalence could be as high as 8% in those aged 65 years and over (Mair et al., 1996).

Hypertension

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**100**	**124**	Based on RCG 75 (hypertension)
3 year PTI 2003-06	**148**	**182**	
QOF 2006-07	**125**	**-**	
SHS 2003 (LTC)	**38**	**55**	Based on SHS LTC group 'hypertension, high blood pressure, blood pressure (nes)'
SHS 2003 (doctor diagnosed)	**173**	**244**	
SMR 01 1996-2006	**38**	**47**	Based on ICD-10 codes I10-I15

Commentary

PTI data may include some patients who have had monitoring for possible hypertension, but not been diagnosed as such. QOF should include patients who have been diagnosed using appropriate criteria (British Hypertension Society Guidelines 2004) and is therefore likely to be the most reliable measure. SHS data suggests that individuals do not see hypertension as a LTC when asked broadly about these, but when asked specifically report a high prevalence compared to QOF. This may represent sporadic measurements of high blood pressure without a substantial diagnosis.
A prevalence of 11.4% was found in England using QOF data. (Saxena et al., 2007) Hypertension has historically been under-diagnosed and under-treated, but its addition in QOF may have improved this.

Hypothyroidism

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**16**	**20**	Based on RCG 45 (thyroid disorders excluding thyrotoxicosis and malignancies)
3 year PTI 2003-06	**30**	**37**	
QOF 2006-07	**31**	**-**	
SHS 2003 (LTC)	**25**	**33**	Based on SHS LTC group 'other endocrine/metabolic'
SMR 01 1996-2006	**5.7**	**7.0**	Based on ICD-10 codes E00-E03

Commentary

The relatively low estimates given by PTI when compared with QOF may represent a reduced need to consult a healthcare professional for this condition. The prevalence of primary hypothyroidism has been found to be 5.1% in females and 0.9% in males, (Leese et al., 2007) suggesting the overall estimate given by QOF is reasonably reliable.

Inflammatory Bowel Disease (IBD)

Database	Prevalence estimate (Rate per 1,000 population)	Notes	Database
	All Ages	Age 16+	
1 year PTI 2005-06	**2.1**	**2.6**	Based on RCG 116 (Crohn's disease and ulcerative colitis)
3 year PTI 2003-06	**4.1**	**5.0**	
SMR 01 1996-2006	**4.6**	**5.5**	Based on ICD-10 codes K50-K51

Commentary

UK studies have found a prevalence of IBD of about 4 per 1000 of the adult population. (Rubin et al., 2000; Stone et al., 2003). Stone found that many IBD patients are under the sole care of a GP, so the high SMR 01 figure in comparison to PTI may be due to the longer recording timescale rather than an indicator of high use of specialist care.

Learning Disability

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**0.14**	**0.20**	Based on RCG 56 (learning disability)
3 year PTI 2003-06	**0.21**	**0.26**	
QOF 2006-07	**4**	**-**	Includes only patients aged 18 years and over
SHS 2003 (LTC)	**2**	**0**	Based on SHS LTC group 'mental handicap'

Commentary

As with visual/hearing impairment, most individuals detected by the three year PTI database are seen for this problem only once during this period. QOF may underestimate the prevalence as this is a new register, so all cases may not be ascertained. Again, in common with hearing/visual loss there is a wide spectrum of disability. The Scottish Government estimates that 5.5 per 1000 of the Scottish population are known to local authorities as having learning disabilities (Scottish Executive, 2007).

Multiple Sclerosis

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**1.3**	**1.6**	Based on RCG 59 (multiple sclerosis)
3 year PTI 2003-06	**2.2**	**2.8**	
SMR 01 1996-2006	**1.39**	**1.72**	Based on ICD-10 code G35

Commentary

In accordance with PTI estimates, prevalence rates in Scotland have been found to be between 1.5 and 2.2 per 1000 (Rothwell and Charlton, 1998; Murray et al., 2004).

Parkinson's Disease

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**0.9**	**1.2**	Based on RCG 58 (Parkinson's disease)
3 year PTI 2003-06	**1.8**	**2.3**	
SMR 01 1996-2006	**0.99**	**1.22**	Based on ICD-10 codes G20-G22

Commentary

Parkinson's disease is the main, but not only, cause of Parkinsonism, and this may lead to coding anomalies (Foltynie et al., 2006). Population prevalence has been estimated at 1.4-1.5 per 1000 general population in England (Porter et al., 2006).

Schizophrenia

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**2.3**	**2.8**	Based on RCG 53 (schizophrenia, schizotypal and delusional disorders)
3 year PTI 2003-06	**4.8**	**5.9**	
QOF 2006-07	**8**	**-**	
SMR 01 1996-2006	**0.15**	**0.18**	Based on ICD-10 codes F29, F30.2, F31.2, F31.5
SMR 04 1996-2006	**0.88**	**1.07**	

Commentary

The QOF figure may be an overestimate for coding reasons (see QOF webpage). PTI may be relatively low due to patients receiving specialist care for these conditions. The difference may also be partly due to the PTI figure not including bipolar disorder, as opposed to QOF which does. SMR 01 and SMR 04 data were compared with QOF using ICD codes which included bipolar disorder, but the prevalence estimates given remain low in comparison to other data sources.
Prevalence has been estimated at around 5 per 1000 (Saha et al., 2005; Jeffreys et al., 1997; Harvey et al., 1996), with higher rates in some minority ethnic groups (McCreadie et al., 1997).

Stroke

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**11**	**13**	Based on RCGs 62 and 84 (stroke, transient cerebral ischaemic attacks and related syndromes)
3 year PTI 2003-06	**21**	**26**	
QOF 2006-07	**20**	**9**	Includes patients who have ever had a stroke or transient ischaemic attack.
SHS 2003 (LTC)	**6**	**-**	Based on SHS LTC group 'stroke, cerebral haemorrhage, cerebral thrombosis'
SHS 2003 (doctor diagnosed)	**18**	**25**	
SMR 01 1996-2006	**12**	**15**	Based on ICD-10 codes I60-I69 (adding code G45 makes little difference to the estimate)

Commentary

The difference between SMR 01 and QOF/PTI may be due to patients treated in the community. PTI may be relatively low (compared to QOF) as a result of patients not being coded as receiving treatment specifically for stroke (management of stroke often involves treating associated conditions including hypertension, hypercholesterolaemia etc.).
A prevalence of 1.5% was found in England using QOF data. (Saxena et al., 2007) Prevalence of 17.5 per 1000 and 46.8 per 1000 have been found in those aged over 45 and those aged over 55 respectively in the north of England (O'Mahoney et al., 1999; Geddes et al., 1996).

Urinary Incontinence

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**10.2**	**12.1**	Based on RCs 16F.., 1A23., 1A24., 1A26., 317A., 394.., 39H.., 39H0., 8C14., 8D7Z., K198., K586., R083., R0831, R0832, R083z, ZN143
3 year PTI 2003-06	**24.0**	**28.2**	
SHS 2003 (LTC)	**2**	**3**	Based on SHS LTC group 'other bladder problems, incontinence'

Commentary

The research literature suggests that incontinence is under-diagnosed and is one of a number of urinary disorders that can affect quality of life (others include nocturia, for example). Incontinence may also be transient rather than long-term. It has been estimated that the prevalence of current incontinence in adults is 9%, (Roe and Doll, 2000) but that the prevalence of 'socially disabling' incontinence is 2% in those aged over 40 years (Perry et al., 2000).

Visual Impairment

Database	Prevalence estimate (Rate per 1,000 population)		Notes
	All Ages	Age 16+	
1 year PTI 2005-06	**1.0**	**1.1**	Based on RCG 69 (blindness and low vision)
3 year PTI 2003-06	**2.8**	**3.3**	
SHS 2003 (LTC)	**12**	**15**	Based on SHS LTC group 'cataract, poor eyesight, blindness'

Commentary

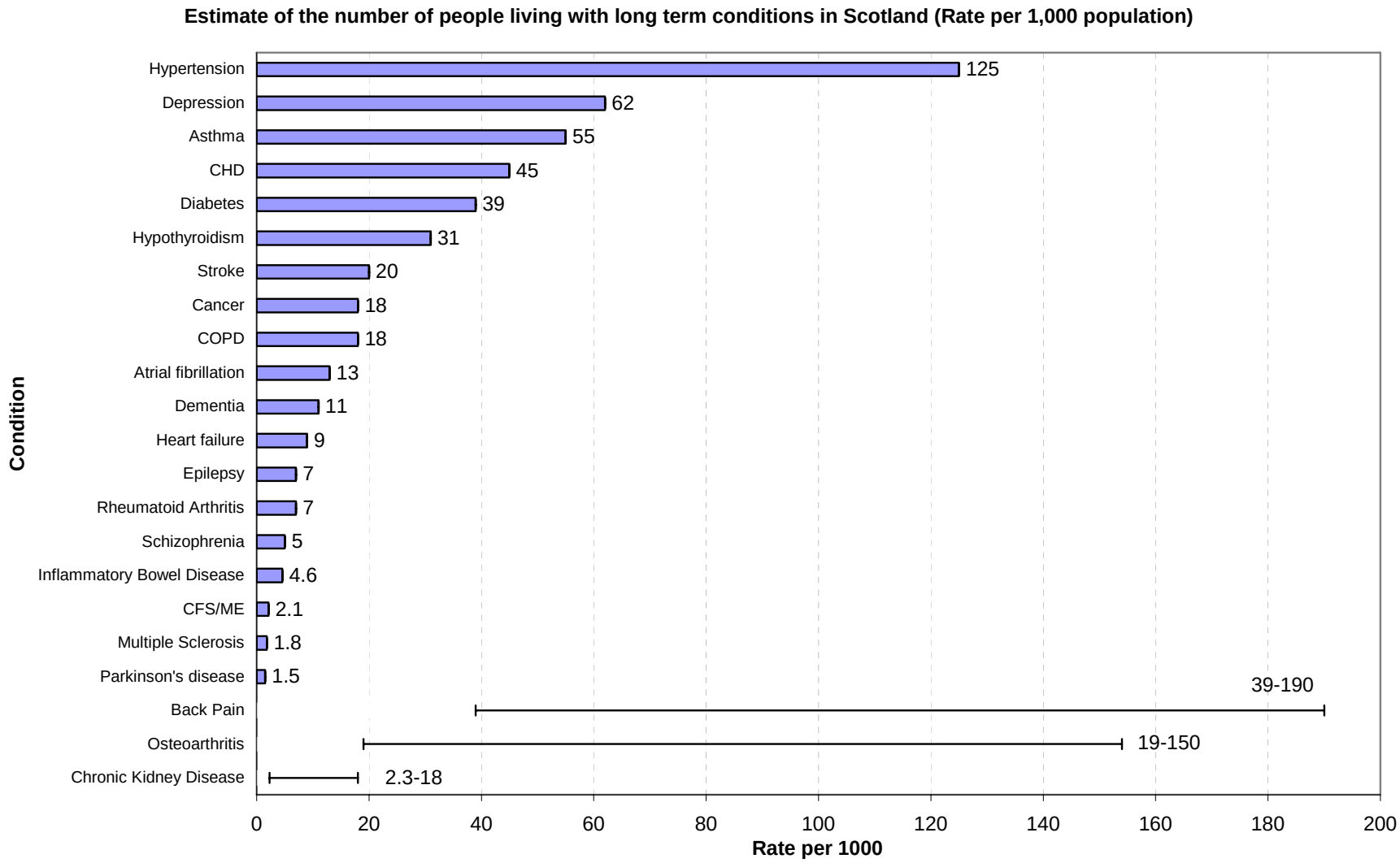
Most individuals detected by the three year PTI database are seen for this problem only once during this period. Reasons for this may include consultations for cataracts which are subsequently treated, patients receiving ongoing care from other professionals, and patients not receiving ongoing care. This may partially account for the low prevalence when compared to SHS.

Prevalence estimates in the literature vary widely, depending on the criteria used, and most consider the elderly population . It has been estimated that 6.9 per 1000 people (are registered blind or partially sighted, and that this may represent only quarter to half of all eligible individuals (Scottish Government, 2007).

Summary

Using these data sources, the most common LTC are asthma, depression and hypertension, each affecting over 5% of the general population. The following conditions affect 2-5% of the population: coronary heart disease (CHD), diabetes mellitus, hypothyroidism, and stroke. Chronic obstructive pulmonary disease (COPD) affects just under 2%. Skin and musculoskeletal disorders (particularly osteoarthritis and back pain) are also very common conditions, but it is difficult to ascertain the prevalence of those that constitute a long-term illness at a population level (see Fig. 1).

Figure 1) Estimate of the number of people living with long-term conditions in Scotland (Prevalence per 1,000 population)



Interpretation: It is estimated that the number of people living with diabetes in Scotland is 39 per 1,000 population.
Source: Long-term Conditions Programme, ISD Scotland. Based on QOF, PTI, SHS 2003, SMR01, SMR04 and scientific literature

Other prevalent LTCs (Objective 2)

The Scottish Health Survey (SHS) and Practice Team Information (PTI) were used to identify other prevalent conditions.

The following tables list the conditions given by SHS and our 'LTC groups' used with the three year PTI database in order of prevalence.

Table 1) All long-term conditions

PTI	SHS
Back pain	Arthritis/rheumatism/fibrositis
Hypertension	Asthma
Skin	Other problems of bones/ joints/muscles
Neurosis	Back problems/slipped disc/ spine/neck
Depression	Hypertension
Joint disorders	Mental illness/anxiety/ depression/nerves
Asthma	Other heart problems
Menstrual disorders	Other endocrine/metabolic
CHD	Diabetes inc. hyperglycaemia
Other respiratory	Heart attack/angina

Table 2) Conditions on the original list only

PTI	SHS
Back pain	Arthritis/rheumatism/fibrositis
Hypertension	Asthma
Depression	Back problems/slipped disc/spine/neck
Asthma	Hypertension
CHD	Mental illness/anxiety/depression/nerves
Osteoarthritis	Other endocrine/metabolic
Diabetes	Diabetes
Hypothyroidism	Heart attack/angina
Drug and alcohol misuse	Other problems of nervous system
COPD	Complaints of bowel/colon

Table 3) Non-listed conditions only

PTI	SHS
Skin	Other problems of bones/joints/muscles
Neurosis	Skin complaints
Joint disorders	Other digestive complaints
Menstrual disorders	Other respiratory complaints
Other respiratory	Stomach ulcer/ulcer/abdominal hernia
Other bowel	Other blood vessels/embolic
Other arthropathies	Reproductive system disorders
Dizzyness	Migraine/headaches
Anaemia	Other complaints
Haemorrhoids	Hayfever

Differences between the databases exist for a variety of reasons as described in previous sections, not least of all due to the different categorisations used. However, there are many similarities in terms of the most common conditions identified by both sources. Musculoskeletal conditions, particularly back problems, are highly prevalent causes of long-term illness. Asthma, hypertension and depression appear within the most prevalent conditions according to both databases, followed by CHD and diabetes.

Skin conditions and menstrual disorders are commonly found in PTI, and while the former seems to be relatively prevalent in SHS, menstrual disorders are much less often cited as constituting LTCs.

Multiple LTCs (Objective 3)

1. Assess the number of people reporting one or more LTC on SHS, and what proportion of this group have one or more of the originally listed conditions (to assess the importance of other conditions).

Data from SHS	
Proportion of people with one or more LTC (all categories)	37%
Proportion of people with one or more LTC (if only include listed conditions)	28%
Of those with one or more LTC, % who have one or more of the originally listed conditions	76%

2. Assess the number of people reporting one or more LTC on PTI, and what proportion of this group have ≥one or more listed conditions, using the LTC groups with the PTI database.

Data from PTI (using the methodology described earlier with the three year database and all LTC groups)	
Proportion of people with one or more LTC (all categories)	68%
Proportion of people with one or more LTC (if only include listed conditions)	51%
Of those with one or more LTC, % who have one or more of the originally listed conditions	76%

It is clear that the original list of conditions (shown on page 11) account for a substantial proportion of the diseases within the population who suffer from LTCs, but that there are many people who have other LTCs which are not in the list, and so it is important to consider these (including those conditions given above).

Further analyses were carried out using the one year PTI database and it was found that 47% of people had more than one LTC (using all our LTC groups). This figure and the 68% given by the three year PTI database may include a significant number of people who have diseases as short term conditions (back pain, for example). This was therefore repeated using our LTC groups, but extracted those conditions which last for at least a year (see appendices), and would therefore normally constitute a LTC under most definitions. The proportion of people with more than one LTC is 28% (from one year PTI).

Table 4 shows some of these data, but also includes estimates of those with one or more and two or more conditions, broken down by age group. Figures for those who reported lifestyle limiting illness on SHS are also given. It should be noted that the methodology used to develop the LTC groups for PTI did not remove all acute conditions from the less prevalent LTC groups, and this will lead to an element of over-estimation of those with two or more LTCs.

Clearly the prevalence estimates of people with more than one LTC varies considerably depending on the database used and the conditions that are included. SHS underestimates the prevalence of most LTCs, as does one year PTI, while three year PTI overestimates. The whole list of LTC groups will include many acute diagnoses, but the list of conditions which are those lasting at least one year will exclude many long-term problems.

Table 4) People with Long-term Conditions

	1 or more condition				2 or more conditions			
	All ages	age 16+	age 65+	age 75+	All ages	age 16+	age 65+	age 75+
GP consultations (Percentage of population consulting in one year) [1]								
Conditions lasting more than 1 year[2]	**28**	32	66	69	**9**	10	30	33
Conditions which may also be acute[3]	**47**	54	79	83	**21**	26	51	56
Scottish Health Survey (Percentage reporting long-term conditions)[4]								
Some form of long-term illness, health problem or disability	**37**	44	65	67	**15**	19	35	36
Conditions limiting day-to-day activities (% of total population)	**11**	15	26	27	**n/a**	n/a	n/a	n/a
Conditions limiting day-to-day activities (As a % of those with 1 or 2 or more conditions)	**31**	33	40	41	**75**	75	74	77

Notes

1. Data from Practice Team Information (PTI), year ending 31 March 2006
2. See Appendix 1 for list of conditions
3. See Appendix 2 for list of conditions
4. Data from Scottish Health Survey 2003

QOF figures are used for many of the individual disease prevalence estimates, but do not allow for assessment of multiple conditions. However, one register does collect information on people who have any of the following conditions; asthma, COPD, CHD, stroke, hypertension or diabetes, and can provide an estimate of the proportion of patients who have one or more of these. As these conditions represent common illnesses which, other than asthma, are always LTCs, it is useful to compare the figures given by QOF with those from three year PTI and SHS (table 5). This confirms the variations described above and demonstrates the magnitude of variation between the data sources.

Table 5) Prevalence estimates by database

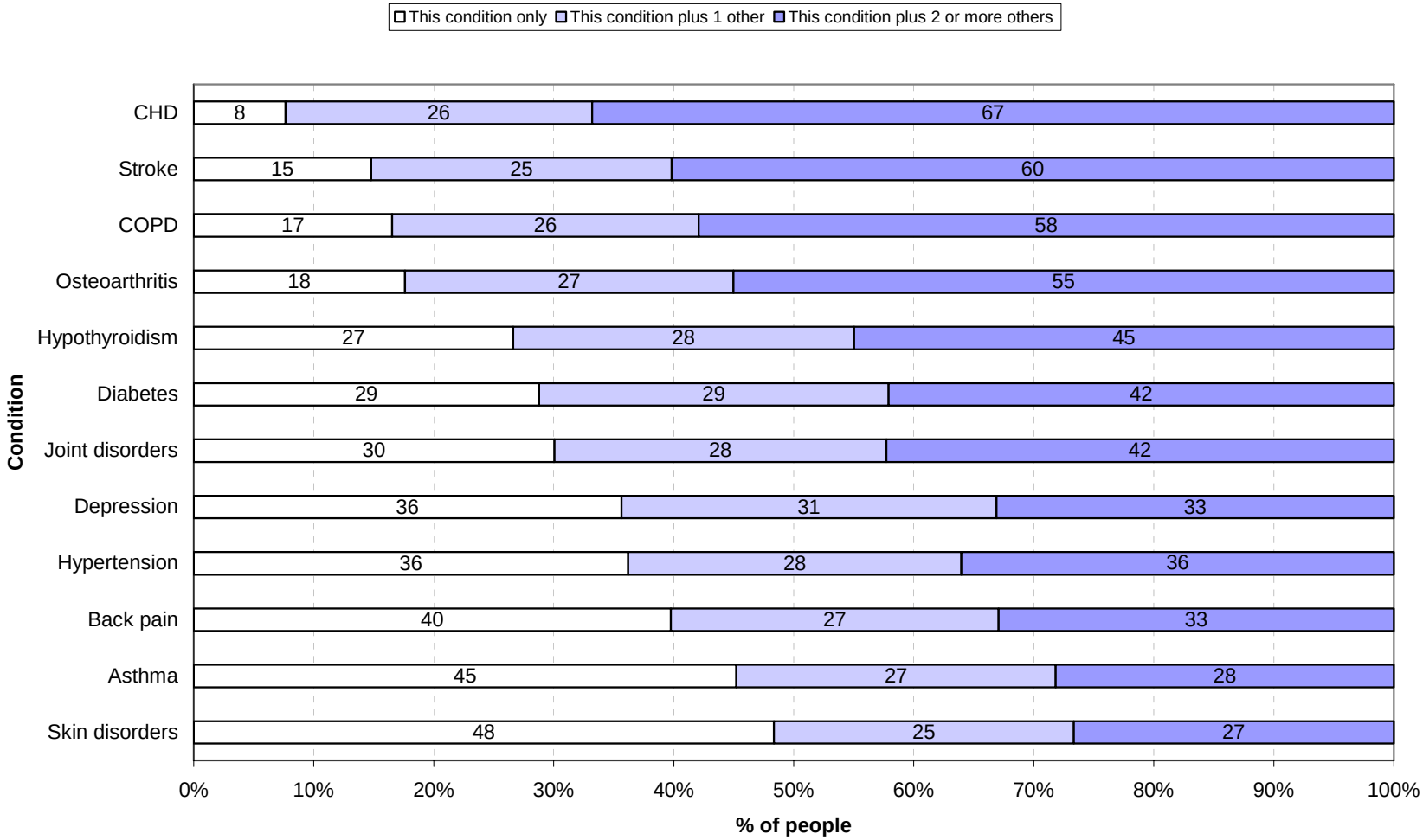
Database	**≥1 of asthma, COPD, CHD, stroke, diabetes, or hypertension**
PTI	27.4
SHS	14.0
QOF	20.4

Taking into account these issues, a suggested estimate of the proportion of the general population with more than one LTC, as defined by duration of conditions rather than burden, is around 50%.

Figure 2 shows some of the most prevalent LTCs in terms of how many other LTCs they have (using the list of conditions lasting at least one year). Figure 3 shows the proportion of people with one of these conditions who also have one of the other conditions (using this limited list).

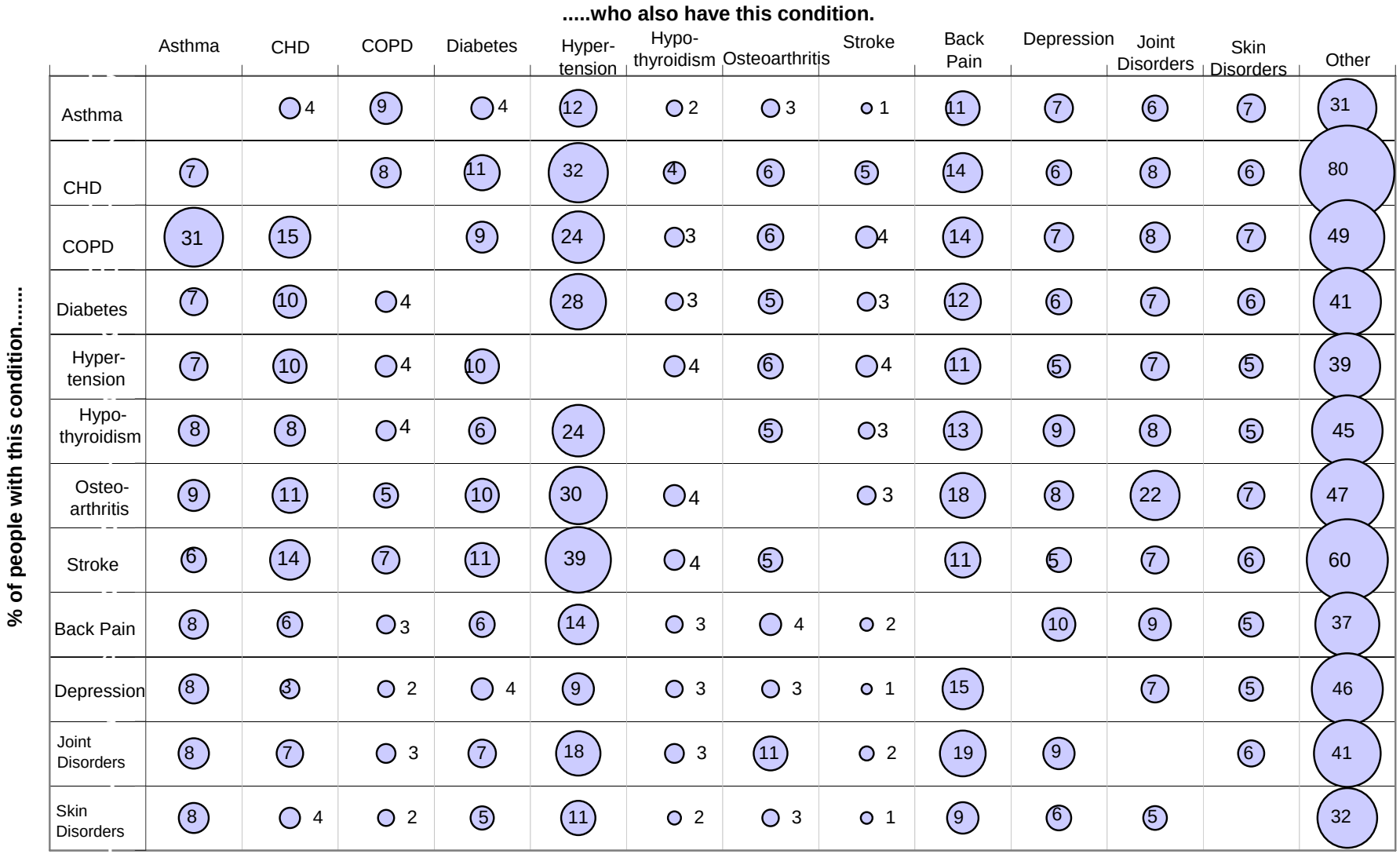
Again, when considering the estimates it is important to bear in mind what database/databases were used and what definition(s) for the LTC(s) concerned were applied. For instance, QOF only records data for those aged 17 and over so prevalence rates may seem higher than in other databases where the rates are collected for all age groups. Also, the prevalence rate for schizophrenia is 33 per 1,000 in the Scottish Health Survey compared to only 5 per 1,000 in PTI. This difference in prevalence may seem alarming however SHS includes Mental illness/anxiety/depression/nerves whereas PTI only includes read code group RCG53 (Schizophrenia, schizotypal, & delusional disorders).

Figure 2) Number of co-existing conditions



Interpretation: Of all people listed as having CHD, 8% have only CHD, 26% have CHD plus one other condition and 67% have CHD plus 2 or more other conditions (based on consultations within the same year).
Source: Practice Team Information (PTI), year ending 31 March 2006, using conditions lasting more than 1 year (see Appendix 1 for list of conditions)

Figure 3) Common combinations of conditions



Interpretation: 4% of people with Asthma also have diabetes. 39% of people who have suffered a stroke also have hypertension
Source: Practice Team Information (PTI), year ending 31 March 2006, using conditions lasting more than 1 year (see Appendix 1 for list of conditions)

Conclusions and next steps

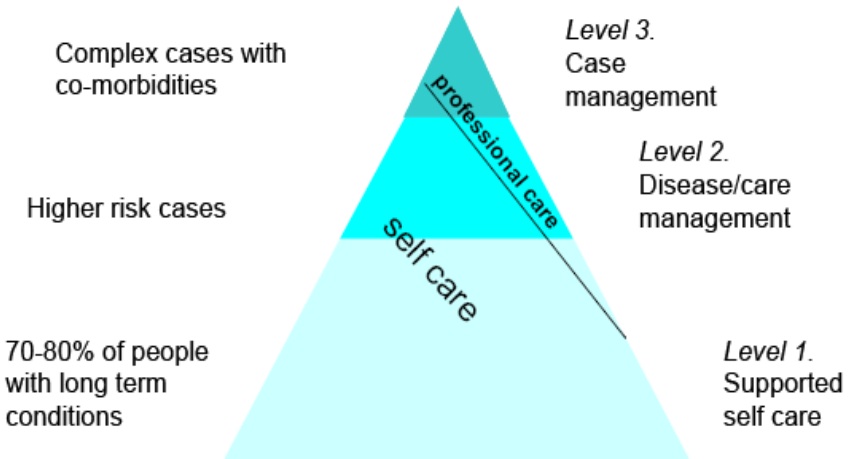
Estimates of the prevalence of multiple LTCs from routine data vary depending upon the data source used and the group of LTCs being investigated. Prevalence rates in the scientific literature also vary because of differences in the groups being studied and the diagnostic criteria which are applied.

Interpretation of prevalence data from routine health care data sources should take into account the findings of this report. Alone, each database gives limited information regarding duration of illness, impact/burden of the condition (on patient and health/other services), and undiagnosed diseases. By combining information from different sources, and understanding the reasons for variation between these, more insight can be gained into what the prevalence estimates mean and how they can be applied in practice.

In terms of groups of LTCs, it is useful to first define the conditions of interest taking into consideration the three aspects of LTCs noted above – duration, impact and diagnosis. For example, one may wish to assess the proportion of people who have any condition lasting at least 6 months, or those who have a condition which requires ongoing medication, or a combination of these etc. This helps to decide on the conditions of interest and how prevalence estimates for these should be interpreted. It is important to remember that prevalence estimates will often not take into account undiagnosed conditions.

The Kaiser Permanente pyramid has proved to be a very useful method for conceptualising risk stratified groups of patients with LTCs. The pyramid models long-term conditions by splitting the population into those who can care for themselves, individuals who need help to manage their diseases, and people who require more intensive case management. Putting the population into these groups is complex due to limited information, people moving between levels of the pyramid, and the way different models of care may influence our assessment of an individual's needs (and therefore where they are in the pyramid). The data contained in this report could be regarded as a first step toward populating a Kaiser Permanente pyramid for Scotland, both at nationwide and CHP level.

Figure 4) Patients with long-term conditions: self care and management



The methodology developed here can be adapted to the needs of the user, since any analysis of long-term conditions depends on the models of care being developed. These methods and data may help to address issues such as:

- The prevalence of a particular long-term condition, or combination of conditions, in specific age, gender and deprivation groups.

- The proportion of people with a specific condition who also have one or more other long-term conditions, and what the most common other conditions are.

- The proportion of individuals with a specific condition/combination of conditions who are admitted to hospital, consult a GP (and how often), or have other health care needs.

These questions can be addressed by the following steps:

1. Define long-term condition(s) of interest and select appropriate Read Code (group)(s).
2. Obtain a prevalence estimate for the long-term condition(s) from PTI (using the 1 year or 3 year dataset depending on the conditions).
3. Use PTI to obtain information on the prevalence of co-existing conditions and demographic data.
4. Use data from other sources and knowledge of the accuracy of these to refine the estimates given by PTI.
5. Use SMR 01 to estimate the proportion of the population admitted to hospital with a specific condition and compare with the overall prevalence estimate. Use PTI to assess the number of consultations (and patterns of these) for individuals with specific conditions/combinations of conditions. Use prevalence estimate as a basis on which to build further information (from scientific literature, for example) regarding need for health care.

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Appendix 1) PTI list of conditions lasting more than 1 year

Alcoholic liver	Asthma
Bronchiectasis	Cerebral palsy
CHD	CHD monitoring
Chromosome incl downs	Chronic kidney disease
Chronic sinusitis	Congenital malformations
COPD	Dementia
Diabetes	Diverticular disease
Endometriosis	Epilepsy
Female infertility	Glaucoma
Heart failure	HIV
Hypertension	Hypothyroidism
Inflammatory bowel disease	Learning disability
Multiple sclerosis	Osteoarthritis
Osteoporosis + bone mets	Parkinson's disease
Pneumoconiosis	Psychosis/bipolar
Rheumatic heart disease	Rheumatoid arthritis
Skin incl eczema, psoriasis	Spina bifida
Stroke	Thyrotoxicosis

Appendix 2 - All LTC Groups produced for use with PTI

Alcoholic Liver	Allergies
Anaemia	Arrhythmia
Asthma	Atrial Fibrillation
Back Pain	Blood Diseases
Blood Vessels	Bronchiectasis
Cancer	Cerebral Palsy
CHD	CHD Monitoring
Chromosome Incl Downs	Chronic Fatigue Syndrome
Chronic Kidney Disease	Chronic Sinusitis
Chronic Tonsil Disease	Congenital Malformations
COPD	Dementia
Depression	Diabetes
Digestive Including Coeliac	Diverticular Disease
Dizziness	Drug And Alcohol Misuse
Endocrine	Endometriosis
Epilepsy	Female Genital Prolapse
Female Infertility	General Ear Diseases
General Heart Diseases	Glaucoma
Haemorrhoids	Hearing Loss
Heart Failure	Hepatitis
HIV	Hyperplasia Of Prostate
Hypertension	Hypothyroidism
Inflammatory Bowel Disease	Joint Disorders
Learning Disability	Malnutrition
Menstrual Disorders	Multiple Sclerosis
Nervous System	Neurosis
Obesity	Osteoarthritis
Osteomyelitis	Osteoporosis + Bone Mets
Other Arthroplasties	Other Bone
Other Bowel	Other Circulatory
Other Kidney	Other Liver
Other Respiratory	Pancreas
Parkinson's Disease	Pneumoconiosis
Psychosis/Bipolar	Rheumatic Heart Disease
Rheumatoid Arthritis	Skin Incl Eczema, Psoriasis
Spina Bifida	Stroke
Thyrotoxicosis	Ulcer
Urinary Incontinence	Varicose Veins
Visual Impairment	Warfarin

Appendix 3 - All PTI RCGs

RCG	RCG description
1	TB
2	Meningococcal infection
3	Gastroenteritis of presumed infectious origin
4	Sexually transmitted infections & others with a predominantly sexual mode of transmission
5	Whooping cough
6	Varicella & herpes zoster
7	Viral hepatitis
8	Human Immunodeficiency virus [HIV] disease
9	Infectious diseases excluding meningococcal, skin, respiratory & urinary tract infections, gastroenteritis, & osteomyelitis
10	Malignant neoplasm of lip, oral cavity & pharynx
11	Malignant neoplasm of oesophagus
12	Malignant neoplasm of stomach
13	Malignant neoplasm of colon rectosigmoid junction, rectum, anus & anal canal
14	Malignant neoplasm of liver & intrahepatic bile ducts
15	Malignant neoplasm of pancreas
16	Malignant neoplasms of digestive organs excluding lip, oral cavity, pharynx, pharynx, oesophagus, stomach, colon rectosigmoid junction, rectum, anus, anal canal, liver, intrahepatic bile ducts & pancreas
17	Malignant neoplasms of larynx
18	Malignant neoplasm of trachea, bronchus & lung
19	Malignant neoplasms of respiratory & intrathoracic organs excluding larynx, trachea, bronchus & lung
20	Malignant neoplasm of bone & articular cartilage
21	Malignant melanoma of skin
22	Malignant neoplasms of skin excluding malignant melanoma
23	Malignant neoplasms of mesothelial & soft tissue
24	Malignant neoplasm of breast
25	Malignant neoplasm of cervix uteri
26	Malignant neoplasm of other & unspecified parts of uterus
27	Malignant neoplasms of female genital organs excluding cervix uteri & uterus
28	Malignant neoplasm of prostate
29	Malignant neoplasms of male genital organs excluding prostate
30	Malignant neoplasm of bladder
31	Malignant neoplasms of urinary tract excluding bladder
32	Malignant neoplasm of eye & adnexa
33	Malignant neoplasm of brain & other parts of central nervous system
33B	Malignant neoplasm of thyroid and other endocrine glands
34	Malignant neoplasm of ill-defined, secondary, unspecified & multiple sites
35	Hodgkin's disease
36	Non-Hodgkin's lymphoma
37	Leukaemia
38	Malignant neoplasms of lymphoid, haematopoietic & related tissue excluding leukaemia, Hodgkin's disease & Non-Hodgkin's lymphoma
39	Carcinoma in situ of cervix uteri
40	In situ & benign neoplasms excluding carcinoma in situ of cervix uteri
41	Iron deficiency anaemia
42	Anaemias excluding iron deficiency
43	Diseases of blood & blood-forming organs including haemorrhagic conditions & disorders involving the immune mechanism excluding anaemias & malignancies
44	Thyrotoxicosis
45	Thyroid disorders excluding thyrotoxicosis & malignancies
46	Diabetes
47	Malnutrition & vitamin deficiencies
48	Obesity
49	Endocrine, nutritional & metabolic conditions excluding thyroid disorders, diabetes, malnutrition & vitamin

	deficiencies, & obesity
50	Dementia including Alzheimer's disease
51	Mental & behavioural disorders due to use of alcohol
52	Mental & behavioural disorders due to other psychoactive substance use
53	Schizophrenia, schizotypal, & delusional disorders
54	Depression & other affective disorders
55	Anxiety & other neurotic, stress-related, & somatoform disorders
56	Learning Disability
57	Mental & behavioural disorders excluding dementia, alcohol or psychoactive substance use, schizophrenia, schizotypal, delusional disorders, depression, affective disorders, anxiety, stress-related & somatoform disorders, & learning disability
58	Parkinson's disease
59	Multiple sclerosis
60	Epilepsy
61	Migraine & other headache syndromes
62	Transient cerebral ischaemic attacks & related syndromes
63	Cerebral palsy & other paralytic syndromes
64	Diseases of the nervous system excluding malignancies, injuries & conditions described in groupings 58 to 63
65	Conjunctivitis & other disorders of conjunctiva
66	Cataract & other disorders of lens
67	Refraction & accommodation disorders
68	Strabismus
69	Blindness & low vision
70	Glaucoma
71	Diseases of the eye excluding conjunctivitis & other disorders of conjunctiva, cataract & other disorders of lens, disorders of refraction & accommodation strabismus, blindness & low vision, & glaucoma
72	Otitis media & other disorders of middle ear & mastoid
73	Hearing loss
74	Diseases of the ear & mastoid process excluding otitis media, unspecified hearing loss, malignancies & injuries
75	Hypertension
76	Angina
77	Acute myocardial infarction
78	Ischaemic heart diseases excluding angina & acute myocardial infarction
79	Conduction disorders & cardiac arrhythmias
80	Chronic rheumatic heart disease
81	Pulmonary embolism
82	Heart failure
83	Heart diseases excluding angina, acute myocardial infarction, ischaemic heart disease, conductive disorders & cardiac arrhythmias, chronic rheumatic heart disease, pulmonary embolism & heart failure
84	Stroke
85	Diseases of arteries, arterioles & capillaries
86	Peripheral vascular diseases excluding atherosclerosis & other diseases of arteries, arterioles & capillaries
87	Arterial embolism & thrombosis
88	Phlebitis, thrombophlebitis, venous embolism & thrombosis
89	Varicose veins of lower extremities
90	Haemorrhoids
91	Diseases of the circulatory system excluding malignancies & conditions described in groupings 75 to 90
92	Acute pharyngitis & acute tonsillitis
93	Acute laryngitis & tracheitis
94	Acute upper respiratory infections excluding acute pharyngitis, acute tonsillitis, acute laryngitis & tracheitis
95	Influenza
96	Pneumonia
97	Acute bronchitis & acute bronchiolitis
98	Chronic sinusitis
99	Diseases of nose & nasal sinuses excluding chronic sinusitis
100	Chronic disease of tonsils & adenoids
101	Diseases of upper respiratory tract excluding influenza, pneumonia, acute bronchitis, acute bronchiolitis, chronic sinusitis, chronic disease of tonsils & adenoids & malignancies
102	Bronchitis, emphysema & other chronic obstructive pulmonary diseases

103	Asthma
104	Bronchiectasis
105	Pneumoconiosis
106	Diseases of the respiratory system excluding malignancies & conditions described in groupings 92 to 105
107	Dental caries
108	Teeth & supporting structure disorders excluding dental caries & malignancies
109	Diseases of the oral cavity, salivary glands & jaws excluding dental caries, disorders of teeth & supporting structures & malignancies
110	Gastric & duodenal ulcer
111	Gastritis & duodenitis
112	Diseases of oesophagus, stomach & duodenum excluding gastric & duodenal ulcer, gastritis, duodenitis & malignancies
113	Diseases of appendix
114	Inguinal hernia
115	Hernia excluding inguinal hernia
116	Crohn's disease & ulcerative colitis
117	Paralytic ileus & intestinal obstruction without hernia
118	Diverticular disease of intestine
119	Diseases of intestines & peritoneum excluding appendix, inguinal hernia, other hernia, Crohn's disease, ulcerative colitis, paralytic ileus & intestinal obstruction without hernia, diverticular disease of intestine & malignancies
120	Alcoholic liver disease
121	Diseases of liver excluding alcoholic liver disease & malignancies
122	Cholelithiasis & cholecystitis
123	Acute pancreatitis & other diseases of the pancreas
124	Diseases of the digestive system excluding malignancies & conditions described in groupings 107 to 123
125	Infections of the skin & subcutaneous tissue
126	Diseases of the skin & subcutaneous tissue excluding infections & malignancies
127	Rheumatoid arthritis, other inflammatory polyarthropathies & systemic connective tissue disorders
128	Osteoarthrosis
129	Joint disorders excluding osteoarthrosis & rheumatoid/systemic connective tissue disorders
130	Back & neck disorders
131	Soft tissue disorders
132	Osteoporosis & other bone density/structure disorders
133	Osteomyelitis
134	Diseases of the musculoskeletal system & connective tissue excluding malignancies & conditions described in groupings 127 to 133
135	Glomerular & renal tubulo-interstitial disease
136	Renal failure
137	Urolithiasis
138	Cystitis
139	Diseases of the urinary system excluding glomerular & renal tubulo-interstitial disease, renal failure, urolithiasis, cystitis & malignancies
140	Hyperplasia of prostate
141	Prostate disorders excluding hyperplasia & malignancies
142	Hydrocele & spermatocele
143	Redundant prepuce, phimosis & paraphimosis
144	Diseases of male genital organs excluding hyperplasia of prostate, other disorders of prostate, hydrocele, spermatocele, redundant prepuce, phimosis, paraphimosis & malignancies
145	Breast disorders & benign breast neoplasms excluding malignancies
146	Salpingitis & oophoritis
147	Inflammatory disease of cervix uteri
148	Endometriosis
149	Diseases of female pelvic organs excluding salpingitis, oophoritis, inflammatory disease of cervix uteri, endometriosis & malignancies
150	Female genital prolapse
151	Menstrual disorders
152	Menopausal & other perimenopausal disorders
153	Female infertility
154	Miscarriages & abortions

155	Hypertensive disorders in pregnancy, childbirth & the puerperium
156	Complicated pregnancy & delivery excluding miscarriage, abortions, & hypertensive disorders
157	Spontaneous delivery of singleton
158	Maternal complications predominantly related to the puerperium & obstetric conditions excluding miscarriages, abortions, hypertensive disorders, single spontaneous delivery, & malignancies
159	Birth trauma (baby)
160	Fetal & newborn conditions excluding birth trauma (baby)
161	Spina bifida
162	Congenital malformations of the nervous system excluding spina bifida
163	Congenital malformations of the circulatory system
164	Cleft lip & cleft palate
165	Absence, atresia & stenosis of small intestine
166	Congenital malformations of the digestive system excluding absence, atresia & stenosis of small intestine
167	Undescended testicle
168	Malformations of the genitourinary system excluding undescended testicle
169	Congenital deformities of hip
170	Congenital deformities of feet
171	Congenital malformations & deformations of the musculoskeletal system excluding congenital deformities of hip & feet
172	Congenital malformations excluding conditions described in groupings 161 to 171
173	Chromosomal abnormalities, not elsewhere classified
173A	Circulatory and respiratory symptoms and signs
174	Symptoms and signs involving speech and voice
175	Pyrexia
176	Fatigue, tiredness, malaise & dizziness
177	Senility excluding dementia, & Alzheimer's disease
178	Symptoms, signs & abnormal clinical & laboratory findings, not elsewhere classified
179	Fractures
180	Dislocations, sprains & strains
181	Injury of eye & orbit
182	Intracranial injury
183	Injury of other internal organs
184	Crushing injuries & traumatic amputations
185	Injuries of specified, unspecified & multiple body regions excluding fractures, dislocations, sprains & strains, injury of eye & orbit, intracranial injury, injury of other internal organs, crushing injuries & traumatic amputations
186	Effects of foreign body entering through natural orifice
187	Burns & corrosions
187A	Frostbite
188	Poisoning by drugs & biological substances
189	Toxic effects of substances chiefly nonmedicinal as to source
190	Maltreatment syndromes
191	Other & unspecified effects of external causes
192	Certain early complications of trauma & complications of surgical & medical care, not elsewhere classified
193	Sequelae of injuries, of poisoning, & of other consequences of external causes
194	Persons encountering health services for examination & investigation
195	Asymptomatic human immunodeficiency virus (HIV) infection status
196	Immunisation & potential health hazards related to communicable diseases excluding HIV
197	Contraceptive management
198	Pregnancy related care
199	Liveborn infants according to place of birth
200	Postpartum care & examination
201	Specific procedures & health care
202	Persons encountering health services for other reasons
203	Psychological S&S
204	Neurological/musculoskeletal S&S
205	Eye/visual S&S
206	Ears/auditory S&S
207	Circulatory and respiratory S&S
208	Upper respiratory tract S&S

209 Digestive/abdominal S&S
210 Skin S&S
211 Genitourinary S&S
212 Speech and voice S&S
213 Abnormal blood test results
214 Abnormal urine test results
215 Abnormal results other lab tests (incl serology)
216 Abnormal radiography results
217 General abnormal S&S NEC
218 Influenza vaccination
219 Travel vaccination given
220 Infectious disease prevention/control
222 Cancer monitoring/treatment
223 Warfarin monitoring
224 Hyperlipidaemia monitoring
225 Bereavement (counselling)
226 Smoking cessation advice/therapy
227 Advice/counselling (excl. smoking cessation advice & bereavement counselling)
228 Activities related to psychological S&S
229 Activities related to neurological/musculoskeletal S&S
230 Activities related to eye/visual S&S
231 Ear syringing
232 Activities related to ears/auditory S&S (excl ear syringing)
233 BP monitoring/reading
234 CHD monitoring
235 Activities related to circulatory & respiratory S&S (excl. BP & CHD monitoring)
236 Activities related to digestive/abdominal S&S
237 Wound care
238 Activities related to skin S&S (excl. wound care)
239 Catheter care
240 Enuresis support
241 Incontinence care
242 Cervical screening
243 Activities related to genito-urinary S&S
244 Child health care
245 Parental and vulnerable family support
246 Child protection visit
247 Blood test/ blood sample taken for testing
248 Urine test/ urine sample taken for testing
249 Taking samples for testing (excl blood and urine, incl serology)
250 New patient assessment
251 Wellwoman/ wellman
252 Patient review/monitoring
253 Post operative monitoring
254 General patient care
255 Complementary therapies
256 Prescription given/ medication review
257 Treatments NEC
258 Operative procedures carried out in general practice
259 General diagnostic tests and assessments NEC
260 Occupations
261 History
262 Social
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264 Health status
265 Miscellaneous (normal) findings
266 Weight check