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Management and prevalence of long-term conditions in primary health care for adults with intellectual disabilities compared with the general population: a population based cohort study.

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Abstract

Background In the UK, general practitioners/family physicians receive pay for performance on management of long-term conditions, according to best-practice indicators.

Method Management of long-term conditions was compared between 721 adults with intellectual disabilities and the general population (n=764,672). Prevalence of long term conditions was determined, and associated factors investigated via logistic regression analyses.

Results Adults with intellectual disabilities received significantly poorer management of all long-term conditions on 38/57 (66.7%) indicators. Achievement was high (75.1-100%) for only 19.6% of adults with intellectual disabilities, compared with 76.8% of the general population. Adults with intellectual disabilities had higher rates of epilepsy, psychosis, hypothyroidism, asthma, diabetes, and heart failure. There were no clear associations with neighbourhood deprivation.

Conclusions Adults with intellectual disabilities receive poorer care, despite conditions being more prevalent. The imperative now is to find practical, implementable means of supporting the challenges that general practices face in delivering equitable care.

Keywords intellectual disabilities, long-term conditions, chronic disease management, health, primary health care, general practice

Background

People with intellectual disabilities experience poor health and multi-morbidity (NHS Scotland, 2004, Oullete-Kuntz, 2004, Oesburg et al, 2011, Cooper et al, 2015). They also experience premature death, some of which may be preventable (Heslop et al, 2013; Lauer and McCallion, 2015). Despite this, there are significant evidence gaps related to their health and health care (Robertson et al, 2015).

People with intellectual disabilities face barriers in accessing health services, compounded by communication difficulties, and organisational and social support limitations (Oullete-Kuntz, 2004). In order to reduce inequities, primary health care providers need to effectively manage long-term conditions in keeping with best practice. However, current evidence suggests this may not always occur. A Scottish survey of 369 general practitioners (58% response rate) revealed, that whilst they recognised the importance of their role in the health care of people with intellectual disabilities, they also identified they had a lack of experience and training in this area, and limited background information on individual patients and knowledge of referral routes and inter-agency communication (Williamson, 2004). Similar findings were reported in a survey of 912 general practitioners in Australia (Lennox et al, 2000), who identified a need to improve health care for people with intellectual disabilities, and recognised deficiencies in care provision. Moreover, in a small qualitative study with 10 general practitioners in Norway, concerns were highlighted over a lack of expertise and support in treating patients with intellectual disabilities (Fredheim, 2013). Hence, limitations in general practitioners' knowledge and confidence, and the challenges of inter-agency communication, rather than general practitioners' values or attitudes, may contribute to healthcare access difficulties for adults with intellectual disabilities. A survey of 201 practice nurses (nurses who work in primary health care) and another of 107 practice nurses also reported a knowledge gap in the care of adults with intellectual disabilities, and communication barriers (Melville et al, 2005; Powrie, 2003). Additionally, some adults with intellectual disabilities can be reliant on carers to support

them in accessing and implementing health care when needed, hence communication within the support team or teams is important as well as with the individual (Oullete-Kuntz, 2004).

Service delivery and organisation of primary health care differs between countries. In the UK, the contract between general practitioners and the government health departments includes pay for performance on specific indicators of management of long term conditions which are considered to be evidence-based best-practice (the “Quality and Outcomes Framework”). All general practices receiving these payments (95% of practices in Scotland during 2013/14) have to report their number of patients with the long term conditions specified in the Quality and Outcomes Framework annually, and the proportion of these patients whose care meets the defined quality indicators. The Quality and Outcomes Framework includes the concept of ‘exception reporting’, which allows some patients to be omitted from achievement rates, in situations where patients cannot be treated as per the Quality and Outcomes Framework guidelines, so that practices are not financially penalised. This may include, for example, where patients do not attend for review, or where patients have a supervening condition which makes treatment of their condition inappropriate e.g. cholesterol reduction where the patient has liver disease. However, data on reasons for exception reporting are not collected. Statistics on performance for the whole population are collected annually and published (Scottish Government, 2014; www.isdscotland.org/qof).

Little is known on the quality of primary health care people with intellectual disabilities receive for long-term conditions, as evidence is only available for management of a few health conditions, such as diabetes (Taggart, 2013), or clinical processes, such as recording blood pressure (Robertson et al, 2015). Taggart (2013) found diabetic control was poor amongst 186 people with intellectual disabilities identified through community learning disabilities teams or supported living facilities; only 59% had had their HbA1c checked, 15% were hypertensive, and 22% had no record of their lipid levels. An Australian health check trial with 435 adults with intellectual disabilities found a low frequency at baseline of testing

cholesterol levels (5.7%), thyroid function (17.9%), vision (4.6%) and hearing (4.6%) (Lennox et al, 2007). An English study reviewed case records of 651 adults registered at 27 practices, and found that items incentivised in the Quality and Outcomes Framework were more likely to have been completed than other items (but were still poorer than reported for the general population); recording of blood pressure (87%), body mass index (79%), urine testing (37%), hearing assessment (15%) (Chauhan et al, 2010). These studies did not draw comparisons with the general population. One large American study was identified that investigated management of diabetes among people with developmental disabilities and made comparisons with the general population, but the number of people with intellectual disabilities included in the sample was not reported (Shireman et al, 2009). We have not identified other studies reporting the management of long-term conditions in this population. What is clearer is that lower rates of cervical screening and mammography are reported for women with intellectual disabilities compared with the general population (Kerr et al, 1996; Wood, 2007; Reynolds, 2008; Osbon, 2012; Cobigo et al, 2013), although mammography screening was found to be comparable to levels in the general population in one study (Biswas, 2005).

While several studies have documented that rates of some conditions are more common in people with intellectual disabilities than people without, most have not made direct comparisons. Three studies utilised large primary care databases to compare rates of long-term conditions (Cooper et al, 2015; Carey et al 2016; NHS digital, 2016). Cooper et al (2015) found that epilepsy, psychosis, thyroid disorder, dementia, diabetes, asthma and stroke/transient ischaemic attacks were more prevalent in the adults with intellectual disabilities than the general population. Carey et al (2016) reported a higher prevalence of epilepsy, psychosis, hypothyroidism, dementia, and heart failure in the adults with intellectual disabilities compared to the general population. Public Health England (NHS digital, 2016) reported that epilepsy, psychosis, dementia, hypothyroidism, heart failure, diabetes, stroke, asthma and depression were more common in the people with intellectual disabilities, whereas cancer, chronic obstructive pulmonary disease, hypertension and coronary heart disease were less common. Psychosis (Cooper et al, 2007), dementia

(Strydom et al, 2009), and epilepsy (Morgan et al, 2003) have been reported to be higher in adults with intellectual disabilities when compared with previously reported (rather than on direct comparison) general population rates. Gale et al (2009) reported that asthma occurred at a higher rate in people with intellectual disabilities than in the general population, but did not make statistical comparisons. Van Schroyen Lantman-de Valk et al (2000) compared the number of health problems of 318 people with intellectual disabilities with the general population registered at the same general practices, and found 2.5 times more in the people with intellectual disabilities. They grouped disorders together and found that neurological, psychological, ear, eye, general and unspecified, endocrine, and musculoskeletal problems were more common in the people with intellectual disabilities. Emerson et al (2016) compared physical health outcomes of 299 people with primarily mild intellectual disabilities, aged 16-49 years, with 22,927 people without intellectual, and found arthritis, cancer, diabetes were more common in the people with intellectual disabilities. Other studies have focussed exclusively on older people, rather than all adults with intellectual disabilities (e.g. Kappel et al, 1998; Jansen et al, 2013).

Given that people with intellectual disabilities experience high rates of long term conditions, access to high quality primary health care services is vital (Lunsky et al, 2013). Rates of hospitalisation for 'ambulatory care-sensitive conditions', have been used as an indicator of access to, and quality of primary care (Balogh et al, 2010; 2014). Ambulatory care-sensitive conditions are defined as conditions which, if managed effectively at the primary care level, should not lead to a hospital admission (Billings et al 1993), for example, epilepsy and diabetes. Some research has found people with intellectual disabilities are admitted to hospital more frequently than the general population for ambulatory care-sensitive conditions (Dunn et al, 2017). However, the extent of differences in the management of long term conditions for people with intellectual disabilities compared to the general population has not yet been quantified within primary care settings.

The aim of this study was to measure the management of long-term conditions within primary health care for adults with intellectual disabilities, and to compare this with the

general population, using indicators of best-practice from the Quality and Outcome Framework. Secondary aims were to investigate the extent of recognised disease prevalence in adults with intellectual disabilities compared with the general population, and the influence of neighbourhood deprivation, ability level, accommodation type, age and gender upon these.

Materials and Methods

Ethical Approval and Consent

Ethical approval was obtained from the Multicentre Research Ethics Committee – Scotland A. Each individual with intellectual disabilities was invited to consent to participate. Where participants lacked decision-making capacity to consent, consent was sought from their welfare guardian/attorney or nearest relative, in keeping with Scottish law.

Participants and Setting

Identification of all adults with intellectual disabilities living within the geographical area of Greater Glasgow and Clyde Health Board, Scotland, during 2007-2010 was determined via the primary health care register of people with intellectual disabilities. This is updated annually with the 631 general practitioners in this area. The general practitioners are financially incentivised to maintain and update the register. Within a geographic sub-section of the Health Board, adults with intellectual disabilities consented for extraction of their health data from their primary health care records. For comparison, 2006/7 Quality and Outcome Framework data for all adult patients within Greater Glasgow and Clyde health board (n=764,672) were used.

Process and measures

The general practitioners allowed access to the electronic and paper health records of their consented patients. Data was manually extracted, using a structured data extraction template. This included identification of whether they had each of the 15 Quality and Outcome Framework qualifying conditions (e.g. diabetes, epilepsy, asthma, hypertension),

and completion of the 57 Quality and Outcome Framework indicators, including the extent of exception reporting, for these conditions when they were identified, and for health promoting activities. Age, gender, type of accommodation, level of intellectual disabilities (measured by the Vineland Scale), and extent of neighbourhood deprivation based on post-code using the Scottish Index of Multiple Deprivation (SIMD) (Scottish Government, 2012) were also recorded.

Analyses

Data were entered into a database. The Statistical Package SAS v 9.2 was used to analyse the data. Summaries of the characteristics of the adults with intellectual disabilities are provided using numbers and percentages. Frequency data were derived to determine point prevalence rates of conditions. The prevalence of each condition was examined in the adults with intellectual disabilities group, using Poisson models, accounting for the general population prevalence as an offset. Within the adults with intellectual disabilities group, we examined logistic regression models, allowing for a random practice effect, to determine whether there were any associations between the common demographics variables (age, gender, deprivation, ability level and accommodation type) and each long term condition. Percentage of completion of each indicator within the conditions was derived, and compared with the general population via logistic regression models to obtain odds ratios with 95% confidence intervals (CI), allowing for practice level to be entered as a random effect. Similar analysis was then performed on each indicator to determine whether any differences existed in the patients that were exception reported.

Results

Characteristics of Participants

Consent was gained for 727 of 836 (87.0%) invited adults. Four were in practices that were not participating in the Quality and Outcome Framework, so were excluded from analyses. Two were under 18 years old, so were also excluded from analyses (as the Quality and Outcome Framework applied to over 18 year olds). Table 1 outlines the study cohort

characteristics of the remaining 721. As expected, there were more men than women - 398 (55.2%) men and 323 (44.8%) women; 255 (35.4%) had mild intellectual disabilities, 194 (26.9%) had moderate, 128 (17.8%) had severe and 143 (19.9%) had profound intellectual disabilities. Their mean age was 44.3 years (range of 18-92).

- insert table 1 about here -

Prevalence of identified long-term conditions

Table 2 shows the prevalence of long-term Quality and Outcome Framework qualifying conditions for both population groups. Adults with intellectual disabilities were significantly more likely than adults in the general population to have epilepsy (28.2% versus 0.8%, $p < 0.0001$), psychosis (7.6% versus 0.9%, $p < 0.0001$), asthma (9.2% versus 5.3%; $p < 0.0001$), diabetes (6.4% versus 3.4%; $p < 0.0001$), heart failure (2.5% versus 0.9%, $p < 0.001$), and hypothyroidism (5.3% versus 2.8%, $p = 0.0001$). No significant difference was found between the two populations in the rates of chronic obstructive pulmonary disease, coronary heart disease, chronic kidney disease or stroke. The number of people with dementia, requiring palliative care, atrial fibrillation or cancer was too small in the intellectual disabilities group to make any comparisons with confidence. Whilst hypertension was common amongst the people with intellectual disabilities (12.8%), it occurred at a similar rate as in the general population.

- insert table 2 about here -

Factors associated with long-term conditions within the intellectual disabilities population

Within the adults with intellectual disabilities, analyses examined whether specific demographics (age group, sex, neighbourhood deprivation, ability and accommodation type) were associated with having each individual long-term condition (tables not included). Generally, results indicated few associations between the patient demographics and each long-term condition. Exceptions were:

- asthma, which had reduced odds at lower ability (p-value = 0.0317 for ability, odds ratio [OR] for moderate 0.49, 95% CI 0.25-0.95, OR for severe 0.41 95% CI 0.18-0.95 , OR for profound 0.40 95% CI 0.18-0.89);
- diabetes, which had greater odds at older age (p-value = 0.0032 for age, OR for age group 45-54, 7.80, CI 1.63-37.26, OR for age group 55+ 13.69, CI 2.83-66.21), and for adults living in more deprived neighbourhoods (p-value = 0.0227 for deprivation, OR for most deprived 3.40, CI 1.28-9.01 and OR for intermediate deprived areas 3.39, CI 1.35-8.51);
- epilepsy, which had increased odds at lower ability (p-value < 0.0001 for ability, OR for profound 4.36, CI 2.56-7.41), and for adults living with paid carer support (p-value = 0.0142 for accommodation OR 1.95, CI 1.21-3.15);
- hypertension, which had increased odds at older age (p-value < 0.0001 for age, OR for 45-54 5.89, CI 1.89-18.30 and OR for 55+ 11.31, CI 3.66-34.94), and decreased odds at lower ability (p-value = 0.0021 for ability, OR for profound 0.13, CI 0.04-0.39);
- hypothyroidism, which had increased odds for women (p-value = 0.0410 for gender, OR 2.13, CI 1.03-4.41);
- case-screening for depression, which had greater odds for adults with paid carer support or living independently compared with those living with family (p-value = 0.0001 for accommodation, OR for paid carer 2.48, CI 1.42-4.32, OR for living independently 4.17 CI 2.14-8.15), and lower odds for adults with profound levels of intellectual disabilities (p-value = 0.0468 for ability, OR for profound 0.39, CI 0.20-0.76).

Management of long-term conditions

Table 3 compares achievement/completion frequency of the indicators for each condition and for health promoting activities prescribed in the quality and outcome framework.

Adjusted for random practice effects, significant differences were found across the indicators where conditions were present in large enough numbers to test in the intellectual disabilities group, including management of epilepsy, diabetes, hypertension, chronic obstructive pulmonary disease, asthma, hypothyroidism, and heart failure (table 3). In addition to the poorer achievement on management of long-term conditions, health

promoting activities including cervical screening, recording smoking-status, and offering smoking cessation advice were less likely to be addressed for the adults with intellectual disabilities.

Percentages of achievement were lower across all indicators apart from four, significantly so for 38/57 (66.7%). Data on dementia, palliative care, and cancer were not collected due to the nature of the indicators and the expectation of very small numbers in the intellectual disabilities group.

Table 4 shows that the level of achievement was less than, or equal to, 50% for 46.4% of indicators for the adults with intellectual disabilities, compared with 1.8% for the general population. The achievement on indicators was high (between 75.1-100%) for the majority (76.8%) of adults in the general population, but low (19.6%) for the adults with intellectual disabilities.

- insert tables 3 and 4 about here -

Table 5 shows that the proportions of 'exception reporting' for indicators of each condition and health promoting activities were higher/more common for people with intellectual disabilities across 29/56 (51.8%) of indicators, being statistically significant for 8/56 (14.3%) of these indicators, across conditions of diabetes, hypothyroidism, psychosis and depression. Exception reporting was reported to be significantly lower/less common for people with intellectual disabilities for all epilepsy indicators. We were unable to report statistical differences for 18/56 (32.1%) indicators due to the low occurrence of some conditions. In general, these findings were mixed, but the very high rates of exception reporting for case-finding for depression in people with diabetes or coronary heart disease, and for offering smoking cessation advice to smokers is notable.

-insert table 5 about here-

Discussion

Principal findings and interpretation

Long-term conditions were more poorly managed for people with intellectual disabilities than for the general population, across the full range of conditions studied. The indicators of quality of management that were used are evidence-based; these are the pathways to improving health. Adults with intellectual disabilities are experiencing an inequity in health care. This finding has previously been reported for diabetes care; our study is novel for measuring the extent of inequality across a wide range of long-term conditions and health-promoting actions.

The exceptions to this trend across all the indicators was that the adults with intellectual disabilities who had diabetes and chronic kidney disease were more likely to have a blood pressure below the target if they had had their blood pressure taken (but were less likely to have had their blood pressure taken). Adults with Down syndrome are known to have lower blood pressure than the general population (Morrison et al, 1996); 3/46 (6.5%) people with diabetes and 2/15 (13.3%) with chronic kidney disease had Down syndrome.

Long-term conditions are more common for adults with intellectual disabilities compared to the general population. We found that adults with intellectual disabilities have higher rates of epilepsy, psychosis, asthma, diabetes, hypothyroidism and heart failure. No consistent effect of neighbourhood deprivation, ability level, nor accommodation type was found with prevalence of individual long-term conditions. Age and gender associations for diabetes, hypertension, and hypothyroidism were as expected from the general population literature, and the ability-related finding for epilepsy is well reported amongst people with intellectual disabilities. The associated level of ability finding with asthma is novel, but given the number of analyses undertaken, may be merely a chance finding. No cause-effect relationship can be inferred from the association of epilepsy, nor case screening for depression, with living with paid carer support.

Comparison with existing literature

There is limited research reporting management of long-term conditions, so our findings are novel, and we have added stronger support to previous findings of poor management of specifically diabetes (Taggart et al, 2013), and on health promoting activities (Kerr et al, 1996; Wood, 2007; Reynolds, 2008; Osbon, 2012), through a larger sample size, population-based approach, and drawing direct comparisons with the general population.

The odds ratios we found for epilepsy, psychosis, asthma, diabetes, and hypothyroidism were strikingly similar to those reported from another primary care database in a different part of Scotland, thus providing greater confidence in these results (Cooper et al, 2015). The exceptions were for heart failure (occurring in only 18 individual in this current study), which was no more common in people with intellectual disabilities, and stroke/transient ischaemic attack (occurring in only 13 individual in this current study), which was marginally more common in the group with intellectual disabilities (Cooper et al, 2015). Recent findings from a primary care database in England reported similar trends to these results, with a higher prevalence of epilepsy, psychosis, hypothyroidism and heart failure (Carey et al, 2016). The exception to this was dementia, which was not found to be more prevalent in the current study. It is well reported that epilepsy (Morgan et al, 2003) and psychosis (Cooper et al, 2007) are more prevalent in adults with intellectual disabilities than the general population. The prevalence of epilepsy for adults with intellectual disabilities in the current study (28.4%) is at the mid-range of that quoted (14-44%) in a systematic review of prevalence studies (Bowley & Kerr, 2000). In a large, population-based study of 1,097 adults with intellectual disabilities in England, primary care data revealed that 12% had asthma (Gale et al, 2009), similar to our finding of 9.3%, both notably higher than in the general population. The replication of this finding provides greater credibility to it, although the lower end of our confidence interval was only 1.39. Possible explanations are the higher rates of obesity in adults with intellectual disabilities, or misdiagnosis of reflux pneumonitis or aspiration pneumonia. The prevalence of the other long-term conditions has been studied to a lesser extent and not always in comparison with the general population; more is known about older adults with intellectual disabilities than the whole adult population, and

for adults with cognitive limitations from a range of conditions, rather than specifically intellectual disabilities (Richard and Slolze, 2011).

Exception reporting was higher across certain indicators for the conditions of diabetes, hypothyroidism, psychosis and depression. However, exception reporting was significantly lower for people with intellectual disabilities for epilepsy on all indicators. Thus, the findings are mixed, and as data is not collected on the reasons for 'exception reporting', the conclusions that can be made are limited. The small number of people with some of the conditions also limits the conclusions that can be drawn. However, it is highly notable that 45.3% of the smokers were exceptions from being offered smoking cessation advice compared with only 1.3% of the general population; and 33.3% of the people with diabetes or coronary heart disease were exceptions for case-finding for depression compared with 7% of the general diabetic population. Little attention has been given to 'exception reporting' in previous research, although, some general population studies have found exception reporting to be higher for more complex conditions (Doran et al, 2008b; Dixon et al, 2011). A UK study reported an overall rate of 6.2% for exception coding of patients with intellectual disabilities (Chauhan et al (2010), which is similar to exception reporting nationally (6%) (Doran et al. 2006). However, the authors noted that it is possible that some long term conditions are not being either recognised or being coded appropriately among people with intellectual disabilities, and the extent to which this occurs remains unknown. Exception reporting for people with intellectual disabilities should be investigated further in future research, to identify if there should be a specific training agenda for primary care on the management of conditions for people with intellectual disabilities.

Independent association of neighbourhood deprivation with long-term conditions

Extent of neighbourhood deprivation was not found to be a predictor of long-term conditions for people with intellectual disabilities in this study, except for diabetes. This differs from findings in the general population, and may reflect the complexity of the lives of adults with intellectual disabilities. Both children and adults with intellectual disabilities are known to be more likely to live in more deprived areas (Morgan et al, 2000; Emerson et

al, 2006; Cooper et al, 2011) but neighbourhood deprivation has not been associated with ill-health, perhaps due to complexities of size and location of housing stock for supported tenancies, and influences of family of origin as well as paid carers (Cooper, 2011). Area deprivation has also been reported to not influence access to social supports, daytime primary health-care services or hospital admissions among people with intellectual disabilities (Cooper et al, 2011). For people with intellectual disabilities, there appear to be more important factors that influence their health and health care, such as the impact of their disabilities and the actions and influences of their paid or family carers. Thus, factors that influence health inequalities in the general population cannot be assumed to be the same for people with intellectual disabilities, and health efforts only focused on the most deprived communities would only benefit some people with intellectual disabilities and not others with similar health needs (Cooper et al, 2011).

Strengths and limitations

This was a large population-based cohort of adults with intellectual disabilities for whom detailed information was collected from their primary health care records. Comparisons were made with the Scottish general population on identical indicators. We have no reason to suspect these results are not generalizable to other affluent countries with well-developed primary health care services.

Limitations include the use of routinely collected clinical data. Additionally, adults with intellectual disabilities are included in the comparison data as it reports whole population data – however, only 0.5% of the whole population in this data have intellectual disabilities, so the impact is small and given the direction of findings, the main research results would have been more pronounced had it been possible to remove them (which was not possible). Moreover, we were not able to adjust for gender and age when making comparisons, as this was not known for the general population. We recognise that the people with intellectual disabilities may be younger and more male than the comparison general population. Furthermore, data extraction was manual for adults with intellectual disabilities, and electronic for the general population. Long-term conditions may conceivably be under-

represented in both the intellectual disabilities and general population groups, as the study design relied on those conditions already recorded in primary health care records.

A further limitation is that the long-term conditions included in the Quality and Outcome Framework may not include all those most relevant to people with intellectual disabilities, such as gastro-intestinal reflux disease, constipation, dysphagia, repeated chest infection and aspiration, sensory or physical impairments, osteoporosis, repeated injuries/accidents and falls, and oral health. However, focussing on the Quality and Outcomes Framework data did allow for an established evidence-based approach to measuring the quality of primary health care management, and comparison with the general population.

Clinical Implications

General practitioners and practice nurses chose their vocational occupations, and the survey data described in the introduction supports the view that they wish to provide the best care for all of their patients, including adults with intellectual disabilities. Our study suggests that this is not yet happening, and we need a better understanding of why this is and how to address it.

The failings in the management of long-term conditions highlights the need for staff training in primary care, and adds support for the introduction of specific interventions such as health checks in primary care for people with intellectual disabilities. Health checks have been found to be clinically and cost effective (Cooper et al, 2014), but unlike England and Wales, where practices are paid to conduct health checks, they have not been introduced in Scotland where this study took place.

Future research is needed to identify trends in the quality of long term condition management in primary care, any geographical variation in care for this population and its determinants, and to determine whether the current health care inequality gap is closing or widening.

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Table 1. Characteristics of participants

Baseline Characteristics	Number of participants (N=721) N (%)
Gender	
Female	323 (44.8%)
Male	398 (55.2%)
Age (years)	
18-34	192 (26.6%)
35-44	172 (23.9%)
45-54	174 (24.1%)
55+	183 (25.4%)
Level of intellectual disabilities	
Mild	255 (35.4%)
Moderate	194 (26.9%)
Severe	128 (17.8%)
Profound	143 (19.9%)
Down Syndrome	98 (13.6%)
Neighbourhood deprivation level*	
1 (least deprived: SIMD deciles 1-7)	268 (38.2%)
2 (SIMD deciles 8-9)	245 (34.9%)
3 (most deprived: SIMD decile 10)	189 (26.9%)

* 19 patients did not have information available to determine neighbourhood deprivation.

Table 2. Prevalence of long-term conditions in adults with intellectual disabilities compared with the general population

Types of long-term condition conditions	Intellectual disabilities (N=721) N (%)	General Population (N=764,672) N (%)	Rate Ratio (95% CI)	P value
Epilepsy	203 (28.2%)	6,268 (0.8%)	34.35 (29.93-39.41)	<0.0001
Psychosis	55 (7.6%)	6,899 (0.9%)	8.46 (6.49-11.01)	<0.0001
Asthma	66 (9.2%)	40,427 (5.3%)	1.73 (1.36-2.20)	<0.0001
Diabetes	46 (6.4%)	25,944 (3.4%)	1.88 (1.41-2.51)	<0.0001
Heart Failure	18 (2.5%)	7,153 (0.9%)	2.67 (1.68-4.24)	<0.0001
Hypothyroidism	38 (5.3%)	21,559 (2.8%)	1.87 (1.36-2.57)	0.0001
Chronic Obstructive Pulmonary Disease	9 (1.2%)	16,858 (2.2%)	0.57 (0.29-1.09)	0.0879
Coronary Heart Disease	25 (3.5%)	34,711(4.5%)	0.76 (0.52-1.13)	0.1780
Chronic Kidney Disease	15 (2.1%)	12,003 (1.6%)	1.33 (0.80-2.20)	0.2753
Dementia	2 (0.3%)	4,205 (0.5%)	0.50 (0.13-2.02)	0.3332

Atrial fibrillation	7 (1.0%)	9,953 (1.3%)	0.75 (0.36-1.56)	0.4380
Palliative Care	1 (0.1%)	672 (0.1%)	1.58 (0.22-11.20)	0.6482
Cancer (in the last four years)	7 (1.0%)	6,528 (0.9%)	1.14 (0.54-2.39)	0.7336
Stroke	13 (1.8)	15,008 (2.0%)	0.92 (0.53-1.58)	0.7597
Hypertension	92 (12.8%)	94,322 (12.3%)	1.03 (0.84-1.27)	0.7452

Table 3. Primary care management of long-term conditions for adults with intellectual disabilities compared with general population

Individual Indicators	Adults with ID Indicators met/eligible adults (%)	General Population Indicators met/eligible adults (%)	Odds Ratio (95% CI)	P value
<i>Epilepsy</i>	N=203	N=6,268		
% of patients on drug treatment for epilepsy who have a record of seizure frequency in the previous 15 months	163/203 (80.3%)	5,561/6,254 (88.9%)	0.51 (0.35-0.75)	0.0008
% of patients on drug treatment for epilepsy who have a record of medication reviews in the previous 15 months	166/203 (81.8%)	5,511/6,253 (88.1%)	0.60 (0.40-0.88)	0.0107
% of patients on drug treatment for epilepsy who are seizure free for 12 months in the previous 15 months	62/203 (30.5%)	3,179/6,197 (51.3%)	0.42 (0.31-0.58)	0.0046
<i>Diabetes</i>	N=46	N=25,944		
% of patients with a record of micro-albuminuria test in the previous 15 months	15/46 (32.6%)	19,717/24,213 (81.4%)	0.11 (0.05-0.21)	<0.0001
% of patients with a record of total cholesterol in the previous 15 months	28/46 (60.9%)	24,404/26,153 (93.3%)	0.12 (0.06-0.23)	<0.0001
% of patients whose last total cholesterol is 5mmol/l or less	22/46 (47.8%)	19,876/26,153 (76.0%)	0.29 (0.16-0.53)	0.0002
% of patients with a record of neuropathy testing in the previous 15 months	13/46 (28.3%)	21,631/26,153 (82.7%)	0.08 (0.04-0.15)	<0.0001
% of patients with a record of HbA1c or equivalent in the previous 15 months	33/46 (71.7%)	24,690/26,153 (94.4%)	0.16 (0.08-0.32)	<0.0001
% of patients in whom last HbA1c test is 10 or less	29/46 (63.0%)	22,393/26,153 (85.6%)	0.30 (0.16-0.56)	0.0005
% of patients in whom last HbA1c test is 7.5 or less	20/46 (43.5%)	15,006/26,153 (57.4%)	0.58 (0.32-1.07)	0.0814
% of patients with record of retinal screening in the previous 15 months	32/46 (69.6%)	23,415/26,153 (89.5%)	0.26 (0.13-0.51)	0.0003
% of patients with a recording of BMI in the previous 15 months	37/46 (80.4%)	24,393/26,153 (93.3%)	0.32 (0.15-0.70)	0.0056

% of patients who had influenza immunisation in the preceding 1 September - 31 March	29/46 (63.0%)	19,667/26,153 (75.2%)	0.57 (0.30-1.07)	0.0791
% of patients with a record of presence or absence of peripheral pulses in the previous 15 months	27/46 (58.7%)	21,845/26,153 (83.5%)	0.29 (0.15-0.56)	0.0005
% of patients with record of kidney screen (EGRF or serum creatinine) in the previous 15 months	31/46 (67.4%)	24,452/26,153 (93.5%)	0.15 (0.08-0.30)	<0.0001
% of patients with a record of blood pressure in the previous 15 months	39/46 (84.8%)	25,247/26,153 (96.5%)	0.22 (0.09-0.52)	0.0011
% of patients with diabetes whose last blood pressure is 145/85 or less	35/46 (76.1%)	19,868/26,153 (76.0%)	1.03 (0.50-2.11)	0.9416
Hypertension	N=92	N=94,322		
% of patients with a record of blood pressure in the previous 9 months	68/92 (73.9%)	85,522/94,848 (90.2%)	0.29 (0.18-0.47)	<0.0001
% of patients with a blood pressure of 150/90 or less in the previous 9 months	64/92 (69.6%)	71,660/94,848 (75.6%)	0.73 (0.46-1.16)	0.1776
Asthma	N=66	N=40,427		
% of patients who have had an asthma review in the previous 15 months	21/66 (31.8%)	28,953/40,412 (71.6%)	0.18 (0.10-0.30)	<0.0001
% of patients aged 8+ diagnosed as having asthma with measures of variability or reversibility, from 1.4.07	3/18 (16.7%)	1,231/1,664 (74.0%).	0.04 (0.01-0.22)	0.0009
Heart Failure	N=18	N=7,153		
% of patients confirmed by echocardiogram or specialist, for diagnoses after 1.4.06	4/7 (57.1%)	294/590 (49.8%)	-	-
% of patients with heart failure due to left ventricular dysfunction treated with ACE inhibitor or angiotensin receptor blocker (unless contraindicated)	5/18 (27.8%)	4,426/5,400 (82.0%)	0.08 (0.03-0.26)	0.0003
Chronic Obstructive Pulmonary Disease (COPD)	N=9	N=16,858		

% of all patients with diagnosis confirmed by spirometry including reversibility testing	4/9 (44.4%)	15,175/16,914 (89.7%)	0.08 (0.02-0.43)	0.0091
% of patients with a record of FeV1 in the previous 15 months	4/9 (44.4%)	14,239/16,914 (84.2%)	0.13 (0.03-0.67)	0.0216
% of patients receiving inhaled treatment with a record that inhaler technique has been checked	5/8 (62.5%)	10,489/13,018 (80.6%)	0.30 (0.05-1.87)	0.1580
% of patients who have had influenza immunisation in preceeding 1 September - 31 March	8/9 (88.9%)	12,903/16,914 (76.3%)	2.56 (0.21-31.92)	0.4080
Hypothyroidism	N=38	N=21,559		
% of patients with a record of thyroid function tests in the previous 15 months	30/38 (78.9%)	20,707/21,664 (95.6%)	0.18 (0.08-0.41)	0.0002
Coronary Heart Disease	N=25	N=34,711		
% of patients with a record of total cholesterol in the previous 15 months	13/25 (52.0%)	30,888/34,635 (89.2%)	0.12 (0.05-0.28)	<0.0001
% of patients with a total cholesterol of 5mmol/l or less in the previous 15 months	11/25 (44.0%)	25,462/34,635 (73.5%)	0.29 (0.12-0.68)	0.0065
% of patients with newly diagnosed angina referred for exercise testing &/or specialist assessment, after 1.4.03	5/11 (45.5%)	3,056/3,473 (88.0%)	0.09 (0.02-0.40)	0.0055
% of patients with a record of influenza immunisation in preceeding 1 September - 31 March	15/24 (62.5%)	27,083/34,635 (78.2%)	0.46 (0.19-1.13)	0.0858
% of patients with a record of taking aspirin/anti-platelet or anti-coagulant in the previous 15 months (unless contraindicated)	18/25 (72.0%)	32,149/34,624 (92.9%)	0.21 (0.08-0.53)	0.0025
% of patients with a history of MI treated with ACE inhibitor or angiotensin II antagonist, if diagnosed after 1.4.03	1/6 (16.7%)	3,177/3,890 (81.7%)	0.04 (0.002-0.72)	0.0350
% of patients with a record of blood pressure in the previous 15 months	18/25 (72.0%)	32,952/34,635 (95.1%)	0.13 (0.05-0.34)	0.0003
% of patients with a blood pressure of 150/90 or less in the previous 15 months	18/25 (72.0%)	30,030/34,635 (86.7%)	0.42 (0.16-1.10)	0.0736

% of patients currently treated with a beta blocker (unless contraindicated)	10/25 (40.0%)	19,640/34,510 (56.9%)	0.48 (0.20-1.13)	0.0892
Chronic Kidney Disease	N=15	N=12,003		
% of patients treated with ACE inhibitor or angiotensin receptor blocker (unless contraindicated)	6/15 (40.0%)	6,701/9,228 (72.6%)	0.25 (0.08-0.82)	0.0249
% of patients with a record of blood pressure in the previous 15 months	13/15 (86.7%)	13,134/13,414 (97.9%)	0.13 (0.02-0.76)	0.0265
% of patients with a blood pressure of 140/85 or less in the previous 15 months	11/15 (73.3%)	9,086/13,414 (67.7%)	1.12 (0.31-4.06)	0.8496
Psychosis	N=55	N=6,899		
% of patients with a record of comprehensive care plan agreed with individual, family or carer	18/40 (45.0%)	3,765/5,858 (64.3%)	0.23 (0.11-0.48)	0.0004
% of patients with a record of review and evidence of participation in routine health promotion/prevention advice in the previous 15 months	0/53 (0.0%)	4,696/5,966 (78.7%)	-	-
% of patients on lithium therapy with a record of lithium levels in a therapeutic range in the previous 6 months	4/11 (36.4%)	771/ 987 (78.1%)	0.03 (0.003-0.29)	0.0085
% of patients on lithium therapy with a record of serum creatinine and TSH in the previous 15 months	4/11 (36.4%)	879/1,023 (85.9%)	-	-
Atrial Fibrillation	N=7	N=9,953		
% of patients treated with anti-coagulant or anti-platelet drug therapy	5/7 (71.4%)	9,299/9,934 (93.6%)	0.16 (0.02-1.30)	0.0756
% of patients from 1.4.07 with diagnosis confirmed by EEG specialist	2/4 (50.0%)	1,250/1,581 (79.1%)	0.12 (0.002-7.16)	0.1986
Stroke	N=13	N=15,008		
% of patients with a record of total cholesterol in the previous 15 months	6/13 (46.2%)	12,825/15,046 (85.2%)	0.13 (0.04-0.48)	0.0051

% of patients with a total cholesterol of 5mmol/l or less in the previous 15 months	4/13 (30.8%)	10,302/15,046 (68.5%)	0.21 (0.06-0.80)	0.0262
% of patients with a record of blood pressure in the previous 15 months	10/13 (76.9%)	14,036/15,046 (93.3%)	0.22 (0.05-1.00)	0.0501
% of patients with a blood pressure reading of 150/90 or less in the previous 15 months	10/13 (76.9%)	12,535/15,046 (83.3%)	0.65 (0.15-2.83)	0.5289
% of patients with non-haemorrhagic stroke or history of transient ischaemic attacks with record of taking anti-platelet or anti-coagulant (unless contraindicated)	7/13 (53.8%)	8,369/9,130 (91.7%)	0.09 (0.03-0.33)	0.0017
% of patients with a record of influenza immunisation in the preceeding 1 September - 31 March	6/13 (46.2%)	10,937/15,046 (72.7%)	0.32 (0.09-1.12)	0.0699
% of new patients with a stroke with a record of referral for further investigation	1/4 (25.0%)	680/1,021 (66.6%)	-	-
Depression	N=66	N=54,370		
% on diabetes or coronary heart disease register for whom case finding for depression has been undertaken	8/66 (12.1%)	42,101/54,284 (77.6%)	0.04 (0.02-0.08)	<0.0001
Health Promotion				
% of patients with any of the following: coronary heart disease, stroke or TIA, hypertension, diabetes, COPD or asthma, who have a record of smoking status in the previous 15 months, except never-smokers who need the recording once since diagnosis	162/190 (85.3%)	148,285/155,235 (95.5%)	0.25 (0.17-0.38)	<0.0001
% of patients with record of smoker status with any of: coronary heart disease, stroke or TIA, hypertension, diabetes, COPD or asthma, who are offered smoking cessation advice or specialist referral	18/53 (34.0%)	36,762/39,830 (92.3%)	0.04 (0.02-0.07)	<0.0001
% of female patients aged 21-60) whose notes record a cervical smear has been performed in the last five years (Standard 40 - 80%)	51/221 (23.1%)	144,991/158,765 (91.3%)	0.03 (0.02-0.04)	<0.0001
Due to a slight difference in dates for recording the achievement information and the exception reporting, the denominators for the general population (which includes the number of patients who can appropriately be included, plus the number of patients who may be classed as exception reported) may not always agree with the number of patients having a condition.				

Table 4 . Proportion of indicators met for adults with qualifying long term conditions compared with the general population

	Indicators (n=56*), N (%)	
Percentage achievement	Adults with intellectual disabilities	General Population
0-25.0%	5 (8.9%)	0 (0)
25.1-50.0%	21 (37.5%)	1 (1.8)
50.1-75.0%	19 (33.9%)	12 (21.4%)
75.1-100%	11 (19.6%)	43 (76.8%)

*Excludes 1 indicator for which exception reporting was not available

Table 5. Exception reporting of primary care management of long-term conditions for adults with intellectual disabilities compared with the general population

Individual Indicators	Adults with ID Indicators met/eligible adults (%)	General Population Indicators met/eligible adults (%)	Odds Ratio (95% CI)	P value
<i>Epilepsy</i>	N=203	N=6,268		
% of patients on drug treatment for epilepsy who have a record of seizure frequency in the previous 15 months	4/203 (2.0%)	501/6,254 (8.0%)	0.19 (0.07-0.53)	0.0018
% of patients on drug treatment for epilepsy who have a record of medication reviews in the previous 15 months	5/203 (2.5%)	521/6,253 (8.3%)	0.23 (0.09-0.58)	0.0022
% of patients on drug treatment for epilepsy who are seizure free for 12 months in the previous 15 months	8/203 (3.9%)	1,945/6,197 (31.4%)	0.07 (0.03-0.15)	<0.0001
<i>Diabetes</i>	N=46	N=25,944		
% of patients with a record of micro-albuminuria test in the previous 15 months	7/46 (15.2%)	1,979/24,213 (8.2%)	1.87 (0.79-4.43)	0.1480
% of patients with a record of total cholesterol in the previous 15 months	5/46 (10.9%)	942/26,153 (3.6%)	2.89 (1.07-7.79)	0.0370
% of patients whose last total cholesterol is 5mmol/l or less	6/46 (13.0%)	2,884/26,153 (11.0%)	1.15 (0.46-2.86)	0.7527
% of patients with a record of neuropathy testing in the previous 15 months	7/46 (15.2%)	2,299/26,153 (8.8%)	1.56 (0.65-3.75)	0.3069
% of patients with a record of HbA1c or equivalent in the previous 15 months	2/46 (4.3%)	959/26,153 (3.7%)	1.12 (0.25-4.98)	0.8741
% of patients in whom last HbA1c test is 10 or less	3/46 (6.5%)	2,000/26,153 (7.6%)	0.78 (0.23-2.66)	0.6782
% of patients in whom last HbA1c test is 7.5 or less	6/46 (13.0%)	3,946/26,153 (15.1%)	-	-

% of patients with record of retinal screening in the previous 15 months	6/46 (13.0%)	2,721/26,153 (10.4%)	1.26 (0.51-3.13)	0.6096
% of patients with a recording of BMI in the previous 15 months	3/46 (6.5%)	1,033/26,153 (3.9%)	-	-
% of patients who had influenza immunisation in the preceding 1 September - 31 March	6/46 (13.0%)	4,803/26,153 (18.4%)	0.61 (0.24-1.51)	0.2720
% of patients with a record of presence or absence of peripheral pulses in the previous 15 months	5/46 (10.9%)	2,233/26,153 (8.5%)	1.06 (0.39-2.88)	0.9054
% of patients with record of kidney screen (EGFR or serum creatinine) in the previous 15 months	7/46 (15.2%)	904/26,153 (3.5%)	4.93 (2.07-11.74)	0.0007
% of patients with a record of blood pressure in the previous 15 months	4/46 (8.7%)	582/26,153 (2.2%)	3.94 (1.33-11.74)	0.0153
% of patients with diabetes whose last blood pressure is 145/85 or less	4/46 (8.7%)	2,094/26,153 (8.0%)	1.01 (0.34-2.97)	0.9899
Hypertension	N=92	N=94,322		
% of patients with a record of blood pressure in the previous 9 months	3/92 (3.3%)	3,293/94,848 (3.5%)	0.74 (0.23-2.43)	0.6129
% of patients with a blood pressure of 150/90 or less in the previous 9 months	3/92 (3.3%)	6,646/94,848 (7.0%)	0.39 (0.12-1.28)	0.1200
Asthma	N=66	N=40,427		
% of patients who have had an asthma review in the previous 15 months	8/66 (12.1%)	5,564/40,412 (13.8%)	0.72 (0.32-1.58)	0.4039
% of patients aged 8+ diagnosed as having asthma with measures of variability or reversibility, from 1.4.07	10/18 (55.6%)	265/1,664 (15.9%)	9.49 (2.83-31.82)	0.0014
Heart Failure	N=18	N=7,153		
% of patients confirmed by echocardiogram or specialist, for diagnoses after 1.4.06	2/7 (28.6%)	76/590 (12.9%)	-	-
% of patients with heart failure due to left ventricular dysfunction treated with ACE inhibitor or angiotensin receptor blocker (unless	3/18 (16.7%)	558/5,400 (10.3%)	1.78 (0.44-7.16)	0.3937

contraindicated)				
Chronic Obstructive Pulmonary Disease (COPD)	N=9	N=16,858		
% of all patients with diagnosis confirmed by spirometry including reversibility testing	0/9 (0.0%)	1,733/16,914 (10.2%)	-	-
% of patients with a record of FeV1 in the previous 15 months	1/9 (11.1%)	2,656/16,914 (15.7%)	0.71 (0.06-8.94)	0.7573
% of patients receiving inhaled treatment with a record that inhaler technique has been checked	1/8 (12.5%)	1,408/13,018 (10.8%)	1.32 (0.09-18.75)	0.8086
% of patients who have had influenza immunisation in preceeding 1 September - 31 March	0/9 (0.0%)	3,072/16,914 (18.2%)	-	-
Hypothyroidism	N=38	N=21,559		
% of patients with a record of thyroid function tests in the previous 15 months	2/38 (5.3%)	291/21,664 (1.3%)	5.15 (1.07-24.69)	0.0411
Coronary Heart Disease	N=25	N=34,711		
% of patients with a record of total cholesterol in the previous 15 months	0/25 (0.0%)	2,074/34,635 (6.0%)	-	-
% of patients with a total cholesterol of 5mmol/l or less in the previous 15 months	1/25 (4.0%)	4,282/34,635 (12.4%)	0.30 (0.04-2.56)	0.2545
% of patients with newly diagnosed angina referred for exercise testing &/or specialist assessment, after 1.4.03	1/11 (9.1%)	248/3,473 (7.1%)	1.07 (0.09-12.83)	0.9541
% of patients with a record of influenza immunisation in preceeding 1 September - 31 March	1/24 (4.2%)	5,804/34,635 (16.8%)	0.19 (0.02-1.63)	0.1231
% of patients with a record of taking aspirin/anti-platelet or anti-coagulant in the previous 15 months (unless contraindicated)	0/25 (0.0%)	1,187/34,624 (3.4%)	-	-
% of patients with a history of MI treated with ACE inhibitor or angiotensin II antagonist, if diagnosed after 1.4.03	2/6 (33.3%)	427/3,890 (11.0%)	4.89 (0.44-54.26)	0.1505
% of patients with a record of blood pressure in the previous 15	0/25 (0.0%)	993/34,635 (2.9%)	-	-

months				
% of patients with a blood pressure of 150/90 or less in the previous 15 months	0/25 (0.0%)	1,821/34,635 (5.3%)	-	-
% of patients currently treated with a beta blocker (unless contraindicated)	4/25 (16.0%)	9,720/34,510 (28.2%)	0.55 (0.17-1.76)	0.2949
Chronic Kidney Disease	N=15	N=12,003		
% of patients treated with ACE inhibitor or angiotensin receptor blocker (unless contraindicated)	4/15 (26.7%)	1,678/9,228 (18.2%)	1.28 (0.35-4.74)	0.6890
% of patients with a record of blood pressure in the previous 15 months	2/15 (13.3%)	122/13,414 (0.9%)	-	-
% of patients with a blood pressure of 140/85 or less in the previous 15 months	4/15 (26.7%)	3,801/13,414 (28.3%)	0.98 (0.27-3.56)	0.9770
Psychosis	N=55	N=6,899		
% of patients with a record of comprehensive care plan agreed with individual, family or carer	5/40 (12.5%)	970/5,858 (16.6%)	1.62 (0.51-5.17)	0.4047
% of patients with a record of review and evidence of participation in routine health promotion/prevention advice in the previous 15 months	7/53 (13.2%)	826/5,966 (13.8%)	2.05 (0.75-5.56)	0.1541
% of patients on lithium therapy with a record of lithium levels in a therapeutic range in the previous 6 months	7/11 (63.6%)	85/ 987 (8.6%)	-	-
% of patients on lithium therapy with a record of serum creatinine and TSH in the previous 15 months	7/11 (63.6%)	49/1,023 (4.8%)	-	-
Atrial Fibrillation	N=7	N=9,953		
% of patients treated with anti-coagulant or anti-platelet drug therapy	2/7 (28.6%)	293/9,934 (2.9%)	-	-
% of patients from 1.4.07 with diagnosis confirmed by EEG specialist	1/4 (25.0%)	203/1,581 (12.8%)	-	-

Stroke	N=13	N=15,008		
% of patients with a record of total cholesterol in the previous 15 months	1/13 (7.7%)	1,355/15,046 (9.0%)	-	-
% of patients with a total cholesterol of 5mmol/l or less in the previous 15 months	2/13 (15.4%)	2,394/15,046 (15.9%)	0.95 (0.17-5.30)	0.9483
% of patients with a record of blood pressure in the previous 15 months	0/13 (0.0%)	637/15,046 (4.2%)	-	-
% of patients with a blood pressure reading of 150/90 or less in the previous 15 months	0/13 (0.0%)	1,128/15,046 (7.5%)	-	-
% of patients with non-haemorrhagic stroke or history of transient ischaemic attacks with record of taking anti-platelet or anti-coagulant (unless contraindicated)	1/13 (7.7%)	383/9,130 (4.2%)	2.18 (0.21-22.55)	0.4789
% of patients with a record of influenza immunisation in the preceeding 1 September - 31 March	1/13 (7.7%)	3,080/15,046 (20.5%)	0.30 (0.03-3.03)	0.2778
% of new patients with a stroke with a record of referral for further investigation	3/4 (75.0%)	151/1,021 (14.8%)	-	-
Depression	N=66	N=54,370		
% on diabetes or coronary heart disease register for whom case finding for depression has been undertaken	22/66 (33.3%)	3,790/54,284 (7.0%)	6.73 (3.79-11.95)	<0.0001
Health Promotion				
% of patients with any of the following: coronary heart disease, stroke or TIA, hypertension, diabetes, COPD or asthma, who have a record of smoking status in the previous 15 months, except never-smokers who need the recording once since diagnosis	6/190 (3.2%)	842/155,235 (0.5%)	5.50 (2.28-13.27)	0.0002
% of patients with record of smoker status with any of: coronary heart disease, stroke or TIA, hypertension, diabetes, COPD or asthma, who are offered smoking cessation advice or specialist referral	24/53 (45.3%)	510/39,830 (1.3%)	115.56 (55.99-238.51)	<0.0001