

Hypothesis

Health checks in primary care for adults with intellectual disabilities: how extensive should they be?

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Abstract

Background Routine health checks have gained prominence as a way of detecting unmet need in primary care for adults with intellectual disabilities (ID) and general practitioners are being incentivised in the UK to carry out health checks for many conditions through an incentivisation scheme known as the Quality and Outcomes Framework (QOF). However, little is known about the data being routinely recorded in such health checks in relation to people with ID as practices are currently only incentivised to keep a register of people with ID. The aim of this study was to explore the additional value of a health check for people with ID compared with standard care provided through the current QOF structure.

Methods Representative practices were recruited using a stratified sampling approach in four primary care trusts to carry out health checks over a 6-month period. The extracted data were divided into two aggregated informational domains for the purpose of multilevel regression analysis: 'ID-specific' (containing data on visual assessment, hearing assessment, behaviour assessment, bladder function, bowel function and feeding assessment)

and financially incentivised QOF targets (blood pressure, smoking status, ethnicity, body mass index, urine analysis and carer details) which are incentivised processes.

Results A total of 651 patients with ID were identified in 27 practices. Only nine practices undertook a health check on 92 of their patients with ID. Significant differences were found in the recorded information, between those who underwent a health check and those who did not ($P < 0.001$, $\chi^2 = 56.3$). In the group that had health check, recorded information was on average higher for the 'QOF targets' domain, compared with the 'ID-specific' domain, by 58.7% (95% CI: 54.1, 63.3, $P < 0.001$).

Conclusions If incentives are to be used as a method for improving care for people with ID through health checks a more targeted approach focused on ID-specific health issues might be more appropriate than an extensive health check.

Keywords health check, incentivisation, intellectual disabilities

Introduction

People with intellectual disabilities (ID) are 58 times more likely to die before the age of 50 when compared with the general population and four times more likely to have a preventable cause of

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death in the UK (McCuigan *et al.* 1995; Hollins *et al.* 1998). People with ID also experience increased morbidity with higher levels of epilepsy, hearing loss, sight problems, mental ill health, behavioural problems, depression, anxiety, psychosis, sensory impairment and behaviour disorders (van Schroyen Lantman-De Valk *et al.* 2000; Pawar & Akuffo 2008). Some of these health inequalities are linked to poor quality primary health care provided to people with ID (DOH 2001; Michael 2008).

Despite consultation rates in primary care being the same or greater than that of the general population (Stein & Ball 1999) opportunistic health checks do not adequately meet the health needs of this group of individuals (Lennox *et al.* 2007). Moreover, there is a debate over which group of health professionals should be primarily responsible for conducting health checks: the primary care team, the community learning disability team or indeed carers (Matthews & Hegarty 1997; Curtice & Long 2002). However, routine health checks within a primary care setting have gained prominence as a way of detecting and addressing unmet need and are advocated by health policy (DOH 2001).

Much of the published work so far related to health checks in primary care was carried out before the introduction of the Quality and Outcomes Framework (QOF) incentives scheme. Introduced in the UK in 2004, the scheme rewards practices financially for meeting pre-determined targets relating to the management of predominantly chronic diseases, patient experience of consultation length and access to care and practice organisation such as notes summarising (Roland 2004). Since 2006, practices have been rewarded for maintaining a register of patients with ID (aged 18 years and over), but there is no direct reward for reviewing an individual's health. However, patients with ID are more likely to have a coexisting comorbidity such as epilepsy, which means comorbid aspects of their health should be under annual review (Lennox *et al.* 2007).

The aim of this study was to determine the key health parameters recorded as part of the health check for people with ID compared with standard care provided through the current QOF structure in a primary care setting. This was achieved through asking practices to implement a health check based

on the Cardiff health check (Fraser *et al.* 1998) over a 6-month period from August 2008.

Methods

Participating practices were recruited from four English NHS Primary Care Trusts (PCTs). Although the participating PCTs were a convenience sample selected for logistical reasons, the sample of practices was designed to be representative of all practices in England in terms of practice size, deprivation using Index of Multiple Deprivation scores (IMD) and 2006/07 QOF scores. IMD differs from other deprivation measures as it uses a range of information from local government and other agencies to create a measure of deprivation comprising seven weighted themes or domains (income, employment, health and disability, education skills and training, barriers to housing services, crime and living environment) which are combined to create an overall score (Communities and Local Government 2008). Thus, a stratified sampling approach was used to select practices, in order to maximise representativeness and variability between the practices.

As ID patients with a QOF-incentivised clinical condition would attract payment for achieving outcomes for those specific conditions, analysis included, prevalence of comorbidity, levels of exception coding and health checks carried compared with those with no identified underlying comorbidity. Individual patients were considered to have a comorbidity if they had Read Coded data for one or more of the following clinical conditions; coronary heart disease, hypertension, diabetes, chronic kidney disease, asthma, chronic obstructive pulmonary disease, stroke, atrial fibrillation, epilepsy, thyroid, mental health or depression.

Procedures

Although the health check guidance was based on the Cardiff Health Check, certain aspects were not included such as the specific system inquiry sections which required a yes or no answer. This study relied on Read Coded information only and such questions are difficult to code in clinical systems. The parameters recorded are shown in Table 1. It was up to the individual practices to decide which

Table 1 Measurable parameters in the health check

1. ID-specific
Assessment of feeding, bowel and bladder function
Assessment of behavioural disturbance
Assessment of vision and hearing
2. QOF-incentivised processes
Carer details
Ethnicity
BMI
Smoking status
Blood pressure
Urine analysis
3. Other
Cervical cytology (uptake per eligible)
Presence of comorbidity (e.g. diabetes as measured by QOF registers)

ID, intellectual disability; QOF, Quality and Outcomes Framework; BMI, body mass index.

of the identified patients they invited for health checks and how. An information pack was distributed to each participating practice in May 2008. The pack detailed information on health checks, the clinical terms and Read Codes used to record data, examples of letters of invitation and resources available in their locality. However, no specific training on how to carry out health checks was given and it was up to the practices to decide who carried out the health checks (nurses or doctors). Practices were not expected to carry out health check on all patients identified, given the limited time for implementation (6 months).

The study was submitted for ethical consideration (REC: 08/h1010/73) but considered to be a service evaluation.

Statistical analysis

SPSS for Windows, Rel. 14.0.0. 2005. Chicago: SPSS Inc. was used for preliminary exploration of the data using descriptive statistics. The main analysis was conducted with v10.1 StataCorp. 2009. Statistical Software: Release 10.1. College Station, TX: Stata Corporation.

Two informational domains were created ('ID-specific' and 'QOF targets') and for each domain the relevant available variables were aggregated into scores, on a 0–100 scale. The 'ID-specific' domain contained information that related

to data on visual assessment, hearing assessment, behaviour assessment, bladder function, bowel function and feeding assessment. The 'QOF targets' domain aggregated information measures which related to QOF targets and thus attracted direct payment for achievement (NHS Employers 2009b): blood pressure, smoking status, ethnicity, body mass index (BMI), urine analysis and carer details. Although cervical cytology is an incentivised process, this was excluded from the QOF targets domain as the indicator only applies to a subset of participants in England (women aged 25–64 years).

A linear multi-level regression approach was used treating patient and practice as random effects. This allowed for the introduction of an extra degree of uncertainty in the estimates, by acknowledging that both patients and practices are samples of much larger populations. Taking into account the three-level structure of the data (information type nested within patients and patients nested within practices), we used a single regression to estimate the ID health check and information type (main) effects, as well as their interaction (Singer & Willett 2003). The estimated regression coefficients were used in post-tests to address the two questions of interest. Analysis was adjusted for available practice and patient level characteristics, with an alpha error of 5%.

Even though the patient-level informational domain scores tended to have skewed distributions and heterogeneous variances, regression analyses have been found to be remarkably robust when assumptions are violated, especially for large samples (Ali & Sharma 1996). Nevertheless, we assessed sensitivity to our statistical assumptions with a different method of statistical inference, a bootstrap method of 1000 samples (Bradley & Tibshirani 1993). The bootstrap inference method makes no distributional assumptions, hence is more robust under the observed conditions (skewed distribution, heterogeneous variances). No differences, in significance or non-significance, were identified between the main and sensitivity analysis.

Results

Eighty-one practices were contacted over a period of 3 months and 36 agreed to take part: 10 in Har-

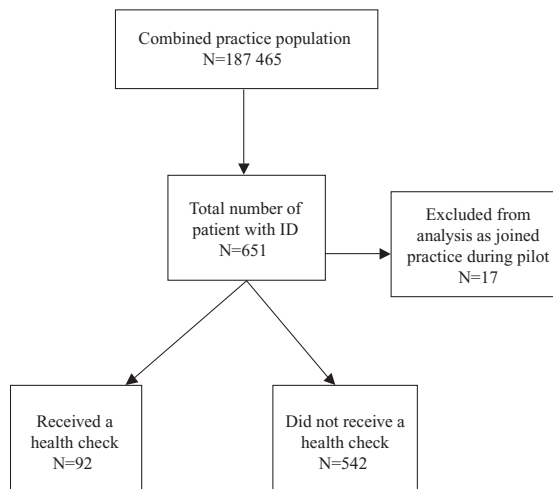


Figure 1 Number of patients available for analysis.

ingey; eight in Nottinghamshire; nine in Oldham; and nine in Warwickshire. From the original 36, six withdrew from the pilot because of time constraints and it was not possible to extract data from three of the practices because of technical difficulties leaving a total of 27 practices from which data were available for analysis. The practices had a combined registered population of 187 453.

At completion of the pilot a total of 651 patients with ID were identified, an overall prevalence of 0.35% for the practices (range of 0.08–0.68%), compared with a total of 524 at the beginning of the pilot from QOF registers. The additional 127 patients identified included 17 patients who registered as new patients with a practice during the time of the pilot and were excluded from the analysis. Thus a total of 634 records were available for analysis (see Fig. 1).

Gender and age demographics are shown in Table 2.

Ninety-two of the 634 individuals (14.5%) had a record suggesting that they had undergone a health check specifically for ID during the study. However, health checks were carried out in only nine out of the 27 practices taking part in the pilot on only a third of the patients on their ID registers.

The recording of cervical screening status for women aged 25–64 who underwent a health check (24/28; 85.7%) was higher compared with those who did not (95/169; 56.2%). However, the majority

Table 2 Characteristics of subjects identified with ID

	Men	Women
Total (%)	376 (59.3)	258 (40.7)
Age in years (mean)	42.78	40.22
Age range (years)	18–91	18–91

Table 3 Cervical smear record

No Record	Record Present	Refused	Total
78 (39.6%)	64 (32.3%)	56 (28.4%)	198

of eligible patients (134/198; 67.7%) either had no record of a smear (78/198; 39.4%) or were recorded as having declined the test (56/198; 28.3%). Over 67% (19/28) of those assessed during the pilot were exception coded as being not suitable for or refused cervical cytology (Table 3). Exception coding allows practices to exclude individual patients, for clinically appropriate reasons such as terminal illness from the denominator of an indicator to maximise income.

Almost 65% of ID patients had one or more QOF-related comorbidity but there was no statistically significant difference in whether they received a health check compared with those who did not have a pre-existing comorbidity. The most common comorbidities recorded were epilepsy (27.6%), depression (22.1%) and hypertension (9.3%). Of those with a comorbidity only 26 (6.2%) were exception coded from the underlying comorbidity register. In addition, 93.8% of the ID patients on the thyroid disease register had a record of a thyroid function test. None of the patients were on the dementia register. QOF-incentivised processes were more likely to be recorded than ID-specific processes (see Table 4) and more often in those who had undergone a health check.

Table 4 compares clinical data recorded in those who underwent a health check compared with those who did not. Specifically, clinical data in the two information groups (QOF-specific and ID-specific processes) show that overall processes that are incentivised in the QOF such as blood pressure,

Table 4 Health parameters

	No health check (n = 542) (%)	Health check during pilot (n = 92) (%)	χ^2 , P-value
QOF-incentivised processes			
Carer detail recorded	109 (20.1)	54 (58.7)	59.8, $P < 0.001^*$
Ethnicity record	184 (33.9)	43 (46.7)	5.6, $P = 0.018^*$
Blood Pressure (BP) record	461 (85.1)	89 (96.7)	9.3, $P = 0.002^*$
Smoking status record	452 (83.4)	90 (97.8)	13.2, $P < 0.001^*$
BMI record	418 (77.1)	85 (92.4)	11.2, $P = 0.001^*$
Urine testing record	199 (36.7)	37 (40.2)	0.4, $P = 0.521$
ID-specific processes			
Hearing or auditory canal assessment record	73 (13.5)	20 (21.7)	4.2, $P = 0.04^*$
Visual assessment record	37 (6.6)	18 (19.4)	16.7, $P < 0.001^*$
Behaviour assessment record	4 (0.7)	7 (7.5)	22.2, $P < 0.001^*$
Bowel assessment	16 (3)	11 (12)	15.6, $P < 0.001^*$
Bladder assessment	33 (6.1)	13 (14.1)	7.6, $P = 0.006^*$
Feeding assessment	0	7 (7.5)	42.5, $P < 0.001^*$

* Significant difference at the 5% level.

QOF, Quality and Outcomes Framework; BP, Blood Pressure; BMI, body mass index; ID, intellectual disability.

smoking status and BMI (85.1%, 83.4% and 77.1%, respectively) were being recorded very well and improved further in those who underwent a health check (96.7%, 97.8% and 92.4%, respectively). Recording of carer detail and ethnicity also increased significantly in those who had a health check (20.1% and 33.9% increasing to 58.7% and 46.7%, respectively). Health checks resulted in statistically significant improvement in recording of ID-specific processes with patients most likely to have a hearing (21.7%) or visual assessment (19.4%) and least likely to have a behaviour (7.5%) or feeding assessment (7.5%). Although the levels were far lower than the QOF-specific processes.

Regression analysis

The components of the two-level regression analysis are summarised in Table 5. Significant differences were found in the recorded information, between those who underwent a health check and those who did not ($p < 0.001$, $\chi^2 = 56.3$). On average, recorded information for patients who underwent a health check was 7.35% higher in the 'ID-specific' domain (95% CI: 3.38, 11.34, $P < 0.001$) and 14.58% higher in the 'QOF targets' domain (95% CI: 10.60, 18.55, $P < 0.001$), compared with information recorded for those who did not have a health check. In the

group that had health check, recorded information was on average higher for the 'QOF targets' domain, compared with the 'ID-specific' domain, by 58.70% (95% CI: 54.07, 63.32, $P < 0.001$). The explained variability in the model by (1) patients and (2) practices was almost the same.

Patient and practice level characteristics were examined as potential predictors of recorded information (across both domains). Increasing age and being female positively affected recorded information, significantly. Practices with higher QOF scores (achievement levels) were more likely to record data ($P = 0.032$). However, practice list size and IMD at the Super Output Area (SOA) level were not found to be significant predictors ($P = 0.162$ and $P = 0.800$, respectively). SOAs are presumed socially homogenous units of geography used in the UK for statistical analysis each covering between 1000 and 3000 people (Office for National Statistics 2004).

Discussion

This study suggests that a high level of recording had already been achieved for people with ID in processes directly incentivised through the QOF such as blood pressure record smoking status and

Table 5 Results of regression analysis

	Coefficient % (95% CI)	P value
Research questions		
Difference in 'ID-specific' informational domain between those who had a health check and those who did not*	7.35 (3.38, 11.34)	$P < 0.001$
Difference in 'QOF targets' informational domain between those who had a health check and those who did not*	14.58 (10.60, 18.55)	$P < 0.001$
Difference between 'ID-specific' and 'QOF targets' informational domains for those who had a health check	58.70 (54.07, 63.32)	$P < 0.001$
Covariates		
Age (per 10-year increase)	2.5 (1.89, 3.23)	$P < 0.001$
Male	-5.17 (-7.30, -3.03)	$P < 0.001$
Practise list size (per 1000 more patients)	-0.02 (-0.05, 0.01)	$P = 0.162$
QOF year three reported achievement (per 1% increase)	0.54 (0.05, 1.04)	$P = 0.032$
Super Output Area Index of Multiple Deprivation	0.01 (-0.08, 0.11)	$P = 0.800$

* Overall test for difference in (all) information between the two groups was also significant ($P < 0.001$, $\chi^2 = 56.27$). ID, intellectual disability; QOF, Quality and Outcomes Framework.

BMI. The health check, however, led to further statistically significant increases in recording of these processes. The ID-specific assessment processes (hearing, visual, behaviour, feeding, bowel and bladder assessment) were poorly recorded for all individuals with a small but statistically significant improvement in recording in those patients who had a health check.

Strengths and limitations

A strength of this study is the representative nature of the sample of practices. However, the final study sample was small ($n = 27$) and only nine practices actively undertook health checks during the study, on a third of their patients over a 6-month period. It was also not possible to identify the number of patients who were invited for a health check and did not attend. The overall prevalence of ID of 0.35% is slightly above the national QOF prevalence (0.3%) (The Information Centre 2009). Data extracted for QOF-incentivised processes are reliable as general practitioner payment is linked directly to these data. However, data extracted in relation to ID-specific processes may not: in order to ensure payment, practices are aware of the codes to use for the QOF-incentivised process and although practices involved in the study were provided with codes to use for recording clinical infor-

mation, it is possible information may not have been recorded using these codes. A standardised electronic template for ID issues would prompt health professionals to record relevant clinical data and standardise data recording.

Value of health checks

Health checks in people with ID have been shown to increase detection of vision impairment, increase in hearing testing and improvement in women's health screening (Lennox *et al.* 2007). Moreover, health check have been found to identify new health problems in 51% of those who received a health check (Baxter *et al.* 2006) and a subsequent repeat health check identified similar level of new health needs in the same group of patients (Felce *et al.* 2008). However, this study did not seek to quantify new problems identified through health checks but rather to assess the data being routinely recorded in general practice. The findings in this study suggest that any incentivised health check for people with ID should focus on their specific needs rather than on processes already incentivised through the QOF.

Incentives as a process of improving care

There is some evidence that the QOF has led to improvement in performance for some conditions

and led to a reduction in inequality in delivery of care in deprived areas (Doran *et al.* 2008). However, as it is currently structured, may not be the best way of addressing health-care inequalities with some evidence of static or even widening of inequalities in some population groups (Millett *et al.* 2009).

Nearly two-thirds of the patients identified on the ID registers created for this study also had a comorbidity which would result in an annual assessment as part of current QOF arrangements. Exception coding of patients (6.2%) in this study is similar to the overall exception reporting seen nationally of 6% (Doran *et al.* 2006). The evidence from this study would suggest that for most clinical coexisting comorbidities, patients were not being exception coded and were receiving appropriate care. However, it is possible comorbidity is not being either recognised or being coded appropriately and the extent to which this occurs remains unknown. For example, none of the patients were on the dementia register whereas there is evidence to suggest that there is a higher rate of dementia in the ID population compared with the general population (21.6% vs. 5.7%) (Cooper 1997).

Current practice and future recommendations

The recently implement Directly Enhanced Service (DES) in England provides additional incentives to general practitioners to carry out a health check that includes a physical examination, behaviour and mental health assessment. However, the health check will be targeted to those 'with the most complex needs and therefore at the highest risk from undetected health conditions (usually people with moderate to severe learning disabilities)' (NHS Employers 2009a). As the current QOF register includes all patients identified as having ID, the DES guidance has a potential to cause uncertainty and confusion as to who should be offered a health check and future research should focus on the impact on patients' and carers' views as well as health professionals' experience of delivering such health checks. Although there is requirement for the practice members to attend 'a multi professional educational session' this is unlikely to be enough to ensure practices assess and meet specific needs of people with ID. Future research needs to

explore the educational needs of primary care practitioners and whether a single education session is sufficient.

Conclusion

Our data suggest that a more targeted approach focused on incentivising ID-specific health issues (vision, hearing, behaviour, feeding, bowel and bladder function assessment) along with the current QOF targets (such as recording of carer details, ethnicity, as specific clinical data such as blood pressure) might be more appropriate in primary care for improving care for people with ID than an extensive ID health check. However, planned analysis by the authors of the impact of the DES on people with ID will shed further light on this important aspect of health care.

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