

Council tax valuation band of patient residence and clinical contacts in a general practice

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ABSTRACT

Background

There is a dearth of data relating UK general practice workload to personal and social markers of individual patients.

Aim

To test whether there is a significant association between general practice patient contact rates and the council tax valuation band of their residential address.

Design of study

Cross-sectional analyses using data recorded, over 1 year, for over 3300 general practice patients.

Setting

One medium-sized group practice in an industrialised English market town.

Method

Face-to-face contacts between the patients and the doctors and nurses in the practice were compared by patient age, sex, registration period, distance from surgery, Underprivileged Area 8 (UPA8) score, and council tax valuation band.

Results

Patient sex, age, recent registration, distance from surgery, and council tax valuation band were each significantly associated with face-to-face contact rate in univariate analyses. UPA8 score was not significantly associated with contact rates. On multivariate testing, sex, age, recent registration, and council tax valuation band remained significantly associated with contact rates. The last is a new finding.

Conclusion

Council tax valuation bands predict contact rate in general practice; the lower the band, the higher the contact rate. Council tax valuation band could be a useful marker of workload that is linked to socioeconomic status. This is a pilot study and multipractice research is advocated.

Keywords

council tax valuation band; cross-sectional analysis; family practice; health services needs and demand; workload.

INTRODUCTION

The unique registration system of UK primary care means that practice 'lists' are well defined. However, patients are all different. Although it is easy to compute the demands they make by age and sex, everyone in primary care 'knows' that the influences on workload do not end here. Other factors are more elusive but clearly important, the corollary being that they, in their part, should also govern the resources to individual practices. Except for old-age increments, however, 'weighted capitation' has always been a pipe dream.¹ There is a striking void of verified personal and demographic predictors of workload in UK primary care, the urgent need for which was dramatically exposed by the near collapse of the recent negotiations towards a new general practice contract.²

Only one indicator of differential workload pressures on UK general practices has ever been introduced officially: the Underprivileged Area 8 (UPA8) score, or 'Jarman Index'.³ It has never been tested in service,⁴ and has been heavily criticised.^{5,6} Nevertheless, it has been used for more than a decade to determine which UK general practices should receive additional resources, supposedly for meeting the extra needs of deprived patients. It has a value-judgement basis — GPs' own opinions on the factors that supposedly increase their workload. Its application requires small area UK census

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statistics, data that are legally inaccessible below 'output area' (postcode area in Scotland) thresholds of at least 16 households or 50 persons.⁷ This area restriction, seen as imperative for confidentiality, also makes socioeconomic indices such as 'Townsend',⁸ or the newer 'DETR' (Department of the Environment, Transport, and the Regions) tables⁹ incompatible with practice lists.

In 1992 the British Government replaced the community charge ('poll tax') with a new tax — council tax. Homes were to be assessed externally, allotted an 'open market' value, as at 1 April 1991, based on size, layout, character, and locality, and placed into one of eight 'valuation bands', A–H, that would dictate the amount of the tax. All UK local authorities were mandated to levy the new tax and to publish lists showing the council tax valuation band of all properties in their jurisdiction: these are now available, for England and Wales, on a website published by the Valuation Office Agency (www.voa.gov.uk/council_tax/index.htm).

We first compared this new 'ecological attribute' of all patients — the council tax valuation band of their residence — with a compound measure of morbidity in a small study reported in 2000.¹⁰ We demonstrated an association between council tax valuation band and:

- the number of rooms per house,
- established deprivation indicators (such as home ownership, access to a car) and
- workload in a typical UK general practice (such as recorded morbidity).

We have also reported that council tax valuation band is a significant predictor of mortality.¹¹ The only other report in the literature that uses council tax valuation bands as a socioeconomic marker is that of Jones,¹² a demographic study of council tax benefit distribution.

The aim of this study is to test the hypothesis that there is an association between face-to-face patient contact rates in UK general practice and the council tax valuation band of their domicile.

How this fits in

The search for a simple, valid, and universal predictor of workload in UK general practice that takes us beyond age and sex has, so far, been unfruitful. Council tax valuation bands could be a proxy predictor of workload in UK general practice. This is worthy of a larger, multipractice exploration.

METHOD

The practice

Northlands is a semi-rural research and development/training practice based in modern premises; it has complements of nurses and administrative staff that are above local averages. List size is stable (10 716 at the end of the study period), with the age spectrum and annual turnover being close to local and national averages. Calne is a market town that became industrialised. There are pockets of deprivation (two enumeration districts score above +30 UPA8), but there are no significant minority ethnic groups.

Study design

Clinical entries in the medical records of all the practice patients were the study data source. This is a preliminary analysis — of all patients whose surnames begin A–E, inclusive. A wide range of morbidity markers was extracted manually, coded, and transferred onto computerised files that had been pre-entered to record, for each patient:

- last name, first name, sex,
- date of birth,
- age at the end of the study period,
- doctor with whom registered,
- home address and postcode,
- enumeration district and UPA8 score,
- distance from home address to surgery (more or less than 3 miles),
- years registered with practice, and
- months registered during the study period.

In the context of the present study we entered, for each patient, during the study year:

- face-to-face consultations with a doctor,
- face-to-face consultations with a practice nurse, and
- face-to-face 'triage' consultations (always with a nurse but possibly initiating a further, immediate consultation with a doctor).

We did not distinguish between contacts in the surgery and in the home, nor between in-hours and out-of-hours contact. Contacts with patients for pre-appointed reasons, such as antenatal care, 'well-woman' preventive care, diabetic surveillance, or for venepuncture, were not included. We adopted the study period 1 October 2001–30 September 2002: patients born or dying, registering or deregistering,

Table 1. The sex and age-band distributions of face-to-face contact rates in this study compared with analogous data from the National Study of 1991–1992¹³ and of the General Practice Research Database.¹⁴

| | Sex | Age band (years) | | | | | | |
|---|--------|------------------|------|-------|-------|-------|-------|-----|
| | | 0–4 | 5–15 | 16–24 | 25–44 | 45–64 | 65–74 | 75+ |
| Northlands | Male | 4.6 | 2.0 | 2.3 | 2.5 | 3.5 | 5.2 | 6.7 |
| | Female | 4.7 | 2.6 | 4.9 | 4.7 | 4.7 | 5.3 | 6.5 |
| 'Fourth National Statistics' ^a | Male | 5.1 | 2.0 | 1.7 | 1.9 | 3.1 | 4.3 | 5.5 |
| | Female | 4.8 | 2.2 | 4.3 | 4.3 | 4.3 | 4.7 | 5.5 |
| General practice research database ^b | Male | 6.1 | 2.2 | 1.8 | 1.9 | 3.2 | 5.3 | 6.7 |
| | Female | 5.8 | 2.5 | 4.5 | 4.8 | 5.1 | 6.0 | 6.9 |

^aFrom 60 UK general practices, 1991–1992 — not including nurse consultations. ^bFrom 226 UK general practices 1992–1998, including telephone consultations.

Table 2. Univariate test results on the variables considered likely to influence the face-to-face contact rate of the study group.

| Variable | Sex | Age band (years) | Distance from surgery (miles) | Recent registration | UPA8 | CTVB |
|------------------------|------------------------|-------------------|-------------------------------|---------------------|--------------------|-------------------|
| Test result | 1 078 980 ^a | 95.9 ^b | -3.20 ^a | -4.05 ^a | 0.018 ^c | 30.6 ^d |
| Significance (P-value) | <0.001 | <0.001 | <0.001 | <0.001 | 0.30 | <0.001 |

^aMann-Whitney U test; ^b χ^2 , 6 degrees of freedom (df); ^cSpearman's rank correlation; ^d χ^2 , 5 df. UPA8 = Underprivileged Area 8. CTVB = council tax valuation band.

during the year, were included by apportioning to them a study period calculated to the nearest whole month.

After entry and validation of the clinical data, each patient was allotted a letter, A–H, representing the council tax valuation band of their residence, as obtained from the Valuation Office Agency website. If patients moved house within the study period and remained with the practice, they were attributed with the council tax valuation band of the address at which they had lived for the majority of the study year (randomisation if they moved after 6 months). Patients living in nursing or residential homes, and those at a residential school, were omitted from the study.

Analyses and statistical testing

Face-to-face contacts were aggregated for each patient and rates calculated per patient years at risk. Rates were then compared between groups defined by sex, age band, recent registration with the practice

(within 1 year of the beginning of, or within the study period), distance of home address from the surgery (up to 3 miles versus more than 3 miles), UPA8 score, and council tax valuation band. Variables were initially considered in a univariate manner using Mann-Whitney U or χ^2 tests (categorical variables) and Spearman's rank correlation coefficient (continuous variables). Significant variables thus identified were then included in multivariate tests using an exponential regression model. All analyses were performed in SPSS version 11.0.1.

RESULTS

After omitting 39 institutionalised patients (1.2%), the study group consisted of 3341 patients: 1647 females and 1694 males. It was not possible to allocate a council tax valuation band to nine patients (0.3%), and a UPA8 score to a further 179 patients (5.4%). Therefore, data retrieval was achieved, at worst, for 3153 (94.4%) of the potential study group.

The contact rates for age bands for each sex are presented in Table 1, where they are compared with data from the Morbidity Statistics from General Practice Fourth National Study 1991-1992,¹³ and with data from the UK general practice research database.¹⁴ In the univariate tests on rates for between-subject variables, sex, age, distance from surgery, recent practice registration, and council tax valuation band (bands F+ aggregated to avoid small numbers) were shown to be significant (Table 2). UPA8 was not significantly associated. The multivariate analysis confirmed significant associations (all at $P < 0.001$) for sex, age, council tax valuation band, and recent registration (association weakened after elimination of newborns).

The new finding is the significant association between face-to-face contact rates and council tax valuation bands. The distribution of the study group across the council tax valuation bands is shown in Table 3. Overall contact rates per council tax valuation band are presented (means with 95% confidence intervals [CIs] and, since these are non-parametric data, medians) in Table 4. Our analyses show that sex and age band are also important predictors of contact rates, as would be expected. Contact rates per council tax valuation band are

Table 3. Distribution of the study patients between the council tax valuation bands of their home addresses.

| CTVB | A | B | C | D | E | F | G | H | Total |
|-------------------------------------|-------|-------|-------|-------|--------|---------|---------|----------|-------|
| Property value, £1000s (as at 1991) | To 40 | 41–52 | 53–68 | 69–88 | 89–120 | 121–160 | 161–320 | Over 320 | |
| Study subjects (n) | 385 | 1083 | 822 | 487 | 305 | 151 | 80 | 19 | 3332 |
| Percentage in subgroups | 11.6 | 32.5 | 24.7 | 14.6 | 9.2 | 4.5 | 2.4 | 0.6 | 100.1 |

CTVB = council tax valuation band.

therefore shown after subdivision by sex and age band in Tables 5 and 6 (where bands E and F are aggregated because of small numbers). The influence of council tax valuation bands is consistently shown in males and in females and in all age groups below 65 years .

DISCUSSION

Summary of main findings

The council tax valuation band of a patient's home is significantly associated with face-to-face contact rate in general practice. This is a new finding, as also is the discovery that the association is most dramatic in middle-aged females (Table 6). Our study hypothesis was to relate patient contacts to council tax valuation bands of residence to explore a possible predictor of general practice workload. We do not claim to have investigated, here, council tax valuation bands as a deprivation index. However, it is known that poor people live in poor houses and suffer poor health¹⁵ (some of that evidence is now celebrating its centenary¹⁶); we suggest that council tax valuation bands might be the key to proving this maxim in contemporary context. We already know that they are a significant marker of the number of rooms in a house.¹⁰

This study also presents, we believe for the first time in the UK, evidence that the 'Jarman Index'¹³ fails to discriminate between high consulters and their counterparts.

Strengths and limitations of the study

To accept that council tax valuation bands are a valid predictor of primary care workload is to accept an entirely new phenomenon on the basis of uncorroborated evidence. Our study, over just 1 year, and from one medium-sized group general practice only, is certainly insufficient for confident extrapolation of findings. Nevertheless, there is no reason to suspect Northlands as being idiosyncratic: our sex and age-band rates match those of the latest 'morbidity statistics from general practice (1991–1992)',¹³ and of the General Practice Research Database,¹⁴ and a patient database of some 3300 is not unreasonable for what must be seen, we accept, as an exploratory study.

Strengths and limitations of council tax valuation bands as workload markers

Like this study itself, council tax valuation bands have inherent strengths and weaknesses. In the field of socioeconomic categorisation we believe the strengths predominate. Council tax valuation bands are simple in concept, contemporary and stable, and determined independently of health and social agencies. They are officially recorded throughout the UK, archived, and

Table 4. Mean and median face-to-face contact rates of CTVB subgroups.

| CTVB | A | B | C | D | E | F+ |
|--|------------|------------|------------|------------|------------|------------|
| Mean contact rates (per patient per annum) | 5.0 | 4.2 | 3.7 | 3.7 | 3.2 | 2.9 |
| 95% CI | 4.2 to 5.7 | 3.9 to 4.5 | 3.4 to 4.0 | 3.3 to 4.2 | 2.8 to 3.6 | 2.3 to 3.5 |
| Medians ^a | 3.0 | 3.0 | 2.0 | 2.0 | 2.0 | 1.3 |

^aMedian for F+ not an integer because data are aggregated from three groups. CTVB = council tax valuation band.

Table 5. Face-to-face contact rates (means) for males subdivided by age bands and by council tax bands (A to E+).

| CTVB | Age band (years) | | | | | | | |
|------|------------------|------|----------|------|----------|------|----------|------|
| | 0–15 | | 16–34 | | 35–64 | | 65+ | |
| | <i>n</i> | Mean | <i>n</i> | Mean | <i>n</i> | Mean | <i>n</i> | Mean |
| A | 52 | 3.73 | 36 | 3.86 | 83 | 3.08 | 31 | 5.25 |
| B | 123 | 3.35 | 156 | 2.83 | 209 | 3.45 | 49 | 5.48 |
| C | 98 | 2.14 | 112 | 2.48 | 162 | 2.80 | 58 | 6.26 |
| D | 47 | 1.78 | 43 | 2.13 | 105 | 2.64 | 45 | 7.34 |
| E+ | 52 | 2.12 | 64 | 1.79 | 135 | 2.64 | 38 | 5.92 |

CTVB = council tax valuation band.

Table 6. Face-to-face contact rates (means) for females subdivided by age bands and by council tax bands (A to E+).

| CTVB | Age band (years) | | | | | | | |
|------|------------------|------|----------|------|----------|------|----------|------|
| | 0–15 | | 16–34 | | 35–64 | | 65+ | |
| | <i>n</i> | Mean | <i>n</i> | Mean | <i>n</i> | Mean | <i>n</i> | Mean |
| A | 33 | 4.42 | 49 | 7.88 | 60 | 6.74 | 41 | 5.44 |
| B | 122 | 3.70 | 148 | 5.01 | 206 | 5.26 | 70 | 6.72 |
| C | 81 | 2.97 | 91 | 4.70 | 168 | 4.38 | 60 | 5.94 |
| D | 42 | 2.68 | 37 | 4.19 | 106 | 3.78 | 62 | 5.82 |
| E+ | 42 | 1.84 | 47 | 2.90 | 140 | 3.33 | 37 | 5.86 |

CTVB = council tax valuation band.

available online (not yet in Scotland). They are applied in scattered, rural communities just as in conurbations, and always at household level: this frees them from the so-called 'ecological fallacy' of attributing social class, top-down, from an area average. They also escape the other problems of census data such as skewed underenumeration.

However, we do not have enough evidence to know whether council tax valuation bands could be standard predictors of workload for different parts of the UK. There are, for instance, fewer council tax valuation band 'A' homes in the relatively expensive south east than in the north of Britain. Modulation might be necessary; on the other hand it would not be particularly difficult.

Implications of the study

All reservations accepted, the findings of our study suggest policy implications, particularly at a time

when a nascent new contract for general practice is intended to be more sensitive to work stresses and to deliver core resources better related to practice population morbidity.² It is easy to see, from our findings, why one practice — for example, with a predominance of patients living in houses in council tax valuation bands A and B — could have a much heavier workload than its otherwise identical counterpart, the bulk of whose patients live in larger, better-endowed homes assessed as being in council tax valuation bands E and above. Indeed, our findings may give us a clue, perhaps, why it is that only some practices have the time and energy to be entrepreneurial and become financially buoyant by exceeding targets of so-called 'quality', and why it was that 'fund-holding' further divided 'sink' practices from their more 'successful' peers.¹⁷

Council tax valuation bands might, then, be a useful tool in allocating resources to primary care teams as they are applicable at household level and, therefore, easily aggregated to practice populations. They could also be a marker in other situations

where NHS resources should match need: the central funds allocated to primary care organisations and to district general hospitals are obvious examples. But all such speculation is unwise in the absence of much larger-scale, multipractice investigation and research, which we hope to inspire in order to go some way to rectify the 'inverse care law' that has so corroded UK primary care for some 50 years.^{18,19}

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Ethics committee and reference number

Ethical approval was granted by the Bath Local Ethics Committee (BA004, 2001)

Competing interests

None

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