# Delays in response and triage times reduce patient satisfaction and enablement after using out-of-hours services

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**Background.** Several different models of out-of-hours primary care now exist in the UK. Important outcomes of care include users' satisfaction and enablement to manage their illness or condition, but the determinants of these outcomes in the unscheduled care domain are poorly understood.

**Aim.** To identify predictors of user satisfaction and enablement across unscheduled care or GP out-of-hours service providers in Wales. The design of the study is a cross-sectional survey. The setting of the study is nine GP out-of-hours services, three Accident and Emergency units and an all Wales telephone advice service in Wales.

**Methods.** Postal survey using the Out-of-hours Patient Questionnaire. Logistic regression was used to fit both satisfaction and enablement models, based on demographic variables, service provider and treatment received and perceptions or ratings of the care process.

**Results.** Eight hundred and fifty-five of 3250 users responded (26% response rate, range across providers 14–41%, no evidence of non-response bias for age or gender). Treatment centre consultations were significantly associated with decreased patient satisfaction and decreased enablement compared with telephone advice. Delays in call answering or callback for triage and shorter consultations were significantly associated with lower satisfaction. Waiting more than a minute for initial call answering was associated with lower enablement.

**Conclusions.** Giving users more time to discuss their illness in consultations may enhance satisfaction and enablement but this may be resource intensive. More simple interventions to improve access by quicker response and triage, and keeping users informed of waiting times, could also serve to increase satisfaction and ultimately impact on their enablement.

**Keywords.** Enablement, family medicine, out-of-hours general practice, patient satisfaction, regression analysis.

## Introduction

The organization of high quality, effective and efficient out-of-hours care has become a major policy issue in many countries.[1] However, there are few data to inform how services should be designed and provided, particularly for GP out-of-hours care, to achieve user satisfaction and enable users to cope with their condition(s).[2,3] In the UK, there is a drive towards improving the quality of health care and making services patient-centred as well as patient-led. While much attention has focused on improving the quality and safety of 'routine' health care services (often, but not always, 'in hours'), there is also a significant need for improvements in the 'out-of-hours' services where demand is increasing rapidly.[2,4] The unscheduled and emergency care system in the UK includes GP out-of-hours, Accident and Emergency (A&E), ambulance, NHS Direct and NHS 'walk in' services.

These services are under great strain, with massive impact on NHS Trust and in-patient services and also on social care.[5] Some of these strains are expected (part of 'normal cause variation' in workflow, such as 'winter pressures') but there are also major 'special cause variation' effects on unscheduled care services. These are context-specific influences on the way care is provided and used (e.g. expectations, access),[6,7] which impact on effectiveness, patient safety and efficiency. However, it remains largely unclear what these are and how to address them. There is policy support for encouraging people to take more responsibility for their health[8] and to create the conditions necessary for people to lead healthy lives. Key principles include supporting citizens in promoting health, both individually and collectively, and promoting service user involvement at all levels.[9] It also includes encouraging public organizations to help people who use their services to achieve this goal. There is a major evidence gap about how we should enable citizens to gain most from their health care, particularly for users accessing unscheduled care services at times of urgent health problems.

Most of the current GP out-of-hours services in the UK began in 2004 following the implementation of the 2003 GP contract.[10] Several models are in operation, including services provided by local NHS Trusts (i.e. the secondary and community care providers), private companies (sometimes termed 'deputizing'), practice-based and the primary care commissioners (Primary Care Trusts in England; Local Health Boards in Wales) managing cooperatives of local GPs and nurses. The effectiveness of these models needs to be established.[3] They are complemented by NHS Direct for telephone advice by nurses, A&E departments and in England the 'walk in' centres with nursing and some medical staff for primary health care problems. Services, which are integrated with A&E may have advantages for both users and providers in appropriateness of matching services to needs (e.g. reduced A&E attendances) but possibly at higher overall costs.[11]

From previous UK findings and based on our own data from Gwent,[5,12] it is also clear that a significant minority—~20% of out-of-hours service users—are dissatisfied with their experiences. This is likely to affect other outcomes—i.e. lower 'patient enablement' (being able to cope with one's illness),[13] subsequent extra use of unplanned care services for the same illness episode[2,14] and possibly poorer health gain itself.[3] Enablement is influenced by factors such as age, longstanding illness, ethnicity but also by the type of service organization or model.[13,15,16] There are data about users valuing access and wanting patient-centred services where doctors listen to their needs, inform them of 'their place in the system' and reduce patient anxiety.[17,18] However, there are wide variations between areas,[2] and we do not know whether some different unscheduled care services may more satisfactory or better able to meet users' needs than others. The variations have significant potential for lack of effectiveness, safety compromise and inefficiency.[2] While there is discussion about 'inappropriate' attenders and the misuse of the various aspects of unscheduled care,[19] patients express concern about various issues, including a lack of knowledge of the appropriate service, travelling distance to treatment centres and their perceived need for immediate attention.[4,20]

We sought to examine users' experiences of different GP out-of-hours services in Wales by a postal survey. This was complemented for comparison by surveys with users of other unscheduled care services (A&E and NHS Direct) in three selected areas (urban, mixed and rural). This paper examines the determinants of user satisfaction and enablement, in particular the influences of logistical and communication-based variation on these outcomes.

## Methods

### Design and setting

A cross-sectional observational study was conducted. We approached all 13 providers of general practice out-of-hours care in Wales (GP OOH Providers) for participation. These comprise a range of types of provider, including 'traditional' GP cooperative models, hospital ('Trust')-managed services and for-profit companies providing services. The GP out-of-hours services provide the option of telephone advice, treatment centre consultation and a home visit. In addition, we approached three Accident and Emergency Departments (NHS A&E centres) that provide the opportunity for consultation and treatment as necessary. These were chosen to cover an urban area (Swansea), a mixed area (Gwent) and a rural area (Conwy and Denbighshire). We also included an All Wales telephone advice service (Wales), which provides an out-of-hours telephone advice service throughout Wales.

### Sampling

Sampling took place following out-of-hours contacts in 2007–08. A total of 3250 service users were invited to take part in the survey—250 from each participating service provider. From their clinical information systems, each service provider identified recent (in the past 2–4 weeks) out-of-hours service users. We followed usual practice in administering the questionnaire (see below) and identified random samples of users who had telephone advice (100 of the 250), treatment centre consultations (90 of the 250) or a home visit (60 of the 250).[5,12] Previous experience suggested that recall of events was not problematic at this stage. In the groups attending A&E centres and contacting

NHS Direct, a random sample of 250 service users was also chosen. From all samples (GP or A&E or NHS Direct), some exclusions were made: i.e. special cases (individuals known to provider with e.g. terminal illness), all users aged 11–15 years (for confidentiality reasons), others unable to participate in surveys or patients known to have died. In order to control for case mix, the highest emergency categories were excluded in the groups attending A&E.

### Instrument
A validated out-of-hours patient questionnaire, the Out-of-hours Patient Questionnaire,[21] was used in the survey. There was one questionnaire for each consultation type—telephone advice, treatment centre visits and home visits. The questionnaire comprises 56 items presented in eight sections, which include questions about access, the professional consulted, the participants' experience of the consultation and their overall satisfaction with the consultation. Patient enablement[13] was calculated from three of the six items in the patient enablement instrument (PEI). These are 'Did the out-of-hours service help you feel …

- able to understand your illness?
- able to cope with your illness?
- able to keep yourself healthy?'

These items are regarded as having the greatest face validity and being least vulnerable to confounding.[22] The response choices were 'same or less' (0), 'better' (1) and 'much better' (2) The three items are summed and dichotomized, with a score of $\geq 3$ indicating enablement. Individuals who failed to respond to one of these three questions had their total score imputed based on their mean response to the other two questions.

Patients were asked to rate 'your overall satisfaction with the help given', using the response categories: 'very poor', 'fair', 'good', 'very good' or 'excellent'. This variable is dichotomized for the analysis. Patients rating their satisfaction as very good or excellent are deemed to be satisfied, consistent with standards for out-of-hours services.[23,24]

### Sample size
A combined sample size of 1800 (originally 18 centres sought, including all GP out-of-hours providers plus 3 A&E centres, NHS Direct and 2 of ambulance service users, 100 respondents/centre; 40% response rate[14]) was expected to provide 80% power ($\beta = 95\%$) to detect an effect size of 0.4 between the closest two groups in the enablement score as principal outcome measure, consistent with the previous Gwent evaluation.[5]

### Administration
Information about the study with invitations to participate and the questionnaires were mailed out over a 5-month period (October 2007 to February 2008). Information about the study with invitations to participate and the questionnaires were mailed to the selected individuals by the providers with a return stamped addressed envelope. For users aged $\leq 10$ years, invitations to participate were sent to their parents or guardians. A single reminder was sent after 2 weeks. Questionnaires were returned by respondents to an external agency (Client Focused Evaluation Programme , Exeter, UK) for data processing and initial analysis.

### Analysis
The analysis consisted of two parts. The first part involved analysing the sample of people who presented to centres that offered all three types of out-of-hours service (telephone advice, treatment centre and home visit) to identify predictors of satisfaction and enablement. This model was then fitted to those individuals who attended the A&E treatment centres. In this way, while not assuming the same factors are predictive of both satisfaction and enablement in a different context, a comparison can be made between the associations of the predictors observed in the larger sample with those found in the smaller A&E sample.

Model building for both the satisfaction and the enablement models was informed using the results from the concurrent qualitative analysis.[25] The following basic demographic variables were included in the model: gender, age, tenure and occupation. The centre at which each patient presented and the type of treatment they received were also included. The qualitative analysis highlighted the following variables as being potentially important to satisfaction and enablement: long-term limiting illness, time spent waiting for the call to be answered, time spent waiting for the callback, length of consultation, previous use of the service and being the parent of a patient.

All statistical analyses were performed using the R programming language and environment.[26] Since the study area included different service providers, it was important to investigate the possibility that the resident populations covered by each service provider might be different. Hierarchical logistic regression was used to investigate this, using the lme4 package in R.[27] The hierarchy modelled was patients nested within organizations. Overall P-values for categorical variables such as treatment type and organization were obtained using analysis of variance.

### Sensitivity analyses
Two sensitivity analyses were performed, for both the enablement and the satisfaction outcomes. The first analysis investigated the association with being treated by a doctor compared with any other health care professional, while the second analysis investigated the association with receiving a face-to-face consultation

(essentially comparing telephone advice with the other two treatment types).

*Non-response bias assessment*
Gender and age information were available for individuals in the sampling frame from eight providers (HB2, HTP, PS2, PS3, HB3, PS1 and GPC2), allowing an assessment to be made about the extent of non-response bias.

# Results

Nine out of 13 GP OOH providers (who provide all three types of care), the three NHS A&E Centres that only provide treatment centre care and NHS Direct (Wales) that only provides telephone advice agreed to participate. For the geographical coverage achieved, see Figure 1.

Of the 3250 service users who were invited to take part in the survey, 855 returned completed questionnaires giving an overall response rate of 26% (range across providers 14–41%). Proportions of responders for each of the organizations are given in Table 1. Descriptive statistics of the sample are provided in Table 2.

Gender and age but no other information were available on non-responders. Males were under-represented in both non-responders and responders (overall, there were 996 females in the sampling frame and 749 males) but the difference in proportions of male responders in both groups (non-responders = 0.41 and responders = 0.42) was not statistically significant ($P = 0.82$). There was no statistically significant difference between the age of responders (mean = 37.7 years) and non-responders (mean = 39.4 years;

*t*-test $P = 0.29$). There was little variation in ethnicity observed in the sample with almost 98% (815) of the entire dataset identifying themselves as white.

*Patient satisfaction*
There are 599 individuals who presented at centres offering all three types of out-of-hours service with overall satisfaction scores as shown in Table 3. The unadjusted proportions of satisfied respondents for different service providers are shown in Figure 2. The dotted horizontal line indicates the reference organization (HB1, chosen as being close to an 'average' provider in terms of enablement and satisfaction). A Tukey test of honest significant difference[28] shows that the only significant difference is between GPC1 and HB3. When the same test is performed on the final model (i.e. after adjusting for patient characteristics), there are no significant differences.

The results of the hierarchical model indicate that the clustering of individuals within centres is not large (intraclass correlation coefficient <0.01). This indicates that the clustering at this level is unimportant and so ordinary logistic regression was used to fit the final model which is summarized in Table 4.

Findings from the logistic regression analysis:

*Treatment type.* Treatment centre consultations were significantly associated with reduced satisfaction [odds ratio (OR): 0.58, $P = 0.03$] compared with telephone advice. The satisfaction of those who received home visits was not significantly different from those who received telephone advice ($P = 0.48$).

*Time.* The time spent waiting for the call to be answered was significantly associated with satisfaction. If the time taken to answer was >30 seconds, the odds of that patient being satisfied were reduced by almost one-half (OR = 0.53, $P$-value = 0.01), while the odds of satisfaction for those who had to wait longer than



☐ NHS Direct only

▪ GP Providers & NHS Direct

▪ GP Providers & A&E Centres & NHS Direct
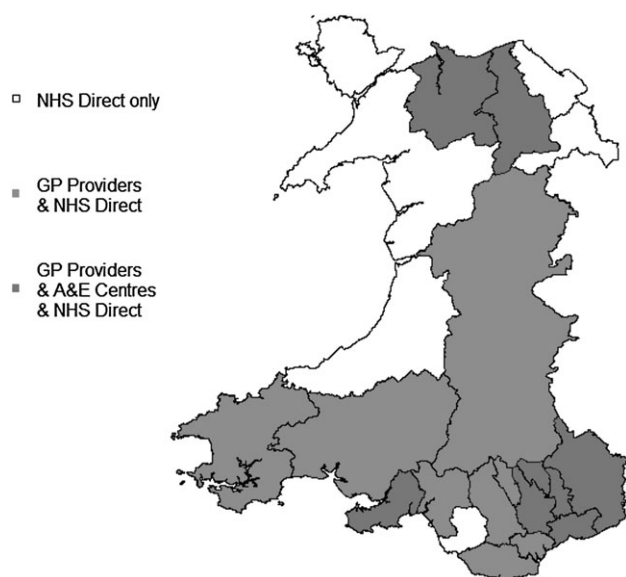
FIGURE 1    *The geographical area covered by the participating providers*

TABLE 1    *Response rates by unscheduled care service provider*

| Organization | Response rate (%) | n |
|---|---|---|
| HB1 | 36 | 90 |
| HB2 | 27 | 67 |
| PS1 | 41 | 103 |
| HTP | 23 | 57 |
| GPC1 | 29 | 72 |
| PS2 | 36 | 89 |
| PS3 | 31 | 77 |
| HB3 | 23 | 58 |
| GPC2 | 30 | 74 |
| NWA&E | 15 | 37 |
| SEWA&E | 14 | 35 |
| SWWA&E | 15 | 37 |
| NHS Direct | 24 | 59 |
| Total | 26 | 855 |

TABLE 2    *Descriptive statistics of responders to survey*

| | HB1 | | HB2 | | PS1 | | HTP | | GPC1 | | PS2 | | PS3 | | HB3 | | GPC2 | | NWA&E | | SEWA&E | | SWWA&E | | NHS Direct | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | % | n | % | n | % | n | % | n | % | n | % | n | % | n | n | % | n | % | n | % | n | % | n | % | n | % |
| Gender[a] | 49 | 42 | 39 | 26 | 42 | 41 | 43 | 24 | 42 | 29 | 38 | 33 | 41 | 31 | 45 | 25 | 47 | 34 | 47 | 16 | 41 | 14 | 62 | 23 | 45 | 25 |
| Owner occupied[b] | 31 | 26 | 36 | 22 | 26 | 24 | 29 | 15 | 44 | 29 | 28 | 23 | 16 | 11 | 22 | 12 | 29 | 20 | 22 | 7 | 30 | 10 | 43 | 15 | 30 | 16 |
| Employed | 19 | 17 | 28 | 19 | 14 | 14 | 14 | 8 | 18 | 13 | 20 | 18 | 19 | 15 | 26 | 15 | 15 | 11 | 35 | 13 | 46 | 16 | 22 | 8 | 32 | 19 |
| Unemployed | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 |
| At school | 19 | 17 | 16 | 11 | 33 | 34 | 25 | 14 | 32 | 23 | 25 | 22 | 25 | 19 | 34 | 20 | 27 | 20 | 19 | 7 | 11 | 4 | 24 | 9 | 20 | 12 |
| Unable to work | 11 | 10 | 6 | 4 | 10 | 10 | 16 | 9 | 14 | 10 | 9 | 8 | 6 | 5 | 5 | 3 | 4 | 3 | 3 | 1 | 17 | 6 | 5 | 2 | 5 | 3 |
| Looking after home family | 6 | 5 | 6 | 4 | 5 | 5 | 4 | 2 | 3 | 2 | 5 | 4 | 4 | 3 | 7 | 4 | 4 | 3 | 8 | 3 | 6 | 2 | 5 | 2 | 7 | 4 |
| Retired | 32 | 29 | 28 | 19 | 30 | 31 | 30 | 17 | 24 | 17 | 33 | 29 | 27 | 21 | 24 | 14 | 35 | 26 | 16 | 6 | 11 | 4 | 24 | 9 | 25 | 15 |
| Missing | 12 | 11 | 15 | 10 | 8 | 8 | 11 | 6 | 10 | 7 | 7 | 6 | 18 | 14 | 3 | 2 | 14 | 10 | 19 | 7 | 6 | 2 | 19 | 7 | 10 | 6 |
| Long-term limiting illness[c] | 48 | 39 | 48 | 31 | 45 | 45 | 57 | 31 | 50 | 34 | 46 | 38 | 42 | 31 | 36 | 20 | 46 | 32 | 30 | 10 | 36 | 12 | 40 | 14 | 38 | 22 |
| Parent[d] | 28 | 25 | 27 | 18 | 38 | 39 | 25 | 14 | 32 | 23 | 31 | 28 | 39 | 30 | 40 | 23 | 36 | 27 | 14 | 5 | 3 | 1 | 27 | 10 | 24 | 14 |
| Previous use[e] | 297 | 255 | 310 | 208 | 305 | 314 | 313 | 172 | 308 | 222 | 288 | 248 | 303 | 233 | 298 | 167 | 304 | 222 | 267 | 72 | 295 | 59 | 317 | 95 | 308 | 182 |
| Telephone advice | 32 | 29 | 48 | 32 | 30 | 31 | 28 | 16 | 33 | 24 | 44 | 39 | 29 | 22 | 22 | 13 | 38 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 59 |
| Home visit | 30 | 27 | 18 | 12 | 29 | 30 | 35 | 20 | 22 | 16 | 22 | 20 | 31 | 24 | 21 | 12 | 24 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Treatment centre | 38 | 34 | 34 | 23 | 41 | 42 | 37 | 21 | 44 | 32 | 34 | 30 | 40 | 31 | 57 | 33 | 38 | 28 | 100 | 37 | 100 | 35 | 100 | 37 | 0 | 0 |
| Age[f] | 52.5 [16.5–71] | | 39 [8.5–67.5] | | 37 [4–64] | | 50 [4–67] | | 40 [4.75–64.25] | | 47 [8–69] | | 38 [4–66] | | 30.5 [4–57.75] | | 40 [4.25–71] | | 47 [16–60] | | 38 [26–49.5] | | 35 [10–68] | | 37 [18.5–61.5] | |

Indicates the proportion of respondents:
[a]who were male.
[b]Living in owner occupied housing.
[c]With long-term limiting illness.
[d]Who were the parent of the patient.
[e]Who had used the service previously.
[f]Medians and interquartile ranges are reported for the age variable, instead of percentages and numbers.

a minute were reduced by almost three quarters compared with those individuals whose calls were answered in <30 seconds (OR = 0.28, $P$-value = <0.001). The relationship between satisfaction and time spent waiting did not differ between treatment types (interaction data not statistically significant, not presented). The odds of satisfaction decreased with increased waiting time.

Waiting <10 minutes for a callback was associated with nearly a 2-fold increase in the odds of satisfaction (OR: 1.83, $P$ = 0.03) compared with waiting between 10 and 20 minutes. While this was the only time category that showed a significant difference for satisfaction, there is a trend of decreasing odds of satisfaction with increased waiting time. An interaction between callback time and treatment type was fitted, but none of the terms were significant.

The length of consultation that is associated with the highest probability of satisfaction was >16 minutes (OR: 2.86, $P$ = 0.01). These individuals were almost three times as likely to report feeling satisfied as those who received consultations between 5 and 9 minutes. An interaction between length of consultation and treatment type was fitted, but none of the terms were significant.

*Previous use of the service.* Previous use of the service was associated with a reduction in the odds of satisfaction of >20% (OR = 0.78, $P$-value = 0.04).

*Parent.* Being the parent or guardian of a child (aged ≤10 years) was not significantly associated with differences in satisfaction after using the service.

*Organizations.* None of the organizations were observed to be producing different levels of satisfaction

TABLE 3   *Satisfaction scores for respondents*

Your overall satisfaction with the help given

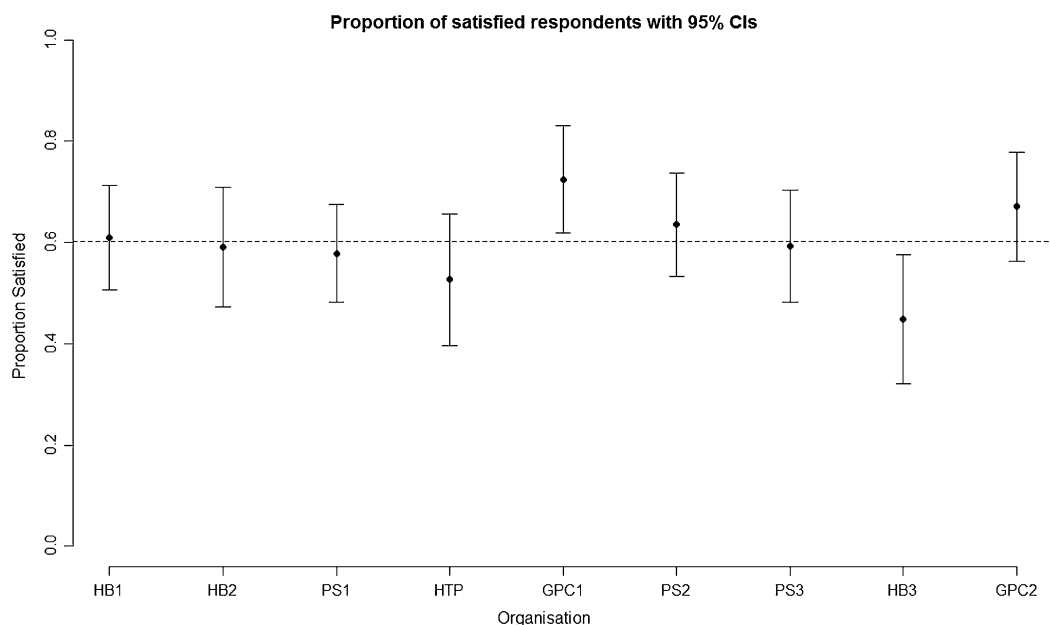| | Very poor | | Fair | | Good | | Very good | | Excellent | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $n$ | % | $n$ | % | $n$ | % | $n$ | % | $n$ | % |
| HB1 | 4 | 5 | 9 | 10 | 21 | 24 | 22 | 25 | 31 | 36 |
| HB2 | 3 | 5 | 4 | 6 | 20 | 30 | 13 | 20 | 26 | 39 |
| PS1 | 6 | 6 | 14 | 14 | 23 | 23 | 22 | 22 | 37 | 36 |
| HTP | 4 | 7 | 5 | 9 | 18 | 32 | 11 | 19 | 19 | 33 |
| GPC1 | 2 | 3 | 3 | 4 | 14 | 20 | 19 | 28 | 31 | 45 |
| PS2 | 1 | 1 | 4 | 5 | 26 | 31 | 22 | 26 | 32 | 38 |
| PS3 | 6 | 8 | 5 | 7 | 20 | 26 | 18 | 24 | 27 | 36 |
| HB3 | 3 | 5 | 13 | 22 | 16 | 28 | 8 | 14 | 18 | 31 |
| GPC2 | 4 | 5 | 2 | 3 | 18 | 25 | 25 | 34 | 24 | 33 |
| NWA&E | 6 | 17 | 3 | 9 | 10 | 29 | 9 | 26 | 7 | 20 |
| SEWA&E | 4 | 12 | 1 | 3 | 8 | 24 | 10 | 29 | 11 | 32 |
| SWWA&E | 0 | 0 | 8 | 22 | 7 | 19 | 9 | 24 | 13 | 35 |
| NHS Direct | 2 | 3 | 1 | 2 | 12 | 20 | 20 | 34 | 24 | 41 |



FIGURE 2   *Unadjusted proportions of satisfied respondents. HB1, Health Board (NHS) GP Cooperative, South West Wales (rural); HB2, Health Board (NHS) GP Cooperative, South Wales (rural); PS1, Private Sector, South Wales (urban); HTP, Hospital Trust Provider, South East Wales (urban, valleys\* & and rural); GPC1, NHS GP Cooperative, South Wales (urban); PS2, Private sector provider, North Wales (rural); PS3, Private sector provider, South Wales (valleys\* and rural); HB3, Health Board (NHS) GP Cooperative, South Wales (valleys\*); GPC2, NHS GP Cooperative, North East Wales (town and rural); NWA&E, North Wales A&E Treatment Centre; SEWA&E, South East Wales A&E Treatment Centre; SWWA&E, South West Wales A&E Treatment Centre. \* 'valleys' = post-industrialised towns and villages characterized by socio-economic deprivation.*

in their patients compared with the reference organization (HB1). Interaction terms between treatment type and organization attended did not indicate the presence of any interactions.

*Professional seen.*   A further model was fitted, examining whether the patient was seen by a doctor or another health professional, but this was not significantly associated with satisfaction.

*Face-to-face.*   The face-to-face sensitivity analysis did not indicate the presence of any association between enablement and receiving a face-to-face consultation.

### Patient enablement

The frequencies from the patient enablement score for those who presented at a centre offering all three types of out-of-hours service are provided in Table 5 below. A score of ⩾3 is denoted 'enabled'.

Results for the patient enablement model are given in Table 6. Again, the clustering observed at the organization level is not sufficient to necessitate hierarchical modelling and so the final analysis was performed using logistic regression. The table below provides the estimates from the final model, as well as *P*-values for all categorical variables obtained from analysis of variance (presented in italics). The unadjusted proportions of enabled respondents for different service providers are shown in Figure 3.

Findings from the logistic regression analysis:

*Long-term limiting illness.*   The OR associated with reporting a long-term limiting illness was 0.6, indicating that those individuals were 40% less likely to feel enabled than those who did not report such an illness, although this association was not statistically significant ($P = 0.053$).

*Treatment type.*   Those who presented at a treatment centre were almost 40% less likely to be enabled than those who received telephone advice (OR = 0.62, *P*-value = 0.047). The enablement of those who received a home visit was not statistically different from those who received telephone advice.

TABLE 4   *Predictors of variation in user satisfaction: logistic regression*

|  | OR | L | U | P-value |
|---|---|---|---|---|
| (Intercept) probability of satisfaction | 0.86 | 0.65 | 0.95 | |
| Male gender | 0.93 | 0.61 | 1.42 | 0.74 |
| Age (centred) | 1.00 | 0.99 | 1.02 | 0.94 |
| Rented | 0.72 | 0.45 | 1.16 | 0.17 |
| Employment status overall *P*-value = 0.53 | | | | |
| Employment status | | | | |
| Employed | 1 | | Reference | |
| Missing | 0.92 | 0.37 | 2.29 | 0.86 |
| Unemployed | Only four unemployed respondents | | | |
| At school | 1.27 | 0.57 | 2.83 | 0.56 |
| Unable to work | 1.44 | 0.58 | 3.58 | 0.43 |
| Looking after home/family | 2.24 | 0.83 | 6.03 | 0.11 |
| Retired | 1.47 | 0.70 | 3.10 | 0.31 |
| Long-term limiting illness | 0.97 | 0.57 | 1.64 | 0.90 |
| Treatment type overall *P*-value = 0.51 | | | | |
| Treatment type | | | | |
| Telephone advice | 1 | | Reference | |
| Home visit | 0.79 | 0.42 | 1.49 | 0.48 |
| **Treatment centre** | **0.58** | **0.36** | **0.95** | **0.03** |
| Time spent waiting for: overall *P*-value <0.001 | | | | |
| Call to be answered | | | | |
| 0–30 seconds | 1 | | Reference | |
| **31–60 seconds** | **0.53** | **0.34** | **0.83** | **0.01** |
| **>1 minute** | **0.28** | **0.14** | **0.54** | **0.00** |
| Overall *P*-value <0.01 | | | | |
| Callback | | | | |
| **0-10 minutes** | **1.83** | **1.06** | **3.18** | **0.03** |
| 11 to 20 minutes | 1 | | Reference | |
| 21–40 minutes | 0.69 | 0.40 | 1.20 | 0.19 |
| > 40 minutes | 0.65 | 0.36 | 1.19 | 0.16 |
| Overall *P*-value <0.001 | | | | |
| Length of consultation | | | | |
| **<5 min**utes | **0.41** | **0.24** | **0.72** | **0.00** |
| 5–9 minutes | 1 | | Reference | |
| **10–15 minutes** | **1.86** | **1.11** | **3.13** | **0.02** |
| **>16 minutes** | **2.86** | **1.38** | **5.93** | **0.01** |
| **Previous use of service (yes)** | **0.78** | **0.61** | **0.99** | **0.04** |
| Parent of patient (yes) | 0.92 | 0.48 | 1.77 | 0.80 |
| Overall *P*-value = 0.06 | | | | |
| Organization name | | | | |
| HB1 | 1 | | Reference | |
| HB2 | 1.18 | 0.52 | 2.71 | 0.69 |
| PS1 | 0.64 | 0.30 | 1.36 | 0.25 |
| HTP | 0.73 | 0.31 | 1.73 | 0.48 |
| GPC1 | 1.65 | 0.72 | 3.79 | 0.24 |
| PS2 | 0.52 | 0.23 | 1.17 | 0.11 |
| PS3 | 1.13 | 0.50 | 2.57 | 0.77 |
| HB3 | 0.47 | 0.19 | 1.15 | 0.10 |
| GPC2 | 1.24 | 0.56 | 2.77 | 0.60 |

Bold rows are statistically significant.

TABLE 5   *Enablement scores for respondents*

Enablement scores

|  | 0 | | 1 | | 1.5 | | 2 | | 3 | | 4 | | 4.5 | | 5 | | 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % |
| HB1 | 25 | 34 | 6 | 8 | 0 | 0 | 7 | 10 | 15 | 21 | 5 | 7 | 0 | 0 | 5 | 7 | 10 | 14 |
| HB2 | 20 | 32 | 3 | 5 | 0 | 0 | 9 | 14 | 18 | 29 | 2 | 3 | 0 | 0 | 1 | 2 | 10 | 16 |
| PS1 | 20 | 22 | 6 | 7 | 0 | 0 | 9 | 10 | 31 | 35 | 4 | 4 | 1 | 1 | 2 | 2 | 16 | 18 |
| HTP | 14 | 29 | 4 | 8 | 0 | 0 | 6 | 12 | 12 | 24 | 8 | 16 | 0 | 0 | 3 | 6 | 2 | 4 |
| GPC1 | 16 | 24 | 2 | 3 | 1 | 2 | 4 | 6 | 23 | 35 | 6 | 9 | 0 | 0 | 2 | 3 | 12 | 18 |
| PS2 | 22 | 29 | 3 | 4 | 0 | 0 | 5 | 6 | 24 | 31 | 8 | 10 | 1 | 1 | 2 | 3 | 12 | 16 |
| PS3 | 25 | 36 | 5 | 7 | 0 | 0 | 4 | 6 | 22 | 31 | 3 | 4 | 1 | 1 | 2 | 3 | 8 | 11 |
| HB3 | 18 | 36 | 3 | 6 | 0 | 0 | 6 | 12 | 14 | 28 | 2 | 4 | 0 | 0 | 1 | 2 | 6 | 12 |
| GPC2 | 17 | 26 | 4 | 6 | 1 | 2 | 10 | 15 | 24 | 36 | 6 | 9 | 0 | 0 | 1 | 2 | 3 | 5 |
| NWA&E | 13 | 45 | 1 | 3 | 0 | 0 | 2 | 7 | 7 | 24 | 0 | 0 | 0 | 0 | 4 | 14 | 2 | 7 |
| SEWA&E | 11 | 41 | 0 | 0 | 0 | 0 | 3 | 11 | 7 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 22 |
| SWWA&E | 10 | 31 | 5 | 16 | 1 | 3 | 3 | 9 | 9 | 28 | 1 | 3 | 0 | 0 | 0 | 0 | 3 | 9 |
| NHS Direct | 13 | 24 | 2 | 4 | 0 | 0 | 9 | 17 | 17 | 31 | 1 | 2 | 0 | 0 | 5 | 9 | 7 | 13 |

TABLE 6 *Predictors of variation in user enablement: logistic regression*

| | OR | L | U | P-value |
|---|---|---|---|---|
| (Intercept) probability of enablement | 0.52 | 0.25 | 0.78 | |
| Male gender | 1.09 | 0.72 | 0.72 | 0.69 |
| Age (centred) | 1.00 | 0.98 | 0.98 | 0.54 |
| Rented | 1.15 | 0.73 | 0.73 | 0.54 |
| Overall *P*-value = 0.14 | | | | |
| Employment status | | | | |
|   Employed | 1 | | Reference | |
|   Missing | 0.77 | 0.31 | 0.31 | 0.56 |
|   Unemployed | Unreliable: only four people | | | |
|   At school | 0.81 | 0.36 | 0.36 | 0.60 |
|   Unable to work | 0.64 | 0.27 | 0.27 | 0.32 |
|   Looking after home/family | 1.72 | 0.66 | 0.66 | 0.27 |
|   Retired | 1.47 | 0.70 | 0.70 | 0.31 |
| Long-term limiting illness | 0.60 | 0.35 | 0.35 | 0.05 |
| Overall *P*-value = 0.44 | | | | |
| Treatment type | | | | |
|   Telephone advice | 1 | | Reference | |
|   Home visit | 0.76 | 0.42 | 0.42 | 0.37 |
|   **Treatment centre** | **0.62** | **0.39** | **0.39** | **0.05** |
| Overall *P*-value = <0.05 | | | | |
| Time spent waiting for: | | | | |
|   **Call to be answered** | | | | |
|   <30 seconds | 1 | | Reference | |
|   31–60 seconds | 0.97 | 0.64 | 0.64 | 0.89 |
|   **>1 minute** | **0.49** | **0.26** | **0.26** | **0.03** |
| Overall *P*-value = 0.13 | | | | |
|   Callback | | | | |
|   0–10 minutes | 1.35 | 0.81 | 0.81 | 0.25 |
|   11–20 minutes | 1 | | Reference | |
|   21–40 minutes | 0.98 | 0.58 | 0.58 | 0.95 |
|   > 41 minutes | 0.69 | 0.37 | 0.37 | 0.22 |
| Overall *P*-value = 0.06 | | | | |
|   Length of consultation | | | | |
|   <5 minutes | 0.69 | 0.40 | 0.40 | 0.18 |
|   5-9 minutes | 1 | | Reference | |
|   10-15 minutes | 1.25 | 0.76 | 0.76 | 0.38 |
|   >16 minutes | 1.69 | 0.89 | 0.89 | 0.11 |
| Previous use of service | 1.07 | 0.85 | 0.85 | 0.56 |
| Parent of patient (yes) | 0.80 | 0.43 | 0.43 | 0.48 |
| Overall *P*-value = 0.43 | | | | |
| Organization name | | | | |
|   HB1 | 1 | | Reference | |
|   HB2 | 1.10 | 0.50 | 0.50 | 0.81 |
|   PS1 | 1.59 | 0.76 | 0.76 | 0.22 |
|   HTP | 0.92 | 0.39 | 0.39 | 0.84 |
|   GPC1 | 1.98 | 0.91 | 0.91 | 0.09 |
|   PS2 | 1.70 | 0.76 | 0.76 | 0.19 |
|   PS3 | 1.44 | 0.66 | 0.66 | 0.37 |
|   HB3 | 0.84 | 0.35 | 0.35 | 0.69 |
|   GPC2 | 1.00 | 0.47 | 0.47 | 0.99 |

Bold rows are statistically significant.

*Time.* Those who waited longer than a minute for their call to be answered were 50% less likely to be enabled than those whose calls were answered in <30 seconds (OR = 0.49, $P = 0.03$). None of the individual callback variables were significant (neither was the overall *P*-value for this categorical variable). The ORs themselves, however, indicate a trend towards decreased enablement with longer waiting times.

None of the individual indicator variables for the length of consultation were significant. A Tukey honest significant difference test however indicates that no pairwise comparisons are significant at the 5% level although there was a trend towards higher ORs with longer consultation times.

*Parent.* Being the parent of the patient was not associated with enablement.

*Organization.* None of the organizations showed significantly different levels of enablement than the reference organization (HB1). Interaction terms between treatment type and organization attended yielded no significant parameters (not presented), indicating that treatment type did not influence the (possible) associations between enablement and organization.

*Professional seen.* Again, a model was fitted where an indicator variable was included denoting whether or not the patient was seen by a doctor or a different health professional. This was not significantly associated with enablement.

*Face-to-face.* Again, a sensitivity analysis was performed where treatment centre and home visit were combined into one category (labelled face-to-face). The face-to-face variable was not statistically significantly associated with enablement.

*Correlation between enablement and satisfaction.* Some of the literature on the PEI indicates that patient satisfaction might be a driver of patient enablement. However, since this study collected information on both satisfaction and enablement at the same time point and since both are being employed as outcomes, we did not feel it appropriate to attempt to predict one using the other. Satisfaction and enablement were reasonably correlated (0.47).

*A&E attenders.* The same model was fitted separately to the A&E respondents' data. Since the analysis is based on complete cases, these models are fitted to datasets of 46 (satisfaction) and 44 (enablement). Such small sample sizes provide very little power to detect significant differences. None of the variables in either the satisfaction or the enablement models were significant (not presented).

## Discussion

### Principal findings
We analysed 855 responses from people who had used one of 13 different unscheduled care services across
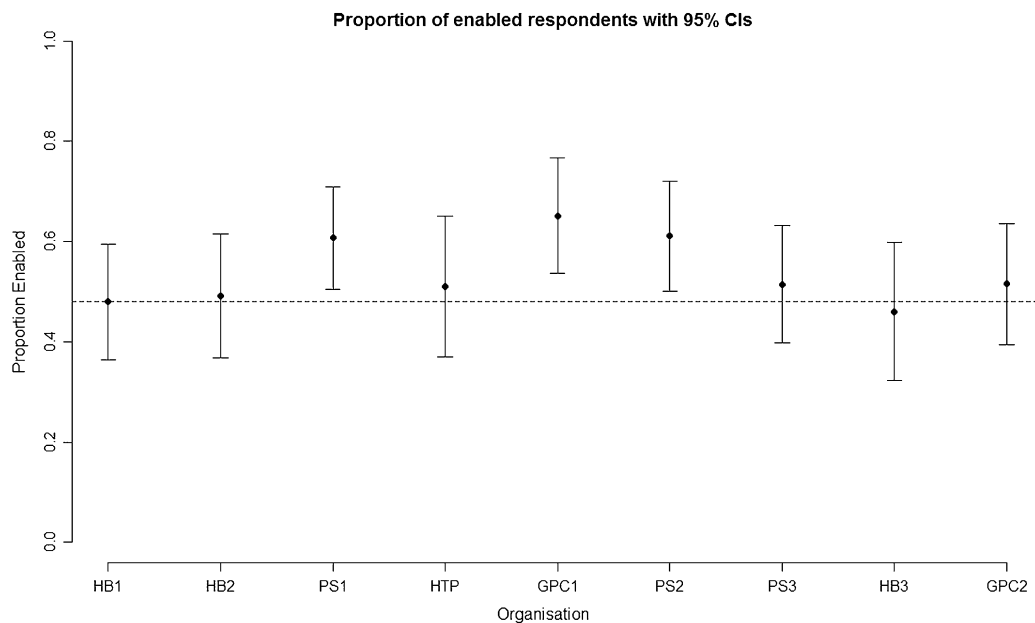
**Proportion of enabled respondents with 95% CIs**

FIGURE 3    *Unadjusted proportions of enabled respondents for different service providers are shown in Figure 3. HB1, Health Board (NHS) GP Cooperative, South West Wales (rural); HB2, Health Board (NHS) GP Cooperative, South Wales (rural); PS1, Private Sector, South Wales (urban); HTP, Hospital Trust Provider, South East Wales (urban, valleys\* & and rural); GPC1, NHS GP Cooperative, South Wales (urban); PS2, Private sector provider, North Wales (rural); PS3, Private sector provider, South Wales (valleys\* and rural); HB3, Health Board (NHS) GP Co-Cooperative, South Wales (valleys\*); GPC2, NHS GP Co-Cooperative, North East Wales (town & and rural); NWA&E, North Wales A&E Treatment Centre; SEWA&E, South East Wales A&E Treatment Centre; SWWA&E, South West Wales A&E Treatment Centre. \* 'valleys' = post-industrialised towns and villages characterized by socio-economic deprivation.*

Wales. Findings were consistent across providers. Treatment centre consultations were significantly associated with decreased patient satisfaction and enablement compared with telephone advice or home visits. Time spent during various aspects of the process, such as time to call answering, callback for triage and length of consultation, was significantly associated with satisfaction. Specifically, the longer the reported wait for a call to be answered, as well as for a call to be returned, the lower the reported level of satisfaction. Conversely, those who reported longer consultation times also reported significantly higher satisfaction with the service compared with those who reported shorter consultation times. Waiting more than a minute for initial call answering was associated with lower enablement. Satisfaction and enablement were moderately correlated (0.47). Satisfaction was lower among those who had previously used the services. Generally, there were no observed relationships between patient characteristics, such as age, gender and employment status on either satisfaction or enablement.

*Study limitations*
The study is limited by its low response rate (26%). The random selection of patients for inclusion in this study is a strength of the design, but the non-response rate indicates a possibility of bias due to self-selection by those who responded to the survey and who may

have different experiences and influences on satisfaction or enablement than non-responders. There was no evidence of non-response bias according to gender or age variables, although data were not available for other potentially important variables to make this assessment. It also raises the possibility that the lack of differences, for example, between providers, may be a Type 2 error due to relatively small samples from provider. The absence of ethnic diversity limits the generalizability of the findings. The categorizations of time to response, callback and length of consultation are necessarily based on user perceptions rather than measured durations. This may be a weakness with lack of objectivity, but user perceptions of what happened may nonetheless be important in determining outcomes.[29] The only restriction of users was to exclude the highest emergency category of A&E users from the survey. Furthermore, case-mix differences may have been evident between types of services (GP, A&E and NHS Direct) but the odds of satisfaction decreased with increased waiting time across all groups and without evidence of interaction with treatment type (treatment centre, home visit or telephone advice), which may also reflect the same case-mix variations. The sampling method, with equal numbers invited from very different populations, is intended to assess the influences on satisfaction and enablement for the three main treatment types (telephone,

treatment centre or home visit) but does not allow estimation of overall population satisfaction. No information was available to investigate the clustering of patients within clinicians.

*Context of other literature*
The findings from our study that time to response and callback influence user satisfaction are consistent with the multi-centre study by Campbell *et al.*[24] Campbell *et al.*[24] also reported an association with waiting time for treatment centre or home visit consultations to take place and showed no significant difference between different types of service provider in terms of satisfaction achieved. Our study also identifies how duration of consultation is important in influencing satisfaction and that the time to response (answering the first call made by the user) influences enablement. Mead *et al.*[15] identified how (regarding in-hours general practice) the primary predictor of enablement was positive patient evaluation of the GPs' communication but here logistical issues are also shown to impact on such key outcomes. In our study, the type of professional (nurse or doctor) was not found to have influenced actual satisfaction, although Gerard *et al.*[30] had identified this to be important in a hypothetical scenario.

Those who were seen at treatment centres reported significantly lower levels of satisfaction and enablement (OR: 0.58 and 0.62, respectively) than those who received either a telephone advice or a home visit. This is similar to previous findings in Gwent[5] and possibly explained by the influence of matching provision with what the user hopes for or expects—if satisfaction is to be maximized.[31,32] There were no observed differences in satisfaction levels between users who had telephone advice and those who had a home visit. This is, at first interpretation, counter-intuitive as studies elsewhere have shown that user preferences and satisfaction levels are high for patients receiving home visits.[18,32,33] A possible explanation—consistent with the influence of delay in call handling and triage—is that the total duration from initial call to receiving the home visit can be up to several hours in many cases.[25] The reasons for lack of satisfaction among the telephone advice and home visit groups are likely to be different—reflecting duration of the whole episode in the home visit group (and the 'battle' to get a visit[14]) and perhaps a difference between expectations or perceived needs and the service actually given among the telephone advice group.

In this study, having a long-term limiting illness was associated with a trend towards decreased enablement. Although the association was not statistically significant here, Mead *et al.*[15] have found a similar relationship. As lower enablement may lead to further use of the range of services for a given illness episode or condition,[14] this may indicate a group for whom particular efforts are required to enable them cope with their condition, seeking not only to maximize safety and effectiveness for them but also efficiency in terms of how the range of services are used.

*Implications for policy and practice*
There was no observed association between type of service organization or model of provision (GP cooperative, Trust, Primary Care Organization or for-profit sectors) and satisfaction or enablement. This appears important as it suggests that given equivalence in this domain, other elements, including cost minimization may be relevant in determining choice of providers. Technical aspects such as time to respond to calls, triage and ability to spend time in consultations are important for users. These findings are consistent with other studies, which also indicate that technical and logistical features are very important to users.[6,7,15,18,34] This is possibly due to the relationship between satisfaction and enablement. Once patients have decided to contact the service delays may impact negatively on satisfaction with the service and ultimately on their feelings of enablement. Improving access to prevent delays in answering and keeping patients informed of any wait will help improve satisfaction.[30] These are likely to be relatively simple and yet effective interventions to improve the service, although any such efforts would require evaluation.

Patients would also like more time to discuss their illness or condition with the clinician. Our findings show that consultations lasting > 16 minutes are significantly associated with the highest probability of satisfaction. The relationship between the length of consultation, and communication skills in particular, and satisfaction have been shown in other studies.[15,18] It is possible that efforts should be made to ensure 'excellent' user ratings of the out-of-hours care experience,[24] although the cost-effectiveness of achieving higher standards, satisfaction and enablement requires detailed evaluation and then debate.

*Further research*
These further evaluations—of interventions to reduce response times and possibly lengthen consultation times—are needed, to assess whether they are effective, and cost-effective or efficient in terms of their impact on the way users access and use unscheduled care services. Given the low response rate of this study, and the absence of ethnic diversity among the respondents, further research is required to validate these findings. Alternative methods than questionnaires may be necessary for this context of unscheduled care. A lack of power is a likely explanation for the lack of significant findings regarding A&E attenders and so interpreting these models is difficult. Further studies specifically targeting the A&E population are needed to investigate this more thoroughly.

Further study of the relationship of outcomes such as satisfaction and enablement, and other quality indicators, to the actual (as opposed to perceived) times for responses and consultations would be important. Such findings may also inform whether interventions should be directed towards reducing these times and delays or whether it may be more effective to manage users' perceptions and expectations of what is happening.

## Conclusions

Service users' satisfaction and enablement in coping with their condition or illness are influenced by time spent at a number of different stages of the process of care. Users can be assisted to get the best out of their consultation by improvement in factors, such as time spent in accessing the service, waiting for callback or during consultations. While improvements can be made in giving users more time to discuss their illness in consultations, this may be resource intensive. Relatively more simple interventions to improve access by quicker response and triage, and keeping users informed of any wait, could also serve to increase satisfaction and ultimately impact on their feelings of enablement.

## Acknowledgements

## Declaration

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