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An observational study comparing quality of care in walk-in centres with general practice and NHS Direct using standardised patients

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Abstract

Objectives To compare the quality of clinical care in walk-in centres with that provided in general practice and by NHS Direct.

Design Observational study involving assessment of clinicians by standardised patients.

Setting 20 walk-in centres, 20 general practices, and 11 NHS Direct sites.

Participants 297 consultations with standardised patients, 99 in each setting, carried out by professional role players trained to play five clinical scenarios (postcoital contraception, chest pain, sinusitis, headache, and asthma).

Main outcome measures Primary outcomes were mean scores on consensus derived checklists of essential items for the management of the clinical scenarios. Data were also collected on access to and referral by walk-in centres, general practices, and NHS Direct.

Results Walk-in centres achieved a significantly greater mean score for all scenarios combined than general practices (difference between groups 8.2, 95% confidence interval 1.7 to 14.6) and NHS Direct (10.8, 5.5 to 16.1). There was considerable between scenario variation, with walk-in centres performing particularly well on postcoital contraception and asthma scenarios. In contrast to general practices, walk-in centres and NHS Direct referred a higher proportion of patients (26% and 82%, respectively).

Conclusion Walk-in centres perform adequately and safely compared with general practices and NHS Direct for the range of conditions under study, but the impact of referrals on workload of other healthcare providers requires further research.

Introduction

The UK government, as part of a bid to modernise health services and to make them more convenient to use, has introduced NHS walk-in centres and commissioned their evaluation by an independent team. Our study forms one component of that evaluation. We aimed to determine whether walk-in centres, staffed mainly by nurses, provide adequate and safe clinical care to a range of patients, and how quality of care in

these centres compares with that provided in general practice and by NHS Direct (box 1).

Participants and methods

Recruitment of clinical sites

We approached sites in three geographical areas, in and around Bristol, Birmingham, and London. We invited general practices involved in research or teaching to participate, and we approached walk-in centres and NHS Direct sites on the basis of their geography. Twenty out of 25 (80%) walk-in centres, 11 out of 12 (92%) NHS Direct sites, and 24 out of 62 (39%) practices agreed to participate: we included the first 20 practices to respond.

Selection of clinical scenarios

We chose five clinical scenarios, largely to represent problems likely to be presented by patients to walk-in centres (box 2). The scenario on postcoital contraception was intended to assess management of a common, straightforward problem, the scenario on chest pain to assess ability to exclude a potentially serious diagnosis and reassure accordingly, and the scenario on sinusitis to assess issues around antibiotic prescribing. The scenario on headache was devised to assess ability to explore psychosocial issues, and the scenario on

Box 1: Service models for the three primary care settings

Walk-in centres

These offer assessment, advice, and treatment for minor illness and injuries. Most consultations are with nurses who use care protocols and clinical assessment software. The average consultation length is 14 minutes.¹

General practice

Most consultations are with doctors who do not routinely use care protocols. The average consultation length is 9 minutes.²

NHS Direct

This is a telephone advice service. Consultations are with nurses, who use clinical assessment software similar to that used in NHS walk-in centres. The average consultation length is 14 minutes.³

Box 2: Clinical scenarios portrayed by standardised patients

- 1 A 23 year old woman requesting postcoital contraception
- 2 A 30 year old man with musculoskeletal chest pain
- 3 A 35 year old woman with symptoms of sinusitis suggesting a bacterial cause
- 4 A 27 year old man with tension headache and underlying depression
- 5 A 30 year old man with worsening asthma caused by over the counter ibuprofen

asthma to assess the history taking on drugs and awareness of the side effects of the drugs.

Derivation of assessment criteria

We assessed clinical care against prospectively determined standards. We constructed lists of essential criteria for the adequate management of each scenario by a stepwise procedure, based on the Delphi process.⁴

Standardised patient consultations

Standardised patients are people trained to portray a clinical scenario for teaching or research purposes.^{5,6} Five role players, each portraying one scenario, worked in each locality. Each role player visited a particular walk-in centre or general practice once, but owing to the smaller number of sites for NHS Direct, contacted one NHS Direct site up to three times. Overall, 305 contacts were planned, 100 in walk-in centres, 100 in practices, and 105 with NHS Direct. Consultations took place from July to September 2001. The accuracy of portrayal of standardised patients, the reliability of assessment by standardised patients, and the validity of standardised patients is given on bmj.com

Analysis

For each consultation we calculated a score representing the proportion of essential criteria fulfilled for all items and separately for the three subgroups of items (history taking, examination, and diagnosis, advice, and treatment). We calculated the means of the all item and subgroup scores for each of the three primary care settings, with 95% confidence intervals calculated with design weighted survey estimators. We then undertook estimation of differences between mean scores for the three settings by using multivariable regression models (see bmj.com).

Results

Data were collected on 297 of the planned 305 consultations, 99 in each setting. Most (91%) con-

sultations in walk-in centres were exclusively with a nurse, whereas most (96%) in general practice were with a doctor. A minority (3%) of consultations with NHS Direct involved a call handler rather than a nurse.

Quality of care*Walk-in centres versus general practice*

Considering all scenarios together, walk-in centres achieved a significantly greater mean score for all essential items than did general practices, but there were between scenario differences. Quality of care for postcoital contraception and asthma was significantly better in walk-in centres than in general practices, that for sinusitis and headache was similar in the two settings, and that for chest pain was better in general practice, although not significantly so (table 1).

Overall, and for each scenario, walk-in centres scored better on history taking, with significant differences overall and for two individual scenarios (table 2). Overall, and for the two scenarios involving examination (chest pain and asthma), general practices scored better on examination, although for asthma the difference was not significant. Overall, there was no significant difference between quality of diagnosis, advice, and treatment provided by walk-in centres and general practices. However, for postcoital contraception and asthma, the quality of diagnosis, advice, and treatment was significantly better in walk-in centres, and for sinusitis it was significantly better in general practices. In summary, walk-in centres provided equivalent if not better quality of care than general practice, with the exception of advice and treatment of sinusitis and examination of chest pain.

Walk-in centres versus NHS Direct

Considering all scenarios together, walk-in centres achieved a significantly greater mean score for all items than did NHS Direct, again with between scenario differences. Quality of care for postcoital contraception and asthma was significantly better in walk-in centres, with no significant difference for other scenarios (table 1). Overall, and for postcoital contraception and asthma, walk-in centres scored significantly better on history taking, with the same pattern for diagnosis, advice, and treatment (table 2).

Referral

About a quarter (26%) of consultations in walk-in centres and four fifths (82%) with NHS Direct resulted in referral. Patients were advised to go to an emergency department in 5% of consultations in walk-in centres

Table 1 Mean scores (95% confidence intervals) on all essential items, with comparisons between walk-in centres and general practice and walk-in centres and NHS Direct

Scenario	Walk-in centres	General practices	NHS Direct	Difference between walk-in centres and general practices	P value	Difference between walk-in centres and NHS Direct	P value
All scenarios	67.3 (63.7 to 71.0)	59.2 (53.9 to 64.5)	56.5 (52.6 to 60.4)	8.2 (1.7 to 14.6)	0.01	10.8 (5.5 to 16.1)	0.01
Postcoital contraception	76.9 (70.0 to 83.8)	58.1 (49.2 to 66.9)	37.5 (27.7 to 47.3)	18.8 (7.6 to 30.1)	0.01	39.4 (27.4 to 51.4)	0.01
Chest pain	66.4 (57.8 to 75.1)	69.4 (61.9 to 76.9)	60.2 (51.0 to 69.4)	-2.9 (-14.4 to 8.5)	0.61	6.2 (-6.39 to 18.9)	0.33
Sinusitis	64.2 (55.3 to 73.1)	55.8 (46.6 to 64.9)	73.6 (65.1 to 82.2)	8.5 (-4.3 to 21.2)	0.19	-9.4 (-21.7 to 3.0)	0.13
Headache	60.4 (52.4 to 68.3)	55.8 (48.4 to 63.1)	62.6 (55.4 to 69.8)	4.5 (-6.3 to 15.4)	0.40	-2.24 (-13.0 to 8.5)	0.68
Asthma	68.3 (59.7 to 77.0)	56.7 (49.3 to 64.0)	51.2 (46.7 to 55.7)	11.7 (0.3 to 23.0)	0.04	17.1 (7.4 to 26.8)	0.01

Table 2 Mean scores (95% confidence intervals) on history taking, examination, and diagnosis, advice, and treatment items with comparisons between walk-in centres and general practices and walk-in centres and NHS Direct

Scenario	Walk-in centres	General practices	NHS Direct	Difference between walk-in centres and general practices	P value	Difference between walk-in centres and NHS Direct	P value
History items:							
All scenarios	72.2 (68.4 to 76.0)	59.8 (53.7 to 65.9)	60.9 (56.3 to 55.5)	12.4 (5.2 to 19.6)	<0.01	11.3 (5.3 to 17.3)	0.01
Postcoital contraception	88.0 (82.7 to 93.3)	65.0 (52.9 to 77.1)	36.0 (21.2 to 50.8)	23.0 (9.8 to 36.2)	<0.01	52.0 (36.3 to 67.7)	0.01
Chest pain	66.6 (57.6 to 75.6)	62.2 (53.0 to 71.4)	62.8 (54.1 to 71.5)	4.4 (−8.5 to 17.2)	0.50	3.8 (−8.7 to 16.4)	0.54
Sinusitis	66.0 (56.1 to 75.9)	48.5 (39.2 to 57.8)	73.3 (65.8 to 80.9)	17.5 (3.9 to 31.1)	0.01	−7.3 (−19.8 to 5.1)	0.24
Headache	68.9 (61.6 to 76.2)	62.7 (53.8 to 71.6)	74.8 (65.0 to 84.5)	6.2 (−5.3 to 17.7)	0.28	−5.8 (−18.0 to 6.3)	0.34
Asthma	71.25 (61.9 to 80.6)	60.6 (52.4 to 68.9)	60.2 (56.6 to 63.9)	10.6 (−1.8 to 23.1)	0.09	11.0 (1.0 to 21.0)	0.03
Examination items:							
All scenarios	67.9 (60.7 to 75.1)	85.8 (76.7 to 95.0)	N/A	−17.9 (−29.5 to 6.3)	<0.01	NA	NA
Chest pain	58.3 (43.9 to 72.7)	86.7 (77.8 to 95.6)	N/A	−28.3 (−45.5 to 11.4)	<0.01	NA	NA
Asthma	77.5 (64.0 to 91.0)	85.0 (72.2 to 97.8)	N/A	−7.5 (−26.1 to 11.1)	0.42	NA	NA
Diagnosis, advice, and treatment items:							
All scenarios	59.9 (53.9 to 65.8)	57.8 (51.8 to 63.8)	43.9 (36.8 to 50.9)	2.1 (−6.4 to 10.5)	0.63	16.0 (6.8 to 25.2)	0.01
Postcoital contraception	70.0 (60.8 to 79.2)	53.8 (44.9 to 62.6)	40.0 (28.2 to 51.8)	16.3 (3.4 to 29.0)	0.01	30.0 (15.1 to 44.9)	0.01
Chest pain	73.7 (57.3 to 90.1)	78.3 (69.7 to 87.0)	50.8 (28.0 to 73.6)	−4.6 (−23.2 to 13.9)	0.62	22.9 (−5.2 to 51.0)	0.11
Sinusitis	58.3 (45.8 to 70.9)	80.0 (70.0 to 90.0)	75.0 (55.1 to 94.9)	−21.7 (−37.7 to 5.6)	0.01	−16.7 (−40.2 to 6.9)	0.16
Headache	36.8 (20.6 to 53.1)	36.8 (25.9 to 47.8)	29.2 (18.1 to 40.2)	0 (−19.6 to 19.6)	0.99	7.7 (−11.9 to 27.3)	0.44
Asthma	60.0 (48.5 to 71.5)	39.0 (29.3 to 48.7)	27.3 (17.0 to 37.5)	21.0 (6.0 to 36.0)	0.01	32.7 (17.3 to 48.1)	<0.01

NA=not applicable.

and 13% with NHS Direct, but not from consultations in general practice.

Between site variability

Considering all scenarios, the variability of quality scores, expressed as standard deviation, was highest for NHS Direct and lowest for general practice. However, variability of history taking for all scenarios was higher in general practice. Variability of quality in the three settings varied across scenarios. NHS Direct's high variability was largely the result of the postcoital contraception scenario, where referral may have substituted for consistent performance on essential items.

Access

Contacting NHS Direct was sometimes time consuming and unsatisfactory. About one quarter (25 of 99) of completed calls involved "call back" (mean wait 33 minutes). Three consultations with NHS Direct were not completed owing to length of wait for "call back." Fewer problems were reported accessing general practice and walk-in centres.

Discussion

The accuracy of portrayal (90%) by standardised patients compared well with previous studies, as did their reliability ($\kappa = 0.7$ to 0.9).^{7, 8} Detection (1.7%) and positive predictive value (21.7%) also compared favourably.⁸⁻¹¹

Although checklists were meant to consist of essential items, the proportions of items achieved in all three settings were low, a finding consistent with another study that assessed general practitioners against peer determined standards.¹² Performance may not reflect competence, as clinicians exhibit efficiency by only carrying out what is necessary at a particular moment.¹²

Methodological issues

The study's main limitations are non-random sampling of participating sites, use of a limited number of

scenarios—some more discriminating than others—and use of novel assessment checklists. Participating sites, particularly general practices, were likely to be more interested in the research question and may have provided a higher quality of care, possibly attenuating the study findings. Scenarios were chosen as typical of those seen in walk-in centres and because they were appropriate for portrayal by standardised patients. Scenarios necessitating the presence of abnormal findings or potentially involving certain types of physical examination or referral to third parties could not be included. The finding that walk-in centres offer safe care cannot necessarily be extrapolated to all clinical conditions.

Scenarios did not involve children and elderly patients, who attend general practice most often. Also, because the methods required standardised patients to visit practices as temporary residents, it did not assess some of the supposed strengths of general practice—for example, continuity and availability of past medical records. Thus, the findings do not suggest care in general practice is inferior to walk-in centres, rather that walk-in centres perform adequately and safely compared with controls.

The development of assessment checklists used by standardised patients in previous studies has received little attention, although their construction is crucial to the reliability and validity of assessment.¹³ Checklists used in this study seem to have high face validity and content validity, although few data were collected on other properties, such as reproducibility.

Conclusion

Standardised patients have a useful role in the assessment of quality in the UK primary care setting. Also, walk-in centres provide adequate, safe clinical care to a range of patients, compared with general practice and NHS Direct. However, the cost effectiveness of walk-in centres and their impact on workload of other healthcare providers requires further assessment.

What is already known on this topic

Assessment of the quality of care provided by walk-in centres is an important part of their overall evaluation

The one previous study to assess quality in this setting reported negative findings but was methodologically flawed

Standardised patients are a valid and reliable method of assessment of quality of clinical care

What this study adds

Walk-in centres perform adequately and safely compared to general practice and NHS Direct for the range of conditions under study

We thank the general practices, walk-in centres, and NHS Direct sites that took part in the study, the role players for their participation, members of the consensus panel for their input, and Judi Laister, Steve Harvey, Norma Jones, and John Pollock for their assistance.

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- 1 Salisbury C, Chalder M, Manku-Scott T, Pope C, Moore L. What is the role of walk-in centres within the NHS? *BMJ* 2002;324:399-402.
- 2 *Review body on doctors' and dentists' remuneration, 29th report 2000*. London: Stationery Office. [Cm 4243.]
- 3 Munro J, Nicholl J, O'Caithain A, Knowles E, Morgan A. Evaluation of NHS Direct first wave sites: final report of the phase 1 research. Sheffield: Medical Care Research Unit, University of Sheffield, 2001.
- 4 Jones J, Hunter D. Qualitative research: consensus methods for medical and health services research in general practice. *Fam Pract* 1997;14:58-62.
- 5 Colliver JA, Williams RG. Technical issues: Test application. *Acad Med* 1993;68:454-60.
- 6 Van der Vleuten CPM, Swanson DB. Assessment of clinical skills with standardized patients: state of the art. *Teach Learn Med* 1990;2:58-76.
- 7 Tamblin RM, Klass DJ, Schnabl GK, Kopelow ML. The accuracy of standardized patient presentation. *Med Educ* 1991;25:100-9.
- 8 Rethans JJ, van Boven CPA. Simulated patients in general practice: a different look at the consultation. *BMJ* 1987;294:809-12.
- 9 Woodward CA, McConvey GA, Neufeld V, Norman GR, Walsh A. Measurement of physician performance by standardized patients: refining techniques for undetected entry in physicians' offices. *Med Care* 1985;23:1019-27.
- 10 O'Hagan JJ, Davies LJ, Pears RK. The use of simulated patients in the assessment of actual clinical performance in general practice. *NZ Med J* 1986;99:948-51.
- 11 Rethans JJ, Drop R, Sturmans F, Van der Vleuten C. A method for introducing standardized (simulated) patients into general practice consultations. *Br J Gen Pract* 1991;41:94-6.
- 12 Rethans JJ, Sturmans F, Drop R, Van Der Vleuten C. Assessment of the performance of general practitioners by the use of standardized (simulated) patients. *Br J Gen Pract* 1991;41:97-9.
- 13 Gorter S, Rethans JJ, Scherpier A, Van Der Heijde D, Houben H, Van Der Vleuten C, et al. Developing case-specific checklists for standardized-patient-based assessments in internal medicine: a review of the literature. *Acad Med* 2000;75:1130-7.

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A memorable patient

One got away, and one was lost

It was in the 1950s that I was working as a senior hospital medical officer at a psychiatric hospital. One of my responsibilities was to look after the acute admission ward for female patients, and one day a 28 year old woman was admitted with a paranoid psychosis. She seemed a typical paranoid schizophrenic, hearing voices, believing that she was being watched and followed, and hearing her name constantly mentioned on the radio. But a strange thing was that she made odd movements with her tongue, like someone playing a wind instrument, and although neurosyphilis had all but disappeared by then, I remembered that a "trombone tongue" was a sign of general paralysis of the insane.

In those days every patient who was admitted had a Wasserman reaction (then the test for syphilis) performed on them; no one was worried about getting the patient's consent. I was considerably deflated when my patient's reaction came back negative, but reference to the books revealed that in 1% of cases of general paralysis of the insane the blood test was negative but a test of cerebrospinal fluid positive. So out came the lumbar puncture set, and lo and behold, the test was positive. Treatment was simple: you gave large doses of penicillin. The patient had large doses for a month, with no lessening of her psychotic symptoms whatsoever. Here was a teaser. After much thought, the only thing I could see that was left to do was to give the historical treatment of inducing bouts of fever by infecting the patient with benign tertian malaria.

Horton Hospital still bred malarial mosquitos, and a telephone call produced, the next day, a packet in the post, which contained a test tube in which was a live mosquito. So the patient was produced, and I held the open ended test tube against her forearm. The

mosquito wasted no time in biting her, but then came a new problem; how did one get the test tube out of contact with her skin without letting the insect escape? My attempt to do this failed, and the insect was flying around the room, to the consternation of the nurse who was helping me. Worse followed, as there was a window open and the creature flew off to see the world. Dreadful visions of a malarial epidemic in the home counties came to mind, but sanity was restored when I recollected that it was a cold February day and the mosquito was unlikely to survive more than a few minutes.

The patient duly developed malaria, and had four very nice attacks of fever. In the fifth one she died. One tended to forget that syphilis is a chronic infection and that the patient can be debilitated. The only comfort was that her condition would have been progressive and death inevitable.

I therefore have the dubious distinction of being one of the few people left not only who have given malarial treatment to a patient with general paralysis of the insane, but of having a record of 100% mortality in my treatment.

Alan Calvert Gibson *retired consultant psychiatrist, Poole*

We welcome articles up to 600 words on topics such as *A memorable patient, A paper that changed my practice, My most unfortunate mistake*, or any other piece conveying instruction, pathos, or humour. If possible the article should be supplied on a disk. Permission is needed from the patient or a relative if an identifiable patient is referred to. We also welcome contributions for "Endpieces," consisting of quotations of up to 80 words (but most are considerably shorter) from any source, ancient or modern, which have appealed to the reader.