ORIGINAL ARTICLE

Confidential registration in health services: randomised controlled trial

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Background: Human rights legislation safeguards the privacy and dignity of patients.

Objective: To assess the effectiveness in terms of patient assessed privacy of confidential registration.

Design: Randomised controlled trial.

Setting: Emergency Department, University Hospital of Wales.

Participants: A total of 302 patients aged over 15 years.

Main outcome measures: Binary choices and ordinal visual analogue scores from a validated questionnaire on self reported measures: patient ability and preference to speak to receptionists and disclose confidential information without being overheard and concern about disclosure of items of confidential personal information.

Results: Patients who registered in a screened area felt significantly more able to tell receptionists things they did not want others to hear. Control patients were significantly more concerned than intervention patients that others heard their name, address, date of birth, reason for emergency department attendance, and telephone number, but not their marital status. Overall, intervention patients were less concerned about disclosure of information and that they had been overheard.

Conclusions: Patients value privacy when they register and are concerned if others can hear them tell receptionists who they are, how to contact them, and why they are there. Confidential registration should be instituted in health services. Confidential registration increased patient privacy and should be instituted in health services.

There can be little privacy for patients when they register in healthcare facilities, yet registration always involves disclosure of confidential information. This may be limited to personal contact details but often includes information about perceived needs. Furthermore, registration often prompts patients to tell reception staff about their problem and circumstances in some detail. In emergency departments (ED) most software packages prompt receptionists to enquire about the nature of the patient's problem—for example, in relation to injury, how it occurred. Recently, registration has been found to be one of the best opportunities to collect reliable information about the circumstances of community assault.¹ However, in contrast to other settings where personal information is disclosed—for example, banks, post offices and passport inspection points—health services rarely provide private registration or reception facilities separated from busy waiting areas. We therefore carried out, and report here according to revised CONSORT guidelines,² a randomised trial of confidential registration to find out if it increased privacy—a basic human right—from the patients' perspective.

PARTICIPANTS AND METHODS

The health services setting selected was a busy ED, principally because large numbers of patients with a variety of conditions register there—facilitating this trial. Altogether, 302 patients, aged over 15 years, who attended the sole Cardiff ED (new patient attendances 2003: 104 641) during known busy periods were recruited and given a questionnaire by a graduate research assistant prior to registration by reception staff who were unaware of the purpose of the study or questionnaire content. No patient was excluded on the grounds that they appeared unable to understand/complete questionnaires, but seven declined to participate because of time constraints. Questionnaires were self completed and

collected by undergraduate research assistants immediately after registration. It was emphasised that participation was voluntary, would not affect treatment, and patients were assured of anonymity and confidentiality of research data.

Waiting room seating and screening arrangements to allow confidential registration were piloted and finalised. For confidential registration it was found necessary to maintain with screens a distance of at least 8 feet (2.44 metres) between the patient registering and others. Screens were 2 metres high and 3 metres wide. Because it proved impossible in the context of a busy waiting area to move screens between individual registrations the unit of randomisation was a set time period. Peak times (6–8pm on week days and weekends), 40 hours in total—when confidentiality was most likely to be compromised—were divided into a sequence of 20 two hour periods, which were randomly allocated using a web research randomiser (www.random.org) either for confidential registration or registration as usual. Assignment and randomisation were concealed from patients and receptionists. A statistician generated allocation sequence, a research assistant enrolled participants, and participants were assigned to their groups automatically by screen positioning. Screen positioning and removal did not affect patient flow or the order in which patients registered. Apart from screening, no changes to registration processes were made. However, to take account of the possibility that receptionists might be prompted by screens to behave differently, questions were included on their politeness/fairness. The researchers who analysed the results were blind to randomisation.

Abbreviations: AUROC, area under receiver operating characteristic curve; ED, emergency department

Measurement of outcomes

We defined a priori key outcomes most relevant to the privacy confidentiality needs of patients, which were assessed by self report through a locally validated, standardised questionnaire. Validation was carried out in a 2 month pilot study involving 15 patients in whom questionnaire design was revised, various kinds of screens were trialled, and busy periods were identified. The items gauged respondents' current concerns, such as ability and preference to speak to a receptionist and disclose personal information without being overheard, and reservation about disclosing personal information if they felt other patients or bystanders could hear. These outcomes were measured using binary choices and ordinal, visual analogue scales.

Statistical analysis

The planned sample size of 300 (150 per group) enabled detection of a 20% difference in the binary variable expressing patient preference with power at least 90% at the conventional 5% alpha level.

Each of the questionnaire variables was cross tabulated by allocated group with column percentages. Binary and unordered categorical variables were analysed using the χ^2 test, and, for binary outcomes, a confidence interval was derived for the difference in proportions.³ For ordinal variables the area under receiver operating characteristic curve (AUROC) was calculated with a p value, which in effect provides a Mann-Whitney test, and a confidence interval.⁴ An AUROC of 0.5 occurs when two samples are identical, whereas AUROC = 0 or 1 occurs when there is perfect separation between the two distributions. Values above 0.5 correspond to higher values in the intervention group relative to the control group and vice versa. Analyses were performed using SPSS.

RESULTS

Overall, 302 patients were randomly assigned: 145 to the intervention group, 157 to the control group. Their characteristics were similar (Table 1). Two intervention and three control patients did not complete questionnaires fully and were not included in analyses: leaving 143 intervention and 154 control patients. Intervention patients felt as able as control patients to tell receptionists things they did not want others to hear, although control patients felt much more strongly that others heard what they said (Table 2). Far more control patients stated that they would like to have spoken to

Table 1 Characteristics of intervention and control groups: numbers (%)

Characteristic	Intervention group (n = 143)	Control group (n = 154)
Gender:		
Male	71 (50)	85 (55)
Female	72 (50)	69 (45)
Age (years):		
15–19	15 (10)	19 (12)
20–29	31 (22)	53 (34)
30–39	39 (27)	37 (24)
40–64	50 (35)	34 (22)
≥65	8 (6)	11 (7)
Occupational status:		
Employed	89 (62)	95 (62)
Unemployed	12 (8)	12 (8)
Student	11 (7)	20 (13)
Retired	16 (11)	14 (9)
Housewife	15 (10)	13 (8)
Household income:		
<£10,000	45 (31)	51 (33)
£10,000–	38 (27)	44 (29)
£20,000–	30 (21)	25 (16)
£30,000–	17 (12)	18 (12)
£40,000–	4 (3)	9 (6)
£50,000–	3 (6)	2 (1)
≥£60,000	6 (4)	5 (3)

the receptionist confidentially. With individual items of information, control patients minded significantly more than intervention patients that others heard, in order of their statistical significance, their name, address, date of birth, reason for attendance, and telephone number (Table 2). There was no difference between groups in concern that others could hear their marital status. Overall, intervention patients felt less concerned about information disclosure and less that they had been overheard. The effect of screening on receptionist behaviour found no differences between groups for perceived politeness/fairness: levels were very high.

DISCUSSION

Providing patients with opportunities to register confidentially has the potential to increase their confidence, willingness to seek care—particularly about conditions they feel sensitive about—and overall satisfaction with services. These results show that confidential registration increased privacy, was valued, and decreased concern about information

Table 2 Comparison of patient responses between intervention and control groups

Binary responses, proportion of patients responding affirmatively	Intervention group (n = 143)	Control group (n = 154)	95% CI for difference	p Value
Ability to speak without being overheard	107 (75%)	103 (67%)	–2% to +18%	0.13
Perception of being overheard	61 (43%)	95 (62%)	–30% to –8%	0.001
Preference for confidential conversation with receptionist	43 (30%)	74 (48%)	–28% to –7%	0.002
Perception of receptionist politeness/fairness	142 (99%)	154 (100%)	–	–
Ordinal response scales:	AUROC	95% CI	p Value	
Ability to tell receptionist things patients did not want others to hear	0.581	0.517 to 0.646	0.015	
Perception of being overheard	0.371	0.308 to 0.434	<0.001	
Receptionist politeness	0.551	0.485 to 0.616	0.13	
Concern about being overheard:				
Name	0.404	0.339 to 0.468	0.004	
Address	0.415	0.350 to 0.480	0.011	
Date of birth	0.418	0.353 to 0.483	0.033	
Marital status	0.445	0.379 to 0.510	0.099	
Telephone number	0.431	0.366 to 0.496	0.040	
Reason for attending ED	0.422	0.357 to 0.487	0.033	

What is already known on this topic?

- Registration in healthcare facilities entails disclosure of confidential information and often prompts explanations for attendance.
- Patients have a right to privacy and confidential conversations with healthcare staff.
- People are more likely to be forthcoming if they can speak confidentially.

What this study adds

- Patients mind if third parties can hear them tell receptionists who they are, how to contact them, and why they are there.
- Privacy during registration decreases patients' concern that others can hear what they say.
- Patients value confidential registration.
- Confidential registration safeguards patients' human rights.

disclosure. It is also clear that patients were concerned not just about third parties hearing their reason for seeking care but, even more strongly, about their identities and contact details. Surprisingly, greater privacy made no difference to patients' concerns about others hearing their marital status—which may reflect contemporary perceived importance of marital status or simply that marriage is a public contract.

To our knowledge this is the first study to evaluate, through a randomised trial design, the attitudes of patients to confidential registration, or, it appears, privacy in any setting. On the basis of these findings, confidential registration should be facilitated in health services and considered to be a basic right. This would acknowledge patients' dignity, which already occurs for customers in many banking and retail facilities. Reducing the stress associated with health care, including the stress imposed by being overheard in waiting areas, is an important objective.

An explanation for one apparently contradictory finding—that there was no difference between groups in terms of ability to speak without being overheard, but very significant differences between perception of being overheard—is that despite greater awareness of lack of privacy among control patients, they thought that this was a price worth paying for the care sought.

The privacy of patients in EDs is an issue that is considered in NHS guidance. The NHS Estates Building Note "Accident and Emergency facilities for adults and children"⁵ (www.nhsestates.gov.uk) states that "The privacy and dignity of patients is now a top priority and must be maintained at all times" (Section 2.21, p 11): registration in separate assessment rooms is recommended. However, the recommended design of reception areas (p 78) does not take

account of the need for confidential interaction of patients with receptionists.

From this study, confidential registration is easy to achieve. The provision of screens 8 feet (2.4 metres) from registration desks, and necessary adjustments to waiting area seating arrangements, is relatively straightforward. Furthermore, patients would, presumably, not be surprised when such measures were taken. However, these changes involve at least some alteration to patient flow and resource implications.

There are other ways to provide confidential registration—for example, by asking patients to write down their personal details or to input information electronically. However, health services would become less personal if at least some conversation with a receptionist was not possible. It is likely that patients' attitudes towards health services and beliefs about quality of care are influenced by the extent to which they are treated with respect in a confidential and dignified way when they make first contact and subsequently.

It is likely that the findings of this trial are generalisable to other clinical settings—for example, out patient and ambulatory care reception areas.

LIMITATIONS OF STUDY

This study has at least two limitations. First, we did not have objective or evaluative outcome measures—for example, on information recording errors and their consequences. All outcomes were self reported beliefs or concerns. Second, this study was carried out in one healthcare setting, and the findings may not be generalisable outside EDs.

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Competing interests: none declared.

Ethical approval: the LREC chairman decided that this trial did not require ethical approval.

A full copy of the questionnaire used to collect data is available from the corresponding author.

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