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Changes in inpatients' experiences of hospital care in England over a 12-year period: a secondary analysis of national survey data

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ABSTRACT

OBJECTIVES: Annually, adult Inpatient Surveys generate approximately 70,000 responses per year about patients' experiences of National Health Service (NHS) hospital care in England. We examine historical data to assess what, if anything, has changed since the national patient survey programme began in 2002 and we consider the factors that may have stimulated change.

METHODS: Archived national data from Inpatient Surveys between 2002 and 2013 inclusive (comprising 840,077 patient responders) were obtained. Questions were selected for inter-year analysis if they had been replicated for at least seven years. The percentage of responses in the most positive category was compared for each question's earliest and most recent year. The statistical significance of differences was tested using chi-square. Also, since such large sample sizes mean that even 1% differences are statistically significant, effect sizes were used to assess the practical significance of those differences.

RESULTS: There were statistically significant ($p < .001$) increases in positive responses to 35 questions, a significant deterioration for eight questions and no change for seven questions. There was one "moderate" improvement ($\phi = 0.3$), six "small" improvements ($\phi > 0.1$) and one "small" decline, but differences were not meaningful for 42 questions. The greatest improvements were for: patients receiving copies of doctors' letters; single sex ward areas; clinicians' hand washing; ward cleanliness and planned admission waiting times. The greatest decline was that fewer responders said their call bells were usually answered within two minutes.

CONCLUSIONS: More aspects of care have improved than have deteriorated. This study highlights the need for a consistent repeated survey programme to detect changes over the long term, since year-to-year changes tend to be small. The greatest improvements are in areas that can be influenced by organisation-wide interventions and many are associated with top-down government policies, targets or media campaigns. Patients' evaluations of many aspects of their interactions with clinicians are unchanged or have declined. Further research could test whether ward-specific facilitated communication of survey results to clinicians could drive improvements in clinician-patient interactions.

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KEY WORDS: patient experience, patient satisfaction, inpatient survey, quality improvement

BACKGROUND

Measures of patients' experiences have received increasing worldwide attention in the last two decades. National patient experience surveys now take place regularly in US, the Netherlands,

Norway, Scotland and England, and regional programmes exist in other countries.¹ With the publication of the *NHS Plan*, England was the first country to mandate regular nation-wide surveys of hospital inpatients² and, since 2002, approximately 70,000 patients per year across England's National Health Service (NHS) hospitals have reported on their experiences of hospital care by responding to the postal Adult Inpatient Survey. All acute NHS hospitals participate in the survey, adhering to a standard survey method and questionnaire, and submitting response data to a central body, which is currently the Care Quality Commission (CQC).³ The survey method, which is described elsewhere,⁴ and many of the questions have been consistent throughout the survey's history and across participating organisations, making it possible to compare the national results over time although, to date, there has been little analysis of the survey data.⁵

Few of the countries that conduct regular patient experience surveys have attempted to monitor national trends. In Australia, a study concluded that very high levels of patient satisfaction with general practice meant that the survey instrument was not useful for detecting changes.⁶ A Korean study found a substantial improvement in responses to a single question about patient satisfaction with "overall health services" between 1989 and 2003.⁷ In England, one study noted generally "small improvements" in inpatient survey results between 1998 and 2008,⁸ and another found "almost no change" between 2002 and 2009.⁹ A third report found improvements in inpatient waiting times and clinicians' hand cleaning, but a decline in the availability of hospital staff between 2002 and 2007.¹⁰

Alongside the patient survey data, other evidence offers a mixed impression of the direction of change in patients' experiences. Recently, a number of concerns have been raised about the quality of NHS nursing care.¹¹ The Francis Report into serious failings at Mid-Staffordshire NHS Foundation Trust also highlighted examples of unacceptably poor NHS nursing care.¹² There are divergent views on the overall impact of nationwide NHS targets on the quality of care. Some argue that such targets have stimulated sustained improvements because they "rewarded success and penalised failure"¹³ and, following the publication of the *NHS Plan* Waiting Time targets, planned admission waiting times have declined.^{14,15} The target that, by the end of 2004, all patients should be admitted, transferred or discharged from Emergency Departments within four hours of arrival was also broadly met.¹⁶ However, others criticise the targets for distorting clinical priorities and being too arbitrary to promote meaningful improvements.¹⁷

This paper is the first to undertake a question-by-question analysis of England's Inpatient Survey data using explicit criteria to measure the statistical and practical significance of changes, and its 12-year time frame is longer than that of any other study. We include all of the questions that were used in at least seven annual surveys between 2002 and 2013 to assess how patients' experiences have improved or deteriorated between the earliest and most recent year.

Clinicians are sometimes sceptical about the relevance of survey data to their practices¹⁸ and they may be relatively less engaged than health care managers in quality improvement programmes^{19,20} Nurses are more likely than doctors to be tasked with co-ordinating responses to NHS patient survey results, suggesting that doctors and nurses may differ in the extent to which they engage with patients' evaluations of care.⁴ Most of the Inpatient Survey questions can broadly be grouped into categories according professional groups' primary responsibility: doctors, nurses, health professionals in general, or hospital managers. We examine whether the magnitude or direction of change differs according to the occupational groups responsible for various aspects of care.

METHODS

Data sources

The data for the 11 national Inpatient Surveys conducted annually between 2002 and 2013 inclusiveⁱ were obtained from the UK Data Service.²¹ England's NHS hospital care is organised into NHS Trusts,

ⁱ There was no national Inpatient Survey in 2003.

which constitute one or more hospitals. Annually, all NHS trusts in England are mandated to conduct a postal survey of 850 consecutively-discharged inpatients. The number of participating trusts has declined from 176 in 2002 to 156 in 2013, because some trusts have merged with others to form larger trusts. Since 2002, 840,077 patients have responded to the questions used in this analysis. In 2002, nearly 95,000 patients from 176 trusts returned usable questionnaires: a response rate of 63%. The response rate has declined steadily and the number of participating trusts has also declined. There were 62,433 responders in 2013, representing a response rate of 49%.ⁱⁱ

Question selection

Questions were included in this study if they had been included in the national Inpatient Survey since 2006 or earlier, had been included for at least seven consecutive years between 2002 and 2013, and if they were asked in exactly the same way and offered the same response options. There were 50 such questions, 44 of which were included in the 2013 survey, while six were included most recently in 2011. Twenty-two of the fifty selected questions had been included since 2002, 11 since 2004, 13 since 2005 and four since 2006.

Summarising question responses

To summarise question responses, a national average un-weighted percentage of patients who gave the most positive response to each of the 50 questions at each survey interval was computed. Neutral responses such as “Don’t know” were excluded from the denominator.

Box 1: Example of summarised question responses

Q: Were you given clear written or printed information about your medicines?

Yes, completely (positive)

Yes, to some extent (negative)

No (negative)

Don't know / Can't remember (not included in percentage)

This method of summarising responses differs from the CQC’s method, which computes a mean score by scoring responses for each question at equal intervals between 0 and 10, based on an assumption of equal differences between response options. Unlike the CQC’s approach, the method of summarising question response used in this paper does not distinguish among less positive response options but, arguably, it is more transparent, more practical and does not rely on un-tested assumptions. The percentage of patients who gave a particular response is more meaningful than a score between 0 and 10. This analysis examines changes in responses to 50 questions, so it is more practical to compare one figure for each question, rather than examining changes in response proportions for up to six different response options. Furthermore, the questions in the Inpatient Questionnaire are specifically designed to elicit reports of “what happened”,²² rather than to generate scores on a scale.

Statistical analysis

Our overall aim was to identify long-term trends in inpatient experiences. Therefore, where possible, comparisons were made between question responses to the first survey, which took place in 2002,

ⁱⁱ These response rates may differ by up to 1% from the published response rates for each survey, because they are based on the number of responders who provided responses that could be questions used in these analyses, not on all responders, which could include those who have only responded to demographic questions.

and the most recent survey year for which data were publicly available: 2013. If a question was not included in either of those years, the earliest and most recent year's results for each question were used. Chi-square analyses tested the statistical significance of changes in question responses. However, the Inpatient Surveys' large sample sizes ($n \approx 70,000$ per year) mean that changes as small as 1% are statistically significant. Arguably, such small changes should not be judged to be substantive or of practical significance. Therefore, in addition, the effect sizes of inter-year differences are measured with phi-coefficients,²³ which, unlike statistical significance, are not confounded by sample size.

RESULTS

The descriptive statistics are illustrated in Figures 1 to 4, which show the percentages of positive responses to questions over time. Each line represents one question and shows changes in the percentage of patients who gave the most positive response over the years the survey was conducted.ⁱⁱⁱ The 50 questions are divided into four categories, which broadly correspond to the care given by four different occupational groups, although some questions fall more neatly into an occupational category than others.

Figure 1 illustrates that most of the 11 questions about care given by hospital doctors remained largely unchanged between 2002 and 2013. An exception is *"Doctors always cleaned hands"*, which improved by 12% between 2005 and 2011. (Questions about hand cleaning were not included in the 2012 or 2013 surveys.)

Figure 2 shows the nine questions about care given directly by ward nurses. Between 2005 and 2011, there was a 10% improvement in *"Nurses always cleaned hands"*. Between 2002 and 2013, there was a 6% improvement in *"Nurses always gave understandable answers to questions"*, and a 6% improvement in *"Always got help to eat meals"*. In contrast, there was a 10% decline in *"Call bells were usually answered within two minutes"*.

Figure 3 shows that average responses to most questions about direct care received from unspecified health care staff have remained fairly stable over time, but there are 7% improvements in responses to three questions: *"Always given privacy when discussing condition"*, *"Family given information to care for patient at home"* and *"Given written information about medicines"*.

Figure 4 shows steady improvements in several of the aspects of care that are susceptible to the influence of organisational managers. There is a 30% improvement in *"Received copies of doctors' letters"*; a 17% improvement in *"Did not share a bathroom with opposite sex patients"*, and 10% improvement in *"Did not share sleeping area with opposite sex patients"*. Two questions about cleanliness have also improved: *"Ward 'very clean'"* by 13% and *"Toilets and bathrooms 'very clean'"* by 12%. There was also a 9% increase in the proportion of patients who thought their *"Planned admission was 'as soon as necessary'"*. The change in *"Waited 4 hours or less to be admitted from Emergency Department"* is non-linear: it improved by 8% (from 66% to 74%) between 2002 and 2005 but subsequently declined to 70% in 2011 (and was not included in subsequent surveys).

Figures 1 to 4 about here

Improvements and deteriorations in quality of care

Table 1 summarises the percentage of patients who responded positively to each of the 50 questions, comparing the earliest and most recent results for each question. Overall, the largest improvements were in: patients receiving copies of doctors' letters sent between hospital doctors and their GP; not having to share ward areas with opposite sex patients; doctors' and nurses' hand washing; ward cleanliness and planned admission waiting times. Emergency department waiting

ⁱⁱⁱ Note that the relative position of the lines on the y-axis is a function of the question wording and scoring; we are not concerned with making comparisons among different lines. What is of interest is whether each line has risen (or fallen) over the period that a question has been asked.

times have also improved over the lifetime of the survey programme, but the overall improvement is smaller because they have declined since earlier peaks.

The aspects of care for which there are the greatest deteriorations in patients' experiences are: call bells being answered quickly; receiving information about the purposes of medicines, and delays in being discharged on the day of discharge (i.e. waiting for medicines or ambulance transport).

Table 1 about here

Statistical analyses

Chi-square tests comparing the earliest and most recent year's results for each question indicate statistically significant improvements in responses to 35 questions, deterioration in responses to eight questions, and no change for seven questions ($p < .001$)^{iv}. Only one of the effect sizes for inter-year comparisons reaches the conventional 0.3 for a "moderate" effect (*Received copies of doctors' letters*). There are six "small" (phi greater than 0.1) improvements: for two questions about hand cleaning, two questions about same sex ward areas, and two questions about ward cleanliness. There is one "small" decline for "*Call bells were usually answered within two minutes*" but no meaningful difference over time for 42 questions.

DISCUSSION

Overall impression

Many aspects of inpatients' experiences have not changed substantially, but there have been some noteworthy improvements and declines. The most improved areas are those that are mainly the responsibility of organisations' managers, or have been the focus of national policies, targets or campaigns. They are also in areas which are relatively easy to define, measure, record and count: copying letters to patients; ward area cleanliness, single sex ward areas, clinicians' hand-washing, inpatient waiting times and emergency department waiting times. The main areas of stasis and decline are in responses to questions about the quality of clinician-patient interactions. This may reflect a difficulty of engaging clinicians in quality improvement, or a lack of concerted efforts to involve them, or it could be due to the relative complexity of the interactive aspects of patients' experiences, which make them less easy to measure and incentivise.

Comparison of nurses and doctors

Responses to questions about nursing care have changed more than those about care given by doctors. The greatest deterioration of all is in responses to the question about the time taken for nurses to answer call bells, but there are improvements in nurses giving understandable answers to patients' questions and getting help to eat meals. Responses to almost all questions about care from doctors have remained stable over time, except for an improvement in cleaning their hands, which also improved for nurses.

Success of hand hygiene campaigns

The improvements in patients' perceptions of hand hygiene suggest that, at least on this issue, clinicians have engaged with quality improvement programmes. The National Patient Safety Agency's "Clean Your Hands" campaign sought to raise awareness about the importance of hand hygiene in reducing the incidences of hospital-acquired infections, and the message has been enthusiastically embraced by the national media. It is likely that this progress is partly due to the relative ease with which the required action (hand cleaning) can be defined and measured. It may also reflect clinicians' interest in more concrete clinical issues, rather than abstract concepts.²³

^{iv} Repeated chi-square tests were carried out on the same data, so Bonferroni's correction was applied, reducing the significance level from $p < 0.05$ to $p < 0.001$.

Effects of targets

The results of this study broadly support the use of targets, in that patients report better care in areas where the most high-profile financially-incentivised targets were in place. The results for two questions clearly reflect the influence of two financially-incentivised *NHS Plan* targets. The targets for inpatient waiting times are reflected in an 8% increase between 2002 and 2009 in patients who thought their planned admission was “as soon as necessary”. Similarly, the four-hour Emergency Department target is reflected in 8% fewer patients reporting a wait of more than four hours in 2005 compared to 2002. However, the large decline in time taken to answer call bells could reflect the absence of targets for this aspect of care, and could indicate that nurses’ attention was focused on ensuring that other targets were met at the expense of responding to the immediate needs of their patients.

Relationship of patients’ priorities to improvements in care

It is encouraging that some of the greatest improvements have been in ward cleanliness and hand washing: issues which previous research suggests are of high priority to patients.^{25,26} On the other hand, the same research suggests that the large improvement in patients receiving copies of their letters is not a high priority for patients. Other issues of relatively high priority, such as pain relief, information about medicines and being able to talk to staff about their concerns, are unchanged or have declined.

Strengths and limitations of this study

This study is the first to consider the annual Inpatient Survey data at a whole by matching successive years’ data for each question. In so doing, it offers the longest and broadest analysis of these data to date. While the survey method has remained constant over time, the decline in response rates could account for some change but this seems unlikely since some aspects of care have declined while others have improved, and largest improvements are associated with national campaigns.

Future research

This analysis of national Inpatient Survey data offers useful insights on national trends and it helps us understand which areas of care are most susceptible to the quality improvement efforts that have so far been tried in the NHS. However, these non-experimental data cannot support inferences of cause and effect. Few scientific studies have attempted to measure experimentally the impact of improvement strategies on patients’ experiences. Among the challenges of conducting such research is that interventions in hospitals are not always specific to individual patients or even to hospital wards. Therefore, in randomised trials, the risk of contamination of the control group by the experimental group is relatively high. A further difficulty, highlighted by this study, is that the wider NHS context of national policies may have a strong impact on the quality of care, and this could mask or exaggerate the impact of local quality improvement efforts in single-unit case studies. This underlines the importance of conducting randomised controlled trials, especially to test ways of improving the interpersonal aspects of care, which are falling behind.

A previous randomised controlled trial found preliminary evidence that ward discussions with nurses about their recent patient survey results improved nursing care.²⁷ This is a rare example of a small-scale trial to test a strategy to improve patients’ experiences in the interpersonal aspects of care which have so far been impervious to improvement efforts. Further research could refine this intervention, provide further evidence of its efficacy and test its use with other professional groups.

Implications

This study shows that, since 2002, many of the NHS-wide efforts to improve care in specific target areas (such as waiting times and ward cleanliness) have been successful. Where there has been

progress, it has been incremental and year-to-year changes have been small. This study highlights the need for a consistent repeated survey programme to detect changes over the long term.

AUTHOR CONTRIBUTIONS

RR: Original idea for the paper; study design; literature search and review; descriptive statistics and data analysis. Main author of abstract, introduction, methods, results and discussion.

EW: Contributed to the interpretation of the findings and drafting of the manuscript.

Both authors read and approved the final manuscript.

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DECLARATION OF INTERESTS

The authors declare that they have no conflicts of interest. Rachel Reeves was employed in the development and management of the national Inpatient Survey at Picker Institute Europe from 2001 to 2005.

ETHICS COMMITTEE APPROVAL

Ethical approval was not required for this secondary analysis of publicly-available data.

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Figure 1: Positive responses to questions about hospital doctors

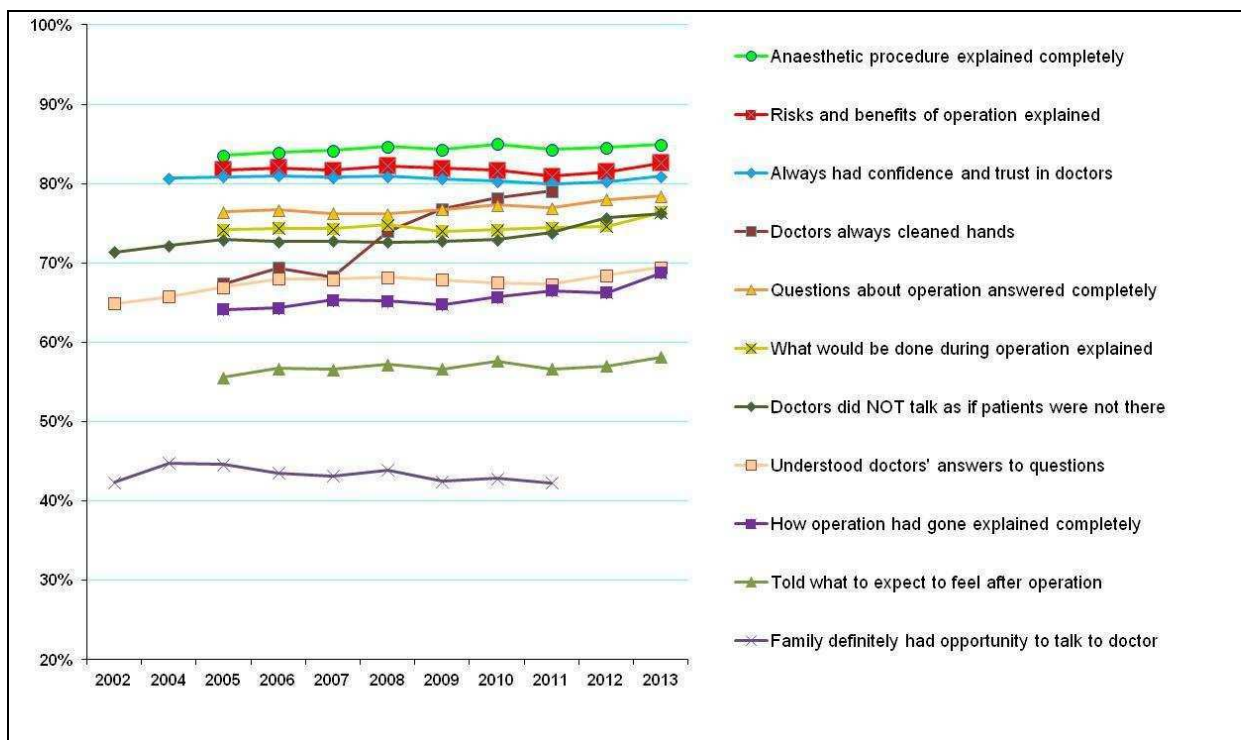


Figure 2: Positive responses to questions about care from ward nurses

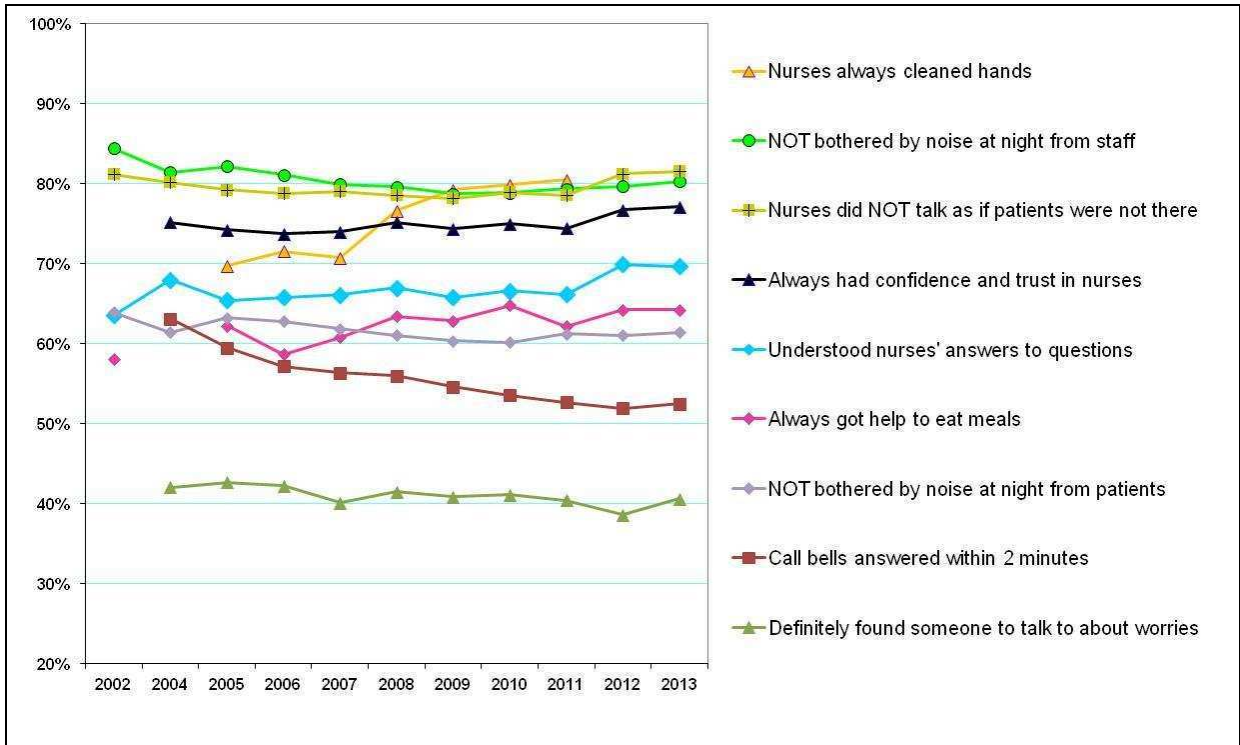


Figure 3: Positive responses to questions about care given by unspecified health professionals

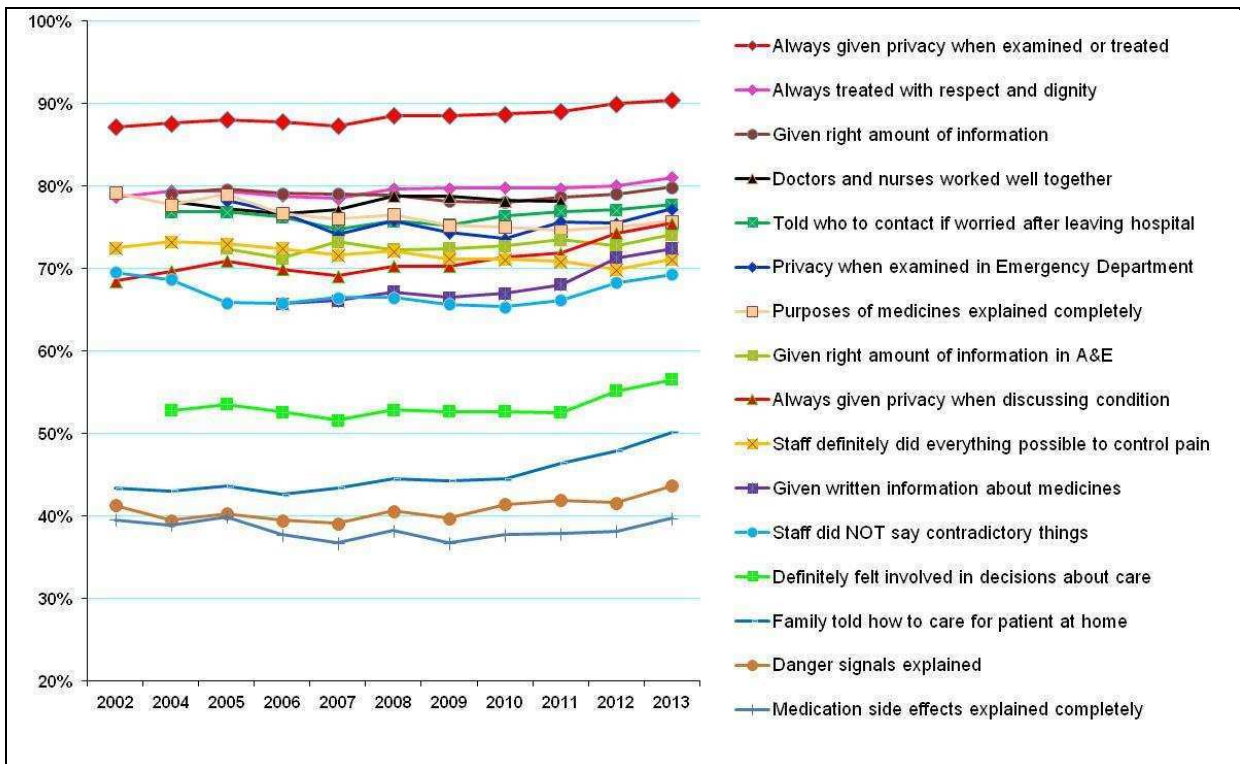


Figure 4: Positive responses to questions about hospital organisation and management

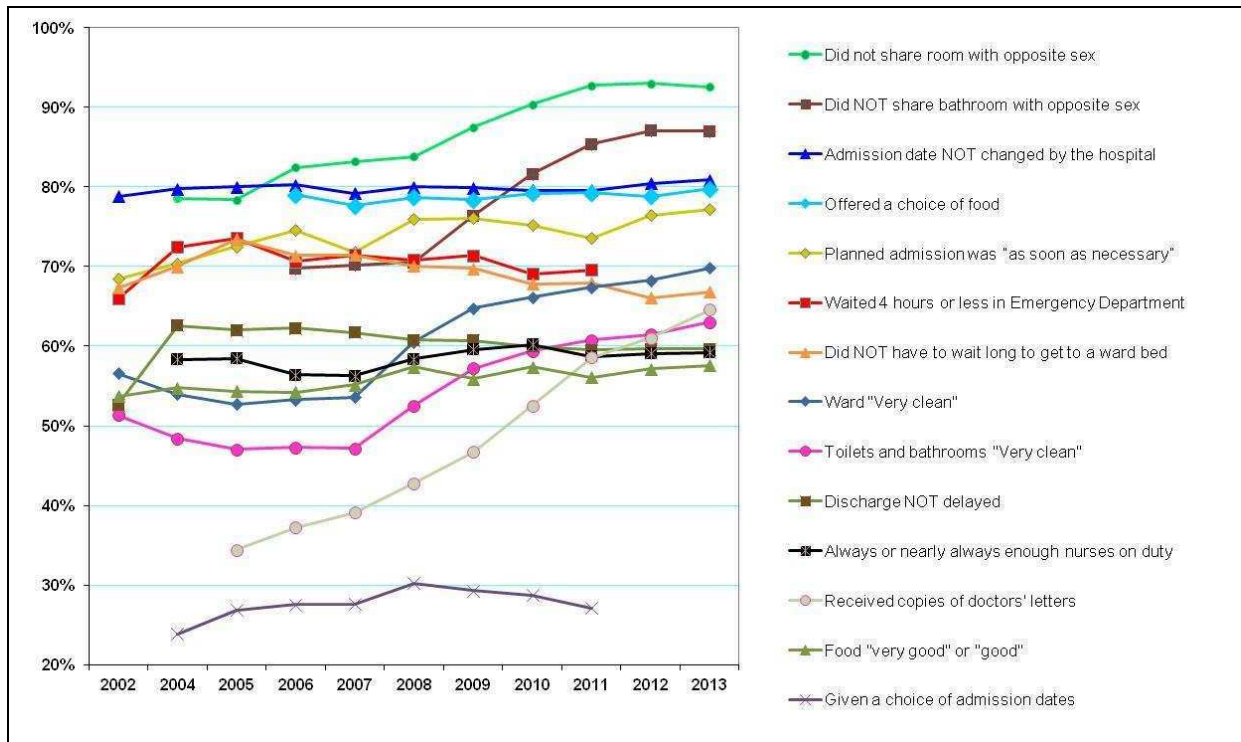


Table 1: Positive responses to 50 survey questions

Questionnaire item	Time 1		Time 2		Change statistics				
	Year	%	Year	%	<i>chi-square</i>	n	<i>p</i>	<i>phi</i>	Change %
Received copies of doctors' letters	2005	34.4	2013	64.6	11509.1	128365	<.001	0.30	+30.2
Did NOT share bathroom with opposite sex	2006	69.7	2013	87.0	5060.0	121108	<.001	0.20	+17.2
Ward "very clean"	2002	56.6	2013	69.8	2754.9	155318	<.001	0.13	+13.2
Doctors always cleaned hands	2005	67.4	2011	79.1	1553.8	90698	<.001	0.13	+11.7
Toilets and bathrooms "very clean"	2002	51.4	2013	63.0	1999.4	151301	<.001	0.12	+11.7
Nurses always cleaned hands	2005	69.8	2011	80.5	1654.0	109948	<.001	0.12	+10.7
Did NOT share sleeping room with opposite sex	2006	82.4	2013	92.6	3013.0	135892	<.001	0.15	+10.2
[Planned] admission was "as soon as necessary"	2002	68.4	2013	77.2	614.6	69744	<.001	0.09	+8.8
Always given privacy when discussing condition	2002	68.5	2013	75.5	877.8	152659	<.001	0.08	+7.0
Family told how to care for patient at home	2002	43.4	2013	50.2	463.7	105598	<.001	0.07	+6.8
Given written information about medicines	2006	65.8	2013	72.4	522.0	106660	<.001	0.07	+6.6
Always got help to eat meals	2002	58.0	2013	64.2	143.2	35605	<.001	0.06	+6.2
Understood nurses' answers to questions	2002	63.6	2013	69.7	535.4	133684	<.001	0.06	+6.1
Doctors did NOT talk as if patients were not there	2002	71.3	2013	76.2	445.4	154032	<.001	0.05	+4.9
How operation had gone explained completely	2005	64.1	2013	68.7	211.9	91683	<.001	0.05	+4.6
Understood doctors' answers to questions	2002	64.9	2013	69.4	305.4	137243	<.001	0.05	+4.5
Food "very good" or "good"	2002	53.7	2013	57.6	213.6	148350	<.001	0.04	+3.9
Definitely felt involved in decisions about care	2004	52.8	2013	56.6	203.8	146956	<.001	0.04	+3.8
Waited 4 hours or less in Emergency Department	2002	65.9	2011	69.6	199.2	80714	<.001	0.04	+3.6
Given a choice of admission dates	2004	23.9	2011	27.1	92.3	66910	<.001	0.04	+3.3
Always given privacy when examined or treated	2002	87.2	2013	90.4	378.0	154493	<.001	0.05	+3.2
Told what to expect to feel after operation	2005	55.6	2013	58.1	59.9	91946	<.001	0.03	+2.6
Danger signals explained	2002	41.3	2013	43.7	71.8	134946	<.001	0.02	+2.4
Always treated with respect and dignity	2002	78.7	2013	81.1	126.9	154004	<.001	0.03	+2.4
What would be done during operation explained	2005	74.2	2013	76.3	54.8	90492	<.001	0.02	+2.2
Admission date NOT changed by the hospital	2002	78.8	2013	80.9	45.5	70609	<.001	0.03	+2.1
Questions about operation answered completely	2005	76.4	2013	78.4	44.8	79351	<.001	0.02	+2.0
Always had confidence and trust in nurses	2004	75.2	2013	77.1	74.1	147965	<.001	0.02	+1.9
Right amount information in Emergency Department	2005	72.4	2013	74.1	24.0	65049	<.001	0.02	+1.7
Anaesthetic procedure explained completely	2005	83.5	2013	84.9	28.0	78041	<.001	0.02	+1.4
Risks and benefits of operation explained	2005	81.7	2013	82.6	12.3	90939	<.001	0.01	+0.9
Told who to contact if worried after leaving	2004	76.9	2013	77.8	15.0	132494	<.001	0.01	+0.9
Always or nearly always enough nurses on duty	2004	58.3	2013	59.2	11.3	147837	.001	<0.01	+0.9
Given the right amount of information	2004	79.1	2013	79.9	12.2	147763	<.001	<0.01	+0.7
Offered a choice of food	2006	79.0	2013	79.8	11.3	135941	.001	0.01	+0.7
Nurses did NOT talk as if patients were not there	2002	81.2	2013	81.6	3.2	154191	.076	<0.01	+0.4
Always had confidence and trust in doctors	2004	80.7	2013	80.9	1.7	148219	.190	<0.01	+0.3
Medication side effects explained completely	2002	39.6	2013	39.7	0.3	94934	.576	0.00	+0.2
Doctors and nurses worked well together	2004	78.1	2011	78.2	0.2	153847	.697	<0.01	+0.1
Family definitely had opportunity to talk to doctor	2002	42.3	2011	42.2	.08	112337	.777	<0.01	-0.1
Staff did NOT say contradictory things	2002	69.6	2013	69.3	0.9	154466	.327	<0.01	-0.2
Did NOT have to wait long to get to a ward bed	2002	67.3	2013	66.9	3.2	151161	.072	<0.01	-0.4
Privacy when examined in Emergency Department	2005	78.3	2013	77.3	9.5	68434	.002	0.01	-1.0
Staff did everything possible to control pain	2002	72.5	2013	71.1	22.7	101754	<.001	0.02	-1.4
Found someone to talk to about worries	2004	42.1	2013	40.6	19.6	89943	<.001	0.02	-1.5
NOT bothered by noise at night from patients	2005	63.3	2013	61.5	47.8	141964	<.001	0.02	-1.8
NOT bothered by noise at night from staff	2005	82.2	2013	80.4	78.3	142232	<.001	0.02	-1.8
Discharge NOT delayed	2004	62.6	2013	59.6	127.9	145819	<.001	0.03	-2.9
Purposes of medicines explained completely	2002	79.2	2013	75.8	190.7	115442	<.001	0.04	-3.4
Call bells answered within 2 minutes	2004	63.1	2013	52.5	953.3	83750	<.001	0.11	-10.6