

Supplementary file 1: Analysis of NHS Adult Inpatient Survey and Staff Survey 2014

The NHS Adult Inpatient Survey 2014

The 2014 Adult Inpatient Survey contains 70 questions about patients' most recent experiences of being an inpatient in hospital and 8 demographic questions. The response data to relevant questions in the survey were analysed to create an average score for each Trust with the purpose of identifying the top, middle and bottom thirds of the distribution with regard to patient experience.

The questions were evaluated in terms of their capacity to differentiate between differing levels of experience at the Trust level (Trust-level reliability). This was investigated following the Generalizability Theory approach (Cronbach *et al.* 1972) by applying a variance components model to the respondent-level data for each question, incorporating 'Trust' as a random effect. Trust-level reliability coefficients were computed based on the median number of respondents per Trust, as this varies by question. The results were screened and questions eliminated from further consideration where the Trust-level reliability with median sample size was less than 0.7.

The surviving 31 questions were grouped into four domains to create composite scores. The questions and associated domains can be seen in *Table 1* below.

Table 1: The Adult Inpatient Survey 2014: questions by domain

Domain	Question	
Referral	Q6	How do you feel about the length of time you were on the waiting list before your admission to hospital?
	Q7	Was your admission date changed by the hospital?
	Q8	In your opinion, had the specialist you saw in hospital been given all of the necessary information about your condition or illness from the person who referred you?
	Q9	From the time you arrived at the hospital, did you feel that you had to wait a long time to get to a bed on a ward?
Inpatient	Q24	When you had important questions to ask a doctor, did you get answers that you could understand?
	Q25	Did you have confidence and trust in the doctors treating you?

	Q26	Did doctors talk in front of you as if you weren't there?
	Q27	When you had important questions to ask a nurse, did you get answers that you could understand?
	Q28	Did you have confidence and trust in the nurses treating you?
	Q29	Did nurses talk in front of you as if you weren't there?
	Q30	In your opinion, were there enough nurses on duty to care for you in hospital?
	Q31	Sometimes in a hospital, a member of staff will say one thing and another will say something quite different. Did this happen to you?
	Q32	Were you involved as much as you wanted to be in decisions about your care and treatment?
	Q33	Did you have confidence in the decisions made about your condition or treatment?
	Q34	How much information about your condition or treatment was given to you?
	Q35	Did you find someone on the hospital staff to talk to about your worries and fears?
	Q36	Do you feel you got enough emotional support from hospital staff during your stay?
	Q41	How many minutes after you used the call button did it usually take before you got the help you needed?
	Q66	Overall, did you feel you were treated with respect and dignity while you were in the hospital?
	Q67	During your time in hospital did you feel well looked after by hospital staff?
	Q68	Overall... (Please circle a number)
Discharge	Q50	Did you feel you were involved in decisions about your discharge from hospital?
	Q51	Were you given enough notice about when you were going to be discharged?
	Q56	Did a member of staff explain the purpose of the medicines you were to take at home in a way you could understand?

	Q57	Did a member of staff tell you about medication side effects to watch for when you went home?
	Q61	Did hospital staff take your family or home situation into account when planning your discharge?
Self-management	Q55	Before you left hospital, were you given any written or printed information about what you should or should not do after leaving hospital?
	Q59	Were you given clear written or printed information about your medicines?
	Q60	Did a member of staff tell you about any danger signals you should watch for after you went home?
	Q62	Did the doctors or nurses give your family or someone close to you all the information they needed to help care for you?
	Q63	Did hospital staff tell you who to contact if you were worried about your condition or treatment after you left hospital?

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The contribution of each question to its assigned domain was evaluated using the ‘internal consistency’ approach (Cronbach, 1951). This analysis was based on the Trust-level scores published by the Care Quality Commission for benchmarking Trust performance.

For each domain, Cronbach’s ‘coefficient alpha’ was computed, and the contribution of each question to the domain was assessed using the change in coefficient alpha if the item was deleted.

The reliability coefficients on initial analysis can be seen in *Table 2*:

Table 2: Reliability coefficients for each domain of the Adult Inpatient Survey 2014

Domain	Coefficient alpha	Standardised coefficient alpha
Referral	0.688	0.750
Inpatient care	0.972	0.981
Discharge	0.927	0.936
Self-management	0.916	0.918

For each domain, two versions of coefficient alpha are reported, one based on the item scores as published by CQC, and one based on the same scores in standardised form (centred on the mean score and divided by their standard deviation, i.e. z-scores). In standardised form, all domain scales exceeded a commonly-accepted threshold reliability of 0.70 (Nunnally and Bernstein, 1994). This was considered acceptable, and consequently no items were removed from the domains.

Domain scores were constructed using an ‘underlying variable’ approach. Factor analysis was conducted on each domain, using unweighted least-squares to extract a single factor accounting for as much common variance as possible amongst the questions assigned to that domain. Factor scores were then computed on this factor using the Anderson-Rubin method to give a mean score of 0 and a standard deviation of 1 (DiStefano *et al.*, 2009).

An overall average score was calculated as the mean of the four domain scores, and Trusts were then ranked on this overall score.

NHS Staff Survey 2014

Nine questions were analysed from the 2014 Staff Survey that related to three domains of care: training and development, standards of care and patient/service user feedback. The chosen questions and associated domains can be seen in *Table 3* below.

Table 3: The NHS Staff Survey 2014: questions by domain

Domain	Question	
Training and development	Q1f	Have you had any training, learning or development in how to deliver a good patient / service user experience?
	Q2c	My training, learning and development has helped me to deliver a better patient / service user experience.
Standards of care	Q9a	I am satisfied with the quality of care I give to patients / service users.
	Q9b	I feel that my role makes a difference to patients / service users.
	Q9c	I am able to deliver the patient care I aspire to.
	Q12d	If a friend or relative needed treatment I would be happy with the standard of care provided by this organisation.
Patient/service user feedback	Q13a	Is patient / service user experience feedback collected within your directorate/ department? (e.g. Friends and Family Test, patient surveys etc.)
	Q13b	I receive regular updates on patient / service user experience feedback in my directorate / department (e.g. via line managers or communications teams).
	Q13c	Feedback from patients / service users is used to make informed decisions within my directorate / department.

Analysis of the staff survey results differed slightly from the approach used with the inpatient survey. Trust-level reliability was not evaluated because sample sizes varied so widely that coefficients based on median sample size were of limited value. Internal consistency was evaluated using coefficient alpha for Trust-level scores, first by grouping questions into the three domains and then by forming one domain from all the questions under consideration.

Table 4: Reliability coefficients for each domain of the NHS Staff Survey 2014

Domain	Coefficient alpha	Standardised coefficient alpha
Training & development	0.378	0.563
Standards of care	0.818	0.926
Service-user feedback	0.703	0.721
All items	0.798	0.885

Using all questions in a single domain gave superior results and was chosen as the preferred approach. Inspection of results led to the decision to remove Q13a ('Is patient / service user experience feedback collected within your directorate/ department?'), as this did not contribute to internal consistency and additional information on this subject was to be obtained through the online survey of patient experience leads.

Trust-level scores on the remaining questions were standardised, and the mean of the standardised items calculated as the overall score for the Trust. Trusts were then ranked on this overall score.

References

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