**The subjective wellbeing of healthcare staff and their patients**

**Supplemental Material 1**

## Questionnaire used for inpatient SWB study

The questionnaire was completed by all eligible hospital inpatients as set out in the methods section. The selection of the measures of SWB was made following a study of the literature and integration with the plans (subsequently adopted) for measures to be used in the annual Subjective Wellbeing Annual Population Survey, conducted by the Office for National Statistics ([ONS, 2014](#_ENREF_180)). Unlike for the assessment of health state there is a not a vast array of suitable SWB measures in the literature, rather there are several constructs of SWB that have been proposed by different authors over time that measures have sought to capture. Different measures and scales have then been iterations of these questions. The measures chosen for this study aim to tap into the three broad accounts of SWB, and as such the study will include evaluative measures, experience measures, and eudemonic measures.

It is important that within the planned clinical SWB research a top level evaluative account of SWB be included. In numerous SWB studies previously this has been successfully captured using questions that ask about Life Satisfaction, Overall Happiness, Overall Satisfaction and also using smiling or sad faces associated with a score. The most widely adopted in the clinical and social science literature for this domain is the “Life Satisfaction” question on a 0-10 scale and this was adopted.

The second domain to be included within the clinical work was a positive and negative affect, or experience, measure. This allows evidence on the more moment-to-moment aspects of life to be included. The most rigorous way of including these data would be to include the day reconstruction method (DRM). The DRM has been specifically designed to measure experienced utility in this way (Kahneman et al., 2004). The DRM asks respondents to divide the previous day into a number of episodes and then to rate different feelings during those activities. The ratings of different feelings in the DRM can be aggregated in different ways (Kahneman & Krueger, 2006) but any summary measure of feelings will have cardinal properties so long as each unit of time is treated equally. The main problems with this approach are that it is time consuming and response rates can be low (pilot data). In resolving these issues, Kahneman posited the use of a single question for positive and negative affect that would reflect the overall experience of respondents yesterday. This lends itself to the self-reported methodology used within the study design, and also allows for comparability with population samples (ONS, 2010). Importantly there is a strong history of using such questions in the psychology and psychiatric literature, which lends clinical credibility to these measures.

The inclusion of a eudemonic domain within the SWB measures allows for an additional perspective to be considered. Issues such as worthwhileness of life may not seem immediately relevant to health care or surgery, however in relation to oncology treatments, palliative care, and treatments that increase independence they are actually very salient. There is no history of using such measures within a health care setting previously, and as such the measure that has been adopted by the ONS for the SWB Annual Population Survey has been included.

The inclusion of the EQ5D measure within the study allowed the capturing of comparative health data alongside the SWB data. The choice of the EQ5D was made as it is the preferred metric advocated by NICE in terms of HTA appraisal. It is also the metric of choice used in the UK NHS PROMs national programme that started in 2009 ([NHS England, 2014](#_ENREF_172)). This allows for important comparisons to be made within groups and also between this and existing data sets going forward. Importantly there is no widely accepted PROM for use in hernia populations, and this is reflected in the national PROMs programme. Certain PROMs do exist for hernia surgery (e.g. Carolinas Comfort Scale ([Heniford et al., 2008](#_ENREF_118))) but as they are not in widespread use and can be cumbersome to complete by patients they were not included. The decision to include the EQ5D measure rather than the SF6D or SF12 (which include the domain of vitality/energy) was made in light of these comparability considerations. It would have been possible to include both the EQ5D and the SF6D but there is no comparability data to demonstrate the validity of using one questionnaire immediately following another. This would also have added to the burden of questions to be answered by participants and as such the EQ5D alone was selected.

Selecting measures of patient experience and satisfaction was more challenging due to the lack of widespread and well-accepted measures in this field. Initial plans to adopt a multidimensional measure of patient satisfaction were in part curtailed by the lack of established evidence within a day surgery setting. The majority of patient experience and satisfaction measures are either directed at inpatient or outpatient services, and as the hernia surgery used as the focus for this study was undertaken as a day case procedure many of these domains were redundant. In light of this the most widely accepted measure of patient satisfaction with care was used, asking patients to rate the overall care that they received on a 0-10 scale. Further advice on this issue was sought from the patient experience team within the participating NHS trust, who supported this decision.

The selection of patient background measures and the demographics questionnaire was used from previous SWB data collection studies and also based on key variables from the BHPS surveys ([British Household Panel Survey (BHPS), 2007](#_ENREF_26)).

The final questionnaire was designed in conjunction with a team at Imperial College with experience in patient questionnaire design. Importantly SWB questions were asked first so as to avoid focusing effects. The questionnaire was trialled on an initial sample of 10 patients undergoing surgery and feedback was elicited to improve the readability and structure of the questionnaire. Copies of the self-completed questionnaire are given in the Supplemental Material 1.

There is also a convergence of ideas within the literature on this issue and these measures of SWB are also used within the annual Subjective Wellbeing Annual Population Survey, conducted by the ONS ([ONS, 2010](#_ENREF_179)). This takes into the account that there are a number of accounts of SWB as discussed above. The domains of SWB that are included are evaluation measures (life satisfaction), experience measures (happiness yesterday, anxious yesterday) and a eudemonic measure (worthwhileness).

Significantly, this study elicited SWB scores from patients (a clinical population) and also staff, who are in this setting a non-clinical population. Attention was paid as to whether the SWB measures should be different for these two populations, however it would be of greater interest to use the same measures and see how they performed in different populations (with reference to external data).

Again, the inclusion of a suitable self-reported measure for health was needed for this study, and the EQ5D measure was selected due to its use within the field of health technology appraisal and that it remains the metric that NICE prefers. These measures are well established. Further questions enquiring about sleep and energy levels were also included, in order to help ascertain their relative contribution to an individual’s SWB. These measures were included to ascertain the impact of these important issues on SWB.

The choice of patient and staff satisfaction was made following a study of the existing literature and a series of meetings with the Patient Experience team at Imperial College London. Considerable investment in this area by the Trust had identified several key indicators for patient satisfaction that policy makers have found useful. These had their original grounding in the NHS annual in-patient survey ([NHS Inpatient Survey, 2013](#_ENREF_175)) and were part of the core set of measures that the Trust used as part of their on-going patient experience programme.

There was an established record of asking in-patients a series of questions regarding their satisfaction with care. It was initially thought that the full NHS inpatient survey could be used as a template for this aspect of the study, but the number of domains and length of time taken to complete was prohibitive. A review of the patient satisfaction and experience literature had already been undertaken and this helped support the decision making process behind the selection of measures. Crow et al (Crow et al., 2002) support the use of overall satisfaction with care measures and this was included as a result.

The decision to include the satisfaction with nurses and doctors was made to help discriminate between these two aspects of patient care and these measures are included within the NHS inpatient survey. The identification of differences between health care providers that a patient receives care from has been shown to be helpful when analysing results for improvement and policy development purposes (Boyer et al. 2006) and this supports their inclusion in the study protocol. The domains of communication and dignity and respect, have been identified as key targets for patient experience initiatives by the Trust and other bodies (e.g. Carers UK, NHS England) and as such were included.

Workforce wellbeing within the NHS is subject to an annual NHS workforce survey. The aim of the study was not to fully characterise the employment related SWB determinants of the nursing population, but rather to help identify associations between nurses’ and patients’ SWB. With this in mind a limited number of questions were included. Theses questioned overall job satisfaction, how valued by the employer they felt, and whether they would recommend the hospital to a friend or family member.

The selection of patient background measures and the demographics questionnaire was used from previous SWB data collection studies and also based on key variables from the BHPS surveys ([British Household Panel Survey (BHPS), 2007](#_ENREF_26)).

The questionnaires were designed in conjunction with the Behavioural team at Imperial College London, who have extensive experience in questionnaire design. Importantly SWB questions were asked first so as to avoid focusing effects. The questionnaires were trialled on an initial sample of 16 ward in-patients and a sample of nurses from a sister hospital not partaking in the study. Feedback was elicited to improve the readability and structure of the questionnaire. The questionnaires used for the data collection are given below.

### Methodological developments

This was the first time that a full picture of the SWB of inpatients for an entire acute hospital was captured along with the SWB of the nurses caring directly for them. The questionnaire was easily understood by the patients and there were no problems in terms of inadequate responses or omitted scores. It was necessary for some more infirm or frail patients to have assistance with completing the questionnaire but the measures themselves were easily understood. This is a significant output from this work and a contribution to the measurement of SWB in clinical populations.

The researcher was very involved in the data collection and personally introduced the study to participants on the wards and ensured that enrolment levels were as high as possible. The same was true for recruiting the nursing sample. The protocol for each ward was set out so that there was an introductory visit on the morning of the study to prime the ward staff and patients. The second visit was immediately after lunch and saw the distribution of the questionnaires, followed by a final visit to collect the completed forms and prompt those who had yet to return a form to do so. All data was successfully collected within the intended timeframe, but this strategy is quite an intense period of data collection. Considerable advanced planning with scheduled times to visit each ward was required to ensure that all data was collected on the same day in all possible wards that were available for the study.

The advantage of this methodology was that the whole cross section could be captured within a four hour window. An initial discussion was had around how technological innovation may help improve the data collection process, particularly concerning the development of a smartphone “app” or online data collection tool. The chief problems encountered here were with respect to capturing all the data within a narrow timeframe to enable comparability. Introducing participants to a new platform for questionnaires on a tablet or smartphone is not necessarily straightforward and would have significantly increased the study time. Self-completing forms on a hand held tablet device can be very straightforward, but it would then have to be passed from patient to patient which would represent a considerable infection control risk as well as greatly extending the data collection time.

For cross sectional data such as this, simple self-completed paper questionnaires still offer the best approach when moderate to large numbers of participants are enrolled. For more selected populations, and certainly those where follow up measures are planned then technology may well have an exciting role to play.

Focusing effects play a big role in SWB data collection, and given the clinical setting there are bound to be considerable effects in this clinical population. This will always be the case however when hospital inpatients are asked about their SWB, and whilst from a methodological perspective the questionnaire was designed not to focus on health ahead of answering the SWB questions, the environment in which responses were elicited will have had an impact. This is important when comparing these data to those derived from population samples, but in taking things forward there will be further clinical SWB to act as comparators, which will help place this and other new work in context.

**Patient questionnaire**

Thank you for agreeing to complete this questionnaire about yourself. Please do not hesitate to ask the survey team if you have any questions.

***This is completely confidential and will not be passed on to anybody else, including your specialist doctor and general practitioner***

*Please read each of the questions below carefully and answer by entering a number from 0 to 10 in the adjacent box.*

|  |  |  |
| --- | --- | --- |
| **1.** | **Overall, how satisfied are you with your life nowadays?** |  |
|  | 0 (not at all satisfied) to 10 (completely satisfied) |  |
|  |  |  |
|  |  |  |
| **2.** | **Overall, how happy did you feel yesterday?** |  |
|  | 0 (not at all happy) to 10 (completely happy) |  |
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|  |  |  |
| **3.** | **Overall, how anxious did you feel yesterday?** |  |
|  | 0 (not at all anxious) to 10 (extremely anxious) |  |
|  |  |  |
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| **4.** | **Overall, to what extent do you feel the things you do in your life are worthwhile?** |  |
|  | 0 (not at all worthwhile) to 10 (completely worthwhile) |  |
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| **5.** | **Overall, how much energy did you have yesterday?** |  |
|  | 0 (no energy at all) to 10 (completely energised) |  |
|  |  |  |
|  |  |  |
| **6.** | **Overall, how well did you sleep last night?** |  |
|  | 0 (not at all well) to 10 (extremely well) |  |
|  |  |  |
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**Some questions about your health**

By placing a tick in one box in each group below, please indicate which statements best describe your own health state today.

**Mobility**

I have no problems in walking about ❑

I have some problems in walking about ❑

I am confined to bed ❑

**Self-Care**

I have no problems with self-care ❑

I have some problems washing or dressing myself ❑

I am unable to wash or dress myself ❑

**Usual Activities** (e.g. work, study, housework, family or

leisure activities)

I have no problems with performing my usual activities ❑

I have some problems with performing my usual activities ❑

I am unable to perform my usual activities ❑

**Pain/Discomfort**

I have no pain or discomfort ❑

I have moderate pain or discomfort ❑

I have extreme pain or discomfort ❑

**Anxiety/Depression**

I am not anxious or depressed ❑

I am moderately anxious or depressed ❑

I am extremely anxious or depressed ❑

9 0

8 0

7 0

6 0

5 0

4 0

3 0

2 0

1 0

100

**Worst**

imaginable

health state

0

**Best**

imaginable

health state

To help people say how good or bad a health state is, we have drawn a scale (rather like a thermometer) on which the best state you can imagine is marked 100 and the worst state you can imagine is marked 0.

We would like you to indicate on this scale how good or bad your own health is today, in your opinion. Please do this by drawing a line from the box below to whichever point on the scale indicates how good or bad your health state is today.

**Your own**

**health state**

**today**

**Some questions about how you feel about your treatment**

**Overall, how satisfied are you with the care you have received?**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Not satisfied at all | | |  |  |  |  |  |  |  |  | | |  |  |  |  |  |  |  | Completely  Satisfied | | |
|  | 0 |  | 1 |  | 2 |  | 3 |  | 4 |  | 5 |  | 6 |  | 7 |  | 8 |  | 9 |  | 10 |  |
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**Overall, how satisfied are you with the doctors that have treated you?**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Not satisfied at all | | |  |  |  |  |  |  |  |  | | |  |  |  |  |  |  |  | Completely  Satisfied | | |
|  | 0 |  | 1 |  | 2 |  | 3 |  | 4 |  | 5 |  | 6 |  | 7 |  | 8 |  | 9 |  | 10 |  |
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**Overall, how satisfied are you with the nurses that have treated you?**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Not satisfied at all | | |  |  |  |  |  |  |  |  | | |  |  |  |  |  |  |  | Completely  Satisfied | | |
|  | 0 |  | 1 |  | 2 |  | 3 |  | 4 |  | 5 |  | 6 |  | 7 |  | 8 |  | 9 |  | 10 |  |
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**Overall, how satisfied with the communication from the staff?**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Not satisfied at all | | |  |  |  |  |  |  |  |  | | |  |  |  |  |  |  |  | Completely  Satisfied | | |
|  | 0 |  | 1 |  | 2 |  | 3 |  | 4 |  | 5 |  | 6 |  | 7 |  | 8 |  | 9 |  | 10 |  |
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**Overall, how satisfied are you that you have been treated with dignity and respect?**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Not satisfied at all | | |  |  |  |  |  |  |  |  | | |  |  |  |  |  |  |  | Completely  Satisfied | | |
|  | 0 |  | 1 |  | 2 |  | 3 |  | 4 |  | 5 |  | 6 |  | 7 |  | 8 |  | 9 |  | 10 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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**Some background information about yourself**

*This is completely confidential and will not be passed on to anybody else, including your specialist doctor and general practitioner*

1. **How old are you?** \_\_\_\_\_\_\_\_\_\_\_\_\_\_ years
2. **Are you male of female?** Male / Female
3. **What is your marital status?**

Single

Married or Civil partnership

Separated

Widowed

1. **Do you smoke?** Yes / No
2. **Do you have any children?** Yes / No
3. **Have you been treated for an infection during your hospital stay?**

Yes / No

1. **How many days have you been in hospital** (including the day you were admitted) **?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ days

|  |
| --- |
| **Many thanks for completing this questionnaire.**  **Please return it TODAY to the survey team on your ward** |

## Questionnaire used for inpatient & nurse SWB study – nurse questionnaire

The questionnaire was completed by all eligible hospital nurses caring for those patients responding to the inpatient questionnaire, as set out in the methods section.

**Staff questionnaire**

Thank you for agreeing to complete this questionnaire about yourself. Please do not hesitate to ask the survey team if you have any questions.

***This is completely confidential and will not be passed on to anybody else, including your employer, occupational health department or general practitioner***

*Please read each of the questions below carefully and answer by entering a number from 0 to 10 in the adjacent box.*

|  |  |  |
| --- | --- | --- |
| **1.** | **Overall, how satisfied are you with your life nowadays?** |  |
|  | 0 (not at all satisfied) to 10 (completely satisfied) |  |
|  |  |  |
|  |  |  |
| **2.** | **Overall, how happy did you feel yesterday?** |  |
|  | 0 (not at all happy) to 10 (completely happy) |  |
|  |  |  |
|  |  |  |
| **3.** | **Overall, how anxious did you feel yesterday?** |  |
|  | 0 (not at all anxious) to 10 (extremely anxious) |  |
|  |  |  |
|  |  |  |
| **4.** | **Overall, to what extent do you feel the things you do in your life are worthwhile?** |  |
|  | 0 (not at all worthwhile) to 10 (completely worthwhile) |  |
|  |  |  |
|  |  |  |
| **5.** | **Overall, how much energy did you have yesterday?** |  |
|  | 0 (no energy at all) to 10 (completely energised) |  |
|  |  |  |
|  |  |  |
| **6.** | **Overall, how well did you sleep last night?** |  |
|  | 0 (not at all well) to 10 (extremely well) |  |
|  |  |  |

**Some questions about your health**

By placing a tick in one box in each group below, please indicate which statements best describe your own health state today.

**Mobility**

I have no problems in walking about ❑

I have some problems in walking about ❑

I am confined to bed ❑

**Self-Care**

I have no problems with self-care ❑

I have some problems washing or dressing myself ❑

I am unable to wash or dress myself ❑

**Usual Activities** (e.g. work, study, housework, family or

leisure activities)

I have no problems with performing my usual activities ❑

I have some problems with performing my usual activities ❑

I am unable to perform my usual activities ❑

**Pain/Discomfort**

I have no pain or discomfort ❑

I have moderate pain or discomfort ❑

I have extreme pain or discomfort ❑

**Anxiety/Depression**

I am not anxious or depressed ❑

I am moderately anxious or depressed ❑

I am extremely anxious or depressed ❑

9 0

8 0

7 0

6 0

5 0

4 0

3 0

2 0

1 0

100

**Worst**

imaginable

health state

0

**Best**

imaginable

health state

To help people say how good or bad a health state is, we have drawn a scale (rather like a thermometer) on which the best state you can imagine is marked 100 and the worst state you can imagine is marked 0.

We would like you to indicate on this scale how good or bad your own health is today, in your opinion. Please do this by drawing a line from the box below to whichever point on the scale indicates how good or bad your health state is today.

**Your own**

**health state**

**today**

**Some questions about how you feel about your job**

**Overall, how satisfied are you with your job?**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Not satisfied at all | | |  |  |  |  |  |  |  |  | | |  |  |  |  |  |  |  | Completely  Satisfied | | |
|  | 0 |  | 1 |  | 2 |  | 3 |  | 4 |  | 5 |  | 6 |  | 7 |  | 8 |  | 9 |  | 10 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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**Overall, how valued do you feel by your employer?**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Not valued at all | | |  |  |  |  |  |  |  |  | | |  |  |  |  |  |  |  | Completely valued | | |
|  | 0 |  | 1 |  | 2 |  | 3 |  | 4 |  | 5 |  | 6 |  | 7 |  | 8 |  | 9 |  | 10 |  |
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**Would you recommend this hospital to a friend or familymember?** Yes / No

**How many years have you worked as a nurse?** \_\_\_\_\_\_\_\_\_\_\_\_\_\_ years

**Some background information about yourself**

***This is completely confidential and will not be passed on to anybody else, including your employer, occupational health department or general practitioner***

1. **How old are you?** \_\_\_\_\_\_\_\_\_\_ years
2. **Are you male of female?** Male / Female
3. **What is your marital status?**

Single

Married or Civil partnership

Separated

Widowed

1. **Do you smoke?** Yes / No
2. **Do you have any children?** Yes / No

\_\_\_\_\_\_\_\_\_\_ days

|  |
| --- |
| **Many thanks for completing this questionnaire.**  **Please return it TODAY to the survey team on your ward** |