PaCSI

Patient-Centred
Service Improvement

Final Summary Report on Secondary Analysis of 2017 & 2018 Qualitative Survey Responses

Health Information and Quality Authority
An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

Final Summary Report on the Secondary Analysis of 2017 & 2018 Qualitative Survey Responses

Contacts

Deliverable/Report Lead:		**Agency Project Manager:**	
Dr. Adegboyega Ojo		Dr. Conor Foley	
	+353 91 495336		
	adegboyega.ojo@insight-centre.org		cfoley@hiqa.ie

Project Team

- Adegboyega Ojo (Principal Investigator - PI)
- Paul Buitelaar (Co-PI)
- Fatemeh Ahmadi Zeleti
- Arkadiusz Stasiewicz
- Mona Isazad Mashinchi
- Cécile Robin
- Agustin Garcia Pereira
- Omnia Zayed
- Katarzyna Stasiewicz
- Theophilus Maimako
- Maciej Janowski

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Executive Summary

This report presents the results of the research (**Pa**tient-**C**entred **S**ervice **I**mprovement) on the secondary analysis of the qualitative responses to the 2017 and 2018 National Patient Experience Surveys. The project which was funded by the National Care Experience Programme (NCEP) commenced in 1st January 2019 and officially ended on 31st January 2020. The research was undertaken at the Insight Centre for Data Analytics, Data Science Institute, NUI Galway with the invaluable support of the NCEP team at the Health Information and Quality Authority (HIQA).

The research aimed to carry out an in-depth analysis of the free-text survey responses to produce actionable insights, intelligence, and evidence to inform policies and practice for enhancing the quality of acute healthcare services in Ireland. This includes using advanced analytics techniques to identify contextual factors that contribute to both positive and negative care experiences in Irish hospitals and automatically extracting from the free-text comments suggestions for improving care experience at the different stages of care. The research further sought to identify areas in which the inpatient care experience improved from 2017 to 2018 survey periods.

A total of 23,069 and 22,074 comments about the experiences of patients across 40 hospitals were processed for 2017 and 2018 surveys respectively. In terms of composition, 43.7% of comments for 2017 were positive, 54.1% were negative, while only 2.2% were suggestions. For 2018 comments, 45.25% were positive, 50.7% were negative and 4.0% were suggestions.

In the course of the research, four stakeholder engagement workshops were held in Dublin and Galway with participants from the HSE, HIQA, and University College Hospital Galway. Inputs from these workshops provided a better understanding of the information and decision needs of acute healthcare providers in Ireland on improving the quality of service.

In interpreting the results from this study, it is important to consider the results within the finding of the 2017 & 2018 National Patient Experience Inpatient Survey Reports[1,2]. The 2017 report concluded that "*Overall, the results of the National Patient Experience Survey 2017 are generally positive. However, it is important to stress that for many people their experience of acute healthcare was not as good as it should have been. When asked to rate their overall experience, 6,677 people (54%) said they had a very good experience, with 3,685 (30%) saying they had a good experience. However, 1,907 (16%) said they had a fair to poor experience, which represents a very considerable group of patients*." Similarly, the 2018 report concluded that "*In general, patient experience ratings in 2018 were similar to those reported in 2017. However, a number of important improvements were identified."* From these reports, *over 80% of respondents indicated that they had either a very good or good in-patient care*

[1] https://yourexperience.ie/wp-content/uploads/2019/07/NPES-National-Report-2017-WEB.pdf
[2] https://yourexperience.ie/wp-content/uploads/2019/07/NPES_National_Report_2018-1.pdf

experience. Consequently, most of the free-text comments analysed in this study for both 2017 and 2018 were contributed by respondents who rated their experiences positively.

Key findings

We highlight the contextual factors that respondents have associated with positive and negative care experience in general and across the different stages of care. The main suggestions for improvements are also presented for both the 2017 and 2018 survey periods.

2017 Qualitative Survey Data

What factors contributed to good care experiences*?*

Three major factors were found to be associated with good experience in general:

1. *staff attentiveness and response to patient enquiries and needs during their care on the ward*
2. p*erception of staff in general (medical and general staff) going beyond their call of duty*
3. *provision of high-quality meals on the ward*.

These and closely related factors account for more than half of all the factors identified within positive comments. They are also consistent across hospital sizes, gender and age-groups. In addition, respondents that rated their overall experience as very low (1-3) equally indicated these three factors as being important to their inpatient care experience.

What factors contributed to negative care experiences?

Negative care experiences were associated with the following set of seven factors:

1. *limited menu options and quality of meals served*
2. *unsatisfactory discharge procedures*
3. *shortage of facilities, in particular beds*
4. *poor hygiene and insufficient monitoring of cleaning standards in toilet areas*
5. *inadequate care and unsatisfactory practices in the ward (including no privacy)*
6. *long waiting time during emergency care*
7. *apparent understaffing and overworked medical staff.*

Overall, patients express significantly more negative experience regarding meals, catering services, and other issues related to food at the hospitals. In comments associated with specialist hospitals, factors related to the *anxiety of patients*, *postsurgical care,* and *patients not getting enough assistance including when using devices* were significantly linked with negative experiences. Patients that rated their overall experience as very low associated the following with their negative experiences:

1. *excessively long periods without food (fasting)*
2. *perception of doctors not listening to patients' families*

3. *conditions at night on the ward*
4. *poor care for elderly patients and not receiving help when needed in the ward.*

What suggestions were made for improvement?

Respondents provided the followings five major suggestions for improvement:

1. *Improving staff management* - to address understaffing by employing more staff, in particular nursing staff and at the emergency department. Also, allowing nursing staff to focus on patient care and less on administrative tasks and requesting cleaning staff to wear gloves.
2. *Improving the food quality, options, presentation, and timing* – also covers providing more variety and options in the menu, considering vegetarian options, improving taste, ensuring that food is available at night and ensuring that the vending machines are not empty.
3. *Improving communication and information exchange* – including making room for patients to discuss with doctors about concerns, improving information flow between doctors and nurses, communicating more with relatives of elderly patients and providing more information about home care during discharge.
4. *Providing better care to support patients* – particularly to those in pain by offering pain relief on time and considering segregating older and younger patients due to the tendency for younger patients to be active at night.
5. *Providing more facilities and equipment* – including making necessary repairs to bathrooms and toilets and ensuring cleanliness, providing more beds, a means of contacting staff when on trolleys. This suggestion also extends to providing larger car park facilities.

2018 Qualitative Survey Data

What factors contributed to good care experiences?

The following three factors were found to be associated with good experience:

1. *quality of care received on the ward and the perception of being well looked after*
2. *provision of high-quality meals on the ward, more variety on the food menu,* and helpful catering staff going beyond their call of duty
3. *perception of staff (all categories) going beyond their call of duty.*

These top factors are associated with positive experience irrespective of gender, ethnicity, and age-groups. They are also invariant regarding hospital size.

What factors contributed to negative care experiences?

The respondents associated negative experiences with the following set of factors:

1. *inadequate care and unsatisfactory practices on the ward related to lack of privacy for the elderly, overcrowding, and noisy environment at night*
2. *poor quality meals, limited menu options, and poor catering practices*
3. *long waiting time for services, particularly at the emergency department and for those on trolleys*
4. *unsatisfactory discharge procedures arising from lack of information on conditions, instructions for homecare, and excessive waiting time for prescriptions*
5. *shortage of facilities on the ward and emergency department; beds in particular*
6. *poor hygiene and insufficient monitoring of cleaning standards in toilets and bathrooms*
7. *apparent understaffing and overworked staff.*

Similar to our findings from the 2017 survey, patients express significantly more negative experiences regarding meals, catering services and other issues related to food at the hospitals. In small and specialist hospitals, communication gaps were highlighted as a factor for negative experiences. For patients in the age group of 66 to 80, negative experiences were also associated with delays in services or care, communication gaps, and lack of privacy.

What suggestions were made towards improvement?

Respondents made the following suggestions for improvement:

1. *Improving staff management regarding understaffing* – including ensuring that there are enough doctors over the weekend and having more doctors and nurses at the emergency department.
2. *Providing better and more facilities to address the unavailability of instruments, devices, and material items on the ward* – in particular additional beds.
3. *Providing better care in the ward to address unfavourable conditions on the ward and arrangements for procedures* – including time for cleaning in the morning and ensuring proper conduct on the ward (e.g. barring drunk people from the ward).
4. *Improving communication and information exchange* – in particular during changeover among staff and between staff and patient's family.
5. *Improving food quality, presentation, variety, and timing* – including changing meal menus periodically and ensuring that meals are not served during consultation times.
6. *Improving services for patients with special needs* – including providing more help for the elderly in general, in particular, assistance in feeding and taking medications.

Comparing 2017 and 2018 Survey results

In both surveys*, "care on the ward" is the only stage of care in which comments were overwhelmingly positive.* This stage of care also attracted the most comments. *The stage of*

care with the largest proportion of negative comments is discharge. The *"admission or Hospitalisation"* stage is next to Discharge in terms of the proportion of negative comments.

Overall, *the comments for 2018 were about 15% less negative than 2017 comments*. In 2018, the "care on the ward" stage of care attracted 40% more positive comments when compared to 2017. Other stages of care associated with negative comments including discharge (down by 10%), Admission (10% less), and examination, diagnosis and treatment (20%) were all associated with lower proportions of negative comments. *We can thus conclude that there was a significant improvement from 2017 to 2018 in acute care experiences based on survey comments. The results also show that the perceived quality of care on the ward is very high despite the apparent shortages in staff and resources at the hospitals.*

Conclusions

1. Patients provided more negative comments than positive ones for both survey years. The proportion of negative comments reported is largely unaffected by the length of stay at the hospital and the gender of respondents. However, the size and nature of hospitals appear to have some effect on the sentiments of patients about the care received. Smaller and specialist care hospitals have more positive comments than negative ones.

2. Patients greatly valued the care received on the ward across various hospitals in Ireland and attracted by far the highest number of comments. Notwithstanding, patients indicated that care on the ward could be improved in areas such as care for older patients and patients with special needs, privacy, overcrowding, and noise level at night.

3. The discharge stage of care has the largest proportion of negative comments for both survey years. To a lesser extent, care in admissions was also predominantly associated with negative experience mostly due to the long waiting time at the emergency department.

4. The quality of meals and catering services was found to be a major determinant of care experience at hospitals; attracting the largest number of comments after patient care on the ward (about 9.4% of all comments). The sentiments expressed about food and catering in hospitals were predominantly negative.

5. The relatively few respondents that provided very low ratings for their care experience identified communication issues with doctors including the problems of doctors not listening to families, and not providing elderly patients with their perceived care requirements.

1. Introduction

Patient experience surveys have become an important channel for patient participation in identifying shortcomings in healthcare services and co-creating solutions to some of the identified challenges. There is also a growing recognition of the value that insights from the analysis of qualitative data obtained from free-text comments in such surveys may deliver for improving patient care and experiences (Cunningham et al. 2017).

Free-text feedback give healthcare organisations the opportunity to discover new insights that challenge some of the basic assumptions underlying the design, implementation, and delivery of their services (Reddick, Chatfield & Ojo, 2016). Attempts at harnessing insights gleaned from free-text responses within surveys have been reported in scholarly articles. For instance, Maramba et al. (2015) carried out a textual analysis of free-text patient experience comments from a survey in primary care. Similarly, Cunningham et al. (2017) analysed 6961 free-text comments from the first National Cancer Patient Experience Survey in Scotland. In these studies, keyword extraction and thematic analysis of texts were carried out with no specific theoretical framework underpinning the analyses. However, free-text feedback from patient experience surveys are more valuable when contexts are captured along with the comments (Wiseman et al., 2015). The inability to associate the resulting (conflated) themes with specific contexts, activities, and resources in the service environment makes interpretation of results ambiguous and implementation of remedial actions difficult (Ordenes et al. 2014).

This study, funded by the National Care Experience Programme (NCEP), directly addresses the above shortcomings by providing an in-depth analysis of free-text feedback from the 2017 and 2018 surveys. It adopted an approach that is grounded in a theoretical framework which enables the extraction of the contexts associated with comments about patient experience. Specifically, the study employed the “Activities, Resources, and Context” (ARC) framework developed in (Ordenes et al. 2014) to construct a semantically-rich annotation scheme for the free-text survey responses. The study aims to produce results and insights that are more meaningful and that enable targeted intervention by explicitly coding comments to capture:

1) related activity
2) resource
3) situational context in the comment.

The specific objectives of the secondary research project include:

1) determining specific contextual factors associated with both positive and negative experience across the stages of care
2) identifying the key suggestions for improvement

3) determining areas in which care experience improved from 2017 to 2018 periods
4) providing a tool for healthcare providers and care managers to investigate issues identified in our research and how they relate to specific demographic groups, hospitals and practice.

2. Study Approach and Methodology

2.1. Demographic profile of survey respondents

As shown in Table 1, a total of 23,069 and 22,074 comments about the experiences of patients across 40 hospitals were processed for 2017 and 2018 surveys respectively. After pre-processing of the comments, 43.7% of comments for 2017 were positive, 54.1% were negative and only 2.2% were suggestions. For 2018 comments 45.25% were positive, 50.7% were negative and 4.0% were suggestions. The large hospitals (i.e. discharge over 900) accounted for over half of the comments in 2017 and 2018 (54.7% and 55.3% respectively), while medium-sized hospitals (i.e. discharges between 300 and 900) accounted for 36% of the comments in 2017 and 35% in 2018. The other categories of hospitals account for under 10% of the comments in both years.

Table 1 Reclassified Comments Summary table

	2017	2018	Total	Total %
Numbers of positive comments	9,606	9,470	19,076	42.3%
Numbers of negative comments	11,909	10,616	22,525	49.9%
Numbers of suggestive comments	490	842	1,332	3.0%
Total (excluding non-processable comments)	22,005	20,928	**42,933**	95.1%
Number of non-processable comments	1,064	1,146	2,210	4.9%
Total (including non-processable comments)	23,069	22,074	45,143	100%

In terms of the distribution of comments by gender (see Table 2), 47.5% of the responses were provided by male respondents in 2017, while 52.4% of the comments were provided by females. 45.6% of the comments by males were positive, 52.6% were negative, while 2.1% were suggestions. 41.9% of the comments by female respondents were positive, 55.7% were negative and 2.4% were suggestions. In 2018, 52.6% of the comments were provided by females, while males accounted for 47.4% of the comments. 42.7% of the comments by female respondents were positive, 53.1% were negative while 4.2% were suggestions. There are approximately equal proportions of positive and negative comments for male respondents - 48.1%, while the remaining 3.8% of the comments were suggestions.

Regarding the distribution of comments by age-groups, respondents between 51 and 80 years accounted for over 60% of the comments in both 2017 and 2018. A detailed breakdown of the comments by age-group is given in Table 3.

A summary of the comments by ethnicity show also that over 90% of the comments were contributed by "White Irish" in both survey periods (See Table 4).

Table 2 Reclassified Comments Demographic Breakdown table – Gender

	2017				2018				Total
	P	N	S	Total	P	N	S	Total	
Male	**4,771**	**5,477**	**218**	**10,466**	**4,768**	**4,775**	**375**	**9,918**	20,384
	45.59%	52.33%	2.08%		48.07%	48.14%	3.78%		47.48%
Female	**4,835**	**6,432**	**272**	**11,539**	**4,702**	**5,841**	**467**	**11,010**	22,549
	41.90%	55.74%	2.36%		42.71%	53.05%	4.24%		52.52%
Total	**9,606**	**11,**909	**490**	**22,005**	**9,470**	**10,616**	**842**	**20,928**	**42,933**
	43.65%	54.12%	2.23%		45.25%	50.73%	4.02%		

Table 3 Reclassified Comments Demographic Breakdown table – Age Group

	2017				2018				Total
	P	N	S	Total	P	N	S	Total	
16 to 35 years	743	1,060	42	1,845	716	884	87	1,687	3,532
	40.3%	57.5%	2.3%		42.4%	52.4%	5.2%		8.23%
36 to 50 years	1,407	1,894	81	3,382	1,194	1,567	131	2,892	6,274
	41.6%	56.0%	2.4%		41.3%	54.2%	4.5%		14.61%
51 to 65 years	2,621	3,323	151	6,095	2,463	2,766	245	5,474	11,569
	43.0%	54.5%	2.5%		45.0%	50.5%	4.5%		26.95%
66 to 80 years	3,424	3,828	168	7,420	3,388	3,488	245	7,121	14,541
	46.1%	51.6%	2.3%		47.6%	49.0%	3.4%		33.87%
81 years and older	1,411	1,804	48	3,263	1,470	1,631	117	3,218	6,481
	43.2%	55.3%	1.5%		45.7%	50.7%	3.6%		15.10%
Missing Value	0	0	0	0	239	280	17	536	536
	-	-	-		44.59%	52.24%	3.17%		1.25%
Total	9,606	11,909	490	22,005	9,231	10,336	825	20,392	42,933
	43.7%	54.1%	4.7%		45.3%	50.7%	4.0%		

Table 4 Reclassified Comments Demographic Breakdown table – Ethnicity

	2017				2018				Total
	P	N	S	Total	P	N	S	Total	
White, Irish	8,711	10,903	455	20,069	8,702	9,738	768	19,208	39,277
	43.4%	54.3%	2.3%		45.3%	50.7%	4.0%		91.48%

Irish Traveller	39	35	0	74	41	33	2	76	150
	52.7%	47.3%	0.0%		53.9%	43.4%	2.6%		0.35%
Any other White background	601	700	28	1,329	483	574	43	1,100	2429
	45.2%	52.7%	2.1%		43.9%	52.2%	3.9%		5.66%
Black, African	67	57	2	126	67	63	8	138	264
	53.2%	45.2%	1.6%		48.6%	45.7%	5.8%		0.61%
Any other Black background	7	8	0	15	5	4	1	10	25
	46.7%	53.3%	0.0%		50.0%	40.0%	10.0%		0.06%
Asian, Chinese	13	14	0	27	8	7	1	16	43
	48.1%	51.9%	0.0%		50.0%	43.8%	6.3%		0.10%
Any other Asian background	51	59	1	111	55	76	10	141	252
	45.9%	53.2%	0.9%		39.0%	53.9%	7.1%		0.59%
Other ethnic background	73	72	1	146	66	78	7	151	297
	50.0%	49.3%	0.7%		43.7%	51.7%	4.6%		0.69%
Missing Value	44	61	3	108	43	43	2	88	196
	40.7%	56.5%	2.8%		48.9%	48.9%	2.3%		0.46%
Total	9,606	11,909	490	22,005	9,470	10,616	842	20,928	42,933
	43.6%	54.0%	2.4%		45.2%	50.8%	4.0%		

2.1. Research objectives

The secondary analysis of free-text comments carried out in the study goes beyond the thematic analyses reported in the National Patient Experience Survey Reports for 2017[1] and 2018[2], published by the National Care Experience Programme in many ways. In the earlier survey reports, the free-text comments were analysed using a coding framework comprising 20 pre-defined thematic codes shown below:

- Dignity, respect and privacy
- Communication with the patient
- Emergency department management and environment
- Emergency department waiting times
- Staffing levels
- Staff availability and responsiveness
- Other healthcare staff
- Other staff
- Food and drink
- Cleanliness and hygiene
- Nursing staff
- Doctors or consultant
- Waiting times for planned procedures
- Discharge and aftercare management
- Staff in general
- Communication with family and friends
- Physical comfort
- Hospital facilities
- Parking facilities
- Clinical information and history
- Private health insurance

An important goal for the analysis carried out in this study is the possibility to extract contextual factors, specific activities and resources (ARC elements) mentioned in the free-text comments describing both positive and negative patient experiences. This will enable significantly more actionable insights from the comments. Another important goal is to develop the necessary foundation for automated extraction and analysis of these ARC elements from free-text comments. The specific research objectives of the study include:

1. Produce summary and demographic breakdown of comment categories (i.e. positive, negative, and suggestions) by stages of care.
2. Carry out a thematic analysis of comments to identify important elements of the patient experience (Activities, Resources, and Contexts) mentioned in the comments.
3. Reveal patterns of highly recurring sub-themes (i.e. Activity-Resource-Context) to discover factors that characterised both positive and negative care experiences.
4. Compare the results of the 2017 and 2018 analyses to determine areas of improvement.

2.2. Approach

The study adopted a four-stage process to address the study objectives. The stages are:

1. the development of the conceptual framework to guide data annotation or coding
2. carrying out exploratory analyses on the comments to refine the conceptual framework
3. refinement of dataset categorisation and mining of patterns from the dataset
4. design and implementation of the dashboard to enable in-depth exploration of results.

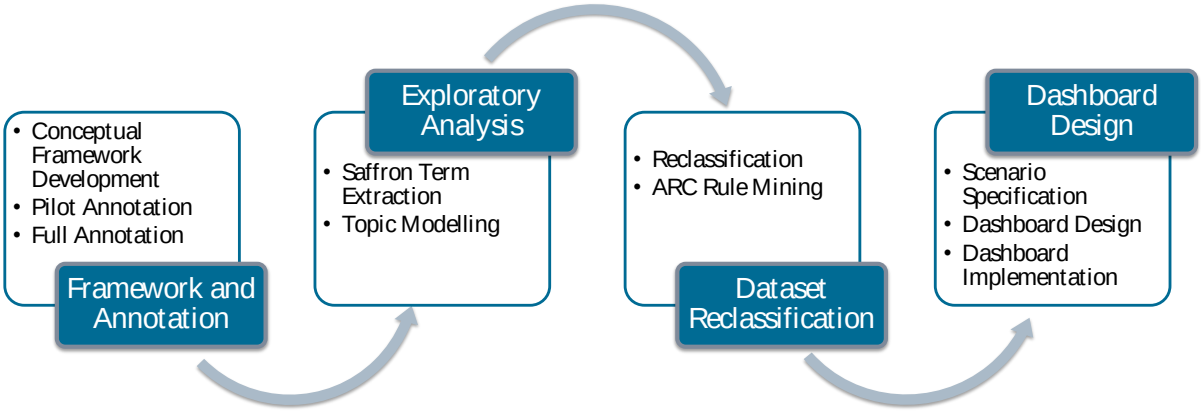

Figure 1 Overall Approach

Framework Development and Comments Annotation

This stage of our approach comprised two steps. The first step entailed the development of the conceptual framework and the second step involved the application of the conceptual

framework in the annotation of comments. The conceptual framework is a detailed elaboration of the taxonomy for the different activities, resources, and situational and personal contexts of patients associated with services offered by the hospitals at the different stages of care. "*Activities"* are the concrete touch points across the stages of care. *"Resources"* comprise the staff, administrative processes, equipment and facilities that were employed in providing care to patients. "*Contexts*" cover the different types of situational and personal contexts of patients receiving care. HIQA stages of care definitions and SNOMED[3] healthcare terminology were adopted in defining the taxonomies for activities and resources aspects of the conceptual framework. The different possible contexts were directly extracted from the comments. The resulting Activity-Resource-Context Framework was used to annotate the over 40,000 textual comments into chunks of richer information. Examples of ARC elements are presented in Table 5.

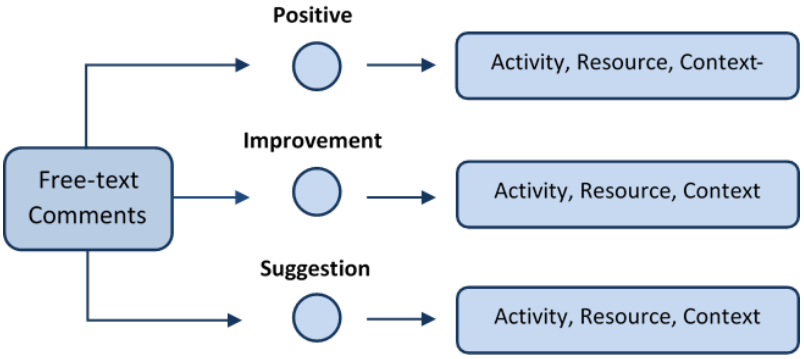

Figure 2: The "Activity-Resource-Context" Framework

Table 5: Examples of "Activity-Resource-Context" (ARC) Elements

Activities	Top-level resource categories	Contexts
▪ Patient Care on the Ward ▪ Patient Care in Emergency ▪ Communication/Information Exchange with Patient ▪ Communication/Information Exchange between Health Professionals ▪ Psychological patient support ▪ Communication/Information Exchange with Relatives ▪ Meal and Catering ▪ Providing facilities ▪ Patient Treatment ▪ Surgical and other procedures ▪ Diagnosis ▪ Operation briefing ▪ Discharge ▪ Transfer ▪ Discharge Communication	▪ Human Resources, e.g. health professionals, catering staff ▪ Procedures, e.g. laboratory and screening procedures ▪ Hygiene Standards, physical environment hygiene and safety guidelines ▪ Hospital Areas & Environment, e.g. indoor and outdoor areas ▪ Devices or physical objects, e.g. trolleys and monitoring machines ▪ Records artefact, e.g. medical history and post-operative information sheets,	▪ Time of care, e.g. Night ▪ Circumstances of care, e.g. after surgery ▪ Patient's condition, e.g. first time mother ▪ Situation and condition of healthcare professionals, e.g. overworked staff ▪ Patient requiring attention, e.g. patient left on trolley

[3] http://www.snomed.org/ - a global taxonomy of health terms.

▪ Payment ▪ Staff Management ▪ Hygiene and Cleaning ▪ Parking	▪ Others, e.g. hospital food and parking space	

By explicitly coding each comment in the surveys to identify mentions of activity, resource and the situational and personal contexts (Figure 2) in the comments, we produced a refined dataset of comments which were easier to analyse automatedly (Figure 3). The results from such automated analysis are potentially more meaningful and make more targeted interventions possible due to the availability of contextual information.

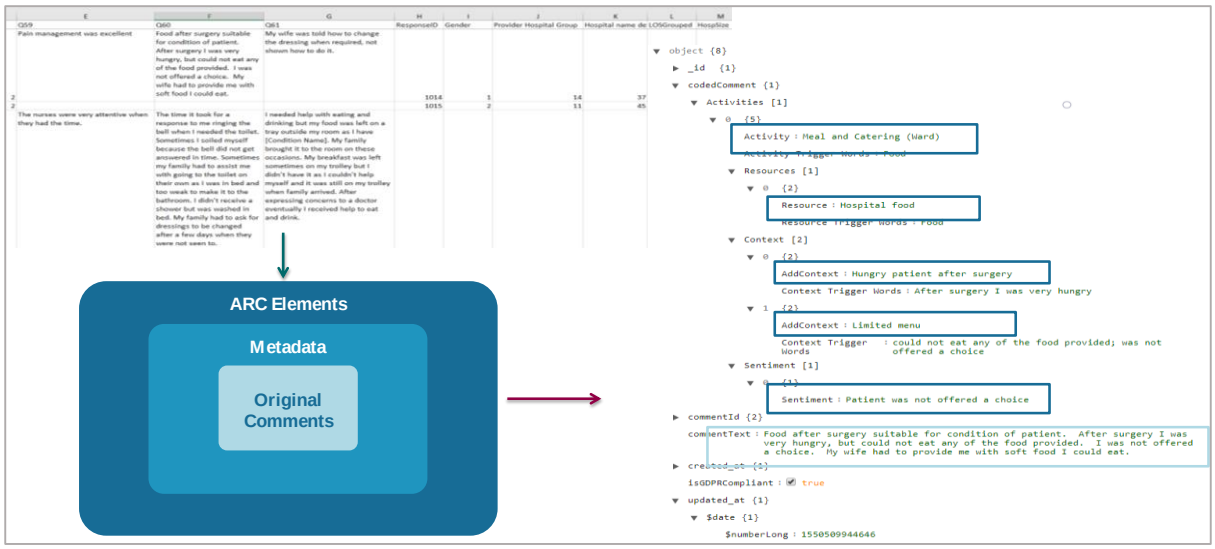

Figure 3: Output of the Annotation Process

Exploratory Analysis

The second major step in our methodology is the exploratory analysis of data. These exploratory analyses collectively served two major purposes an instrument:

1) to validate and refine the manually generated conceptual framework
2) for methodological triangulation – an important aspect of qualitative research. Two kinds of exploratory analyses were carried out.

The first entailed the use of a tool called Saffron, developed at the Data Science Institute, NUI Galway and the second entailed the development of topic models from the comments using the Latent Dirichlet Allocation (LDA) algorithm[4]. Our LDA analysis involves generating different topic models from our datasets and selecting models with good topic coherence and exclusivity properties.

[4] http://www.jmlr.org/papers/volume3/blei03a/blei03a.pdf

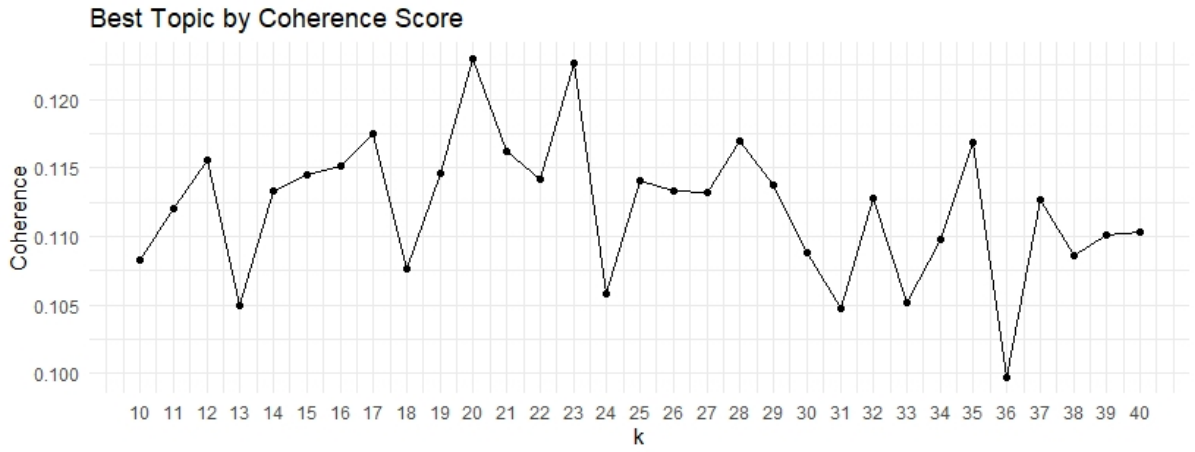

Figure 4: Coherence Scores for the different Topic Models generated from 2018 Negative Comments

For example, Figure 4 provides the coherence scores for the topic models generated from the negative comments of the 2018 Survey. The results from the two exploratory analyses were used to determine the completeness of the ARC elements and for the cross-validation of the top positive and negative ARC patterns obtained through manual annotations.

Dataset Reclassification & Mining

After a series of exploratory analyses on the sentiments of the comments, significant discrepancies were found between the calculated sentiments of comments and their assumed sentiments in the initial survey dataset. Detailed investigation of this problem showed that respondents in many cases specified negative remarks where positive remarks were expected and vice-versa. To resolve this problem, we employed an ensemble of three sentiment analysis libraries and semantic lexical resources, generated from the contexts identified by coders from the comments, to automatically reclassify datasets. This produced a more reliable dataset in terms of the sentiments associated with each comment in the survey data for both 2017 and 2018. After the reclassification, frequently occurring ARC patterns in the comments were extracted using the Association Rule Mining *a priori* algorithm. The extracted ARC patterns found in the annotated positive, negative, and suggestive comments encapsulate the information on the contextual factors, specific service touch points, and associated resources. See Figure 5 for examples of ARC patterns mined from the positive comments in the 2017 survey.

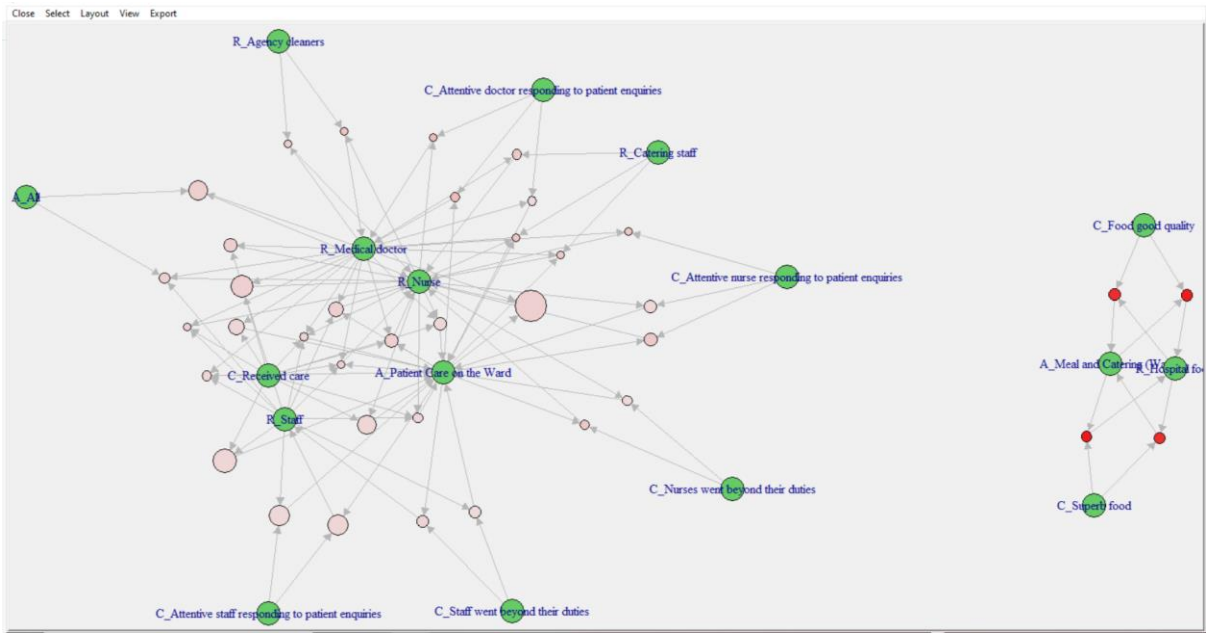

Figure 5: An example of the top ARC Patterns mined from annotated datasets of 2017 positive comments

Dashboard Design

The fourth stage of our process entailed the development of a dashboard to visualise the results produced in the above steps and to enable exploration of results from the analysis down to specific hospital groups, hospitals, and practices within hospitals or specific themes such as safety, hygiene or ambulatory services. The dashboard was developed in four steps (Figure 4). In the first step, some scenarios for the use of a dashboard by the different groups of potential end-users were iteratively developed. This was followed by the elaboration of these scenarios into concrete information and decision needs for the different groups of stakeholders. The third step translated the information and decision needs into wireframe designs of the dashboard, while the last step involved the implementation of the design using the Elasticsearch and Kibana platform. Figure 5 is a snapshot of the resulting dashboard.

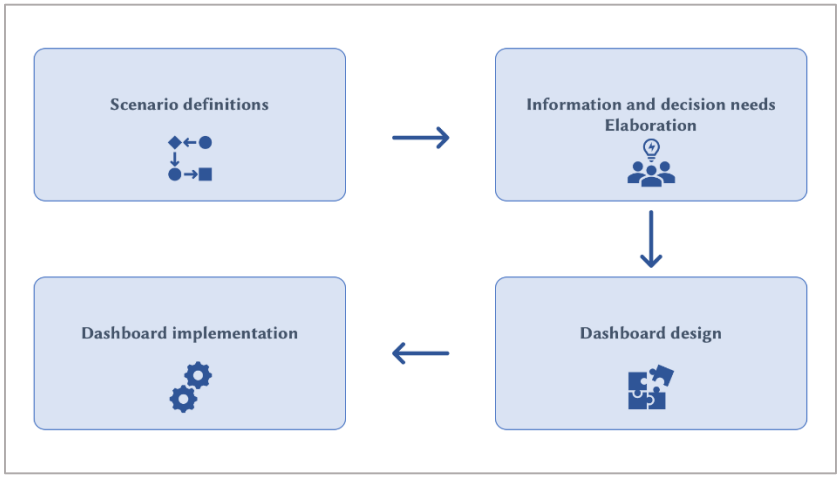

Figure 6: Dashboard Development Process

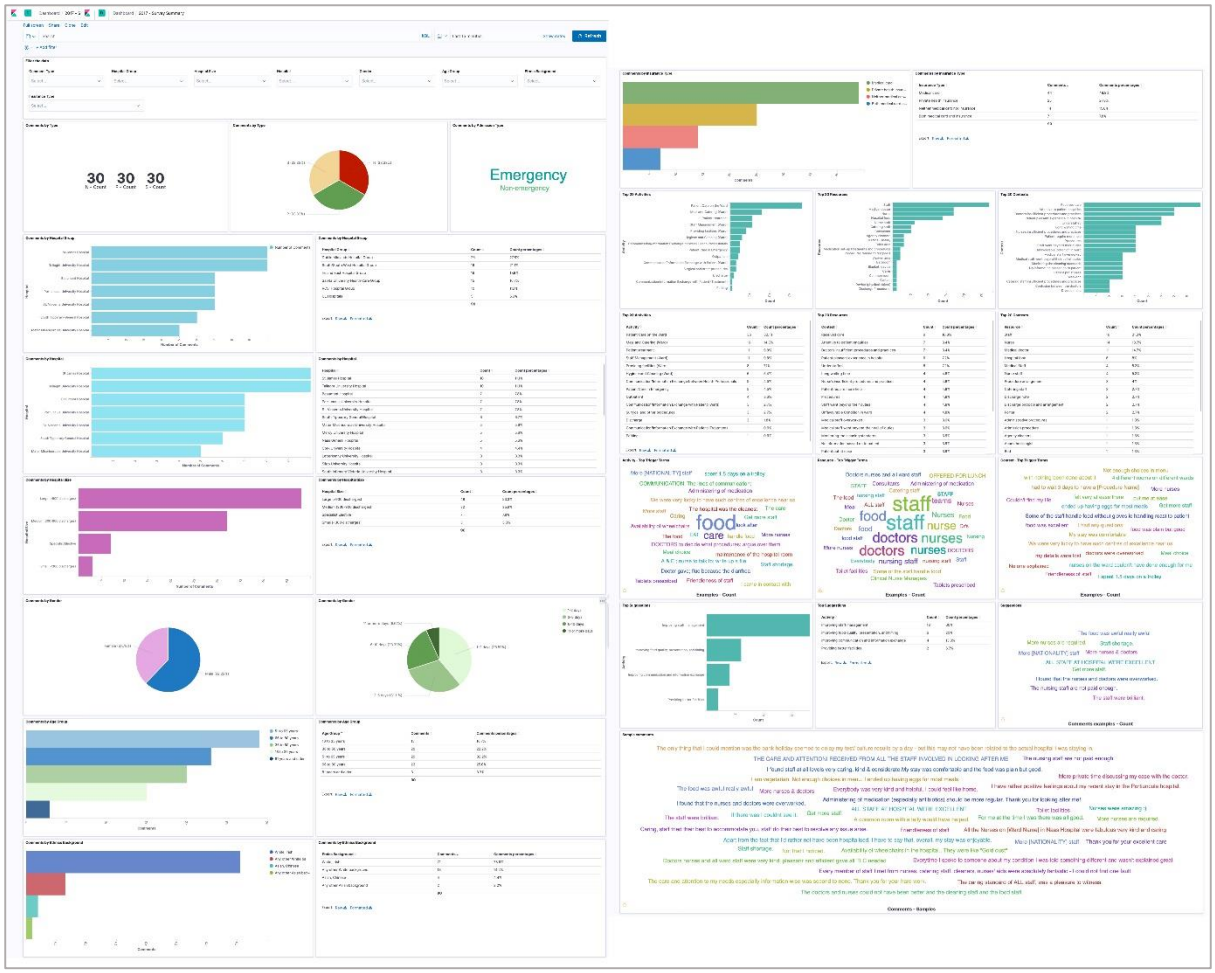

Figure 7 Snapshot of the Implemented Dashboard

3. Factors affecting care experience - 2017 Survey

3.1. Core factors associated with care experiences

Three major factors were found to be associated with positive experiences in general:

1. *staff attentiveness and response to patient enquiries and needs during their care on the ward*
2. *perception of staff in general (medical and general staff) going beyond the call of duty*
3. *provision of high-quality meals in the ward.*

These and closely related factors account for more than half of all the factors identified within the positive comments. They are also consistent across hospital sizes, gender, and age-groups[5]. Also, respondents that rated their overall experience as very low (0-3) equally

[5] There are four categories of hospitals sizes namely: Large - those with daily discharges over 900; Medium – hospitals with daily discharges between 300 and 900; Small – those with daily discharges under 300 and Specialist Elective – those providing specialist care. The ages of

indicated these three factors as what they liked about the in-patient care. Representative examples of comments are shown in Figure 6 below.

Figure 8 Examples of comments on responsiveness of staff

Negative care experiences were associated with the following set of seven factors:

1. *limited menu options and quality of meals served*
2. *unsatisfactory discharge procedures*
3. *shortage of facilities, in particular beds*
4. *poor hygiene and insufficient monitoring of cleaning standards in toilet areas*
5. *inadequate care and unsatisfactory practices in the ward (including no privacy)*
6. *long waiting time during emergency care*
7. *apparent understaffing and overworked medical staff.*

Overall, patients express significantly more negative experience regarding meals, catering services and other issues related to food at the hospitals. In comments associated with specialist hospitals, factors related to the anxiety of patients, postsurgical care, and patients not getting enough assistance, including when using devices were linked with negative experiences. Patients that rated their overall experience as very low associated the following with their negative experience:

1. *an excessively long period without food (fasting)*
2. *perception of doctors not listening to patients' families*
3. *conditions at night on the ward*
4. *poor care for elderly patients and not receiving help when needed on the ward.*

respondents were grouped into one of the following five age-groups: 16 to 35 years, 36 to 50 years, 51 to 65 years, 66 to 80 years and 81 years and older. The overall rating of hospitals ranges from 0 (the lowest rating) to 10 (highest possible rating).

Figure 9: Examples of Negative Comments on the quality of meals

3.2. Factors associated with care experience at the different stages of care

This section provides specific contextual factors associated with the care experiences of patients at the different stages of care. Tables 6 and 7 provides factors associated with positive comments and negative comments respectively.

Table 6: Factors associated with positive comments at the different stages of care in 2017 Survey

Stage of Care	Factors	Sample comments
Admissions and Hospitalisation	▪ Prompt and comfortable admission procedure and transfer to the ward within a very short time (few hours). ▪ Short waiting time for admission including short arrival time of ambulance.	*"A&E staff very efficient and friendly. The speed in which I was placed in the ward"* *"I was surprised how quickly I was admitted to A&E and treated (Tallaght). Nurses + Doctors excellent. Food choice good"*
Care on the ward	▪ Quality and level of care on the ward. In particular, patients expressed the perception of being looked after by all members of the care team. ▪ The attentiveness of staff when responding to patient enquiries and the overall perception of staff as being very helpful.	*"I always felt cared for and all questions were answered"* *"I had plenty of attention and time given to me by all staff."*
Patient examination, diagnosis, and treatment	▪ High quality of treatment received from the clinical team in general and in particular in the areas of pain management, the effectiveness of treatment and operations. This factor is	*"I felt overall I received good treatment and help was excellent, e.g. doctors, nurses [Healthcare Professional]"*

	also related to the sense that the received treatment saved lives. ▪ The efficiency and effectiveness of the treatment procedures. This covers prompt diagnosis at emergency, extensive and efficient investigations by friendly consultants and caring staff to successful procedures. ▪ The sense of patients being kept informed about their conditions, with diagnosis and treatment procedures well explained.	*"The staff were friendly, good humoured and approachable. I went home having being treated for my condition within 5 days"*
Discharge or transfer	▪ Good discharge arrangement, including clear discharge procedure, clarification of discharge instructions, adequate home package, and feeling of reassurance from doctors and discharge staff.	"*Yes, the nurse supported my family to arrange adequate homecare package. Yes, thankfully that hospital moved patient to home nursing gave family time to prepare with equipment /home care package – Thank you."*
Other aspects of care	▪ Cleanliness of the hospital environment, in general, including in the wards and toilets and observing regular cleaning of rooms. ▪ Staff (doctors, nurses, and other categories of staff) provided excellent care, attention, and good food to patients throughout their stay.	*"The hospital was spotless. It was cleaned thoroughly every day. Great attention to detail."* *"The hospital was very clean and tidy. It was easy for family to ring up and get information about me. Staff was friendly and gentle."*

Table 7: Factors associated with negative comments at the different stages of care in 2017 Survey

Stage of Care	Factors	Sample comments
Admissions and Hospitalisation	▪ Long waiting time at the emergency department before admission including delay in arriving at the emergency department. ▪ Unfavourable conditions including long delays in getting results of procedures and test at the emergency department and associated anxiety for patients.	*"There was a huge delay about being admitted to the hospital & it was all in the hands of one person."* *"I had to go to A&E three times with a letter from my doctor before I was admitted. Twice I was sent home with constipation when I had a [condition name]."*
Care on the ward	▪ Long waiting time for bed on the ward with little communication with patients and their families. ▪ Unfavourable conditions on the ward at night and concerning noise, lack of	*"Transfer time from trolley to ward/bed. Food. Noise levels."* *"I was in a 6 bed ward, 4 women and 2 men, should not men only or women only, shouldn't be mixed in the ward."*

	privacy, and poor cleanliness levels in bathrooms and toilets.	
Patient examination, diagnosis, and treatment	▪ Long waiting time in receiving treatment related to excessive time in the emergency department, delay in diagnosis and between procedures or tests, and also in receiving medication for pains. ▪ The feeling of not being provided with further treatments needed after procedures or operations, and being sent home too soon. ▪ Not receiving enough explanation from doctors about the patient's condition and apparent communication gap between the care team.	*"Lack of understanding about the medicine I was being treated with. Was left short of 2 drips."* *"I went to the hospital with a very swollen [condition type]. When I came out, I still have a [condition type] only less so."*
Discharge or transfer	▪ Long waiting time after discharge due to issues such as excessive delays in receiving discharge letters, filling prescriptions, and arranging other discharge procedures. ▪ The discharge procedure did not allow sufficient time for discharge, nor was there a clear plan, as such leading to a late discharge. ▪ Not receiving enough information during discharge about conditions of patients at discharge and instructions for self-help at home.	*"The team seem to vanish at the week-end. I could have gone home sooner."* *"Discharge procedure very unclear & very much left to myself"*
Other aspects of care	▪ Staff being under pressure due to apparent understaffing in several areas in particular nursing and cleaning staff. ▪ Poor conditions on the ward regarding the cleanliness levels in toilets and bathrooms and related poor monitoring of cleaning standards.	*"Cleaning staff should clean the toilets sooner in the morning. Staff should respond to patient bell."* *"Conditions of toilets within the wards should be monitored during the night time period and cleaned as necessary."*

4. Factors affecting care experience - 2018 Survey

4.1. Core set factors associated with care experience

What factors contributed to good care experiences?

The following three factors were found to be associated with good experience:

1. *quality of care received on the ward and the perception of being well looked after*
2. *provision of high-quality meals in the ward, diverse food menu, and helpful catering staff going beyond their call of duty*
3. *perception of staff (all categories) going beyond their call of duty.*

These top factors are associated with a positive experience irrespective of gender, ethnicity and age-groups. They are also invariant when considering hospital size.

Figure 10: Examples of positive comments on the care received on the ward

What factors contributed to negative care experiences?

The respondent associated negative experience with the following set of factors

1. *Inadequate care and unsatisfactory practices on the ward related to lack of privacy for the elderly, overcrowding, and noisy environment at night.*
2. *Poor quality meals, limited menu options, and poor catering practices.*
3. *Long waiting time for services, particularly at the emergency department and on trolleys.*
4. *Unsatisfactory discharge procedures arising from lack of information on conditions, instructions for homecare and excessive waiting time for prescriptions.*
5. *Shortage of facilities on the ward and emergency department, in particular beds.*

6. *Poor hygiene and insufficient monitoring of cleaning standard in toilets and bathrooms.*
7. *Apparent understaffing and overworked staff.*

Figure 10: Examples of negative comments on waiting time in the emergency department

Similar to our findings from the 2017 survey, patients express significantly more negative experiences regarding meals, catering services and other issues related to food at the hospitals. Also, for small and specialist hospitals, the issue of communication gaps was highlighted as a factor for negative experiences. For patients in the age group of 66 to 80, negative experiences were also associated with delays in services or care, communication gaps, and lack of privacy.

4.2 Factors associated with care experience at the different stages of care

This section provides specific contextual factors associated with the care experiences of patients at the different stages of care. Tables 8 and 9 provides factors associated with positive comments and negative comments respectively.

Table 8: Factors associated with positive comments at the different stages of care in the 2018 Survey

Stage of Care	Factors	Sample comments
Admissions and Hospitalisation	▪ Prompt admission by caring staff and receiving the necessary treatment on time ▪ Being well cared for by staff (including assistants) and receiving necessary attention.	*"I was very little time in the waiting room and admitted immediately I went in to triage"* *"The attention I received when admitted"*
Care on the ward	▪ Quality of care and attention received on the ward and the perception of being well looked after by the staff and care team.	*"The nurses were very nice and helpful"* *"I was treated with respect and dignity"*

	▪ Provision of good quality meals in the ward by caring staff.	
Patient examination, diagnosis, and treatment	▪ High quality of care for treatment received in the areas of the effectiveness of treatment, the empathy of staff and a sense that received treatment saved lives. ▪ Favourable arrangement for procedures in the areas like courtesy of staff, timeliness of diagnosis and treatment as well as coordination among all the departments involved in the treatment.	*"Excellent all round as regards the most important aspects i.e. diagnosis, operation and treatment afterwards [Patient Name]"* *"Chef asked me, what I would like to eat, 5 star treatment".*
Discharge or transfer	▪ Good discharge arrangement including clear discharge instructions, good follow-up care after discharge and helpful social workers regarding discharge needs and aftercare. ▪ Transfer to another hospital in the area, timely arrival of ambulances, and providing the support and logistics transfer to other hospitals.	*"I was kept in the hospital until a support system was put in place at home"* *"My needs for special discharge was listened to and I got discharged when required on time"*
Other aspects of care	▪ Being attended to by responsive, friendly, attentive, and empathetic staff ▪ Professionalism and efficiency of services provided by staff.	*"Felt very welcome. Friendly staff, have had to return for procedures and I am addressed by my name."* *"Have to say the staff were very nice and helpful. Did everything they could to help me. Made sure I was not in pain."*

Table 9: Factors associated with negative comments at the different stages of care in the 2018 Survey

Stage of Care	Factors	Sample comments
Admissions and Hospitalisation	▪ Long waiting time in admission including time on trolleys, delay in seeing doctors in the emergency department and waiting time for a bed on the ward ▪ Unfavourable conditions during admission regarding administrative processes, privacy, and associated stress	*"Admission procedure was very poor with misleading information given to as to the actual date of admission"* *"Admission time to ward also waiting time in the Emergency Dept."*
Care on the ward	▪ Long waiting time on trolleys and delays in receiving the attentions of doctors ▪ Unfavourable conditions on the ward particularly at night and lack of privacy	*"I spent my first night in a corridor on a stretcher bed and I was frequently wakened or unable to sleep due to activity around me."*

		"Hospital wards could do with less beds. Could be cleaner. Less noise at night."
Patient examination, diagnosis, and treatment	▪ Long waiting time in receiving treatment, results of tests, and sometimes for pain killers ▪ Communication gaps in areas including lack of information from doctors to patients, lack of information exchange among doctors and consistency of information when provided to patients	*"At times I found I had to wait too long for painkiller."* *"1. Quick pain relief. 2. Efficient diagnosis."*
Discharge or transfer	▪ Unsatisfactory discharge procedures leading to perceived premature discharge, subsequent re-admission and failure to provide some medication during discharge. ▪ Long waiting time after discharge due to delays in obtaining prescriptions, lengthy discharge process and communication gaps between doctors and nurses ▪ No information passed to patients during discharge about homecare ▪ Discharged patients required further treatment and the associated trauma	*"Came out of hospital with bed sores – still have them on the 29th of June."* *"Discharge earlier in the day. My discharge wasn't until 7pm in the evening and no one rang my relative to tell them I was waiting to go home."*
Other aspects of care	▪ Perceived understaffing across all practices including doctors, nurses, porters, and catering services - particularly in the emergency department - and related overworked staff. ▪ Unconducive conditions on the ward due to issues related to noise at night, accommodation in prefabrication buildings, and lack of privacy.	*"A&E department. Seems very short-staffed and under pressure all the time"* *"More staff and beds."*

5. Suggestions made for improvement

5.1 Suggestions from 2017 Survey Comments

Respondents provided the followings five major suggestions for improvement:

1. *Improving staff management* - to address understaffing by employing more staff, in particular nursing staff and at emergency department. Also, allowing nursing staff to focus on patient care and less on administrative tasks and requesting cleaning staff to wear gloves.
2. *Improving the food quality, options, presentation and timing* – also covers providing more variety and options in the menu, considering vegetarians options, improving taste, ensuring that food is available at night and ensuring that the vending machines are not empty.
3. *Improving communication and information exchange* – including making room for patients to discuss with doctors about concerns, improving information flow between doctors and nurses, communicating more with relatives of elderly patients and providing more information about home care during discharge.
4. *Providing better care to support patients* – particularly to those in pain by offering pain relief on time and considering segregating older and younger patients due to the tendency for younger patients to be active at night.
5. *Providing more facilities and equipment* – including making necessary repairs to bathrooms and toilets and ensuring cleanliness, providing additional beds, means of contacting staff when on a trolley. This suggestion also extends to providing a larger car park facility.

5.2 Suggestions from 2018 Survey Comments

The main suggestions provided by respondents towards improvement include:

1. *Improving staff management concerning understaffing* – including ensuring that there are enough doctors over the weekend and having more doctors and nurses at the emergency department.
2. *Providing better and more facilities to address the unavailability of equipment, devices and material items on the ward* – including getting more beds in particular.
3. *Providing better care in the ward to address unfavourable conditions on the ward and better arrangements for procedures* – including timing for cleaning in the morning and ensuring proper conduct on the ward (e.g. barring drunk people from the ward).
4. *Improving communication and information exchange* – in particular during changeover among staff and between staff and patient's family.
5. *Improving food quality, presentation, variety and timing* – including, changing menus periodically and ensuring that meals are not served during consultation times.

6. *Improving services for patients with special needs* – including providing more help for the elderly in general, in particular, assistance in feeding and taking medications.

6. Conclusions

For survey periods, “Care on the ward” is the only stage of care in which comments were overwhelmingly positive. This stage of care also attracted the most comments. The stage of care with the largest proportion of negative comments is discharge. The “Admission or Hospitalisation” stage is next to discharge in terms of the proportion of negative comments.

Overall, the comments for 2018 were less negative than those for 2017. In general, the “Care on the ward” attracted 40% additional positive comments in 2018 compared to 2017. In the other stages of care including discharge, admission, and examination, Diagnosis and Treatment, the proportions of negative comments were significantly lower in 2018. Therefore, we can conclude that there is a significant improvement in acute care experience from 2017 to 2018 based on analysed comments. The results also show that the perceived quality of care on the ward is very high despite the apparent shortages in staff and resources at hospitals.

In general, patients provided more negative comments than positive ones for both survey years. The relative higher proportion of negative comments reported are largely unaffected by the length of stay at hospital and gender. Patients with health insurance reported a higher proportion of negative experience (30 to 50%) in both surveys. However, the size and nature of hospitals appear to have some effect on the sentiments of patients about the care received. Small size hospitals (i.e. those with less than 300 discharges per day) and Specialist hospitals have between 10% - 25% more positive comments than negative ones for both surveys, the larger categories of hospitals; medium (between 300 and 900 daily discharges) and large (over 900 discharges) hospitals had between 10% and 25% more negative comments in both surveys.

Patients greatly valued the care received on the ward across various hospitals in Ireland and attracted by far the highest number of comments (36.6% of all comments). The appreciation expressed for their care on the ward were often associated with their perception of an apparent shortage of staff at these hospitals. Consequently, one of the key suggestions from patients is for hospital management to address staffing problems. Notwithstanding, there is room for improvement regarding care on the ward in areas such as care for older patients and patients with special needs, lack of privacy, overcrowding, and noise level at night.

Discharge is the stage of care with the largest proportion of negative comments by far, for both survey years. While this stage of care accounts for only 3% of the total comments provided by respondents, the strong negative sentiments associated with different aspects of

discharge in hospitals stand out when compared with other stages of care. Although to a lesser extent, admissions are also predominantly associated with negative experience, particularly due to the long waiting time at the emergency department. These two stages of care deserve immediate acute care management attention.

The quality of meals and catering services was found to be a major determinant of perceived care experiences at hospitals; attracting the largest number of comments after patient care on the ward (about 9.4% of all comments). While this aspect of care was reported as an important factor for both positive and negative care experiences of patients, the sentiments expressed in comments about food and catering in hospitals are predominantly negative (almost twice the proportion of positive comments). Specific recommendations for improving meals and catering services provided by patients include expanding menu options to include vegetarian meals, improving the availability and presentation of food and wider use of vending machines.

The relatively few respondents that provided very low ratings for their care experience identified with negative experience factors including communication issues with doctors and not providing elderly patients with the necessary help. Acute care management practices at the hospitals should be considered along with the other recurring negative factors, such as the poor state of hygiene and shortage of facilities in the ward.

The findings of our analyses provide useful information for acute care providers, regulators and policymakers to further investigate the factors associated with positive and negative care experiences. Our analyses also allow exploration of these factors for specific hospital contexts and patient groups, facilitating the development of appropriate interventions to improve care for these contexts and groups.

Appendix 1

Table 5 Top Positive Activities-Resource-Context Elements

	Term	2017		2018		Change
		Count	%	Count	%	%
Activity	Patient Care on the Ward	4,165	65.1%	3,621	63.2%	-1.9% ↓
	Patient treatment	384	6%	379	6.6%	+0.6% ↑
	Meal and Catering (Ward)	326	5.1%	287	5%	-0.1 % ↓
	Patient Care in Emergency	209	3.3%	204	3.6%	+0.3% ↑
	Providing facilities (Ward)	206	3.2%	133	2.3%	-0.9% ↑
	Communication/Information Exchange with Patient (Ward)	202	3.2%	193	3.4%	+0.2% ↓
	Hygiene and Cleaning (Ward)	179	2.8%	182	3.2%	+0.4% ↑
	Surgical and other procedures	147	2.3%	154	2.7%	+0.4% ↑
	Outpatient	139	2.2%	113	2%	-0.2% ↓
	Communication/Information Exchange with Patient (Treatment)	94	1.5%	95	1.7%	+0.2% ↑
	Admission	76	1.2%	47	0.8%	-0.4% ↑
	Staff Management (Ward)	75	1.2%	66	1.2%	–
	Discharge	41	0.6%	43	0.8%	+0.2% ↑
	Communication/Information Exchange with Relatives (Ward)	35	0.5%	56	1%	+0.5% ↑
	Diagnosis	34	0.5%	61	1.1%	+0.6% ↑
Resource	Staff	2,074	31.4%	1,657	31.2%	-0.2% ↓
	Nurse	1,379	20.9%	1,041	19.6%	-1.3% ↓
	Medical doctor	1,001	15.1%	780	14.7%	-0.4% ↓
	Nurse staff	309	4.7%	281	5.3%	+0.6% ↑
	Hospital food	308	4.7%	268	5%	+0.3% ↑
	Catering staff	191	2.9%	170	3.2%	+0.3% ↑
	Consultant	142	2.1%	101	1.9%	-0.2% ↓
	Medical Staff	141	2.1%	157	3%	+0.9% ↑
	Agency cleaners	102	1.5%	96	1.8%	+0.3% ↑
	Procedure arrangement	99	1.5%	21	0.4%	-1.1% ↓
	Care assistant	77	1.2%	42	0.8%	-0.4% ↓
	Surgeon	62	0.9%	87	1.6%	+0.7% ↑
	Ward room	62	0.9%	69	1.3%	+0.4% ↑
	Porter	58	0.9%	34	0.6%	-0.3% ↓
	Carer	48	0.7%	60	1.1%	+0.4% ↑
Context	Received care	1,230	26.6%	1,020	33.9%	+7.3% ↑
	Attentive to patient enquiries	732	15.8%	127	4.2%	-11.6% ↓
	Patient pleasant experience in hospital	270	5.8%	53	1.8%	-4.0% ↓
	Received treatment	225	4.9%	139	4.6%	-0.3% ↓
	Staff went beyond their duties	210	4.5%	104	3.5%	-1.0% ↓
	Favourable procedure arrangement	182	3.9%	239	8%	+4.1% ↑
	Medical staff went beyond their call of duties	170	3.7%	77	2.6%	-1.1% ↓
	Patient put at ease	149	3.2%	45	1.5%	-1.7% ↓
	Short waiting time	124	2.7%	63	2.1%	-0.6% ↓

	Patient informed	117	2.5%	120	4%	**+1.5%** ↑
	Food good quality	108	2.3%	144	4.8%	**+2.5%** ↑
	Staff sufficient procedures and practices	75	1.6%	96	3.2%	**+1.6%** ↑
	Superb food	75	1.6%	-	-	-
	Family/relatives as patient	49	1.1%	40	1.4%	**+0.3%** ↑
	Night time	43	0.9%	21	0.7%	**-0.2%** ↓

Table 6 Top Negative Activities-Resource-Context Elements

	Term	2017		2018		Change
		Count	%	Count	%	%
Activity	Patient Care on the Ward	2,790	22.5%	2,033	20.1%	**-2.4%** ↓
	Providing facilities (Ward)	1,351	10.9%	1,006	10%	**-0.9%** ↓
	Meal and Catering (Ward)	1,253	10.1%	1,074	10.6%	**+0.5%** ↑
	Staff Management (Ward)	1,137	9.2%	947	9.4%	**+0.2%** ↑
	Patient Care in Emergency	974	7.8%	938	9.3%	**+1.5%** ↑
	Hygiene and Cleaning (Ward)	605	4.9%	447	4.4%	**-0.5%** ↓
	Communication/Information Exchange with Patient (Ward)	545	4.4%	446	4.4%	–
	Patient treatment	545	4.4%	430	4.3%	**-0.1%** ↓
	Discharge	465	3.7%	500	5%	**+1.3%** ↑
	Communication/Information Exchange with Patient (Treatment)	450	3.6%	431	4.3%	**+0.7%** ↑
	Surgical and other procedures	367	3%	336	3.3%	**+0.3%** ↑
	Outpatient	264	2.1%	206	2%	**-0.1%** ↓
	Discharge Communication	244	2%	176	1.7%	**-0.3%** ↓
	Communication/Information Exchange with Relatives (Ward)	227	1.8%	186	1.8%	–
	Communication/Information Exchange between Health Professionals	215	1.7%	184	1.8%	**+0.1%** ↑
Resource	Staff	1,810	15.6%	1,331	14.4%	**-1.2%** ↓
	Nurse	1,509	13%	1,157	12.5%	**-0.5%** ↓
	Medical doctor	1,392	12%	1,104	12%	–
	Hospital food	1,098	9.5%	1,015	11%	**+1.5%** ↑
	Bed	431	3.7%	362	3.9%	**+0.2%** ↑
	Toilet area	401	3.5%	328	3.6%	**+0.1%** ↑
	Ward room	379	3.3%	218	2.4%	**-0.9%** ↓
	Discharge protocol and arrangement	275	2.4%	220	2.4%	–
	Nurse staff	262	2.3%	204	2.2%	**-0.1%** ↓
	Trolley	233	2%	273	3%	**+1.0%** ↑
	Consultant	206	1.8%	186	2%	**+0.2%** ↑
	Catering staff	192	1.7%	94	1%	**-0.7%** ↓
	Discharge note	181	1.6%	113	1.2%	**-0.4%** ↓
	Bathroom	174	1.5%	148	1.6%	**+0.1%** ↑
	Procedure arrangement	166	1.4%	149	1.6%	**+0.2%** ↑
Context	Long waiting time	1,395	8.4%	1,244	10%	**+1.6%** ↑
	Understaffed	853	5.1%	742	5.9%	**+0.8%** ↑
	Unfavourable Condition in ward	840	5%	499	4%	**-1.0%** ↓
	Staff insufficient procedures and practices	437	2.6%	244	1.9%	**-0.7%** ↓
	No Privacy	425	2.5%	391	3.1%	**+0.6%** ↑
	Patient require more help	408	2.4%	224	1.8%	**-0.6%** ↓
	Device unavailable	393	2.4%	342	2.7%	**+0.3%** ↑
	Food bad quality	368	2.2%	295	2.4%	**+0.2%** ↑

	Elderly patients	362	2.2%	249	2%	**-0.2%** ↓
	Communication gap	356	2.1%	459	3.7%	**+1.6%** ↑
	No information passed on to patient	355	2.1%	277	2.2%	**+0.1%** ↑
	Night time	341	2%	283	2.3%	**+0.3%** ↑
	Overcrowded ward	336	2%	267	2.1%	**+0.1%** ↑
	Vulnerable patient	324	1.9%	78	0.6%	**-1.3%** ↓
	Patient left on the trolley	311	1.9%	331	2.7%	**+0.8%** ↑