RESEARCH REPORT – JUNE 2017

The Health Quality & Safety Commission

Surgical Safety Culture Survey

Research Report 2017

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RESEARCH & STRATEGY

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1: Executive Summary

1.1 Background and Objectives

The Health Quality & Safety Commission (the Commission) is a stand-alone Crown Entity that has a primary role of assisting private and public providers across the health and disability sector improve service safety and quality. Since 2012 the Commission has had a goal of reducing perioperative harm caused by adverse events and other errors that take place during the perioperative period.

The Commission has been rolling out a package/suite of evidence-based teamwork and communications-based interventions to District Health Boards and private surgical providers. The package's interventions have included:

- Briefing (at the start of the WHO Surgical Safety Checklist) (the checklist)
- All three parts of the checklist, modified to be used in a paperless form, as a poster on the operating theatre wall (for each surgery), and
- Debriefing (at the end of the checklist).

As part of the overall monitoring and evaluation of the programme, the Commission conducted a Surgical Safety Culture Survey across DHBs in order to provide baseline data regarding patient safety and the quality of teamwork in operating theatres. This survey was conducted and reported on during late 2015. The survey was a modified version of a Surgical Safety Culture Survey developed by the Harvard School of Public Health, with amendments around language differences only (used with the permission of Harvard).

In 2017 the Commission conducted a second iteration of the Surgical Safety Culture Survey to assist in further evaluation of the programme. The survey tool utilised for this second iteration was the same tool that was used for the first with only some minor changes to the demographic questions. No changes were made to any of the measurement questions.

1.2 Research Approach

This research was conducted as an online survey. A total of N=1045 surgical team members answered some or all of the survey (N=972 in 2015), although not all substantively completed a survey. A total of N=883 were considered to have completed enough questions to contribute to the overall data set (N=843 in 2015). These were people who answered **at least some** of the core measurement questions. A total of N=789 fully completed the survey (N=756 in 2015).

1.3 Research Findings

The Harvard team identified four overarching dimensions as part of their conceptual framework for their study:

1. Contextual (readiness to undertake the initiative) – includes experience implementing similar innovations (i.e. the checklist), staff attitudes towards the innovation, belief that it is important for patient safety and the cooperation among multiple disciplines
2. Interpersonal (which recognises the need to foster effective teamwork through communications, coordination, respect, assertiveness and clinical leadership)

3. Practical (adherence) - the extent to which surgical team members adhere to established safety practices in the operating room
4. Consequential – which measures the perceived impact of the innovation on surgical outcomes as perceived by team members.

The results of the 2017 Surgical Safety Culture Survey are very encouraging – with improvements across most dimensions/factors since 2015. Dimensions/factors that have shown the most improvement have been with respect to communication, practical (adherence) and coordination. This is particularly encouraging given that (along with clinical leadership), communication and practical (adherence) were the lowest performing areas in 2015.

Clinical leadership has remained a poor performing area although there has been an improvement in the measure related to the tone of surgeons and anaesthetists throughout operations (+12% up to 54% agree/positive) this year. In general, there appear to be fewer negative comments regarding the attitude of surgeons in 2017, although team culture issues within some surgical teams are still impacting on the overall success of the interventions.

The areas that have improved the most are:

- The extent of team discussions (briefings and debriefings) (+20% - up to 71% agree/positive)
- Surgical teams always discussing the operative plan (+15% - up to 67% agree/positive)
- Surgical team members from different disciplines always discussing patients' conditions and the progress of operations (+14% - up to 54% agree/positive)
- Planning during perioperative briefings for complex patients or cases (+13% - up to 80% agree/positive), and
- The tone of surgeons and anaesthetists during operations (+12% - up to 54% agree/positive).

Other 'good' improvements have been with respect to the following (which all suggest improvements in teamwork and communication):

- Surgeons/anaesthetists and nurses working together as a well-coordinated team (+8% - up to 85% agree/positive)
- Postoperative debriefings always including a discussion of key concerns for patient recovery and post op management (+8% - up to 61% agree/positive)
- Disagreements being resolved with an emphasis not on who is right but what is right for the patient (+8% - up to 79% agree/positive).

There have been no changes since 2015 in the contextual (readiness) measures – many of which continue to offer key opportunities for improvement. In particular the lower performing areas to do with: surgical team members being open to changes that improve patient safety even if it means slowing down (62%), the difficulty of implementing the Time Out (68%) and surgical team members all agreeing on the importance of using checklists in every surgery (68%). With respect to this last measure, the open-ended comments suggest that there is still some inconsistency in buy-in across different team members.

There have been no significant changes in the assertiveness measures. In particular 30% of surgical teams members still find it difficult to discuss medical mistakes.

There have been no significant changes in the consequential (other items) measures, although two out of the three measures have high levels of agreement (wanting a checklist if "I" was a patient, and feeling safe as a patient). The third (and lower performing) measure here is to do with pressure to move quickly from case to case.

Only one area has decreased in terms of performance – surgeons and anaesthetists being open to suggestions from other non- surgeon/anaesthetist team members (-8%).

The lower performing measures overall in 2017 are to do with:

- Equipment issues or other problems discussed in post-op debriefings being addressed in a timely manner (58%)
- Surgical team members from different disciplines always discussing patients' conditions and the progress of operations (54% agree/positive)
- Surgeons and anaesthetists maintaining a positive tone throughout operations (54% agree/positive)
- Communications breakdowns not frequently leading to delays in starting surgical procedures (51% agree/positive i.e. 49% think this is a problem.

Overall however, there have been improvements or at least small positive trends in most of the Surgical Safety Culture Survey measures over the last two years and comments from surgical team members indicate that, while there are still opportunities for improvement, there have been positive shifts in communications, teamwork and in buy-in to the interventions.

2: Project Background and Objectives

The Health Quality & Safety Commission (the Commission) is a stand-alone Crown Entity that has a primary role of assisting private and public providers across the health and disability sector improve service safety and quality. Since 2012 the Commission has had a goal of reducing perioperative harm caused by adverse events and other errors that take place during the perioperative period.

The Commission has been rolling out a package/suite of evidence-based teamwork and communications-based interventions to District Health Boards and private surgical providers. The package's interventions have included:

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As part of the overall monitoring and evaluation of the programme, the Commission conducted a Surgical Safety Culture Survey across DHBs in order to provide baseline data regarding patient safety and the quality of teamwork in operating theatres. This survey was conducted and reported on during late 2015. The survey was a modified version of a Surgical Safety Culture Survey developed by the Harvard School of Public Health, with amendments around language differences only. Permission was given by the Harvard School of Public Health for the Commission to use the survey.

In 2017 the Commission conducted a second iteration of the Surgical Safety Culture Survey to assist in further evaluation of the programme. The survey tool utilised for this second iteration was the same tool that was used for the first with only some minor changes to the demographic questions. No changes were made to any of the measurement questions.

This report presents the results of the 2017 Surgical Safety Culture Survey.

3: Research Approach

This research was conducted as an online survey. A total of N=1045 surgical team members answered some or all of the survey (N=972 in 2015), although not all substantively completed a survey. A total of N=883 were considered to have completed enough questions to contribute to the overall data set (N=843 in 2015). These were people who answered **at least some** of the core measurement questions. A total of N=789 fully completed the survey (N=756 in 2015).

The table below shows the number of participants who fully completed a survey, by role – and relative to the total number of potential participants within each segment in New Zealand. Note however, that not all potential participants were invited by their DHB to complete a survey. Therefore the response rate shown is under-estimated based on the number of responses relative to those who were actually sent a survey. There were also a segment of participants who identified their role as 'other'. These included: 'anaesthesia' (general), acute surgery, dental, endoscopy, intensive care, obstetrics, PACU and perioperative. It was not made clear which specific 'role' participants here were in (i.e. nurse, surgeon etc.).

Role	Total NZ	Participants N	Response Rate
Surgeons	850	188*	22%
Anaesthetists	630	165**	26%
Anaesthetic Technicians	800	94	12%
Theatre Nurses	3500	275	8%
Other	-	67	
Response Rate***	5780	789	14%

* Includes Consultant Surgeons (n=144) and Surgical Registrars/Fellows (n=44)
** Includes Consultant Anaesthetist (n=140) and Anaesthetist Registrar/Fellow (n=25)
*** Note: not all potential participants received a survey invitation so the response rate is under-estimated. The number of responses is fully completed surveys only.

3.1 Research Process

As in 2015, the Commission communicated to nominated Safe Surgery Champions across New Zealand DHBs detailing the background to this second iteration of the Surgical Safety Culture Survey and encouraging their participation.

Contact was then made with Safe Surgery Champions (who were nominated by their DHBs for this role) across all New Zealand DHB's by a director of Mobius, requesting their assistance in sending the survey to all members of their surgical teams.

Contact was made initially by telephone to Safe Surgery Champions, followed by an email, detailing the process and timeframes. Further telephone and email contact was made - to update people on the process and also to follow-up once the survey and email link had been sent. A prize draw was offered for all surgical team members taking part, as an incentive to encourage a high response rate.

All DHBs agreed to take part, with two DHBs opting to delay their survey launch because of prior commitments (Waitemata DHB and Lakes DHB). Waitemata DHB were conducting their own survey at the same time and wanted to wait until this had been completed. It seems likely that this impacted on the response rate from Waitemata DHB

staff this time (Waitemata indicated that some of their own survey questions were similar to those asked in the SSCS).

Participating DHBs and sample sizes

These results represent partial (where participants were considered to have completed enough questions to contribute to the overall data set) and fully completed surveys. The total number of **unique** partial and fully completed surveys was N=883. Note however that 14 participants selected more than one DHB when asked "which of the following DHBs are you currently working for" at the beginning of the survey.

DHB	N 2017	Percentage of Total Sample 2017	N 2015	N Differences 2017 vs. 2015
Northland	39	4%	2	+37
Auckland	108	12%	111	-3
Waitemata	29	3%	110	-81
Counties Manukau	58	6%	100	-42
Waikato	88	10%	169	-81
Bay of Plenty	49	5%	50	-1
Lakes	15	2%	3	+12
Tairāwhiti	9	1%	10	-1
Hawke's Bay	20	2%	5	+15
Taranaki	51	6%	30	+21
Whanganui	24	3%	5	+19
MidCentral	26	3%	1	+25
Capital & Coast	139	15%	9	+130
Hutt Valley	30	3%	2	+28
Wairarapa	17	2%	20	-3
Nelson Marlborough	55	6%	12	+43
West Coast	8	1%	6	+2
Canterbury	75	8%	65	+10
South Canterbury	6	1%	0	+6
Southern	51	6%	73	-22
Total	**897**	**100%**	**783***	**N/A**

3.2 Survey Design

The survey was a close replication of the Surgical Safety Culture Survey developed by Sara Singer and colleagues at the Harvard School of Public Health[1]. Some small wording changes were made for the New Zealand context in 2015 and some minor changes were made to the demographics questions in 2017. No further changes were made to the measurement questions in 2017. The list of DHBs was moved from the end to the beginning of the survey this year

[1] Original survey available at http://www.safesurgery2015.org/uploads/1/0/9/0/1010835/2p - surgical_safety_culture_survey_2011_0603_final.pdf

and this question was made compulsory in order for participants to proceed through the survey. The reason for this was that in 2015, not all participants nominated a DHB.

There was one open-ended question for any additional comments or feedback.

3.3 Piloting

The survey wording and structure was piloted in 2015 with a small number of surgical team members and no specific changes were identified. Given that there were no changes made to the measurement questions in 2017, the survey was not re-piloted.

Use of the word physician

The word **'physician'** (a descriptor used in the Harvard survey) was retained in the New Zealand survey after the initial piloting. While 'physician' is not a term that is typically used in New Zealand, none of the pilot participants in 2015 identified this terminology as confusing or problematic. The term physician in this survey is used to refer to **any surgeon or anaesthetist**.

3.4 Data Analysis

As in 2015, analysis of the core measurement questions was based around the analysis conducted by the Harvard team[2]. For analysis purposes, the Harvard team grouped the measurement questions as follows. These four overarching dimensions were deemed by the Harvard team to be of greatest interest in the surgical environment and more feasible to obtain by other forms of data collection.

1. Contextual (readiness)
2. Interpersonal (teamwork)
    a. Factor 1: Communications
    b. Factor 2: Coordination
    c. Factor 3: Respect
    d. Factor 4: Assertiveness
    e. Factor 5: Clinical Leadership (refers to medical leadership – i.e. leadership from senior medical team members: surgeons and anaesthetists)
3. Practical (adherence)
4. Consequential (other items).

There were four additional questions included in both the Harvard and the New Zealand survey, which were not analysed as part of these four dimensions. The results of these are presented separately in this report.

Results were analysed (by these sections) overall and then also presented by DHB. A cross tabular analysis was conducted by gender, ethnicity, primary role of participant and the number of years working in this role at any hospital.

[2] Surgical Team Member Assessment of the Safety of Surgery Practice in 38 South Carolina Hospitals, Medical Care and Research Review (2015), Sara J Singer et al

3.5 Research Limitations

The limitations of this research remain unchanged since 2015 and results should be viewed in the context of these. Once again, Mobius Research did not have any control over who (specifically, the number of surgical team members) the survey was sent to. While every attempt was made to ensure that Safe Surgery Champions understood the need to, and emailed the survey link to all surgical team members, most but not all did this. Because we did not hold the database information we were unable to identify via our survey software who had and had not completed a survey. Typically, if we hold the database information and send surveys out directly, we are able to identify people who have not yet started a survey or have started but not completed a survey, and send reminders out to those people specifically. For this survey we could only ask that Safe Surgery Champions send out reminders on our behalf (although these would be non-targeted i.e. people who had completed a survey would also receive a reminder).

Because we did not control administration of the databases, we cannot comment on any non-response bias by individual questions (as was done in the analysis conducted for the Harvard survey) i.e. we do not know what the survey response rate was because we do not know how many surveys were sent out.
A further limitation is that some surgical team members, who may be less proactively engaged than other surgical team members with the checklist, may also have been less interested in and less likely to have completed a survey. This *may mean* that the survey results are more positively skewed in terms of the views and attitudes expressed. Furthermore, survey culture surveys in general tend to skew more positively.[3]

A final limitation is that this is a point in time sample rather than a longitudinal study, which means that participants in 2017 will not necessarily be the same participants as in 2015.

[3] 'As with most safety climate surveys (Sexton et. al., 2006; Singer et. al. 2009; Sorra & Nieva, 2012), responses were predominantly positive'

4: Research Findings

4.1 Summary of Key Findings 2017 vs. 2015

The results of the 2017 Surgical Safety Culture Survey are very encouraging – with improvements across most dimensions/factors since 2015. Dimensions/factors that have shown the most improvement have been with respect to Communication, Practical (adherence) and Coordination. This is particularly encouraging given that (along with Clinical Leadership) Communication and Practical (adherence) were the lowest performing areas in 2015.

Clinical Leadership has remained a poor performing area although there has been an improvement in the measure related to the tone of surgeons and anaesthetists throughout operations (+12% up to 54% agree/positive) this year. In general, there appear to be fewer negative comments regarding the attitude of surgeons in 2017, although team culture issues within some surgical teams may still impacting on the overall success of the interventions.

The areas that have improved the most are:

- The extent of team discussions (briefings and debriefings) (+20% - up to 71% agree/positive)
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- Disagreements being resolved with an emphasis not on who is right but what is right for the patient (+8% - up to 79% agree/positive).

There have been no changes since 2015 in the Contextual (readiness) measures – many of which continue to offer key opportunities for improvement, in particular the lower performing areas to do with: surgical team members being open to changes that improve patient safety even if it means slowing down (62%), the difficulty of implementing the Time Out (68%) and surgical team members all agreeing on the importance of using checklists in every surgery (68%). With respect to this last measure, the open-ended comments suggest that there is still some inconsistency in buy-in across different team members.

There have been no significant changes in the Assertiveness measures. In particular 30% of surgical teams members still find it difficult to discuss medical mistakes.

There have been no significant changes in the Consequential (other items) measures, although two out of the three have high levels of agreement (wanting a checklist if "I" was a patient, and feeling safe as a patient). The third (and lower performing) measure here is to do with pressure to move quickly from case to case.

Only one area has decreased in terms of performance – surgeons and anaesthetists being open to suggestions from other non-surgeon/anaesthetist team members (-8%).

The lower performing measures overall in 2017 are to do with:

- Equipment issues or other problems discussed in post-op debriefings being addressed in a timely manner (58%)
- Surgical team members from different disciplines always discussing patients' conditions and the progress of operations (54% agree/positive)
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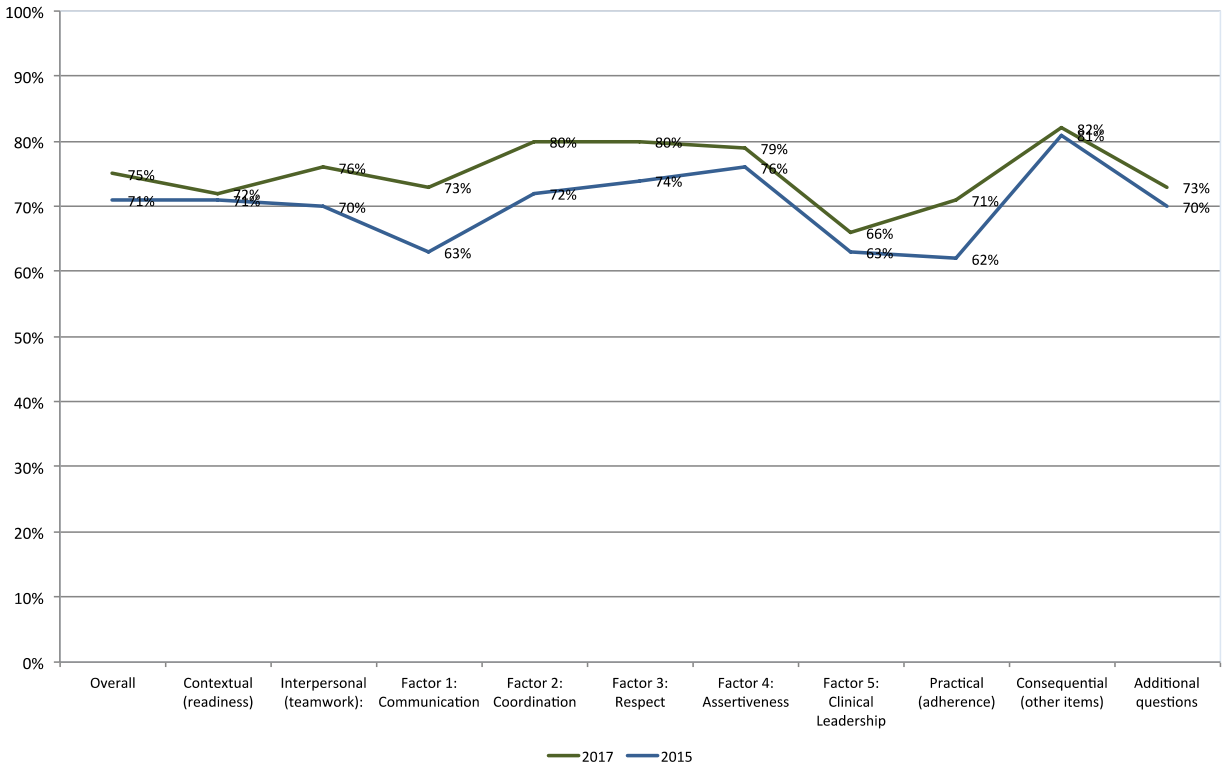
Overall however, there have been improvements or at least small positive trends in most of the Surgical Safety Culture measures over the last two years and comments from surgical team members indicate that, while there are still opportunities for improvement, there have been positive shifts in communications, team work and in buy-in to the interventions.

Table 1: Average Agreement (Positive Result) Overall and by Dimension and Factor

Survey dimensions/factors	Average agreement score* 2017	Average agreement score* 2015	% Point difference 2017 vs. 2015
Overall	**75%**	**71%**	**+4%**
Contextual (readiness)	**72%**	**71%**	**+1%**
Interpersonal (teamwork):	**76%**	**70%**	**+6%**
Factor 1: Communication	73%	63%	+10%
Factor 2: Coordination	80%	72%	+8%
Factor 3: Respect	80%	74%	+6%
Factor 4: Assertiveness	79%	76%	+3%
Factor 5: Clinical Leadership	66%	63%	+3%
Practical (adherence)	**71%**	**62%**	**+9%**
Consequential (other items)	**82%**	**81%**	**+1%**
Additional questions	**73%**	**70%**	**+3%**

* Reflects the positive, all negatively worded responses have been reversed for this calculation

Average Agreement (Positive Result) Overall and by Dimension and Factor 2017 vs. 2015



4.2 Survey Results by Key Area

Contextual (readiness)

The first overarching dimension is the Contextual (readiness) dimension. The contextual dimension asks how ready the surgical team is for undertaking the 'initiative'. Readiness includes but is not limited to, experience implementing similar innovations (i.e. the checklist), staff attitudes towards the innovation, belief that it is important for patient safety and the cooperation among multiple disciplines.

Table 2: Contextual (readiness) - summary of key findings 2017 vs. 2015

There have been no significant shifts in any of the Contextual (readiness) measures since 2015.

Measure	2017 % Agree or Positive	2015 % Agree or Positive	% Point change 2017 vs. 2015	Statistical Significance
The 'Time Out' is used in every case by every surgical team	84%	84%	0%	**No change**
Checklist implementation is not only limited to one profession	77%	76%	+1%	**No change**
Surgical team members all agree on the importance of using checklists in every surgery	68%	69%	-1%	**No change**
The 'Time Out' was not difficult to implement	68%	65%	+3%	**No change**
Surgical team members are open to changes that improve patient safety even if it means slowing down	62%	62%	0%	**No change**

There continues to be an issue around the buy-in among some surgical team members (particularly surgeons) regarding the importance of using checklists. Other comments suggest that some DHBs are not placing enough importance on these and are treating checklists as primarily a 'tick box' exercise.

Once again, just under one-third of surgical team members taking part in this survey (32%) do not think that all surgical team members agree that checklists are important. This remains particularly significant given that a high number of surgical team members (94%) agree that if they were having an operation they would want a surgical checklist to be used.

It would also appear that some surgical team members are still having difficulty implementing the 'Time Out'. Some surgical team members also reported that there can be a reluctance (particularly among more junior team members) to speak up or question a surgeon if they have any concerns or disagree with something.

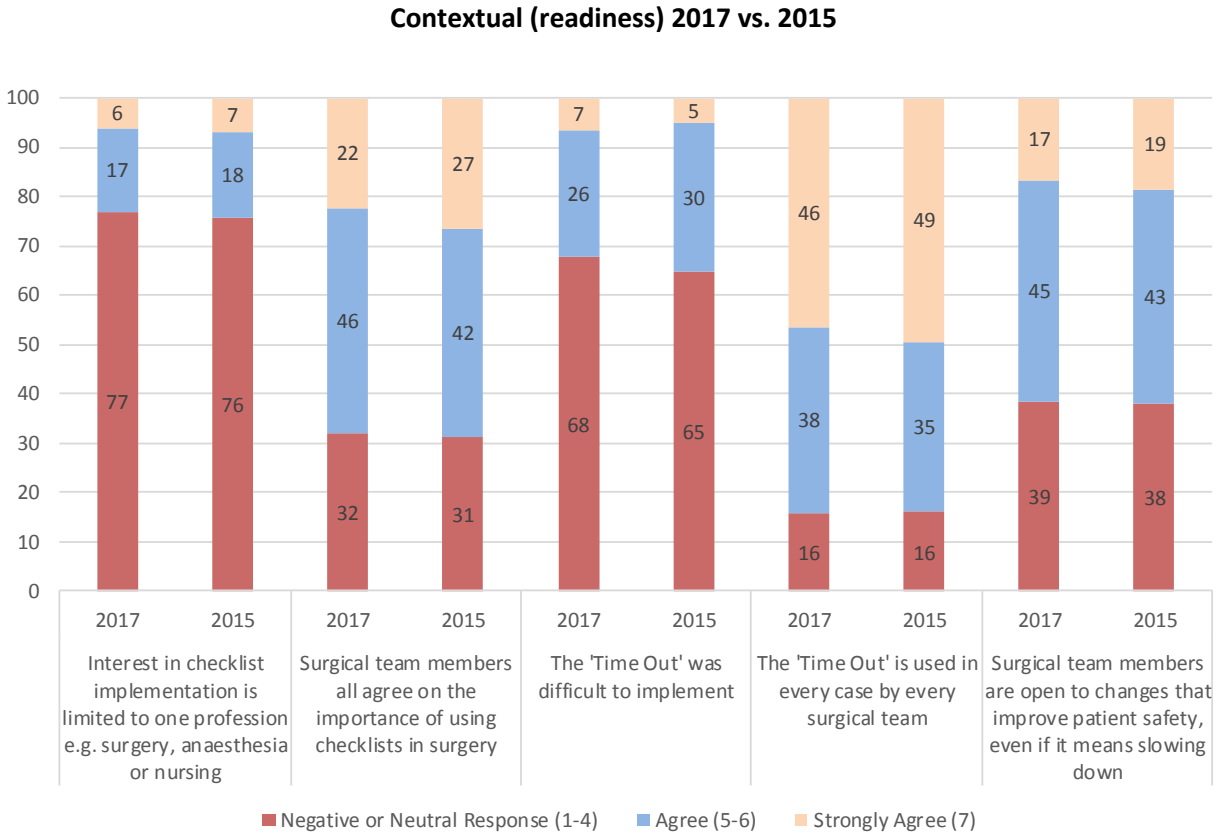


Table 3: Summary of positive, neutral and negative responses:

Measure	2017 % Agree or Positive	2017 % Neutral	2017 % Negative
The 'Time Out' is used in every case by every surgical team	84%	7%	9%
Checklist implementation is not only limited to one profession	77%	13%	10%
Surgical team members all agree on the importance of using checklists in every surgery	68%	13%	19%
The 'Time Out' was not difficult to implement	68%	17%	15%
Surgical team members are open to changes that improve patient safety even if it means slowing down	62%	19%	19%

Interpersonal (teamwork):

The second dimension is the interpersonal dimension. The interpersonal dimension recognises that implementing innovations, such as surgical safety checklists, requires complex social and behaviour changes that challenge the status quo. Surgical checklists encourage non-hierarchical, team-based interaction, enhanced communication, anticipation of potential complications, and the means for responding to them. In short, they aim to foster effective teamwork. Building on previous models of teamwork the Harvard team defined five measurable interpersonal factors that may affect and be affected by surgical innovations: communication, coordination, respect, assertiveness, and clinical leadership. Communication refers to how well team members share information and listen; coordination addresses how well they work together; respect refers to whether team members feel valued and appreciated; assertiveness addresses the extent to which it is easy for team members to speak up, ask for help, or discuss mistakes; and clinical leadership asks whether the physicians on the team - surgeons and anaesthetists - are seen as good leaders.

Factor 1: Communication

There have been improvements in each of the Communication measures since 2015, and in particular with respect to the extent of briefings and debriefings. While there were still a number of comments made regarding debriefings in particular not taking place, the results here indicate that there have been significant improvements in this regard. Key issues remain however around inconsistency across different surgical teams within DHBs, and across DHBs.

Table 4: Communication - summary of key findings 2017 vs. 2015

Measure	2017 % Agree or Positive	2015 % Agree or Positive	% Point change 2017 vs. 2015	Statistical Significance
Surgical team members share key information when it becomes available	75%	69%	+6%	**Positive**
Surgical team members make sure their comments or instructions are heard	74%	69%	+5%	**Positive**
Team discussions (briefings and debriefings) are common	71%	51%	+20%	**Positive**

Factor 1: Communication 2017 vs. 2015

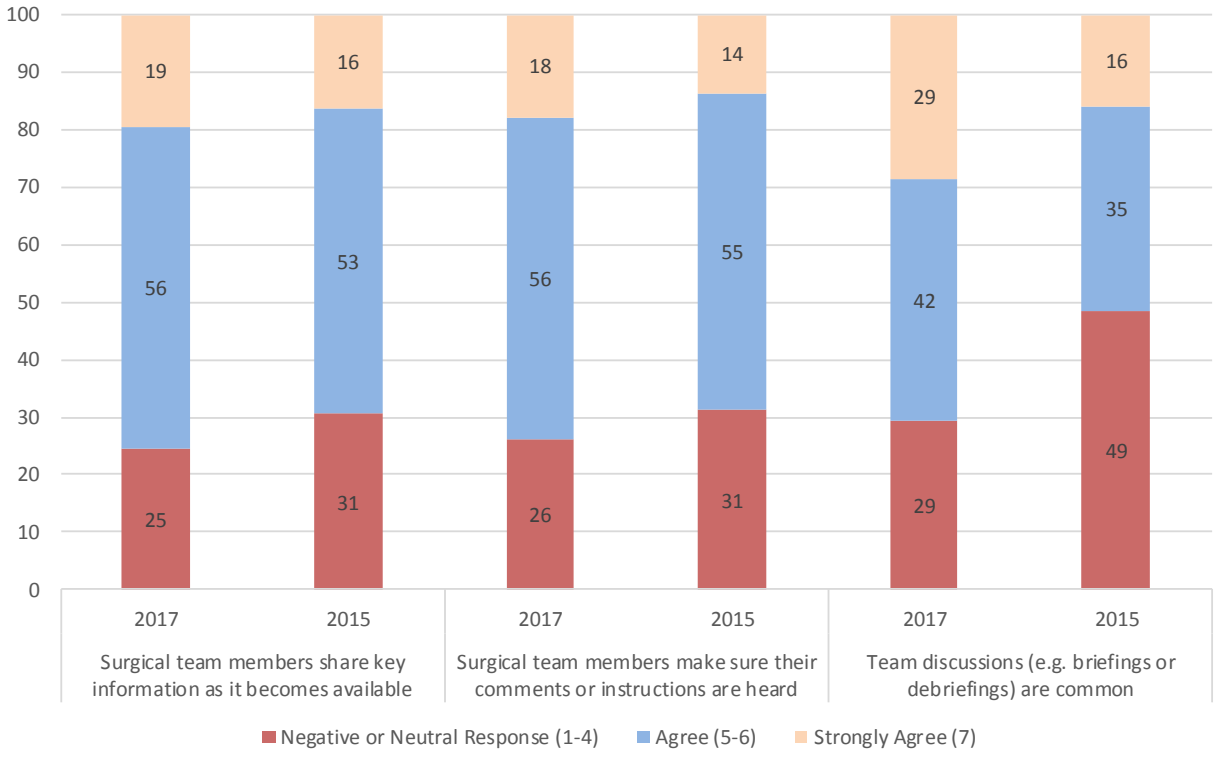


Table 5: Summary of positive, neutral and negative responses

Measure	2017 % Agree or Positive	2017 % Neutral	2017 % Negative
Surgical team members share key information when it becomes available	75%	15%	10%
Surgical team members make sure their comments or instructions are heard	74%	17%	9%
Team discussions (briefings and debriefings) are common	71%	10%	19%

Factor 2: Coordination

There have been improvements in each of the Coordination measures since 2015, and in particular with respect to communication among surgical team members from different disciplines (+14%) which was a key area of underperformance in 2015. While this result remains low overall (54%), the improvement in the last two years is encouraging.

Other key improvements have been to do with the internal culture of teams i.e. surgeons/anaesthetists and nurses working well together and team members being more willing to help one another.

Table 6: Coordination - summary of key findings 2017 vs. 2015

Measure	2017 % Agree or Positive	2015 % Agree or Positive	% Point change 2017 vs. 2015	Statistical Significance
Plans for patient care are adapted as needed	92%	88%	+4%	**No change**
Surgeons and anaesthesia providers work together as a well-coordinated team	85%	81%	+4%	**No change**
Physicians and nurses work together as a well-coordinated team	85%	77%	+8%	**Positive**
Surgical team members appear eager to help one another	82%	75%	+7%	**Positive**
Surgical team members from different disciplines always discuss patients' conditions and the progress of operations	54%	40%	+14%	**Positive**

Factor 2: Coordination 2017 vs. 2015

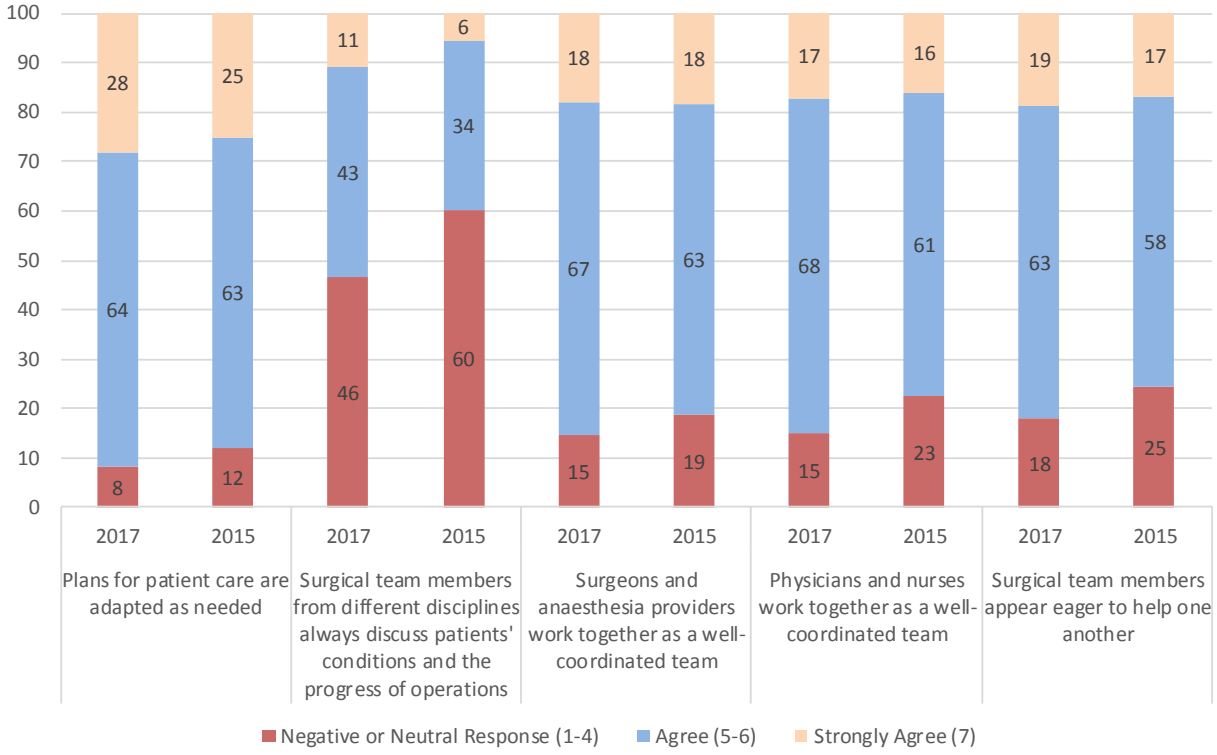


Table 7: Summary of positive, neutral and negative responses

Measure	2017 % Agree or Positive	2017 % Neutral	2017 % Negative
Plans for patient care are adapted as needed	92%	6%	2%
Surgeons and anaesthesia providers work together as a well-coordinated team	85%	10%	5%
Physicians and nurses work together as a well-coordinated team	85%	10%	5%
Surgical team members appear eager to help one another	82%	12%	6%
Surgical team members from different disciplines always discuss patients' conditions and the progress of operations	54%	23%	23%

Factor 3: Respect

There have been positive trends in each of the Respect measures since 2015 – although the shifts under 5% are within the margin of error for the sample and should be considered to have remained steady rather than have improved. There have been small improvements in terms of staff feeling able to provide input about patient care and in the way in which potential errors or mistakes are discussed. The comments made suggest that there continues to be room for improvement – particularly among younger team members feeling confident in speaking up and in the attitudes and manner of some senior surgical team members.

Table 8: Respect - summary of key findings 2017 vs. 2015

Measure	2017 % Agree or Positive	2015 % Agree or Positive	% Point change 2017 vs. 2015	Statistical Significance
My input about patient care is well received by other surgical team members	85%	79%	+6%	**Positive**
I am always treated as a valuable member of the surgical team	81%	77%	+4%	**No change**
Surgical team members communicate with me in a respectful manner	81%	77%	+4%	**No change**
Potential errors or mistakes are pointed out without raised voices or condescending remarks	72%	65%	+7%	**Positive**

Factor 3: Respect 2017 vs. 2015

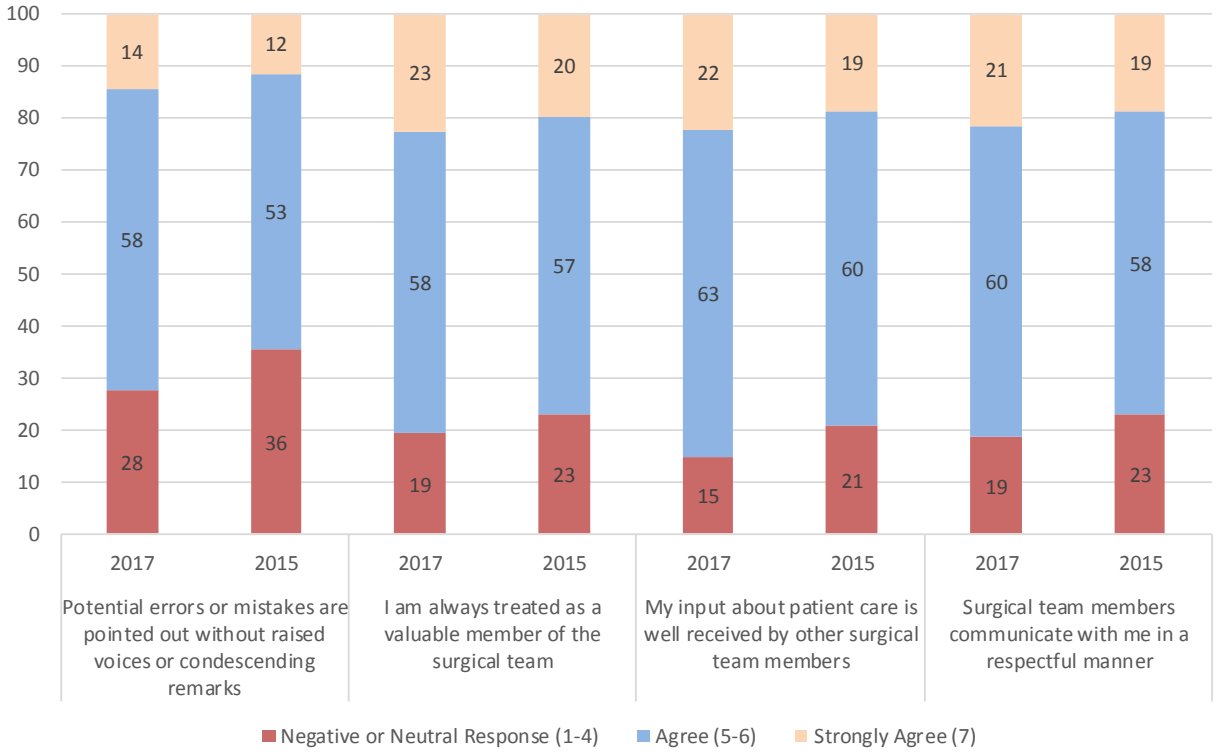


Table 9: Summary of positive, neutral and negative responses

Measure	2017 % Agree or Positive	2017 % Neutral	2017 % Negative
My input about patient care is well received by other surgical team members	85%	12%	3%
I am always treated as a valuable member of the surgical team	81%	10%	9%
Surgical team members communicate with me in a respectful manner	81%	13%	6%
Potential errors or mistakes are pointed out without raised voices or condescending remarks	72%	15%	13%

Factor 4: Assertiveness

There have been no changes in the Assertiveness results since 2015, although results are high overall with respect to feeling able to speak up (80%) and being comfortable asking for assistance (87%).

There still appears to be some issues to do with some senior team members (surgeons) and the way in which they communicate with other team members. This is also reflected in the qualitative feedback.

Table 10: Assertiveness - summary of key findings 2017 vs. 2015

Measure	2017 % Agree or Positive	2015 % Agree or Positive	% Point change 2017 vs. 2015	Statistical Significance
Do not think that surgical team members appear to struggle or that they do not want to ask one another for help	87%	85%	+2%	**No change**
Not difficult to speak up when I perceive problems with patient care	80%	77%	+3%	**No change**
Not difficult to discuss medical mistakes	70%	67%	+3%	**No change**

Factor 4: Assertiveness 2017 vs. 2015

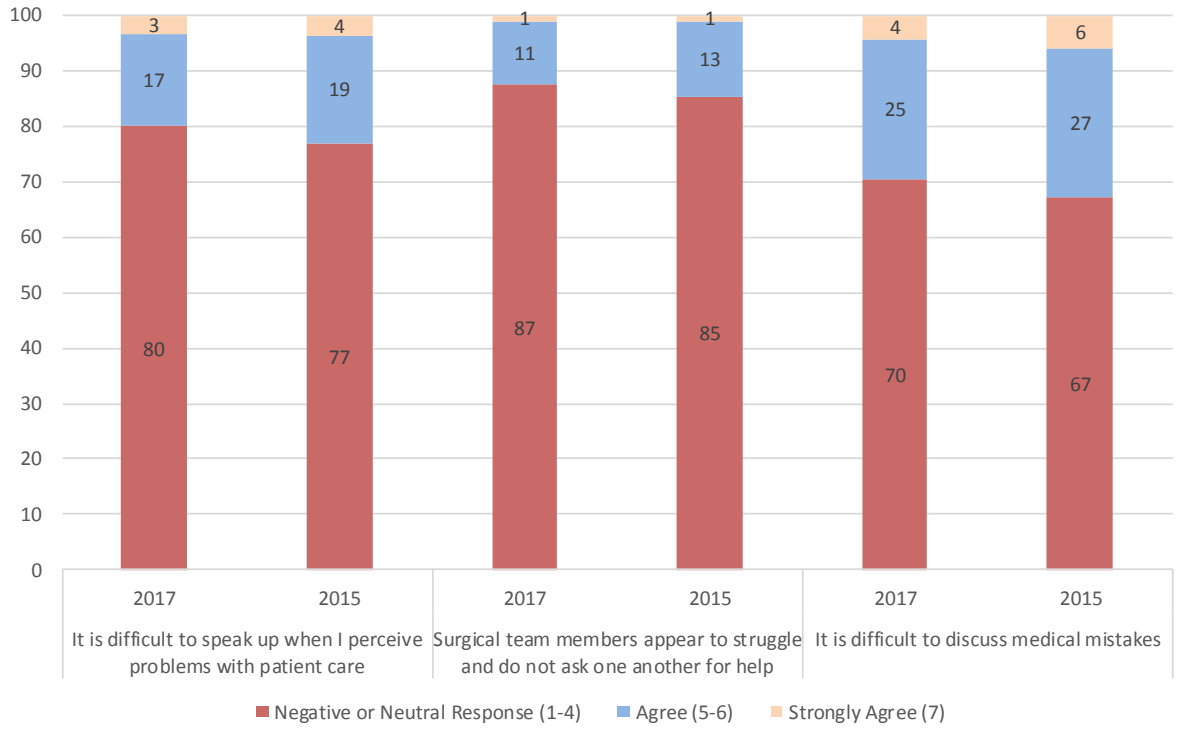


Table 11: Summary of positive, neutral and negative responses

Measure	2017 % Agree or Positive	2017 % Neutral	2017 % Negative
Do not think that surgical team members appear to struggle or that they do not want to ask one another for help	87%	13%	0%
Not difficult to speak up when I perceive problems with patient care	80%	10%	10%
Not difficult to discuss medical mistakes	70%	18%	12%

Factor 5: Clinical Leadership

There has been an improvement in the extent to which surgeons and anaesthetists maintain a positive tone during operations, although a decrease in the extent to which surgeons and anaesthetists are open to suggestions from other (non- surgeon/anaesthetist) team members. These results support some of the findings above with respect to some team members not feeling comfortable speaking up (although as noted there have been improvements here). There has been a decrease in the extent to which surgeons and anaesthetists are open to suggestions from other non- surgeon/anaesthetist team members.

Table 12: Clinical Leadership - summary of key findings 2017 vs. 2015

Measure	2017 % Agree or Positive	2015 % Agree or Positive	% Point change 2017 vs. 2015	Statistical Significance
Physicians are present and actively participating in patient care prior to skin incision	72%	68%	+4%	**No change**
Physicians not just open to suggestions from other physicians	71%	79%	-8%	**Negative**
Physicians maintain a positive tone throughout operations	54%	42%	+12%	**Positive**

Factor 5: Clinical Leadership 2017 vs. 2015

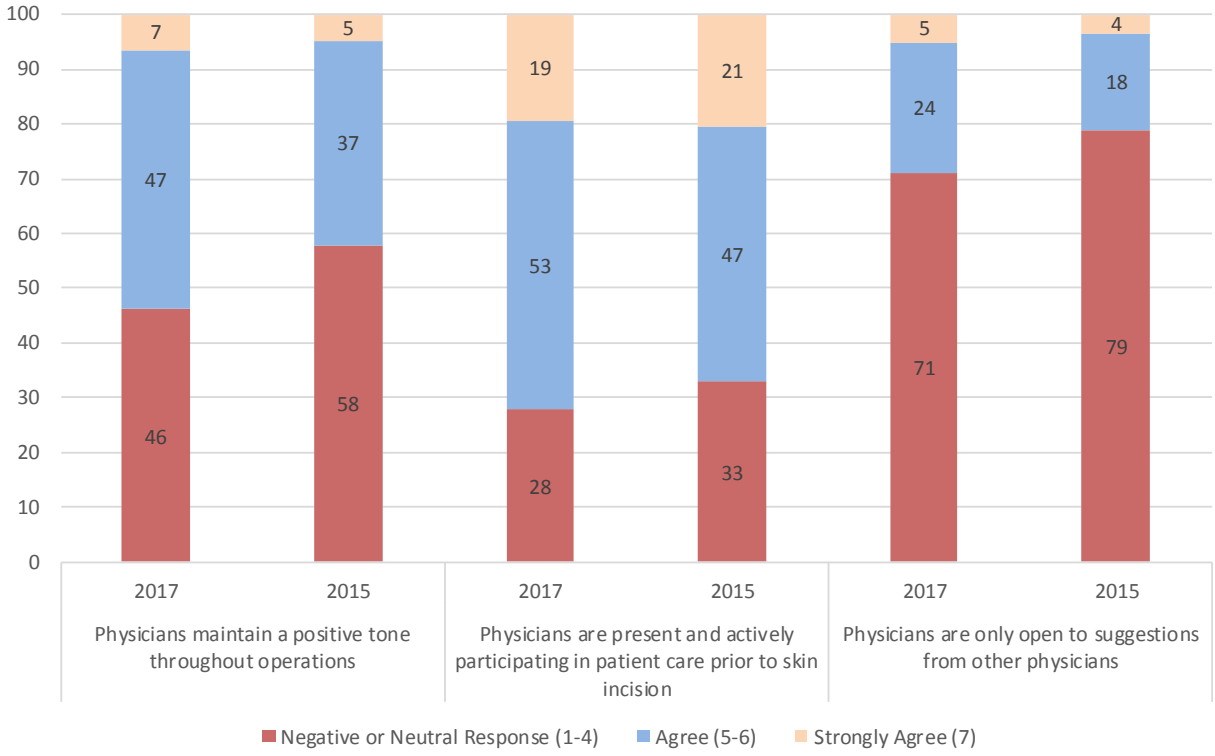


Table 13: Summary of positive, neutral and negative responses

Measure	2017 % Agree or Positive	2017 % Neutral	2017 % Negative
Physicians are present and actively participating in patient care prior to skin incision	72%	13%	15%
Physicians not just open to suggestions from other physicians	71%	18%	11%
Physicians maintain a positive tone throughout operations	54%	23%	23%

Practical (adherence)

The third dimension identified by the Harvard team is the practical dimension; it refers to the extent to which surgical team members adhere to established safety practices in the operating room (e.g. preoperative planning for potential problems and postoperative debriefing on key concerns for patient recovery and management).

Table 14: Practical (adherence) - summary of key findings 2017 vs. 2015

There have been improvements in most of the Practical (adherence) measures since 2015 and in particular with respect to communications e.g. always discussing the operative plan (+15%) and planning for potential problems for complex patients or cases (+13%).

Measure	2017 % Agree or Positive	2015 % Agree or Positive	% Point change 2017 vs. 2015	Statistical Significance
Surgical team members refer to each other by their name not their role	91%	88%	+3%	**No change**
For complex patients or cases, preoperative briefings always include planning for potential problems	80%	67%	+13%	**Positive**
Surgical teams always discuss the operative plan (i.e. more than the location of the incision and name of procedure) before incision	67%	52%	+15%	**Positive**
Postoperative debriefings always include a discussion of key concerns for patient recovery and post-op management	61%	53%	+8%	**Positive**
Equipment issues or other problems discussed in post-op debriefings are addressed in a timely manner	58%	52%	+6%	**Positive**

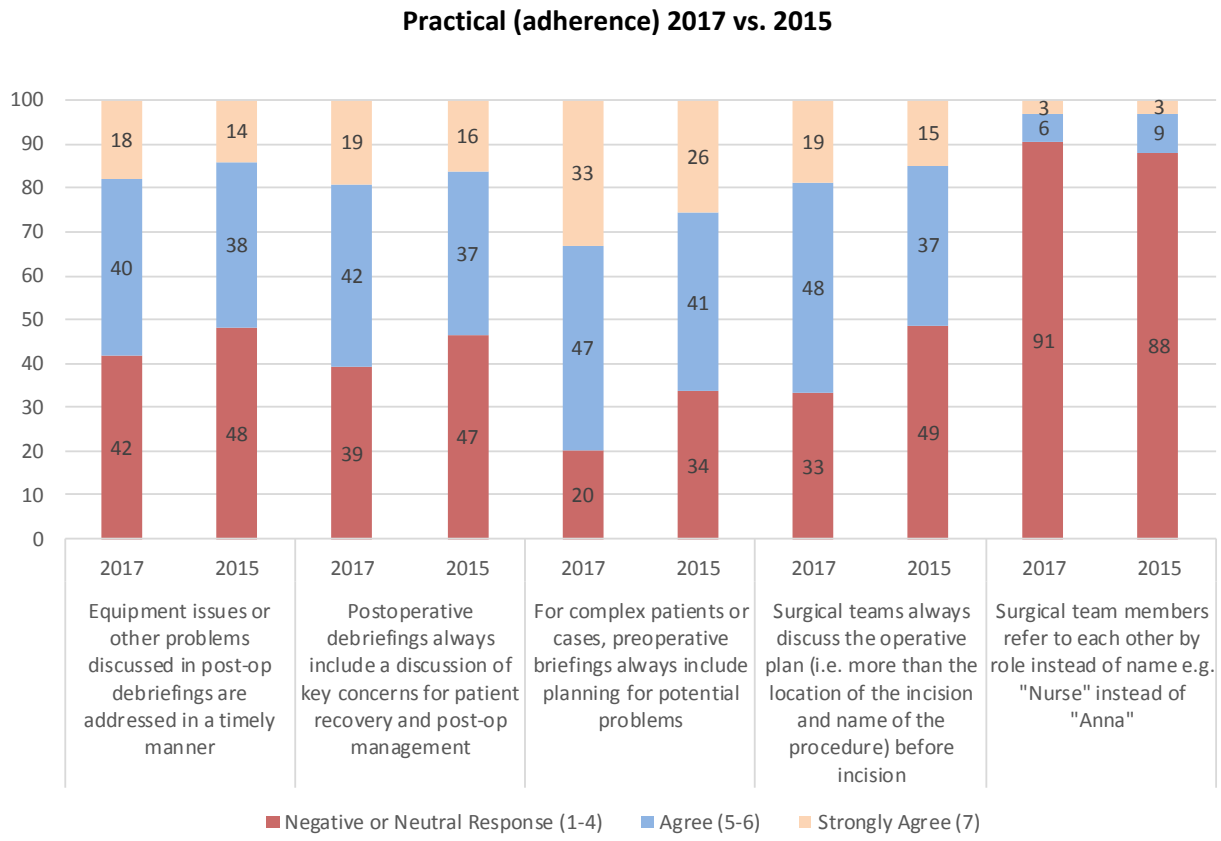


Table 15: Summary of positive, neutral and negative responses

Measure	2017 % Agree or Positive	2017 % Neutral	2017 % Negative
Surgical team members refer to each other by their name not their role	91%	8%	1%
For complex patients or cases, preoperative briefings always include planning for potential problems	80%	8%	12%
Surgical teams always discuss the operative plan (i.e. more than the location of the incision and name of procedure) before incision	67%	14%	19%
Postoperative debriefings always include a discussion of key concerns for patient recovery and post-op management	61%	14%	25%
Equipment issues or other problems discussed in post-op debriefings are addressed in a timely manner	58%	17%	25%

Consequential (other items)

The final dimension identified by the Harvard team is the consequential dimension. The consequential dimension measures perceived impact of the innovation on surgical outcomes as perceived by team members (e.g. how safe team members would feel being treated as patients in their own operating rooms).

Table 16: Consequential (other items) summary of key findings 2017 vs. 2015

There have been no changes in the Consequential (other items) results since 2015. A key issue is still to do with the internal timeframe pressures within DHBs which is once again supported by the comments made by participants in 2017.

Measure	2017 % Agree or Positive	2015 % Agree or Positive	% Point change 2017 vs. 2015	Statistical Significance
If I were having an operation, I would want a surgical safety checklist to be used	94%	96%	-2%	**No change**
I would feel safe being treated as a patient	88%	86%	+2%	**No change**
Disagree that pressure to move quickly from case to case gets in the way of patient safety	65%	62%	+3%	**No change**

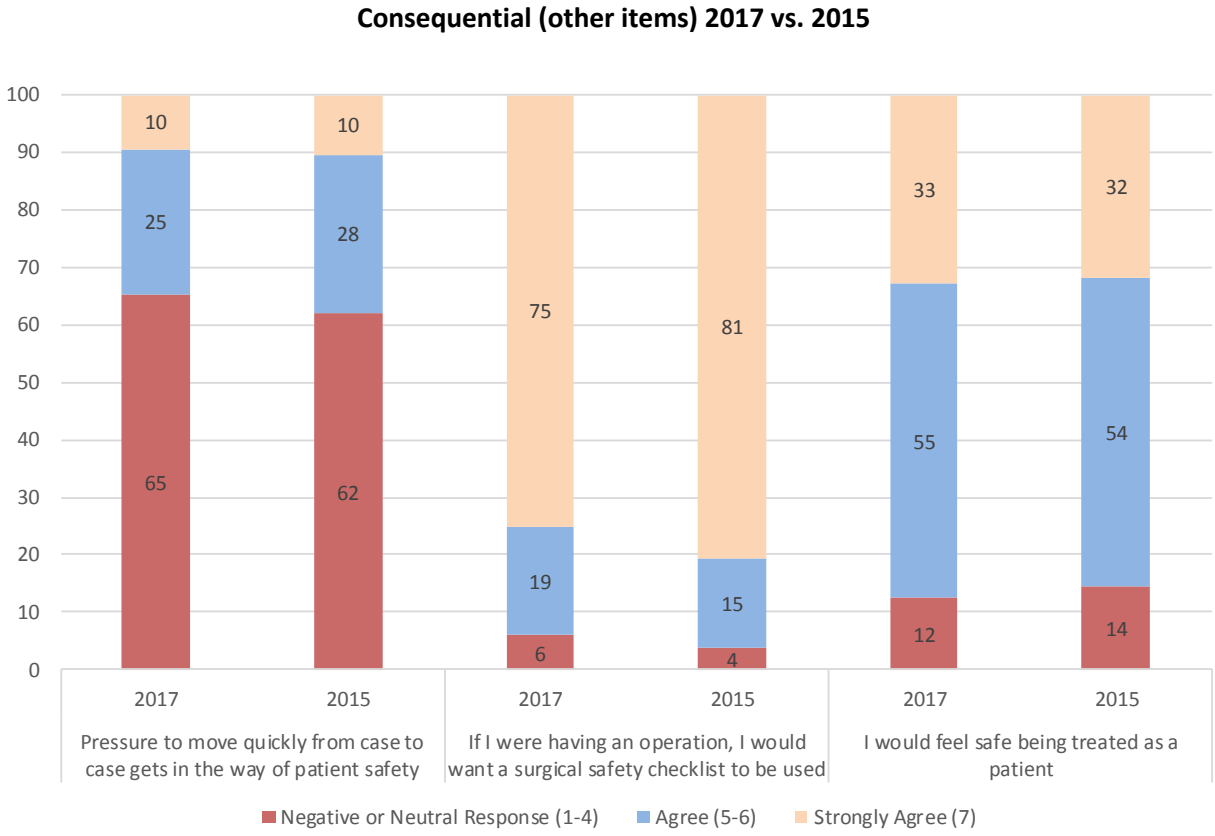


Table 17: Summary of positive, neutral and negative responses

Measure	2017 % Agree or Positive	2017 % Neutral	2017 % Negative
If I were having an operation, I would want a surgical safety checklist to be used	94%	4%	2%
I would feel safe being treated as a patient	88%	7%	5%
Disagree that pressure to move quickly from case to case gets in the way of patient safety	65%	15%	20%

Additional questions

These four additional questions were part of the Harvard study but were not analysed by the Harvard team as part of the four overarching dimensions.

Table 18: Additional questions - summary of key findings 2017 vs. 2015

Measure	2017 % Agree or Positive	2015 % Agree or Positive	% Point change 2017 vs. 2015	Statistical Significance
Decision-making is shared among disciplines in response to patients' conditions or issues that arise during operations	83%	80%	+3%	**No change**
I am encouraged to report any patient safety concerns I may have	80%	82%	-2%	**No change**
Disagreements are resolved with an emphasis not on who is right but what is right for the patient	79%	71%	+8%	**Positive**
Disagree that communication breakdowns frequently lead to delays in starting surgical procedures	51%	46%	+5%	**No change**

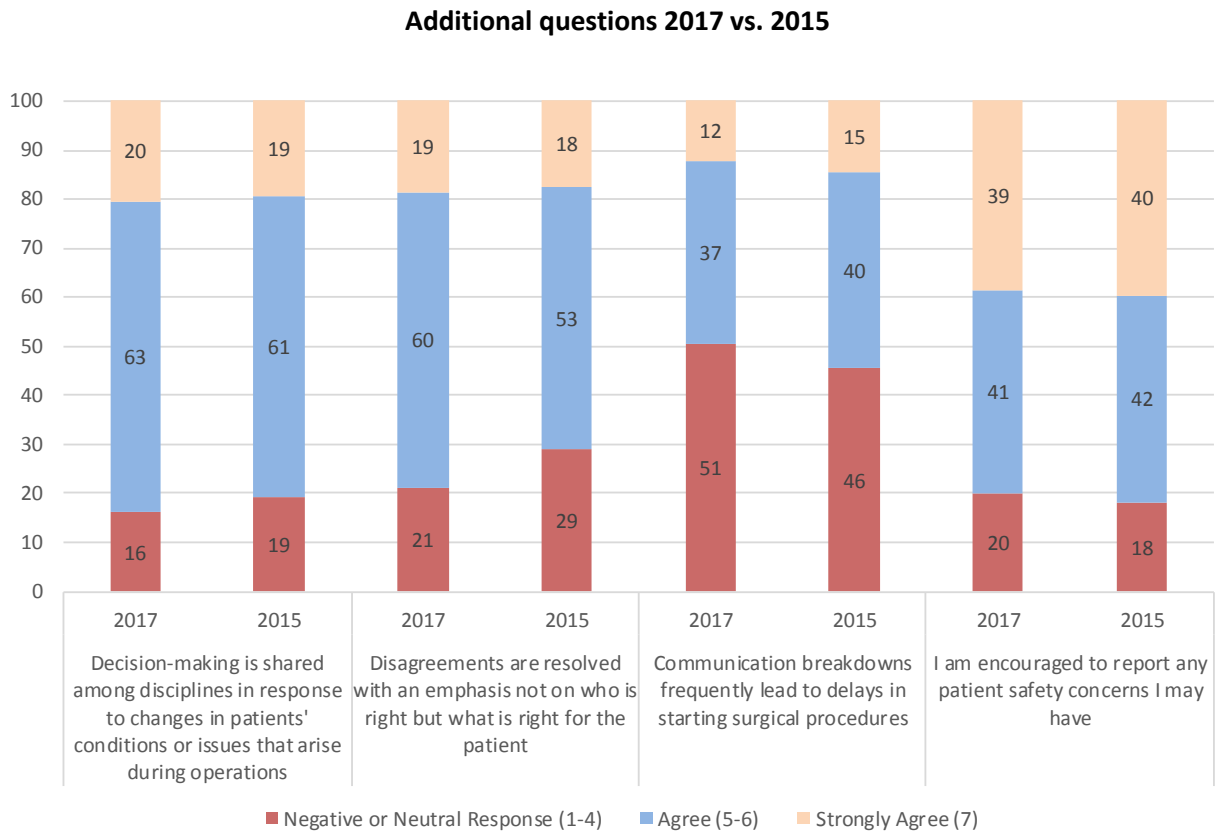


Table 19: Summary of positive, neutral and negative responses

Measure	2017 % Agree or Positive	2017 % Neutral	2017 % Negative
Decision-making is shared among disciplines in response to patients' conditions or issues that arise during operations	83%	10%	7%
I am encouraged to report any patient safety concerns I may have	80%	11%	9%
Disagreements are resolved with an emphasis not on who is right but what is right for the patient	79%	13%	8%
Disagree that communication breakdowns frequently lead to delays in starting surgical procedures	51%	15%	34%

5: Overview of Qualitative Feedback

One open-ended question was included in this survey. Participants were asked if they had any feedback or comments about any of the topics in the survey. Comments were provided by 203 participants.

There were a number of positive comments made – most of which indicated that there have been improvements in patient safety as a result of the initiatives that have been introduced and increasing buy-in among surgical team members. Examples of comments include:

- *As a nationally trained auditor my overall impression is that the briefings and other safety checklists have been well received and supported. There are still some clinicians who don't adhere to the process but they are few. Another area that concerns me is the anaesthetic check in for paeds. There are perceived road blocks that I don't believe are evidence based* **(Theatre Nurse)**

- *Briefing, check in, time out and sign-ins are intuitive and simple tools that I think have immense benefits. Now it almost seems silly we did not use them in the past* **(Surgical Registrar/Fellow)**

- *I think briefings etc. were a bit slow to get going, but in the theatres I work in frequently they are now just part of the working day. Having the checklists on the wall are a good way of ensuring all points are covered. Having each specialty take on responsibility for a check makes it a team effort* **(Consultant Anaesthetist)**

- *I think there is a definite improvement since the briefing process was introduced. Some teams are 10/10, other teams are still not quite there* **(Anaesthetist Technician)**

- *I think we are moving forward in this aspect of patient safety in the peri and intraoperative period. there is an eagerness to put patient safety at the top of the list and all members of the surgical and theatre teams working cohesively towards this* **(Consultant Surgeon)**

- *No matter what people say about the Surgical Safety Checklist, if they were the patient, they would want it used! Thank you for a great safety programme* **(Consultant Anaesthetist)**

- *On the whole the time out process is well conducted and supported by the whole team. It is a very useful tool and has definitely improved communication in theatre and has helped me get to know everyone's name* **(Consultant Anaesthetist)**

- *Surgical checklists were initially difficult to implement with certain surgeons, but as more and more people used it, surgeons became more positive. Most surgeons now value checklists and briefings and participate actively in it* **(Anaethestist Registrar/Fellow)**

- *We are lucky to work with a close surgical team who all know each other by name and know each other's roles and responsibilities. Although our department has been doing this for some time, we now see a big shift towards the lead roles performing the Surgical Safety Checklists instead of just the nurses leading the way* **(Theatre Nurse).**

While there was a range of comments made, there were **six key themes** evident in the qualitative comments. These are presented below in order of prevalence. These themes are similar overall to the key themes identified in 2015.

1. Inconsistency in the attitudes of some surgical staff with respect to their buy-in to the Surgical Safety Checklist and Time Out which can impact on the success of the initiatives
2. Briefings and (mainly) debriefings not taking place
3. Overall process-related
4. Internal DHB pressures, including timeframes
5. Time Outs not occurring or being rushed
6. Team culture issues

Examples of comments under each of these key themes are provided below (a full list of qualitative comments was provided in a separate document):

1. Inconsistency in the attitudes of some surgical staff with respect to their buy-in to the Surgical Safety Checklist and Time Out

Key issues here were to do with:

a. A lack of buy in among surgical staff (predominantly Surgeons)
b. A lack of buy in or engagement from locums or visiting (non-resident) Surgeons
c. Team culture issues – e.g. junior staff not wanting to ask questions.

- *Basically, we are struggling to get any across the board consistency with the process. Some surgeons or anaesthetists are more engaged than others. Where medical staff are not engaged, the nursing staff pick up the slack. There is no working group i.e. there are a few names but they don't meet to discuss how we move forward, or address continuing issues around noncompliance. Personally, I don't believe that the process was implemented well - few people/and possibly not the right people had all the information, and the actual process was a bit unclear, and changed as time went by* **(Theatre Nurse)**

- *A lot of the response to the whole process depends on the surgeon who is operating and the head anaesthetist. Most are proactive and participate well, however there are a few who don't share information or input fully in their role in the sign in/time out/sign out process and need to be asked directly and even then do not always give all the needed information. Sometimes junior staff will not ask clearly or cover all the questions involved as they are intimidated by the attitude of the surgeon or anaethestist in my observation* **(Theatre Nurse)**

- *All the resident surgeons, anaesthetists and anaesthetic technicians and nursing staff are great with the whole process. The locums of each of each profession are not and are obstructive in some cases. Our operating theatres rely on locums and they make can running the list difficult when they do not comply, as compared to the resident team who are great to work with because of the excellent communication. It seem that ego gets in the way sometime with the locums. They seem to focus on control rather than teamwork. I am a nurse and I am very pleased to be part of the process as I have seen it work so well in other hospitals around the world. But for sure if the whole team is not engaged it can be difficult and bring up anxiety amongst the nursing team* **(Theatre Nurse)**

- *Implementing and driving the surgical safety checklist process has, in the main, remained the domain of nursing staff. Some surgeons are keen and proactive. Others go along with the process and a few do not want to be involved* **(Clinical Nurse Manager)**

- *Most surgeons are very respectful and good communicators. However there are a couple who don't engage well with staff or don't turn up until after the Time Out for the first case of the day* (**Consultant Anaesthetist)**

- *The concept of Time Out etc. is being driven by a few people who although think it is a great concept (of which it is) lack the personal skills needed and still believe in a hierarchical order of what I say must be done - stereotypical doctor/nurse. They lack buy-in skills and doctors who do not buy-in lack consequence for their action/inaction. I have been called "Hitler" for urging people to stop what they are doing so Time Out could be done. This I find unacceptable. Most anaesthetists refuse to lead the team unless they are the drivers of this program and it is up to the nurse and anaesthetist techs to do this. Often information is withheld from the nurse but shared with the technician* **(Theatre Nurse)**

- *Surgeons not often interested in start of day team briefings. For those surgeons who are: the day is much better, the team works better, turnaround times are better* (**Consultant Anaesthetist)**

- *There is a significant variance in who we deal with, most consultants work and communicate well with team members, we have some registrars who do not treat nursing staff well, especially those who are not likely to speak back to them. Briefings at the start of lists are variable, some surgeons have become accustomed to them and are happy to do this with the team, but only when other team members initiate it. We have one consultant who will fill the form out on their own, if staff are busy and not present, they are not interested in waiting. At the other end of the scale, we have several specialists who believe it is pointless and will deliberately go out of their way to avoid and not participate in the process. The lists regularly start late due to the fact the surgeons/anaesthetists do not turn up to theatre until 0830, then the briefing needs to be completed before patients can come into theatre. The sign in is regularly completed by the nursing staff to ensure the correct patient and procedure are identified, but most anaesthetists will not initiate or lead this process, and often will even walk away part way through the sign in. Most surgeons have got very good at the Time Out, although nurses are still having to prompt them, and complete the questions as they generally will only identify the patient and procedure. The sign out is not done well here. In fact most of the time it is not done at all* **(Theatre Nurse)**

2. Briefings and (mainly) debriefings not taking place

- *At our DHB we are only just starting to talk about briefing and debriefing for each list* **(Theatre Nurse)**

- *Briefings - discussions sometimes too brief. Sometimes the physician and other disciplines have discussed cases the day before. Sometimes in complex cases the nursing team is junior and do not understand the planning for potential problems, and do not know what to ask* **(Anaesthetist Technician)**

- *Overall we are a very experienced team, both in our individual disciplines and in working with each other. This is very good but can make briefing and other surgical safety checklists limited, especially for novice/junior staff. Post-op debriefings - don't happen. Cannot assemble the team back together after the patient transferred to PACU/ICU* **(Theatre Nurse)**

- *Briefings are not universally done and create delays during operating times, leads to miscommunication and frustration* **(Anaesthetist Technician)**

- *Debriefing at the end of the list is not always done. The briefing while very successful is still needing to be driven to begin by nursing staff (rounding everyone up)* **(Theatre Nurse)**

- *Debriefing at the end of the elective list is hardly ever done. Rarely do briefings and debriefings in the acute theatre because of the nature of the everchanging list* **(Theatre Nurse)**

- *I feel the SSC has fostered a better team environment across all disciplines in the theatre environment starting with using each other's names. I feel that people feel more valued and this leads to them feeling empowered to speak up. Sometimes having a member of each team involved in the sign in is not always possible but I believe it is important to do this as much as possible. It helps to start the dialogue and problems not recognised can be discussed at this stage and hopefully remedied. In some theatres we do the sign out just prior to skin closure. I find this time is the most appropriate as team members are present and more engaged in the process. If done once the case finishes usually all team members are involved in time critical processes - waking patient up, cleaning and prepping patient for PACU etc. It is much more chaotic and consequently less useful. We don't perform briefing and debriefing in our hospital. I look forward to us introducing it for above reasons* **(Consultant Surgeon)**

- *Post operative debriefings almost never occur in my DHB although post-operative instructions as patients leave theatre* (**Anaesthetist Technician)**

3. Overall process-related

- *It works well but I was very unhappy about how it was introduced to our DHB. There was no education and it was inflicted on us with no explanation, which could not have been designed to get people's backs up further. I am extremely unhappy to have observers in OT that are to check if the process is being followed or not especially when they prevent the process happening The audit process nearly caused a major incident when a stupid observer insisted that we stop to allow the check in process to occur so that they could move on. This meant that I was interrupted in discovering that vital information needed for the case was not available. I have asked that that individual not do that again. I am extremely suspicious of people wandering around with apps checking things off, this has never caused an improvement in resource. I dislike working in an environment where not everybody in the room is working for the patient and is not being completely up front about what is happening* **(Consultant Surgeon)**

- *Present system is too long (time pressure can add up to 20 minutes per case) and incident prone, too many same checks (will create mind set of "not important as some else will do it"). Adding more quantity will not change quality. One all inclusive WELL thought out check will mitigate any risk (as long as humans are part of the process there will always be risk factors* **(Anaesthetist Technician)**

- *The 'Time out' identifies problems too late - when the patient is already asleep. Things such as whether equipment being opened is found to be unsterile cannot be identified in a PRE-op huddle, and are only identified once it is too late. No checklist can be perfect, but are they even helpful? I have not seen any evidence that our performing either a pre-op 'huddle' or the 'surgical time-out' has reduced adverse incidents in our institution - they have been unmonitored. They certainly decrease efficiency. The pre-op huddle is not useful for more than the one next patient in the acute theatre as things change so frequently. Focusing on following patients who may not arrive is distracting and inefficient. Staff glaze over during a combined 'huddle'. The anaesthetist and tech don't care what brand or diameter of screw the surgeon will use. The nurses don't need to hear the debate regarding what block to use. They have better things to be doing. It's up to the surgeon to communicate with each of these groups individually* (**Consultant Surgeon)**

- *The number of checks is becoming a burden. Safety is important but I fear we are beginning to suffer checklist fatigue. Please do not implement more checks without demonstrating a reduction in mortality. If I knew how many extra checks I had to do to save one life maybe I would feel more engaged in the process. IMO these processes are simply introduced as orders with little explanation increasing my feelings of powerlessness and disengagement at work* **(Consultant Anaesthetist)**

4. Internal DHB pressures and attitudes, including timeframes

- *My DHB not routinely using team briefing and debriefing, features I appreciated when working in the UK. The Time Out and sign out are perfunctory. A prompt start seems more important to the hospital than having a team meeting and a safe start* **(Consultant Surgeon)**

- *Pointing out equipment or other deficiencies (e.g. orderlies have a different order of patients on the list) achieve absolute nothing. Our DHB seems unable to implement the changes needed to avoid repetition of errors, despite those errors and their solutions being pointed out. Our management sees the whole process as a tick-box exercise and are not committed to real changes towards patient safety* **(Consultant Surgeon)**

- *This DHB is more worried about checklists and box ticking than patients. It is frustrating that checklists are more important than the reasons underlying the need for them. There is a significant shortfall in managerial support of teams and a significant shortfall in resources to allow teams that function highly despite this lack of support to continue doing so* **(Consultant Surgeon)**

- *I think the problem with surgical safety checklists and Time Outs is that they are perceived as worthless time-wasting, box-ticking nonsense; rather than as a vital part of ensuring quality work. So many colleagues pay lip service to the Time Out because they have been told to: as a result, it becomes worthless nonsense! Only a very few actually lead by example and make the time-out a useful part of the communication plan* **(Consultant Anaesthetist)**

5. Time Outs not occurring or being rushed

- *The timeout checklist is overly long and as a result is often glossed over. It should be limited to a few key points* **(Consultant Anaesthetist)**

- *Time out is seldom done. The time when "time out "is most important is for emergency cases, and these are the times when it is most frequently over-looked, e.g. emergency LUSCS/ These are also the times when I have had most near misses with patients* **(Consultant Anaesthetist)**

- *Time out sometimes difficult to complete once scrubbed and ID bracelet is covered up. Needs to be done before the surgeon is sterile* **(Consultant Surgeon)**

- *1) Time outs are often conducted in a loud atmosphere and occasionally after primary incision and often led by the nursing staff who are excellent at its implementation. 2) Nurses are often the best at implementing this, but often appear "hurried" and try to make the process go as fast as possible to avoid causing delays. I often observe the rest of the theatre staff understanding the value of the checklist, but being disengaged from it in routine cases. Less so in emergencies or complex cases. 3) Never having a formal sign out/ debrief after the list. It is a shame, because it would be a good time to thank the staff in the OT for their work. 4) Pre-briefs are often amongst Anaesthetist-Surgeon in the pre-assessment area. These rarely seem to include the perioperative staff and as a result delays have been caused by equipment not matching expectations. Part of this is that there is no formalized pre-brief time that occurs, with a time pressure to ensure the first patient is asleep by 0830. 5) Names are very valuable to learn in a team for communication purposes but also staff value. I find it most effective when this is written down visibly* **(Anaethestist Registrar/Fellow)**

6. Team Culture Issues

- People find it difficult to speak up to the surgeons, especially junior staff members **(Anaesthetist Technician)**
- Surgeons from particular specialties are still bullying the nurses and anaesthetists into accepting increasing acute workload **(Consultant Anaesthetist)**

6: Demographic and Other Variables

The following section provides the key demographic and other variables of the surgical team members who took part in this survey.

6.1 Surgical service(s) worked in

Surgical services	2017 N=883	2017 %	2015 843 %
General	454	51%	52%
Trauma	318	36%	34%
Orthopaedic	409	46%	42%
Neurosurgery	114	13%	13%
Cardiac	62	7%	8%
Thoracic	61	7%	9%
Vascular	200	23%	22%
Paediatric	206	23%	26%
Ear, Nose and Throat/ ORL	298	34%	34%
Urology	307	35%	31%
Gynaecology	365	41%	42%
Ambulatory	121	14%	18%
Plastics**	175	20%	-
Opthalmology***	251	28%	-
Other	245	28%	33%

This was a multiple response question

* Otorhinolaryngology (ORL) added in 2017

** Plastics added in 2017

*** Ophthalmology added in 2017

6.2 Surgical service(s) worked in most often

Surgical services worked in most often	2017 N=883	2017 N=883 %	2015 N=843 %
General	393	45%	43%
Trauma	198	22%	18%
Orthopaedic	344	39%	34%
Neurosurgery	66	7%	5%
Cardiac	46	5%	6%
Thoracic	33	4%	5%
Vascular	94	11%	9%
Paediatric	101	11%	12%
Ear, Nose and Throat/ORL*	165	19%	19%
Urology	151	17%	13%
Gynaecology	240	27%	25%
Ambulatory	55	6%	9%
Plastics**	93	11%	-
Opthalmology***	132	15%	-
Other	173	20%	26%

This was a multiple response question
* Otorhinolaryngology (ORL) added in 2017
** Plastics added in 2017
*** Ophthalmology added in 2017

6.3 Gender

Gender	2017 N=792	2017 N=792 %	2015 N=756 %
Male	309	39%	39%
Female	443	56%	57%
I would rather not say	40	5%	4%

6.4 Ethnicity

Ethnicity	2017 N=787	2017 N=787 %	2015 N=758 %
Asian	61	8%	10%
Asian Indian	35	4%	5%
Pacific Peoples	8	1%	1%
Māori	18	2%	2%
New Zealand European	443	56%	52%
Other European	114	14%	13%
Other	43	5%	7%
I would rather not say	65	8%	10%

6.5 Primary professional role

Primary professional role	2017 N=790	2017 N=790 %	2015 N=761 %
Anaesthetic Technician	94	12%	8%
Anaesthetist Registrar/Fellow*	28	4%	21%
Consultant Anaesthetist**	140	18%	-
Consultant Surgeon***	144	18%	17%
Surgical Registrar/Fellow****	44	6%	-
Theatre Nurse	275	35%	36%
Other	65	8%	10%

*Registrar/Fellow added in 2017
**Consultant Anaesthetist added in 2017
***Consultant added in 2017
****Surgical Registrar/Fellow added in 2017

6.6 Number of years worked in this role at any hospital

Primary professional role	2017 N=790	2017 N=790 %	2015 N=761 %
Less than 1 year	57	7%	8%
Between 1 and 5 years	168	21%	26%
Between 6 and 10 years	176	22%	21%
More than 10 years	389	49%	45%

Appendix 1: All Results

	Negative or Neutral Response (1-4)		Agree (5-6)		Strongly Agree (7)	
	n	%	n	%	n	%
Surgical team members are open to changes that improve patient safety, even if it means slowing down (n=881)	340	38.6	394	44.7	147	16.7
The 'Time Out' is used in every case by every surgical team (n=880)	140	15.9	332	37.7	408	46.4
The 'Time Out' was difficult to implement (n=876)	594	67.8	225	25.7	57	6.5
Surgical team members all agree on the importance of using checklists in surgery (n=871)	279	32.0	398	45.7	194	22.3
Interest in checklist implementation is limited to one profession e.g. surgery, anaesthesia or nursing (n=870)	669	76.9	149	17.1	52	6.0
Team discussions (e.g. briefings or debriefings) are common (n=839)	246	29.3	353	42.1	240	28.6
Surgical team members make sure their comments or instructions are heard (n=825)	216	26.2	462	56.0	147	17.8
Surgical team members share key information as it becomes available (n=825)	203	24.6	462	56.0	160	19.4
Surgical team members appear eager to help one another (n=812)	146	18.0	514	63.3	152	18.7
Physicians and nurses work together as a well-coordinated team (n=812)	122	15.0	550	67.7	140	17.2
Surgeons and anaesthesia providers work together as a well-coordinated team (n=811)	119	14.7	545	67.2	147	18.1
Surgical team members from different disciplines always discuss patients' conditions and the progress of operations (n=820)	381	46.5	349	42.6	90	11.0
Plans for patient care are adapted as needed (n=797)	66	8.3	507	63.6	224	28.1
Surgical team members communicate with me in a respectful manner (n=826)	155	18.8	494	59.8	177	21.4
My input about patient care is well received by other surgical team members (n=820)	123	15.0	513	62.6	184	22.4
I am always treated as a valuable member of the surgical team (n=810)	157	19.4	470	58.0	183	22.6
Potential errors or mistakes are pointed out without raised voices or condescending remarks (n=822)	228	27.7	475	57.8	119	14.5
It is difficult to discuss medical mistakes (n=818)	576	70.4	208	25.4	34	4.2
Surgical team members appear to struggle and do not ask one another for help (n=813)	711	87.5	93	11.4	9	1.1
It is difficult to speak up when I perceive problems with patient care (n=826)	661	80.0	137	16.6	28	3.4
Physicians are only open to suggestions from other physicians (n=821)	584	71.1	195	23.8	42	5.1
Physicians are present and actively participating in patient care prior to skin incision (n=791)	220	27.8	417	52.7	154	19.5
Physicians maintain a positive tone throughout operations (n=824)	380	46.1	390	47.3	54	6.6
Surgical team members refer to each other by role instead of name e.g. "Nurse" instead of "Anna" (n=822)	744	90.5	51	6.2	27	3.3
Surgical teams always discuss the operative plan (i.e. more than the location of the incision and name of the procedure) before incision (n=797)	265	33.2	382	47.9	150	18.8
For complex patients or cases, preoperative briefings always include planning for potential problems (n=775)	156	20.1	363	46.8	256	33.0
Postoperative debriefings always include a discussion of key concerns for patient recovery and post-op management (n=760)	298	39.2	317	41.7	145	19.1
Equipment issues or other problems discussed in post-op debriefings are addressed in a timely manner (n=737)	307	41.7	297	40.3	133	18.0
I would feel safe being treated as a patient (n=874)	109	12.5	478	54.7	287	32.8
If I were having an operation, I would want a surgical safety checklist to be used (n=879)	52	5.9	167	19.0	660	75.1
Pressure to move quickly from case to case gets in the way of patient safety (n=872)	570	65.4	219	25.1	83	9.5
I am encouraged to report any patient safety concerns I may have (n=874)	175	20.0	362	41.4	337	38.6
Communication breakdowns frequently lead to delays in starting surgical procedures (n=834)	422	50.6	309	37.1	103	12.4
Disagreements are resolved with an emphasis not on who is right but what is right for the patient (n=795)	169	21.3	478	60.1	148	18.6
Decision-making is shared among disciplines in response to changes in patients' conditions or issues that arise during operations (n=794)	129	16.2	503	63.4	162	20.4

Appendix 2: Survey Instrument

Health Quality & Safety Commission
Surgical Culture Safety Survey
February 2017

Survey introduction email: brief description, assurance of anonymity, time to complete, prize draw details and technical issues contact details.

A: Which of the following DHBs are you currently working for?

Northland	
Auckland	
Waitemata	
Counties Manukau	
Waikato	
Bay of Plenty	
Lakes	
Tairāwhiti	
Hawke's Bay	
Taranaki	
Whanganui	
MidCentral	
Capital & Coast	
Hutt Valley	
Wairarapa	
Nelson Marlborough	
West Coast	
Canterbury	
South Canterbury	
Southern	

B: In which surgical service(s) do you work? **(Please select all that apply)**

General	
Trauma	
Orthopaedic	
Neurosurgery	
Cardiac	
Thoracic	
Vascular	
Paediatric	
ENT/ORL	
Urology	
Gynaecology	
Ambulatory	
Plastics	
Ophthalmology	
Other – please tell us which	

C: In which surgical service(s) do you work most often? **(Please select all that apply)**

General	
Trauma	
Orthopaedic	
Neurosurgery	
Cardiac	
Thoracic	
Vascular	
Paediatric	
ENT/ORL	
Urology	
Gynaecology	
Ambulatory	
Plastics	
Ophthalmology	
Other – please tell us which	

We are interested in the extent to which you disagree or agree with the following. Please use a scale from 1-7, where 1 means strongly disagree and 7 means strongly agree.

The first set of questons is about patient safety and surgical safety checklist implementation. Two questions are specifically about the 'time out' part of the checklist, which is done just before knife to skin.

In the operating theatres where I work …	Strongly Disagree						Strongly Agree
1. Surgical team members are open to changes that improve patient safety, even if it means slowing down.	①	②	③	④	⑤	⑥	⑦
2. The "Time Out" is used in every case by every surgical team.	①	②	③	④	⑤	⑥	⑦
3. The "Time Out" was difficult to implement.	①	②	③	④	⑤	⑥	⑦
4. Surgical team members all agree on the importance of using checklists in surgery.	①	②	③	④	⑤	⑥	⑦
5. Interest in checklist implementation is limited to one profession (e.g., surgery, anaesthesia, or nursing).	①	②	③	④	⑤	⑥	⑦
6. I am encouraged to report any patient safety concerns I may have.	①	②	③	④	⑤	⑥	⑦
7. Pressure to move quickly from case to case gets in the way of patient safety.	①	②	③	④	⑤	⑥	⑦
8. I would feel safe being treated as a patient.	①	②	③	④	⑤	⑥	⑦
9. If I were having an operation, I would want a surgical safety checklist to be used.	①	②	③	④	⑤	⑥	⑦

The next set of questions is about communication.

In the operating theatres where I work …	Strongly Disagree						Strongly Agree
10. Team discussions (e.g. briefings or debriefings) are common.	①	②	③	④	⑤	⑥	⑦
11. Communication breakdowns frequently lead to delays in starting surgical procedures.	①	②	③	④	⑤	⑥	⑦
12. Surgical team members make sure their comments or instructions are heard.	①	②	③	④	⑤	⑥	⑦
13. Surgical team members share key information as it becomes available.	①	②	③	④	⑤	⑥	⑦
14. Surgical team members from different disciplines always discuss patients' conditions and the progress of operations.	①	②	③	④	⑤	⑥	⑦
15. Physicians are only open to suggestions from other physicians.	①	②	③	④	⑤	⑥	⑦
16. Physicians maintain a positive tone throughout operations.	①	②	③	④	⑤	⑥	⑦
17 It is difficult to speak up when I perceive problems with patient care.	①	②	③	④	⑤	⑥	⑦
18. Surgical team members communicate with me in a respectful manner.	①	②	③	④	⑤	⑥	⑦
19. My input about patient care is well received by other surgical team members.	①	②	③	④	⑤	⑥	⑦
20. Potential errors or mistakes are pointed out without raised voices or condescending remarks.	①	②	③	④	⑤	⑥	⑦
21 It is difficult to discuss medical mistakes.	①	②	③	④	⑤	⑥	⑦
22. Surgical team members refer to each other by role instead of name (e.g., "Nurse" instead of "Anna").	①	②	③	④	⑤	⑥	⑦

The next set of questions is about teamwork.

In the operating theatres where I work …	Strongly Disagree						Strongly Agree
23. Surgical team members appear eager to help one another.	①	②	③	④	⑤	⑥	⑦
24. Physicians and nurses work together as a well-coordinated team.	①	②	③	④	⑤	⑥	⑦
25. Surgeons and anaesthesia providers work together as a well-coordinated team.	①	②	③	④	⑤	⑥	⑦
26. I am always treated as a valuable member of the surgical team.	①	②	③	④	⑤	⑥	⑦
27 Surgical team members appear to struggle and do not ask one another for help.	①	②	③	④	⑤	⑥	⑦

The next set of questions is about patient care

In the operating theatres where I work …	Strongly Disagree						Strongly Agree
28. Plans for patient care are adapted as needed.	①	②	③	④	⑤	⑥	⑦
29. Disagreements are resolved with an emphasis not on who is right but what is right for the patient.	①	②	③	④	⑤	⑥	⑦
30 Decision-making is shared among disciplines in response to changes in patients' conditions or issues that arise during operations.	①	②	③	④	⑤	⑥	⑦
31. Physicians are present and actively participating in patient care prior to skin incision.	①	②	③	④	⑤	⑥	⑦

The next set of questions is about planning, briefings and debriefings

In the operating theatres where I work …	Strongly Disagree						Strongly Agree
32. Surgical teams always discuss the operative plan (i.e., more than the location of the incision and name of the procedure) before incision.	①	②	③	④	⑤	⑥	⑦
33. For complex patients or cases, preoperative briefings always include planning for potential problems.	①	②	③	④	⑤	⑥	⑦
34. Postoperative debriefings always include a discussion of key concerns for patient recovery and post-op management.	①	②	③	④	⑤	⑥	⑦
35. Equipment issues or other problems discussed in postoperative debriefings are addressed in a timely manner.	①	②	③	④	⑤	⑥	⑦

Q.36 Do you have any feedback or comments about any of the topics covered in this survey?

Text box for open-ended response

The final set of questions will help us understand a little more about who answered this survey.

A: Are you:

Male	
Female	
I would rather not say	

B: What is your primary professional role?

Consultant Surgeon	
Surgical registrar/fellow	
Consultant Anaethestist	
Anaethestist registrar/fellow	
Anaesthetist Technician	
Theatre Nurse	
Other – please tell us what	

C: How many years have you worked in this role at any hospital?

Less than one year	
Between 1 and 5 years	
Between 6 and 10 years	
More than 10 years	

D: Which of the following best describes your ethnicity?

New Zealand European	
Māori	
Pacific Peoples	
Asian	
Asian Indian	
Other European	
Other – please tell us which ethnicity you most identify with	

Thank you for your time, it is much appreciated.
If you would like to enter the prize draw, please enter your name and a contact phone number or email address below.