# Assessing patient safety culture in hospitals across countries

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## Abstract

**Objective.** It is believed that in order to reduce the number of adverse events, hospitals have to stimulate a more open culture and reflective attitude towards errors and patient safety. The objective is to examine similarities and differences in hospital patient safety culture in three countries: the Netherlands, the USA and Taiwan.

**Design.** This is a cross-sectional survey study across three countries. A questionnaire, the Hospital Survey on Patient Safety Culture (Hospital SOPS), was disseminated nationwide in the Netherlands, the USA and Taiwan.

**Setting.** The study was conducted in 45 hospitals in the Netherlands, 622 in the USA and 74 in Taiwan.

**Participants.** A total of 3779 professionals from the participating hospitals in the Netherlands, 196 462 from the USA and 10 146 from Taiwan participated in the study.

**Main Outcome Measures.** The main outcome measures of the study were 12 dimensions of patient safety culture, e.g. Teamwork, Organizational learning, Communication openness.

**Results.** Most hospitals in all three countries have high scores on teamwork within units. The area with a high potential for improvement in all three countries is Handoffs and transitions. Differences between countries exist on the following dimensions: Non-punitive response to error, Feedback and communication about error, Communication openness, Management support for patient safety and Organizational learning—continuous improvement. On the whole, US respondents were more positive about the safety culture in their hospitals than Dutch and Taiwanese respondents. Nevertheless, there are even larger differences between hospitals within a country.

**Conclusions.** Comparison of patient safety culture data has shown similarities and differences within and between countries. All three countries can improve areas of their patient safety culture. Countries can identify and share best practices and learn from each other.

Keywords: patient safety, hospital care, setting of care, quality culture, quality management, surveys, general methodology

## Introduction

Many experts on patient safety believe that full disclosure of adverse events, without blame, leads to a reduction in medical errors [1]. Still, in many organizations, there is a blame culture in which health-care professionals are afraid of reporting errors because of liability concerns or the fear of being seen as incompetent by colleagues. Consequences are underreporting and the fact that the expected learning from adverse events and near misses does not take place on a broad scale [2].

One of the recommendations of the Institute of Medicine in the USA [1], the Department of Health in the UK [3] and a consortium of field parties (e.g. associations of nurses, doctors and hospitals) in the Netherlands [4] to reduce adverse events is to stimulate a more open culture and reflective attitude towards errors and adverse events. Patient safety culture can be described as:

> The product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organization's health and safety management. [5, 6]

Others have argued that the safety culture of an organization develops in several stages from pathological ('we are doing

fine, there are no safety concerns') to generative ('patient safety is the first priority in everything we do') [7, 8]. Based on empirical research, differences have been found in organizational culture between countries [9], and in safety culture between hospitals [10], hospital units [11] and different health-care professions [12].

The aim of this article is to examine patient safety culture in hospitals in three countries, the Netherlands, the USA and Taiwan, and to diagnose common and country-specific strengths and weaknesses. The following are the research questions of this article: (i) What is the patient safety culture in hospitals in the three countries? (ii) Are there any differences across these countries and how can these differences be explained?

## Methods

### Selection of the three countries

For this study, we were looking for countries with well-developed health-care systems, similar educated professional groups and a focus on improving patient safety. The Netherlands, Taiwan and the USA fulfil these criteria, come from different parts of the world, were already using the same safety culture questionnaire on a broader scale and had empirical data.

### Patient safety culture survey

The Hospital Survey on Patient Safety Culture (Hospital SOPS) was originally developed, pilot-tested and revised by Westat in the USA and then released by the Agency of Healthcare Research and Quality (AHRQ) [13]. The psychometric properties of the US version have been published [14]. The questionnaire has been used in various countries besides the USA [15, 16]. The survey was designed to assess opinions of hospital staff about patient safety issues, medical error and event reporting and includes 42 items measuring 12 dimensions of patient safety culture (Table A1). Respondents are asked to rate each item of a dimension on a five-point Likert scale of agreement (strongly disagree, disagree, neutral, agree and strongly agree) or frequency (never, rarely, sometimes, most of the time, always). The survey includes two questions asking respondents to provide an overall grade on patient safety for their work area/unit and to indicate the number of events they have reported over the past 12 months. Respondents are asked to provide limited background information about themselves.

For the Netherlands and Taiwan, the Hospital SOPS was translated using forward and backward translation to check the quality of the translation. In both countries, the questionnaire was pilot-tested and an expert panel was used to discuss the intelligibility and applicability of the items. In case an item was found to be confusing or unclear, the translation was improved. There were no items that were inapplicable. The results of the validation process have been described in more detail elsewhere [17, 18].

### Data collection

The sample selection for this study was not planned for an international comparative study upfront. Each country administered independently a national survey of safety culture using the Hospital SOPS questionnaire. Nevertheless, the data provide a good opportunity to compare the safety cultures of three countries by investigating commonalities and differences.

*The Netherlands.* The questionnaire was administered on paper in 45 out of 96 Dutch hospitals from June 2005 till December 2007. Hospitals differed by teaching status and were spread equally over the whole country.

A total number of 171 hospital units participated in the study. Units and hospitals were not randomly selected. In each unit, a random sample of about 30 health-care providers was drawn. Respondents had to be involved in the care process, work for at least 6 months at the unit and work for more than 12 h a week. These criteria were thought to be important to get reliable answers. A total of 3779 respondents filled out the questionnaire. The response rates of 125 of the 171 units were registered. In the other units, the distribution of the questionnaire was not carried out by the researchers and calculating response rates for these units was not possible. The average response rate of the 125 units was 69%.

*Taiwan.* The questionnaire was administered on paper in 74 out of 566 Taiwanese hospitals from June 2007 till August 2008. Most hospitals (64) were selected using stratified sampling for 11 types of hospital ownership. Another 10 hospitals participated voluntarily in the study. Participating hospitals represented a range of bed sizes and types of hospitals. Hospitals were spread across the country. Most hospitals were teaching hospitals (57%) and general private hospitals (61%). Units and respondents were not randomly selected. The mean number of units per hospital was 10.6 (range 1–15). A total of 10 146 respondents in 782 hospital units filled in the questionnaire. The average response rate was 87%.

*The USA.* For this article, we have used 2008 data from the Hospital SOPS Comparative Database. The hospitals were not randomly selected; however, the characteristics of the database hospitals are fairly consistent with the distribution of US hospitals registered with the American Hospital Association (AHA) [10]. The data report the results from a total of 622 hospitals with 4894 units and 196 462 hospital staff respondents. The participating hospitals represented a range of bed sizes and geographic regions. Most hospitals were non-teaching (69%) and non-government-owned (voluntary/non-profit or proprietary/investor-owned) (78%). The average response rate was 52%. Most hospitals (74%) administered the survey to all staff or a sample of all staff from all hospital departments.

### Statistical analysis

Percentages of positive responses were calculated for each item and each dimension. Negatively worded items were recoded. The percentages represent the average percentage

of positive responses across hospitals. To obtain the dimension scores, item percent positive scores were computed first and then the scores were averaged, which gives equal weight to each item in a composite. Questionnaires with missing responses on all of the non-demographic items were excluded from the analyses.

To describe the safety culture across countries, descriptive statistics with 95% confidence intervals were used to determine statistical significance for differences in the dimension scores at country level. For each item, ranges of positive responses were calculated at hospital level to determine variation between hospitals within countries. The units of analysis were countries and hospitals within countries. Data were analysed using SPSS 15.0.

## Results

### Characteristics of respondents

Table 1 shows the characteristics of the study samples. More than half of the respondents in the Netherlands and Taiwan were nursing staff, about 10% were doctors. In the USA,

more than one-third was nursing staff, 4% doctors and 52% other professionals. The most frequent work areas in the three countries were surgery and medicine.

### Comparison of safety culture dimensions

On 6 out of 12 safety culture dimensions, the three countries show significant differences in their scores. These are the bold dimensions in Table 2: Organizational learning, Management support, Communication openness, Frequency of event reporting, Teamwork across units and Non-punitive response to error. The scores of the Netherlands are consistently lower on Organizational learning, Management support and Teamwork across units, compared with Taiwan and the USA. However, respondents of the Netherlands are more positive about the dimension Non-punitive response to error. Respondents in the USA are particularly more positive about Frequency of event reporting. Taiwan scores significantly lower on Communication openness. On two dimensions, the three countries hold similar scores: high on Teamwork within units and low on Handoffs and transitions of patient information.

**Table 1** Percentages of sample characteristics: hospitals and staff respondents

| Characteristic | Category | Hospitals—Netherlands: $n = 45$ (%) | Hospitals—Taiwan: $n = 74$ (%) | Hospitals—USA: $n = 622$ (%) |
|---|---|---|---|---|
| Hospital type | Non-teaching hospital | 66 | 43 | 69 |
| | Teaching hospital | 34 | 57 | 31 |
| | | Staff respondents—Netherlands: $n = 3779$ (%) | Staff respondents—Taiwan: $n = 10\,146$ (%) | Staff respondents—USA: $n = 196\,462$ (%) |
| Staff position | Nursing staff | 53 | 58 | 36 |
| | Medical staff | 12 | 10 | 4 |
| | Management and administrative staff | 6 | 11 | 7 |
| | Other | 29 | 21 | 53 |
| Work area/unit type | Surgery | 12 | 11 | 10 |
| | Medicine | 11 | 17 | 9 |
| | Intensive care | 8 | 10 | 7 |
| | Radiology | 3 | 3 | 6 |
| | Emergency | 11 | 7 | 5 |
| | Laboratory | 2 | 6 | 5 |
| | Obstetrics | 2 | 3 | 4 |
| | Rehabilitation | 0 | 3 | 4 |
| | Pharmacy | 2 | 5 | 3 |
| | Paediatrics | 9 | 4 | 2 |
| | Psychiatry/mental health | 2 | 2 | 2 |
| | Anaesthesiology | 5 | 1 | 1 |
| | Other | 31 | 27 | 33 |
| | Many different hospital units | 2 | 3 | 8 |

**Table 2** Comparative results on safety culture dimensions of three countries: significant differences between countries are presented in bold

| Safety culture dimensions | Average percentage positive responses (95% confidence interval) | | |
|---|---|---|---|
| | Netherlands ($n = 45$) | Taiwan ($n = 74$) | USA ($n = 622$) |
| Teamwork within units | 85 (75–95) | 81 (72–90) | 79 (76–82) |
| Supervisor/manager's expectations and actions promoting patient safety | 63 (49–77) | 65 (54–76) | 75 (72–78) |
| **Organizational learning—continuous improvement** | **47 (32–62)** | **80 (71–89)** | **71 (67–75)** |
| **Management support for patient safety** | **31 (18–45)** | **60 (49–71)** | **70 (66–74)** |
| Overall perceptions of patient safety | 49 (34–64) | 52 (41–63) | 64 (60–68) |
| Feedback and communication about error | 52 (37–67) | 44 (33–55) | 63 (59–67) |
| **Communication openness** | **68 (54–82)** | **40 (29–51)** | **62 (58–66)** |
| **Frequency of events reported** | **36 (22–50)** | **31 (21–42)** | **60 (56–64)** |
| **Teamwork across units** | **28 (15–41)** | **56 (45–67)** | **57 (53–61)** |
| Staffing | 59 (45–73) | 40 (29–51) | 55 (51–59) |
| Handoffs and transitions | 42 (28–56) | 43 (32–54) | 44 (40–48) |
| **Non-punitive response to error** | **66 (52–80)** | **31 (21–42)** | **44 (40–48)** |

## Strong areas and areas with potential for improvement

Table 3 shows the individual items of the dimensions of the questionnaire for the three countries and the average percentage of the respondents per hospital that gave positive responses to these specific items, together with the minimum and maximum hospital scores.

*Similarities between countries.* In all three countries, most of the respondents are positive about items of Teamwork within units, e.g. hospital staff treat each other with respect and work together as a team. The item with the highest average percentage positive responses (Netherlands: 92%; Taiwan: 88%; USA: 85%) was 'People support one another in this unit'.

The area with the most potential for improvement in all three countries is 'Handoffs and transitions'. About half of the hospital staff feel that important patient information is often lost during shift changes or exchanges across hospital units, and that this is problematic for patients. The item with the lowest average percentage positive responses (Netherlands: 20%; Taiwan: 46%; USA: 41%) was 'Things "fall between the cracks" when transferring patients from one unit to another'.

*Differences between countries. Communication openness.* On average, the majority of respondents within Dutch hospitals (82%) speak up if they see something that may negatively affect patient care and they feel free to question the decisions or actions of those with more authority (56%). In the USA, these percentages are less positive and they are even lower in Taiwan.

*Non-punitive response to error.* The extent to which staff in the USA and Taiwan feel that their mistakes and event reports are not held against them and that mistakes are not kept in their personnel file had the lowest average percentage positive responses. On the contrary, in the Netherlands this is one of the strongest areas in hospitals, with 69% positive responses.

*Patient safety grade.* On average, the majority of respondents within US hospitals (73%) gave their work area or unit a grade on patient safety of either 'A—Excellent' (25%) or 'B—Very good' (48%). More than half of the respondents in the Netherlands (63%) and Taiwan (51%) gave the grade 'C—Acceptable' (Fig. 1).

*Variation within countries.* For most of the items, the ranges in Table 3 show a clear variation between hospitals within the three countries. The largest variation within the countries can be found on the dimension Staffing, where in some hospitals in a country above 80% of the respondents say that there is enough staff to handle the workload, in other hospitals in the country this is about 10%.

In Taiwan, large variation existed between hospitals within the country in Communication openness, e.g. whether staff feels free to question decisions or actions of those with more authority. In the USA, large variation between hospitals was found in staff being afraid to ask questions when something does not seem right.

## Discussion

In this article, we have compared the patient safety culture in a sample of hospitals of the Netherlands, Taiwan and the USA. Based on the 12 culture dimensions of the Hospital SOPS, the results showed that Teamwork within units is a strong area in the participating hospitals in all three countries. A weak area in all three countries is the culture dimension Handoffs and transitions.

**Table 3** Comparative results of hospitals on safety culture items within and between three countries

| | Average percentage positive responses (range between hospitals[a]) | | |
| --- | --- | --- | --- |
| | Netherlands, $n = 45$ hospitals | Taiwan, $n = 74$ hospitals | USA, $n = 622$ hospitals |
| Teamwork within units | | | |
| People support one another in this unit | 92 (79–100) | 88 (64–100) | 85 (45–100) |
| When a lot of work needs to be done quickly, we work together as a team to get the work done | 85 (50–100) | 82 (65–100) | 86 (62–100) |
| In this unit, people treat each other with respect | 84 (60–100) | 81 (66–100) | 78 (31–100) |
| When one area in this unit gets really busy, others help out | 77 (46–97) | 73 (40–100) | 68 (26–97) |
| Supervisor/manager's expectations and actions promoting patient safety | | | |
| My supervisor says a good word when he/she sees a job done according to established patient safety procedures | 38 (10–68) | 60 (33–92) | 72 (41–95) |
| My supervisor seriously considers staff suggestions for improving patient safety | 78 (58–100) | 74 (46–100) | 76 (41–100) |
| Whenever pressure builds up, my supervisor wants us to work faster, even if it means taking shortcuts (R) | 67 (28–100) | 56 (30–100) | 74 (43–100) |
| My supervisor overlooks patient safety problems that happen over and over (R) | 67 (36–92) | 72 (40–100) | 77 (52–100) |
| Organizational learning—continuous improvement | | | |
| We are actively doing things to improve patient safety | 57 (14–97) | 84 (69–100) | 82 (19–100) |
| Mistakes have led to positive changes here | 47 (7–80) | 82 (62–100) | 63 (33–100) |
| After we make changes to improve patient safety, we evaluate their effectiveness | 36 (14–74) | 75 (17–100) | 68 (12–94) |
| Management support for patient safety | | | |
| Hospital management provides a work climate that promotes patient safety | 44 (13–84) | 65 (36–96) | 80 (30–100) |
| The actions of hospital management show that patient safety is a top priority | 20 (3–55) | 71 (20–100) | 72 (36–100) |
| Hospital management seems interested in patient safety only after an adverse event happens (R) | 29 (7–57) | 45 (17–100) | 59 (15–93) |
| Overall perceptions of patient safety | | | |
| It is just by chance that more serious mistakes do not happen around here (R) | 55 (20–87) | 48 (22–83) | 60 (18–85) |
| Patient safety is never sacrificed to get more work done[b] | – | 76 (36–94) | 64 (27–100) |
| We have patient safety problems in this unit (R) | 56 (21–97) | 24 (3–76) | 62 (22–92) |
| Our procedures and systems are good at preventing errors from happening | 36 (0–73) | 61 (21–96) | 70 (35–100) |
| Feedback and communication about error | | | |
| We are given feedback about changes put into place based on event reports | 38 (8–74) | 27 (0–81) | 53 (18–90) |
| We are informed about errors that happen in this unit | 52 (7–80) | 37 (14–80) | 64 (35–93) |
| In this unit, we discuss ways to prevent errors from happening again | 67 (30–100) | 68 (33–100) | 70 (33–100) |
| Communication openness | | | |
| Staff will freely speak up if they see something that may negatively affect patient care | 82 (57–97) | 46 (23–96) | 76 (47–100) |
| Staff feel free to question the decisions or actions of those with more authority | 56 (31–84) | 37 (12–92) | 47 (26–94) |
| Staff are afraid to ask questions when something does not seem right (R) | 68 (39–85) | 37 (7–80) | 63 (7–100) |
| Frequency of events reported | | | |
| When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported? | 21 (0–61) | 33 (14–82) | 52 (25–81) |
| When a mistake is made, but has no potential to harm the patient, how often is this reported? | 33 (6–61) | 26 (0–76) | 56 (25–85) |
| When a mistake is made that could harm the patient, but does not, how often is this reported? | 55 (23–79) | 33 (14–92) | 73 (45–100) |

**Table 3** Continued

| | Average percentage positive responses (range between hospitals[a]) | | |
| --- | --- | --- | --- |
| | Netherlands, $n = 45$ hospitals | Taiwan, $n = 74$ hospitals | USA, $n = 622$ hospitals |
| **Teamwork across units** | | | |
| Hospital units do not coordinate well with each other (R) | 14 (0–40) | 48 (26–100) | 45 (5–91) |
| There is good cooperation among hospital units that need to work together | 35 (14–66) | 57 (38–100) | 58 (11–93) |
| It is often unpleasant to work with staff from other hospital units (R)[b] | – | 51 (27–100) | 58 (7–100) |
| Hospital units work well together to provide the best care for patients | 36 (14–64) | 67 (50–100) | 67 (21–95) |
| **Staffing** | | | |
| We have enough staff to handle the workload | 45 (7–87) | 38 (9–90) | 54 (11–98) |
| Staff in this unit work longer hours than is best for patient care (R) | 67 (13–94) | 36 (10–78) | 52 (9–87) |
| We use more agency/temporary staff than is best for patient care (R) | 74 (20–100) | 57 (36–100) | 65 (0–100) |
| We work in 'crisis mode' trying to do too much, too quickly (R) | 52 (23–81) | 30 (0–92) | 49 (6–91) |
| **Handoffs and transitions** | | | |
| Things 'fall between the cracks' when transferring patients from one unit to another (R) | 20 (6–49) | 46 (21–89) | 41 (13–91) |
| Important patient care information is often lost during shift changes (R) | 58 (35–84) | 57 (30–93) | 49 (19–91) |
| Problems often occur in the exchange of information across hospital units (R) | 30 (7–57) | 41 (12–85) | 42 (0–100) |
| Shift changes are problematic for patients in this hospital (R) | 60 (37–90) | 28 (0–75) | 45 (18–94) |
| **Non-punitive response to error** | | | |
| Staff feel like their mistakes are held against them (R) | 73 (39–92) | 24 (7–74) | 51 (18–88) |
| When an event is reported, it feels like the person is being written up, not the problem (R) | 57 (15–81) | 49 (19–100) | 45 (12–88) |
| Staff worry that mistakes they make are kept in their personnel file (R) | 69 (39–97) | 20 (0–60) | 35 (12–71) |

(R): For negatively worded items, the percentage positive response is the combined percentage of respondents within a hospital who answered 'Strongly disagree' or 'Disagree', or 'Never' or 'Rarely', because a negative answer on a negatively worded item indicates a *positive* response. For example for the item: 'We have patient safety problems in this work area': if 60% of the respondents within a hospital *strongly disagree* and 20% *disagree*, the item-level percent positive response would be 80% positive (i.e. 80% of respondents *do not* believe they have patient safety problems in their work area).
[a]This is the range of percent positive scores obtained by hospitals and are actual scores from the lowest and highest scoring hospitals.
[b]No results on this item for the Netherlands, because the item was deleted in the Dutch version of the Hospital SOPS (after factor analysis).
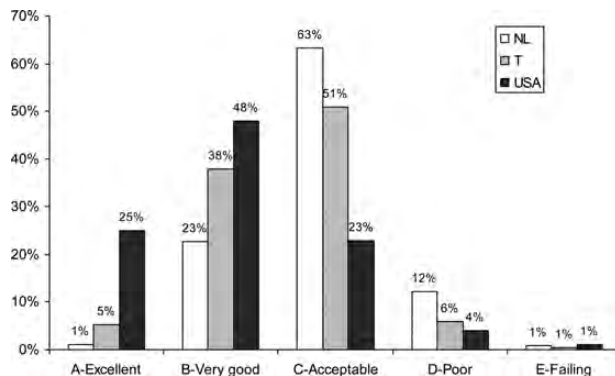


**Figure 1** Comparison of patient safety grade given by US, Dutch and Taiwanese respondents.

Besides these similarities, we found differences in patient safety culture within and between the three countries. In general, US respondents gave a more positive response on most of the safety culture dimensions and they also gave a higher overall safety grade than respondents in the Netherlands and Taiwan. On the other side, there was more variation between US hospitals than between hospitals in the other two countries. Respondents in the Netherlands were more negative about Organizational learning and Management support, but more positive about the Non-punitive response to error than respondents from Taiwan and the USA.

Variation within the three countries was most visible for Staffing, e.g. the evaluation of respondents on the necessary number of staff and working hours to handle the workload, the use of temporary staff influencing patient care and the way of working by trying to do too much, too quickly.

## Strength and data limitations

The survey results presented in this article represent a large compilation of data from the Hospital SOPS, and therefore provide a useful reference for comparison. However, there are several limitations to these data that should be kept in mind.

First, the hospitals that submitted data are not a random sample of all hospitals in the participating countries. However, the characteristics of the participating hospitals are fairly consistent with all US, Taiwan and Dutch hospitals. Some positive selection bias is still possible.

Second, US hospitals used paper, web, or mixed modes to collect the data, whereas the Dutch and Taiwanese hospitals used a paper-only survey. It is possible that the different modes could lead to differences in survey responses. In addition, some hospitals conducted a census, surveying all hospital staff, while others administered the survey to a sample of staff. In cases in which a sample was drawn, no data were obtained to determine the adequacy of the methodology used to draw the sample.

Third, the timeframe of the administration of the survey was longer in the Netherlands than in the other two countries. However, during the whole period, policies did not change in the Netherlands.

Fourth, there is a large variation in sample sizes between the countries. The large sample size in the USA resulted in more sensitive results, with greater statistical power and smaller confidence intervals (CIs) compared with Taiwan or the Netherlands.

Fifth, it is not clear whether the safety culture instrument performs similarly across countries. Differences found in this study could be partly caused by potential confounding due to different performance of the measurement instrument in the three countries or country-specific effects due to background characteristics of a country. Nevertheless, the instrument has been validated in all countries.

Finally, the results described in this article represent the perceptions of professionals in hospitals. We have not made any attempts to check the accuracy of the data submitted by the hospitals against other assessment results, e.g. interviews, observations or record review.

## Contextual explanations for country variations

The more positive response of US respondents on most of the safety culture dimensions could reflect safer health care in US hospitals. After all, the USA was one of the first countries to initiate a patient safety movement following the Institute of Medicine's landmark report 'To Err is Human' in 2000 [1]. In addition, in 2004, the Institute for Healthcare Improvement initiated a national patient safety campaign called the Hundred Thousand Lives campaign [19], whereas the first safety campaign in the Netherlands 'Prevent harm, work safely' [4] just started in 2008 and the Taiwan Department of Health established a 'Patient Safety Committee' in 2003 after several medical events happened in some Taiwanese hospitals in 2002.

Another explanation could be that there are differences in the national cultures of the countries. Dutch people, in general, are more sober in their expressions and maybe more critical concerning their own performance. In Taiwan, the doctrine of the mean, a neutral course—avoiding controversial assertions about debatable matters—is deep-seated in the culture.

With regard to the developmental stages of patient safety culture [7], it is not clear that the USA has a more developed safety culture than the other countries. Despite more positive scores on most of the safety culture dimensions, the lower scores on the dimension Non-punitive response to error might be a counter argument.

In the Netherlands, much more work has to be done to improve the conditions for learning and improving patient safety, e.g. Management support for patient safety, Teamwork across units, Frequency of event reporting and Feedback about errors. These topics are addressed in the national patient safety campaign 'Prevent harm, work safely' [4].

In Taiwan, improvement efforts should focus on communication openness and stimulate staff to speak up when something might affect patients negatively or when they have doubts about actions of colleagues with more authority. To enhance adverse event reporting, in 2003 the Taiwan Department of Health funded the creation of a voluntary reporting system. In addition, 54 standards related to patient rights and safety were included in the new Taiwan hospital accreditation standards. In order to get better results in the hospital accreditation and to get a contract with the Bureau of National Health Insurance, hospitals feel a strong pressure to improve the quality of care and patient safety.

## Conclusion

Conducting comparisons on safety culture to identify opportunities for improvement is an important area for research with potentially useful implications for practice. The results have shown similarities and differences within and between the three countries. This means that within countries, hospitals with low scores on safety culture dimensions can learn from hospitals that have more developed safety cultures. Good examples can be found within each country, reducing the necessity to look over the borders when it comes to improving safety culture. However, for some dimensions with low scores nationally, countries can share best practices and learn from each other. For various weak points, safety improvement activities already exist and exchange of experiences with the implementation of these activities can take place. Examples are the introduction of work rounds when more visible leadership commitment is required, or the introduction of a structured communication tool when the transfer of patients is a weak point [20].

We cannot be sure whether the differences found reflect actual differences in patient safety or a representation of differences in national culture. A comparison between more countries in future research in combination with other research methods could answer this question.

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# Appendix

**Table A1**  Patient safety culture dimensions and their description[a]

| | Patient safety culture dimensions | Descriptions of the dimension |
| --- | --- | --- |
| 1. | Teamwork within units | Staff support one another, treat each other with respect and work together as a team |
| 2. | Supervisor/manager's expectations and actions promoting safety | Supervisors/managers consider staff suggestions for improving patient safety, praise staff for following patient safety procedures and do not overlook patient safety problems |
| 3. | Organizational learning—continuous improvement | There is a learning culture in which mistakes lead to positive changes and changes are evaluated for effectiveness |
| 4. | Management support for patient safety | Hospital management provides a work climate that promotes patient safety and shows that patient safety is a top priority |
| 5. | Overall perceptions of patient safety | Procedures and systems are good at preventing errors and there is a lack of patient safety problems |
| 6. | Feedback and communication about error | Staff are informed about errors that happen, given feedback about changes implemented and discuss ways to prevent errors |
| 7. | Communication openness | Staff freely speak up if they see something that may negatively affect a patient and feel free to question |
| 8. | Frequency of events reported | Mistakes of the following types are reported: (i) mistakes caught and corrected before affecting the patient, (ii) mistakes with no potential to harm the patient, and (iii) mistakes that could harm the patient, but do not |
| 9. | Teamwork across units | Hospital units cooperate and coordinate with one another to provide the best care for patients |
| 10. | Staffing | There are enough staff to handle the workload and work hours are appropriate to provide the best care for patients |
| 11. | Handoffs and transitions | Important patient care information is transferred across hospital units and during shift changes |
| 12. | Non-punitive response to error | Staff feel that their mistakes and event reports are not held against them, and that mistakes are not kept in their personnel file |

[a]P15–16. Table 1–1. Patient Safety Culture Composites and Definitions, from AHRQ's Hospital SOPS: 2009 Comparative Database Report.