

Title: Taking up national safety alerts to improve patient safety in hospitals: the perspective of healthcare quality and risk managers

Titel: Nationale Sicherheitshinweise zur Verbesserung der Patientensicherheit in Spitälern nutzen: die Perspektive von Qualitäts- und Risk-Managern

Authors

Yvonne Pfeiffer¹, David Schwappach^{2,3}

Yvonne Pfeiffer, PhD, E-mail: ypfeiffer@ethz.ch

David Schwappach, PhD, E-mail: schwappach@patientensicherheit.ch (corresponding author)

¹ETH Zurich, Department of Management, Economics, and Technology, Weinbergstrasse 56/58, 8092 Zurich, Switzerland

²Swiss Patient Safety Foundation. Asylstr. 77. 8032 Zurich, Switzerland, Phone +41 (0)43 244 14 80, Fax +41 (0)43 244 14 81

³Institute of Social and Preventive Medicine (ISPM). University of Bern.

Keywords: national event reporting system, learning from national safety alerts, healthcare quality and risk manager

Schlüsselwörter: nationales Ereignisberichtssystem, Lernen von nationalen Sicherheitshinweisen, Qualitäts- und Risk-Manager in der Medizin

Title: Taking up national safety alerts to improve patient safety in hospitals: the perspective of healthcare quality and risk managers

Titel: Nationale Sicherheitshinweise zur Verbesserung der Patientensicherheit in Spitalern nutzen: die Perspektive von Qualitäts- und Risk-Managern

Keywords: national event reporting system, learning from national safety alerts, healthcare quality and risk manager

Schlüsselwörter: nationales Ereignisberichtssystem, Lernen aus nationalen Sicherheitshinweisen, Qualitäts- und Risk-Manager in der Medizin

ABSTRACT

Background. National safety alert systems publish relevant information to improve patient safety in hospitals. However, the information has to be transformed into local action to have an effect on patient safety. We studied three research questions: how Swiss healthcare quality and risk managers (qm/rm¹) see their own role in learning from safety alerts issued by the Swiss national voluntary reporting and analysis system, what their attitudes towards and evaluations of the alerts are, and which types of improvement actions were fostered by the safety alerts.

Methods. A survey was developed and applied to Swiss healthcare risk and quality managers, with a response rate of 39% (n = 116). Descriptive statistics are presented.

Results. The qm/rm disseminate and communicate with a broad variety of professional groups about the alerts. While most respondents felt that they should know the alerts and their contents, only a part of them felt responsible for driving organizational change based on the recommendations. However, most respondents used safety alerts to back up their own patient safety goals. The alerts were evaluated positively on various dimensions such as usefulness and were considered as standards of good practice by the majority of the respondents. A range of organizational responses was applied, with disseminating information being the most common.

An active role is related to using safety alerts for backing up own patient safety goals.

Conclusions. To support an active role of qm/rm in their hospital's learning from safety alerts, appropriate organizational structures should be developed. Furthermore, they could be given special information or training to act as an information hub on the issues discussed in the alerts.

Word count for the abstract: 281

¹ qm/rm is an abbreviation for "quality and risk manager"

ZUSAMMENFASSUNG

Hintergrund. Nationale Fehlermeldesysteme veröffentlichen relevante Information für die Verbesserung der Patientensicherheit in Spitälern. Damit die Warnhinweise einen Effekt auf die Patientensicherheit haben können, muss die enthaltene Information zu lokalen Massnahmen führen. Wir untersuchten drei Fragestellungen: wie die Qualitäts- und Risk-Manager (qm/rm²) Schweizer Spitäler ihre eigene Rolle beim Lernen aus Warnhinweisen („Quick-Alerts“), die vom freiwilligen Schweizer Berichts- und Analysesystem herausgegeben werden, einschätzen; welche Einstellungen und Bewertungen der Warnhinweise vorherrschen; und welche Art von Verbesserungsmassnahmen durch die Warnhinweise entstanden sind.

Methoden. Ein Fragebogen wurde entwickelt und Schweizer Qualitäts- und Riskmanagern vorgelegt, mit einer Rücklaufquote von 39% (n=116). Deskriptive Analysen werden berichtet.

Resultate. Die qm/rm verteilen die Warnhinweise und sprechen mit vielen unterschiedlichen Berufsgruppen über sie. Während die meisten Befragten angaben, dass sie die Warnhinweise kennen sollten, fühlte sich nur ein Teil von ihnen verantwortlich dafür, die darin empfohlenen Veränderungen vorzunehmen. Dennoch nutzten die meisten Befragten die Warnhinweise um ihre eigenen Ziele bezüglich Patientensicherheit zu untermauern. Die Hinweise wurden auf verschiedenen Dimensionen positiv bewertet, beispielweise ihre Nützlichkeit und sie wurden vom Grossteil der Befragten als Standards für „good practice“ angesehen. Eine Reihe unterschiedlicher Massnahmen wird genutzt, um die Hinweise zu bearbeiten, die häufigste unter ihnen war die Weiterverbreitung von Informationen.

Eine aktive Rolle bei der Bearbeitung der Warnhinweise wird vermehrt von jenen Befragten eingenommen, die die Warnhinweise auch nutzen, um ihre eigenen Patientensicherheitsziele zu untermauern.

Schlussfolgerungen. Um eine aktive Rolle der qm/rm beim Lernen aus Warnhinweisen im Spital zu unterstützen, sollten entsprechende organisationale Strukturen entwickelt werden. Des Weiteren könnten die qm/rm spezifische Hintergrundinformationen oder ein spezifisches Training bekommen

² qm/rm ist eine Abkürzung für „Qualitäts- und Risk-Manager“

um als eine Art Informationsplattform für die Themen die in den Warnhinweisen besprochen werden zu fungieren.

Anzahl Worte für die Zusammenfassung: 280

1 INTRODUCTION

1.1 Challenges of organizational learning from national event reporting systems

Learning from incidents and accidents is important for improving safety in healthcare. In order to disseminate insights from incident analyses that could be relevant to multiple hospitals, national reporting and analysis systems are established in many countries. In Switzerland, the Patient Safety Foundation gathers incident reports from 45 hospitals that are connected in a network to commonly share their incident reports. A team at the patient safety foundation monitors reporting and has experts doing analyses on the incidents considered relevant for all hospitals. A safety alert (called “Quick-Alert ®”) with recommendations about how to improve the issues related to an incident is sent out to healthcare practitioners on a regular basis (approximately 6 per year). The implementation of recommendations published in the safety alerts are not mandatory, and there is no formal registration or evaluation of whether they are implemented. Many (4000+) healthcare practitioners and interested persons have signed up for these reports. They are also freely available on the internet in three Swiss languages.

In other countries, similar approaches are used to disseminate analysis results of events that are considered important for other healthcare institutions than the one the event happened in (for a list, see 1]). For example, in the U.S., there are the sentinel event alerts that are developed and distributed by the Joint Commission, a non-governmental organization; in the UK, the National Patient Safety Agency issues safety alerts based on incident data from hospitals.

Although the uptake of recommendations from national event reporting systems is mandatory in the UK, it has been described as difficult and often incomplete (for nurses:[2]; for medical, nursing and clinical governance, and chief pharmacists:[3]). However, a recent study found that an alert related to risk of a drug overdose had a positive impact on clinical practice in the NHS [4].

In general, safety alerts describe real events that may or may not have happened in the organizations receiving the alert. Therefore, a gap between report and improvement recommendation [5] emerges in national, i.e., centralized, event alert systems: an incident happens under local conditions, is then reported and analyzed and an expert team defines a generalizable solution that should pertain to a broad audience. Thus, even if local experiences are commonly taken into account, the solution is

developed separately from where and how the problem happened initially. This disconnection between problem and solution occurs again when for example a quality or risk manager receives a safety alert. The recommendations in an alert present solutions for a problem that was not identified or analyzed in the hospital, thus the problem may exist in similar or in other form or not at all. As said above, the recommendations then need to be adapted to the local conditions and context. Put in other words, the problems fitting to the solution the safety alert proposes need to be identified (see also garbage can model,[6]). We therefore wanted to investigate how relevant and useful recipients of the safety alerts evaluate them and how the alerts with their generalized recommendations are used to generate change within the hospital.

Organizational actors try to infer the probability of this kind of event to happen in their context [7] and the lessons from a safety alert may pertain to different units, organizational levels, or professional groups. From an organizational learning perspective [8], information coming from national safety alerts represents a challenge: it needs to be integrated and evaluated in the local context of the organization. This activity ranges from judging whether the described risks are existent and relevant in the organization, interpreting what the recommendations mean for the organization, analyzing whether and how changes might be useful, to designing and finally implementing an improvement action.

Implementing an improvement involves many critical steps, such as finding internal support for the action, collaboratively designing what and how to do it, and finally introducing and following up on an improvement. For some reports, these activities are easier than for others, for example, if the recommendation is to banish water glass bottles (because they can break and hurt patients), this affects mainly the purchasing department. If a recommendation proposes improving processes that touch on interdependent tasks involving different professions or organizational roles and units, it may be difficult to find the responsible persons in the organization, to define what exactly should be done, to form a team that has enough power to implement a new solution, and to finally implement and monitor the change. In the first case the safety alert would lead to a solution of a problem (danger from glass bottle use), whereas in the second, a new repertoire of behaviors needs to be collectively developed and shared [9].

Taking up a safety alert in the risk management means to use its information for changing the way things are done in relation to a specific safety issue in the hospital. This can either be done spontaneously and specifically for each safety alert, or existing organizational learning mechanisms [10] such as incident reporting and analysis systems can be used to “digest” the information coming from the safety alerts. Some hospitals therefore connect their own incident reporting and analysis system with the national safety alerts and deal with incoming safety alerts much the same way as they deal with analyzed events, e.g., in designing actions in their incident reporting and analysis team.

1.2 The role of healthcare quality and risk managers

The safety alerts are received by a large and diverse group of healthcare professionals in Switzerland. In our study, we focused on risk and quality managers (qm/rm), because a) one of their main activities is enhancing patient safety, which means they are naturally interested in evaluating, initiating and managing change proposed by safety alerts, i.e., in organizational learning activities, and because b) they are located at the overall management level of the hospital, thus are expected to know the activities related to patient safety in the hospital. Focusing on qm/rm allowed us to target a specific population, of which usually only one or few work in a certain hospital. Furthermore, we were specifically interested in the role the safety alerts may play for the qm/rm in backing up their patient safety goals, e.g., using safety alerts for supporting own ideas they wanted to propose or implement anyway.

1.3 Aims of the study

The study's aims were to assess how national safety alerts are used to transform hospital practice and to shed light on the qm/rm roles in this process. In order to better understand 1) how the information of the safety alerts are used and disseminated throughout the hospital by the qm/rm, 2) how the alerts are evaluated by the healthcare risk managers, 3) how Swiss qm/rm see their own role in learning from safety alerts and their attitudes towards the alerts, and 4) to which types of improvement actions the alerts have led in the hospitals, we did a survey of healthcare risk and quality managers in Switzerland. The study was carried out collaboratively by two researchers from the Swiss Patient Safety Foundation

and from ETH Zurich. In order to assure independence and to avoid potential conflicts of interest, members of the team developing the safety alerts were not part of the research team.

2 METHODS

2.1 Sample

The Swiss healthcare quality and risk managers were invited via e-mail to respond to our online survey; the respondents were reminded twice to answer the survey. We used an e-mail list of the association of Swiss hospitals (H+) containing the e-mail addresses of all Swiss quality and risk managers (N = 294), of which n = 116 responded to our survey (39%). As we allowed skipping items, the sample size changes for different parts of the survey. From the n = 77 respondents giving information on demographic questions, 64% worked in a public hospital (36% in a private); 40% worked in a general hospital with 125-499 beds (university hospital: 7%, general hospital with 500 and more beds: 5%, with 124 and less beds: 20%, rehabilitation center: 8%, and other specialized centers: 20%). Respondents came from all regions of Switzerland (13% Espace Midland, 14% Lake Geneva region, 22% Northwestern Switzerland, 22% Eastern Switzerland, 7% Ticino, 9% Central Switzerland). Most of the respondent's hospitals were staffed with 51-100% FTE for quality and risk management (23% had less than 50 percent, 27% had 101-200 percent, 9% had 201-500 percent, and only 1% had more than 500 percent FTE). The largest part of the respondents (49%) had a professional background in nursing (15% a physician and 13% an economics/ administrative/ legal background). More than half of the respondents (57%) could devote between 50 and 100 percent of their working time to quality and risk management.

Ethics approval is not required for this type of study in Switzerland (Articles 1 and 2 of the Federal Act on Research involving Human Beings (Human Research Act, HRA)). Participation in the survey was regarded informed consent.

2.2 Survey development and content

The survey was developed based on our research questions and theoretical as well as methodological considerations. For research question 3 and 4 (see section 1.3) we applied an organizational learning perspective and developed items to assess qm/rms' activities matching various levels of

implementation ranging from only disseminating the information of an alert to supporting or even driving the actual implementation of recommended changes . The survey was pretested and iteratively adapted using four in-depth interviews with qm/rm, in which they were asked to speak out loud and verbalize their thoughts while responding to the survey. The survey was translated by professional translators to French and checked back by one of the authors who is fluent in French. We did not develop an Italian version of the survey as in the Italian speaking part of Switzerland most people speak either French or German and our resources were limited. The final versions were methodologically checked and proofread by two researchers familiar with the research questions. The survey had five parts: 1) dissemination of and communication about safety alerts, e.g., how often the qm/rm forwards the safety alerts to various groups or persons throughout the hospital; 2) usage of safety alerts assessing a) how the safety alerts are read, and b) how often safety alerts are fed into in established organizational processes or groups; 3) significance of the safety alerts for the own qm/rm role assessing various aspects, e.g., whether the qm/rm consider it a part of their task to read the safety alerts, whether they feel responsible to initiate actions from the safety alerts; 4) attitudes towards various aspects of safety alerts such as how well they usually fit to ongoing projects in the hospital; in a section of this part, safety alerts in general were asked to be rated on various dimensions such as feasibility of the recommended improvements, etc.; at the end of part 4, three open questions asked to indicate good and improvable aspects of safety alerts and to propose topics they would like a safety alert to cover. In the fifth part, we assessed which actions were taken in response to safety alerts, e.g., how often information is disseminated, etc. At the end, demographic questions about the respondents and their hospitals were asked.

The frequency and agreement-based response categories were on a 5-point Likert scale, their verbal anchors can be looked up in table 1-5. For items where we were not sure whether the qm/rm would have enough information to answer, we additionally offered a *don't know* option.

2.3 Analysis

Descriptive statistics such as frequencies of answers for the different categories and means and standard deviations are presented.

Missing values are present in the data to varying extents, depending on the item in question. Missing values were not imputed. Thus, the results are presented based on the number of answers for this item.

3 RESULTS

Tables 1-5 give an overview of the descriptive results. In the following sections, some important results displayed in tables 1-5 are highlighted:

Dissemination/ communication. The safety alerts were disseminated to various professional groups in the hospital by the qm/rm (see table 1), with 11 respondents forwarding the safety alerts *always* to all hospital employees, 57 also forwarded them to their hospital direction (*rarely* to *always*). E-mail was the most common way to disseminate the safety alerts, whereas personal communication was used to a much lesser extent. Generally, the qm/rm talked with a broad variety of other professional groups about the safety alerts. While more than 30% of the respondents talked often or always with clinical staff about the alert, (to a similar extent with nurses as with physicians), a fifth of the qm/rms answering to this question never communicated in incident reporting group meetings and never talked about safety alerts in meetings with other qm/rm persons.

Use of safety alerts. Safety alerts were most often taken up in the hospital's incident reporting processes and in meetings within the quality and risk management department, to a lesser extent in internal trainings and projects and in meetings of clinical staff (see table 2). According to most respondents, safety alerts were used never or only rarely in morbidity-mortality conferences (n = 21 respondents answered *don't know*).

Significance of safety alerts for qm/rm activity. Most qm/rms felt that they should read and know of the current safety alerts (see table 3). However, only 52% of the respondents felt that they should initiate and only 43% thought they should drive the implementation of the recommended changes (answering *agree* or *strongly agree* to items nr 4 and 5 of part 3). Most of the respondents thought that the experts that are affected by the safety alerts should implement the changes and that their role was

to forward the safety alerts to the responsible persons. Overall, the respondents agreed that safety alerts help to back up important topics in their hospital and that they are useful to account for the importance of a topic. 66% the respondents thought that the safety alerts make it easier to start communication about safety relevant issues.

Attitudes towards safety alerts. From the perspective of the qm/rms, the safety alerts represented standards for good practice ($M: 4.2, SD: 0.9$) and 36% of the respondents were positive towards making the implementation of the recommendations mandatory for hospitals (see table 4). Generally, the safety alerts have acceptable, very good or excellent ratings on the evaluation dimensions such as understandability, depth, or usefulness of recommendations.

The answers to the three open-ended questions were categorized into themes: Fourteen respondents made positive comments about the topics of the alerts, that they are relevant and help to sensitize to potential problems. Twenty-eight respondents commented positively on the structure of the safety alert, e.g., that there are examples given or that they are short. Fifteen respondents highlighted that the safety alerts were close to actual practice. Nine respondents saw improvement potential in the presentation of the safety alerts, e.g., graphically, and one proposed to actualize the alerts regularly so that they are always reflecting latest evidence. Respondents proposed to publish safety alerts to the following topics: medication safety, 12 comments; psychiatry, 5 comments; electronic medical records, 3 comments; and falls, 2 comments.

Organizational response to safety alerts. The most common organizational response to safety alerts was to disseminate information ($M: 4.2, SD: 0.8$, see table 5). To do a meeting and to re-communicate existing procedures or rules were also often applied. However, a whole variety of possible responses was reported and – except disseminating information – no single typical or standard action was identified.

The regression analysis showed that the resources allocated in the hospital for qm/rm activities do not explain differences in how active the qm/rm define their role in learning from safety alerts (see table 6). Important predictors were whether the qm/rm perceive the safety alerts as an instrument to back up their own patient safety goals in communication with others in the hospital and, but to a lesser extent,

how well they felt informed about the uptake of safety alerts in other organizational activities, which may be an indicator of how well they are connected to front end staff and activities.

4 DISCUSSION

Generally, the qm/rm spread information of the safety alerts broadly in their hospitals and communicate with a large variety of professional groups about the safety alerts. Thus, the safety alerts represent a means to start a communication with other staff about patient safety-relevant topics, for example with clinical staff or top management.

In accordance with research on the implementation of specific safety alerts in Great Britain [11–13], our analysis from the perspective of risk management departments confirms that the alerts are usually not leading to straightforward action in uptaking their recommendations, despite their generally very positive evaluations. For example, the safety alerts are not dealt with in a standard way in incident reporting processes or in quality and risk management meetings. For clinical meetings or morbidity and mortality meetings, the number of *don't know* answers indicates that the qm/rm may have felt too far from what actually happens at the front end in clinical meetings to accurately know whether safety alerts are dealt with regularly in these groups. Had we asked physicians how often they talk about safety alerts in clinical meetings, they may have given a different answer. However, these results emphasize the fact that the information coming from outside of the organization needs to be integrated and made sense of locally – without structures defined for this activity. It remains a challenge for the qm/rm to find a way to use the safety alerts to generate change in the organization.

The results concerning the significance of safety alerts for their qm/rm activity give insight into how qm/rm perceive their own roles in organizational learning from safety alerts. Knowing of and reading the safety alert is an important part of their role, whereas only 41% of the respondents consider it their role to drive the implementation of the recommended changes. Additionally, the main organizational response to a safety alert from the perspective of the qm/rm is to disseminate its information to staff, e.g., to bring out warnings about potential hazards (such as the danger of burning patients when using disinfectant). These two results may relate to the way qm/rm positions in hospitals are defined.

Mostly, they are single persons or small teams with no formal power to influence clinical work. Thus,

following up on every safety alert and initiating and monitoring related improvement activities at the front end may require new definitions of their role, accompanied by more resources and power than the qm/rm possess at the moment.

Furthermore, the safety alerts not only represent a source of information for the qm/rm, but also an instrument to emphasize the importance of patient safety issues within their organizations and to start a communication about patient safety issues. This means that the qm/rm use safety alerts to back up their own patient safety goals in their organizations.

In order to get more insight into how and whether different kinds of alerts lead to safer care in hospitals, more research like the study by Flood et al. [14] investigating the effect of a national guideline issued on the resuscitation of patients in mental health institutions is needed. Similarly to their approach, the actual implementation of specific alerts could be studied, which would bring evidence not only on the effectiveness of national alert systems but also on the identification of topics that are promising to address in terms of having an actual effect on the safety of patient care.

Limitations

With a response rate of 39%, our conclusions are based on a large part of the population of qm/rm, but a bias in that more interested qm/rm may have answered the survey is likely. Furthermore, as we allowed the skipping of items, we had to deal with missing values for certain questions. For future studies investigating organizational learning activities, it may be useful to combine a shorter survey with an in-depth phone interview. Thus, the respondents could be asked at the end of the survey only containing general and short questions to leave their phone number in case they were willing to participate in the interview part of the study. In the interview, they could be asked about the specific actions following safety alerts.

Another limitation of the study is that we focus on the qm/rm's role and perceptions about learning from safety alerts, not considering the perspectives of other, e.g., clinical, staff receiving the alerts. A study combining different professional perspectives on the use and adoption of safety alerts could reveal more information about what happens (or not) at the front end of clinical care in learning from national safety alerts. This was not the scope of the present study, but it may represent an interesting avenue for future investigation of organizational learning from safety alerts.

5 CONCLUSIONS

The results of our study indicate that quality and risk manager play a key role in the process of adapting national safety alerts to their hospital, which is more oriented towards the dissemination of information and bringing up patient safety topics with various professional groups (e.g., top management) than towards the active design and implementation of specific improvement activities. Prior research has shown that evidence supporting the recommendations in the safety alert is important for their implementation process and their uptake by front-end staff [13]. One possible avenue of development of the organizational learning from national safety alerts is to strengthen the role of qm/rm as a hub of information and support for patient safety issues. Maybe, the qm/rm could offer support in adapting the alert and designing actions for the front-end staff. They may be trained or get more in-depth information in how to apply the recommendations of a safety alert, which they then could disseminate to the persons dealing with the improvements at the front-end. Another way to enhance the role of qm/rm in learning from safety alerts may be to create organizational structures that allow the qm/rm to form teams, i.e., ask persons in management and from the front-end to join an alert-specific action team that analyzes the conclusions that should be drawn from the alert for their hospital and defines and monitors improvement actions. Thus, a team could be assigned per alert by the qm/rm, that has the power to do an internal analysis and to design and execute necessary changes that come up in the analysis of the issues presented in the alerts. Top or senior management involvement in these teams may foster information exchange and support the implementation efforts [15]. However, these teams should possibly not only deal with external alerts, but also be formed for internal investigations or reported incidents. Furthermore, there needs not only to be a structural possibility to form those teams, their formation and action also needs to be embedded in a culture [10] supportive of learning from events.

The results also show that the alerts are very important for the discourse about safety topics in Swiss hospitals, because they are widely spread and read. Thus, the hazards discussed in a safety alert contribute to what is perceived as a safety issue and even gives external, legitimizing support for internal patient safety advocates such as the qm/rm. Thus, the decision which topic to cover in a safety alert impacts which topics are perceived as important and receive legitimizing support for action in

hospitals. This means that the topics that are covered in safety alerts need to be carefully selected as they influence the way healthcare systems develop and which practices are generally regarded as important for patient safety.

COMPETING INTERESTS

The authors declare no competing interests.

AUTHORS' CONTRIBUTIONS

Both authors developed the research questions and the survey together. YP carried out the pretests of the questionnaire; DS programmed it as an online survey and was in charge of managing the responses during the survey. YP carried out the statistical analyses, iteratively discussing them with DS. Both interpreted the results together. YP wrote up a draft of the paper, and DS and YP drafted the final manuscript together. Both authors read and approved the final manuscript.

ACKNOWLEDGEMENTS

We thank the healthcare quality and risk managers interviewed during our pretest and the surveyed managers for devoting their time and supporting us in developing and conducting the survey.

FUNDING

This study was financed by the Foundation for Patient Safety Switzerland as well as the Professur Theo Wehner at ETH Zurich. No external funding was obtained.

REFERENCE LIST

1. WHO. WHO Draft Guidelines for Adverse Event Reporting and Learning Systems. World Alliance for Patient Safety. Geneva, Switzerland; 2005. p. 1–75.
2. Lankshear A, Lowson K, Harden J, Lowson P, Saxby RC. Making patients safer: nurses' responses to patient safety alerts. *J Adv Nurs*. 2008; 63(6):567–75.
3. Lankshear A, Lowson K, Weingart SN. An assessment of the quality and impact of NPSA medication safety outputs issued to the NHS in England and Wales. *BMJ Qual Saf*. 2011;20(4):360–5.
4. Flood C, Matthew L, Marsh R, Patel B, Mansaray M, Lamont T. Reducing risk of overdose with midazolam injection in adults: an evaluation of change in clinical practice to improve patient safety in England. *J Eval Clin Pract*. 2014.
5. Carroll JS, Rudolph JW, Hatakenaka S. Learning from experience in high-hazard organizations. *Res Organ Behav*. 2002;24:87–137.
6. Cohen MD, March JG, Olsen JP. A Garbage Can Model of Organizational Choice. *Adm Sci Q*. 1972;17(1):1–25.
7. March J, Sproull L, Tamuz M. Learning from samples of one or fewer. *Qual Saf Heal Care*. 2003;12:465–72.
8. Lipshitz R, Popper M. Organizational Learning in a Hospital. *J Appl Behav Sci*. 2000;36(3):345–61.
9. Ramanujam R, Goodman PS. The challenge of collective learning from event analysis. *Saf Sci*. 2011;49(1):83–9.
10. Lipshitz R, Popper M, Friedman VJ. A Multifacet Model of Organizational Learning. *J Appl Behav Sci*. 2002;38(1):78–98.
11. Rhodes P, Giles SJ, Cook GA, Grange A, Hayton R, Maxwell MJ, et al. Error management: Assessment of the implementation of a national patient safety alert to reduce wrong site surgery. *Qual Saf Heal Care*. 2008;17(6):409–15.
12. Yardley IE, Donaldson LJ. Patient safety matters: reducing the risks of nasogastric tubes. *Clin Med*. 2010;10(3):228–30.
13. Freer Y, Lyon A. Risk management, or just a different risk? *Arch Dis Child Fetal Neonatal Ed*. 2006;91(5).
14. Flood C, Gull N, Thomas B, Gordon V, Cleary K. Is knowledge and practice safer in England after the release of national guidance on the resuscitation of patients in mental health and learning disabilities? *J Psychiatr Ment Health Nurs*. 2014;21(1):806–13.
15. Bunderson JS, Reagans RE. Power, Status, and Learning in Organizations. *Organ Sci*. 2010;22(5):1182–94.

TABLES

TABLE 1

Part 1 dissemination/communication

| To which groups do you forward the Quick-Alerts? | <i>Frequencies</i> | | | | | <i>M</i> | <i>SD</i> | <i>n</i> |
|---|--------------------|---------------|-------------------|--------------|---------------|----------|-----------|----------|
| | <i>never</i> | <i>rarely</i> | <i>someti mes</i> | <i>often</i> | <i>always</i> | | | |
| internally to persons in charge in units affected by the QA* | 6 | 3 | 6 | 15 | 52 | 4.3 | 1.2 | 82 |
| to all employees | 26 | 9 | 10 | 5 | 11 | 2.4 | 1.5 | 61 |
| to persons of the hospital direction | 10 | 13 | 23 | 12 | 9 | 3.0 | 1.2 | 67 |
| to physicians | 7 | 8 | 20 | 20 | 15 | 3.4 | 1.2 | 70 |
| to nurses | 8 | 9 | 15 | 21 | 18 | 3.5 | 1.3 | 71 |
| to persons in the pharmacy | 11 | 7 | 24 | 11 | 10 | 3.0 | 1.3 | 63 |
| to persons of the surgical units | 14 | 8 | 18 | 12 | 8 | 2.9 | 1.3 | 60 |
| to other persons in the qm/rm of my hospital | 9 | 6 | 8 | 13 | 28 | 3.7 | 1.5 | 64 |
| to the safety officer | 11 | 8 | 19 | 7 | 17 | 3.2 | 1.5 | 62 |
| to the persons in charge for the IRS* | 9 | 5 | 8 | 8 | 37 | 3.9 | 1.5 | 67 |
| to persons in the purchasing department | 16 | 11 | 19 | 4 | 2 | 2.3 | 1.1 | 52 |
| to medical technicians | 22 | 10 | 15 | 3 | 3 | 2.2 | 1.2 | 53 |
| to other internal persons | 28 | 2 | 5 | 2 | 6 | 2.0 | 1.5 | 43 |
| to colleagues in other hospitals | 38 | 8 | 3 | | 1 | 1.4 | 0.8 | 50 |
| to other external persons | 32 | 3 | 3 | | 2 | 1.4 | 1.0 | 40 |
| How often do you communicate with the following groups about Quick-Alerts? | <i>never</i> | <i>rarely</i> | <i>someti mes</i> | <i>often</i> | <i>always</i> | | | |
| with persons of the hospital direction | 16 | 25 | 37 | 13 | 1 | 2.5 | 1.0 | 92 |
| with physicians | 11 | 15 | 36 | 22 | 8 | 3.0 | 1.1 | 92 |
| with nurses | 13 | 10 | 37 | 28 | 7 | 3.0 | 1.1 | 95 |
| with persons from the pharmacy | 21 | 20 | 33 | 11 | 1 | 2.4 | 1.0 | 86 |
| with persons from the surgical units | 28 | 15 | 28 | 11 | 2 | 2.3 | 1.1 | 84 |
| with other persons of the qm/rm | 17 | 10 | 21 | 19 | 19 | 3.2 | 1.4 | 86 |
| with persons in charge of materio-vigilance | 20 | 12 | 36 | 15 | 4 | 2.7 | 1.1 | 87 |
| with persons of a specific group (e.g., quality circle, quality commission) | 15 | 9 | 23 | 23 | 18 | 3.2 | 1.4 | 88 |
| with persons of IRS*-groups | 17 | 4 | 18 | 33 | 16 | 3.3 | 1.4 | 88 |
| with other persons | 28 | 1 | 2 | 3 | | 1.4 | 1.0 | 34 |

Note. Total N = 116, n indicates the sample size of the presented item. *Abbreviations: QA = Quick-Alert; IRS = incident reporting system.

TABLE 2

Part 2 Use of safety alerts

| | <i>Frequencies</i> | | | | | <i>M</i> | <i>SD</i> | <i>n</i> | |
|---|--------------------------|-----------------|------------------|--------------|-----------------------|-------------------|-----------|----------|----|
| | <i>strongly disagree</i> | <i>disagree</i> | <i>neutral</i> | <i>agree</i> | <i>strongly agree</i> | | | | |
| Reading quick alerts | | | | | | | | | |
| 1 I read all the QAs* comprehensively. | 9 | 5 | 19 | 39 | 33 | 3.8 | 1.2 | 105 | |
| 2 I always read the title and then decide whether to read the entire QA. | 19 | 8 | 9 | 19 | 39 | 3.5 | 1.6 | 94 | |
| Please indicate whether the Quick-Alerts are fed into the following organizational processes/groups | <i>never</i> | <i>rarely</i> | <i>sometimes</i> | <i>often</i> | <i>always</i> | <i>don't know</i> | | | |
| internal trainings | 13 | 17 | 25 | 23 | 3 | 10 | 2.8 | 1.1 | 91 |
| IRS*-processes | 12 | 8 | 19 | 32 | 18 | 6 | 3.4 | 1.3 | 95 |
| morbidity-mortality conferences | 33 | 13 | 9 | 4 | | 21 | 1.7 | 1.0 | 80 |
| meetings of clinical units | 15 | 14 | 15 | 14 | 1 | 22 | 2.5 | 1.2 | 81 |
| meetings within the qm/rm-department | 14 | 7 | 27 | 20 | 18 | 2 | 3.2 | 1.3 | 88 |
| current projects | 14 | 17 | 22 | 21 | 3 | 9 | 2.8 | 1.2 | 86 |

Note. Total N = 116, n indicates the sample size of the presented item. *Abbreviations: QA = Quick-Alert; IRS = incident reporting system.

TABLE 3
Part 3 Significance of safety alerts for qm/rm activity

| Please rate how much you agree with the following statements. | <i>Frequencies</i> | | | | | <i>M</i> | <i>SD</i> | <i>n</i> |
|---|--------------------------|-----------------|----------------|--------------|-----------------------|----------|-----------|----------|
| | <i>strongly disagree</i> | <i>disagree</i> | <i>neutral</i> | <i>agree</i> | <i>strongly agree</i> | | | |
| 1 I feel it is my task as qm/rm to read the QAs*. | 2 | 1 | 3 | 29 | 58 | 4.5 | 0.8 | 93 |
| 2 In the hospital, it is expected that I know the current QAs. | 9 | 15 | 21 | 16 | 29 | 3.5 | 1.4 | 90 |
| 3 I am expected to check the QAs for relevance for our institution. | 12 | 11 | 24 | 14 | 30 | 3.4 | 1.4 | 91 |
| 4 I feel responsible for initiating the development of measures from the QAs. | 9 | 12 | 23 | 22 | 26 | 3.5 | 1.3 | 92 |
| 5 I feel responsible for the implementation of measures recommended in the QAs. | 7 | 12 | 33 | 21 | 19 | 3.4 | 1.2 | 92 |
| 6 The affected experts in our institution are responsible for the implementation of the recommendations of the QAs. | 4 | 2 | 7 | 36 | 40 | 4.2 | 1.0 | 89 |
| 7 It is my role to forward the QAs to the responsible persons. | 3 | 3 | 12 | 20 | 54 | 4.3 | 1.0 | 92 |
| 8 I use QAs to support internal issues that are important in my eyes. | 8 | 15 | 20 | 33 | 24 | 3.5 | 1.2 | 100 |
| 9 The QAs are useful in discussions with decision makers for substantiating that a topic is important. | 4 | 16 | 20 | 38 | 23 | 3.6 | 1.1 | 101 |
| 10 The QAs make it easier to discuss safety relevant topics internally. | 4 | 7 | 23 | 36 | 30 | 3.8 | 1.0 | 100 |

Note. Original item formulations shortened for presentation in table. Total N = 116, n indicates the sample size of the presented item. *Abbreviation: QA = Quick-Alert.

TABLE 4
Part 4 Attitudes towards various aspects of safety alerts

| Please rate how much you agree with the following statements. | <i>Frequencies</i> | | | | | <i>M</i> | <i>SD</i> | <i>n</i> |
|---|--------------------------|-----------------|-------------------|------------------|-----------------------|----------|-----------|----------|
| | <i>strongly disagree</i> | <i>disagree</i> | <i>neutral</i> | <i>agree</i> | <i>strongly agree</i> | | | |
| 1 Often, I am not sure how to implement certain QAs* in our institution. | 10 | 34 | 33 | 9 | 2 | 2.5 | 0.9 | 88 |
| 2 The QAs frequently match what currently is going on in the hospital. | 6 | 14 | 38 | 24 | 5 | 3.1 | 1.0 | 87 |
| 3 I frequently find it hard to integrate the QAs in ongoing projects in the quality- and risk management. | 9 | 31 | 37 | 7 | 1 | 2.5 | 0.8 | 85 |
| 4 In my eyes, the QAs set standards for good practice. | 2 | 3 | 12 | 34 | 40 | 4.2 | 0.9 | 91 |
| 5 The QAs are regarded as mandatory standards in our hospital. | 23 | 25 | 26 | 9 | 4 | 2.4 | 1.1 | 87 |
| 6 More and more, the QAs are regarded as mandatory standards in Swiss healthcare. | 14 | 21 | 32 | 14 | 2 | 2.6 | 1.0 | 83 |
| 7 From my perspective, the recommendations of the QAs could well be mandatory for the hospitals. | 10 | 19 | 25 | 21 | 10 | 3.0 | 1.2 | 85 |
| 8 The QAs advanced in a positive way in the past years. | 3 | 5 | 26 | 39 | 9 | 3.6 | 0.9 | 82 |
| 9 The QAs are useful to direct the attention to patient safety in general. | 2 | 1 | 7 | 35 | 47 | 4.4 | 0.8 | 92 |
| 10 The QAs give specific instructions to improve patient safety that are easy to implement. | 2 | 3 | 13 | 47 | 24 | 4.0 | 0.9 | 89 |
| 11 The QAs bring up topics that are new to me. | 1 | 17 | 41 | 31 | 2 | 3.2 | 0.8 | 92 |
| 12 The QAs address topics that are familiar to me. | | 9 | 31 | 46 | 5 | 3.5 | 0.8 | 91 |
| Please rate Quick-Alerts in general. | <i>insufficient</i> | <i>bad</i> | <i>acceptable</i> | <i>very good</i> | <i>excellent</i> | | | |
| Understandability | | | 12 | 65 | 14 | 4.0 | 0.5 | 91 |
| Relevance of the topic | 1 | 1 | 21 | 54 | 12 | 3.8 | 0.7 | 89 |
| Length (pages) | | | 13 | 53 | 26 | 4.1 | 0.6 | 92 |
| Depth of content | | | 17 | 63 | 10 | 3.9 | 0.5 | 90 |
| Implementability of the recommendations | | 1 | 32 | 51 | 6 | 3.7 | 0.6 | 90 |
| Practical relevance of the recommendations | | 2 | 26 | 51 | 9 | 3.8 | 0.7 | 88 |
| Professional validation | | | 16 | 53 | 18 | 4.0 | 0.6 | 87 |
| Usefulness for internal improvements | | | 30 | 50 | 9 | 3.8 | 0.6 | 89 |
| Usefulness for patient safety improvement | | | 15 | 59 | 16 | 4.0 | 0.6 | 90 |
| Layout/design | 1 | 2 | 31 | 50 | 8 | 3.7 | 0.7 | 92 |

Note. Original item formulations shortened for presentation in table. Total N = 116, n indicates the sample size of the presented item. *Abbreviation: QA = Quick-Alert.

TABLE 5
Part 5 Organizational response to safety alerts

| | <i>Frequencies</i> | | | | | <i>M</i> | <i>SD</i> | <i>n</i> |
|--|--------------------|---------------|-----------------------|--------------|---------------|----------|-----------|----------|
| | <i>never</i> | <i>rarely</i> | <i>someti mes</i> | <i>often</i> | <i>always</i> | | | |
| How does your hospital usually deal with the recommendations of the QAs, respectively how does it respond to them? | | | | | | | | |
| 1 Nothing is done. | 6 | 21 | 32 | 13 | 2 | 2.8 | 0.9 | 74 |
| 2 Disseminate information | | 3 | 9 | 33 | 30 | 4.2 | 0.8 | 75 |
| 3 Conduct a meeting/ clarification | | 4 | 26 | 40 | 8 | 3.7 | 0.7 | 78 |
| 4 Enforce the application of existing rules or procedures (remind/communicate) | | 4 | 31 | 35 | 6 | 0.7 | 3.6 | 76 |
| 5 Introduce new rules/procedures | | 13 | 41 | 21 | 2 | 3.2 | 0.7 | 77 |
| 6 Do an internal analysis of the situation | 2 | 15 | 38 | 19 | 3 | 3.1 | 0.8 | 77 |
| 7 Implement recommended measures | | 7 | 37 | 30 | 3 | 3.4 | 0.7 | 77 |
| 8 Follow-up on the issue resp. on the actions taken | 1 | 22 | 37 | 14 | 4 | 0.9 | 3.0 | 78 |

Note. Original item formulations shortened for presentation in table. Total N = 116, n indicates the sample size of the presented item. *Abbreviations: QA = Quick-Alert; IRS = incident reporting system.