Journal of Public Health
https://doi.org/10.1007/s10389-025-02507-z

ORIGINAL ARTICLE

Error management in GP practices: An investment in the healthcare system? Results of an exploratory study among general practitioners

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Received: 20 March 2025 / Accepted: 8 May 2025

Abstract

Aim The implementation of an error management system is part of the legal obligations for outpatient practices in Germany. On the one hand, internal reflection and analysis provides opportunities for improving internal practice processes; on the other hand, the input of such findings on critical events into error reporting and learning systems can help to optimise the healthcare sector as a whole. Despite the potentially significant importance of error management, there are only a few studies that engage in the practical pursuit of this concept in GP practices. The objective of this interview study was therefore to examine the views and perceptions of GPs in terms of error management, error reporting and learning systems.

Subject and methods In the course of qualitative, semi-standardised interviews, a total of 44 GPs in Baden-Württemberg, Hesse, North Rhine-Westphalia, Rhineland-Palatinate, Saarland and Thuringia were questioned in 2023 and 2024. The interviews were then evaluated by means of a qualitative content analysis according to Mayring.

Results The results reveal significant differences in the understanding of and approach to structured error management among individual GP practices, which is attributable to divergent circumstances among other things, but also to different levels of knowledge concerning the topic. Although error management is considered to be valuable and associated with an expedient, continuous improvement of healthcare procedures, many general practitioners acknowledge that they are often unable to devote the necessary attention to the topic due to the high workloads in their daily practice routine. Nevertheless, there are frequent team meetings and attempts to eliminate individual sources of error. Cross-practice error reporting and learning systems are hardly used. A central problem perception is that the interviewed doctors often have the impression that the critical events occurring in their everyday practice environment are too specific for a cross-practice reporting system. All in all, those interviewed underlined a great need for further training and support in order to pursue effective error management.

Conclusion The results indicate that error management in GP practices has not yet reached its associated full potential. Beyond the widespread workload of GP teams, the reason for this is a lack of strategic training, among other things, but also frequently a lack of a clear basic understanding of what error management should involve and how it can be pursued efficiently in daily practice conditions. The use of cross-practice reporting system also entails technical hurdles. As GPs, in their role as practice managers or key figures, can have a strong influence on the error management culture of their practices, it will be relevant in the future to provide them with more support and orientation, but possibly also to create incentives for the implementation of effective error management and communication in the healthcare sector.

Keywords Error management · Error reporting and learning systems · General practitioner

Introduction

One important and desirable aspect of modern healthcare systems is based on turning them into adaptive units that stimulate reflection and optimisation processes developed on practical experience gained in patient care. This would help to improve patient safety and practical healthcare in the long term in a targeted and needs-oriented manner. The core of such deliberations is thus the error reporting and learning systems that are applied not only in hospitals but also in outpatient healthcare (World Alliance for Patient Safety 2020). International surveys have already succeeded in verifying that these systems can be highly effective in preventing errors and risks, for example, in terms of medical diagnostics, therapy or treatment procedures (Bühmann 2012; Crane et al. 2015; Fox et al. 2021; Stiegler et al. 2013).

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Published online: 24 May 2025

In Germany, statutory healthcare practices that provide outpatient care are required to implement error management as a quality management (QM) tool in accordance with the German Social Code and the guidelines of the Joint Federal Committee (Gemeinsamer Bundesausschuss 2025). Here, great importance is attached to reporting errors or critical events and to making use of them for revision and learning purposes. The use of these error reporting and learning systems in Germany is already sporadically requested as a quality indicator in QM systems such as the European Practice Assessment (EPA) (aQua 2025; Hoffmann and Rohe 2010). Furthermore, spot checks are conducted by the Associations of Statutory Health Insurance Physicians to identify the status quo and progress of QM in practices. However, the specific tools used have not been systematically ascertained so far. Therefore, no reliable statements can be made in this respect regarding the significance of error management in the daily work routine of outpatient practices. Another open question concerns which error reporting and learning systems are specifically used.

By consulting national and international literature, we find few studies that focus at all on the application of error reporting and learning systems in the outpatient setting (ÄrzteZeitung 2014). British studies have shown, for instance, that critical events and procedures are discussed in medical practice teams, but that such discussions are rarely included in cross-practice systems (Rea and Griffiths 2016). This coincides with experience gained in Germany, where freely accessible online systems such as CIRSmedical.de (reporting and learning system of the German Medical Association) or the GP error reporting and learning system Jeder-Fehler-zaehlt.de (every-error-counts) have existed for many years, but are rarely used in relation to the total number of statutory GP practices (Beyer et al. 2015; Hoffmann and Rohe 2010). One reason for this certainly lies in the fact that the widespread use of cross-practice reporting systems is not yet obligatory in Germany. In comparison, it is repeatedly argued that, specifically in the cross-practice collection, analysis and communication of documented errors, the critical mass is developed to allow practice processes and the healthcare system as a whole to benefit in the long term. This could significantly reduce the number of critical events (Crane et al. 2015; World Alliance for Patient Safety 2020). As few studies have been submitted for the GP field so far, the aim of this study was to explore the current status of the implementation of error management in this field and to analyse obstacles and challenges, but also supporting factors, in the application of error reporting and learning systems.

Methods

A qualitative study with semi-standardised, guideline-based interviews was conducted in order to gain an impression of the approach and experiences on the topic of error management from the view of GPs. This type of methodology offers the immense additional value of enabling interaction with the survey participants by querying individual aspects. For example, further inquiries and sideline questions can lead to in-depth insights into the topic under investigation. Another reason that led to the decision to conduct a qualitative semi-standardised interview study was the explicit lack of available preliminary work.

Guidelines, recruitment and implementation

The interview guideline developed was prepared in the course of a general literature search and on the basis of several preliminary studies realised by the authors, which focus on GP approaches, action paradigms and competence indicators with regard to evidence-based tools (Wangler et al. 2024; Wangler and Jansky 2021 amongst others).

The GPs participating in the survey have their practices in Baden-Württemberg, Hesse, North Rhine-Westphalia, Rhineland-Palatinate, Saarland and Thuringia. In view of the qualitative-explorative nature of the procedure, a limited number of practices in these federal states were systematically recruited. In a first step, a pool with a total of 123 potential contact addresses was prepared, which contained a wide range of GP practices in the aforementioned federal states. The sample was then recruited. In order to obtain a heterogeneous random sample, a quota system was used for certain characteristics (including gender, type of practice, practice environment).

A total of 61 GPs were contacted, resulting in 44 interviews being conducted. Prior to the survey, interviewees were provided with information on the topic of the interview and a written declaration of consent. The interviews took place between March 2023 and February 2024 and were conducted by telephone in 19 out of 44 cases (duration 35 to 65 min).

Analysis

The transcripts prepared after collection of the data were analysed by the team using qualitative content analysis according to Mayring (2010; MAXQDA software). Initially, the key basic statements were identified, then further abstracted and summarised, and finally a category system was prepared, which was closely oriented to the guidelines and was repeatedly reviewed and, if necessary, modified as the analysis progressed. The core issue was the logical categorisation of the different views and experiences.

Results

Sample

As envisaged, a heterogeneous sample was obtained in the course of the recruitment (see Table 1).

Internal practice error management

The analysis shows that there is no consistent way of handling errors or critical events within the sample, but rather a practice-specific approach. The understanding of what is classified as a relevant error or critical event in daily practice routine also varies; this applies similarly to their frequency and severity. Several doctors take this into consideration and perceive it as a basic problem in introducing an error management system.

> *I think classification is the thing that's wrong right from the start. What do we actually want to identify as a 'serious error' here, what do we have an awareness for? I would claim that serious errors rarely happen here, and if they do, it is attributable to an unfortunate series of certain circumstances. It is, however, possible that we occasionally make such errors, but they are deliberately not kept on record and most definitely not discussed.* (GP interviewed)

One problem that GPs are partly aware of is that individual errors are often 'rectified', but there is often no time or readiness to search for more general causes in daily practice routines or management. Nevertheless, many GPs believe themselves to have a relatively clear perception of critical events. Thus, they take a personal interest in dealing with any errors that occur in the team and therefore avoid them permanently, if possible.

> *There are these practice routines that maybe make you a little blind for keeping an eye on everything now and again. […] But we do make sure that we discuss everything to try and do things better in the long term. This standard we have set for ourselves is definitely there.* (GP interviewed)

Team meetings to collect and review critical events are popular. Practice employees affected by this should air their views and proposals. Many doctors are aware of the fact that, despite the aspiration to avoid errors and learn from them, this effort often fails due to the lack of a clear system. Therefore, the main objective is to avoid individually occurring errors; system-related problems are even more difficult to identify and process.

Table 1 Socio-demographics of the sample (*N*=44)

Age	Average 52 years
Gender	24 male, 20 female
Type of practice	20 group practices, 24 individual practices
Practice environment	16 rural community/small town, 14 medium-sized town, 14 large town
Status	36 practice owners, 8 employed doctors

> *The most important thing is that these rounds exist, and we generally ensure that they take place. We collect errors including confirmation on what went wrong and how it happened. We look for solutions. Afterwards, we try to take a closer look: Does the problem occur again? If so, then we need to dig deeper. That's how we make our way forward.* (GP interviewed)
> *This is more of an intuitive collection and discussion, that is certain. We don't use an external scheme or the like.* (GP interviewed)

Only a few of those interviewed in the sample had already undergone basic or advanced training on the topic. However, those questioned have included large parts of the practice team in their responses, as they consider that effective error management cannot work as a top-down solution.

Various strategies are applied to document and process critical events. For example, the respective events are recorded in writing where they are accessible to all (e.g. folder, pinboard, PC file) and accompanied by joint decisions in the course of team meetings.

> *It's particularly important to me that we put this in writing and then pass it on to everyone. Meaning how we can avoid the error in future. This means we make a post or a record that is accessible to everyone.* (GP interviewed)

A number of the doctors questioned regret that the documentation of team meetings cannot be easily carried out via the QM system. The solutions partly described can therefore be deemed internal practice error reporting and learning processes; a clear and consistent system and structure is often lacking, and it is more important to bear problems in mind and avoid them in the long term by considering individual cases.

Cross-practice error reporting and learning systems

The majority of those interviewed see meaning and added value in cross-practice error reporting and learning systems, especially when it comes to exchanging experiences and raising awareness of potential sources of error in daily practice routines. However, only eight doctors within the sample stated that they consistently use an internet-based error reporting system or the network-internal reporting system. These are in particular those interviewed who have not only trained their practice personnel in error management, but have also undergone advanced training in the field of practice management themselves.

> *This is something I have always attached great importance to. We have established procedures for the way in which we document errors and the solution we have developed. And then we ensure that we feed this into*

'Every error counts'. [...] *We also conduct research on the portal to study the experiences other practices have gained.* (GP interviewed)
I simply believe in the collective intelligence of practices. (GP interviewed)

However, the majority of doctors do not use a cross-practice reporting system to share their own experiences or to obtain information on the experiences of other practice teams. The main reasons provided for this are time and coordination problems.

Hurdles and challenges

As the further course of the interviews revealed, various problems exist in the use of error reporting and learning systems. One central problem perception lies in the fact that the interviewed doctors often have the impression that the critical events that occur in everyday practice are too specific for a cross-practice reporting system. In their opinion, transferability is not possible, and even if it is, it is often not clear to them how this can succeed efficiently under general time pressure.

Every practice is a sort of ecosystem in itself. Separating this and putting it in a general context is not always possible in my opinion. Well, it might be possible, but it would take a certain amount of cognitive effort that we are simply unable to raise here in the normal daily stress situations. (GP interviewed)
These systems would then need to improve [...] and it would have to be made easier to transmit such special reports. (GP interviewed)

Many of the interviewees underline how difficult it is to provide exact reviews and reports under high stress levels by feeding them into cross-practice systems. Error management, and particularly the use of a cross-practice reporting system, is often classed as a low-priority issue.

Another problem in practice concerns potential differences in perspective between individual actors. For instance, some of the doctors questioned conceded that they have a different view of critical events than medical assistants, for example. Therefore, error reporting and learning systems must take greater account of non-medical personnel.

As a practice owner at the top of the hierarchy, it's easy for me pretend that my view of things is the same as that of my personnel. But that isn't the case. [...] *General reporting should be more differentiated here.* (GP interviewed)

Incentives and optimisation approaches

Many interviewees maintain that it is very important to promote a general culture of dealing openly with errors and to make structured discussions on them a part of standard daily practice. Therefore, many of those interviewed speak in favour of passing on even more of the 'spirit of a well-defined, healthy error culture' to medical students and then supporting GPs later by providing more structured advanced training.

I would generally like to see a considerable increase in training sessions and programmes that sensitise people and introduce them to good, successful error management. So far, you tend to feel left to your own devices too much. (GP interviewed)

Furthermore, a considerable number of those interviewed suggested a more user-friendly design of cross-practice reporting systems. This starts with compact and easy input (also using digital tools) and extends to more effective filtering of the reports entered by category (e.g. by professional group concerned, location of the event, topic). A clearly defined compilation of tips and solution proposals was considered highly relevant for the generation of added value for the practice teams.

Finally, it was observed that doctors with intensive experience in quality groups or doctors' networks find it easier to share errors and consider learning systems. These interviewees therefore also suggest intensifying efforts to convince more GPs to work in organised structures of general practitioners.

Discussion

As the study has revealed, the handling of critical events in general practices varies significantly. Although many doctors display an awareness of internal practice error management and hold internal team meetings on this in different ways, only a minority of those questioned work with a cross-practice error reporting and learning system on a regular basis. This applies both to the receipt of information and the reporting of critical events in their own practice.

There has previously been a lack of both national and international studies that deal with questions of error management and the use of reporting systems in the outpatient setting (Beyer et al. 2015; Braithwaite et al. 2010; Elder et al. 2007; Hoffmann and Rohe 2010; Pfeiffer et al. 2013). One of the few studies from the outpatient sector also established that the internal discussion and documentation of critical events in medical practices is very common, but that these problem reflections and processing methods are rarely included in overarching reporting systems. It is not at all surprising that one reason for this is a general lack of time and a high workload. There is evidence that some doctors may associate too high a level of transparency of their error

culture with the fear that the healthcare system could have a negative impact on them, for example by monitoring or sanctioning them in some way (Hoffmann et al. 2013; Rea and Griffiths 2016).

One common feature between our results and the general study situation is that GPs consider a user-friendly, efficiently manageable reporting system to be essential in enabling them to communicate their own critical events to other specialist colleagues (Vrbnjak et al. 2016). Error-prone organisational procedures and communication problems are among the most common sources of critical events in outpatient practices (Crane et al. 2015). The related perception of risk and the understanding of the relevance of these sources of error for patient safety form the basis for structured error management. There appears to be a general lack of incentives for comprehensive error management in GP practices, although many doctors consider this useful. It would be conceivable for a stronger error culture to be acknowledged by the healthcare policy (e.g. by bonuses or distinctions); furthermore, it would appear advisable to more strongly anchor an awareness of these measures during university studies and advanced training (McLennan and Briel 2023).

It seems useful to pursue the thematic linking of practice and error management as part of quality groups. It is fundamentally important in this context to point out the added value of an error culture for the optimisation of practice procedures and reliable patient healthcare. In addition, the long-term time and resource savings resulting from structured processes in daily practice routines should be underlined (Pham et al. 2013; Hoffmann et al. 2009). Furthermore, best practice examples should be defined that can be used for orientation purposes and as a blueprint for other practices (Slawomirski et al. 2017). Passing this on could, for example, be the content of separate training formats (Klamar et al. 2022; Müller et al. 2019).

Strengths and limitations

During recruitment, the authors made efforts to assemble a heterogeneous sample. Nevertheless, due to the small number of interviewees, the study cannot claim to be representative. However, given the clear lack of studies in this field, the authors believe this study can lay a foundation for further, more systematic research.

For example, it would be conceivable to examine the error management culture in a practical way using additional exploratory methods (e.g., participant observation). It would also be conceivable to use the results and categories of this study as a basis for conducting a quantitative survey with representative standards.

Conclusion

The series of interviews indicates that error management in GP practices has not yet reached its associated full potential. Beyond the widespread workload of GP teams, the reason for this is a lack of strategic training, among other things, but also a frequently unclear basic understanding of what error management should involve and how it can be efficiently pursued in daily practice conditions. The use of cross-practice reporting system also entails technical hurdles. As GPs, in their role as practice managers or key figures, can have a strong influence on the error management culture of their practices, it will be relevant in the future to provide them with more support and orientation, but possibly also to create incentives for the implementation of effective error management and communication in the healthcare sector.

Abbreviation *GP(s)*: General practitioner(s)

Authors' contributions The authors alone are responsible for the content and the writing of the paper.

JW prepared, coordinated and implemented the project. Both JW and MJ contributed to the project design, analysis of transcripts and drafting of the manuscript. Both authors read and approved the final manuscript.

Funding Open Access funding enabled and organized by Projekt DEAL. This research was not funded.

Data availability All data generated or analysed during this study are included in this published article.

Declarations

Ethics approval During this study, no patient data were gathered or clinical tests performed. The Ethics Commission of the State of Rhineland-Palatinate, Germany, informed us that approval by an ethics committee was not necessary for a study that does not involve patient data.

Consent to participate Written informed consent for participation and the recording was obtained from all participants before the start of the study.

Competing interests The authors declare that they have no competing interests.

Consent for publication Not applicable.

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