EDITORIAL

Evaluation of Medical Emergency Rooms

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Editorial to accompany the article: "Numerical Parameters and Quality Indicators in a Medical Emergency Department" by Dormann et al., in this issue of *Deutsches Ärzteblatt International*

The concept of an "emergency room" is undergoing change. While the emergency room in the past frequently was a not particularly well-liked appendage of the major disciplines in hospital medicine to which on-duty physicians had to provide services on the side, today an increasing number of independent emergency admission clinics are being established and their advantages are being praised. Within this group of concepts there are all sorts of variations (1–3). Much time and effort is taken to explain the advantages of one concept versus another. It is understandable that frequently cost considerations also play an important role in selecting a particular model (4, 5). However, not much attention has been given to adequate studies that compare the quality of the structure, the process and the results of the individual emergency admission models with one another (6, 7). Both prehospital and hospital emergency medicine still exhibit significant deficits with regard to their research activities (8). Therefore, any form of emergency medicine research is most welcome; this also holds for the contribution made by Dormann and co-authors in this issue of the *Deutsches Ärzteblatt International* (9).

Key indicators

Dormann et al. (9) describe the spectrum of patients that was treated during a twelve month period in the medical emergency room of a German university hospital. With support of the available information systems at the medical center, a differentiated and informative breakdown of the patient data is undertaken. Key indicators of the analysis include the diagnostic agreement (DA) of the admitting diagnosis in the emergency room with the diagnosis upon discharge from the hospital and the diagnostic efficiency (DE) ($DE = DA \times 100/\text{duration of stay in minutes}$).

The standard results of this study are comparable to those available in the medical literature and will only be discussed briefly here: In twelve months 6683 patients were treated. Of these, 64.6% received further inpatient care, including the 14% treated in the ICU. Also comparable to the literature data were the disease spectrum, daily and weekly fluctuations, as well as the diagnosis-related duration of stay. Especially interesting and innovative are the results of the quality indicators which the authors newly created: The diagnostic agreement (DA) was 0.71 for the entire collective and the diagnostic efficiency (DE)—at a mean duration of

stay of 116 minutes—was 0.61/min. The DA was highest at 0.92 for patients with atrial fibrillation/flutter and the DE was highest at 0.85/min for patients with acute myocardial infarction. Dormann and co-authors (9) conclude from their study that identification numbers and quality indicators for an emergency room can be presented in a transparent manner and that the diagnostic agreement (DA) as well as the diagnostic efficiency (DE) can be used as parameters for a diagnosis-related, internal departmental evaluation of quality. One cannot help but completely agree with these statements of the authors: Another step in the direction of disclosing the process quality of an emergency room has been achieved.

New questions

Every good study usually raises new questions. This is also the case in the study by Dormann et al. (9):

Naturally, it is possible to consider whether DA and DE are the best quality indicators for the diagnostic tasks of an emergency room. This question cannot be clearly answered. However, it seems plausible that the combination of the diagnostic certainty and the time taken until arriving at a diagnosis yields added value for quality assurance when compared with the individual parameters.

The prospective validation of these retrospectively discovered indicators must still be undertaken. Naturally, it would also be desirable to use a "percentage of the optimum value" for the diagnostic efficiency instead of a " min^{-1} " value. Perhaps, the authors can consider this.

However, exclusively measuring the efficiency of an emergency room according to the number of correct diagnoses and the time taken to arrive at a diagnosis appears to be too superficial and the authors do not propose such an approach. On the one hand, it is frequently not the task of the emergency room to arrive at the definitive diagnosis, but only to propose a suspected diagnosis with further diagnostic and/or therapeutic consequences. On the other hand, it should not be forgotten that important emergency treatments should also be undertaken in the emergency room, such as the guideline-indicated administration of an antibiotic during the first hour when sepsis is suspected (10). Thus, the DE "only" reflects the diagnostic component of emergency room activities, but not the equally important therapeutic component. But what would prevent

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emergency room physicians from combining the diagnostic efficiency (DE) with the disease-related therapeutic efficiency (TE)? The door is open. However, the proper way of doing this most certainly would be in a coordinated and standardized manner in collaboration with the competent medical societies. This appears to be very important.

One step forward

Dormann and co-authors have taken an important step forward with regard to documenting process quality in emergency medicine. They have retrospectively developed and proposed practical quality indicators that can make the work undertaken in an emergency room more transparent and thus more comparable; this is important. In this regard, Dormann and co-authors should be congratulated for their study. A lively discussion with our readers and an inspired exchange of ideas with colleagues and the medical societies should follow.

Conflict of interest statement

The author declares that no conflict of interest exists according to the guidelines of the International Committee of Medical Journal Editors.

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