

# Quality Evaluation of Clinical Practice Guidelines for Comprehensive Patient Assessment in Emergency Care: A National Cross-sectional Survey

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## Research article

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# Abstract

## Background

Clinical practice guidelines (CPGs) provide guidance for emergency care clinicians to perform patient assessments. Neglecting CPGs may lead to incomplete or fragmented assessments and cause adverse events. However, it is important for CPGs to be evidence based, and patient assessments must be conducted in such a manner that high levels of patient safety can be achieved. The aim of this study was to explore and evaluate the quality of emergency medical services (EMS) and emergency departments (EDs) CPGs for comprehensive patient assessments.

## Methods

A national cross-sectional design was used, and the listed managers from 97 organizations (25 EMS and 72 EDs) were contacted, covering all 20 Swedish county councils. Fifteen guidelines were appraised using the validated Appraisal of Guidelines for Research & Evaluation II (AGREE II) tool.

## Results

The results revealed that none of the CPGs outlined a comprehensive patient assessment. The main characteristic of the CPGs was their focus on the medical assessment of patients with life-threatening conditions, mostly based on initial assessment and the A-E principle (airway, breathing, circulation, disability, and exposure). According to the AGREE II analysis, the overall quality of the guidelines was poor. CPGs lacked scientific support, underlying evidence, descriptions of how that evidence was collected, and explanations of the criteria used for CPG development.

## Conclusions

This research indicated that there were no Swedish CPGs with comprehensive patient assessments in emergency care and that the foundation for evidence-based CPGs for comprehensive patient assessments was weak.

# Introduction

Emergency medical services (EMS) and emergency departments (EDs) primarily provide initial emergency care. Within these two areas of emergency care, unplanned patient care contacts and visits have increased internationally and nationally (1). Patients without need of life-saving interventions are often assessed with low medical priority, which means that these patients could spend several hours at the ED (2). In prehospital contexts, low-priority patients may be referred to a different level of care than the ED or left at home or on site with self-care advice (3, 4). Whatever the emergency care context may be, it can be a challenge to encounter patients' urgent care needs, as these needs may prove to be based on non-physical problems. In these cases, and in general, it has been found that an early comprehensive assessment of the patient has a positive impact on continued care (5).

# Comprehensive assessment

Extant research highlights the necessity of understanding each patient's care needs and complex health conditions in emergency care situations (6–8). Failures in assessing patients according to each patient's care needs may lead to undesired consequences, such as incomplete nursing care and adverse health events (9). For clinicians, it is a challenge to understand how sudden changes influence the patient's lives. In order to understand, the clinicians (i.e., registered nurses, emergency medical technicians, paramedics, and assistant nurses working in emergency care) need to be committed to genuine care relationships and need to listen to the patient's story (10).

Since patient care needs do not always originate from physical discomfort, it is essential that in addition to assessing physical care needs, EMS and ED clinicians are also sensitive to the patient's unique psychological, social, and existential care needs (11). Consequently, clinicians need to uncover all needs to properly provide patient-centred care. This promotes comprehensive patient assessment, a five-dimensional activity, including medical, physical, psychological, social, and existential dimensions (3). In this paper, a comprehensive patient assessment is seen as an ongoing process that begins when the patient is first encountered by healthcare clinicians and ends when the patient is discharged from the ED, gets referred to a more suitable level of care, or is left at home or on site with self-care advice. In the execution of these assessments and in the decisions taken, it is a challenge to establish trustful relationships (12, 13) and gain the confidence from both the patients and their family members (11).

A comprehensive patient assessment involves several areas or dimensions. For example, physical examination involves determining patients' abilities and degrees of physical activity in daily life and their balance and risks of falling (11, 14). Patients' psychological needs are assessed in terms of sleeping problems, depression, stress, melancholy, and risk of suicide. Finally, patient's social and existential needs are assessed in terms of their autonomy and ability to make decisions and experience of meaning in their lives (15). In order to discover the essence of what each patient needs, the clinicians should have active listening skills, empathy, compassion, and the ability to engage with patients (14).

There are also significant safety risks when patients suffer from sudden illnesses or injuries. A prerequisite for safe patient assessment is that clinicians work in accordance with evidence-based practice, using theory-derived and research-based information to make decisions. However, this system has been criticized because clinicians do not always have access to the most recent evidence or use such evidence in practice (16, 17).

## Medical assessment

Assessing patients, determining whether their conditions are stable or unstable, and defining care needs are important assignments for emergency care clinicians (18). It must also be remembered that patient assessments in emergency care are performed during rapid encounters with clinicians (2), who may be the only personnel with medical responsibility on the scene. Such a situation means that clinicians have an independent responsibility for advanced care activities, sometimes in chaotic environments and under

stressful working conditions. In Sweden, emergency care assessments focus on patients' physical and biomedical status using the A-E principle (airway, breathing, circulation, disability, and exposure), observing vital signs, and listening to the patient's perceived symptoms of illness or injury (11). Most EMS and EDs use the Rapid Emergency Triage and Treatment System (RETTs) to assess patients' medical care needs (19).

## Clinical practice guidelines

Clinical practice guidelines (CPGs) provide standards for patient assessments performed by healthcare clinicians. However, one important condition is that the CPGs are evidence based, and patient assessments should be performed in such a way that a high level of patient safety can be achieved. Assessing patients suffering from sudden illnesses or injuries is a fundamental component of emergency care and the nursing process (20).

CPGs are tools to support clinicians' use of the best available evidence (21, 22). CPGs are recommendations aimed at promoting better quality healthcare, reducing practice variability, and helping clinicians make decisions about patient care (21). However, it is not always a matter of course that CPG exists or are used as intended. A focus group study indicated that EMS CPGs focus on patients with acute medical needs and that CPGs for non-urgent patients was lacking (23). A cross-sectional study indicated a lack of both EMS and ED CPGs for patients with acute abdominal conditions (24). Adherence to and trust in CPG-proposed recommendations might also be lacking. One evaluative and comparative study of RETTS revealed that a correctly documented level of urgency varied between 43% in EMS and 64% in EDs, which indicated poor adherence to CPGs for medical assessment (25). A prospective cross-sectional study indicated that only 15% of the scenarios for medical assessments were in concordance with CPGs (19).

Finally, transferring guidelines into clinical practice might be problematic. An interview study indicated that inadequate administrative and organizational supports influenced the use of guidelines in practice (26). An ethnographic study showed that some guidelines, which included time-consuming screening, caused problems (e.g., flow stops) and that insufficient time for implementing CPGs became a barrier (27). Although CPGs are available, their implementation and dissemination depend on their quality (28). Low methodological precision and non-specific recommendations influence CPG quality. Hence, it is important for credibility to provide insight into how CPGs are developed. One method of exploring and evaluating CPGs regarding patient assessment is the Appraisal of Guidelines for Research and Evaluation (AGREE II) instrument (29). In summary, it is unclear how Swedish emergency care handles patient assessments based on CPGs and the quality of these guidelines. Therefore, the aim of this study was to explore and evaluate the quality of EMS and ED CPGs for comprehensive patient assessments.

## Methods

### Design

A national cross-sectional design was used and is appropriate for exploring the existence of and reviewing the quality of CPGs (29).

## Sample and setting

The survey was conducted between January and June 2017. A total of 97 organizations (25 EMS and 72 EDs) covering all Swedish county councils ( $N = 20$ ) that organise prehospital and in-hospital emergency care were invited to participate. In some EMS organizations, a manager was listed for each ambulance station in the organization; the number of ambulance stations within each EMS varied between 1 and 22. In others, there was one listed manager for the whole organization.

## Inclusion and exclusion criteria

The inclusion criterion was the presence of CPGs for comprehensive patient assessments (Figure 1). The exclusion criteria were CPGs not covering patient assessments and CPGs for specific medical diagnoses.

## Data collection

A request to provide CPGs for comprehensive patient assessments was sent by e-mail to EMS managers and by letter to ED managers. An informational letter was sent alongside this request. The EMS and EDs submitted several CPGs per organization. When more than one organization submitted a similar CPG (in this case RETTS), only one was included since the structures of these CPGs were the same and used nationally. After two reminders, 103 CPGs (EMS,  $n = 59$ ; ED  $n = 44$ ) were received, representing a large geographical spread across Sweden. During screening (Figure 1) of the received CPGs ( $n = 103$ ), 24 duplicates were identified. The duplicates included different versions of RETTS sheets, and the RETTS-sheet were also targeted different patient groups such as children, adults, and trauma (EMS,  $n = 12$ ; EDs,  $n = 12$ ). Other duplicates were 51 management documents such as assignment descriptions for clinicians and transport of patients between hospital departments and care facilities (EMS,  $n = 30$ ; ED,  $n = 21$ ), and 13 were care programmes, such as for the treatment of sepsis and pneumonia (EMS,  $n = 10$ ; EDs,  $n = 3$ ). After screening, a total of 15 CPGs were retained for further analysis.

## Ethical considerations

Our research was regulated by Swedish law (30) which meant that no ethical approval from the Regional Ethic Review Board was needed and consequently not applied for. However, the study was conducted in line with the Declaration of Helsinki (31), and the participants received written information about the study's aim and procedures in advance. Informed consent was considered fulfilled when the participant responded to the request and submitted the guidelines for review and evaluation. Special emphasis was placed on treating responses confidentially to protect the organisation identities of the EMS and EDs.

# Quality appraisal of the guidelines

A quality appraisal of the CPGs was conducted using AGREE II to evaluate six domains: 1) scope and purpose, 2) stakeholder involvement, 3) rigor of development, 4) clarity of presentation, 5) applicability, and 6) editorial independence (29). Each domain was rated on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree). The quality was calculated for each domain and handled separately within each domain; no CPGs were excluded due to receiving a low score. The quality appraisal was undertaken by the first and second authors and then discussed with the other authors. The authors have long clinical experiences working in emergency care and have a wide experience in emergency care research. Data was analysed with descriptive statistics, such as range and median values.

## Results

Fifteen ( $N=15$ ) CPGs were included for exploration and evaluation: seven from EMS and eight from EDs. The results show that no CPG outlined a comprehensive patient assessment covering all five activity areas of interest. For further information, see Table 1.

Table 1  
 Overview of patient assessment dimensions, concerning patient care needs in CPGs

CPGs	Medical needs	Physical needs	Psychological needs	Social needs	Existential needs
<b>EMS (n = 7)</b>					
1	x	x			
2	x				
3	x				
4	x				
5	x				
6	x				
7	x				
<b>EDs (n = 8)</b>					
1	x	x	x		
2	x	x	x		
3		x	x		
4		x			
5	x	x			
6		x			
7	x				
8	x	x	x		

There were no clear connections to scientific evidence in the guidelines analyzed. Six CPGs had a reference list, and one sought and obtained comments from patients through interviews. The main characteristic of the CPGs was their focus on the medical assessment of patients with life-threatening conditions, mostly based on initial assessment and the A-E principle.

## Emergency medical services

In the EMS CPGs ( $n = 7$ ), it was stated that the guidelines were based on decision support systems for patient assessment. Five of the EMS CPGs referred to the RETTS, and in one EMS CPG, it was stated that this was the only CPG for assessing patient care needs. Six of the EMS CPGs were comprehensive and covered the entire care process, including assessment, treatment, monitoring, and handover. These CPGs differed from other CPGs by having a table of contents. The various section headings were written in

bold, and two CPGs had colour-coded content sections, which further facilitated finding the correct section, in addition to the page reference. This provided a higher score in AGREE II appraisal in Domain 4: 'Clarity of presentation'.

## Emergency departments

Out of the eight ED CPGs included, five were RETTS guidelines for assessing patients. Three ED CPGs referred to preventing and treating pressure ulcers, treating burns, and accommodating nursing and patient supervision in the ED. All the EDs used the RETTS as a basis for patient assessment.

## Quality appraisal of the guidelines

Through the use of AGREE II, great variation was found in the quality of the CPG. The EMS CPGs were all comprehensive and homogeneous. The CPGs from the ED were less extensive, but all had a homogeneous structure with bolded headlines and bulleted lists. The evidence used to develop the CPG was presented in one ED CPG, including references to databases, keywords, and the date of the literature search. Five CPGs (two from EMS and three from EDs) presented reference lists. Nevertheless, no descriptions of the criteria used in these references were made nor descriptions of how the references were related to or applied to the CPG content. See Table 2 for more information.

Table 2  
AGREE II domains and CPGs ( $N=15$ ) quality scores

<b>Domains (Max scores)</b>	<b>EMS (<math>n=7</math>) (Range), Median</b>	<b>EDs (<math>n=8</math>) (Range), Median</b>
<b>Domain 1</b> Scope and purpose (21)	(4–20) Mdn 12	(3–14) Mdn 9
<b>Domain 2</b> Stakeholder involvement (21)	(3–14) Mdn 4	(3–6) Mdn 3
<b>Domain 3</b> Rigor of development (56)	(8–14) Mdn 10	(8–22) Mdn 8.5
<b>Domain 4</b> Clarity of presentation (21)	(3–21) Mdn 21	(3–16) Mdn 7.5
<b>Domain 5</b> Applicability (28)	(4–14) Mdn 11	(4–12) Mdn 6.5
<b>Domain 6</b> Editorial independence (14)	(2) Mdn 2	(1–7) Mdn 2

## Domain 1: scope and purpose

This domain concerns the overall aims of the CPGs, their specific health questions, and their target populations. Three CPGs indicated the target group for the guidelines, using expressions such as 'healthcare staff', 'ambulance staff', or 'nurses and assistant nurses'. Five CPGs were scored the highest because these clearly declared for which staff categories or patient groups they were intended. In these CPGs, this information was presented in boldfaced font, bulleted lists, tables, and with colour markings.

## **Domain 2: stakeholder involvement**

Domain two focuses on the extent to which the CPGs were developed by appropriate stakeholders and represent the views of their intended users. In two CPGs, the names and professional statuses of those involved in CPG development were presented. In 14 CPGs, the specific names of the persons who created or who were responsible for the content were presented. One CPG presented the roles of persons in the development process: four senior executives, seven management physicians, and one specialist nurse. In one ED CPG, comments had been obtained from patients through interviews.

## **Domain 3: rigor of development**

This domain concerns the process used to gather and synthesize the evidence for CPG, the methods of formulating the recommendations, and the procedures for updating the CPG. One ED CPG presented the evidence upon which it was based, related how that evidence was collected, and listed the criteria used for developing the CPG. It also described its strengths, weaknesses, and health benefits. Five CPGs included reference lists. The remaining ten CPGs did not have reference lists. One ED CPG presented only how its evidence had been selected. One ED CPG was subjected to an external review process, carried out by physicians, nurses, senior executives, and healthcare developers from other departments in the same hospital. One ED CPG described how its processes would be updated.

## **Domain 4: clarity of presentation**

This domain deals with the language, structure, and format of the CPG. In 12 CPGs (seven from EMS and five from EDs), the recommendations were clearly written. The EMS CPGs were similar in structure; that is, they all used bold headings and categorized phenomena in alphabetical order. The steps in the assessment process were easy to identify because they were presented in bulleted lists and followed the A-E principle.

In six ED CPGs, there were larger bodies of text in which the main recommendation was missing or unclear. This ambiguity arose from the recommendation being inserted into larger bodies of text instead of being an independent subsection under a heading. Two ED CPGs presented brief and clear descriptions for each item in the patient assessment, using headings, bolded text, and bulleted lists.

## **Domain 5: applicability**

This domain relates to strategies for implementing CPGs, whether potential resources for applying the recommendations have been considered, and whether CPG presents monitoring criteria. All the CPGs

clearly communicated for which illness, type of injury, or patient group these were developed. For example, treatment instructions, burns, prevention of pressure ulcers, and patient supervision.

Six EMS CPGs presented how various recommendations could be applied in practice and when it was inadvisable to use them. In one ED CPG, it was stated that staff shortages, peaks in patient flow, and patient disease severity were examples of when the guideline had limited use. One ED CPG stated that no increase in costs was expected from using the guideline. In the remaining CPGs, no organizational or economic factors that might influence CPG use were presented.

## **Domain 6: Editorial independence**

The final domain concerns funding and how it influences CPG content. There was no indication in any CPG whether external financing, funding, or competing interest had affected its development. In one ED CPG, information about external funding was presented and was explained as being used to cover personnel costs for CPG development.

## **Discussion**

The results indicated that neither EMS nor EDs use CPGs that support comprehensive patient assessment. The CPGs generally lacked scientific support and were generally not evidence based. Methods of evidence collection and criteria for CPG development were not consistently documented.

This study indicates that no CPGs for comprehensive patient assessment are available in Swedish emergency care. Instead, most CPGs focus on assessing patients' medical care needs. These results are in line with previous research showing that medical issues are given priority in emergency care and that caring for other aspects of the patients' wellbeing is not perceived as equally important (2, 32, 33). The absence of comprehensive patient assessments may indicate that neither EMS nor EDs provide patient-centred care. However, this is not a new phenomenon in ED (32, 34). EMS research indicates that it is difficult to have a caring approach since most CPGs are designed for medical assessment only (35). This tendency is further reinforced by the fact that EMS clinicians do not always accept patients' life situations as being essential parts of an assessment (10). However, clinicians need to apply a caring attitude in encounters with patients to understand their unique needs (33). To fully grasp a patient's illness and care needs, it is essential to include the patient's lifeworld in the assessment (36). This is also necessary to promote the patients' wellbeing in terms of personal dignity, physical and mental health, and their ability to have control in their daily lives.

Patient assessment in social and cultural contexts is the core of the nursing profession (37). Comprehensive patient assessment increases quality of life (38) and could facilitate benefits, such as reducing the frequency of ED visits among elderly patients with multiple comorbidities (39). Comprehensive patient assessment could also help identify psychological conditions, such as sleep problems, depression, stress, melancholy, or suicide risk (40). Finally, assessing existential care needs is important since illnesses may cause patients to lose hope in life and question their own existence (41).

However, comprehensive patient assessment is more complex (39), expensive (38), and time-consuming (39) compared to only assessing patient medical care needs. Nonetheless, comprehensive patient assessment could increase patient safety and reduce possible harm (39, 42).

The results show that a few CPGs address adverse events, such as pressure ulcers, fall injuries, and malnutrition. Such events are preventable, and patients might be unaware of the potential risks. Therefore, the responsibility lies with the clinicians to prevent such risks from arising. However, underlying beliefs, attitudes, and contexts may either support or obstruct patients' participation (43), thus making it more difficult to prevent adverse events. The absence of CPGs guiding a comprehensive patient assessment may be a sign of system failure in EMS and EDs. To counteract this, increased awareness is needed throughout the organization. Awareness of the most common factors causing adverse events will enable targeted actions, reducing the risk of care and treatment complications and the frequency of readmissions (5).

The results also reveal ambiguity concerning the intended target population of CPGs. One consequence of this is the risk of not using CPGs for the intended patients or of using CPGs for the wrong patient groups. This could harm patients, causing missed treatments or the application of incorrect treatments (44). Patients seeking emergency care must be able to rely on the clinicians' competence and provision of safe care. However, patient assessments in emergency care combined with decision making in chaotic environments have been found to be challenging from a patient-safety perspective (42), and adverse events related to medical issues are common in emergency care (45). Therefore, constructing systems that prevent adverse events constitutes a crucial component of patient safety.

The current study indicates that only one CPG included patient perspectives. This low number may be due to CPG developers not perceiving patient contributions as relevant to CPG issues or failing to see any value in having representatives from patient associations contribute their experiences (46). However, not including patient perspectives when developing CPGs is counterproductive since patients are the focus and objects of the care proposed.

Additionally, the results show that both EMS and ED are deficient in developing evidence-based CPGs. Other research has highlighted similar deficiencies; for example, the development of CPG content and its connection to scientific literature (24). A possible reason for this deficiency is limited knowledge regarding how to construct evidence-based CPGs. Whatever the reason, the risk remains that patient assessment may be performed without any foundation in evidence (36).

This study also illustrates that CPG development has mainly been executed by senior executives and management physicians. This means that clinicians, who are responsible for the patient assessments in everyday care, are generally not included in CPG development. Thus, it is likely that other aspects of patient care needs are not given the same importance as medical care (2, 32). This highlights the necessity for healthcare clinicians to determine the unique care needs of each patient. Safety in emergency care can only be ensured through responsiveness to each patient's situation by confirming and understanding the patient (47).

Finally, neither in EMS nor EDs do patient assessments focus on patients' psychological, social, or existential care needs. Thus, the CPG implementation process in emergency care settings is deficient. This lack may be explained by CPG development and implementation processes being separate activities (48), or it may exist because CPG developers are not involved in everyday emergency clinical work. In summary, our result confirms that existing evidenced-based CPGs are not in use in Swedish emergency care and that the shortage of evidence-based CPGs may result in patients not being provided the best care and treatment.

## **Limitations and strengths**

This study presents certain limitations. For instance, few EMS and EDs participated. This is not optimal since it influences the generalizability of the results and the conclusions that may be drawn. Thus, comprehensive patient assessment and scientific support for CPGs may exist to a greater extent than demonstrated in the current research. Another limitation is the deficiency in the register of existing EMS and EDs, making it difficult to identify the managers. Therefore, some EMS and EDs risked being excluded. However, the strength of this study is that as far as the authors are aware, this is the first national cross-sectional survey on this topic. In fact, all EMS and EDs in Sweden were invited, and the results are likely transferable to other countries and healthcare contexts with similar organizations, education, and staffing.

## **Conclusions**

This research demonstrates that there are no Swedish CPGs that enable comprehensive patient assessment in emergency care and that the foundations for evidence-based CPGs are weak. Therefore, the authors argue that this result cannot confirm that clinicians are prepared to assess and refer patients to home-based self-care, since assessments appear to be reduced to only medical care needs, and they tend to neglect the patient's psychological, social, and existential care needs. Additional research is required to better understand the role of comprehensive patient assessments and the prerequisites for such assessments in emergency care.

## **Relevance To Clinical Practice**

The study findings have implications for clinical practice, leadership, and education. The results suggest that managers in emergency care should play a more active role in developing high-quality, evidence-based CPGs based on comprehensive patient assessment and should take responsibility to ensure that CPGs are evidence based. The research further suggests that clinicians should take part in this quality work highlighting patient-centred care. This means that resources are needed to create CPGs and to update and implement these in everyday emergency care. Educating healthcare clinicians plays an important role in extending the knowledge of CPG development and of critical evaluations supporting comprehensive patient assessments.

## **Declarations**

## **Ethics approval**

Not applicable.

## **Consent for publication**

Not applicable.

## **Availability of data and materials**

The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

## **Competing interest**

The authors declare that they have no competing interest.

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## **Authors contributions**

ÅF: Study design, data collection, data analysis, preparing the manuscript, interpretation, and critical revision of the manuscript for important intellectual content.

UA: Study design, data collection, data analysis, preparing the manuscript interpretation, and critical revision of the manuscript for important intellectual content.

BWS: Preparing the manuscript, interpretation, and critical revision of the manuscript for important intellectual content.

AB: Study design, data analysis, preparing the manuscript, interpretation, and critical revision of the manuscript for important intellectual content.

HA: Study design, data analysis, preparing the manuscript, interpretation, and critical revision of the manuscript for important intellectual content.

All authors read, edited, and approved the final manuscript.

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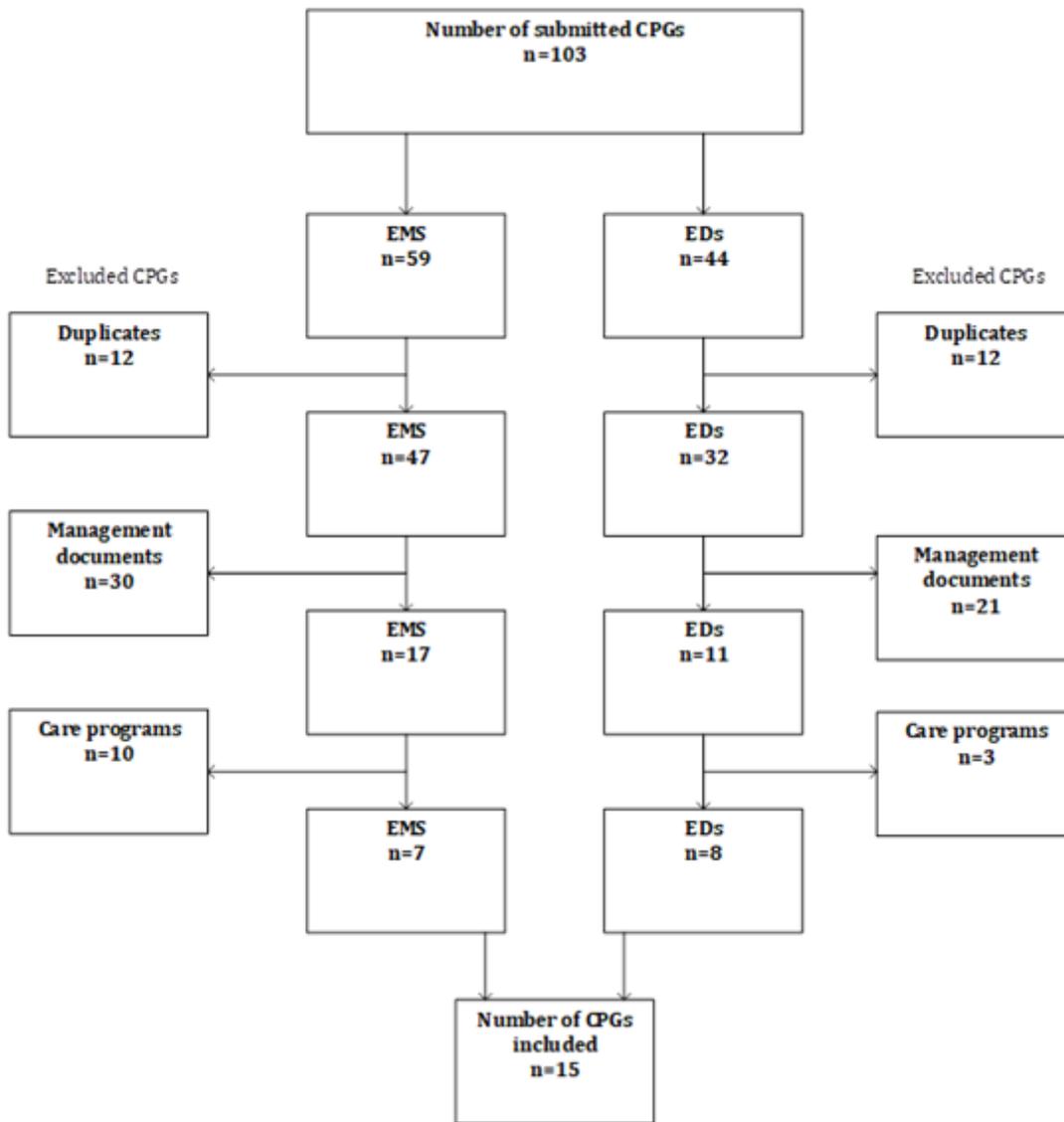
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## Figures



**Figure 1**

Overview of the inclusion process