Original Article

Medical Emergencies During the COVID-19 Pandemic

An Analysis of Emergency Department Data in Germany

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Summary

Background: In this study, we investigate the number of emergency room consultations during the COVID-19 pandemic of 2020 in Germany compared to figures from the previous year.

Methods: Case numbers from calendar weeks 1 through 22 of the two consecutive years 2019 and 2020 were obtained from 29 university hospitals and 7 non-university hospitals in Germany. Information was also obtained on the patients' age, sex, and urgency, along with the type of case (outpatient/inpatient), admitting ward, and a small number of tracer diagnoses (I21, myocardial infarction; J44, COPD; and I61, I63, I64, G45, stroke /TIA), as well as on the number of COVID-19 cases and of tests performed for SARS-CoV-2, as a measure of the number of cases in which COVID-19 was suspected or at least included in the differential diagnoses.

Results: A total of 1 022 007 emergency room consultations were analyzed, of which 546 940 took place in 2019 and 475 067 in 2020. The number of consultations with a positive test for the COVID-19 pathogen was 3122. The total number of emergency room consultations in the observation period was 13% lower in 2020 than in 2019, with a maximum drop by 38% coinciding with the highest number of COVID-19 cases (calendar week 14; 572 cases). After the initiation of interpersonal contact restrictions in 2020, there was a marked drop in COVID-19 case numbers, by a mean of –240 cases per week per emergency room (95% confidence interval [−284; −128]). There was a rise in case numbers thereafter, by a mean of 17 patients per week [14; 19], and the number of cases of myocardial infarction returned fully to the level seen in 2019.

Conclusion: In Germany, the COVID-19 pandemic led to a significant drop in medical emergencies of all kinds presenting to the nation's emergency departments. A recovery effect began to be seen as early as calendar week 15, but the levels seen in 2019 were not yet reached overall by calendar week 22; only the prevalence of myocardial infarction had renormalized by then. The reasons for this require further investigation.

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The pandemic of infection with the severe acute respiratory syndrome (SARS) coronavirus 2 (CoV2), which causes the disease referred to as coronavirus disease 2019 (COVID-19) (1), has led to unprecedented social distancing measures worldwide as well as in Germany. In March 2020 in particular, large events were canceled, schools and universities closed, and social distancing measures imposed in public places on the basis of regulations issued by the German Federal States as well as an amendment to the German infection Protection Act (*Infektionsschutzgesetz*) (2). The aim of these measures was to protect the population from an initially exponential rise in the incidence of COVID-19 and, most notably, to avoid overwhelming the health system (4)—as previously witnessed in Italy (3). The primary challenge is posed by severe COVID-19 manifesting as acute respiratory distress syndrome (ARDS), which requires particularly complex intensive care (5). Above all, the lack of intensive care capacity in some regions of Italy had led to difficulties in the provision of medical care (3). At the start of the pandemic, one also had to assume that COVID-19, like other severe infections, would increase the incidence of cardiovascular events and, in particular, myocardial infarction. Musher et al. reported a more than three-fold increased risk of myocardial infarction in the setting of pneumonia, which

TABLE

Data on the structure of participating hospitals (n = 36) that provided the data on a total of 1 022 007 patients for the observation period of calendar weeks 1–22 in 2019 and 2020*

	Data on structure of participating emergency departments (n=36)
University hospitals	80.6% (n = 29)
Data source	
FUN data	72.2% (n = 26)
AKTIN data	27.8% (n = 10)
Level of care (nmiss = 7)	
Advanced emergency care	8.3% (n = 3)
Comprehensive emergency care	72.2% (n = 26)
Participating German federal states	
Baden-Wuerttemberg	11.1% (n = 4)
Bavaria	25.0% (n = 9)
Berlin	8.3% (n = 3)
Hamburg	2.8% (n = 1)
Hesse	2.8% (n = 1)
Mecklenburg-Western Pomerania	2.8% (n = 1)
Lower Saxony	11.1% (n = 4)
North Rhine-Westphalia	16.7% (n = 6)
Saarland	2.8% (n = 1)
Saxony	5.6% (n = 2)
Saxony-Anhalt	2.8% (n = 1)
Schleswig-Holstein	5.6% (n = 2)
Thuringia	2.8% (n = 1)
Case numbers	
Mean number of cases per year (nmiss = 1) (MW±SD)	36 576 ± 18,271
Mean number of outpatient cases (nmiss = 2) (MW±SD)	23 833 ± 12,846
Mean number of inpatient cases (nmiss = 2) (MW±SD)	14 553 ± 9340
Mean number of beds (nmiss = 1) (MW±SD)	1442 ± 1723
Primary assessment procedure	
MTS	55.6% (n = 20)
ESI	38.9% (n = 14)
Other	5.6% (n = 2)

*Missing data arise from the fact that not all details on structure were available for all emergency departments.
AKTIN, German Emergency Department Registry; ESI, Emergency Severity Index; FUN, German Forum of University Emergency Departments; MTS, Manchester Triage Scale; MV, mean value; nmiss, number of missing data
SD, standard deviation

can rise to six-fold if sepsis develops (6). Against this background, reports that the rate of heart attacks, including those with ST-segment elevation, was lower during the pandemic are surprising (7–9).

The primary aim of the current article is to describe the trend in the use of emergency departments during the COVID-19 pandemic and analyze this trend in relation to the social distancing measures. As a secondary aim, the case numbers during the COVID-19 pandemic are compared with the corresponding period in the previous year and stratified according to demographic criteria and urgency. An exploratory description is made of the frequency of the serious diagnoses myocardial infarction, chronic obstructive pulmonary disease (COPD), and stroke/transient ischemic attack.

Methods

Study centers

This was a multicenter, Germany-wide study that collected data in emergency departments. Of the 43 emergency departments in the German Forum of University Emergency Departments (*Forum universitärer Notaufnahmen*, FUN; n = 30) and the German Action Coalition for Information and Communication Technology in Intensive Care and Emergency Medicine (*Aktionsbündnis Informations- und Kommunikationstechnologie in Intensiv- und Notfallmedizin*, AKTIN) Emergency Department Registry (AKTIN; n = 17), a total of 36 departments took part in the study (26 FUN and 10 AKTIN).

Data collection

The first part of the data collection covered the site characteristics of the individual emergency departments, as well as specific regional aspects. This included the number of patients and beds at the respective emergency department sites, regional lockdown measures and dates, information on SARS-CoV2 testing, as well as surveying the primary assessment procedure used (10). The second part included the aggregated survey on presentation numbers at each study center, both overall and in specific subgroups: hospital setting (outpatient/inpatient), admission unit (intensive/intermediate care/normal unit), specialty, primary assessment, sex, and age. Primary assessment data (triage) were recorded in five categories (1 = life-threatening emergency, to 5 = non-urgent presentation), as was the number without a documented primary assessment or with direct physician contact (10). In addition, the frequency of myocardial infarction (ICD-10: I21), stroke/TIA (ICD-10: I61, I61, I64, G45), and chronic obstructive pulmonary disease (COPD; ICD-10: J44) was recorded. Diagnoses were assigned to calendar weeks according to date of admission, and the coding of the ICD codes given was considered as the diagnosis, irrespective of whether it was an emergency department diagnosis, main hospital diagnosis, or a secondary diagnosis. These diagnoses were seen as tracer diagnoses for particularly severe presenting complaints. The period of data collection covered calendar weeks 1– 22 in 2019 and 2020. For temporal granularity, weekly intervals were chosen (calendar weeks). No case data were merged on an individual-case basis.

Method of data extraction and transmission

Data for the 26 FUN sites with participating centers were extracted from the hospital information systems, transferred to Excel spreadsheets, made internally plausible, and then transmitted to the central data management at the Charité—University Hospital Berlin, Germany, in anonymized, aggregated form. In 10 hospitals, data retrieval of case-related data was carried out centrally via the infrastructure of the AKTIN emergency department registry (11), which enables multicenter use of routine data irrespective of the local emergency department documentation system (12). The general specialty "trauma" or "non-trauma" was determined by the respective centers according to local routine procedures, for example, as in the case of data submission via AKTIN, from the presenting complaint coded according to the Canadian Emergency Department Information System (CEDIS) (13, 14).

Data synthesis and analysis

The transmitted data on patient contacts were transferred in the central data management system using SPSS, Version 25, merged, and analyzed using the statistics program R. Relative changes (%) were calculated as differences between the years 2020 and 2019 with reference to 2019 for the respective categories and presented as box plots of all emergency departments. In a first step, descriptive, exploratory analyses of the case numbers over the calendar weeks beginning with week 2 of the year were carried out, since the number of days in the first weeks of 2019 and 2020 differed (relative and absolute incidences). List-wise case exclusion was performed for missing values. Further details can be found in the *eMethods Section.*

Ethics and data protection

The project represents a merging of aggregated data, which, due to the low temporal granularity, were no longer person-related and thus, in effect, anonymous. To this end, the data protection officers at the Charité—University Hospital Berlin were consulted in an advisory capacity. The project was submitted to the COVID-19 Research Board by the lead institution (Charité—University Hospital Berlin) as an amendment to the Pa-COVID-19 study (EA2/066/20). Following consultation there, the project was deemed to not require separate review by the ethics committee due to the fact that it involved the evaluation of aggregated and, in effect, anonymized data. Approval was granted by the Corona Research Board at the Charité.

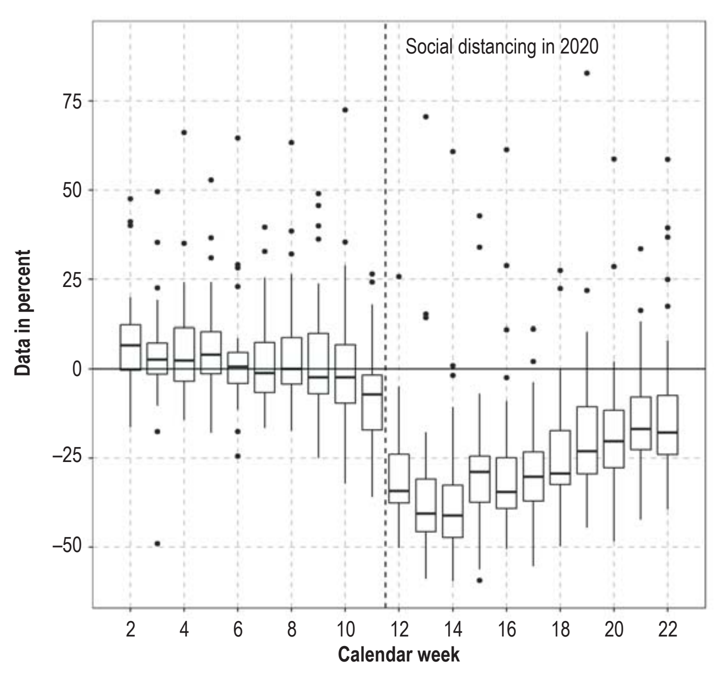
Results

Data on the structure of participating centers

A total of 36 emergency departments participated in the collection of data, of which 29 were university hospitals (80.6%) and seven were other hospitals (19.4%; *Table*).

SARS-CoV2 testing started at the participating emergency departments between 20 January 2020 and 26 March 2020. An additional COVID-19 testing site was set up in 63.9% of hospitals, and a COVID emergency department in 61.1% of cases *(eTable 1).*

FIGURE 1



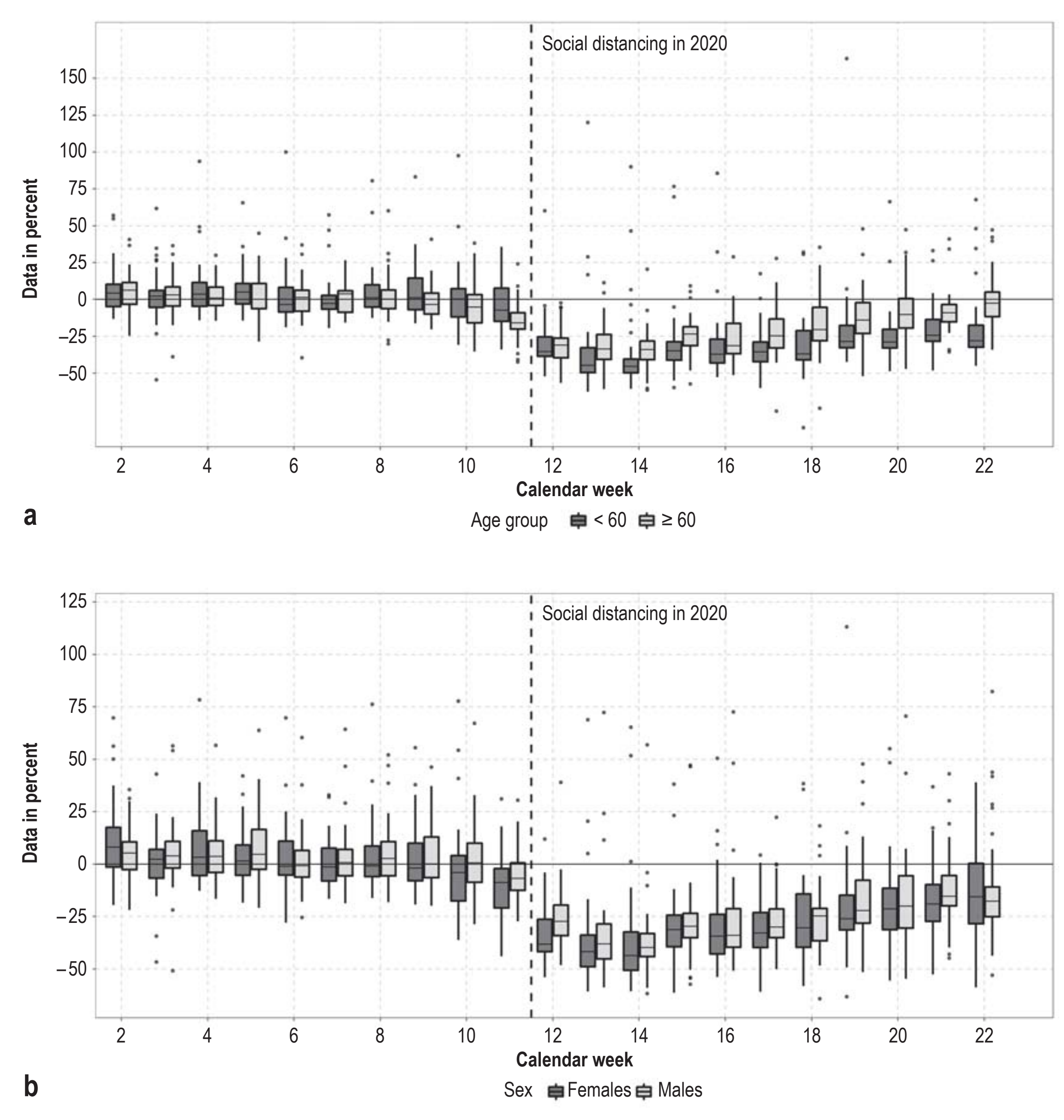
A comparison of the relative change in presentations across participating emergency departments in calendar weeks 1–22 in 2019 and 2020.

Presentation numbers overall and SARS-CoV2 testing in the emergency departments

A total of 1 022 007 presentations at the participating emergency departments were analyzed, of which 546 940 were from 2019 and 475 067 from 2020. Between 20 January and 26 March 2020, SARS-CoV2 testing was set up in the participating emergency departments and a total of 51 361 SARS-CoV2 tests were carried out during the observation period, of which 6.1% (n = 3122) were positive. A total of 34 878 SARS-CoV2 tests were performed in affiliated outpatient testing centers (data not reported for all sites), of which 4.2% were positive (n = 1471).

A comparison of emergency department presentations in 2020 and 2019 revealed a marked overall reduction in case numbers, with a maximum reduction of 38% in calendar weeks 13 and 14 ($\delta = -9294$ and $\delta = -9896$, respectively) *(Figure 1, eFigure 1a, b, eTable 2)*. With the start of social distancing measures in 2020, a strong reduction was seen in case numbers of on average −240 cases per emergency department and calendar week (95% confidence interval [−284;

FIGURE 2



Relative deviations (%) in the number of presentations across participating emergency departments.
a) Relative deviation in the number of presentations between 2019 and 2020 stratified according to age groups (≥ 60 years and <60 years).
b) Stratified according to gender (male, female)

−128]). The number of cases subsequently rose weekly by 17 [14; 19] patients on average.

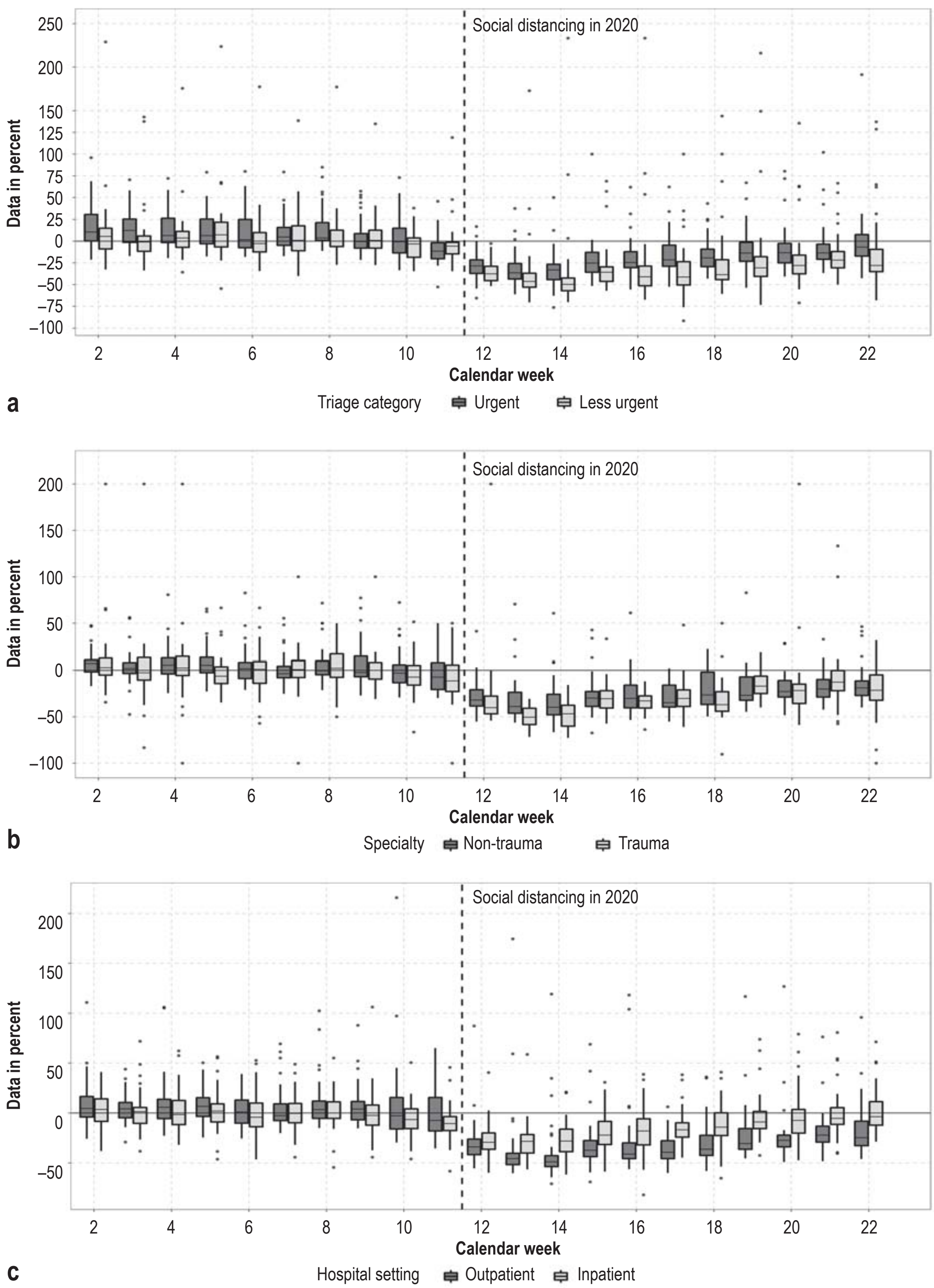
The absolute majority of positive SARS-CoV2 tests were observed in calendar week 13 with 16% (523 positive tests out of 3353 tests carried out, *eFigure 2*). In contrast to these results, a marked rise in the number of cases was observed in two emergency departments in 2020 during the COVID pandemic, accompanied by a corresponding number of SARS-CoV-2 tests in the emergency department.

Relative changes in emergency department presentations

A marked decline in emergency department presentations was observed both in age subgroups as well as in males and females *(Figure 2 a, b)*.

A reduction in presentations was also seen in subgroups based on urgency *(Figure 3a)*, trauma versus non-trauma *(Figure 3b)*, inpatient admission *(Figure 3c)*, and the relevant tracer diagnoses *(Figure 4a, b, eFigure 3)*. The highest relative reduction in

FIGURE 3



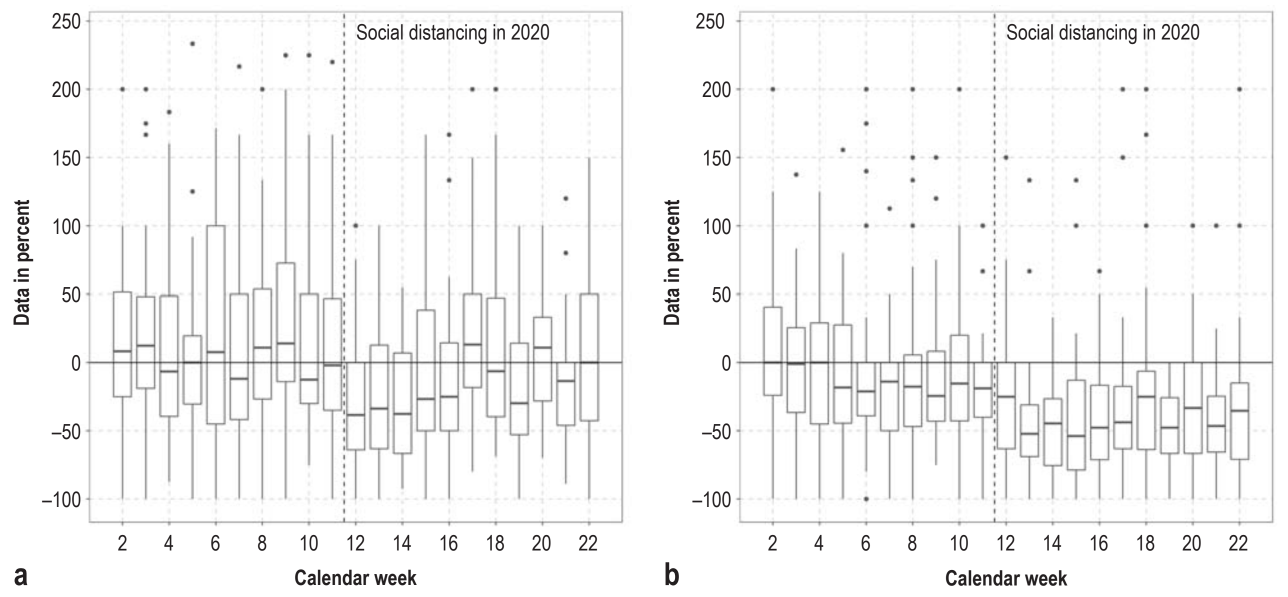
Relative deviations (%) in the number of presentations across participating emergency departments.

a) Stratified according to urgency (primary assessment predominantly using MTS, ESI; urgent: triage categories 1–3 (red, orange, yellow); less urgent: triage categories 4 and 5 (green, blue)

b) Stratified according to specialty (trauma; non-trauma)

c) Stratified according to hospital setting (outpatient vs. inpatient); outliers over 250% are not shown in the presentation (trauma n = 3, hospital setting n = 4). ESI, Emergency Severity Index; MTS, Manchester Triage Scale

FIGURE 4



Relative deviations (%) in the number of presentations across participating emergency departments for selected tracer diagnoses.
a) Myocardial infarction
b) COPD: outliers over 250% are not shown in the presentation (COPD diagnosis n = 13, MI diagnosis n = 15). See *eFigure 3* for the diagnosis stroke/TIA.

presentations among patients aged below 60 years (42%) was seen, once again, in calendar weeks 13 and 14 (δ = −6315 and δ = −6689, respectively) and was also in calendar week 14 (δ = −3111) in the age group of 60 years and over (34%). The maximum reduction in presentations for men was in calendar week 14 (δ = −5215; −39%) and for women in calendar week 13 (δ = −4436; −40%). The highest relative reduction was observed for trauma patients in calendar week 13 (50.6%, δ = −2799) and for non-trauma patients in calendar week 14 (35.3%, δ = −6186). A consideration of specific serious diagnoses demonstrated the strongest relative reduction for myocardial infarction in calendar week 12 (δ = −120; −40%), for COPD in calendar week 15 (δ = −152; −50%), and for stroke/TIA in calendar week 16 (δ = −176; −24%).

Discussion

The present study confirms and quantifies initial reports of a reduction in emergencies, including stroke and myocardial infarction, in German emergency departments during the COVID-19 pandemic and puts this phenomenon on a solid basis of data.

Epidemiology

The reduction in case numbers stands in close temporal relation to the imposition of social distancing measures and the peak incidence of COVID-19 in our data *(Figure 1 and eFigure 2)*. The two factors are linked, since restrictions were strictly adjusted to the progression of the pandemic. In principle, a number of factors could be responsible for this trend.

It could be that, due to the COVID-19 pandemic, the threshold to seek medical care rose, especially since it is often relatives, particularly in the case of older patients, who instigate emergency care and these relatives were not available due to social distancing measures. It is possible that diseases or injuries occurred less frequently due to the restrictions on activity and contact, given that, firstly, triggering factors such as stress and physical activity were absent and, secondly, the transmission of other pathogens was less likely.

With regard to presentation due to any accident or injury (trauma), it is likely that the decline in road traffic, the closure of sports facilities, and the cancellation of all large events contributed to a reduction in these presenting complaints. Earlier data from the first SARS epidemic in 2003 demonstrate similar transient reductions in case numbers (15). In California, USA, Wong et al. also recently reported declines in emergency department presentations of up to 50% (16).

Demographic factors

The reduced number of presentations by over-60-year-olds was less marked and showed an earlier recovery *(Figure 2a)*. In the 3 weeks of strict social distancing, the reduction in presentations was slightly greater among women compared to men. This suggests that the case numbers were affected less by social than by medical factors.

Urgency, level of care, and specific diagnoses

The decline in case numbers affected all levels of urgency, the level of care (normal unit versus intensive care unit), and somewhat more pronounced outpatient cases. It is obvious from this that outpatients with less urgent presenting complaints postponed their treatment to a later time, especially since a major factor for these patients to present is the fear of serious illness and, thus, undoubtedly competes with their fear of infection (17). At the peak of the pandemic, hospitals focused intensively on establishing appropriate care processes (18, 19), and the public was unsettled by reports of outbreaks in some hospitals (20).

The decline in cases with typical tracer diagnoses is particularly striking. The lower number of presentations by patients with COPD might be explained by the fact that social distancing might have reduced infection-related exacerbation. The information widely communicated to the public that pre-existing respiratory diseases represented a particular risk factor for severe COVID-19 (21) may also have resulted in a more pronounced attitude of avoidance. On the other hand, the reasons for the observed reduction in patients with acute myocardial infarction remain unclear. Although a differentiation between ST-segment elevation myocardial infarction (STEMI) and non-STEMI is not possible in our data, the unequivocal result demonstrates that this is a valid observation, in agreement with other publications (8, 9) as well as the overall reduction in severe cases in our data. Piccolo et al. confirm this phenomenon based on numbers of interventions for acute coronary syndrome in Italy (22).

One hypothesis for the fall in STEMI case numbers is that patients with chest pain used emergency medical services either late or not at all due to fear of infection with COVID-19. This is reflected in a large international survey of cardiology centers (23).

As mentioned above, it could be that there was an actual decrease in cardiovascular emergencies due to the forced changes in lifestyle. For example, it is well known that myocardial infarction can typically be triggered by unusual physical exertion (24), which is likely to have been reduced by the social distancing measures. Moreover, large sporting events in particular are associated with increased cardiovascular mortality and morbidity in spectators (25, 26). This trigger was likewise reduced as a result of the worldwide cancellation of all events.

It is also not yet possible to conclusively evaluate the decrease in stroke patients in German emergency departments. Similar trends have also been seen in other countries. At the beginning of April, 856 hospitals in the USA experienced a 39% reduction in cerebral imaging performed due to suspected stroke (27). It is feared, especially for patients with mild symptoms of stroke or transient ischemic attacks (TIAs), that medical assistance was not sought due to fear of infection with SARS-CoV2. This is underlined by data from a study conducted in Alsace, France, in which, on the one hand, the number of admissions to stroke units during the initial phase of the pandemic in March did not differ from the previous year, while on the other, the rate of thrombolysis due to late presentation outside the time window went down by 41% compared to 2019 (28). In addition to a decrease in the rate of stroke patients, a New Jersey study reported a general increase in patients with occlusion of the large cerebral vessels (29). This could be an indication that the lack of treatment for mild stroke symptoms led to a rise in the number of cases of severe stroke.

Limitations

This is an analysis of aggregated routine administrative data predominantly extracted individually from different IT systems. Although it is not possible to exclude inaccuracies in case numbers, these can probably be ignored due to the large effects and high number of cases.

Classification of "trauma" versus "non-trauma" was left to the respective centers and, as such, not uniformly operationalized. It is possible that the heterogeneous organization of German emergency departments led to a distortion in this classification. Although the somewhat more pronounced reduction in what are often outpatient trauma cases is medically plausible, this cannot be considered as proven and requires further investigation.

Finally, one cannot rule out the possibility that a shift in emergency care to other service providers occurred. This study analyzed only emergency department data; however, international data show that at least emergency medical and rescue services were also affected (30). Only hospitals providing the highest or high levels of care participated in our study. These were equally often designated as COVID-19 treatment centers. Therefore, the available data cannot reliably answer the question of whether and to what extent basic and standard care providers (basic care according to the German Federal Joint Committee, *Gemeinsamer Bundesausschuss*, GBA), for example, also experienced a decline in patient numbers. However, recent data from Germany and the USA relating to an individual region (comparing a university hospital with regional care providers) (31) and a chain of hospitals (32), respectively, show that apparently all levels of care were affected.

Conclusions

The COVID-19 pandemic in Germany led to a significant decline in medical emergencies of all kinds in emergency departments. A return to normal started as early as in calendar week 15. Overall baseline values had not been reached by calendar week 22, although the prevalence of myocardial infarction had normalized. The causes are the subject of further research.

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Conflict of interest statement
The authors declare that no conflict of interest exists.

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► **Supplementary material**

eMethods, eTables:
www.aerzteblatt-international.de/20m0545

Supplementary material to:

Medical Emergencies During the COVID-19 Pandemic

An Analysis of Emergency Department Data in Germany

by Anna Slagman, Wilhelm Behringer, Felix Greiner, Matthias Klein, Dirk Weismann,
Bernadett Erdmann, Mareen Pigorsch, and Martin Möckel on behalf of the German Forum of University Emergency Departments (Forum Universitärer Notaufnahmen, FUN) and the AKTIN Emergency Department Registry

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eMETHODS SECTION

Data collection

In the AKTIN Emergency Department Registry, standardized data are held centrally and pseudonymized in the organizational area of emergency departments in accordance with emergency department medical record V2015.1. After approval by the AKTIN scientific committee and release of the data by the heads of the emergency departments, the data were exported, processed, and aggregated at the AKTIN trusted data analyzing center in line with the data matrix (Excel spreadsheets) described in the article.

Data synthesis, analysis, and protection

The FUN survey was carried out using the own resources of the participating sites.

The data protection concept of the AKTIN Emergency Department Registry was granted approval by the Data Protection Working Group of the German TMF—Technology and Methods Platform for Networked Medical Research (*TMF – Technologie- und Methodenplattform für die vernetzte Medizinische Forschung e. V.*). Approval was granted by the Ethics Committee of the Otto von Guericke University Magdeburg, Medical Faculty (vote 160/15), and the study is registered in the German Register of Clinical Studies (study ID: DRKS00009805). The setting-up of the registry was funded by the German Federal Ministry of Education and Research (funding ID: 01KX1319A-F).

Additional presentation of data synthesis and analysis, as well as methods and results of the mixed linear models in subgroups according to age, sex, care parameters, urgency, and severity

In addition to descriptive analysis, the data were analyzed using a mixed linear model. Here, the year, calendar week, presence of social distancing measures, as well as an interaction between calendar week and the presence of social distancing measures were added as fixed effects. In addition, a random constant for each emergency department was modeled, as was a random slope for each emergency department, in order to check for differences between emergency departments. The effect size is the mean reduction in case numbers at a 95% confidence interval (95% CI) following the introduction of social distancing measures. This model was calculated accordingly in the investigated subgroups (age, sex, urgency, specialty, hospital setting, diagnoses).

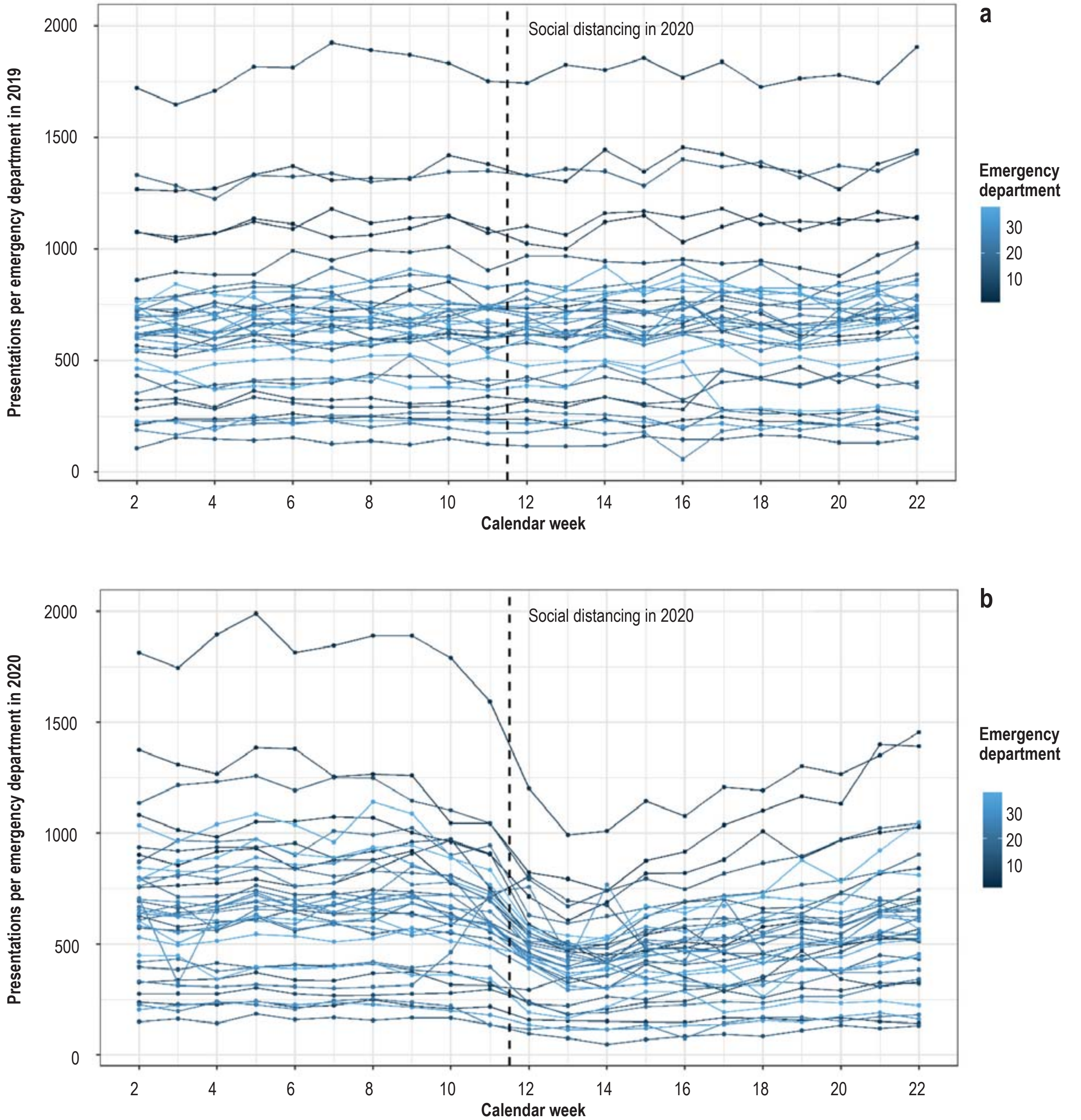
All available data were used for analyses using mixed models. Since the number of missing values varies in the subgroups, there are smaller variations in the number of cases and emergency departments.

Overall, the mixed linear model can explain 96% of the variance using fixed and random effects, whereby 6% can be assumed through the fixed effects alone.

The mean number of cases in 2020 rose overall by 9.5 [0.3; 18.7] compared to the previous year. Per calendar week, an emergency department treated on average 1.5 more patients. Following the introduction of social distancing measures in 2020, a strong reduction in case numbers (−240) [−284; −128] was seen in relation to the constants. This corresponds to the change in case numbers at the beginning of calendar week 12, the start of social distancing measures. For the calculation, 12 is inserted for calendar week and the sum of the coefficients is calculated ($1.5 \times 12 - 453 + 9.5 + 15.5 \times 12$). The confidence intervals are calculated by inserting the respective confidence intervals of the individual estimators in the formula. During these social distancing measures, the number of cases rose each week by on average 17 [14; 19] patients; this corresponds to the sum of the coefficients of the calendar week (1.5) and the interaction effect of calendar week and social distancing measures (15.5).

The same model was also calculated for the subgroups (results not shown, available from the authors on request).

eFIGURE 1



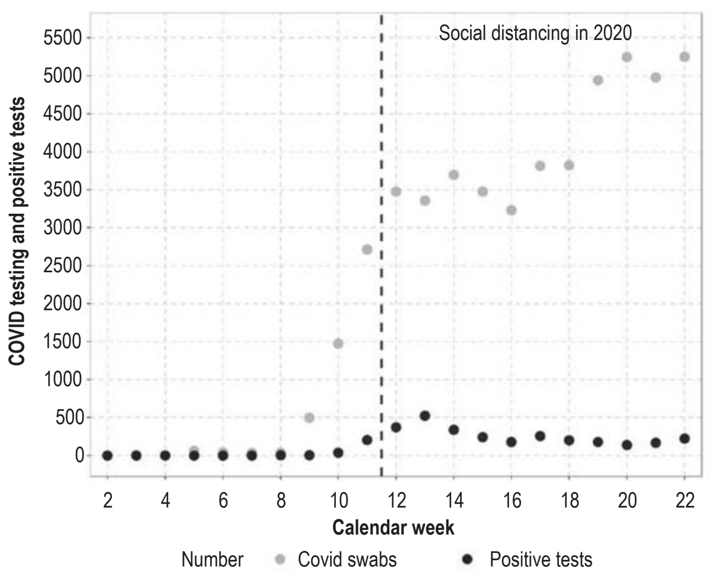
Presentation of case numbers in the various emergency departments in the calendar weeks 2–22

a) in 2019 and

b) in 2020.

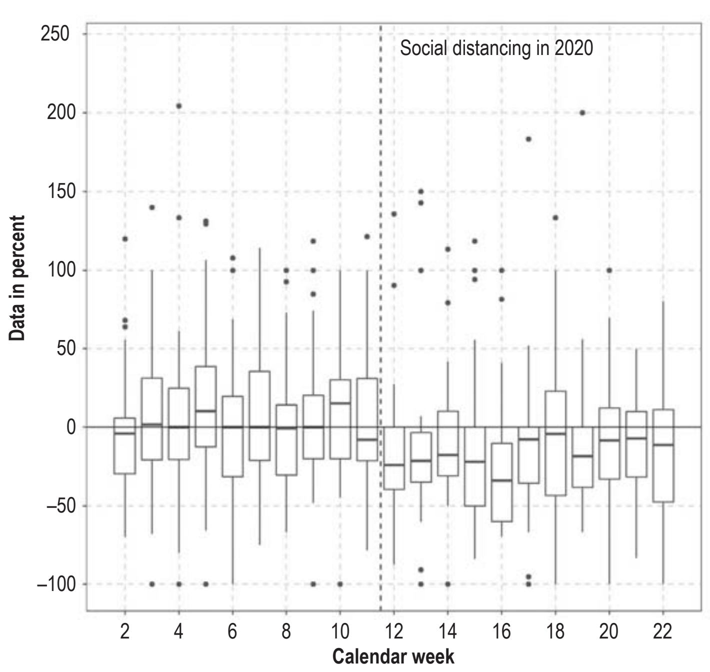
In one emergency department, the cases at a COVID testing site were formally documented for 2 calendar weeks via the emergency department, meaning that a rise in case numbers is seen here for 2020, which, however, is due not to additional medical emergencies, but to SARS-CoV-2 testing.

eFIGURE 2



Absolute frequencies of SARS-CoV2 tests performed in calendar weeks 1–22 in 2020 at participating emergency departments.
Absolute number of Covid tests and positive tests.

eFIGURE 3



Relative deviations (%) in the number of presentations at participating emergency departments for the diagnosis stroke/TIA (transient ischemic attack). Outliers over 250% are not shown in the presentation (n = 8).
A comparison of calendar weeks 1–22 in 2019 and 2020.

eTABLE 1

Data on COVID-19-specific structures and measures at participating sites (n = 36)

Data on SARS-CoV2 testing and measures	
Start of SARS-CoV2 testing in the emergency department (nmiss = 4)	20 January 2020–26 March 2020
COVID testing site in place (nmiss = 1)	66.7% (n = 24)
COVID emergency department in place (nmiss = 1)	66.7% (n = 24)
Date COVID testing site/emergency department introduced (nmiss = 19)	27 January 2020–8 April 2020
Measures	
Start of lockdown measures (nmiss = 3)	9 March 2020–27 March 2020
Start of extensive measures (nmiss = 2)	15 March 2020–23 March2020
Start of school closures (nmiss = 2)	11 March 2020–18 March 2020
Data on SARS-CoV2-positive cases	
First positive test, German federal state (nmiss = 3)	27 January 2020–12 March 2020
First positive test, city/district (nmiss = 3)	27 January 2020–13 March 2020

COVID-19 testing sites were defined as centers that tested individuals for SARS-CoV2 infection without medical or clinical suspicion.
COVID-19 emergency departments were defined as centers that tested clinically suspected cases of SARS-CoV2 infection in a separate area affiliated to the hospital or emergency department.
nmiss, Number of missing data

eTABLE 2

Model for the total number of cases

Fixed effects				
		Estimators	**Confidence interval**	
(Intercept)		658.4	547.1	769.7
Calendar week (CW)		1.5	0.7	2.2
Social distancing		−453.0	−508.5	−397.5
2020		9.5	0.3	18.7
CW: social distancing		15.5	13.4	17.7
Random effects				
Group	**Name**	**Variance**	**SD**	**Corr**
Emergency department	Intercept	115 423	339.74	
	Social distancing	16 859	129.84	–0.85
Residual		44 562	66.72	
Group: Emergency department, 37*				
Explained variation				
R2 marginal	R2 conditional			
0.06	0.96			

*At one hospital, data sets for trauma and non-trauma were submitted and processed separately. A total of 36 hospital sites participated in the survey.
SD. standard deviation: Corr. correlation coefficient