

Impact of the COVID-19 outbreak on endoscopy training in a tertiary care centre in Germany

Christoph Roemmele, Johannes Manzeneder, Helmut Messmann, Alanna Ebigo 

Department of Gastroenterology, Universitätsklinikum Augsburg, Augsburg, Bayern, Germany

Correspondence to

Dr Alanna Ebigo, Universitätsklinikum Augsburg, Augsburg 86156, Germany; alanna.ebigo@gmx.de

Received 15 April 2020
Revised 12 May 2020
Accepted 26 May 2020
Published Online First
10 June 2020

ABSTRACT

Objective The COVID-19 crisis has impacted on all aspects of health care including medical education and training. We describe the disruption of endoscopy training in a tertiary care center in Germany.

Design/Method The reorganization of a high-volume endoscopy unit during the German COVID-19 outbreak is described with special focus on endoscopy trainees. Changes in case volume of gastroenterology fellows were evaluated and compared to a year prior to the outbreak.

Results Reallocation of resources led to the transfer of gastroenterology fellows to intensive care and infectious disease units. Case volume of fellows declined between January and April 2020 by up to 63%. When compared with data from the year prior to the outbreak, endoscopy performed by fellows reduced by up to 56%. Educational meetings and skill evaluation were cancelled indefinitely.

Conclusion The COVID-19 outbreak has had a negative impact on endoscopy training of gastroenterology fellows in a high-volume center in Germany. This must be taken into consideration when planning “return-strategies” after the pandemic.

INTRODUCTION

The novel coronavirus (SARS-CoV-2) has led to a global health emergency with reports of coronavirus disease (COVID-19) from over 100 countries.¹ In Germany, more than 150 000 cases of COVID-19 infection and more than 7000 deaths have been reported.² Due to the rapid increase in the number of infected persons, Germany's national Public Health Institute (*Robert Koch-Institut*) declared a moderate COVID-19 infection risk for the general public on 28 February and on 17 March, this risk level was raised to ‘high’.

Various position statements were published on strategies to protect patients and staff in endoscopy units from SARS-CoV-2 infection, including prioritisation of indications and postponement of non-urgent procedures.^{3,4} In addition, it was recommended that only essential endoscopy personnel is present during endoscopy and, whenever possible, a limited team of endoscopy staff be designated to endoscopy procedures in patients with or suspected to be infected with COVID-19. These stringent protection strategies may also affect the endoscopy training programmes of gastroenterology fellows and residents in affected centres. In this paper, we present data on the impact of the COVID-19 outbreak on endoscopy training in a tertiary care centre in Germany.

METHODS

This single-centre, retrospective descriptive study was done in the Department of Gastroenterology at the University Hospital Augsburg.

Data of endoscopy case volume were extracted from the records of the endoscopy unit of the department.

The reorganisation of the endoscopy unit and its effects on the endoscopy training programme is also described.

Study data

The absolute number (case volume) of endoscopic examinations performed by four gastroenterology fellows over a 4-month period (January to April 2020) was evaluated and compared with the case load in the year prior to the COVID-19 outbreak (January to April 2019). Differences between case volumes are shown in percentages.

Endoscopy training and skills assessment

The gastroenterology fellowship in Germany lasts for 3 years and includes



► <https://doi.org/10.1136/flgastro-2020-101573>



© Author(s) (or their employer(s)) 2020. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Roemmele C, Manzeneder J, Messmann H, et al. *Frontline Gastroenterology* 2020;**11**:454–457.

basic endoscopy training with independent accomplishment of 200 abdominal ultrasounds, 300 diagnostic gastroscopies, 50 therapeutic gastroscopies, 300 diagnostic colonoscopies, 50 polypectomies, 150 endoscopic retrograde cholangiopancreatographies, 50 endoscopic ultrasounds and 50 proctoscopies. Additionally, basic knowledge and skills in interventional procedures include endoscopic control of gastrointestinal bleeding, variceal band ligation, oesophageal/colonic stent placement and argon plasma coagulation treatment.⁵

Education and research meetings

Journal club meetings and endoscopy research meetings are held once a week while departmental meetings are conducted daily. During these meetings, fellows and residents present and discuss current medical and gastroenterology literature.

RESULTS

In accordance with the position statement of the European Society of Gastrointestinal Endoscopy,³ the endoscopy unit of the University Hospital Augsburg stopped all non-urgent procedures on 13 March and reduced the number of endoscopy personnel to a required minimum.

Restructuring of the endoscopy unit with respect to the gastroenterology fellowship

Due to the rapid increase in the number of confirmed and suspected patients with COVID-19 in the hospital, three gastroenterology fellows were transferred to the infectious disease (ID) and the intensive care unit (ICU) on 13 March. One fellow continued work in the endoscopy unit caring for urgent and emergency cases.

Total case volume in centre

The total case load in the centre fell from 1587 to 1029 between January and April 2020. In comparison between 2019 and 2020, the centre’s total case load for all procedures reduced in January from 1624 to 1587 (–2.3%), in February from 1486 to 1416 (–4.7%), in March from 1602 to 1197 (–25.3%) and in April from 1549 to 1029 (–33.6%) (table 1 and figure 1).

Case volume of gastroenterology fellows

Between January and April 2020, the case load of gastroenterology fellows (n=4) fell from 372 to 113. In comparison between 2019 and 2020, the number

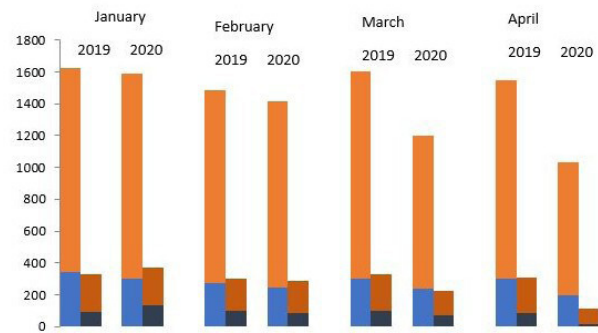


Figure 1 2019 vs 2020: total endoscopy case volume in centre (bright red) and total ultrasound volume in centre (bright blue). Case volumes of fellows (endoscopy in dark red and ultrasound in dark blue).

of cases performed by the gastroenterology fellows in February reduced from 301 to 286 (–5.0%), in March, the case load dropped from 330 to 227 (–31.2%) and in April from 307 to 113 (–63.2%) (table 2 and figure 1).

Between January and April 2020, the case load of gastroenterology fellows who were transferred to the ID and ICU on 13 March as a result of the pandemic (n=3) dropped from 271 to 15. In comparison between 2019 and 2020, the case volume of the gastroenterology fellows reduced from 224 to 168 (–25%) in February, from 224 to 135 (–39.7%) in March (table 3 and figure 2) and from 171 to 15 (–91.2%) in April.

Endoscopy skills assessment evaluation/medical meetings/outpatient clinic

Endoscopy skills assessment of fellows was stopped indefinitely. Weekly educational and endoscopy research meetings were cancelled. Furthermore, participation of fellows in gastroenterology outpatient clinics was affected as all non-urgent outpatient appointments were cancelled; instead patients were contacted via telephone.

DISCUSSION

The COVID-19 pandemic has had direct and indirect effects on all aspects of healthcare.⁶ The data we show in this paper, though largely descriptive, demonstrate the impact the crisis has on the training of gastroenterology fellows in a tertiary care hospital in Germany. The results show a decline in the case volume of examinations done in the centre as well as a decline in

Table 1 Total case load from January to April 2019 and 2020

Total case load	January		Difference (%)	February		Difference (%)	March		Difference (%)	April		Difference (%)
	2019	2020		2019	2020		2019	2020		2019	2020	
Abdominal ultrasound	342	298	–12.9	274	244	–10.9	300	238	–20.7	299	194	–35.1
Endoscopy	1282	1289	+0.5	1212	1172	–3.3	1302	959	–26.3	1250	835	–33.2
Total	1624	1587	–2.3	1486	1416	–4.7	1602	1197	–25.3	1549	1029	–33.6

Table 2 Case load of all fellows for January to April 2019 and 2020

All fellows (n=4)	January		Difference (%)	February		Difference (%)	March		Difference (%)	April		Difference (%)
	2019	2020		2019	2020		2019	2020		2019	2020	
Abdominal ultrasound	89	131	+47.2	102	85	-16.7	97	69	-28.9	82	14	-82.9
Endoscopy	243	241	+0.8	199	201	+1.0	233	158	-32.2	225	99	-56
Total	332	372	+12	301	286	-5.0	330	227	-31.2	307	113	-63.2

Table 3 Case load of fellows transferred to the ID unit (January to April 2019 and 2020)

Fellows transferred to ID unit (n=3)	January		Difference (%)	February		Difference (%)	March		Difference (%)	April		Difference (%)
	2019	2020		2019	2020		2019	2020		2019	2020	
Abdominal ultrasound	74	123	+66.2	89	77	-13.5	75	65	-13.3	50	0	-100
Endoscopy	118	148	+25.4	135	91	-32.6	149	70	-53.0	121	15	-87.6
Total	192	271	+41.1	224	168	-25.0	224	135	-39.7	171	15	-91.2

ID, infectious disease.

examinations carried out by fellows between January and April 2020, especially when compared with the case load done 1 year prior to the outbreak. The decline in case load was seen across all examinations performed by the trainees as part of the fellowship curriculum. Additionally, educational and research meetings as well as skills assessment for evaluation of endoscopic abilities were cancelled.

In the University Hospital Augsburg, about 16.000 endoscopy examinations are performed yearly. With this case volume, the centre belongs to the largest in Europe. Between two and four fellows receive training in the centre at any given time. The centre is located in the German state of Bavaria which is one of the worst-hit regions of the COVID-19 outbreak in Germany. Following the lessons learnt from the outbreaks in China and Italy, a step-up plan was put into place to create resources for potential patients with COVID-19 and reduce the risk of in-hospital infection for patients and staff.⁷ This included

cancellation or indefinite postponement of all non-urgent surgical and endoscopic procedures and strict prioritisation of indications.⁸ Furthermore, specific endoscopy rooms were designated for examination of patients with confirmed or suspected COVID-19. Gastroenterology fellows were transferred to other units because procedure volume in the endoscopy unit declined rapidly and also because of the rapid increase of COVID-19 cases in other ID and ICU. The redesign of services was structured locally on a regional basis but with regulatory policies and recommendations from the Bavarian Health Ministry. Since all hospitals and medical facilities across the country were obliged to follow these recommendations, we assume that a break in training has happened in all facilities across Bavaria and Germany.

In this situation of crisis, there was no room for dedicated training of gastroenterology fellows as all hands were on deck to ensure the speedy restructuring and reorganisation of the hospital to accommodate for a rapid influx of patients with COVID-19. Furthermore, the sparing of personal protective equipment, postponement of elective procedures necessary for training and skill assessment as well as prioritisation of indications made further training of gastroenterology fellows impossible. Unfortunately, no clear alternative training plan was provided due to the time pressure brought about by the need for quick and speedy reaction to the pandemic. However, there was strong support by all fellows who were involved to aid in solving the problems brought about by the crisis.

Up until now, data on the impact of the COVID-19 pandemic on endoscopy training have not been reported. However, it is obvious that the crisis will have an impact on medical education and training in all fields of practice. It is important that endoscopy

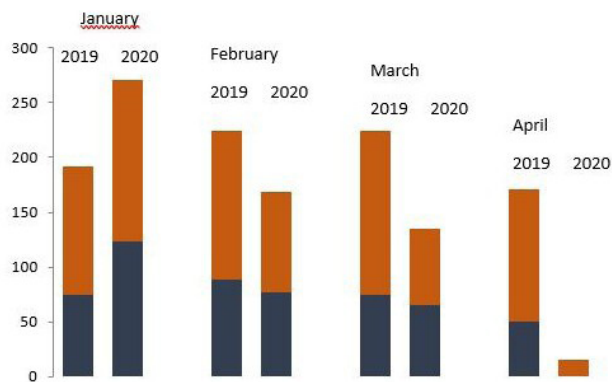


Figure 2 2019 vs 2020: case load of fellows removed from the endoscopy unit and transferred to the infectious disease (ID) unit and intensive care unit (ICU) (endoscopy in red and ultrasound in blue).

units involved in education and training take this into consideration when planning their ‘return-strategies’ at the end of the pandemic. This is necessary so as to ensure that gastroenterology fellows have the chance to catch up on lost ground after practice has returned back to ‘normal’. Initially, fellows were worried that their training time may not be recompensated or rescheduled. However, after resumption of training and elective endoscopy procedures, plans will be put into place to catch up on endoscopy skills development. The major block in recovery of training will be service pressure because of the large number of postponed cases which have to be accomplished in a short period of time. This means that initially, endoscopic procedures will be performed mainly by the expert gastroenterologists of the unit so as to guarantee for speedy processing of cancelled procedures. However, to make sure that fellows catch up on loss of skills development, training time will be lengthened or rescheduled so that the slated number of training procedures as well as skills assessment is accomplished within the time frame of the fellowship.

Correction notice This article has been corrected since it published Online First. An abstract has been added.

Contributors CR and JM: study concept and design, collection of data, critical revision of the manuscript. HM: study concept and design, analysis and interpretation of data, critical revision of the manuscript. AE: study concept and design, analysis and interpretation of data, drafting and revision of the manuscript, submission of the manuscript. AE and HM are the overall guarantors of the contents of the study.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Ethics approval The study was approved by the local Institutional Review Board.

Provenance and peer review Not commissioned; externally peer reviewed.

This article is made freely available for use in accordance with BMJ’s website terms and conditions for the duration of the covid-19 pandemic or until otherwise determined by BMJ. You may use, download and print the article for any lawful, non-commercial purpose (including text and data mining) provided that all copyright notices and trade marks are retained.

ORCID iD

Alanna Ebigo <http://orcid.org/0000-0001-7765-035X>

REFERENCES

- 1 World Health Organization. Coronavirus disease 2019 (COVID-19) Situation Report – 67, 2020. Available: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200327-sitrep-67-covid-19.pdf?sfvrsn=b65f68eb_4
- 2 Das Robert Koch-Institut ist ein Bundesinstitut im. COVID-19: Fallzahlen in Deutschland und weltweit, 2020. Available: https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Fallzahlen.html
- 3 European Society of Gastrointestinal Endoscopy (ESGE). ESGE and ESGENA position statement on gastrointestinal endoscopy and the COVID-19 pandemic, 2020. Available: <https://www.esge.com/esge-and-esgena-position-statement-on-gastrointestinal-endoscopy-and-the-covid-19-pandemic/>
- 4 American College of Gastroenterology. Joint Gi Society statement: use of personal protective equipment in Gi endoscopy, 2020. Available: <https://gi.org/2020/04/01/joint-gi-society-message-on-ppe-during-covid-19/>
- 5 Bayerische Landesärztekammer. Facharzt für Innere Medizin und Gastroenterologie, 2020. Available: <https://www.blaek.de/weiterbildung/qualifikationen-nach-der-weiterbildungsordnung/facharzt-fuer-innere-medizin-und-gastroenterologie>
- 6 Wang C, Horby PW, Hayden FG, *et al.* A novel coronavirus outbreak of global health concern. *Lancet* 2020;395:470–3.
- 7 Remuzzi A, Remuzzi G. COVID-19 and Italy: what next? *Lancet* 2020;395:1225–8.
- 8 Repici A, Maselli R, Colombo M, *et al.* Coronavirus (COVID-19) outbreak: what the Department of endoscopy should know. *Gastrointest Endosc* 2020.