The COVID-19 Pandemic and its Impact on Plastic Surgery in Europe – An ESPRAS Survey

Die COVID-19-Pandemie und ihre Auswirkungen auf die Plastische Chirurgie in Europa – Eine ESPRAS Übersicht

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ZUSAMMENFASSUNG

ABSTRACT
The present article provides an overview of the current and expected effects of plastic surgery in Europe. It presents the experience of departments for plastic and reconstructive surgery, as evaluated by interviews with members of the Executive Committee (ExCo) of the European Society of Plastic, Reconstructive and Aesthetic Surgery (ESPRAS). The objective of this overview is to summarise current information in our area of work and to make this accessible to a broad group of readers. As our knowledge is rapidly increasing during the current pandemic, it is evident that we can only provide a snapshot and this will inevitably be incomplete.
Introduction

The COVID-19 pandemic struck the entire world since its emergence in Wuhan, China. The first cases are linked to patients consuming food at the Hunan seafood and animal market, suggesting that initial transmission occurred from animal to human. Symptoms of the COVID-19 pandemic range from asymptomatic carriage of the virus up to fatal Severe Acute Respiratory Distress Syndrome [1]. Due to its high infectious and contagious nature and no available vaccine, the COVID-19 spread around the globe in an unprecedented manner [2]. As a result doctors around the world had and still have to face the largest medical challenge of the 21st century. Outbreaks with escalations in individual cities such as in Wuhan (China), Bergamo (Italy) or New York (USA) serve only as examples, but are just representative for many more regions that had to care for unseen numbers of critically ill patients needing ventilation therapy and life threatening sequelae within days. Though emergence of the virus can be tracked back to Asia, many European countries and also the U. S. A. have been struck massively by the pandemic [2,3] (Table 1).

Developments to date also show that traceability of the infection chain through extensive testing followed by rapid isolation or quarantine is an essential key to contain the pandemic as long as there is no vaccine or medication. In addition, previous knowledge has shown that even wearing a conventional nose mouth mask does not offer self-protection but nevertheless seems to prevent the potential transmission of COVID-19 from asymptomatic people [4].

The current COVID-19 pandemic has a massive impact on the everyday life of all people and of course also affects our field of plastic surgery. As doctors, we have the responsibility to reduce the transmission of the SARS CoV-2 virus from person to person and thus to slow down the uncontrolled, exponential increase in new cases. The aim is to flatten the curve of exponential infections and not to overload the limited amount of hospital beds, intensive care beds, respirators and ECMO devices. At the same time, we have to use the disposable medical items that are mostly not sufficiently available sparingly and concentrate them on the hospitals in which they are most urgently needed [5–7].

The present article provides an overview of the current and upcoming impact in plastic surgery in Europe and includes the experience of departments for plastic and reconstructive surgery, which were assessed by interviews amongst the Executive Committee (ExCo) members of the European Society for Plastic, Reconstructive and Aesthetic Surgery (ESPRAS). The aim is to give a survey on current information in our field and to make it accessible to a wider readership. Naturally, especially with the rapid development of knowledge in the current pandemic, only a snapshot can be given and no claim to completeness can be made.

Materials and methods

ExCo members of ESPRAS were interviewed after a first consensus online meeting on Sunday, 19th of April 2020 they have had to face regarding changes, regulations and obstacles they had to face as the COVID-19 pandemic spread over Europe. A total of 11 ExCo were contacted. Of those 11 answered (100%). Members were asked to answer following questions:

- How many COVID-19 patients are currently treated in your hospital in ICU and COVID-19 ward?
- Do members of your staff work in COVID-19 care (COVID-19-ICU, outpatients etc.)?
- Are COVID-19 patients separated from other patients in your hospital/country?
- What is your testing routine? Do you test every patient?
- How long does a SARS-Cov-2-Test currently take you for obtaining the result?
- Do you have sufficient testing capacities in your hospital country?
- Do you have special COVID-19 operating theatres?
- What is your regimen for operations in COVID-19 patients in your hospital/country?
- Did you treat cases of a COVID-19 patient? How many?
- Please define Emergency Plastic Surgery in this pandemic in your hospital/country?
- Do you have criteria for urgent plastic surgery in your hospital/country?
- Do you have any restrictions on elective plastic surgery - please specify?
- Do you have any legal restrictions for elective plastic surgery?
- Do you have criteria for elective plastic surgery in your hospital/country?
- Do you include potential COVID-19 infection in your informed consent with patients?
- What is your regimen in this pandemic for tumor operations in your hospital/country?
- What is your regimen in this pandemic for handsurgery in your hospital/country?
- What is your regimen in this pandemic for reconstructive breast surgery in your hospital/country?
- What is your regimen in this pandemic for burn in your hospital/country?
- What is your regimen in this pandemic for aesthetic surgery in your hospital/country?
- How does the SARS-CoV-2-pandemic affect plastic surgeons in private practice in your country?
- Do you any restrictions with outpatients in your hospital/country?
- Do you use telemedicine now? Have you before this pandemic?
- What are the implications of this pandemic for students in your hospital/country (lectures, exams, elective terms etc.)?
- What are the implications of this pandemic for doctors in continuing education in plastic surgery in your hospital/country (operations/board examination etc.)?
- What are the implications of this pandemic for national/international scientific meetings in your hospital/country (cancellations, webinars etc.)?
- What are the exit strategies for Plastic Surgery in your hospital/country?

Responses were either collected via E-mail or telephone/video interview.
Results

Replies from delegates from Ireland, Sweden, Turkey, Croatia, UK, Italy, Germany, Austria, Portugal, Switzerland and Estonia were evaluated (Fig. 1). An average of 83.7 ± 89.9 patients with COVID-19 infections were currently treated in the assessed hospitals, while another 19.4 ± 12.9 patients were hospitalized in the respective ICUs. In seven of the eleven interviewed hospitals, members of your staff worked in Covid-19 care. In all interviewed hospitals (n = 11, 100 %) normal patients were physically separated from Covid-19 positive patients. Testing routines differed among the interviewed countries. Croatia, UK, Germany, Portugal, Switzerland and Estonia tested all new patients for Covid-19 infection. Test results took in average 11.7 ± 12.2 hours, with Austria having the fastest results (1 h). All questioned institutions had sufficient testing capabilities (n = 11, 100 %). Nine out of eleven hospitals agreed upon specially designated Covid-19 surgery theatres, with Sweden and UK as an exception. All hospitals that were interviewed performed surgery on COVID-19 patients only if a deferral was not possible (n = 11, 100 %). A mean number of 2.1 ± 2.2 patients with a Covid-19 positive test was treated by the investigated hospitals (Table 2). Even though restrictions varied within investigated countries, all hospitals only performed emergent and urgent surgeries as trauma surgery, oncological surgery that cannot be deferred and irrigation of infections (n = 11, 100 %). Legal implications, established guidelines and regimes, as well as effects on students and residences are summarized in Table 3 and Table 4.

Discussion

This paper aimed to give an account of the current state for plastic surgeons over Europe. ESPRAS in its role as umbrella society to national societies for plastic surgery considers this necessary to potentially overcome common issues throughout Europe together and to give European plastic surgeons a panel for exchange in these crisis - ridden times. Naturally, this is an account of delegates of national societies for plastic surgery in individual hospitals being members of Executive Committee (ExCO) from the various regions of Europe and not an entire country. However, we consider the findings as representative for the respective situation in the interviewed countries. Interestingly, issues for plastic and reconstructive surgeons among the interviewed countries seemed to be very similar. Most of the interviewed plastic surgeons shut down their operation capacities except for emergencies, urgent surgeries, tumor surgery and burns. At the same time a high number of interviewed countries lend their staff to the intensive care unit, showing the commitment of plastic surgeons in this crisis all over Europe. While the “core” business of plastic and reconstructive surgeons was minimized to above mentioned cases it is notable that all participants showed a high participation in facing the crisis and supporting other departments, while at the same time in many instances changes in the infrastructure of patient treatment was achieved.

A high number of participants introduced telemedicine, which has in many instances not been used before or at least not as extensively as during the crisis. It should be noted that this can be considered as a “lesson learned” from the pandemic – consultation can and should be expanded using modern telecommunication through digitalization, as an appropriate “novel” tool in this crisis.

Especially for university hospitals education of students and also residents is mandatory. All institutions reacted in prompt manner and created online – solutions for students to continue education. This again proved the necessity to better establish these tools in modern routines. However, even though webinars and online – exams are an intermediate solution it should be noted that a lot of knowledge transfer is occurring during bed – side teaching. Residents are in all countries not affected in terms of timely finishing their residency, however many participants noted that there might be delays in the training of residents as surgical cases were reduced during the pandemic and also prolongations for those who support COVID-19 patients on ICU’s and other places will have to be accepted.

It is of high importance to have a vivid exchange between the national societies of ESPRAS in the next steps during the pandemic: the exit and the return to elective surgery. While most responders are steadily increasing their surgeries by now, none are back to the working load they had to cope before the pandemic. Especially strategical solutions should be communicated among the societies to bundle strengths and forces in order to allow a smooth, fast exit from the pandemic caused regulations.

Insights into the respondents situation

Austria

In Austria we had our first cases on 25.02.2020. It is the first time that we have more patients per day recovered (330) than persons infected (208). So far the rigorous measures show an positive effect. Our healthy system is stable, at the moment we have enough intensive care beds for COVID-19 positive patients. Nevertheless, the measures and restrictions will be maintained by the government. Shops are closed except food stores until 14th April, schools are closed until 15th May and all events are forbidden until end of June. According to a regulation of the Austrian Chamber of Physi-
cian it is not allowed to perform any elective surgery in private hospitals, institutions or offices. A new evaluation of the situation will be done by the government at the end of April. We think in general that in Austria we have responded to the COVID-19 pandemic at an early stage and that currently the positive development gives us courage and confidence. As of April 29th, 15402 Coronavirus cases have been reported, with 580 deaths and 12779 recoveries (Table 1) [8].

**Croatia**

In Croatia we had our first cases on 26.02.2020, since then progressive measures have been implemented on basis of number of new cases each day. Travel between towns is by permission only, food stores and pharmacies are open with exception of stores with building materials in Zagreb due to damage from the earthquake on 23.03. 2020. We have 3 designated hospitals which treat Covid19 positive patients, one in Split, and 2 in Zagreb. Additional facilities for less seriously ill patients are prepared in a sports arena in Zagreb. The local production facilities have started producing protective equipment which is in relatively short supply and some protective equipment has been secured from abroad (a donation from UAE and from China). Of 500 ventilators and 35 ecmo in Croatia, so far only 20 ventilators and 1 ECMO machine are being used. The public is satisfied with the government handling of the pandemic and the economic problems that it has caused. As of April 29th, 2062 Coronavirus cases have been reported, with 67 deaths and 1288 recoveries (Table 1) [8].

**Ireland**

In Ireland the first patient with SARS-Cov2 virus infection was diagnosed on the 29th of February. Ireland has faced a progressive lockdown of the country to the point where only essential workers (who need to carry identification) are allowed to go to work. Everyone else must stay at home but can go out within a 2 km radius of their home for shopping and exercise. All those over 70 or patients at risk or an underlying illness are being asked to cocoon. Ireland is at the moment starting to see a significant problem with lack of equipment for testing (mainly a reagent) and in some places PPE, however a major delivery from China of PPE was received last weekend. There are 22 clusters in nursing homes, and this is a serious concern. Ireland expected the 'Peak' around the 18th of April. The general sense is that the government and medical advisors are consistent and timely in the management of this pandemic. As of April 29th, 19877 Coronavirus cases have been reported, with 1159 deaths and 9233 recoveries (Table 1).

**Italy**

In Italy the first patient with SARS-Cov-2 Virus infection was confirmed January 27th 2020 in Munich, Bavaria. Since March 13th schools, Kindergarten and universities are closed. Since March 22nd exit restrictions and a national curfew were imposed. All elective surgeries are currently forbidden in Germany which means that aesthetic surgery is currently not allowed by law. In hospitals, many plastic surgeons help in fighting COVID-19. The national society DGPRÄC is updating members daily on their website. As of April 29th, 160479 Coronavirus cases have been reported, with 6330 deaths and 120400 recoveries (Table 1).
### Table 2 Answers for Questions 1–9

<table>
<thead>
<tr>
<th>Question</th>
<th>Ireland</th>
<th>Sweden</th>
<th>Turkey</th>
<th>Croatia</th>
<th>UK</th>
<th>Italy</th>
<th>Germany</th>
<th>Austria</th>
<th>Portugal</th>
<th>Switzerland</th>
<th>Estonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How many COVID-19 patients are currently treated in your hospital in ICU and COVID-19 ward?</td>
<td>18 (0)</td>
<td>139 (31)</td>
<td>61 (16)</td>
<td>29 (9)</td>
<td>320 (19)</td>
<td>99 (44)</td>
<td>58 (32)</td>
<td>6 (7)</td>
<td>71 (22)</td>
<td>6 (7)</td>
<td>114 (7)</td>
</tr>
<tr>
<td>2. Do members of your staff work in COVID-19 care (COVID-19-ICU, outpatients etc.)?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>3. Are COVID-19 patients separated from other patients in your hospital/country?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>4. What is your testing routine? Do you test every patient?</td>
<td>Only if suspected</td>
<td>Only if suspected</td>
<td>Only if suspected &gt;60 years + comorbidities</td>
<td>All patients</td>
<td>All patients</td>
<td>All patients + in-house patients if suspected</td>
<td>All patients</td>
<td>Only if suspected</td>
<td>All patients</td>
<td>All patients</td>
<td>All Patients</td>
</tr>
<tr>
<td>5. How long does a SARS-Cov-2-Test currently take you for obtaining the result?</td>
<td>48</td>
<td>10</td>
<td>24</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>6</td>
<td>1</td>
<td>12</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>6. Do you have sufficient testing capacities in your hospital/country?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>7. Do you have special COVID-19 operating theatres?</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>8. What is your regimen for operations in COVID-19 patients in your hospital/country?</td>
<td>Emergencies and urgent tumor surgery</td>
<td>Emergencies and urgent cases</td>
<td>Life and organ threatening emergencies in special operating rooms</td>
<td>Emergencies only</td>
<td>Emergencies and urgent cases</td>
<td>Emergencies, Trauma, Oncological surgery</td>
<td>Emergencies and urgent cases</td>
<td>Emergency cases</td>
<td>Emergency cases</td>
<td>Operation under isolation conditions, no wake-up room, special wards, FFP2 Masks and face shields, double glove</td>
<td>Operation theatre mode according Covid-19 protocol</td>
</tr>
<tr>
<td>9. Did you treat cases of a COVID-19 patient? How many?</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>10. Please define Emergency Plastic Surgery in this pandemic in your hospital/country?</td>
<td>Ireland</td>
<td>Sweden</td>
<td>Turkey</td>
<td>Republic of Croatia</td>
<td>UK</td>
<td>Italy</td>
<td>Germany</td>
<td>Austria</td>
<td>Portugal</td>
<td>Switzerland</td>
<td>Estonia</td>
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</tr>
<tr>
<td>Trauma and cancer</td>
<td>Acute Trauma, Infections</td>
<td>Injuries requiring replantation/vascularization, any injury that can cause functional problems if not operated</td>
<td>Incision of abscess or excision of necrotic tissue, replantation in selected cases, escharotomy in burns</td>
<td>Infections, Trauma, Oncology</td>
<td>Trauma patients</td>
<td>Acute Trauma, Infections, oncological cases if defer not possible</td>
<td>Acute hand-surgery, soft tissue trauma, burns, infections</td>
<td>Escarotomies, Fasciotomies in Burns and Trauma, Reimplantation, Orbital fractures with inferior rectus muscle entrapment, Active bleeding in Facial Trauma</td>
<td>Traumatic soft tissue defects, burn patients up to 20 % BSA, severe soft tissue infections</td>
<td>Trauma patients (burns, soft tissue mechanical trauma, traumatic amputations, soft tissue infection).</td>
<td></td>
</tr>
</tbody>
</table>

| 11. Do you have criteria for urgent plastic surgery in your hospital/country? | No | Surgery that cannot be deferred (melanoma scc, breast cancer) | Microsurgical revascularization emergencies, emergency hand injuries like tendon, artery and nerve damage, replantation, maxillofacial fractures and malignancies have metastasis risks (SCC and malignant melanoma) | Hand trauma: regional block; Urgent plastic surgery procedures are performed as before | Infections, Trauma, Oncology | Individual basis | No, individual basis | Yes | Procedure are performed in a COVID-19 Operative Theatre | Yes | N/A |

| 12. Do you have any restrictions on elective plastic surgery – please specify? | Yes | Yes (no surgery requiring ICU), prioritize children depending on age | No elective surgery | Only procedures that if not performed would result in worst prognosis (cancer/sarcoma/trauma) | Yes, only emergencies and tumor surgery | No elective surgeries | No elective surgeries | Yes | Yes | Yes | No elective surgery |

| 13. Do you have any legal restrictions for elective plastic surgery? | No | No | Yes – All elective surgeries must be postponed | Yes – 14 day rotation of the staff (only 50 % available), no aesthetic surgery | No | Yes – No elective surgeries | Yes – No elective surgeries | Yes | Yes | Yes | Yes |
### Table 3 continuation.

<table>
<thead>
<tr>
<th>Country</th>
<th>Ireland</th>
<th>Sweden</th>
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</tr>
</thead>
<tbody>
<tr>
<td>14. Do you have criteria for elective plastic surgery in your hospital/country?</td>
<td>No</td>
<td>Yes – only use resources for patients, which care should not be postponed</td>
<td>Yes – No elective and aesthetic cases including minimally invasive procedures</td>
<td>Yes – No elective surgery</td>
<td>Yes – No elective surgery</td>
<td>Yes – No elective surgery</td>
<td>Yes – No elective surgery</td>
<td>Yes – No elective surgery</td>
<td>Yes – No elective surgery</td>
<td>Yes – Elective plastic surgery has been suspended</td>
<td></td>
</tr>
<tr>
<td>15. Do you include potential COVID-19 infection in your informed consent with patients?</td>
<td>Yes</td>
<td>N/A</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>16. What is your regimen in this pandemic for tumor operations in your hospital/country?</td>
<td>Anything that is likely to be a problem within six weeks</td>
<td>Follow protocol for each cancer, some chemo is delayed for some tumors in elderly</td>
<td>Any tumor with a risk of local or distant metastasis is allowed to be operated/surgical invention for tumors like BCC is postponed except for periorbital localization</td>
<td>Only procedures that if not performed would result in worst prognosis</td>
<td>Urgency if adverse effect expected within 3 weeks</td>
<td>No second stage reconstruction</td>
<td>Urgency if adverse effect expected within foreseeable future</td>
<td>Tumor surgery performed as before</td>
<td>Deferral if possible</td>
<td>Oncologic surgery as before</td>
<td>Cases that cannot be postponed are treated according to the Covid protocol</td>
</tr>
<tr>
<td>17. What is your regimen in this pandemic for hand surgery in your hospital/country?</td>
<td>Trauma only</td>
<td>N/A</td>
<td>Injuries requiring replantation/vascularization and any injury that can cause functional problems, if it is not operated</td>
<td>Emergency and urgent procedures</td>
<td>No elective surgeries, WALANT for emergencies</td>
<td>80% starting next week</td>
<td>Only trauma</td>
<td>Acute Trauma</td>
<td>Emergency</td>
<td>Emergency cases and acute trauma are operated if possible in WALANT, otherwise with anaesthesia, Replantations are performed</td>
<td>Only cases which are emergencies (open trauma, hand infections)</td>
</tr>
</tbody>
</table>
### Table 3 continuation.

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>18. What is your regimen in this pandemic for reconstructive breast surgery in your hospital/country?</td>
<td>No reconstruction</td>
<td>No immediate breast reconstruction, microsurgical and implants based depending on the capacity</td>
<td>No immediate breast reconstruction, prophylactic mastectomy</td>
<td>No complex reconstruction, primary reconstruction with implants and expanders is still performed</td>
<td>Not until 3 months</td>
<td>No second stage reconstruction</td>
<td>No second stage reconstruction</td>
<td>Only primary reconstruction</td>
<td>Oncoplastic surgery maintained, Only immediate reconstruction</td>
<td>Shift from primary autologous to temporary implant-based reconstruction in immediate reconstruction situation to save ICU- and OR-capacities</td>
<td>No breast surgery</td>
</tr>
<tr>
<td>19. What is your regimen in this pandemic for burn in your hospital/country?</td>
<td>Emergency/urgent only</td>
<td>According to their medical status</td>
<td>Treatment of burns applying Covid-19 precautions</td>
<td>No restrictions for burns</td>
<td>Emergencies only, conservative treatment preferred if possible</td>
<td>N/A</td>
<td>N/A</td>
<td>Burns are treated as usual, no elective scar revisions are performed</td>
<td>No changes</td>
<td>Burn patients are treated</td>
<td>No changes</td>
</tr>
<tr>
<td>20. What is your regimen in this pandemic for aesthetic surgery in your hospital/country?</td>
<td>No aesthetic surgery</td>
<td>No restriction</td>
<td>No aesthetic surgery, including minimally invasive procedures</td>
<td>No aesthetic surgery</td>
<td>National ban</td>
<td>Not at all</td>
<td>No aesthetic surgery</td>
<td>No aesthetic surgery</td>
<td>No aesthetic surgery, forbidden by law</td>
<td>No aesthetic cases, forbidden by law</td>
<td>No aesthetic cases, forbidden by law</td>
</tr>
<tr>
<td>21. How does the SARS-CoV-2-pandemic affect plastic surgeons in private practice in your country?</td>
<td>Public contract for three months offered</td>
<td>Reduction of number of patients asking for aesthetic procedures (economic reasons)</td>
<td>Many plastic surgeons in private practice stopped operating by the second half of March; negatively affected by this situation, salaries did get paid</td>
<td>Most plastic surgical private offices and Clinics have been closed / government has been supplementing the pay of staff that is on induced leave</td>
<td>All private practices on hold, private hospital groups have been contract-ed to the NHS</td>
<td>Completely stopped</td>
<td>Most of the private practic-es are closed</td>
<td>Most of the private practic-es are closed</td>
<td>No aesthetic surgeries allowed</td>
<td>Significantly, running costs for personnel and office without income</td>
<td>No aesthetic cases, forbidden by law</td>
</tr>
<tr>
<td>22. Do you any restrictions with outpatients in your hospital/country?</td>
<td>Most done by virtual clinics</td>
<td>Avoid seeing patients &gt; 70 yrs</td>
<td>Stopped appointment system by March 15th, all patients with no appointment were treated</td>
<td>Performed over the internet / patients that need to be seen are scheduled</td>
<td>Varies, must locally reduced to minimal face – to – face contact</td>
<td>One third reduction</td>
<td>Reduced, use of telemedicine</td>
<td>Yes</td>
<td>No outpatients</td>
<td>Yes, outpatients are limited to 25% of usual practice, patients are timely seperated in waiting room</td>
<td>Deferred for now</td>
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</table>
### Table 4 Answers for questions 23–27

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<thead>
<tr>
<th>Ireland</th>
<th>Sweden</th>
<th>Turkey</th>
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<td>Yes/No</td>
<td>Yes/Yes</td>
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<td>Yes/Yes</td>
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23. Do you use telemedicine now? Have you before this pandemic?

24. What are the implications of this pandemic for students in your hospital/country (lectures, exams, elective terms etc.)?

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<tr>
<td>Final medical students did the exam early, all other delayed</td>
<td>Break until end of March, exams postponed until summer period</td>
<td>Internet based programs</td>
<td>Senior students have been drafted, promoting webinars for educational purposes</td>
<td>Exams and lectures are online. No elective terms in the hospital</td>
<td>Exams and lectures are online, Senior students have been drafted</td>
<td>There are no students in the hospital, all exams postponed until summer period</td>
<td>Teaching stopped, webinars available</td>
<td>Virtual lectures, no practical Training with patients for the whole summer semester</td>
<td>Webinars, all exams postponed</td>
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25. What are the implications of this pandemic for doctors in continuing education in plastic surgery in your hospital/country (operations/board examination etc.)?

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<tr>
<td>Fellowship/ final exams postponed</td>
<td>None</td>
<td>Journal club via video conferencing systems, collaboration with other universities</td>
<td>transferred to the E learning platforms/postgraduate courses in plastic surgery are ongoing every day of the week for the past 3 weeks</td>
<td>At the moment an additional 6 months of training are anticipated</td>
<td>Cancelled</td>
<td>None so far</td>
<td>Acute operations are done also by trainees, no board examination, maybe the education time will be prolonged</td>
<td>All examinations are stopped</td>
<td>Reduced clinical and technical training in OR for 6 weeks, postponed theoretical training for 6 weeks, duty to compensate overtime hours and opportunity to publish papers. Postponement of exams will lead to delay in title acquisition and career building</td>
<td>Exams were postponed</td>
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<td>26. What are the implications of this pandemic for national/international scientific meetings in your hospital/country (cancellations, webinars etc.)?</td>
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<tr>
<td>No travel/all meetings cancelled</td>
<td>No meetings until August, exchanged for webinars</td>
<td>All national/international meetings were postponed, webinars instead of some meetings, plastic surgery platform every Saturday (mostly COVID-19 issues)</td>
<td>All meetings have been cancelled; more continuous education through webinars than usual</td>
<td>Scientific meetings cancelles until summer</td>
<td>webinars</td>
<td>Initially all scientific meetings are cancelled till the end of August 2020, some webinars were performed</td>
<td>All meetings postponed</td>
<td>cancellations until end of August so far,</td>
<td>No meetings, social isolation until situation is clarified.</td>
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| 27. What are the exit strategies for Plastic Surgery in your hospital/country? |
|---|---|---|---|---|---|---|---|---|---|
| no elective surgery is planned/ starting to discuss how to resume normality | Start up more and more when surgical capacity allows | define guidelines to restart the practice | return to seminormal work schedule, emergency area as a reserve, no emergency hand surgery for 3–6 months in covid positiv hospital | Currently in evolution, increasing work after peak | Operation room capacities will be re-established by the end of this week, may 4th 80% of activity is targeted. | Operation room capacities are reestablished at the moment | Slow increase since this week | Increasing work since this week | Support the medical community where and if needed, restart after 6 weeks and work-up of waiting list, use time for CM and develop new concepts | Gradual opening of activities as pandemic situation becomes clear. |
19 outbreak was in the region Lombardy, in which 16 patients were detected on the 16th of February, with the first consecutive death cases in the next days. The situation got progressively worse very fast, mostly in the regions Lombardy and in Veneto, though including almost all Northern Italy regions and part of Central Italy regions (Marche and Tuscany). On the 23th of February some towns in Northern Italy were isolated in quarantine, while on the 9th of March a total lockdown of Italy was decided by the government in order to reduce the possibility of contamination. This decision blocked somehow the widening of the disease in Southern Italy, where few cases are still reported. As of today, all schools, universities and public places are closed, excluding only essential businesses. Only essential workers are allowed to go to work, while everyone else must stay at home, but can leave their home within a perimeter of 200 meters. As of April 29th, 201505 Coronavirus cases have been reported, with 27359 deaths and 68941 recoveries. (Table 1) All surgeries are currently forbidden in Italy, except for oncological surgeries and trauma surgery. At the moment, in the hospitals all doctors from all specialties help in fighting COVID-19. All kind of plastic surgery, foremost aesthetic surgery, has been stopped at the moment, while reconstructive surgery is allowed for first-stage post-traumatic or post-oncological purposes.

Portugal
In Portugal, the first patient was diagnosed with COVID-19 on the 2nd of March 2020. Since then there were progressive restrictions to people social activities by the Portuguese community. Strong national pressures was exerted on the Portuguese government to close social gathering spaces, schools and shops. Only after massive public pressure, the Portuguese authorities reacted and schools were closed on the 16th of March. On the 19th of March a State of Emergency was declared resulting in a lockdown of the country for 15 days. On the 2nd April a State of Emergency was declared resulting in a closure of almost all public spaced and shops. As of April 29th, 24505 Coronavirus cases have been reported, with 973 deaths and 1470 recoveries. (Table 1) Portugal is facing the following problems at the moment: 1) delayed test results 2) shortage of PPE 3) too little ICU capacities, however numbers of ICU beds are increased across the country at the moment 4) evacuation of nursing homes for the elderly as COVID-19 infections spreaded 5) Delaying elective surgeries throughout all sectors. As of now, facing the problem seems to be addressed, however a deep concern about the consecutive economical situation is upcoming.

Sweden
The COVID-19 situation seems to be under control at the moment. One issue for Sweden has been that both France and Germany shut their borders and did not transfer materials that were supposed to be exported to Sweden. However, local industries are starting up production to reduce the dependence on imports. At the west-coast (Gothenburg and surroundings, around 2 million people), the population has managed to stay ahead of COVID-19 patients. Designated COVID-19 space at the hospitals, both ICU, quarantine, and COVID-19 wards have been allocated. At the moment less COVID-19 patients are in treatment than expected. Testing capacity is increasing, but Sweden does not have the capacity to test everybody as of now. Only patients and staff are tested at the moment. Regarding serology on antibodies Sweden is waiting for reagents. This has been and is a problem because right now Sweden has to import these reagents. Stockholm was hit worst at first, as preparations were not carried out in a timely manner. Now Stockholm has 20% ICU-capacity available. The exit strategy for Sweden aims to get immunity for 90% of the people, however protection of the elderly (> 70 years) is a priority. However, in the caretaking of elderly, in some instances, staff was not educated in time to use protection and protection material was not available. To conclude, the COVID-19 situation seems to be under control at the moment. Sweden is recruiting a lot of extra staff. The main problem seems to be the dependence on imports from foreign countries. As of April 29th, 20302 Coronavirus cases have been reported, with 2462 deaths and 1005 recoveries (Table 1).

Turkey
All the schools, including universities, are closed by March 13th. All the meetings, social gatherings, indoor and outdoor public activities were restricted. Home quarantine for people over 65 years and less than 20 years was applied. All elective surgical procedures, including minimally invasive procedures such as botulinum toxin and filler applications, were postponed except emergency and tumor cases. As of April 29th, 114653 Coronavirus cases have been reported, with 2992 deaths and 38809 recoveries (Table 1).

United Kingdom
The UK has followed Italy in respect of the development trend of the pandemic and on 22nd April the number of reported deaths was 16,272. Taken by the day deaths occurred, the numbers are in decline with the seven-day rolling average of total deaths in England having now fallen five successive days between 11 April and 16 April [9]. Incidence and admissions overall appear to have plateaued. However there is much variation in incidence across the UK with ‘hotspots’ in London, Birmingham and the North West region including Manchester and Liverpool. There are ongoing issues related to availability and appropriate use of Personal Protection Equipment which are aggravated by the challenges of achieving accurate diagnosis and public and professional anxiety. In respect of deaths of healthcare professionals by 22nd April 119 cases had been identified of whom 98 had patient facing roles. Overall the rate of deaths appears to be largely consistent with the number of healthcare workers in the population and the distributions by occupation and geography are largely as expected. However, individuals of black and minority ethnicity are over-represented and conversely those working in the high risk specialties of anaesthesia and intensive care appear to be under-represented [10].

Conclusions
For us as plastic surgeons, it is of essential that we, as responsible doctors, work to reduce the transmission of viruses and free up the resources to treat patients who are seriously ill with the disease [11]. At the same time, the treatment of emergencies and urgent cases in our specialist area must be ensured for the population. Faster testing routines will allow for faster decision making whether surgeries can be performed in a safe manner for both, patient and
treatment personnel. In addition, through our communications, we must actively participate in the discussions on the design of criteria and regulations to ensure the care of patients with COVID-19, and in the development of exit strategies for surgery as a whole, and in particular our specialist area.

Conflict of interest

The authors declare that they have no conflict of interest.

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