



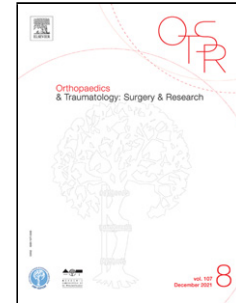
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# Journal Pre-proof

Orthopaedic and trauma surgery in the time of COVID-19 in France: A nationwide survey

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**Original manuscript****Orthopaedic and trauma surgery in the time of COVID-19 in France: A nationwide survey**

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## **Abstract**

### *Introduction:*

The year 2020 was marked by the COVID-19 pandemic. The entire French health system was mobilized. Surgical services were asked to reschedule all elective procedures. We wondered about the impact of this pandemic on French orthopaedic surgeons. The main objective of this survey was to assess the impact of COVID-19 on emergency and non-emergency orthopaedic surgical activities. The secondary objectives were: to report how orthopaedic surgeons had mobilized and reorganized, and to assess the physical and psychological consequences on their state of health.

### *Hypothesis:*

The COVID-19 epidemic has led to the suspension of all elective orthopaedic surgeries and has also led to changes in the management of urgent surgeries and traumatology.

### *Material and methods:*

This descriptive epidemiological study was conducted in France. A 40-question survey was sent to all French orthopaedic surgeons (senior surgeons and residents) via the mailing lists of the French Society of Orthopaedic and Traumatological Surgery (SoFCOT), the French Society of Pediatric Orthopaedics (SoFOP) and the College of Young Orthopedists (CJO).

### *Results:*

Over a period of one month, 1098 surgeons; 852 senior surgeons and 246 residents, answered the questionnaire. The complete cessation of all elective interventions was effective in 80% of cases. Urgent and semi-urgent interventions were maintained. Three hundred and twenty-six

surgeons (30%) modified their trauma management, among them 55% came from the regions most affected by the pandemic. Sixty percent of surgeons did not receive training to take care of COVID+ patients and 40% took care of these patients. Among the orthopaedic surgeons surveyed, 28% were redeployed to medical services. Teleconsultation was used by 41% of surgeons. Twenty-six (2%) surgeons tested positive for COVID-19 and 54% showed at least one sign of psychological suffering.

*Conclusion:*

French orthopaedic surgeons reorganized and changed their practices quickly and efficiently to deal with the pandemic. However, progress remains to be seen with training of orthopaedic surgeons in the care of COVID+ patients, as well as to democratize the use of telemedicine.

**Level of evidence:** IV

**Keywords:** COVID-19, orthopaedic surgery, trauma surgery, national survey.

## **Introduction**

The year 2020 was marked by the pandemic linked to the Coronavirus responsible for COVID-19 (Coronavirus Disease 2019) [1]. The global spread of the virus was rapid with the first 3 French cases appearing in January 2020. A month and a half later, on March 14, stage 3 of the ORSAN-REB plan (Organization for the health system response in exceptional health situations - Epidemiological and Biological Risk) was declared [2] and national confinement was put in place 3 days later. Thereafter, the entire French healthcare system was mobilized. In order to prepare for the care of as many COVID-19 patients as possible, surgical departments were asked to cancel all elective surgeries, which represent the vast majority of orthopaedic surgeries. Thus, in agreement with government authorities, and relayed by the National Professional Council of Orthopaedic and Trauma Surgery (CNP-COT) in its press

release of March 16, 2020 [3], French orthopaedic surgeons were asked to stop their elective surgeries. However, it was necessary to maintain the management of emergencies and deferred emergencies, the postponement of which was detrimental to the prognosis of patients. There are anecdotal reports in the literature of organizational upheavals in orthopaedic services around the world during this crisis [4–8]. Only India has assessed this impact on a national scale [9]. To our knowledge, no such investigation had been carried out in France. Hence, we conducted a survey of all French orthopaedic surgeons. The main objective of this survey was to assess the impact of COVID-19 on emergency and non-emergency orthopaedic surgery. The secondary objectives were: to report how orthopaedic surgeons had mobilized and reorganized their practices, and to assess the physical and psychological consequences of the first confinement on their state of health.

Hypothesis: The COVID-19 pandemic has resulted in the suspension of all elective orthopaedic surgeries, and in changes to the management of emergency surgeries and trauma.

## **Material and method**

### **Population**

We conducted a descriptive national survey addressed to all senior orthopaedic surgeons (having an adult, pediatric or mixed surgical activity, within public and/or private practice) and orthopaedic residents between April 10 and May 10, 2020.

### **Data collection**

A questionnaire was built by a team of young orthopedists and then tested on 5 people to ensure that the questions were clear and well understood. The necessary corrections were made. This online questionnaire was then emailed to the mailing lists of the French Society of Orthopaedic and Traumatological Surgery (SoFCOT), the French Society of Pediatric Orthopaedics (SoFOP) and the College of Young Orthopedists (CJO), from April 10, 2020.

This questionnaire was also distributed via social networks (Facebook, Twitter, LinkedIn). A reminder email message was sent 15 days after the first one.

Participation was voluntary and results were anonymous. Data collection was carried out using Google Form software (Google, Menlo Park, California, USA).

### **Survey**

The questionnaire included 40 questions grouped into 6 categories: demographic data, surgical activity during the crisis, financial aspect, organization of work, confinement, physical and psychological state of the surgeons (Table 1). The questionnaire for the residents had an additional category that was intended to explore the implications on practical and theoretical training during this period (Table 1).

### **Statistical analysis**

Quantitative results represented descriptive statistics in the form of mean and standard deviation. Qualitative variables were presented in the form of counts and percentages. The presentation of the results was sometimes grouped into coherent sub-groups (region, private practice, etc.). Statistics were calculated using Excel software (Microsoft, Redmond, USA).

## Results

### Population

A total of 1140 orthopaedic surgeons, including 874 senior surgeons and 266 residents, responded to the questionnaire. Among the senior surgeons, 22 were excluded because they practiced abroad. Of the residents, 20 were excluded; 11 because they were on a residency outside the sector, 1 because he was working abroad and 8 because they were in a research year or away from work. A total of 1098 responses were analyzed. All the demographic and professional practice data are presented in Table 2 for senior surgeons and in Table 3 for residents.

To investigate the COVID-19 pandemic, French orthopaedic surgeons used professional mailing lists in 31% of cases (921/2979), internet searches in 22% (643/2979), radio and television in 17% (502/2979), scientific articles in 17% (522/2979), social networks in 12% (365/2979) and infectious disease colleagues in 1% (26/2979).

### Activities of orthopaedic surgical departments

French orthopaedic surgeons worked an average of  $2.9 \pm 1.7$  days per week (range: 0-7).

Modification of the services' activities is reported in Table 4. Cessation of elective surgeries was proportionally identical for private surgeons (99%, 524/531) and public surgeons (98%, 315/321). Excluding traumatology, orthopaedic surgical interventions were maintained for infectious indications in 56% (715/1269) of cases, oncological in 35% (444/1269) and functional indications in 9% (110/1269).



Regarding trauma surgery, 71 surgeons performed it despite it not being their usual work, and among them 87% (62/71) worked in private practice. Trauma surgery was reduced for 87% of senior surgeons from the public sector and it was increased or stable for 40% of those in private. Among the surgeons questioned, 772/1098 (70%) reported not having changed their way of dealing with traumatology. The other 326 surgeons said they had changed their practice; 258 a little and 68 a lot. In 55% (179/326) of cases, these surgeons came from the regions most affected by COVID-19: Grand-Est, Haut-de-France, Ile-de-France and Provence-Alpes-Côte d'Azur.

About half of the surgeons surveyed (53%, 581/1098) used telework, 3 times out of 4 for a teleconsultation activity (77%, 445/581) and 23% (136/1098) for administrative work. Telework was used in the same proportions between public (59%) and private (61%) surgeons. It was less common amongst residents (28%).

### **Organization of orthopaedic surgical services**

To organize themselves against COVID-19, 73% (801/1098) of surgeons said they had received clear directives (hospital management, Regional Health Agency (ARS)). Almost all, 997/1098 (91%) reported a reorganization of their hospitalization services. Orthopaedic surgical departments were transformed into medical departments or "COVID units" in 40% of cases (543/1357), were closed in 40% (541/1357) or used for consultations for minor trauma emergencies in 20% (273/1357). More rarely, there were facility closures and operating theater relocations.

Six hundred and sixty-four (60%) responding surgeons did not receive training to care for COVID-19 patients and 442 (40%) operated on patients with COVID or suspected of having it. The protective equipment that was made available to surgeons is summarized in Figure 1.

Three hundred and three (28%, 303/1098) surgeons were redeployed to other departments. Their roles are specified in Table 5. The main regions where surgeons were redeployed were the Ile-de-France and Grand-Est (Table 6). This redeployment was more frequent for residents (51%) and in the public sector (35%). Surgeons from the private sector were only redeployed in 12% of cases. More than half of the surgeons surveyed (52%) considered that their skills were being used for good, 46% would have liked to do more and 2% considered that they had been used in an area outside their competence.

### **Financial impact of the crisis**

A decrease in salary was reported by 635/1098 (58%) of the surgeons surveyed. They were private surgeons in 81% of cases (515/635), hospital surgeons with private activity in 14% (88/635) and residents, fellows, assistants or contract hospital practitioners in 5% (32/635). This reduction in salary was around 75% for 71% of the surgeons (452/635), 50% for 16% (100/635) and 25% for 13% (83/635). Financial difficulties after the crisis were feared by 367/1098 (33%) of surgeons questioned and 324/1098 (30%) feared difficult situations.

### **Confinement**

Group work sessions were set up for 428/1098 (39%) of the surgeons questioned, while 290/428 (68%) of these sessions were carried out remotely.

A majority of the surgeons surveyed, 744/1098 (68%) reported doing more personal work than usual: theoretical learning (32%), administrative work (31%), writing scientific papers (16%), updating the literature (13%), thesis work (6%), medical expertise (<1%) and completing continuing professional development (<1%). Two hundred and sixty-five (24%) reported doing the same personal work as usual and 89/1098 (8%) reported doing less.

### **Physical and psychological state of health**

Twenty-six (2%) of the 1098 surgeons surveyed tested positive for coronavirus and 5% reported being positive without being tested.

The psychological feelings of the practitioners are summarized in Figure 2. At least one sign of psychological suffering was present in 54% of the surgeons questioned. Finally, tension related to COVID-19, was reported almost half the time (45%, 494/1098) within surgical teams.

### **Questions specific to residents**

The number of residents present in the departments was almost systematically reduced (97%): in 41% of cases, 1 out of 2 residents was absent and in 37% of cases 2 out of 3 residents were absent. Among the residents, 239/246 (97%) believed that this crisis impaired their practical training. The number of surgeries entrusted to residents was reduced for 199/246 (81%) of those questioned. During the first period of confinement, the COVID-19 pandemic had a variable impact on the theoretical training of residents, as it deteriorated for 44% (109/246) of the residents questioned, improved for 37% (91/246) and remained unchanged for 19% (46/246). On the other hand, during the same period the practical training of residents was almost constantly impaired, for 92% (227/246) of residents questioned.

### **Discussion**

The hypothesis of this work was confirmed; the survey reported suspension of elective surgeries in 80% of cases. This suspension has been found all over the world in similar proportions (Table 7). Japan is an exception since their practices have not changed, nor the number of operated patients [14]. In Iran, the situation was extremely different between the public and private sectors since elective surgeries were suspended from the start of the confinement in the public sector, whereas, only a small change, at the start of the crisis, was observed in private [4].

There seemed to be a reduction in traumatology, since 65% of those questioned declared a decrease of at least 50% in this activity. In accordance with the recommendations of the CNP-

COT [15], this activity appeared to have been relocated to the private sector. Indeed, 87% of public orthopaedic surgeons saw this activity decrease and 40% of private surgeons saw it remain stable or increase. This result is consistent with the literature in France [16,17] and elsewhere in the world [13,18-20]. In terms of care, only 30% of the French surgeons questioned reported having modified their practices in accordance with the recommendations of the CNP-COT [15]. This low rate can be explained by the fact that French surgeons probably did not want to hinder the functional prognosis of patients with prolonged immobilization and non-surgical management. These practice changes are also found around the world with a preference for non-surgical treatment [21-23], use of removable splints instead of circular casts [24,25] and the preferred use of external fixator [5]. However, urgent surgeries (acute trauma, acute infection and cancer) were maintained in France, and widely across the world [4,5,7,9,10,11,13,21,26,27]. Similarly, relative emergencies (peri-prosthetic fracture, chronic infection, etc.), whose postponement would lead to a loss of chance for the patient, were maintained [6,13,14,18,20]. Except for Italy, where decisions were discussed with the patient considering the risks [12] and India, where urgent surgeries (cauda equina syndrome, dislocation, septic arthritis) were postponed [25].

### **Reorganization of orthopaedic surgical services**

In our survey, in 40% of cases, orthopaedic surgical departments were transformed into medical departments or "COVID units", this was also usually the case internationally (Table 8).

The practice of teleconsultation has been democratized all over the world [4,7,10]. In the United Kingdom, all consultations were done by telephone (except cast changes and wound follow-up) [24]. In the United States [20], one study reported a 400% increase in teleconsultations [10]. According to our survey, teleconsultation was only used in 41% of

cases despite the measures taken by the government to remunerate it [29]. Many initiatives around the world have emerged to avoid patient displacement: regional telemedicine systems [30,31] and interactive modules (applications and websites) for postoperative patient rehabilitation [32].

In France, and around the world, orthopaedic surgeons have been redeployed to medical departments [6,33–35]. In India, less than 10% of orthopaedic surgeons were redeployed, while 34% were no longer operating [9]. In the United States, 10% of senior surgeons [14] and 25% of residents [23,28] worked in medical departments. Some surveys report that up to 42% of surgeons no longer work at all [14]. These figures underline the low redeployment rate of orthopaedic surgeons, compared to the number who did little or no work. In our survey, 28% were redeployed, this rate is higher than that of the literature but remains low compared to the observed drop in activity.

### **Impact on physical and psychological health, and financial consequences**

In their study, Vallée et al. [36] observed signs of psychological suffering amongst 40% of the young French surgeons questioned. The rate of our survey and an Indian survey is similar, respectively 54% and 63% [9]. In our study, fear for the health of loved ones seemed to be the main reason for psychological suffering, corresponding to the literature [20,37,38]. Several studies report the well-being of orthopaedic teams in the reorganization of services [13,38,39], but only one mentions psychological care for surgeons during this period [6]. The economic consequences of the crisis were also a source of stress [9]. The financial difficulties experienced by orthopaedic surgeons were found in France and all over the world [9,14,33], with at most, a complete loss of income in 21 to 44% in the United States [14,33].

### **Questions specific to residents**

During the first confinement, the training of orthopaedic residents was reduced in France [36] and in other countries [5,24,33,40]. However, according to our survey, and several other studies, we identified a goal to maintain the theoretical training of residents via e-learning and videoconferences [4,5,13,39,40]. It is likely that this aim to maintain theoretical training was intended to compensate for the loss of practical training. Thus, some departments developed surgical training sessions using virtual reality [32,41] or simulators [38].

### **Limits**

The main limitation of this work is the fact that it is based on a survey, thus it is possible that the surgeons who responded are not representative of all French orthopaedic surgeons. However, more than half of orthopaedic residents currently training in France responded, which is a higher proportion than that usually found in surveys [8,14,33]. In addition, this is the only study conducted on all French orthopaedic surgeons. In order to precisely assess the consequences of this specific period (the 1<sup>st</sup> confinement), it would be advisable to distribute this same questionnaire sometime after any confinement or health crisis.

### **Conclusion**

The COVID-19 pandemic had a strong impact on the professional activities of French orthopaedic surgeons during the first confinement between April 10 and May 10, 2020. Despite this, they were able to reorganize and modify their practices quickly and efficiently. Progress remains to be made regarding the training of orthopaedic surgeons in the management of COVID+ patients, and to democratize the use of telemedicine. The psychological repercussions of this crisis on nursing staff should be monitored.

### **Conflicts of interest:**

The authors declare that they have no conflicts of interest related to or outside the scope of this work.

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**Contribution of the authors:**

AA: writing of the manuscript.

YL, EH, PEC and PL: questionnaire design and editing of the manuscript.

JD: editing of the manuscript.

PM: conception of the study, questionnaire design, collection and analysis of data, writing of the manuscript.

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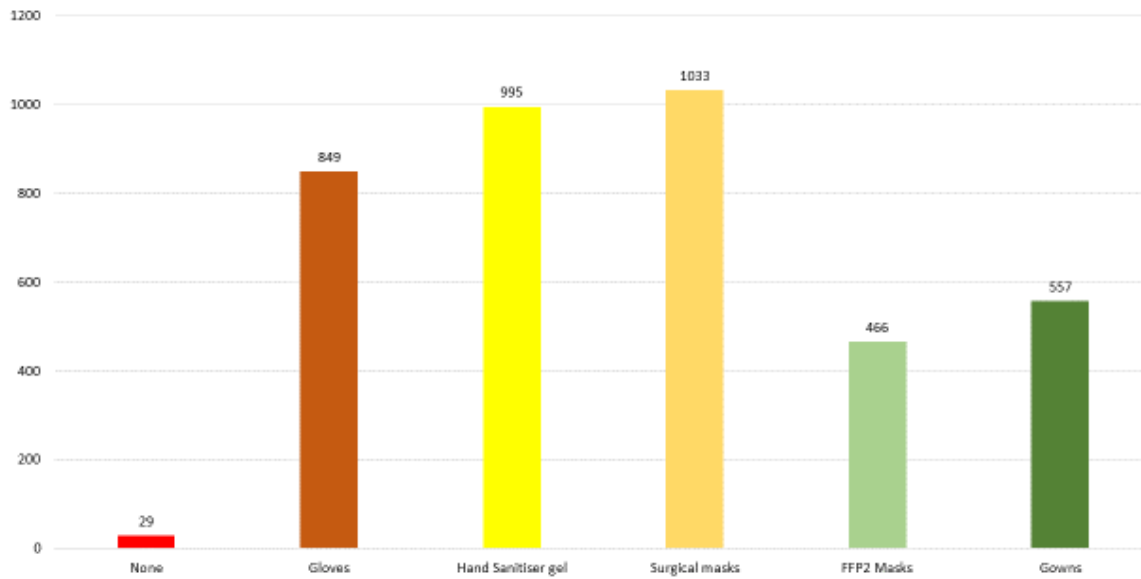
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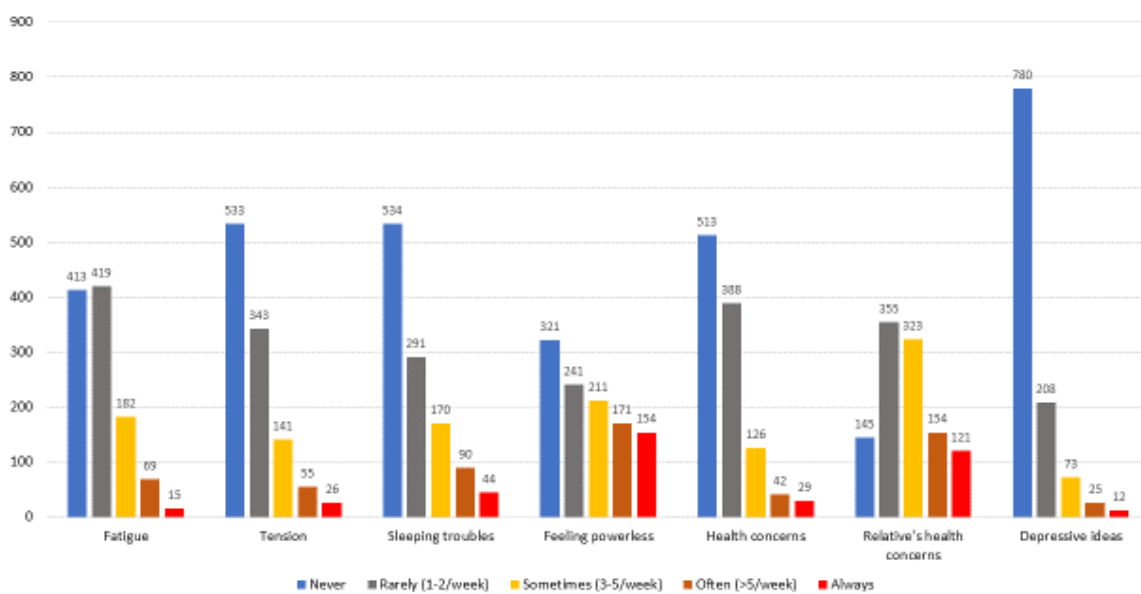
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## Legends of figures



**Figure 1:** Equipment available to orthopaedic surgeons during the health crisis (n=1098).



**Figure 2:** Psychological feelings of orthopaedic surgeons during the health crisis (n=1098).

**Table 1.** Questionnaire sent to French orthopaedic surgeons. Specific to certain group when followed by: (*Residents*)

Question	Response
<i>Identity</i>	
Sex	Woman man
Age (year)	
Status	UPHP, ULHP/HP/military physician/private/fellow, AS, CHP/Resident
City of practice	
Establishment	HC/UHC/clinic/military hospital/other
Primary activity	Upper limb/lower limb/spine/paediatrics/traumatology/other
Semester ( <i>Residents</i> )	1/3/5/7/9/away from work/research year
Type of residency ( <i>Residents</i> )	Adult orthopaedics/pediatric orthopaedics/Inter-UHC/outside ortho
Place of residency ( <i>Residents</i> )	UHC/HC/clinic/military hospital/PHICI
Information source	Social networks/internet/radio, TV/scientific articles/mailling list/other
<i>Activities</i>	
Modification scheduled activity	Increase/none/>25%/>50%/>75%/complete cessation
Type of surgery maintained	Infectious/oncological/functional/none/other
Change in trauma surgery practice	Increase/none/>25%/>50%/>75%/complete cessation/new activity
Change in consultation activity	Increase/none/>25%/>50%/>75%/complete cessation
Change in trauma management	A little/a lot/none
Telework	Teleconsultation/administrative/none
Working day per week	0 to 7
<i>Work organization</i>	
Service reorganization	Closure of service/unit reassignment/transformation of unit/none
Clear guidelines	Yes/No
COVID training	Yes/No
Operation affected patient	Confirmed cases/suspected cases/none
Redeployment	Yes/No
If yes, what service	Intensive care/emergency/respiratory/infectious disease/other
Role	
Ability to take charge	Simple trauma/medicine patient/simple COVID unit/complex patients
Protective material	Surgical mask/FFP2 mask/gloves/overcoat/hydroalcoholic solution/none
Crisis Skills	Underutilized/appropriate use/competence overestimated
<i>Salary</i>	
Salary reduction	Yes/no
If yes, % reduction	>25%/>50%/>75%
Post-crisis concern	Fear of hardship/reasonable/no fears
<i>Confinement</i>	
Organization of work sessions	Videoconference/staff/no
What type	
Personal work	More than usual/same/less than usual
If yes, which ones	Theoretical/article writing/thesis/literature/administrative
<i>Physical and psychological state</i>	
Affected by COVID-19	Tested positive/reported being positive without a test/unaffected
Feeling over last 30 days	
Fatigue	
Anxious	
Difficulties falling asleep	Never/rarely/sometimes/most of the time/all the time
Helplessness	
Fear for own health	
Fear for the health of loved ones	
Depressive thoughts	
Tension within the team	Yes/no/other
<i>Training (Residents)</i>	
Number of surgeries where the	Same/more frequent/less frequent

resident is the surgeon

Working sessions between residents	Videoconference/staff room/none
Modification practical training	Improved/worsened/none
Modification of theoretical training	Improved/worsened/none
Percentage of residents present	0%/25%/50%/75%/100%

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UPHP: University Professor-Hospital Practitioner; ULHP: University Lecturer-Hospital Practitioner; HP: Hospital Practitioner; AS: Assistant Specialist; CHP: Contract Hospital Practitioner; HC: Hospital Center; UHC: University Hospital Center; PHICI: Private Health Institution of Collective Interest.

Journal Pre-proof

**Table 2.** Characteristics of senior surgeons surveyed (n=852).

	Effective $\pm$ standard deviation
Average age (years)	47.4 $\pm$ 11.5
Gender, Male/Female	742/110
Distribution	
Fellow/AS/CHP	110
HP	161
UPHP/ULHP	41
Private surgeon	531
Military surgeon	9
Place of practice (seniors)	
HC	123
UHC	182
Clinical	527
PHICI/Private sector	11
Military hospital	9
Region of practice (seniors)	
Bourgogne	31
Bretagne	48
Center	30
Corse	3
DOM-TOM	18
Grand-Est	76
Haut-de-France	60
Ile-de-France	136
Loire	41
Nouvelle Aquitaine	137
Normandie	26
Occitanie	78
PACA	93
Rhône-Alpes	71
Unknown	4
Surgical specialties	
Upper limb	212
Lower limb	486
Pediatrics	60
Spinal	46
Traumatology	48

AS: Assistant Specialist; CHP: Contract Hospital Practitioner; HP: Hospital Practitioner; UPHP: University Professor-Hospital Practitioner; ULHP: University Lecturer-Hospital Practitioner; HC: Hospital Center; UHC: University Hospital Center; PHICI: Private Health Institution of Collective Interest; PACA: Provence-Alpes-Cote d'Azur.

**Table 3:** Characteristics of residents surveyed (n=246).

	Effective $\pm$ standard deviation
Average age (years)	27.4 $\pm$ 2
Gender, Male/Female	172/74
Type of residency	
Adult orthopaedics	199
Inter-university hospital center	18
Pediatric orthopaedics	29
Residency locations	
University hospital	42
University hospital center	188
Clinic	13
PHICI/Private sector	2
Military hospital	1
Activity location	
Bourgogne	10
Bretagne	8
Center	7
DOM-TOM	5
Grand-Est	22
Haut-de-France	25
Ile-de-France	45
Loire	13
Nouvelle Aquitaine	26
Normandie	7
Occitanie	16
PACA	22
Rhône-Alpes	40
<b>Semester</b>	
1 <sup>st</sup>	48
3 <sup>rd</sup>	40
5 <sup>th</sup>	46
7 <sup>th</sup>	59
9 <sup>th</sup>	53
<b>Number of residents present during the residency</b>	
0%	4
25%	93
50%	103
75%	38
100%	8

PACA: Provence-Alpes-Côte d'Azur

**Table 4:** Changes to surgeries and consultations during COVID-19.

	Increase	No change	Reduction of at least 25%	Reduction of at least 50%	Reduction of at least 75%	Complete cessation
Elective surgery	0	0	0	1%	19%	80%
Trauma surgery	5%	17%	13%	29%	27%	9%
Consultation	<1%	1%	2%	15%	56%	25%

Journal Pre-proof



**Table 5:** Assignment service and role of redeployed surgeons.

	<b>Number</b>
<b>Services (n=337)</b>	
Cardiology	1
Cardiac surgery	1
COVID Assessment Center (screening)	12
Geriatrics	2
Infectious diseases	31
Logistics	9
COVID-19 Unit	27
Medicine	8
Respiratory	14
Intensive care	87
Emergency	137
Triage	7
Palliative care	1
<b>Role (n=331)</b>	
Minor trauma intake	80
Contacting families	24
COVID patient intake/screening	10
Triage	32
COVID Unit Physician	35
Administration, ARS declaration, COVID patient follow-up coordinator	3
Logistics	8
Patient flow	72
Nurse	10
Physician/resident	50
Registrar	3
Inclusion of patients in studies	3
Personal protective equipment manufacturing management	1

Note: the number of redeployed surgeons was 303, several surgeons were redeployed in at least 2 departments and carried out at least 2 different roles.

**Table 6:** Number of orthopaedic surgeons redeployed compared to the number of surgeons who responded to the survey in the specified region (n=303).

	<b>n (percentage)</b>
<b>Region of practice (seniors)</b>	
Bourgogne	13 (32%)
Bretagne	16 (29%)
Centre	11 (30%)
Corse	0
DOM-TOM	3 (13%)
Grand-Est	43 (44%)
Haut-de-France	23 (27%)
Ile-de-France	87 (48%)
Loire	16 (30%)
Nouvelle Aquitaine	20 (12%)
Normandie	2 (6%)
Occitanie	16 (17%)
PACA	15 (13%)
Rhône-Alpes	38 (34%)

PACA: Provence-Alpes-Côte d'Azur.

**Table 7:** Proportion of cancelled elective surgeries worldwide.

	<b>Percentage cancelled</b>
<b>India</b> <sup>9</sup>	97%
<b>United States</b> <sup>10,11</sup>	72%
<b>Germany/Austria/Switzerland</b> <sup>8</sup>	70 to 93%
<b>Sweden</b> <sup>7</sup>	50%
<b>Italy</b> <sup>12</sup>	100%
<b>Singapore and Malaysia</b> <sup>13</sup>	100%
<b>Iran</b> <sup>4</sup>	
Governmental health care	100%
Orthopaedic clinics	0%
<b>Japan</b> <sup>14</sup>	0%

**Table 8:** Reorganization of orthopaedic surgical services worldwide.

	<b>Type of transformation</b>
<b>India</b>	
Jain et Vaishya <sup>25</sup>	Medical Service
Sahu et al <sup>9</sup>	Closure of services
<b>United States</b>	
Dowdell et al <sup>28</sup>	Intensive care unit
Athey et al <sup>14</sup>	Closure of services
<b>Sweden/Norway</b> <sup>7</sup>	Medical Service/COVID Unit
<b>Italy</b> <sup>19</sup>	Medical Service/COVID Unit
<b>Singapore and Malaysia</b> <sup>13</sup>	Medical Service/COVID Unit
<b>Iran</b> <sup>4</sup>	Medical Service/COVID Unit