

EAHP Survey on the future crisis preparedness of hospital pharmacies

Lessons learned from COVID-19

Executive summary

The year 2020 was a challenging one for healthcare professionals across the globe. Shortages of personal protective equipment, surface and alcoholic hand disinfectants and medicines as well as the uncertainty about treatment options shaped the work of the profession during the first wave of the SARS-CoV2 pandemic. Together with its members, the European Association of Hospital Pharmacists (EAHP) closely monitored all developments linked to COVID-19 and started data collection and best practice sharing initiatives to support the work of hospital pharmacists.

To better understand the impact on the profession, EAHP's Survey on the future crisis preparedness of hospital pharmacies gathered on the one hand details on the medicines for which shortages were experienced. On the other hand, it took into account the experiences made in hospital pharmacies and the approaches for crisis management and preparedness. 1664 hospital pharmacists from all across Europe participated and shared their lessons learned from the COVID-19 pandemic.

Compared to other survey activities of EAHP linked to the topic of medicines shortages the feedback received for the survey on the future crisis preparedness was a bit more diverse with 59% of respondents experiencing problems, compared to 38% that did not. This might be attributed to the fact that not only hospital pharmacists working at hospitals that exclusively catered to COVID-19 patients participated but also those that continued to provide care to other patients. The most common types of medicines in shortage included those used in intensive care units, such as anaesthetics (46%) and muscle relaxants (29%). But also antibiotics (37%) ranked among the top three like in EAHP's previous shortage surveys.

Cooperation, including collaboration with other healthcare professionals, was one of the reoccurring themes of the feedback received from this survey. Hospital pharmacists supported their colleagues through the production of disinfectants and sourcing medicines that were in shortage. Besides, they valued discussions with other healthcare professionals supporting the quest for treatment options and finding solutions to other problems that occurred during the pandemic. Room for improvement was found in relation to preparedness. More work in the field of risk assessments is needed but also communication with others could be further enhanced.

Frequent shortages of medicines that impact patient outcomes are not a new phenomenon for hospital pharmacists. The European Association of Hospital Pharmacists (EAHP) has worked on this issue for the past decade. Research conducted by the Association in 2014, 2018 and 2019 showed that the impact that shortages have on patient care and the work of hospital pharmacists' has increased. These problems seemed to have worsened over the past couple of weeks with many countries reporting shortages of medicines used for patients in intensive care units triggered by the COVID-19 pandemic. To further investigate problems encountered during the first wave, EAHP launched a 'Survey on the future crisis preparedness of hospital pharmacies' in mid-September 2020. The survey ran from the 16th of September until the 23rd of December 2020.

EAHP's Survey on the future crisis preparedness of hospital pharmacies explored the lessons learned from the COVID-19 pandemic and collected retrospective information on medicines and equipment shortages experienced during that period. It targeted hospital pharmacists.

1. I work in...

1664 hospital pharmacists from EAHP's 35 member countries and Cyprus participated in the survey. Besides, 4 responses were received from hospital pharmacists practising outside of Europe and 5 from European countries, other than Cyprus, not part of EAHP's membership.

Country	Responses	Country	Responses
Albania	1	Lithuania	3
Andorra	1	Luxembourg	8
Armenia	2	Malta	5
Austria	46	Montenegro	5
Belgium	128	Netherlands	16
Bosnia & Herzegovina	7	North Macedonia	26
Bulgaria	12	Norway	10
Croatia	3	Poland	17
Cyprus	2	Portugal	139
Czech Republic	101	Romania	14
Denmark	2	Russia	1
Estonia	17	Serbia	47
Finland	13	Slovakia	48
France	247	Slovenia	5
Germany	144	Spain	72
Greece	56	Sweden	9
Hungary	52	Switzerland	38
Iceland	6	Turkey	171
Ireland	16	United Kingdom	7
Italy	171	Other	4
Latvia	1		

Table 1 – Number of responses by hospital pharmacists to question 1 'I work in...'

The answers presented in the report only took into account the feedback received from EAHP’s 35 member countries and Cyprus. It should be noted that not all respondents provided feedback to all questions.

2. My hospital is a...

The survey respondents that replied to question 2 could choose between different types of hospitals. Those that did not identify with any of the options offered could select ‘Other’ and provide additional details on the scope of the clinical activities in their hospital. 57% (N=947) of respondents indicated that they were working at a general hospital, while 29% (N=477) practised at a teaching or university hospital. 4% (N=66) of respondents came from psychiatric hospitals and 2% (N=38) from oncology hospitals. 1% practised at geriatric (N=23), paediatric (N=15) and orthopaedic/traumatology hospitals (N=13). The remaining 5% (N=85) chose the option ‘Other’. The background of this group was very diverse ranging from hospital pharmacists working at specialised hospitals, cardiology centres and regional hospitals to those sharing the full name of their institution.

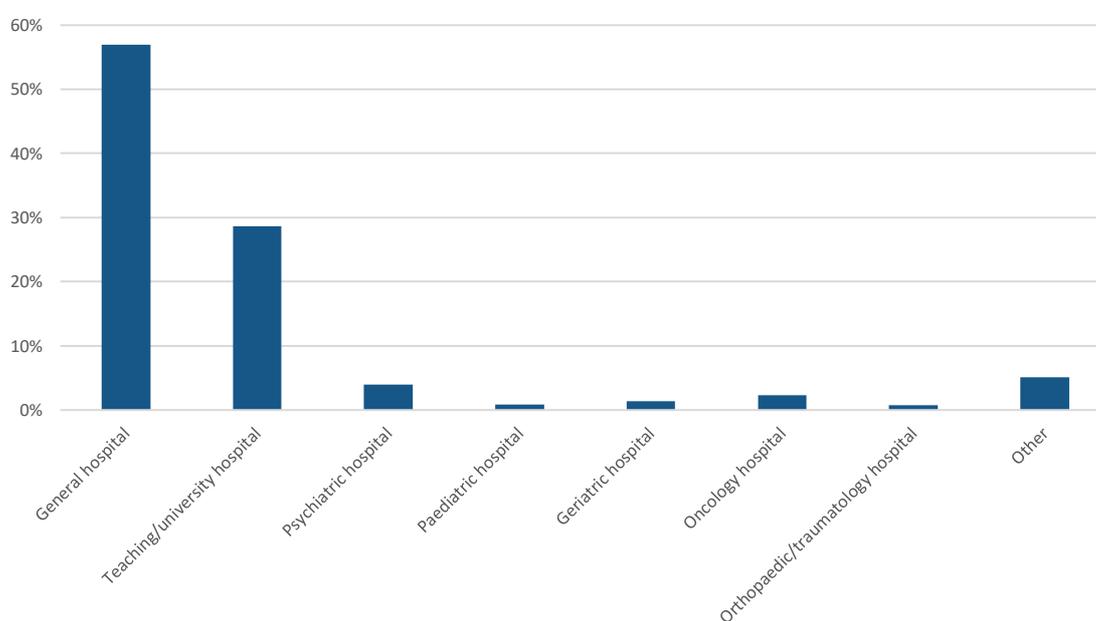


Figure 1 – Percentage of responses by hospital pharmacists to question 2 ‘My hospital is a...’.

3. How many beds are served by your hospital?

The replies to question 3 – focusing on the number of beds served by a hospital – showed that the respondents worked at different size hospitals. The majority of respondents (44% | N=728) served 101 to 500 beds. Followed by pharmacists practising in hospitals with 501 to 1000 beds (28% | N=467) and those with more than 1000 beds (19% | N=323). 9% (N=146) of respondents worked at smaller hospitals with less than 100 beds.

241 out of the 1673 respondents that chose to provide feedback to this question also declared that their hospital pharmacy was providing services to more than hospital indicating that the pharmacy is part of a larger clinical network.

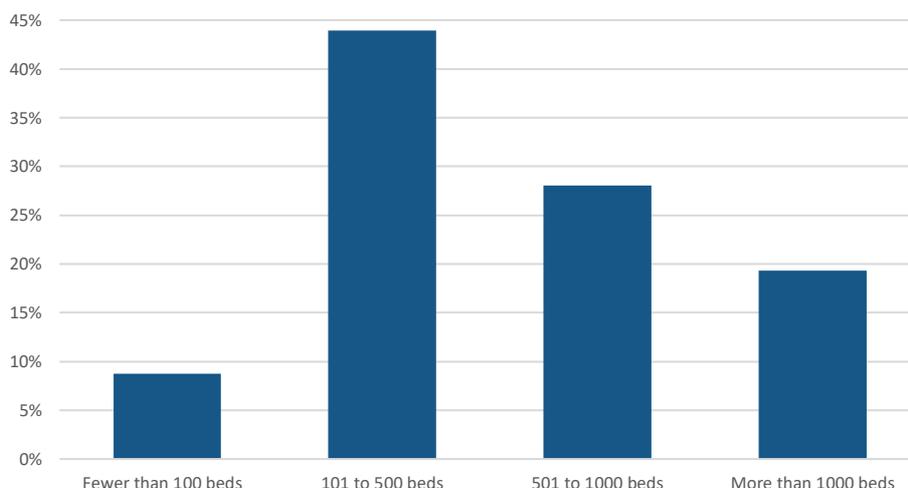


Figure 2 – Percentage of responses by hospital pharmacists to question 3 ‘How many beds are severed by your hospital?’.

4. My hospital served as a dedicated ‘COVID-19 centre’ in my country/region.

Question 4 tried to measure the level of involvement of hospitals across Europe in the treatment of COVID-19 patients. Being a ‘dedicated COVID-19 centre’ was defined as mainly being responsible for the treatment of COVID-19 patients. 33% (N=541) of respondents categorised their hospital as a dedicated COVID-19 centre. About half of the respondents (46% |N=778) indicated that their hospital was partially repurposed to serve COVID-19 patients. The remaining 21% (N=345) of respondents shared that their hospital was not a dedicated COVID-19 centre, meaning that their hospital either only served a very small number of patients or did not treat any COVID-19 patients at all.

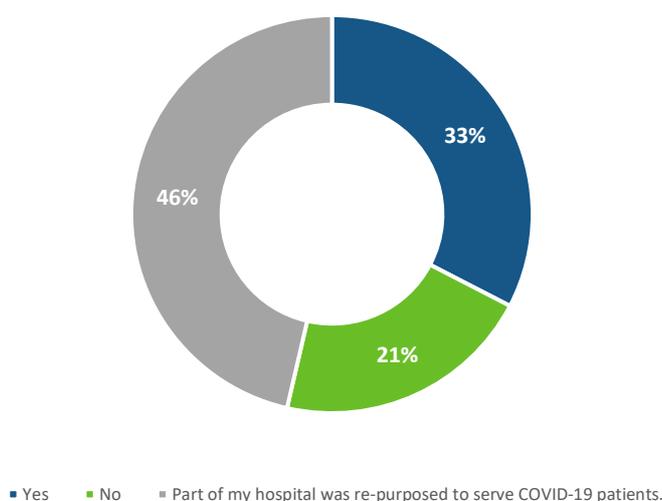


Figure 3 – Percentage of responses by hospital pharmacists to question 4 ‘My hospital served as a dedicated “COVID-19 centre” in my country/region.’.

5. How many COVID-19 patients (including both patients in intensive care and on regular wards) were served on a daily basis by your hospital at peak times?

Almost half of the respondents (46% | N=612) indicated that their hospital treated more than 50 COVID-19 patients during peak times of the pandemic, including both patients in intensive care units and on regular wards. 6 to 25 (N=302) and 25 to 50 patients (N=254) were hospitalised in the clinics of the other half of the respondents. A small number of respondents could not provide any feedback to this question (6% | N=74) or worked in a hospital that only treated fewer than 5 COVID-19 patients (6% | N=85) during peak times.

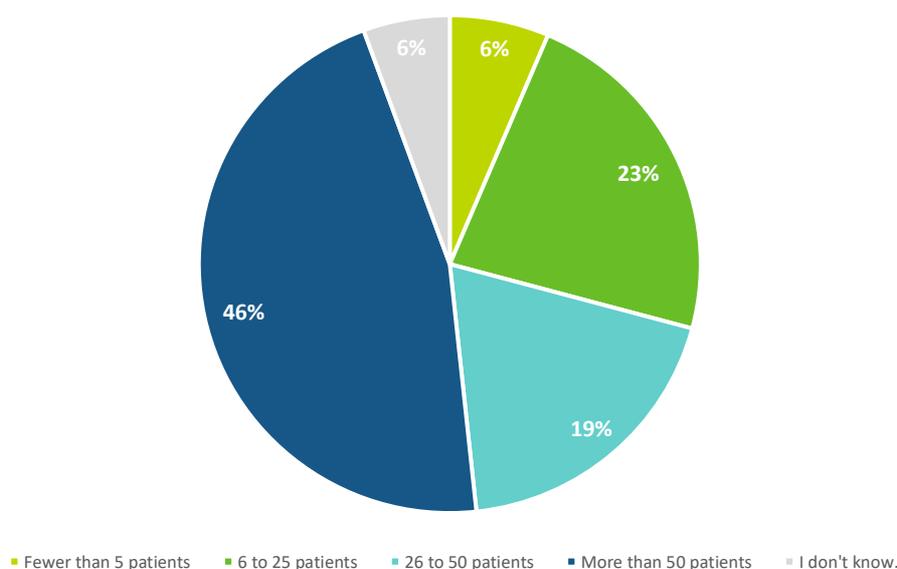


Figure 4 – Percentage of responses by hospital pharmacists to question 5 ‘How many COVID-19 patients (including both patients in intensive care and on regular wards) were served on a daily basis by your hospital at peak times?’.

6. Were shortages of medicines a problem in the hospital you are working in, in terms of delivering the best care to patients and/or operating the hospital pharmacy during the COVID-19 pandemic?

Question 6 inquired about the problems that medicines shortages caused for the delivery of best care to patients and/or operating the hospital pharmacy during the COVID-19 pandemic. For 59% (N=858) of respondents medicines shortages during the COVID-19 pandemic posed significant problems. While 38% (N=555) of respondents did not experience any notable problems or managed to overcome them in a manner that did not impact either patient care or the operation of the pharmacy. The remaining 3% (N=47) of respondents opted for the answer possibility ‘I don’t know’ since they were not able to measure the impact that the pandemic has had on the work of hospital pharmacists.

From the feedback, it can be deduced that in some regions or hospitals medicines shortages only sporadically occurred. This was the case, in particular, for hospitals that were not converted into a dedicated ‘COVID-19 centre’.

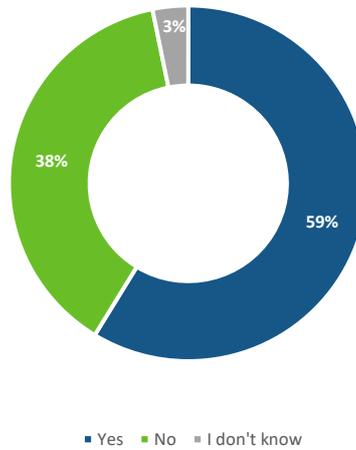


Figure 5 – Percentage of responses by hospital pharmacists to question 6 ‘Were shortages of medicines a problem in the hospital you are working in, in terms of delivering the best care to patients and/or operating the hospital pharmacy during the COVID-19 pandemic?’.

When looking at the country level responses it can be noted that the four biggest EU countries in terms of population size (Germany, France, Italy and Spain) experienced more problems than smaller countries like Cyprus, Estonia, Iceland and Malta.

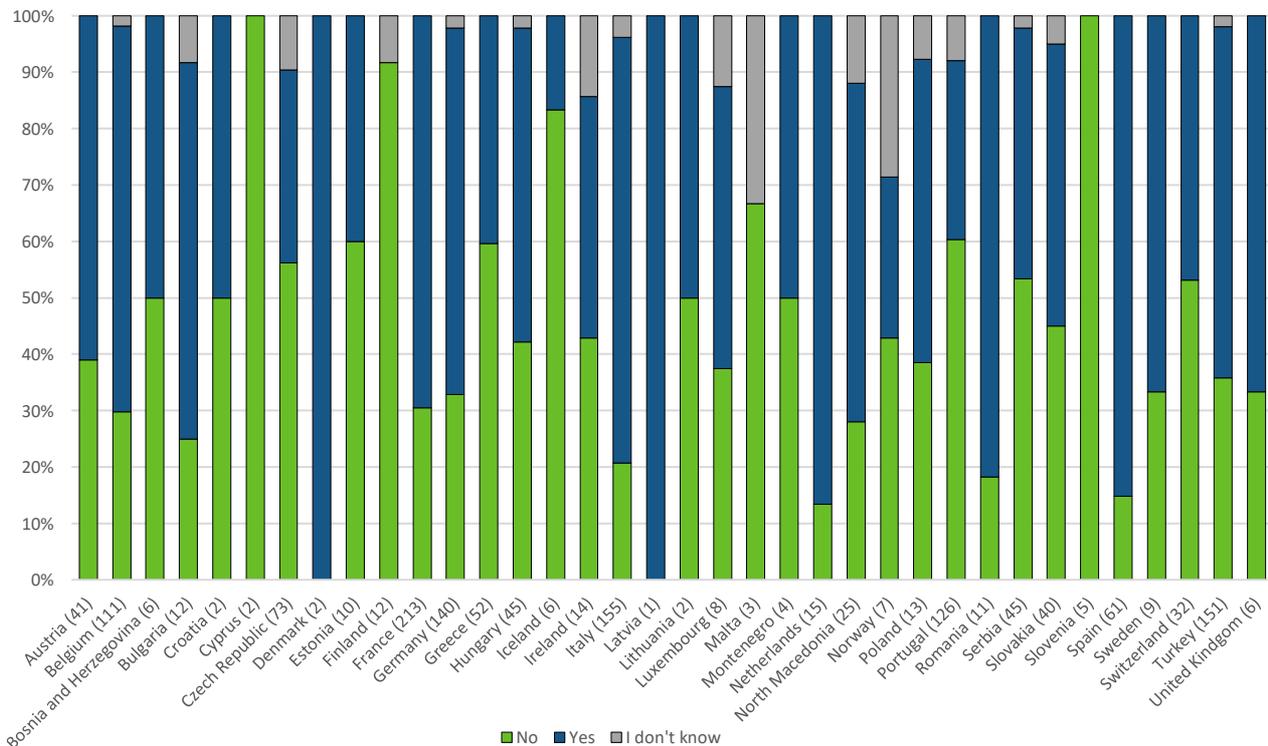


Figure 6 – Percentage of responses by hospital pharmacists to question 6, ‘Were shortages of medicines a problem in the hospital you are working in, in terms of delivering the best care to patients and/or operating the hospital pharmacy during the COVID-19 pandemic?’, grouped by country.

7. Which types of medicines were in shortage during the COVID-19 pandemic in your hospital?

The most common types of medicines in shortage were anaesthetics (46% | N=670), antibiotics (37% | N=539) and muscle relaxants (29% | N=425), followed by benzodiazepine (26% | N=380) and 'Others' (23% | N=336). Respondents that selected the option 'Others' indicated tensions for a few specific medicines like Midazolam®, commented on shortages of oncology products or highlighted that no significant problems were experienced for the majority of the proposed types of medicines. For insulins (2% | N=23) diuretics (1% | N=19) and endocrine medicines (1% | N=15) the least amount of problems were experienced.

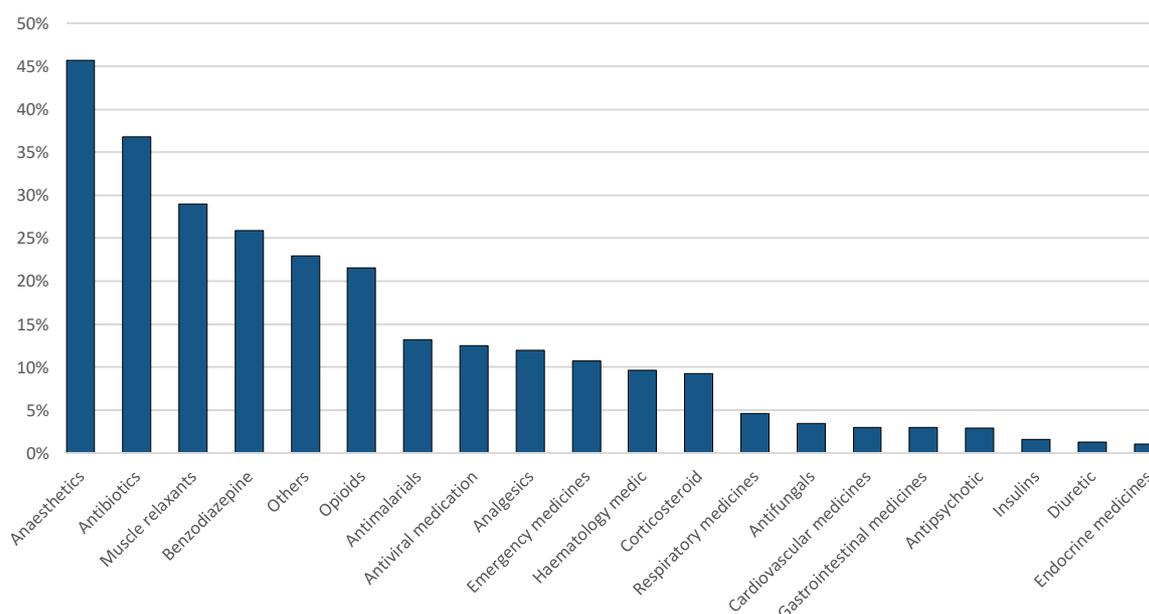


Figure 7 – Percentage of responses by hospital pharmacists to question 7 ‘Which types of medicines were in shortage during the COVID-19 pandemic in your hospital?’. (Note that this was a tick all that apply question)

8. Were disinfectants, such as surface and alcoholic hand disinfectants, in shortage in your hospital during the COVID-19 pandemic?

Question 8 asked survey participants to comment if disinfectants, such as surface and alcoholic hand disinfectants, were in shortage in their hospitals during the COVID-19 pandemic. Answers showed that 63% (N=928) of respondents suffered shortages of disinfectants with 35% (N=509) of respondents outlining that the availability of disinfectants was not a problem during the COVID-19 pandemic. The fact that two-thirds of respondents did not experience any problems, could be linked to work carried out by hospital pharmacists. Some respondents stated that in a lot of cases hand sanitisers and disinfectants were produced by the pharmacy team to combat shortages of these items in the hospital:

“We produced our own disinfectants when the substances were available.” – Hospital Pharmacist, Czech Republic

“At the beginning we experienced shortages. But then we started to produce them by ourselves.” – Hospital Pharmacist, Poland

Several German hospital pharmacists also mentioned “Operation Semmelweis” in the comment field. A project spearheaded by the German Association of Hospital Pharmacists in collaboration with different companies and the Ministry of Health that ensured the availability of hand sanitisers in German hospitals.

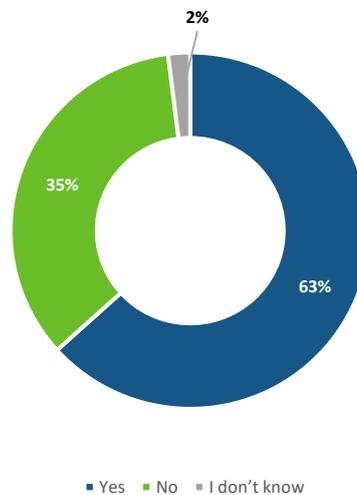


Figure 8 – Percentage of responses by hospital pharmacists to question 8 ‘Were disinfectants, such as surface and alcoholic hand disinfectants, in shortage in your hospital during the COVID-19 pandemic?’.

9. Was personal protective equipment in shortage in your hospital during the COVID-19 pandemic?

As a follow-up question, the survey asked participants if the personal protective equipment (PPE) was in shortage in their hospitals during the COVID-19 pandemic. Answers showed that 68% (N=1005) of respondents stated that their personal protective equipment was in shortage, on the other hand, 25% (N=364) of respondents answered that they did not experience problems with their protective equipment.

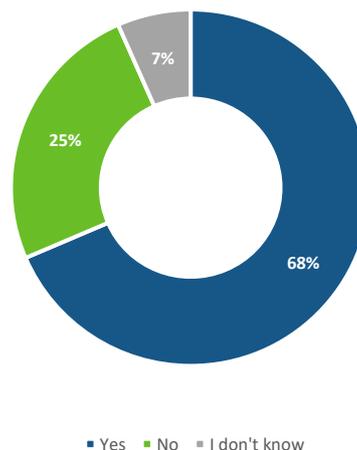


Figure 9 – Percentage of responses by hospital pharmacists to question 9 ‘Was personal protective equipment in shortage in your hospital during the COVID-19 pandemic?’.

Survey respondents added that in most cases the equipment in shortage were masks, PPE suits and gowns:

“Shortage of PPE and we even reused the masks for long periods. We used shower caps such as tights and caps.” – Hospital pharmacist, Spain

“Yes. Mainly masks and visors.” – Hospital Pharmacist, Malta

“We had a shortage of gowns, single-use gowns, vinyl, latex and nitrile gloves.” – Hospital pharmacist, France

“Surgical masks and FFP2 as well as PPE suits” – Hospital pharmacist, Spain

10. How did your hospital pharmacy deal with the COVID-19 pandemic?

This free text question collected information on the actions that were taken by hospital pharmacists during the COVID-19 pandemic. A variety of different answers was provided by the 930 respondents that chose to answer this question. Several indicated that they approached the pandemic day by day and that teamwork was a key contributing factor.

“We managed the situation day by day and established good communication with critical care staff to determine the drugs required and the quantities. We were also in regular contact with the manufacturers to gauge impending supply chain issues.” – Hospital pharmacist, Ireland

“As a team and with a lot of pressure to adapt to a different situation every day.” – Hospital pharmacist, Belgium

“In a proactive manner and through cooperation with other departments and the management.” – Hospital pharmacist, Italy

For others, splitting teams in the pharmacy or providing remote services, where possible, were good approaches to ensure that the basic services could be provided while at the same time protecting the staff.

“Splitting personnel in shifts with no contact, limiting access to premises, forbidding patient visitors and accompanying persons. On the ward, we worked with one patient per room and immunosuppressive therapies were postponed.” – Hospital pharmacist, Cyprus

“We had an outbreak management team, rescheduled services and started special preparation of pre-filled syringes. We shifted from physical to consultations by phone and appointed a coordinator for supplies related to COVID-19.” – Hospital pharmacist, the Netherlands

“Two independent teams were established with professionals from all categories, where pharmacists worked in continuous shifts and on alternate days, combining teleworking to support the days they did not attend the hospital. The person in charge of the pharmacy worked every other day (morning and afternoon in hospital, morning and afternoon teleworking).” – Hospital pharmacist, Spain

Hospital pharmacists also played a key role in managing supplies. They worked in close collaboration with authorities and colleagues, held regular or daily meetings to discuss actions for depleting stock levels and adjusted their management of purchases and stock monitoring.

“[...] In terms of shortage management: daily monitoring of stocks of sensitive products, readjustment of allocations, proposals for alternatives where possible, etc. [...]” – Hospital pharmacist, France

“We tried to secure in advance the drugs and PPE that we assumed would be necessary and insufficient.” – Hospital pharmacist, Slovakia

“Two- or multi-supplier strategy to ensure supply to patients in the event of supply bottlenecks or supply disruptions” – Hospital pharmacist, Germany

11. How did you address medicines shortages problems during the COVID-19 pandemic?

When asked how they addressed medicines shortages problems during the COVID-19 pandemic the top three answers were via therapeutic substitution (43% | N=620), by creating additional strategic stock at local, regional or national level (38% | N=556) and by borrowing medicines from other hospitals (35% | N=512). Importing medicines from another country (33% | N=478) and generic substitution (33% | N=448) were also options chosen by hospitals to address the medicine shortages that occurred during the pandemic. Finally, hospitals addressed medicines shortages through compounding/production of medicines in the pharmacy (28% | N=405) and by using medicines from central contingency reserves kept at national level (27% | N=403). Given the homogeneity of responses, it becomes clear that hospital pharmacists across Europe think alike when it comes to solving problems caused by medicines shortages for their patients.

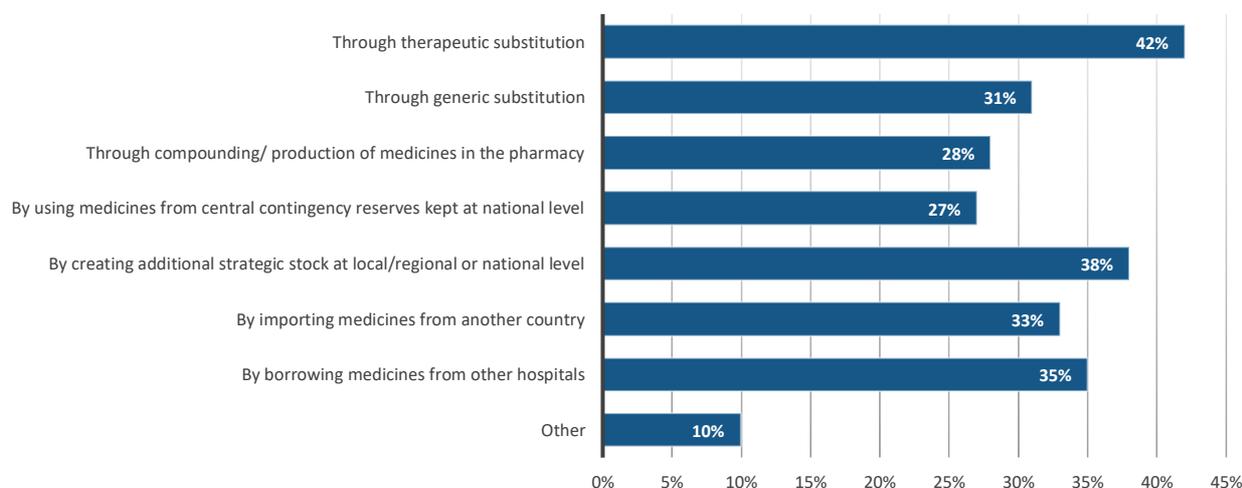


Figure 10 – Percentage of responses by hospital pharmacists to question 11 ‘How did you address medicines shortages problems during the COVID-19 pandemic?’. (Note that this was a tick all that apply question)

12. Which entity did provide the support that helped your hospital to overcome medicines shortages?

Question 12 asked survey participants which entity provided them with support to overcome medicines shortages. According to respondents the entity that gave the most support was the national competent national authority in their country (57% | N=838). Besides, 35% (N=571) of respondents also pointed to manufacturers as an entity offering support and 20% (N=300) of respondents stated that scientific societies and healthcare professional organisations also provided them with support to overcome medicines and

equipment shortages. From the feedback received it can be deduced that each entity provided support in the area of its expertise. Also, collaboration was another big contributing factor to overcome the medicines shortages that were experienced.

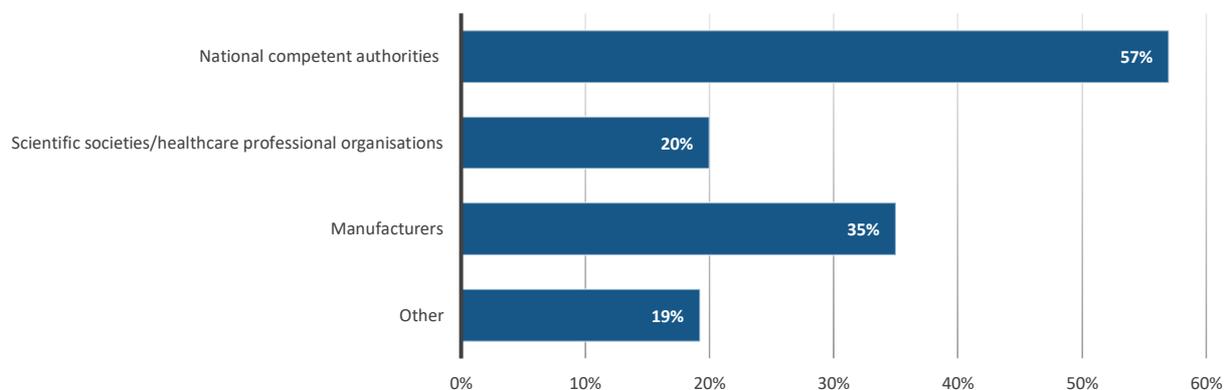


Figure 11 – Percentage of responses by hospital pharmacists to question 12 ‘Which entity did provide the support that helped your hospital to overcome medicines shortages?’. (Note that this was a tick all that apply question)

It is worth noting that from the 19% (N=282) of respondents that selected the option ‘Other’ some pointed out that wholesalers also provided them with support with shortages. This was for example the case in Finland, Hungary and North Macedonia.

13. What type of support was provided to you?

Question 13 inquired about the type of support that was provided to participants by the above entities (i.e. national competent authorities, manufacturers, scientific societies/healthcare professional organisations and others) to overcome shortages in their hospitals during the COVID-19 pandemic. The top answer to this question showed that respondents received support through the allocation of contingency stock to their hospitals (51% | N=741). Survey respondents also were supported via feedback from manufacturers on the availability of medicines (46% | N=675) and feedback from manufacturers on the expected duration of the shortage (40%, | N=584). Finally, 26% (N=380) of survey respondents answered that they got support via guidelines while 12% (N=170) chose to provide further details by selecting the answer ‘Other’.

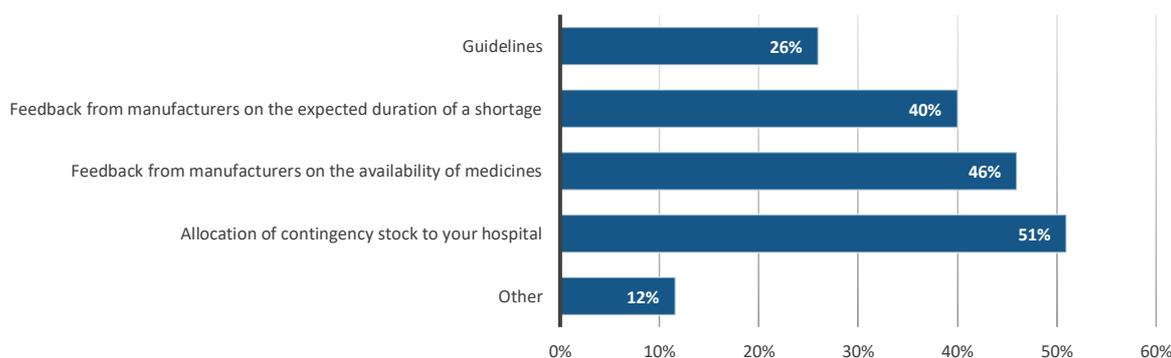


Figure 12 – Percentage of responses by hospital pharmacists to question 13 ‘What type of support was provided to you?’. (Note that this was a tick all that apply question)

Under the option ‘Other’ a considerable number of respondents named ‘donations’ as another type of support provided to them.

“Donations” – Hospital pharmacist, Romania

“Some donations from private companies” – Hospital pharmacist, Portugal

“Material and financial donations” – Hospital pharmacist, North Macedonia

Besides, participants from countries like Slovakia, Bulgaria and Greece stated that importing medicines from other countries was also a way through which shortages were overcome.

14. How useful was the support that you received?

To ascertain how useful the support provided by the entities was, concerning shortages, survey participants were asked to score from 1 (not useful) to 5 (extremely useful) the help that was offered to overcome shortages in their hospitals. Even though the answers from survey respondents were very similar for each one of the entities included in question 14, participants showed that national authorities were the entities that provided the most useful support to hospitals, with 13% (N=153) of participants scoring their support as extremely useful and 28% (N=354) as very useful.

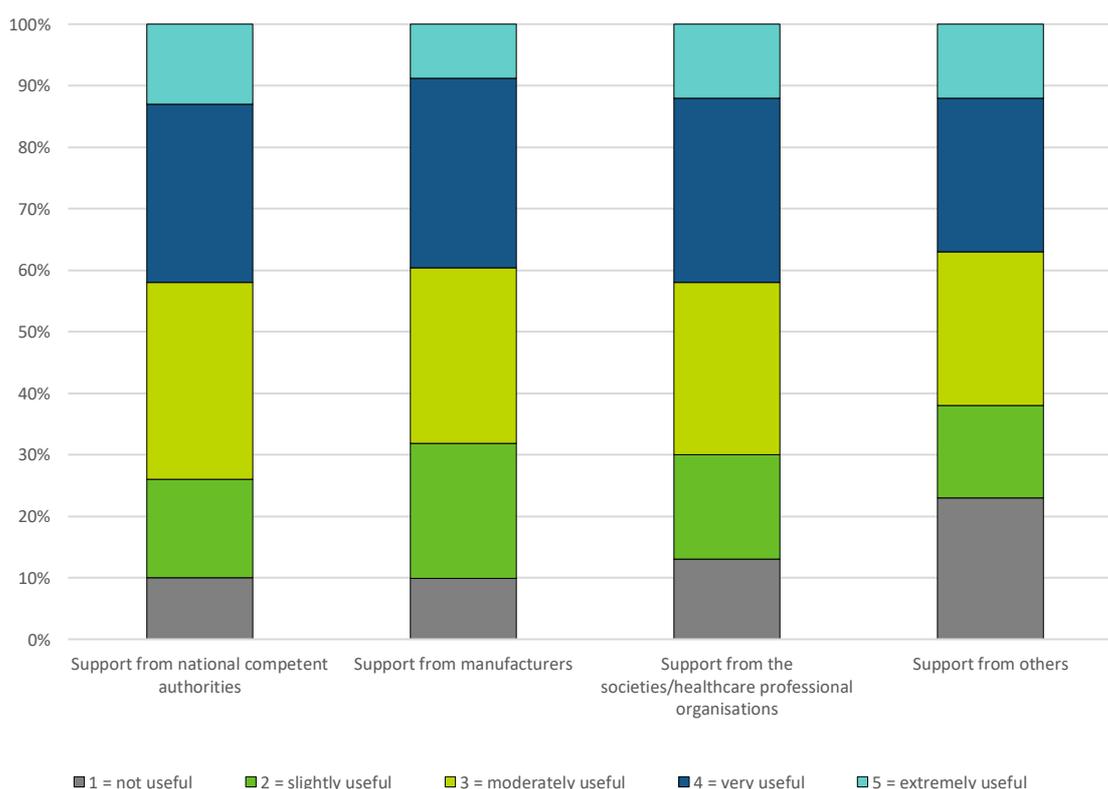


Figure 13 – Percentage of responses by hospital pharmacists to question 14 ‘How useful was the support that you received?’.

As explained before, the results are very similar for all the entities. However, answers showed that the support provided by societies/healthcare professional organisations was valued less with 58% (N=638) of respondents choosing 3 (moderately useful) or lower to describe their support. 55% (N=751) of respondents chose 3 or lower to describe the support provided by manufacturers.

It is worth noting that the level of support offered by ‘Others’ is very similar to the scoring given to the entities included in this question. A large number of respondents named other hospital pharmacies and other pharmacies colleagues as an entity that offered a lot of support during the shortages period in their hospitals. This shows the importance of collaboration and solidarity among hospital pharmacists and healthcare professionals to face shortages during the pandemic. Examples of other entities that provided support are listed below:

“Other hospitals within our network” – Hospital pharmacist, Belgium

“Local collaborations (pharmacist colleagues, referent practitioners of the establishment)” – Hospital pharmacist, France

“Hospital pharmacies from our region” – Hospital pharmacist, Spain

“Particularly useful was the collaboration between hospital pharmacies so that one can meet the needs of the other” – Hospital pharmacist, Cyprus

“Other hospitals we borrowed from.” – Hospital pharmacist, Turkey

“Loans from other hospitals.” – Hospital pharmacist, Portugal

15. What did you learn from the COVID-19 situation?

Handling a higher workload and stress (N=951) as well as quickly adapting the processes and practices at the hospital pharmacy (N=942) were lessons that 75% of participants learned during the first peak of the pandemic. Also, working with scarce resources ranked relatively high with 64% (N=813) of responses.

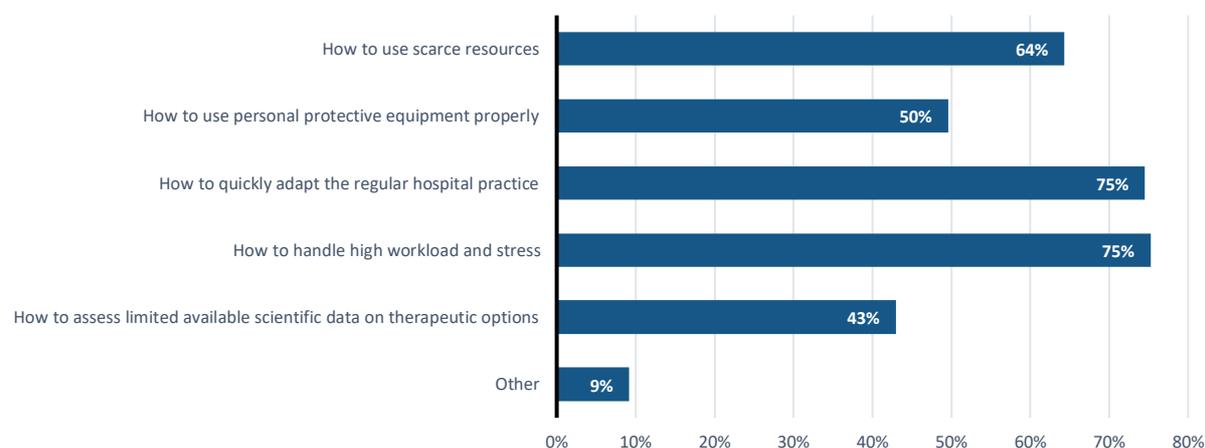


Figure 14 – Percentage of responses by hospital pharmacists to question 15 ‘What did you learn from the COVID-19 situation?’. (Note that this was a tick all that apply question)

The proper handling of PPE (50% | N=627) and the assessment of therapeutic options despite the limited availability of scientific data (43% | N= 543) ranked in fourth and fifth place as learnings from the pandemic. Only 9% (N=116) of respondents opted for the answer choice ‘Other’. Those that selected this option, shared that they learned how to improve communication, how to manage the pharmacy during stressful situations and how valuable multidisciplinary collaboration is. Also, it was observed that adaptability played an important role and that administrative burdens could be overcome much faster since solutions with all involved actors were found quicker than under normal circumstances.

“It’s essential to have good contingency plans, and you must have some kind of local emergency stock.” – Hospital pharmacist, Sweden

“Teamwork between national competent authorities and the professional healthcare organisations, good communication top-down and teamwork with good communication in the hospital and the hospital pharmacy was the key.” – Hospital pharmacist, Belgium

“The importance of coordination between hospitals and between different levels of care, the need for common protocols and telepharmacy.” – Hospital pharmacist, Spain

“Value of collaborative work and communication of all levels of hospital staff. Cultivating the degree of empathy and dealing with urgency. A better understanding of the rules of personal hygiene and consolidation of the general individual responsibility.” – Hospital pharmacist, Greece

16. What would you like to do better in the future, in case a similar severe pandemic hits your country/region?

Question 16 inquired about areas of improvement to better prepare pharmacy services for future pandemics. More than half of the respondents indicated that improvements are needed in the hospital stock management (57% | N=721), the communication with authorities (54% | N=688), crises and surge management (54% | N=688), the use of preparedness protocols (54% | N=682) and communication with other healthcare professionals (53% | N=674).

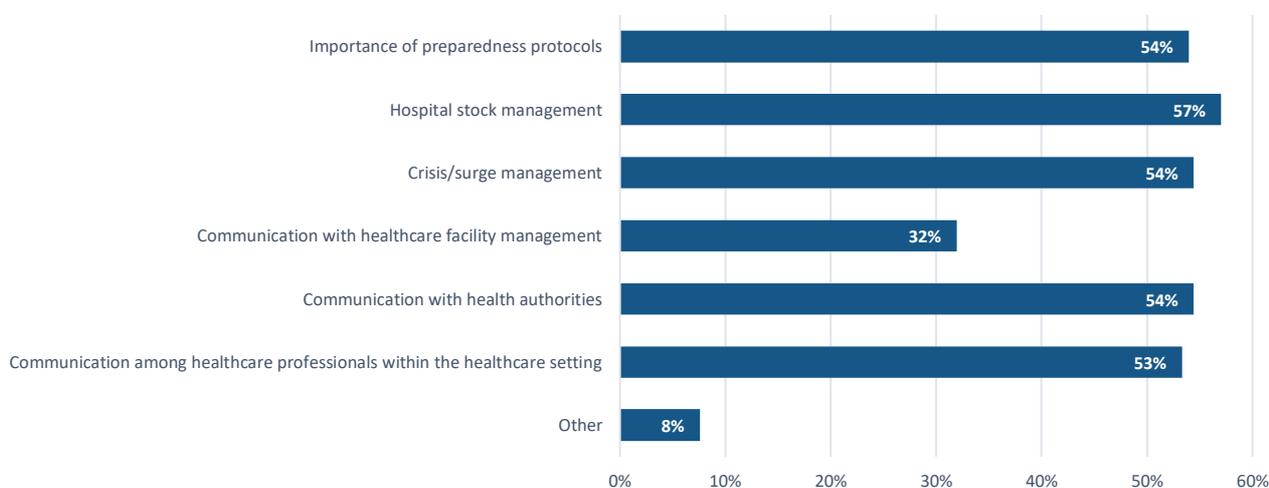


Figure 15 – Percentage of responses by hospital pharmacists to question 16 ‘What would you like to do better in the future, in case a similar severe pandemic hits your country/region?’. (Note that this was a tick all that apply question)

Communication with the management of the healthcare facility could be improved in accordance with 32% (N=404) of the respondents and 8% (N=96) shared additional suggestions by opting for the answer choice ‘Other’. Proposals included improving the national stock management, ameliorating communication between hospitals and manufacturers, offering training to staff to help them cope with stressful situations and ensuring that hospital pharmacists are involved in the ministry's crisis management at an early stage.

“I would like that in the future the management of stocks by the state and manufactures is better organised.” – Hospital pharmacist, France

“Highlight the importance of pharmacotherapeutic protocols and provide access to scientific information.” – Hospital pharmacist, Spain

“Greater transparency between hospitals and the Health Authority.” – Hospital pharmacist, Portugal

“Drive digitalisation forward.” – Hospital pharmacist, Germany

17. Do you have any other information about medicines shortages during the COVID-19 pandemic that you would like to share?

The additional feedback that could be provided to the free text question 17 varied. While some respondents indicated that they did not have any additional information to report, others used this question to share their concerns.

“It is very difficult when medication shortages hit. I think there is a serious lack of understanding amongst other healthcare professionals around the difficulty of obtaining medication.” – Hospital pharmacist, Ireland

“I am very happy with the collaboration between the Dutch government and the national society of hospital pharmacists that created a platform to exchange information about shortages and stocks when everyone most needed it. With frequent webinars we updated each other on the latest guidelines and practical problems and learned from each other in a very early stage.” – Hospital pharmacist, the Netherlands

“It was the lack of treatment that was the greatest challenge - nobody knew what to do, so all worked together to find a solution, so shortage wasn’t a big thing during the pandemic.” – Hospital pharmacist, Denmark

“The shortages showed the disadvantage of the previous tendencies to keep stocks as low as possible, in order to please accountancy. Safety stocks are needed for several medicines and supplies, but it is very difficult to determine which ones, because tomorrow's pandemic might differ significantly from today's.” – Hospital pharmacist, Belgium

“We must not forget the shortages of medical devices which have hampered the care of patients in intensive care. An example, respirators were delivered in masse but in the absence of the consumable, it was difficult to use them. The airway devices (masks, intubation blades, NIV masks, filters, anaesthesia circuits) were severely affected. Then it was the gloves (examinations, protection, surgery), the drapes and the gowns which were strongly affected. So, don’t forget about the devices.” – Hospital pharmacist, France

“The legal requirements to order only on the basis of the previous year's quantities were extremely obstructive. The commitment of the staff and all the extra work is not appreciated enough politically.” – Hospital pharmacist, Germany

“The shortage of medicines, which is now chronic for many active ingredients even outside the pandemic event, absorbs numerous organisational and human resources of all health workers. Since the pandemic, I would like to see the implementation of a shared approach at national and/or international level, with the aim of prioritising the resolution of the shortage and ensuring therapeutic continuity without being subject to purely commercial rules.” – Hospital pharmacist, Italy

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