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Recommendations for the safety of hospitalised patients in the context of the COVID-19 pandemic: a scoping review

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ABSTRACT

Objective To map the recommendations for hospitalised patient safety in the context of the COVID-19 pandemic.

Design Scoping review using the method recommended by the Joanna Briggs Institute.

Data sources Databases: Medline, SCOPUS, EMBASE, ScienceDirect, LILACS, CINAHL and IBECS; grey literature platform: Google Scholar; and 11 official websites of leading healthcare institutions were searched on 27 April 2021 and updated on 11 April 2022.

Eligibility criteria We included documents that present recommendations for the safety of hospitalised patients in the context of the COVID-19 pandemic, published in any language, from 2020 onwards.

Data extraction and synthesis Data extraction was performed in pairs with consensus rounds. A descriptive analysis was carried out to present the main characteristics of the articles. Qualitative data from the extraction of recommendations were analysed through content analysis.

Results One hundred and twenty-five documents were included. Most papers were identified as expert consensus (n=56, 44.8%). Forty-six recommendations were identified for the safety of hospitalised patients: 17 relating to the reorganisation of health services related to the flow of patients, the management of human and material resources and the reorganisation of the hospital environment; 11 on the approach to the airways and the prevention of the spread of aerosols; 11 related to sanitary and hygiene issues; 4 about proper use of personal protective equipment and 3 for effective communication.

Conclusions The recommendations mapped in this scoping review present the best practices produced so far and serve as a basis for planning and implementing good practices to ensure safe hospital care, during and after COVID-19. The engagement of everyone involved in the care of hospitalised patients is essential to consolidate the mapped recommendations and provide dignified, safe and quality care.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The extensive search made by the review, involving scientific databases, grey literature and official documents from reference health institutions, together with the rigorously applied method, corroborate the reliability of the data presented.
⇒ The review process was performed independently by peer reviewers, and the research team was trained to conduct scoping reviews and developed a prior research protocol, which gave greater reliability.
⇒ The primary weakness of this review is that most studies are those of the expert consensus type.
⇒ Nevertheless, as the context is that of a pandemic, both clinical practice guidelines and expert opinion are the best available evidence.
⇒ The grouping and analysis of results followed methodological rigour for qualitative data and the experience and diversity of the research team increased reliability.

BACKGROUND

COVID-19 is an infectious disease caused by a highly transmissible virus, the new SARS-CoV-2, which may develop into a severe clinical state of respiratory failure.[1–3] In March 2020, the disease was declared a global pandemic, imposing an extra burden on structures, equipment, inputs and human resources of health services, and this substantially challenged the health systems of several countries.[4 5]

The rapid and drastic changes in the care models imposed by the COVID-19 pandemic increased the workload, causing the relocation of staff and the cancellation of elective services, in addition to the treatment of a new disease. These challenging conditions impacted the performance of health teams to provide safe and quality healthcare. Studies

indicate that increased pressure at work, inadequate staff and worker fatigue are factors that contribute to poor safety. In the COVID-19 pandemic, there was evidence of change in the perception of patient safety, risks in different professional categories and a reduction in notifications of incidents[6–8]

This context highlighted the need to develop strategies and recommendations to face the pandemic. Some institutions such as WHO, the International Society for Quality in Health Care (ISQua) and the Centers for Disease Control and Prevention (CDC) have provided daily updated information, protocols and recommendations to ensure the standardisation of safe and quality care.[6] In addition to institutional publications, the scientific community has committed itself to disseminating experiences, practices and research related to hospitalised patient care in the context of the pandemic, resulting in a high number of publications on the subject. In this context, it has become important to organise the recommendations regarding patient safety. This scoping review seeks to map the recommendations for the safety of hospitalised patients in the context of the COVID-19 pandemic.

METHOD

Study design

This is a scoping review whose aims, inclusion criteria and methods were specified in advance and which had a registered protocol.[9] It was prepared using the method recommended by the Joanna Briggs Institute,[10] consisting of an exploratory review.[11]

Eligibility criteria

The research question of this study was elaborated according to the PCC mnemonic combination[12] (P: population—hospitalised patient; C: concept—recommendations for patient safety; C: context—COVID-19 pandemic), with the following guiding question:

- What are the recommendations for the safety of hospitalised patients in the context of the COVID-19 pandemic?

The refinement of the articles found was based on pre-established eligibility criteria, which were: documents that present recommendations for the safety of hospitalised patients in the context of the COVID-19 pandemic, published in any language, from 2020 onwards, of all age groups and hospital units. The practices described in the documents as imperative to ensure patient safety were considered as recommendations.

Exclusion criteria: studies that did not meet the aim or answer the question, full text unavailable in electronic media, websites/electronic portals with restricted access and research projects.

Electronic search

The search strategy was developed by the researchers with the support of a librarian with extensive experience in carrying out reviews and followed the definition of each database/portal or directory, taking place from 1 to 27 April 2021 and updated on 11 April 2022. The descriptors and keywords used were 'patient safety', 'COVID-19', 'hospitalisation', 'recommendation' and their variations. The Boolean operator AND and OR was used. The search terms and strategy are detailed in the online supplemental appendix A.

The searches from the beginning took place in the following databases: Medline Complete (PubMed), SCOPUS (Elsevier), EMBASE (Elsevier), ScienceDirect (Elsevier), LILACS (Bireme), CINAHL Complete (EBSCO), IBECS (Bireme); grey literature: Google Scholar and official websites: WHO, CDC Institute for Healthcare Improvement, ISQua, Agency for Healthcare Research and Quality, National Health Services (NHS Improvement), National Institute for Health and Care Excellence, Ministry of Health, National Health Surveillance Agency, Brazilian Society for Quality of Care and Patient Safety and Collaborating Centre for the Quality of Care and Patient Safety.

Data charting process

The exploratory reading of titles and abstracts was performed independently by peer reviewers, classifying the studies that were related to the research question and met the inclusion criteria. Disagreements were resolved by consensus between peers or by the assessment of a third reviewer if the disagreement continued. The preselected studies were then read in full to evaluate the content as to their contribution to the understanding of the studied phenomenon and subsequent data synthesis. The reference lists of articles were then consulted to discover additional studies. All research, decisions and stages were documented and archived by the lead reviewer.

In the data extraction stage, a standardised data abstraction form (online supplemental appendix B) was used. This provided the identification of the essential elements of the studies such as database, author(s), title, DOI/access link, year of publication, country, collection period, study site/institution, aims, methods (type of research, age/age group, sample size, data analysis) and results (hospital sector, patient safety recommendations). Data extraction was performed in pairs with consensus rounds.

Data analysis and synthesis of results

A descriptive analysis was performed to present the main characteristics of the articles. Qualitative data from the extraction of recommendations were analysed through content analysis, according to the framework of Bardin,[13] covering the pre-analysis, material exploration, data processing, inference and interpretation steps. The units of analysis were grouped by theme and then reviewed in pairs and consensus rounds. After the interpretations, the categories of recommendations, subcategories and the details of each recommendation were defined, through

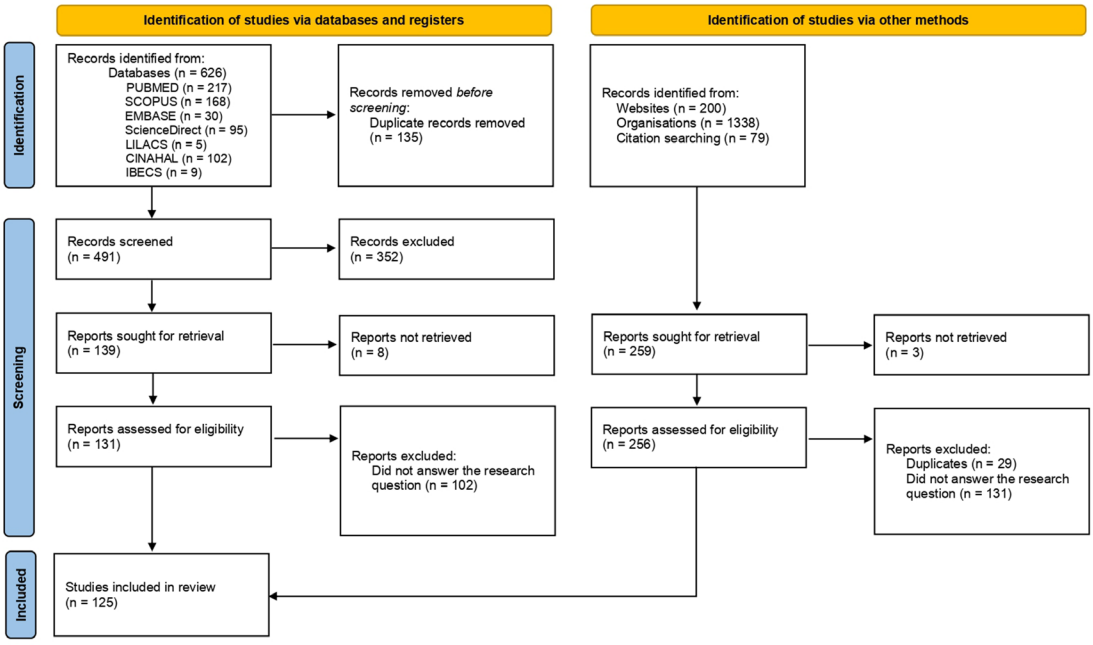

Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses study selection flow diagram.

a reflective process, seeking rigour in terms of the references of the studies.

All analyses were conducted in pairs and discussed in consensus rounds with the review group. A synoptic table with the main characteristics of the studies was elaborated for the compilation and communication of the results, aiming to present an overview of all the material. The recommendations found in the literature were categorised and illustrated.

Patient and public involvement

Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

RESULTS

One hundred and twenty-five documents were included (figure 1).[14] The online supplemental appendix C presents a summary, including the main author, year of publication, study origin, objective, method, setting, country and main recommendations presented. Most papers were identified as expert consensus (n=56, 44.8%), followed by literature review (n=35, 28.0%). Many articles described specific recommendations for performing intubation[15–19] or for certain areas, such as psychiatric services,[20–22] orthopaedics,[23] haemodynamic,[24] intrahospital transport,[25] oncology,[26 27] field hospitals,[28 29] paediatrics,[30–34] diagnostic centres,[35–37] inpatient units,[38–43] endoscopy and gastroenterology centres,[44–48] gynaecology and obstetrics,[40 49–55] emergency units,[56–60] intensive care unit[40 41 56 61–68] and the most common was the surgical centres.[48 61 69–99] Other articles made recommendations for the hospital service as a whole.[19 58 64 100–138] Most documents are from the USA (n=34, 27.2%), followed by Brazil (n=21, 16.8%) and multicentre studies (n=17, 13.6%). The documents were published in 2020 (n=76, 60.8%), 2021 (n=39, 31.2%) and 2022 (n=10, 8.0%). Table 1 summarises the main features of the items included.

Analysis of the documents revealed specific recommendations, which were later grouped into categories and subcategories. Each recommendation was built from the examined literature, and the online supplemental appendix D presents in detail the basis for the construction of each recommendation, as well as all related references. The data enabled the construction of 46 recommendations for the safety of hospitalised patients, 17 relating to the reorganisation of health services, 11 for airway management, 11 for sanitary and hygiene measures and 3 for communication management (figure 2).

The four recommendations related to personal protective equipment (PPE) have greater specificity and detail and for better visualisation are presented box 1.

Reorganisation of the health services

The reorganisation of the health services category addresses 17 recommendations related to the flow of patients, the management of human and material resources and the reorganisation of the hospital environment in order to prevent the transmission of COVID-19. It is recommended that all patients are considered suspects[47 70 80 90 91 101 128] and undergo risk stratification[20 21 23 24 27 31 32 36 39 43–47 49 53 66 70 72–74 76 81 85 91 93 100–102 108 110 119 125 126 133 135 139] with a history of clinical and epidemiological data[20 22–24 39 45–47 49 72 81 92 93 95 96 101 124–126 133–135] and a test[20 22 23 26 30 39 48–51 53 61 65 68 72 73 81 84 90 92 96 102 110 119 124 133] of RT-PCR,[23 36 47 69 72 81 87 88 91 96 119 125 126 133 134] ELISA[23 47] or nasal swab[84 95 101] at admission screening,[21 22 36 39 49–51 53 69 95 108 133] in the preoperative period,[23 26 47 48 61 69 72 87 90 95 102 124] in

referrals[31 84] and before non-emergency procedures involving airway approaches.[66 79 95]

Suspected and confirmed patients should be isolated,[20 21 23 30 32 38 40 42 43 50–54 59 60 66 69 76 78 91 96 100–102 104 108 110 119 124 126 129 133 134 139] preferably in single rooms with negative pressure.[65 67 76 79 112 117 120 123 134] If this is not possible, a minimum distance of 1 m should be maintained between beds in collective isolation.[20 32 38 40 53 120 123 128 131 139] Preference should be given to the use of disposable materials in the care of health workers[40 47 70 76 107 129] and a one-way, short and direct route for transport should be used, avoiding contact with patients without COVID-19.[23 31 32 35 38 47 56 60 69 78 89 98 115 134] In case of death, the body must be wrapped in a sheet soaked in a disinfectant solution and placed in the coffin.[101 128]

Aerosol-generating surgeries and procedures must be performed in rooms with negative pressure.[18 19 30 44 46–48 53 62 66 67 69 70 75–77 79 84 87 89 91–94 98 120 128 131 137 139] If this is not possible, for procedures it is recommended to adapt a room that has natural ventilation with open windows with bars,[18 35 56 100 110 120 137 139] high efficiency particulate air filter[44 47 73 84 89 98 112 120 137 139] and doors to other environments must be kept closed.[47 67 70 89 91 100 120 139]

Health professionals must undergo daily risk stratification[20 23 36 39 46 67 93 100 101 124–126 133] and be tested periodically.[19–21 23 34 39 73 87 91 100 125–127 133] Those who are suspected or confirmed must be removed immediately.[20 23 103 118–121 127 139]

To reduce the movement of people, hospitalisations and elective procedures should be suspended,[20 23 26 36 37 40 46 48 51 52 69 72 75 76 84 91 95 96 98 100 101 108 110 124 125 134] the number of professionals in the areas of patients with COVID-19 should be kept to a minimum[15 17 18 23 26 27 33 36 37 46–48 53 60 65 66 70 75 76 78 83–85 90 94 97–100 102 104 139] and family visits to patients should also be restricted.[20–22 32 38 40 46 48 49 52–55 68 81 96 100 101 104 108 119 129 130 135 139]

The teams must be trained[18 25 27 49 54 85 107 125 126 128] regarding: measures to avoid self-contamination[21 23 46 101 120]; hand hygiene[17 20 29 46 101 102 126 128]; cleaning of environments,[29 35 126] equipment,[29 35 65 126] furniture and materials[29 35] and waste management.[18 29]

Contaminated equipment and materials must be transported along a one-way route.[25 45 60 66 67 85 101 128]

Airway management

Eleven recommendations were created regarding the approach to the airways and the prevention of the spread of aerosols. Airway management should be performed early in clinically deteriorating patients,[25 31 40 58 64 67 76 111 117] avoiding emergency procedures.[15 18 31 67 111] Intubation must be carried out soon after,[16 31 94 107 111 118] and airway and upper trunk interventions (thoracotomy, endoscopy) must be performed by the most experienced professional.[15–18 31 40 58 63 65 66 83 84 89 94 97 118 124 129 135]

To prevent the spread of aerosols, it is recommended to avoid manual ventilation with the airway maintenance breathing unit,[16 65 80 94] nebulisation therapies[56 101] and non-invasive ventilation.[16 70 91 107 129] As some of these

Table 1 Main characteristics of included papers

Paper characteristic	Categories	Results	
		N	(%)
Year of publication	2020	76	60.8
	2021	39	31.2
	2022	10	8.0
Paper source	Citation searching	26	20.8
	Database	29	23.2
	Website (Google Scholar)	31	24.8
	Organisations	39	31.2
Country of origin	USA	34	27.2
	Brazil	21	16.8
	Multicentre	17	13.6
	Italy	8	6.4
	Switzerland	8	6.4
	UK	8	6.4
	China	5	4.0
	Canada	4	3.2
	Singapore	3	2.4
	Spain	3	2.4
	India	2	1.6
	The Netherlands	2	1.6
	Poland	2	1.6
	Others	8	6.4
Method	Consensus of specialists	56	44.8
	Literature review	35	28.0
	Technical note	18	14.4
	Opinion of professional	7	5.6
	Commentary	6	4.8
	Guidelines	6	4.8
	Editorial	2	1.6
	Letter to the editor	2	1.6
	Case report	1	0.8
Hospital setting	Hospital health services	42	33.6
	Surgical centre	33	26.4
	Intensive care unit	11	8.8
	Gynaecology and obstetrics	8	6.4
	Inpatient unit	6	4.8
	Emergency unit	5	4.0
	Endoscopy and gastroenterology centres	5	4.0
	Paediatric	5	4.0
	Tracheal intubation	5	4.0
	Diagnostic centre	3	2.4
	Psychiatry	3	2.4
	Field hospitals	2	1.6
	Oncology	2	1.6
	Haemodynamic	1	0.8
	Intrahospital transport	1	0.8
	Orthopaedics	1	0.8

Continued

Table 1 Continued

The sum of the methods exceeds 125 as some studies cited more than one method, the most common being a literature review and expert consensus. All types of reviews were classified solely as a literature review. The sum of scenarios exceeds 125 as some documents directed their recommendations to more than one hospital sector. Documents that cited different sectors or did not specify which sectors the recommendations would be applied to, were classified as hospital health services.

procedures are essential, closed systems,[31 65 91 111 117 123] disposable[47 70] and with filter[17 23 31 56 87 92 98 110 118 120] must be used, and are only performed in an environment with negative pressure.[18 48 58 69 71 75 84 85 97 98 100 118] The patient must be sedated for intubation, bronchoscopy and tracheostomy placement.[17 47 56 65 84 85 94 97 114 118 124] Extubation and aspiration should be conducted with strategies to minimise coughing.[47 76 77 80 91 110 117 118]

Sanitary and hygiene measures

The 11 recommendations related to sanitary and hygiene issues propose that professionals keep their nails short, avoid wearing rings, bracelets, watches and other adornments[37 40 44 58 102 127 137 139]; wear private clothing in the hospital environment[93 110] and take a complete shower after removing the PPE and before putting on clean clothing.[47 70 93 110 111] Patients should clean their skin with soap and water[102 110] and pack their personal clothes in sealed bags.[47 70 102] Everyone (patients, accompanying persons and professionals) must wash their hands frequently, with standard technique, using alcohol products when they are visibly clean or soap and water when they are dirty.[16 20 22 24 28 32–34 38–40 44 47 48 51 55 56 58 59 63 65 73 74 78 80 94 96 99–102 104 105 107 109 112 115 119–124 129–132 135 138 139]

It is recommended that the environment and surfaces are disinfected twice a day and after each aerosol-generating procedure,[21–23 54–56 59 76 77 96 105 107 117 121–123 129 131–134 138 139] and terminal cleaning at each patient rotation.[35 44 51 54 89 98 126 128 137 139] Equipment must be cleaned after each use[35 40 46 52 74 76 77 105 107 129 132 134 139] and disinfected or sterilised between one patient and another, in the case of shared equipment.[52 69 99 100 123 126 128] To clean and disinfect the environment and equipment, use soap and water[40] or disinfectants containing a quaternary ammonium compound,[49 139] 70% ethyl alcohol,[15 18 20 28 30 31 37 39 40 44 47 49 51 56 57 78 89 97 100 104 105 108 110 118 129 132 134 139] sodium hypochlorite between 0.5% and 1%[15 18 28 30 31 39 40 44 47 51 55 57 78 89 97 100 104 108 110 118 132 134 139] or chlorine between 1% and 5%[20 137]; and sterilise N95 respirators with hydrogen peroxide or ultraviolet-C.[82 100] Hospital clothing should be washed with hot water (60°C–90°C) and soap or a textile decontaminant.[102]

Personal protective equipment management

Four recommendations related to PPE were created, but each one of them has specific consequences. Health professionals should use PPE properly, following institutional and regulatory agency guidelines.[15–18 20–23 25 26 30–33 35 36 38 41 42 44–48 50–53 56–58 60–69 71 72 74–79 82–92 94 96–98 100–102 104–112 115 117 118 120–125 127–129 131–137 139] Forecasting and provision must be made for the supply of sufficient quantity and to avoid shortages.[21 24 25 39 42 67 72 99 101 108 112 115 119 125]

All workers must wear a surgical mask in the hospital environment.[23 30 32–34 51–55 57 60 64 69 72–76 80 81 86 89 93 96 102 107 108 112 115 120–124 127–129 133 135–137 139] In the care of suspected or confirmed patients, health professionals must be properly dressed with: respiratory protection masks with a minimum efficiency of 95% in the filtration of particles up to 0.3 µm[15–17 22 23 25 30–33 43 44 46 47 50–53 55–58 61 64 65 69 71–74 76 78 80 82–87 89–91 93 96 97 99 100 102 105 107 108 111 115 118 124–129 134–137 139]; powered air purifying respirator[15 16 25 43 45 58 61 64 65 69 71 74 76 80 84 85 89 90 102 111 115]; disposable head protector[16 17 31 44 47 56 72 76 78 80 87 91 97 100 102 108 112 115 118 125 126 129 139]; long gowns and coveralls, with long, waterproof sleeves[15–17 22 23 30–33 43 44 47 51–53 56 58 60 65 69 71 72 74 78 80 82 84 86 87 91 93 94 96 97 100 102 107 111 112 115 118 121–126 128 129 132 133 135 136 139]; disposable gloves[16–18 22 23 30–33 44 47 51–53 56 60 61 69 71 74 76 82 84 86 87 91 93 96 100 102 107 108 111 112 115 118 120–126 128 129 132 133 136 139]; double gloves[15 16 18 31 43 47 58 61 65 69 74 78 80 84 87 94 97 102 112 118 124 135]; face shield[15–17 31 32 44 46 47 52 53 56 64 69 73 78 83 84 86 87 97 100 102 107 111 115 118 129 135 139]; goggles/eye protection[15 16 22 23 30–33 43 44 46 47 51–53 56 64 71–74 76 78 80 82 84 86 87 89 91 93 96 97 100 102 107 111 112 115 118 120–126 128 129 136]; waterproof shoes, boots or wellies[31 33 79 91 113–116 134] and disposable and waterproof protector for shoes,[16 31 43 47 56 70 72 86 111] in aerosol-generating procedures,[15 17 18 22 23 26 32 35 36 41 44–48 50 51 53 56 58 61 64–66 69 71 73–75 77–80 83–87 89 90 92 97–99 101 102 104–111 115 117 118 120–123 126 129 135 136] transport[17 18 20 25 35 44 45 47 78 80 84 87 89 101 106 109 115 117 133] and in operating rooms.[15 18 26 32 45–48 50–53 61 69 75 77 78 80 83 84 87 97–99 104 105 110 112 115 117 134] Professionals must be trained in the proper management of PPE,[17 18 21 24 25 28 29 31 32 34–38 40 42 44 46 49 51 54 69 76 78 96 100–102 107 108 119 124 132–134 139] including placement and removal in the proper sequence.[17 18 21 38 47 58 59 65 67 70–72 78 94 96 99 118]

Patients and accompanying persons should be instructed in the proper use of PPE.[19 20 24 25 30–32 34–36 44–46 49 51–53 56 64 71 73–75 78 84 87–91 96 100–102 108 115 124 134 139] All patients (patients without COVID-19, and those who are suspected and confirmed for COVID-19) must wear a surgical mask over the face, tracheostomy tube, ventilation face mask, nasal catheter and prongs.[19–25 30–32 34–36 44–46 51–53 56 64 66 71–75 78 84 87 89–91 93 96 97 100–102 108 115 119 124 127 130 134 135 137 139]

Communication management

For effective communication, three recommendations were made. Guidelines and information on care processes[20 28 46 87 101 128 131] should be developed and disseminated through effective communication strategies[15 17 20 22 26 28 35 49 51 69–71 75 92 103 108 114 116 134] and virtual technological tools.[20 26 30 37 39 58 85 90 101 103 106 116 134] Open communication must be guaranteed to alleviate mental suffering for patients and workers.[101]

DISCUSSION

Overall, studies have shown that to ensure hospitalised patient safety in the context of the COVID-19 pandemic, it is recommended that hospitals reorganise the hospital

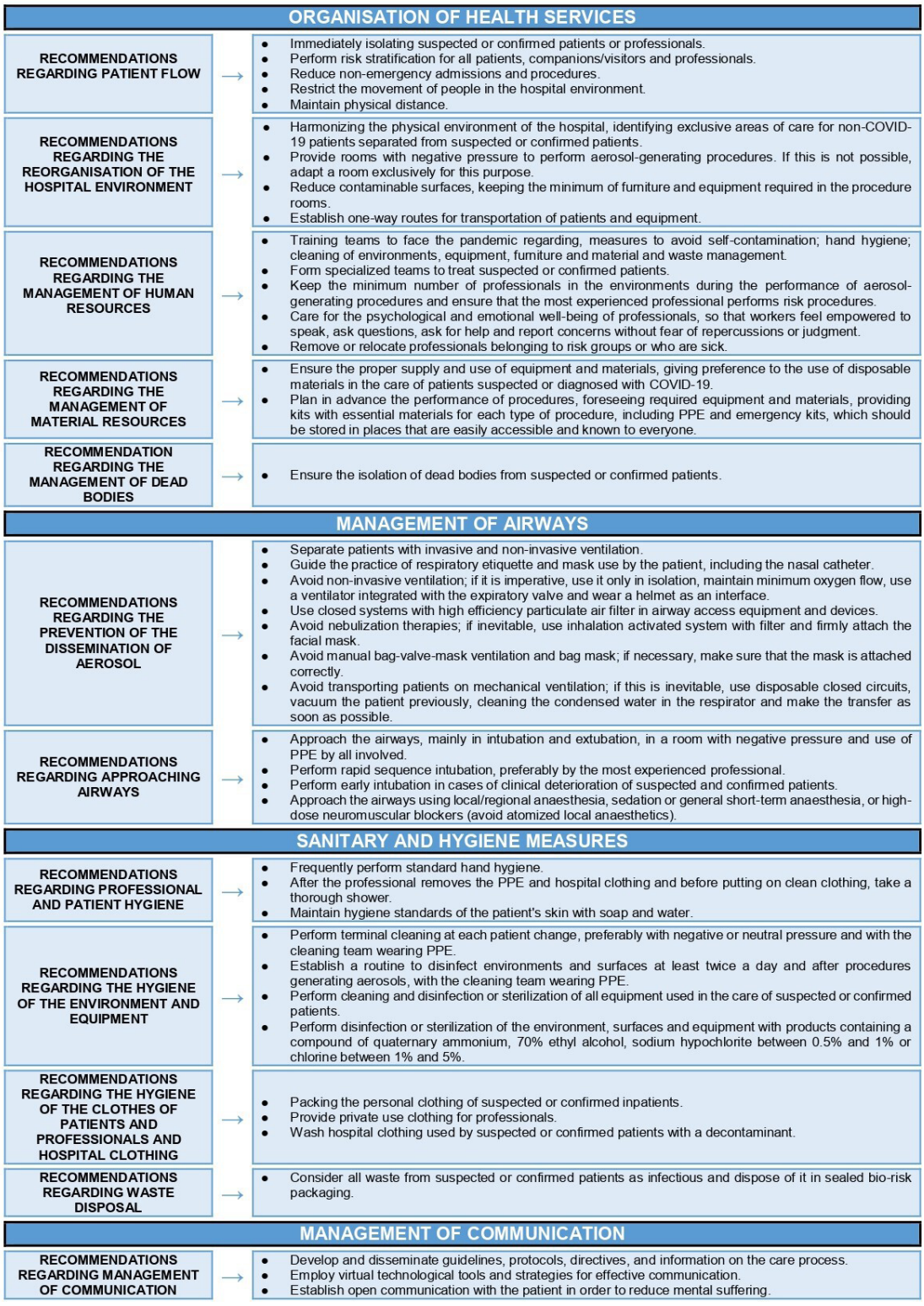

Figure 2 Recommendations for the safety of hospitalised patients.

environment and patient flow and replan the management of human and material resources and of dead bodies. The approach and management of the airways must be carried out in a way so as to prevent the spread of aerosols. Intubation must be performed in rapid sequence, preferably by the most experienced professional, and patients with invasive and non-invasive ventilation must be separated. Sanitary and hygiene measures must be taken by patients, accompanying persons, professionals and institutions, and the main measure is the correct and frequent washing of hands. Forecast, provision and management of PPE is necessary, and the team, patients and family members must be trained in its use. Finally, guidelines and protocols with information on fighting

Box 1 Personal protective equipment (PPE) management recommendations

- ⇒ Manage forecast and provision of PPE.
- ⇒ Train the team, patients and family members to wear PPE.
- ⇒ Management of PPE by professionals:
  - ⇒ Correct use of PPE, following institutional and regulatory agency guidelines:
    - ⇒ Masks;
    - ⇒ Respiratory protection mask (particulate respirator), tested for fit, with a minimum efficiency in the filtration of 95% of particles up to 0.3 µm must be worn during surgeries, transport and in the execution of aerosol-generating procedures in suspected or confirmed patients;
    - ⇒ Surgical mask must be routinely worn in the hospital environment;
    - ⇒ Disposable head protector must be worn for performing aerosol-generating procedures and during transport and surgery of suspected or confirmed patients;
    - ⇒ Long gowns and coveralls, with long waterproof sleeves routinely worn in the care of the suspected or confirmed patient are strongly recommended in the performance of surgeries, aerosol-generating procedures and cardiopulmonary resuscitation;
    - ⇒ Disposable gloves must be routinely worn in the direct care of hospitalised patients;
    - ⇒ Face shields routinely worn in the care of suspected or confirmed patients are strongly recommended in aerosol-generating procedures, transport and in the operating room;
    - ⇒ Eye protection/protection goggles routinely worn in the care of suspected or confirmed patients are strongly recommended in aerosol-generating procedures, transport and in the operating room;
    - ⇒ Shoes, boots or overshoes resistant to fluids and easy to routinely decontaminate in the care of suspected or confirmed patients are strongly recommended in procedures that generate aerosols, transport and in the operating room.
  - ⇒ Follow the PPE wearing process, under the supervision of an experienced professional, in the following order: disposable hair cover, N95 respirator tested for adjustment, fluid-resistant gown, two layers of gloves, protection goggles and face shield, fluid-resistant shoe covers.
  - ⇒ Remove PPE in the following order: sanitise hands and remove face shield, protection goggles, fluid-resistant apron, outer gloves, shoe covers and inner gloves; then sanitise hands again and remove the N95 mask and hair cover under the supervision of an experienced professional. Dispose of everything in the recommended place.
- ⇒ Perform the management of PPE by patients and visitors/companions:
  - ⇒ Provide PPE to patients and visitors/companions and instruct them on its correct use.
  - ⇒ All patients (not COVID-19, suspected and confirmed) must wear a surgical mask over the face, tracheostomy tube, ventilation face mask, nasal catheter and prongs.
  - ⇒ Suspected and confirmed patients must wear N95 mask or similar.
  - ⇒ Visitors of patients with COVID-19 should wear a surgical mask, disposable gowns and coveralls and gloves.

the pandemic, with effective strategies for patients and professionals must be developed and disseminated.

The global presence of COVID-19 and the way in which it is transmitted highlight the need for the involvement and rapid responses of individuals and communities in the prevention and control of the pandemic.[140] It is clear that efforts have been made to involve patients and accompanying persons in order to achieve safe care, and this has been seen as one of the factors with the greatest positive impact on the patient's experience. This positive experience, in turn, results in increased patient safety and improves their perception of quality in healthcare.[141 142]

To ensure safe patient care during the pandemic, institutions and frontline professionals needed to quickly adjust to the sudden increase in the number of critically ill patients and the shortage of skilled labour.[143] At the beginning of the pandemic, there was also a shortage of PPE due to high demand, and administrative improvements were highlighted as essential to ensure the supply, distribution and training of health professionals and patients.[24 25 39 101 108 131] A study carried out in Ecuador, Brazil and Colombia identified serious deficiencies in PPE, insufficient training in relation to the prevention of infections and use of PPE and a lack of isolation protocols for health professionals.[144]

To meet the demand, health professionals endured unprecedented pressure. In addition to undergoing long working hours and many hours of training, they faced the fear of becoming infected and/or bringing infection to their families, concern about their own skills and patient safety and the loss of professional colleagues.[143 145 146]

Currently, even with demand regulated and vaccination reaching all continents, the efficient management of the pandemic is still essential. To face similar contexts, hospitals need to devise strategies to increase their capacity for care and, quickly adapt human resources.[147]

The recommendations presented in this review summarise the best practices produced up until now. The thorough search made by the review, involving scientific databases, grey literature and official documents from reference health institutions, together with the rigorously applied method, corroborate the reliability of the data presented and the applicability of the recommendations in the intrahospital context, in the COVID-19 pandemic and in any respiratory epidemic. The review process was performed independently by peer reviewers, and the research team was trained to conduct scoping reviews and developed a prior research protocol.

The primary weakness of this review is that most studies are those of the expert consensus type. Nevertheless, as the context is that of a pandemic, both clinical practice guidelines and expert opinion are the best available evidence. Many studies describing practices and procedures emerged in the research but were excluded because the research question sought recommendations for patient safety. As the qualitative grouping of the data analysis is a subjective process, there may have been some suppression of information. The predominance

of documents of the expert consensus type, analysed in this scoping review, demonstrates the emerging nature of the issue as it is essential to act urgently in order to control the COVID-19 pandemic.[148] This scoping review is the initial step in mapping out recommendations for hospitalised patient safety, and there is a need for further research and an assessment of the effectiveness of these recommendations.

Given the possibility that we will be living together with SARS-CoV-2 and its variants, there is a need to carry out risk management, maintaining the recommendations of safe practices both for reducing transmission to patients and for the protection of health professionals. In this sense, the recommendations mapped in this scoping review serve as a basis for planning and implementing good practices to ensure safe hospital care, during and after COVID-19.

CONCLUSION

Forty-six recommendations for the provision of safe care to hospitalised patients, with regard to the scenario of the current pandemic have been described in this scoping review. Strategies for change in the organisation of health services to assist infected people have been highlighted, mainly focusing on the proper use of PPE and airway management, practices that have been consolidated throughout the pandemic and which will be reflected in other possible similar future situations. The engagement of everyone involved in the care of hospitalised patients is essential to consolidate the mapped recommendations and provide dignified, safe and quality care.

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