



**Health  
Information  
and Quality  
Authority**

An tÚdarás Um Fhaisnéis  
agus Cáilíocht Sláinte

# **Protocol: Identification of guidance for pre-hospital emergency services and patient transport services in the context of COVID-19 and beyond**

**8 September 2020**

<b>Version</b>	1.5
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<b>Revision Record</b>	
<b>Revision Date</b>	<b>Description of change</b>
04.06.2020	<p>Included description of how the review will approach topics within the PIC (Appendix 1) considered to be of lower priority interest following stakeholder feedback; changes made to section 2.4 and to Appendix 1.</p> <p>Following stakeholder feedback, clarified topics within "Context" section of PIC (Appendix 1).</p> <p>Following stakeholder feedback, included two additional websites of interest in Appendix Table App 2.3.</p>
05.06.2020	<p>Changed text in Appendix 2, Search Strategies, Grey Literature Search Approach, Point 1, from "National Ministries of Health" to "National health and emergency service authorities".</p>
09.06.2020	<p>Title and question wording changed from 'pre-hospital emergency and intermediate care' to 'pre-hospital emergency services and patient transport services'.</p> <p>'Non-authoritative guidance' changed to 'Non-authoritative recommendations or "lessons learned"'. </p> <p>Added explanation in sections 2.3 and 2.4 where documents describe measures but do not explicitly include guidance or recommendations; such measures will be included in a Results table but not extracted in full.</p> <p>Removed statement that no date restrictions will be applied. Added statement explaining that documents will only be included where full text is available. Clarified language regarding screening and inclusion of documents unavailable in English.</p>
18.06.2020	<p>Section 1: Removed 'quality assessment' step from process.</p> <p>Section 2.1: Updated to clarify categories of documents to be identified and described</p> <p>Section 2.4: Updated to reflect amended data extraction method.</p> <p>Section 2.6: Updated to include delivery of data extraction tables, in Microsoft Excel format, with report.</p> <p>Table App 2.5: Added to explain final article inclusion criteria.</p> <p>Appendix 3: 'Data Extraction templates' amended to reflect update to data extraction method.</p>
01.09.2020	<p>Addition of Appendix 4. 'Addendum to protocol: Review of guidance for the operation of emergency medical dispatch centres.'</p>

## **Purpose and Aim**

The purpose of this protocol is to outline the process by which the health technology assessment (HTA) team will identify relevant guidance to support the Acute Hospitals Preparedness Sub-Group of the National Public Health Emergency Team (NPHET) in their response to COVID-19. The HTA team will perform a review based on the specific research question (RQ) outlined.

### **1. Process outline**

A standardised approach to the process has been developed and documented to allow for transparency and to aid in project management. Five distinct steps have been identified in the process for completion. These are listed below and described in more detail in sections 2.1-2.5.

1. Identify document types of interest.
2. Search relevant sources.
3. Screening of identified documents.
4. Data extraction of included material.
5. Summarising of findings and delivery to relevant contacts.

### **2. Review process**

This review will address the following question:

What guidance is available for the conduct of pre-hospital emergency services and patient transport services in the context of COVID-19 and beyond?

This research question was formulated using the PIC (population, interest, context) framework as detailed in Appendix 1.

#### **2.1 Document types to identify**

The search process will aim to identify both authoritative guidance based on the context of COVID-19 and non-authoritative recommendations or lessons learned based on the context of COVID-19 and or other epidemics/pandemics including MERS, SARS and H1N1. These forms of guidance are defined for the purposes of this review as follows:

##### **Document Categories:**

1. Authoritative guidance based on the context of COVID-19

“Authoritative guidance” will comprise guidance from the following sources:

- National-level guidance, or where appropriate, regional-level guidance, from official sources, for example:
    - Ministries/Departments of Health, National-level bodies with responsibility for providing emergency services or patient transport services (e.g. US Fire Administration, National Highway Traffic Safety Administration Office of Emergency Medical Services)
  - Professional and or civil associations representing emergency medical services, patient transport services, and or service personnel (e.g., European Emergency Number Association).
2. Non-authoritative recommendations or lessons learned based on the context of COVID-19, MERS, SARS, H1N1, or a combination of such epidemics or pandemics.

Non-authoritative recommendations or “lessons learned” will be identified from published manuscripts comprising reports or review documents which include a significant focus on providing recommendations or describing lessons learned from the context of COVID-19 and or other relevant epidemics or pandemics. Non-authoritative sources may include authors not representing an official association or authority, but providing guidance based on departmental or institutional experience in emergency medical services or patient transport services.

3. Other: Descriptions of approaches or measures introduced in the context of COVID-19, MERS, SARS, H1N1, or a combination of such epidemics or pandemics

The search approach will primarily aim to identify documents within categories 1 or 2. However, documents are identified which describe approaches or measures introduced in the context of relevant epidemic or pandemic settings, but which do not comprise guidance as per categories 1 or 2, these will be reported under this third category. Documents within this category will be briefly described within the report.

## **2.2 Search approach**

A grey literature search will be used to retrieve relevant documents which represent authoritative guidance. This will be supplemented by a search in bibliographic databases: Embase, Pubmed and the Cochrane Library, which will also be used to identify non-authoritative guidance as above. Preprint servers will also be specifically searched: MedRxiv, and EuropePMC. The detailed search strategy is presented in Appendix 2.

## **2.3 Screening of identified documents**

All potentially eligible documents identified in the search will be screened against the PIC (Appendix 1) and Table App 2.5: Results to be included in review.

Documents identified through searching of databases will be exported to Endnote. Documents will only be included where full texts are available. No language or date restrictions will be applied. Where websites or documents are not readily available in English, titles will be screened for relevant keywords using the language of the document; full page translations will not be performed at screening stage. Where documents are considered for inclusion in the report they will be translated via Google Translate; this translation will be noted as a potential caveat.

## **2.4 Data extraction of included documents**

Data extraction templates are detailed in Appendix 3. Within each of the three document categories, each identified document will be assigned a Document ID and data will be extracted under the following general column headings; Authoritative/Non-Authoritative, Document source, Pandemic setting, Organisation, Country, Website/Journal, URL, Publication date, Title, Main setting, and Primary topic. Specific column headings for Category 1 and Category 2 documents will include the following three overarching areas of interest and topics:

- (i) Patient care measures (for example, treatment of patients, personal protective equipment (PPE), infection control measures during patient interaction);
- (ii) Interaction with the healthcare system (for example, transfers to and between hospitals, interactions with GP services, transfers to and from residential care settings);
- (iii) Service enablers (for example, training approaches, information and communication technology (ICT), remote care, arrangements for non-clinical staff and call centres, fleet design).

For document categories 1 and 2, for each of the three overarching areas of interest and topics within, measures will be identified from each document and summarised in tabular form. Where documents refer to these topics, a '1' will be inserted in the corresponding Microsoft Excel cell. Where measures identified are considered to be of interest, but do not fall under the topics above, they will be categorised under a column labelled "Other" (see PIC, Appendix 1). Text will be extracted from the documents, and inserted as a comment to the cell, where it is considered to represent an approach that appears particularly strategic in nature or focused on

medium to long-term operational planning, or where it provides guidance beyond general statements of recommendation on the use of PPE, regular disinfection or similar measures.

Where documents are identified in which measures are described, but where explicit guidance or recommendations are not provided (Category 3), such measures will be included in a separate table as additional information. One additional column heading will be included for Category 3 documents labelled "Detail". Relevant text from each document will be inserted in the corresponding cells.

## **2.5 Summarise findings and send to relevant contact**

A high-level descriptive overview of the identified guidance will be compiled and sent to the relevant parties in pdf format. Additionally the data extraction tables will be provided in a Microsoft Excel file in spreadsheet format, to allow for sorting by document characteristics such as date, organisation, country and topic. A PRISMA flow chart will not be presented.

## **3. Quality assurance process**

The review question will be led by an experienced member of the team. Three team members in total will perform the review. This will permit double checking of documents and data included in the review, and confirmation that the summary accurately reflects the body of literature, while providing cover in the event of illness. All summaries and reviews will be further reviewed by two senior members of the team, to ensure processes are followed and quality maintained; this will also enable cover to be maintained.

## **4. Review and Update**

Given the rapidly changing environment this protocol will be regarded as a live document and amended when required to ensure it reflects any additional research question added, and any changes made to the outlined processes.

## Appendix 1- Population, Interest and Context (PIC)

**RQ:** What guidance is available for the conduct of pre-hospital emergency services and patient transport services in the context of COVID-19 and beyond?

**Table App1.1: Population, Interest and Context – Guidance for the conduct of pre-hospital emergency services and patient transport services in the context of COVID-19 and beyond**

<b>Population</b>	General population (adults and children) who require pre-hospital emergency care and patient transport (i.e., inter-hospital and inter-facility transfer) provided via an official emergency medical service.
<b>Interest</b>	<p>Guidance, pathways, recommendations or specific measures (i.e., approaches/actions) to inform emergency care, and or intermediate care, provided via an official emergency medical service, in the context of COVID-19, the ongoing management of this context, and future preparedness planning.</p> <p>Guidance is to be considered under the following three overarching areas of interest:</p> <ul style="list-style-type: none"> <li>- Patient care measures in the context of COVID-19</li> <li>- Interaction and interfaces with the healthcare system</li> <li>- Service enablers</li> </ul> <p>Particular topics to consider under these headings may include:</p> <p><i>Patient care measures in the context of COVID-19:</i></p> <ul style="list-style-type: none"> <li>- Triage approaches (including telephone triage); prioritisation of care</li> <li>- Remote care</li> <li>- PPE and infection control measures <ul style="list-style-type: none"> <li>o Decontamination, disposal of biohazardous waste</li> <li>o Ambulance staff screening and or testing for SARS-CoV-2</li> </ul> </li> <li>- Approaches involving the treatment of patients: <ul style="list-style-type: none"> <li>o Precautions for aerosol-generating procedures</li> <li>o New care responses to COVID-19, e.g. assistance with home oxygen therapy</li> </ul> </li> </ul> <p><i>Interaction and interfaces with the healthcare system</i></p> <ul style="list-style-type: none"> <li>- Transfers to and between hospitals</li> <li>- Interactions with GP or other primary care services</li> <li>- Transfers to and from residential care settings</li> <li>- Separate COVID-19 care and non-COVID-19 care pathways/streams, including bypass protocols for diversion of patients to designated hospitals.</li> </ul>



	<p><i>Service enablers</i></p> <ul style="list-style-type: none"> <li>- Governance and communication plans</li> <li>- Approaches to staffing and training, including guidance relating to vaccination and testing of staff.</li> <li>- Information and communication technology (ICT) redesign</li> <li>- Arrangements for non-clinical staff and call centres</li> <li>- Fleet design</li> </ul> <p>Additional guidance may not fall under the above three overarching areas of interest and may include:</p> <ul style="list-style-type: none"> <li>- Resource implications</li> <li>- Cost-effectiveness</li> <li>- Audit, monitoring</li> </ul> <p>Following stakeholder consultation, the following topics were considered to be of lesser interest to this review.</p> <ul style="list-style-type: none"> <li>- Pre-screening and or testing of patients for SARS-CoV-2</li> <li>- Contact tracing following presumed exposure</li> <li>- Provision of a COVID-19 testing service</li> <li>- Physical distancing approaches</li> <li>- Guidance for community paramedicine (including clinics delivered via telehealth)</li> </ul>
<b>Context</b>	<p>Considering both COVID-19-related and non-COVID-19 care contexts, specific care contexts for consideration may include:</p> <ul style="list-style-type: none"> <li>▪ Telephone triage</li> <li>▪ First response (as understood within the Irish context, that is, community first responder volunteers dispatched by the National Ambulance Service)</li> <li>▪ Pre-hospital emergency care</li> <li>▪ Helicopter emergency medical services (HEMS)</li> <li>▪ Emergency transfer to acute care settings including inter-hospital transfers, handover</li> <li>▪ Non-emergency transfers (e.g. inter-hospital transfers, transfers to home or residential care settings)</li> </ul>
<b>Document type</b>	<p>1. Authoritative guidance based on the COVID-19 context</p> <p>“Authoritative guidance” will comprise guidance from the following sources:</p> <ul style="list-style-type: none"> <li>- National-level guidance from official sources, for example:             <ul style="list-style-type: none"> <li>○ Ministries/Departments of Health, National-level bodies with responsibility for providing emergency services (e.g. US Fire Administration, National Highway Traffic</li> </ul> </li> </ul>

	<p>Safety Administration Office of Emergency Medical Services)</p> <ul style="list-style-type: none"><li>○ Where regional-level guidance is identified through searching, it will be included only where it provides information not already included within national-level guidance and within the time limitations of this review.</li></ul> <p>- Professional and or civil associations representing emergency medical services and or service personnel (e.g. European Emergency Number Association).</p> <p>2. Non-authoritative recommendations or “lessons learned” from within the context of respiratory virus pandemics or epidemics including SARS-CoV-2, MERS, SARS, H1N1, or a combination of such pandemics.</p> <p>Non-authoritative recommendations or “lessons learned” will represent reports or reviews from non-authoritative sources with a significant focus on providing recommendations or describing lessons learned from the context of COVID-19 and or other pandemics. Non-authoritative guidance may include published manuscripts by authors not representing an official association or authority, but providing guidance based on departmental or institutional experience in emergency medical services.</p>
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## **Appendix 2 - Search Strategies**

### **Grey literature search approach for identifying examples of guidance:**

1. National health and emergency service authorities:
  - a. Search the top 30 ranked countries in the 2019 Human Development Index, available at <http://hdr.undp.org/en/content/2019-human-development-index-ranking> and listed in Table App 2.1.
  - b. Search state/regional-level ministries where appropriate within limits of practicality for the timelines of this review.
2. Public health agencies specified in the HIQA "Protocol for the identification and review of new and updated public health guidance – Covid-19" (version 3.0) excluding Ministries of Health included in "1":
  - a. World Health Organization (WHO)
  - b. European Centre for Disease Prevention and Control (ECDC)
  - c. Centers for Disease Control and Prevention (CDC)
  - d. Public Health England
  - e. Health Protection Scotland
  - f. Health and Social Care Northern Ireland
  - g. Australian Government Department of Health
  - h. Government of Canada
  - i. Ministry of Health New Zealand
  - j. Switzerland Federal Office of Public Health
  - k. Norwegian Institute of Public Health
  - l. Ministry of Public Health Singapore
3. List of guideline repositories, guideline developer websites and specific clinical specialty websites previously identified internally as appropriate for the identification of clinical guidelines, see Table App 2.2.
4. Specific emergency medical services, pre-hospital, intermediate care, and other relevant bodies initially identified, see Table App 2.3.
5. EPPICentre Covid-19 "Living Systematic Map of the Evidence". Search "Organisation – case study" field within evidence map for documents relating to pathways, guidance, recommendations and lesson learned.
6. WHO daily updated database of global scientific findings and knowledge on COVID-19. Search title, subject and abstract for "pathway", "guidance", "recommend", "lessons learned" and for each of the following strings: "ambulance", "paramedic", "first respon", "emergency medical services", "EMS", "rescue squad", "prehospital", "pre-hospital", "patient transport", "patient transfer", "medical transfer", "medical transport".
7. First five pages of Google and Google Scholar searches using the following search phrases: "Prehospital care COVID19", "Emergency medical services COVID19"- hits from the first five pages will be reviewed.

**Table App2.1: List of top 30 ranked countries in the 2019 Human Development Index**

<b>Rank</b>	<b>Country</b>
1	Norway
2	Switzerland
3	Ireland
4	Germany
4	Hong Kong, China (SAR)
6	Australia
6	Iceland
8	Sweden
9	Singapore
10	Netherlands
11	Denmark
12	Finland
13	Canada
14	New Zealand
15	United Kingdom
15	United States
17	Belgium
18	Liechtenstein
19	Japan
20	Austria
21	Luxembourg
22	Israel
22	Korea (Republic of)
24	Slovenia
25	Spain
26	Czechia
26	France
28	Malta
29	Italy
30	Estonia

**Table App2.2: List of guideline repositories and guideline developer websites**

National Institute for Health and Care Excellence (NICE)	<a href="https://www.nice.org.uk/guidance">https://www.nice.org.uk/guidance</a>
NHS Evidence (incorporating Scottish Intercollegiate Guidelines Network (SIGN) & Guidelines International Network (GIN))	<a href="http://www.evidence.nhs.uk">www.evidence.nhs.uk</a>
Institute for Clinical Systems Improvement (ICSI)	<a href="https://www.icsi.org/">https://www.icsi.org/</a>
Food and Drug Administration	<a href="https://www.fda.gov/">https://www.fda.gov/</a>
New Zealand Guidelines Group	<a href="https://www.health.govt.nz/about-ministry/ministry-health-websites/new-zealand-guidelines-group">https://www.health.govt.nz/about-ministry/ministry-health-websites/new-zealand-guidelines-group</a>
National Health and Medical Research Council (NHMRC) Australian Clinical Guidelines	<a href="http://www.clinicalguidelines.gov.au">www.clinicalguidelines.gov.au</a>
Canadian Agency for Drugs and Technology in Health (CADTH)	<a href="http://www.cadth.ca">http://www.cadth.ca</a>
Canadian Medical Association Infobase	<a href="https://www.cma.ca/En/Pages/clinical-practice-guidelines.aspx">https://www.cma.ca/En/Pages/clinical-practice-guidelines.aspx</a>
Haute Autorité de santé (HAS)	<a href="https://www.has-sante.fr/jcms/p_3135026/en/search-for-a-guideline-an-assesment">https://www.has-sante.fr/jcms/p_3135026/en/search-for-a-guideline-an-assesment</a>
Finnish Medical Society Duodecim	<a href="http://www.kaypahoito.fi">http://www.kaypahoito.fi</a>
World Health Organization	<a href="http://www.who.int/en">www.who.int/en</a>
Australian National Health and Medical Research Council Clinical Practice	<a href="https://nhmrc.gov.au/about-us/publications">https://nhmrc.gov.au/about-us/publications</a>
Institute for Healthcare Improvement (IHI)	<a href="http://www.ihl.org/">http://www.ihl.org/</a>
Japan Council for Quality Health Care	<a href="https://jqhqc.or.jp/en/">https://jqhqc.or.jp/en/</a>
Danish Health Authority – National Clinical Guidelines	<a href="https://www.sst.dk/en/">https://www.sst.dk/en/</a>
Singapore Ministry of Health	<a href="https://www.moh.gov.sg/">https://www.moh.gov.sg/</a>
Socialstyrelsen (Health and Medical Care and Social Services, Sweden)	<a href="https://www.socialstyrelsen.se/english">https://www.socialstyrelsen.se/english</a>
The Finnish Medical Society Duodecim	<a href="https://www.duodecim.fi/english/">https://www.duodecim.fi/english/</a>
Geneva Foundation for Medical Education and Research	<a href="https://www.gfmer.ch/000_Homepage_En.htm">https://www.gfmer.ch/000_Homepage_En.htm</a>
Belgian Health Care Knowledge Centre	<a href="https://kce.fgov.be/">https://kce.fgov.be/</a>
AETSA (Andalusian Agency for Health Technology Assessment)	<a href="http://www.aetsa.org/">http://www.aetsa.org/</a>
German Institute of Medical Documentation and Information	<a href="https://www.dimdi.de/dynamic/en/dimdi/">https://www.dimdi.de/dynamic/en/dimdi/</a>
HTAi vortal	<a href="https://www.htai.org/index.php?id=579">https://www.htai.org/index.php?id=579</a>
Health Research Board (HRB) Ireland	<a href="http://www.hrb.ie/home/">http://www.hrb.ie/home/</a>
National Coordinating Centre for Health Technology Assessment (NCCHTA)	<a href="https://www.nihr.ac.uk/funding-and-support/funding-for-research-studies/funding-programmes/health-technology-assessment/">https://www.nihr.ac.uk/funding-and-support/funding-for-research-studies/funding-programmes/health-technology-assessment/</a>
Open Grey	<a href="http://www.opengrey.eu/">http://www.opengrey.eu/</a>

Canadian Ontario HTA	<a href="https://www.hqontario.ca/Evidence-to-Improve-Care/Health-Technology-Assessment">https://www.hqontario.ca/Evidence-to-Improve-Care/Health-Technology-Assessment</a>
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**Table App2.3: List of websites for organisations of particular relevance to pre-hospital care**

<i>Websites recommended by the RQ EAG stakeholders for inclusion:</i>	
The Journal of Emergency Medical Services	<a href="https://www.jems.com/covid-19-resources/">https://www.jems.com/covid-19-resources/</a>
International Liaison Committee on Resuscitation	<a href="https://www.ilcor.org/">https://www.ilcor.org/</a>
Emergency Medicine Critical Care: “blog for medical education on ED Intensive Care, Trauma, and Resuscitation”	<a href="https://emcrit.org/category/emcrit/">https://emcrit.org/category/emcrit/</a>
St. Emlyn’s Emergency Medicine blog	<a href="https://www.stemlynsblog.org/">https://www.stemlynsblog.org/</a>
Life in the Fastlane, COVID-19	<a href="https://litfl.com/coronavirus-disease-2019-covid-19/">https://litfl.com/coronavirus-disease-2019-covid-19/</a>
The Faculty of Intensive Care Medicine, Intensive Care Society, Association of Anaesthetists and Royal College of Anaesthetists COVID-19: Information, guidance and resources supporting the understanding and management of Coronavirus (COVID-19)	<a href="https://icmanaesthesiacovid-19.org/about">https://icmanaesthesiacovid-19.org/about</a>
National Association of EMS Physicians	<a href="https://naemsp.org/">https://naemsp.org/</a>
Joint Royal Colleges Ambulance Liaison Committee	<a href="https://www.jrcalc.org.uk/">https://www.jrcalc.org.uk/</a>
<i>Websites identified by the review team for inclusion:</i>	
National Emergency Number Association	<a href="https://www.nena.org/page/covid19">https://www.nena.org/page/covid19</a>
European Emergency Number Association	<a href="https://eena.org/">https://eena.org/</a>
Emergency Care Research Institute (ECRI) Guidelines Trust	<a href="https://guidelines.ecri.org/">https://guidelines.ecri.org/</a>

**Table App2.4: Bibliographic database search strategy for identifying examples of guidance:**

Criteria	Free-text terms*	Thesauri terms
1. Covid-19 /SARS/MERS/ H1N1	<p>[All text]</p> <p>"coronavirus" OR "COVID-19" OR "2019 novel coronavirus infection" OR "2019-nCoV" OR "COVID19" OR "nCoV" OR "2019nCoV" OR "SARSCoV19" OR "SARS-CoV-19"</p> <p>OR</p> <p>"SARS" OR "Severe acute respiratory syndrome" OR "SARS-CoV-1" OR "SARS-CoV1"</p> <p>OR</p> <p>"MERS" OR "Middle East Respiratory Syndrome"</p> <p>OR</p> <p>"H1N1 Pandemic" or "A(H1N1) Pandemic" OR "Influenza A pandemic"</p>	<p><i>MeSH</i>: "coronavirus" OR "SARS Virus" OR "Middle East Respiratory Syndrome Coronavirus"</p> <p><i>Emtree</i>: 'coronavirinae'/exp OR 'coronavirinae' OR 'coronaviridae infection'/exp OR 'coronaviridae infection' OR 'coronavirus disease 2019'/exp OR 'coronavirus'/exp OR coronavirus OR 'coronavirus infection'/de OR 'SARS coronavirus'/exp OR 'Middle East Respiratory Syndrome Coronavirus'/exp</p>
2. ambulance services	<p>[All text]</p> <p>"ambulance" or "paramedic" or "first respons*" or "first respond*" or "emergency medical services" or "EMS" or "rescue squad" OR "prehospital" OR "pre-hospital" OR "patient transport" OR "patient transfer*" OR "medical transfer" OR "medical transport"</p>	<p>MeSH: 'emergency paramedic' OR 'paramedic' OR 'paramedic, emergency' OR 'ambulance' OR 'emergency medical service' OR 'emergency medical services' OR 'patient transfers'</p> <p>Emtree: 'emergency health service'/exp OR 'ambulance'/exp OR 'air medical transport'/exp OR 'patient transport'/exp</p>

**Table App2.5: Results to be included in review**

<b>Section of review and associated priority (1 = highest priority).</b>	<b>1. "Authoritative guidance" within the COVID-19 setting</b>	<b>2. "Non-authoritative" recommendations, or lessons learned from pandemic settings</b>	<b>3. Descriptions of approaches or measures introduced in the context of pandemic settings, published as information rather than as part of guidance or recommendations</b>
<b>Aim of search</b>	Systematically identify official guidance in the context of COVID-19 and beyond.	Identify recommendations or lessons learned based on COVID-19 or other similar epidemic or pandemic settings, as published in the peer-reviewed literature.	Display examples of measures introduced in response to COVID-19 and or other relevant epidemics or pandemics, as described by authorities or sources experienced in the field.
<b>Type of result we are seeking</b>	Authoritative guidance on the conduct of emergency medical services or medical transport services in the context of COVID-19.	Non-authoritative recommendations, or lessons learned, for the conduct of emergency medical services or medical transport services in the context of COVID-19 and or other relevant epidemics or pandemics.	Information on measures introduced in response to COVID-19 and or other relevant epidemics or pandemics; presented by authoritative or expert sources but not accompanied by explicit guidance or recommendations.
<b>Definition of source</b>	Official sources which may be considered to hold authoritative opinion: <ul style="list-style-type: none"> <li>- National-level providers of emergency medical services and medical transport services, or bodies overseeing such providers</li> <li>- Professional and or civil associations representing emergency medical services, medical transport services and or service personnel</li> </ul>	Unofficial sources which may be considered to hold expert opinion, but where such opinion is not authoritative: <ul style="list-style-type: none"> <li>- Authors not representing an official authority, provider, or association, but who are providing recommendations or describing lessons learned based on departmental or institutional experience in emergency medical services or medical transport services.</li> </ul>	Sources as per "1." or "2."



<p><b>Document types for inclusion in the present review</b></p>	<ul style="list-style-type: none"> <li>- Guidance documents (instructions, recommendations) for the conduct of services during COVID-19 arising from above-described sources.</li> <li>- Descriptive reports (e.g. reports of survey results) of the conduct of services during COVID-19 and which provide recommendations and or "lessons learned" for this setting, arising from above-described sources.</li> </ul> <p><i>Clarifying note: Authoritative guidance published in relation to other epidemics or pandemics is not included. Such guidance is excluded on basis of pragmatism and as guidance produced for COVID-19 would be expected to supersede guidance for previous infectious settings. However, non-authoritative "lessons learned" from these settings, i.e. reflective reports published as peer-reviewed literature, may be of relevance.</i></p>	<ul style="list-style-type: none"> <li>- Descriptive reports (e.g. reports of local experience) of the conduct of services during COVID-19 and or other relevant epidemics or pandemics, and which provide recommendations and or "lessons learned".</li> </ul>	<p>Descriptive reports (e.g. reports of survey results or reports of local experience) of the conduct of services during COVID-19, provided without recommendations or "lessons learned".</p>
<p><b>Additional document</b></p>	<p><u>Document type:</u> <i>Include:</i></p>	<p><u>Document type:</u> <i>Include:</i></p> <ul style="list-style-type: none"> <li>- Peer-reviewed publications</li> </ul>	<p><u>Document type:</u> <i>Include:</i></p> <ul style="list-style-type: none"> <li>- Peer-reviewed publications</li> </ul>

<p><b>inclusion/exclusion criteria</b></p>	<ul style="list-style-type: none"> <li>- Guidance published by official sources on their websites or on national authority websites.</li> <li>- Guidance published by official sources in the peer-reviewed literature.</li> <li>- Regional guidance, where content not covered in national guidance and subject to time constraints in completing this review</li> </ul>		<ul style="list-style-type: none"> <li>- Grey literature representing an official authoritative source as per "1".</li> </ul>
<p><u>Document type:</u> <i>Exclude:</i></p> <ul style="list-style-type: none"> <li>- Full text not available</li> <li>- Blogs, webinars, social media</li> </ul> <p><u>Document content:</u> <i>Exclude:</i></p> <ul style="list-style-type: none"> <li>- Document focuses almost entirely on general healthcare delivery as opposed to prehospital emergency services or medical transport</li> <li>- Document focuses almost entirely on emergency department within hospital.</li> <li>- Document focuses primarily on clinical question (more appropriately answered by clinical guidelines), e.g. clinical efficacy of particular airway management technique.</li> </ul>			
<p><b>Search approach</b></p>	<p>Search bibliographic databases. Screen for official guidance in context of COVID-19.</p> <p>Thorough grey literature search:</p> <ul style="list-style-type: none"> <li>- Examine national health and emergency service authority websites for 30 countries</li> </ul>	<p>Search bibliographic databases. Screen as per "Type of result we are seeking".</p> <p><i>Clarifying note:</i> <i>Reports of "lessons learned" from other epidemics/pandemics, which are published by authoritative sources within the peer-reviewed literature,</i></p>	<p>Search bibliographic databases. Screen as per "Type of result we are seeking".</p>

	<ul style="list-style-type: none"> <li>- Public health agencies</li> <li>- List of guideline repositories</li> <li>- Search specific EMS-related bodies identified during scoping with stakeholders</li> <li>- EPPICentre COVID-19 database</li> <li>- WHO daily updated COVID-19 database</li> <li>- Google, Google Scholar</li> </ul>	<p><i>may be identified through this search, as well as reports published by non-authoritative sources. Where documents are identified as emerging from authoritative sources, these will be highlighted. However, in the interests of pragmatism, a corresponding search of the grey literature to identify similar reports by authoritative sources will not be performed.</i></p>	
<b>Data extraction process</b>	Full data extraction as per protocol description and templates	Full data extraction as per protocol description and templates	Tabulate by topic described and provide citation.

### Appendix 3 - Data extraction templates

<b>1. Authoritative guidance within the COVID-19 setting</b>				
<i>Population and source of guidance</i>	<i>Guidance details</i>	<i>Patient care measures in the context of COVID-19</i>	<i>Interaction and interfaces with the healthcare system</i>	<i>Service enablers</i>
<b>Template row</b> <b>Document source:</b> <b>Organisation:</b> <b>Country:</b> <b>Website/Journal:</b> <b>URL:</b>	<b>Pandemic setting:</b> <b>Publication date:</b> <b>Title:</b> <b>Main setting:</b> <b>Primary topic:</b>			
<b>2. Non-authoritative recommendations or “lessons learned” from a pandemic setting</b>				
<i>Population and source of text</i>	<i>Document details</i>	<i>Patient care measures in the context of COVID-19</i>	<i>Interaction and interfaces with the healthcare system</i>	<i>Service enablers</i>
<b>Template row</b> <b>Document source:</b> <b>Organisation:</b> <b>Country:</b> <b>Website/Journal:</b> <b>URL:</b>	<b>Pandemic setting:</b> <b>Publication date:</b> <b>Title:</b> <b>Main setting:</b> <b>Primary topic:</b>			

<b>3. Descriptions of approaches or measures introduced in the context of pandemic settings, published as information rather than as part of guidance or recommendations</b>				
<i>Population and source of text</i>	<i>Document details</i>	<i>Detail</i>		
<b>Template row</b> <b>Document source:</b> <b>Organisation:</b> <b>Country:</b> <b>Website/Journal:</b> <b>URL:</b>	<b>Pandemic setting:</b> <b>Publication date:</b> <b>Title:</b> <b>Main setting:</b> <b>Primary topic:</b>			

## **Appendix 4 – Addendum to protocol: Review of guidance for the operation of emergency medical dispatch centres.**

Following the general review of pre-hospital emergency and patient transport services, a subsequent request was made by the National Ambulance Service for an in-depth review of 'guidance for the operation of emergency medical dispatch centres'. The aim of this review is to identify, classify and summarise international guidance on this topic in order to help inform the development of guidance by the National Ambulance Service.

### **Scope of the topic**

The topic scope, as agreed with the stakeholders for this review, is to cover operations within emergency medical dispatch centres. As such, the review will exclude guidance relating to the physical interaction of emergency medical services personnel with patients and or healthcare providers outside of this setting. Such guidance might include guidance for paramedic staff involved in treating patients or guidance for infection control within the patient transport setting.

### **Identification of relevant documents**

#### *Updating existing search results*

The database of guidance produced for the general review will be used to identify documents of relevance to the present review (see 'Selection of documents for specific topic review' below); these documents will be checked to ensure the most up-to-date version is included and updated as necessary. Additionally, the Google and Google Scholar search element of the initial general review will be repeated and the HIQA Database of Public Health Guidance on COVID-19, which is updated on a daily basis, will be checked in order to identify additional documents published in the weeks between the initial review and the present review. The original search terms and method of searching will be used. In the interests of pragmatism, outside of the elements listed above, a full grey literature and database search will not be repeated.

#### *General data extraction and mapping to topics for new documents*

Additional documents identified through the search update will be screened for inclusion against the PIC, as per the original review, and will be further screened for relevance to the present review.

Each document identified for inclusion will be assigned a Document ID and data will be extracted under the following general column headings as per the initial review: Authoritative/Non-Authoritative, Document source, Pandemic setting, Organisation, Country, Website/Journal, URL, Publication date and Title.

#### *Selection of documents for specific topic review*

In addition to newly identified relevant documents, all existing 'Category 1 or 2' documents in the database which were mapped to the following original topic headings will be selected for the present review on the operation of emergency medical dispatch centres:

- Tele-triage
- Prioritisation of care
- Patient pre-screening

- Call centre design and arrangements
- Other.

Also, any document record which includes the following terms in the 'primary topic' column of the database will be selected: 'call centre'; 'call screening'; 'dispatch'.

Additionally, all 'Category 3' documents will be full-text screened for relevance to the present topic.

All documents (newly identified or pre-existing within the database) identified for inclusion will be pooled and divided into two major groups: 'guidance' and 'practice'. Documents will be classified as 'guidance' where they mostly include prospective recommendations, instructions or considerations for the operation of a service. As such, documents may be included in 'guidance' even where the document does not explicitly claim to present 'guidance'. Documents will be classified as 'practice' where they mostly contain a retrospective view of how a service operated, e.g. a report of a survey of organisations involved in providing services or a description of 'lessons learned' from past experience.

### **Data extraction by subtopic and qualitative analysis approach**

To summarise the content of the 'guidance' and 'practice' documents, a qualitative analytical approach will be undertaken based on the 'best fit framework synthesis' approach.<sup>(1)</sup> 'Best fit' framework synthesis involves creating a framework of *a priori* themes and then coding data from a review's included studies against this thematic framework. New themes are generated from data not adequately captured by the *a priori* framework, and are based on the reviewers' interpretation of the data and comparison of these new themes across the included documents. A new framework is then generated from the *a priori* and new themes. For the present review, the *a priori* framework is based on the findings of the initial review and on discussion with the review stakeholders. The *a priori* framework includes the following topics:

- Specific COVID-19 related 'pathways' for emergency medical services response, such as dedicated telephone hotlines, altered communication approaches and technological solutions
  - this subtopic may also include altered responses such as tele-medicine delivered from within a centre.
- Resilience planning (e.g. back-up facilities)
- Workforce capacity within emergency dispatch centres
- Workforce wellbeing
- Physical distancing or remote working approaches
- Other workforce supports
- Monitoring (of COVID-19 and or operations)
- Development or updating of protocols or procedure documentation
- Other.

Data extraction will first be performed in MS Excel to map the data within the documents against the *a priori* framework. Detailed data extraction will be performed in MS Word under the appropriate framework subtopic headings and with the corresponding Document ID noted; data will be extracted in full, where the totality of the relevant text consists of no more than approximately 150 words. Otherwise, data will be summarised. Following initial detailed data extraction, the framework will be assessed for suitability and new subtopics

will be derived where appropriate. Following finalisation of the framework, data will be presented under each subtopic separately for both 'guidance' and 'practice' documents.

### **Quality assessment of selected documents**

To better understand the relevance and validity of documents classified as 'guidance', quality assessments will be performed on these documents and presented in tabular form. Each document will be assessed against the following criteria, that are considered important for the present review:

- Descriptor of the form of guidance issued, such as 'checklist', 'recommendations', or 'position paper'.
- Subjective assessment by reviewer of whether or not the guidance is 'thorough' (covering a range of relevant aspects) with respect to the review topic.
- Subjective assessment by reviewer of whether the review topic is the primary focus of the document (as opposed to featuring within a document that considered pre-hospital emergency services more generally).
- Detail provided regarding the development of the guidance document.
- Extent to which the guidance is evidence-based.

To summarise the extent to which the selected documents are evidence-based, documents will be classified in one of the following three categories:

- Based on apparent evidence for efficacy or effectiveness.
  - Guidance or practices for the topic of interest are described with reference to evidence of efficacy or effectiveness of the approaches using cited research.
- Based on existing guidance or cites expert opinion, without apparent evidence of efficacy or effectiveness.
  - Guidance or practices for the topic of interest are described with reference to other guidance or other opinion supporting the approaches, i.e. cited opinion.
- Based on expert opinion only.
  - Guidance or practices for the topic of interest are described without reference to cited literature or expert opinion.

Documents will be assessed based on the content within the document which relates specifically to the conduct of emergency medical dispatch centres. The extent to which subtopics are evidence-based will not be assessed. For example, a document may include guidance on the topic of infection control in the patient transport setting and evidence may be cited as informing same, but evidence may not be cited with respect to the specific topic under review. In this example, such a document would be classed as based on expert opinion only.

### **Summary of findings in report format**

A descriptive overview of the identified guidance and examples of practice, including tabular presentation of the data, will be compiled and sent to the relevant parties in PDF format.



## **References**

1. Carroll C, Booth A, Leaviss J, Rick J. "Best fit" framework synthesis: refining the method. BMC Medical Research Methodology. 2013;13(1):37.

**Published by the Health Information and Quality Authority (HIQA).**

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