National Institute for Health and Care Excellence

COVID-19 rapid guideline: reducing the risk of venous thromboembolism in over 16s with COVID-19

Search strategies

NICE guideline 186

Search strategies

November 2020

Disclaimer

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or service users. The recommendations in this guideline are not mandatory and the guideline does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and, where appropriate, their carer or guardian.

Local commissioners and providers have a responsibility to enable the guideline to be applied when individual health professionals and their patients or service users wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with compliance with those duties.

NICE guidelines cover health and care in England. Decisions on how they apply in other UK countries are made by ministers in the Welsh Government, Scottish Government, and Northern Ireland Executive. All NICE guidance is subject to regular review and may be updated or withdrawn.

Contents

1 Sources

This search was developed in compliance with section 8 of Appendix L of the NICE manual. NICE (17 July 2020) Developing NICE guidelines: the manual. Process and methods [PMG20]. Appendix L: Interim process and methods for guidelines developed in response to health and social care emergencies.

1.1 Website searches

Searches were undertaken on the following websites and databases (listed in alphabetical order) in October 2020. Browsing or simple search strategies were employed.

Guidelines/website	Systematic review
Agency for Care Effectiveness Singapore	Centre for Evidence-based Medicine (CEBM) Epistemonikos
Association of American Medical colleges coronavirus	McMaster University Collaborating Centre for methods and tools
Australian National COVID-19 Clinical Evidence Taskforce	PROSPERO
BMJ Best Practice	Trip Database
Brigham and Women's Hospital	
Canadian Agency for Drugs and Technology in Health	
Centers for Disease Control and Prevention	
ClinicalTrials.Gov	
COVID-19 Living Evidence Project	
European Medicines Agency	
ECRI Guideline Trust	
European Centre for Disease Prevention and Control	
First Affiliated Hospital, Zhejiang University School of Medicine	
Food and Drug Administration	
Health Education England	
Health Information and Quality Authority (Ireland)	
Infectious Diseases Society of America	
MHRA	
National Institute for Health (NIH)	
National Institute for Health and Care Excellence (NICE)	
National Centre for Pharmacoeconomics	
NHS England	
Norwegian Institute of Public Health	
UK Government	
World Health Organization	

1.2 Database searches

Bibliographic databases searched for the guideline

- Cochrane Database of Systematic Reviews – CDSR (Wiley)
- Cochrane Central Register of Controlled Trials – CENTRAL (Wiley)
- BioRxiv
- EMBASE (Ovid)
- MEDLINE All (Ovid)
- MedRxiv

1.3 Identification of evidence for review questions

The website searches were conducted on the 12-13th October and re-searched for recently published material on 23rd October 2020.

The database searches were conducted on 19th October.

Where appropriate, in-house study design filters were used to limit the retrieval to, for example, randomised controlled trials. Details of the study design filters used can be found in section 3. Other filter or search strategies were used where appropriate to limit results.

The latest versions of the COVID filter were applied.

Animal studies were removed from results.

2 Database search strategies

2.1 Search strategy review questions

Table 1: search strategy

Medline Strategy, searched 19th October 2020
Database: Ovid MEDLINE ALL, 1946 to October 16, 2020
Search Strategy:

1   exp pulmonary embolism/ or exp thromboembolism/ or exp venous thromboembolism/ or exp venous thrombosis/ or exp upper extremity deep vein thrombosis/

2   (((venous or vein) adj1 (thrombosis or thromboses or thrombus or thromboembolism or statsis* or clot*)) or immunothrombo* or phlebothrombos* or (dvt or vte or PE) or ((pulmonary or lung) adj3 (emboli or embolus or emboliz* or embolis* or microemboli* or thromboemboli* or infarction* or clot*))).ti,ab.

3   (blood* adj1 clot*).ti,ab.

4   or/1-3

5   exp Anticoagulants/ or exp Fibrinolytic Agents/ or exp Antithrombins/

6   (anticoagula* or anti coagula* or antithromb* or antiemboli* or anti emboli* or thrombin* or thromboprophyla* or fibrinolytic* or DOAC or DOACs).ti,ab.

7   Dabigatran/

8   (dabigatran or pradaxa or danaparoid or orgaran).ti,ab.

9   exp Heparin/

10   (heparin or LMWH or UFH).ti,ab.

11   (calciparine or monoparin or calcium multiparin or bemiparin or zibor or dalteparin or fragmin* or enoxaparin or clexane or lovenox or tinzaparin or innohep or antixarin or cy 222 or embolex or monoembolex or suleparoid* or ardeparin or certoparin or nadroparin or parnaparin or reviparin or tedelparin* or minolteparin or semuloparin or argatroban or betrixaban).ti,ab.

12   exp 4-Hydroxycoumarins/ or Phenindione/ or Rivaroxaban/

13   (warfarin or marevan or acenocoumarol or nicoumalone or sinthrome or phenindione or dicumarol or phenprocoumon or biscoumacetate).ti,ab.

14   (apixaban or eliquis or rivaroxaban or xarelto or edoxaban or lixiana or savaysa or fondaparinux or arixtra).ti,ab.

15   exp Aspirin/

16   (aspirin or acetylsalicylic acid).ti,ab.

17   or/5-16

18   4 and 17

19   animals/ not humans/

20   18 not 19

Note: *This search was limited to RCT, Systematic Review, Observational filters. As this guideline was specific to COVID-19, the latest COVID-19 filter as also applied, which contained a date limit. Non-animal studies were excluded.*

Embase Strategy, searched 19th October 2020
Database: Ovid EMBASE, 1974 to 2020 October 15
Search Strategy:

1   exp lung embolism/ or exp thromboembolism/ or exp venous thromboembolism/ or exp vein thrombosis/ or exp deep vein thrombosis/ or exp lower extremity deep vein thrombosis/ or exp upper extremity deep vein thrombosis/ or exp postoperative thrombosis/ or exp leg thrombosis/

2   (((venous or vein) adj1 (thrombosis or thromboses or thrombus or thromboembolism or statsis* or clot*)) or immunothrombo* or phlebothrombos* or (dvt or vte or PE) or ((pulmonary or lung) adj3 (emboli or embolus or emboliz* or embolis* or microemboli* or thromboemboli* or infarction* or clot*))).ti,ab.

3   (blood* adj1 clot*).ti,ab.

4   or/1-3

5   exp anticoagulant agent/ or exp fibrinolytic agent/ or exp antithrombin/

6   (anticoagula* or anti coagula* or antithromb* or antiemboli* or anti emboli* or thrombin* or thromboprophyla* or fibrinolytic* or DOAC or DOACs).ti,ab.

7   dabigatran etexilate/

8   (dabigatran or pradaxa or danaparoid or orgaran).ti,ab.

9   exp Heparin/

10   (heparin or LMWH or UFH).ti,ab.

11   (calciparine or monoparin or calcium multiparin or bemiparin or zibor or dalteparin or fragmin* or enoxaparin or clexane or lovenox or tinzaparin or innohep or antixarin or cy 222 or embolex or monoembolex or suleparoid* or ardeparin or certoparin or nadroparin or parnaparin or reviparin or tedelparin* or minolteparin or semuloparin or argatroban or betrixaban).ti,ab.

12   exp coumarin derivative/ or exp coumarin anticoagulant/ or phenindione/ or rivaroxaban/ or apixaban/ or edoxaban/ or fondaparinux/

13   (warfarin or marevan or acenocoumarol or nicoumalone or sinthrome or phenindione or dicumarol or phenprocoumon or biscoumacetate).ti,ab.

14   (apixaban or eliquis or rivaroxaban or xarelto or edoxaban or lixiana or savaysa or fondaparinux or arixtra).ti,ab.

15   acetylsalicylic acid/

16   (aspirin or acetylsalicylic acid).ti,ab.

17   or/5-16

18   4 and 17

19   nonhuman/ not human/

20   18 not 19

Note: *This search was limited to RCT, Systematic Review, Observational filters. As this guideline was specific to COVID-19, the latest COVID-19 filter as also applied, which contained a date limit. Non-animal studies were excluded.*

Cochrane Strategy, searched 19th October 2020
Database: Cochrane, Issue 10 of 12, October 2020
Search Strategy:

#1   MeSH descriptor: [Pulmonary Embolism] explode all trees

#2   MeSH descriptor: [Thromboembolism] explode all trees

#3   MeSH descriptor: [Venous Thromboembolism] explode all trees

#4   MeSH descriptor: [Venous Thrombosis] explode all trees

#5   MeSH descriptor: [Upper Extremity Deep Vein Thrombosis] explode all trees

#6   (((venous or vein) NEAR/1 (thrombosis or thromboses or thrombus or thromboembolism or statsis* or clot*)) or immunothrombo* or phlebothrombos* or (dvt or vte or PE) or ((pulmonary or lung) NEAR/3 (emboli or embolus or emboliz* or embolis* or microemboli* or thromboemboli* or infarction* or clot*))):ti,ab

#7   (blood* NEAR/1 clot*):ti,ab

#8   {or #1-#7}

#9   MeSH descriptor: [Anticoagulants] explode all trees

#10   MeSH descriptor: [Fibrinolytic Agents] explode all trees

#11   MeSH descriptor: [Antithrombins] explode all trees

#12   (anticoagula* or anti coagula* or antithromb* or antiemboli* or anti emboli* or thrombin* or thromboprophyla* or fibrinolytic* or DOAC or DOACs):ti,ab

#13   MeSH descriptor: [Dabigatran] this term only

#14   (dabigatran or pradaxa or danaparoid or orgaran):ti,ab

#15   MeSH descriptor: [Heparin] explode all trees

#16   (heparin or LMWH or UFH):ti,ab

#17   (calciparine or monoparin or calcium multiparin or bemiparin or zibor or dalteparin or fragmin* or enoxaparin or clexane or lovenox or tinzaparin or innohep or antixarin or cy 222 or embolex or monoembolex or suleparoid* or ardeparin or certoparin or nadroparin or parnaparin or reviparin or tedelparin* or minolteparin or semuloparin or argatroban or betrixaban):ti,ab   3438

#18   MeSH descriptor: [4-Hydroxycoumarins] explode all trees

#19   MeSH descriptor: [Phenindione] this term only

#20   MeSH descriptor: [Rivaroxaban] this term only

#21   (warfarin or marevan or acenocoumarol or nicoumalone or sinthrome or phenindione or dicumarol or phenprocoumon or biscoumacetate):ti,ab

#22   (apixaban or eliquis or rivaroxaban or xarelto or edoxaban or lixiana or savaysa or fondaparinux or arixtra):ti,ab

#23   MeSH descriptor: [Aspirin] explode all trees

#24   (aspirin or acetylsalicylic acid):ti,ab

#25   {or #9-#24}

Cochrane Strategy, searched 19th October 2020 Database: Cochrane, Issue 10 of 12, October 2020 Search Strategy:
#26   #8 and #25

Note: This search was only limited to COVID-19 records

3 Study Design Filters

Table 6: Study design filters

The study filters and limiting search strategies used as part of the literature searches are presented below.

COVID Filter

Medline:
exp coronavirus/
exp Coronavirus Infections/
((corona* or corono*) adj1 (virus* or viral* or virinae*)).ti,ab,kw,kf.
(coronavirus* or coronovirus* or coronavirinae* or CoV).ti,ab,kw,kf.
 ("2019-nCoV*" or 2019nCoV* or "19-nCoV*" or 19nCoV* or nCoV2019* or "nCoV-2019*" or nCoV19* or "nCoV-19*" or "COVID-19*" or COVID19* or "COVID-2019*" or COVID2019* or "HCoV-19*" or HCoV19* or "HCoV-2019*" or HCoV2019* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or "SARSCoV2*" or "SARS-CoV2*" or SARSCov19* or "SARS-Cov19*" or "SARSCov-19*" or "SARS-Cov-19*" or SARSCov2019* or "SARS-Cov2019*" or "SARSCov-2019*" or "SARS-Cov-2019*" or SARS2* or "SARS-2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or "SARS coronavirus2*" or SARScoronovirus2* or "SARS-coronovirus-2*" or "SARScoronovirus 2*" or "SARS coronovirus2*" or covid).ti,ab,kw,kf.
 (respiratory* adj2 (symptom* or disease* or illness* or condition*) adj5 (Wuhan* or Hubei* or China* or Chinese* or Huanan*)).ti,ab,kw,kf.
 (("seafood market*" or "food market*") adj10 (Wuhan* or Hubei* or China* or Chinese* or Huanan*)).ti,ab,kw,kf.
(pneumonia* adj3 (Wuhan* or Hubei* or China* or Chinese* or Huanan*)).ti,ab,kw,kf.
((outbreak* or wildlife* or pandemic* or epidemic*) adj1 (Wuhan* or Hubei* or China* or Chinese* or Huanan*)).ti,ab,kw,kf.
"severe acute respiratory syndrome*".ti,ab,kw,kf
or/1-10
limit 11 to yr="2019 -Current"

Embase:
exp Coronavirinae/
exp Coronavirus infection/
 ("coronavirus disease 2019" or "severe acute respiratory syndrome coronavirus 2").sh,dj.
 ((corona* or corono*) adj1 (virus* or viral* or virinae*)).ti,ab,kw.
(coronavirus* or coronovirus* or coronavirinae* or CoV).ti,ab,kw.
("2019-nCoV*" or 2019nCoV* or "19-nCoV*" or 19nCoV* or nCoV2019* or "nCoV-2019*" or nCoV19* or "nCoV-19*" or "COVID-19*" or COVID19* or "COVID-2019*" or COVID2019* or "HCoV-19*" or HCoV19* or "HCoV-2019*" or HCoV2019* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or "SARSCoV2*" or "SARS-CoV2*" or SARSCov19* or "SARS-Cov19*" or "SARSCov-19*" or "SARS-Cov-19*" or SARSCov2019* or "SARS-Cov2019*" or "SARSCov-2019*" or "SARS-Cov-2019*" or SARS2* or "SARS-2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or "SARS coronavirus2*" or SARScoronovirus2* or "SARS-coronovirus-2*" or "SARScoronovirus 2*" or "SARS coronovirus2*" or covid).ti,ab,kw.
 (respiratory* adj2 (symptom* or disease* or illness* or condition*) adj5 (Wuhan* or Hubei* or China* or Chinese* or Huanan*)).ti,ab,kw.
(("seafood market*" or "food market*") adj10 (Wuhan* or Hubei* or China* or Chinese* or Huanan*)).ti,ab,kw.
(pneumonia* adj3 (Wuhan* or Hubei* or China* or Chinese* or Huanan*)).ti,ab,kw.
((outbreak* or wildlife* or pandemic* or epidemic*) adj1 (Wuhan* or Hubei* or China* or Chinese* or Huanan*)).ti,ab,kw. (148)
"severe acute respiratory syndrome*".ti,ab,kw.
or/1-11

The study filters and limiting search strategies used as part of the literature searches are presented below.

limit 12 to yr="2019 -Current"
limit 13 to medline
13 not 14 (51312)

Cochrane:

MeSH descriptor: [Coronavirus] explode all trees
MeSH descriptor: [Coronavirus Infections] explode all trees
 ((corona* or corono*) near/1 (virus* or viral* or virinae*)):ti,ab,kw
(coronavirus* or coronovirus* or coronavirinae* or CoV):ti,ab,kw
 ("2019 nCoV" or 2019nCoV* or "19 nCoV" or 19nCoV* or nCoV2019* or "nCoV 2019" or nCoV19* or "nCoV 19" or "COVID 19" or COVID19* or "COVID 2019" or COVID2019* or "HCoV 19" or HCoV19* or "HCoV 2019" or HCoV2019* or "2019 novel" or Ncov* or "n cov" or "SARS CoV 2" or "SARSCoV 2" or "SARSCoV2" or "SARS CoV2" or SARSCov19* or "SARS Cov19" or "SARSCov 19" or "SARS Cov 19" or SARSCov2019* or "SARS Cov2019" or "SARSCov 2019" or "SARS Cov 2019" or SARS2* or "SARS 2" or SARScoronavirus2* or "SARS coronavirus 2" or "SARScoronavirus 2" or "SARS coronavirus2" or SARScoronovirus2* or "SARS coronovirus 2" or "SARScoronovirus 2" or "SARS coronovirus2" or covid):ti,ab,kw
 (respiratory* near/2 (symptom* or disease* or illness* or condition*) near/5 (Wuhan* or Hubei* or China* or Chinese* or Huanan*)):ti,ab,kw
 (("seafood market" or "seafood markets" or "food market" or "food markets") near/10 (Wuhan* or Hubei* or China* or Chinese* or Huanan*)):ti,ab,kw
 (pneumonia* near/3 (Wuhan* or Hubei* or China* or Chinese* or Huanan*)):ti,ab,kw
((outbreak* or wildlife* or pandemic* or epidemic*) near/1 (Wuhan* or Hubei* or China* or Chinese* or Huanan*)):ti,ab,kw
 ("severe acute respiratory syndrome" or "severe acute respiratory syndromes"):ti,ab,kw
{or #1-#10}

Note: The terms for COVID-19 were developed rapidly on Monday 16 March 2020 based on a list obtained from the Public Health England Library & Knowledge Services website. The terms were peer reviewed at NICE on 17th March 2020. The filter has been developed and revised continually.

Observational studies

Medline
Observational Studies as Topic/
Observational Study/
Epidemiologic Studies/
exp Case-Control Studies/
exp Cohort Studies/
Cross-Sectional Studies/
Controlled Before-After Studies/
Historically Controlled Study/
Interrupted Time Series Analysis/
Comparative Study.pt.
case control$.tw.
case series.tw.
(cohort adj (study or studies)).tw.
cohort analy$.tw.
(follow up adj (study or studies)).tw.
(observational adj (study or studies)).tw.
longitudinal.tw.

The study filters and limiting search strategies used as part of the literature searches are presented below.
prospective.tw. retrospective.tw. cross sectional.tw or/1-20 **Embase** Clinical study/ Case control study/ Family study/ Longitudinal study/ Retrospective study/ comparative study/ **Prospective study/** **Randomized** controlled trials/ 43 not 44 Cohort analysis/ cohort analy$.tw. (Cohort adj (study or studies)).tw. (Case control$ adj (study or studies)).tw. (follow up adj (study or studies)).tw. (observational adj (study or studies)).tw. (epidemiologic$ adj (study or studies)).tw. (cross sectional adj (study or studies)).tw. case series.tw. prospective.tw. retrospective.tw. or/1-6,9-20
RCT **Medline** randomized controlled trial.pt. randomi?ed.mp. placebo.mp. or/1-3 **Embase** random:.tw. placebo:.mp. double-blind:.tw. or/1-4
Systematic Review **Medline** MEDLINE or pubmed).tw. systematic review.tw. systematic review.pt. meta-analysis.pt. intervention$.ti.

The study filters and limiting search strategies used as part of the literature searches are presented below.

or/1-5

Embase:
(MEDLINE or pubmed).tw.
exp systematic review/ or systematic review.tw.
meta-analysis/
intervention$.ti.
or/1-4