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Supplement 1: Van Huizen et al.

PROTOCOL SCOPING REVIEW

How and why does videoconferencing add value to patient care and decision making when healthcare professionals working in teams at different locations use it.

A mixed approach of scoping and systematic review.

PROTOCOL SIGNATURE SHEET

Name	Signature	Date
Coordinating Investigator: Lidia S. van Huizen, MSc		19-12-'18
Epidemiologist: Prof. dr. P.U. Dijkstra		19-12-'18

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Review team members

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Background

Videoconferencing is a commonly used technical tool for collaborating teams in regional oncology networks, but it is not often used in healthcare. Videoconferencing can be used for collaborating teams of healthcare professionals at different locations regarding patient care.

We want to analyse settings in which videoconferencing is used as a medium of support for or replaces the multidisciplinary face-to-face meeting.

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Review Questions

The aim of this scoping review is to describe and understand what the added value for patient care might be when healthcare professionals working in teams at different locations use videoconferencing for their decision making as compared to meeting face-to-face.

This review will focus on 5 sub questions:

1. What kind of videoconferencing between professionals working in teams are described in biomedical journals? (i.e. teams working within the same organisation, between organisations; with formal and informal status of collaboration)
2. What kind of performance is reached with videoconferencing as compared to a 'face-to-face' meeting '(i.e. number of patients discussed or recommendations given)?
3. What were outcome variables on which the videoconferences were evaluated with regard to added value (i.e. efficacy and successful communication)?
4. What factors have been identified that inhibit or enhance effective communication or success of the videoconferences (i.e. infrastructure, personnel / professionals working in groups)? Was additional communication used (i.e. Skype, e-mail, telephone)?
5. What kind equipment was used (i.e. availability of equipment, diagnostic features like imaging, monitor size)?

Methods

1. Searches

We will search PUBMED/Medline (American), Cinahl (Nursing and Alied Health), Embase (European), Cochrane. If contact authors will be contacted, the obtained information will be listed.

The search strategy is developed in collaboration with an experienced university librarian.

2. Search Strategy

The search strategy is given in appendix 1.

3. Inclusion / Exclusion criteria

We will show inclusions in the PRISMA-P-ScR-chart, see appendix 3.

Phase one

Inclusion criteria:

- all time spans
- all languages (if needed translation will be done)
- published papers describing videoconferencing
- videoconferencing for communication in Healthcare, between 2 or more groups (minimal number per groups = 2) of professionals at different sites aimed at collaboration over patient care

Exclusion criteria (we will show exclusions in the PRISMA-P-ScR-chart):

- reviews, letter to the editors, protocols
- no videoconferencing used
- e-Health,
- telemedicine
- educations purposes
- one professional to one other professional videoconferencing
- professional with patient(s) videoconferencing

Study quality will be assessed if possible by the EPOC (Effective Practice and Organisation of Care-Checklist) as used for Cochrane Reviews or the QI-MQCS questions (Quality Improvements – Minimal

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Quality Criteria Set, Hempel et al 2015) to review how well the intervention is described or JBI (Joanna Briggs Institute Manual for scoping reviews, JBI 2015)[1].

4. Primary Outcome(s)

For healthcare professionals working in teams on different locations.

-primary outcomes:

- medical specialisms present during teleconferencing
- patient categories on which decision are made

-secondary outcomes:

- how do groups prepare for teleconferencing, is a protocol involved?
- what information is shared during teleconferencing (medical records of different types)?
- what topics are shared (e.g. complication- or incident registration; deviation of diagnostic or treatment plan)?
- patient information shown and referred to (e.g. diagnostic tests, imaging and history, treatment cure or palliative)
- equipment and applications used for teleconferencing and sharing information
- can participants see each other during videoconferencing when sharing patient data?
- are the same participants present during different sessions, is there a registration of participants?
- amount of patient cases in the study, are patients present during videoconferencing?

5. Data extraction (selection and coding)

In phase one the screening will be done by two researchers (LH and PD) who will independently assess titles and abstracts for in and exclusion criteria.

In the phase two the same review authors will assess the full text of the articles included in phase one (first screening) for the same in- and exclusion criteria. Reasons for exclusion will be registered. Matters of doubt will be discussed, until consensus is reached. If no consensus van be reached, a third independent assessor will give a binding verdict.

1

1. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. International Journal of Social Research Methodology 2005, 8(1):19-32.
2. Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. Implementation science: IS 2010, 5:69.
3. Colquhoun HL, Levac D, O'Brien KK, Straus S, Tricco AC, Perrier L, Kastner M, Moher D. Scoping reviews: time for clarity in definition, methods, and reporting. Journal of clinical epidemiology, 67, 2014.
4. Peters MD, Godfrey CM, Khalil H, McInerney P, Parker D, Soares CB. Guidance for conducting systematic scoping reviews. International journal of evidence-based healthcare 2015, 13(3):141-146.; Joanna Briggs Guidance, comes with a supplement
5. Munn Z, Peters MDJ, Stern C, Tufanaru C, McArthur A, Aromataris E. Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. BMV Medical Research Methodology.

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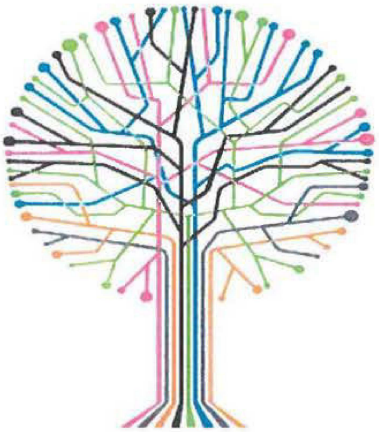

Figure: symbolic coding tree

In phase three data extraction will be undertaken independently by the two reviewers. Of each study general study characteristics will be collected concerning setting, design, unit of analysis, etc.
The forms for 'screening and criteria' were developed and will be used for phase one, two and three.
A pilot test with the screening form will be performed early in the first phase.

6. Risk of bias (quality) assessment

This scoping review will include different study types, therefore based on the included studies an appropriate quality assessment tool(s) will be selected and applied.

7. Strategy for data synthesis

The included articles will be summarized into tables regarding study and participant characteristics (author, publication, aim, partners / authors, methods, etc).
The flowchart chart (PRISMA) and overview chart will constitute a basis for the data analysis and narrative synthesis (mindmap with associations) in accordance with the integrative review method developed by Whittemore and Knafl and for the scoping part by Joanna Briggs.
The scoping review is an iterative process, when the first screening is performed the results will be discussed with members of the head & neck care pathway and tumour groups that use videoconferencing for their multidisciplinary meeting with their preferred partner.
The consensus of that discussion will be reported.

8. Analysis of subgroups or subsets

Where there are similarities in concept of evaluation videoconferencing and a sufficient number of studies (4 or more) is included, we will consider a meta-analysis. The subset of the papers found with the search strategy will be followed-up with a detailed search strategy to that specific topic. Where there are differences we will describe in a mind map similarities and differences.

Planning

Anticipated or actual start date is December 2018, anticipated completion date is September 2019.

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Stage of review at time of this submission

The review has not yet started.

Review stage	started	completed
Preliminary searches	yes	yes
Piloting of the study selection process	yes	no
Formal screening of search results against eligibility criteria	no	no
Data extraction	no	no
Risk of bias (quality) selection	no	no
Data analysis	no	no

The design will be communicated together with an evaluation on added value of videoconferencing research of our centre to healthcare professionals that work together in the UMCG Oncology Committee.
The outcomes of the review will be communicated in the UMCG with the groups that use videoconferencing and in the Netherlands at different locations.
Abstract of the results will be presented in relevant seminars.
Furthermore we will publish the findings of this review in a peer reviewed journal.

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Appendix 1: Search Strategies

PubMed

("Interprofessional Relations"[Mesh] OR "Patient Care Team"[Mesh:NoExp] OR interprofes*[tiab] OR inter-profes*[tiab] OR professional[tiab] OR interdisciplin*[tiab] OR inter-disciplin*[tiab] OR multidisciplin*[tiab] OR multi-disciplin*[tiab] OR team[tiab] OR teams[tiab] OR tumor board*[tiab] OR tumour board*[tiab])
AND
("Telecommunications"[Mesh:NoExp] OR "Telemedicine"[Mesh] OR "Videoconferencing"[Mesh] OR videoconferenc*[tiab] OR video conferen*[tiab] OR teleconferenc*[tiab] OR tele-conferenc*[tiab] OR video record*[tiab] OR video facilit*[tiab] OR web conferen*[tiab] OR teleonco*[tiab] OR tele-onco*[tiab] OR
((online-based[tiab] OR webbased[tiab] OR web-based[tiab] OR computer-based[tiab] OR internet-based[tiab] OR virtual[tiab]) AND (communicat*[tiab] OR conferen*[tiab] OR meeting*[tiab] OR collaborat*[tiab] OR mdt[tiab] OR mdts[tiab])))
AND
("Neoplasms"[Mesh] OR "Cancer Care Facilities"[Mesh] OR "Medical Oncology"[Mesh] OR "Oncologists"[Mesh] OR "cancer" OR "cancers" OR oncolog* OR "tumor" OR "tumors" OR "tumour" OR "tumours" OR palliat* OR cancer[sb])

CINAHL (ebsco)

(((MH "Interprofessional Relations+") OR (MH "Multidisciplinary Care Team+") OR (interprofes* OR "inter-profes*" OR professional OR interdisciplin* OR "inter-disciplin*" OR multidisciplin* OR "multi-disciplin*" OR team OR teams OR "tumor board*" OR "tumour board*"))
AND
(((MH "Telecommunications") OR (MH "Teleconferencing") OR (MH "Videoconferencing+") OR (MH "Wireless Communications") OR (MH "Communications Software+") OR (videoconferenc* OR "video conferen*" OR teleconferenc* OR "tele-conferenc*" OR "video record*" OR "video facilit*" OR teleoncol* OR "tele-oncol*") OR
((online OR webbased OR "web based" OR web OR computer OR internet OR virtual OR tele OR video) N8 (communicat* OR conferen* OR meeting* OR collaborat* OR mdt OR mdts))))
AND
(((MH "Cancer Care Facilities") OR (MH "Neoplasms+") OR (MH "Oncology+") OR (MH "Oncologists") OR cancer*OR oncolog* OR neoplasm* OR malign* OR carcin* OR leukem* OR tumor* OR tumour* OR palliat*))

Embase (via embase.com)

('multidisciplinary team meeting'/exp OR 'interdisciplinary communication'/exp OR 'public relations'/exp OR 'multidisciplinary team'/de OR 'collaborative care team'/exp OR 'interpersonal communication'/de OR (interprofes* OR 'inter-profes*' OR professional OR interdisciplin* OR 'inter-disciplin*' OR multidisciplin* OR 'multi-disciplin*' OR team OR teams OR 'tumor board*' OR 'tumour board*'):ab,ti)
AND
('telecommunication'/de OR 'teleconference'/exp OR 'videoconferencing'/exp OR 'communication software'/exp OR (videoconferenc* OR 'video conferen*' OR teleconferenc* OR 'tele-conferenc*' OR 'video record*' OR 'video facilit*' OR teleoncol* OR 'tele-oncol*'):ab,ti OR
((online OR webbased OR 'web based' OR web OR computer OR internet OR virtual OR tele OR video) NEAR/8 (communicat* OR conferen* OR meeting* OR collaborat* OR mdt OR mdts)):ab,ti)
AND
('neoplasm'/exp OR 'oncology'/exp OR 'oncologist'/exp OR 'cancer center'/exp OR 'oncologist'/exp OR (cancer*OR oncolog* OR neoplasm* OR malign* OR carcin* OR leukem* OR tumor* OR tumour* OR

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palliat*):ab,ti,de)
NOT
'conference abstract'/it

Cochrane Library (ti,ab,kw)
(interprofes* OR "inter-profes*" OR professional OR interdisciplin* OR "inter-disciplin*" OR multidisciplin* OR "multi-disciplin*" OR team OR teams OR "tumor board*" OR "tumour board*")
AND
(videoconferenc* OR "video conferen*" OR teleconferenc* OR "tele-conferenc*" OR "video record*" OR "video facilit*" OR teleoncol* OR "tele-oncol*" OR
((online OR webbased OR "web based" OR web OR computer OR internet OR virtual OR tele OR video) near (communicat* OR conferen* OR meeting* OR collaborat* OR mdt OR mdts)))
AND
(cancer*OR oncolog* OR neoplasm* OR malign* OR carcin* OR leukem* OR tumor* OR tumour* OR palliat*)

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Appendix 2a: In- and exclusion criteria

Eligible criteria phase one		
Selection criteria	*Inclusion*	*Exclusion*
Study design	All study designs	Reviews not applicable, only original research
Settings, domain	Videoconferencing for communication in Healthcare, between 2 or more groups (minimal number per groups = 2) of professionals at different sites aimed at collaboration over patient care	Telemedicine, e-Health, Education purposes only
Settings, healthcare professionals - teams		Professional with patient(s) videoconferencing (if not Telemedicine); One professional to one other professional videoconferencing.
Equipment		No videoconferencing used or only communication with telephone or mail
Time Frame	All time spans	
Languages	All (if needed translation will be done)	

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Appendix 2b: form screening title and abstract
Form selection abstract Scoping Review Videoconferencing (VC)
(form results will be marked on the abstract on paper and registered in Excel overview)

Try out will be performed on abstract numbers: 1, 11, 21, 31, 41, 51, 61, 71, 81, 91 and 101.

Refworks Number		
Assessor	☐ Lidia van Huizen	☐ Pieter Dijkstra
Date (of assessing)		
Title (first 3 words)		
Authors (first author)		
Year of publication		
Journal		

When answering questions: Black: if NO, stop; Red: of Yes, stop.

	Questions on in- and exclusion criteria	Yes	No	Not clear
1	Is the paper original research?			
2	Is VC described?			
3	Is the added value of VC described?			
4	Are participants Healthcare professionals?			
5	Does VC take place between 2 or more groups?			
6	Do the groups at each site or location consist of 2 or more participants?			
7	Is collaboration aimed at patient care or cure?			
8	Is telemedicine, e-Health or Education the only purpose of the VC?			
Remark?				

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Appendix2c: form screening full text
Part 2, full text, data extraction after abstract selection

General Reviewers	
Name	
Date (of extraction)	

General information on title / abstract (Result presentation as in Table 1)	
Title	
Authors	
Year publication, source	
Country	
Study location and context	
Study population and size / duration of study	

Objective and methods (study design)	
Aims of the study or objective	
Methodology or methods description	
Inclusion and exclusion criteria	
Methodology / data presented or obtainable	
Data collection period	
Sample size	
Equipment used	
Intervention type	

Results, discussion and conclusions	
Participants	
Key findings related review question	
Limitations of the study	
Other comments / remarks	

Type of information	
Outcome characteristics	
Setting of study	
Setting of participants	
Quality of evidence (specify)	
Is the value of VC discussed?	
Structure of VC	
Participants of videoconferencing (VC) EPOC 4: profession, level of training, clinical specialty (specify)	
Additional setting information	
Is the VC prepared?	
Are recommendations mentioned? Are changes in decisions due to the VC registered?	

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Is incident or complication discussion part of the agenda?	
Outcome characteristics	
If patients involved specify	
Purpose of videoconference	
Factors for successful videoconference	
Team collaboration	
Formal agreement	
Performance measurement?	
Criteria added value?	
Can participants see each other during interchange of patient information	
Other means of communications for participants besides videoconferencing in the same group?	
Results reported	
Equipment	
Equipment used How many sceens or computer monitors are available?	
Is it possible to show registrations in the medical records	

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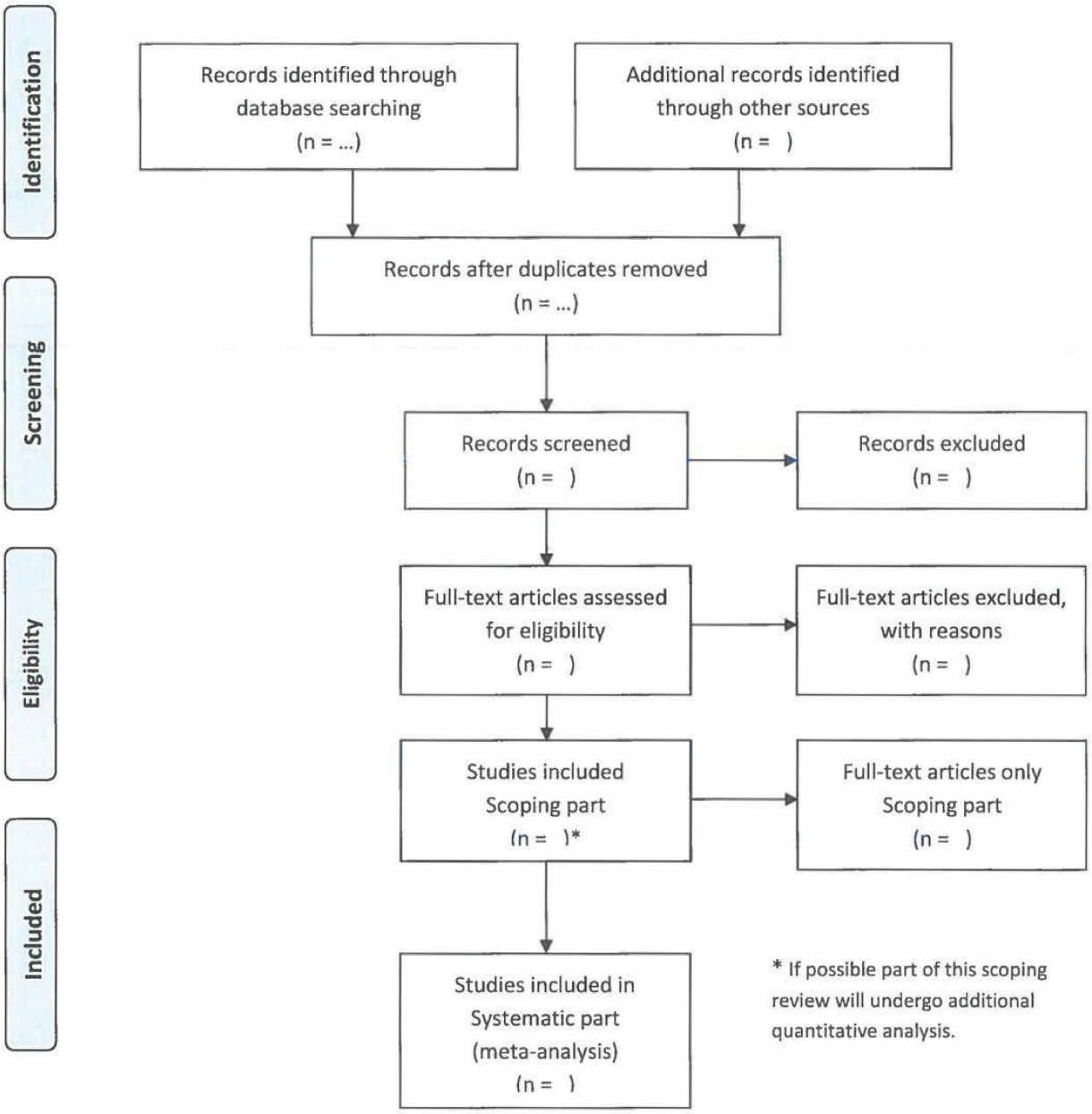
Appendix 3: PRISMA-ScR Flow Diagram Videoconferencing[2]



[2] *From* 2017 Guidance for the Conduct of JBI Scoping Reviews, September 2017; In book: Joanna Briggs Institute Reviewer's Manual, Chapter: 11; Publisher: The Joanna Briggs Institute, Editors: Edoardo Aromataris, Zachary Munn; Project: Guidance for the Conduct and Reporting of Scoping Reviews.

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