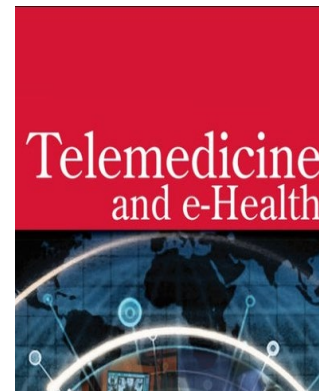
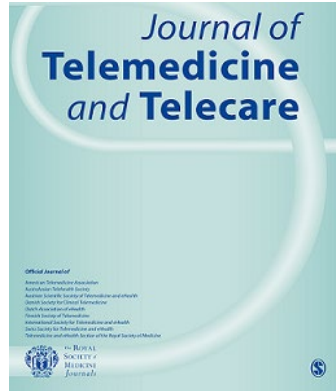


Hvad viser forskning i telemedicin?



Professor Kristian Kidholm

CIMT- Center for Innovativ Medicinsk Teknologi, OUH/SDU

Ønsker om øget brug af telemedicin i Danmark

- Økonomiaftalen 2019 + 2020: Nærhedsfinansiering
 - Regionerne skal øge andel af virtuelle sygehusforløb



- COVID-19 – ønske om behandling over afstand



- Befolkningen: ” 55% ønsker at kontakt med sundhedsvæsenet i højere grad sker digitalt”
(Interviewundersøgelse, Danske Patienter, maj 2020)



Er telemedicin
evidensbaseret?

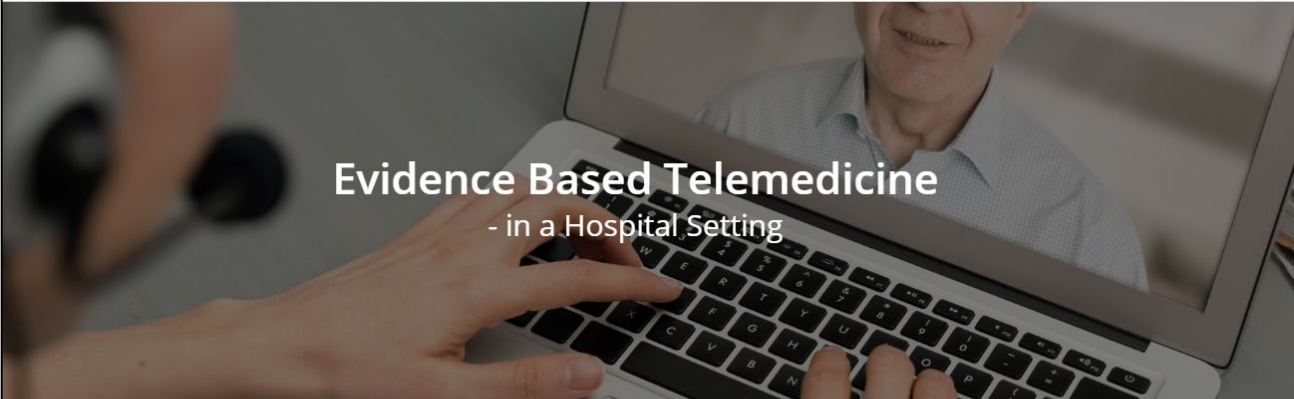
Hvilke typer af
telemedicin findes til
mine patienter?



Hvor kan jeg finde
information om
effekten af
telemedicin?

Database: Evidence Based Telemedicine - <https://telemedicine.cimt.dk/>

Search the Database Background and Method Contact



Evidence Based Telemedicine - in a Hospital Setting

Evidence Based Telemedicine – in a Hospital Setting

This website provides an overview of evidence based telemedicine in hospital settings and serves as an inspirational overview for clinical hospital departments looking for information on telemedicine as well as others who are interested in evidence based digital solutions in hospitals.

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[Read more about background and method](#)

Text Search

Medical Speciality

All

Search

☐ Cardiology (95)
☐ Clinical Pharmacology (3)
☐ Dermatology And Allergy (1)
☐ Emergency medicine (3)
☐ Geriatrics (5)
☐ Gynaecology And Obstetrics (20)
☐ Infectious Diseases (2)
☐ Medical Endocrinology (43)

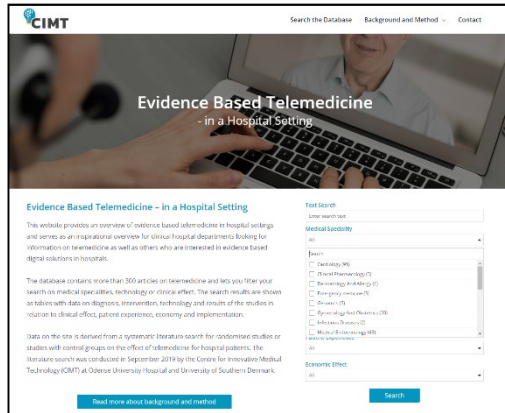
All

Economic Effect

All

Search

Database: Evidence Based Telemedicine - <https://telemedicine.cimt.dk/>



Search the Database

Use the filters in the drop-down menus below to search the article database.

Text Search

Country

Clinical Effect

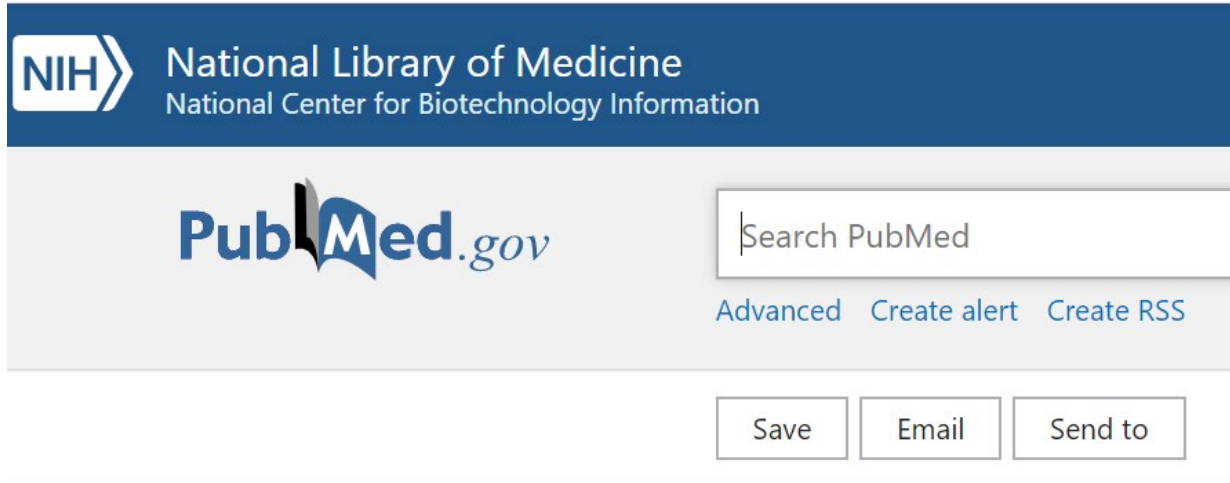
Economic Effect

Medical Speciality

Technology

Patient Experience

Databasens grundlag



NIH National Library of Medicine
National Center for Biotechnology Information

PubMed.gov

Search PubMed

[Advanced](#) [Create alert](#) [Create RSS](#)

Save Email Send to

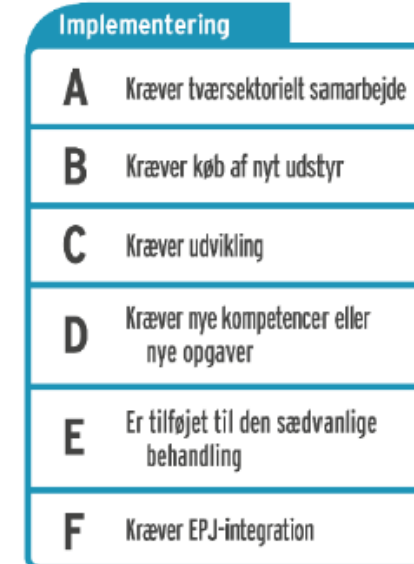
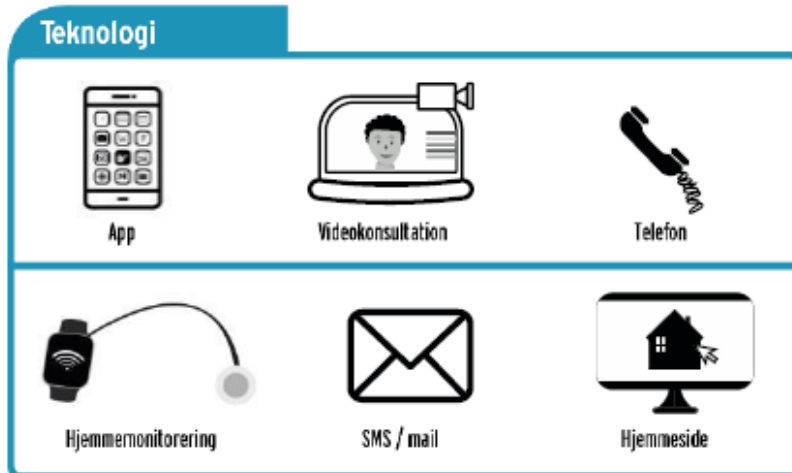
- August 2019: 2.825 hits
- 570 artikler sorteret i specialer
- 331 artikler inkluderet til dataekstraktion

Litteratursøgning i Pubmed-databasen

- Typer af teknologier: Telemedicin = *sundhedsydelser ved brug af IKT over afstand mellem patient og sygehuspersonale*
- Hospital setting
- Studietyper: RCT og studier med kontrolgruppe
- Sidste 10 år

Resultat af søgning i databasen

SOURCE	COUNTRY	DIAGNOSIS	INTERVENTION	TECHNOLOGY	CLINICAL EFFECT	PATIENT EXPERIENCE	ECONOMY	IMPLEMENTATION
1	Turkey	Diabetes mellitus, diagnosed in the previous year.	Patient education at the hospital in groups. Telephone follow-up on patient education, 1 call every week/first month, 1 call every second week/second and third month.					D
2	USA	Diabetes mellitus	Health buddy collect patient information on symptoms, vital signs, mental health, knowledge, and health behaviors by daily questions. Data were risk stratified for identification of appropriate feedback and intervention from care providers.					B+D
3	USA	Diabetes type 1, age 18-25 years	Complete 3 telemedicine video consultation appointments (with care provider only or a group session) and 1 in person visit.					B+D



Klinisk effekt af telemedicin?

- Positiv stat. sig. effekt: 48%
- Ingen stat. sig. effekt: 47 %
- Negativ stat. sig. effekt: 2 %
- Ingen information: 3%

Betydning:

- Negative effekter er sjældne
- Skal primært outcome være klinisk effekt?
- Er RCT det rigtige design til telemedicin?

Tabel 6. Oversigt over klinisk effekt i artiklerne fordelt på de 22 specialer.

Speciale	Positiv statistisk signifikant effekt	Ingen effekt	Negativ statistisk signifikant effekt	Ingen info
Akutmedicin	3	0	0	0
Demato-venerologi	0	1	0	0
Gynækologi og obstetrik	8	11	0	1
Endokrinologi	24	18	1	1
Gastroenterologi og hepatologi	3	5	0	0
Geriatrici	4	1	0	0
Infektionsmedicin	1	1	0	0
Kardiologi	48	45	1	1
Lungesygdomme	22	28	2	1
Neurologi	2	1	0	1
Reumatologi	1	4	0	0
Karkirurgi	0	1	0	0
Kirurgi	3	3	0	0
Plastikkirurgi	1	3	1	0
Thoraxkirurgi	4	0	0	0
Urologi	1	0	0	0
Klinisk Farmakologi	2	1	0	0
Klinisk Onkologi	14	8	0	0
Neurologi	5	9	0	0
Ortopædisk kirurgi	7	8	0	1
Oto-rhino-laryngologi	2	0	0	0
Pædiatri	9	13	1	2
Total	164	161	6	8

Patientoplevelse?

- Kriterie: 50% tilfredse/anvendte telemedicin
- Undersøgt i 48 % af studier
- Heraf viser 73% positiv patientoplevelse

Betydning:

- Flere studier bør medtage:
 - Patienttilfredshed
 - Acceptability
 - Empowerment
 - Tryghed...
- Er der forskelle mellem patientgrupper?

Tabel 7. Oversigt over patientoplevelser i artiklerne fordelt på de 22 specialer.

Speciale	Info om patientoplevelser	Positive patientoplevelser
Akutmedicin	0	0
Demato-venerologi	1	0
Gynækologi og obstetrik	8	5
Endokrinologi	15	12
Gastroenterologi og hepatologi	4	4
Geriatrici	2	1
Infektionsmedicin	1	1
Kardiologi	42	30
Lungesygdomme	27	17
Nefrologi	3	3
Reumatologi	3	3
Karkirurgi	1	1
Kirurgi	5	4
Plastikkirurgi	2	1
Thoraxkirurgi	2	1
Urologi	0	0
Klinisk Farmakologi	0	0
Klinisk Onkologi	13	12
Neurologi	8	7
Ortopædisk kirurgi	6	2
Oto-rhino-laryngologi	1	1
Pædiatri	20	14
Total	164	119

Økonomi?

- Forbrug af behandling: 53 % af studierne
- Heraf: 52% finder stat. sig. reduktion i forbrug.

Betydning:

- Ikke lig med reduktion i totale omkostninger
- Typisk er prisen for interventionen udeladt
 - TeleKOL (2017): €700
 - Whole System Demonstrator: €1800
 - Teledialog (2016): €400
- Løsningen:



Tabel 8. Oversigt over økonomi i artiklerne fordelt på de 22 specialer.

Speciale	Info om økonomi	Positiv statistisk signifikant effekt
Akutmedicin	1	0
Demato-venerologi	1	0
Gynækologi og obstetrik	12	6
Endokrinologi	16	9
Gastroenterologi og hepatologi	4	3
Geriatrici	5	3
Infektionsmedicin	1	0
Kardiologi	60	34
Lungesygdomme	36	15
Nefrologi	2	2
Reumatologi	1	0
Karkirurgi	1	0
Kirurgi	3	2
Plastikkirurgi	4	2
Thoraxkirurgi	4	2
Urologi	0	0
Klinisk Farmakologi	1	1
Klinisk Onkologi	7	3
Neurologi	6	2
Ortopædisk kirurgi	2	2
Oto-rhino-laryngologi	1	1
Pædiatri	11	6
Total	179	93

Implementering?

- Typisk 2-4 implementerings-udfordringer
- Typiske udfordringer:
 - B: Kræver køb af nyt IT-udstyr
 - D: Kræver nye kompetencer og uddannelse for personale

Betydning:

- Implementering sker ikke af sig selv
- Ressourceforbrug til implementering skal med i nye studier
- Eksempler fra OUH –projekter:
 - Møder med ledelsen
 - Personalemøder
 - Træning og kurser for personalet
 - Udformning af skriftlige guidelines og video
 - Peer to peer træning
 - Lokale projektleder – onsite support

Implementering

- | | |
|----------|---|
| A | Kræver tværsektorielt samarbejde |
| B | Kræver køb af nyt udstyr |
| C | Kræver udvikling |
| D | Kræver nye kompetencer eller nye opgaver |
| E | Er tilføjet til den sædvanlige behandling |
| F | Kræver EPJ-integration |

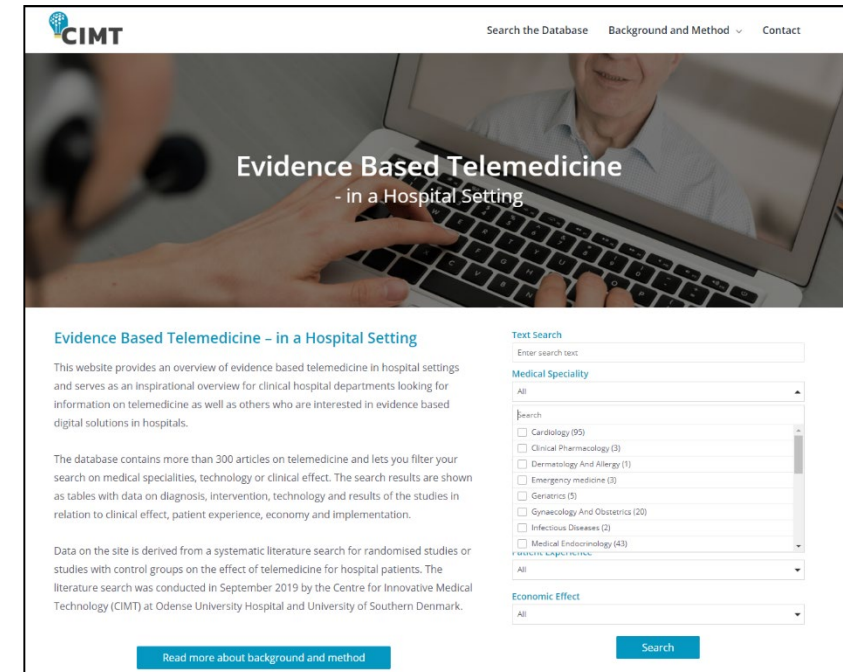
Konklusion

1. Brug databasen når du skal finde evidensbaseret telemedicin til dine patienter

Evidence Based Telemedicine - <https://telemedicine.cimt.dk/>

2. Husk i dit næste forskningsprojekt:

- Overvej om du kan forvente kliniske effekter!
- Eller om fx patient empowerment skal være primært effektmål!
- Lav nu ordentlige økonomiske studier!
- Husk at indtænke ressourcer til implementering!



The screenshot shows the homepage of the Evidence Based Telemedicine website. The header includes the CIMT logo and navigation links: 'Search the Database', 'Background and Method', and 'Contact'. The main banner features a photo of a person using a laptop with the text 'Evidence Based Telemedicine - in a Hospital Setting'. Below the banner, there is a section titled 'Evidence Based Telemedicine - in a Hospital Setting' with a brief description of the website's purpose. To the right, there is a search interface with a 'Text Search' box, a 'Medical Speciality' dropdown menu, and a list of medical specialties with checkboxes and counts. At the bottom, there is a 'Search' button and a link to 'Read more about background and method'.

CIMT Search the Database Background and Method Contact

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Enter search text

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- ☐ Infectious Diseases (2)
- ☐ Medical Endocrinology (43)

Economic Effect
All

[Read more about background and method](#) [Search](#)