

RAPPORT

2024

FORSKNINGSKARTLEGGING

Forskning innen akuttmedisinske tjenester utenfor sykehus i Norge etter år 2000

Et systematisk litteratursøk med sortering

Utgitt av Folkehelseinstituttet
Område for helsetjenester

Tittel Forskning innen akuttmedisinske tjenester utenfor sykehus i Norge etter år 2000: et systematisk litteratursøk med sortering

English title Research on prehospital emergency medical services in Norway after the year 2000: a systematic literature search with sorting

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Hovedbudskap

Akuttmedisinske tjenester utenfor sykehus yter nødhjelp eller annen nødvendig medisinsk behandling utenfor sykehuset av en rekke helsetjenester, vanligvis på steder der en nødsituasjon eller annet akuttmedisinsk behov oppstår.

Målet med denne kunnskapsoppsummeringen var å kartlegge hva som har blitt utført av forskning innen de akuttmedisinske tjenestene utenfor sykehus i Norge etter år 2000.

Vi utførte et systematisk litteratursøk med sortering. Det er en type kunnskapsoppsummering over hva som fins av litteratur på et spesifikt spørsmål, med inkluderte publikasjoner sortert i kategorier og presentert i lister og/eller ved hjelp av figurer og diagrammer.

Vi inkluderte 485 publikasjoner som har undersøkt de akuttmedisinske tjenestene i Norge i perioden 2000-2023. Vi fant at:

- Det er en jevn økning over tid i antall publikasjoner som omhandler akuttmedisinske tjenester.
- Det er store forskjeller i hvilke akuttmedisinske tjenester og tilstander det forskes på.
- Flest studier omhandler kommunal legevaktordning og luftambulansetjenesten.
- Få studier omhandler psykisk helsevern og rusbehandling.
- Få studier undersøker samhandling på tvers i den akuttmedisinske kjeden.

Selv om det er en økning i mengde forskning som utføres innen de akuttmedisinske tjenestene i Norge, fins det på flere områder svært lite forskning. Det indikerer behov for en betydelig forskningsinnsats i fremtiden.

Tittel:

Forskning innen akuttmedisinske tjenester utenfor sykehus i Norge etter år 2000: et systematisk litteratursøk med sortering

Hvem står bak denne publikasjonen?

Folkehelseinstituttet, på oppdrag fra Helsedirektoratet

Når ble litteratursøket avsluttet?

November 2023

Key messages

Prehospital emergency medical services provide necessary medical treatments outside the hospital by a range of healthcare services, usually where acute medical need arises.

The aim of this systematic review was to map the research conducted on prehospital emergency medical services in Norway after the year 2000.

We conducted a systematic literature search with sorting, which is a type of systematic review of all literature available on a specific question, with included publications sorted into categories and presented in lists and/or using figures and diagrams.

We included 485 publications on prehospital medical services in Norway from 2000 to 2023. We found that:

- There is a steady increase over time in the number of publications addressing prehospital medical services.
- There are considerable differences in the types of prehospital medical services and conditions being researched.
- Most studies focus on municipal emergency care and air ambulance services.
- Few studies address mental health care and substance abuse treatment.
- Few studies examine collaboration across the acute medical care chain.

Despite an increase in the amount of research being conducted on prehospital medical services in Norway, there is still a dearth of research on several topics. This indicates a need for considerable research efforts in the future.

Title:

Research on prehospital emergency medical services in Norway after the year 2000: a systematic literature search with sorting

Publisher:

The Norwegian Institute of Public Health conducted the review based on a commission from the Norwegian Directorate of Health

Last search for studies:

November, 2023.

Forord

Område for helsetjenester, Folkehelseinstituttet (FHI), fikk i september 2023 i oppdrag av Helsedirektoratet (Hdir) å utføre en kunnskapsoppsummering av typen 'systematisk litteratursøk med sortering', over forskning innen akuttmedisinske tjenester i Norge. Oppsummeringen er relevant for Helse- og omsorgsdepartementet, Helsedirektoratet, akuttmedisinske tjenester utenfor sykehus, kompetansetjenester og forskningsmiljøer innen prehospital akuttmedisin, virksomhetsledere, utdanningsinstitusjoner og helsepersonell.

Område for helsetjenester, FHI, følger en felles framgangsmåte i arbeidet med kunnskapsoppsummeringer, dokumentert i håndboka «Slik oppsummerer vi forskning». Det innebærer blant annet at vi kan bruke standardformuleringer når vi beskriver metode, resultater og i diskusjon av funnene.

Finansiering

Helsedirektoratet finansierte oppsummeringen. Helsedirektoratet tydeliggjorde problemstillingen og inklusjonskriteriene, men hadde ingen rolle i utarbeidelsen av oppsummeringen.

Bidragstere

Prosjektleder: Trine Bjerke Johansen

Interne prosjektmedarbeidere ved FHI: Gyri Hval, Martin Smådal Larsen og Nikita Baiju.

Takk til kollega Tiril C. Borge for bistand med EPPI-reviewer og maskinlæring.

Oppgitte interessekonflikter

Alle forfattere og fagfeller har fylt ut et skjema som kartlegger mulige interessekonflikter. Ingen oppgir interessekonflikter.

Folkehelseinstituttet tar det fulle ansvaret for innholdet i rapporten.

Rigmor Berg
avdelingsdirektør

Trine Bjerke Johansen
prosjektleder

Innledning

Beskrivelse av tematikken

I denne kunnskapsoppsummeringen refererer prehospitale eller akuttmedisinske tjenester til akuttmedisinske tjenester og nødhjelp som gis utenfor sykehuset, vanligvis på stedet der en nødsituasjon eller annet akuttmedisinsk behov oppstår. Det er de regionale helseforetakene og kommunene som har ansvaret for den akuttmedisinske beredskapen. De akuttmedisinske tjenestene utenfor sykehus består av kommunal legevaktordning, bil-, båt- og luftambulansse og medisinsk nødmeldetjeneste (akuttmedisinsk kommunikasjonsentral (AMK) og legevaktssentraler) samt øvrige kommunale øyeblikkelige hjelpetjenester. I sykehus omfatter akuttberedskapen somatiske akuttmottak, akutt behandlingstilbud i tverrfaglig spesialisert rusbehandling og psykisk helsevern, herunder ambulante akutteam og brukerstyrt innleggelse. Andre nødetater og frivillige organisasjoner inngår også i denne akuttberedskapen (1).

Tall fra The Organization for Economic Cooperation and Development (OECD) viser at Norge jevnt over har god akuttmedisinsk beredskap, og at helsepersonell er raskt på plass og gir kvalifisert helsehjelp ved alvorlig sykdom eller skade. Norge er blant landene med lavest dødelighet etter hjerteinfarkt og hjerneslag (1).

Det har blitt gjennomført to offentlige utredninger om akuttmedisinske tjenester i Norge (2;3). I NOU 2015: 17 Først og fremst, som ble lagt frem i 2015, trakk utvalget frem at akuttberedskapen i Norge i utgangspunktet er god, men at det er behov for et nasjonalt løft for å øke kapasitet, kompetanse og kvalitet i akuttkjeden. Det er flere områder som tydeliggjør dette behovet. Norge har geografiske forskjeller og utfordringer knyttet til de minst sentrale områdene i landet, slik som lange avstander, lengre reisevei for innbyggerne, og områder med for få oppdrag til å opprettholde kompetanse hos de ansatte. Det er også økning i antall henvendelser fra pasienter med behov for akutt hjelp for psykiske lidelser og rusutfordringer, og det er store forskjeller i hvordan pasienter møtes og behandles ut fra om de har somatisk eller psykisk sykdom. Videre trakk utvalget frem at det forskes for lite på akuttmedisinske tjenester utenfor sykehus, og at kunnskapen om virkninger av økt innsats prehospitalt og hva som vil være de beste tiltakene i fremtiden er mangelfull.

Regjeringen skal etter planen legge frem en stortingsmelding om akuttmedisinske tjenester høsten 2024/våren 2025 (4). Stortingsmeldingen skal omfatte alle leddene i akuttkjeden utenfor sykehus, akuttmottak i sykehus for somatikk, psykisk helsevern og

rusbehandling, samt andre nødetater, frivillige organisasjoner og befolkningens kunnskap om førstehjelp. Et sentralt tema for meldingen vil være hvordan beredskap og et godt akuttmedisinsk tilbud kan sikres i hele landet, blant annet gjennom bruk av teknologi og nye samarbeids- og arbeidsformer, og se nærmere på aktørenes roller, oppgaver og kompetansebehov i møte med en økende andel eldre.

Hvorfor det er viktig å utføre denne oppsummeringen

Ved å identifisere forskning om akuttmedisinske tjenester i Norge ønsker Helsedirektoratet å kartlegge om forskningen som har blitt gjort har vært målrettet i henhold til kunnskapsbehovene som ble identifisert i de tidligere NOU'ene (2;3). Videre kan denne kunnskapsoppsummeringen bidra til å få en oversikt over forskningen som fins om prehospitaltjenester i Norge, avdekke områder hvor det mangler forskning og områder hvor det fortsatt er behov for større forskningsinnsats.

Mål og problemstilling

Målet med dette systematiske litteratursøket med sortering var å svare på følgende problemstilling: Hva er utført av forskning innen akuttmedisinske tjenester utenfor sykehus i Norge etter år 2000?

Metode

Vi utførte et systematisk litteratursøk med sortering over studier som har undersøkt prehospitaltjenester i Norge. Oppsummeringen er et uavhengig arbeid av forskergruppen ved FHI. Iht. internasjonale metodeanbefalinger (5;6), og for å sikre at oppsummeringen tilfredsstilte oppdragsgivers kunnskapsbehov, hadde vi konsultasjon med oppdragsgiver og fremtidig bruker av oppsummeringen før arbeidet med oppsummeringen startet. Gjennom samtaler med Helsedirektoratet avklarte vi og oppnådde god forståelse for oppdragsgivers kunnskapsbehov, ønsker om delleveranser og oppdateringer.

Beskrivelse av systematisk litteratursøk med sortering og forskningskart

Et systematisk litteratursøk med sortering er en type kunnskapsoppsummering over hva som fins av litteratur på et spesifikt spørsmål. Prosessen innebærer å identifisere forskningsspørsmålet, bestemme inklusjons- og eksklusjonskriterier, søke etter (identifisere) litteratur, velge ut publikasjoner, hente ut data og sortere og lage liste over de publikasjonene (vanligvis forskningslitteratur) som møter inklusjonskriteriene. Resultatet av en slik oppsummering er dermed en enkel beskrivelse der publikasjonene er sortert i kategorier og presentert i lister. Oppsummeringen er utarbeidet på en vitenskapelig, systematisk og transparent måte – andre kan etterprøve våre resultater og konklusjoner – som gjør at resultatene er pålitelige.

I tillegg til å gi en pålitelig oversikt over hvilke publikasjoner som fins om forskningsspørsmålet er en slik oppsummering egnet som grunnlag for en avgjørelse om en eventuell videre utredning av problemstillingen. En ytterligere fordel er at oppsummeringen kan utføres og leveres i løpet av relativt kort tid. For nettopp å kunne balansere ønsket om å følge strenge forskningsmetodiske krav med behovet for leveranse til rett tid er imidlertid en begrensning ved et systematisk litteratursøk med sortering at de inkluderte publikasjonene vanligvis hverken leses i fulltekst eller kvalitetsvurderes. En slik oppsummering inkluderer heller ikke analyser eller synteser av studienes forskningsresultater, eller vurdering av tillit til den samlede dokumentasjonen, slik en systematisk oversikt gjør. Vi inkluderer og sorterer referansene basert på den informasjonen som er gitt i titler og sammendrag. I noen tilfeller fins det begrenset informasjon i sammendragene, og publikasjonene lar seg dermed vanskelig gruppere. Et systematisk litteratursøk med sortering er ikke egnet til å gi klart svar på for eksempel spørsmål om effekt av et tiltak eller erfaringer med et tiltak, men gir i stedet et overblikk over forskningen som fins. Diskusjon av resultatene og implikasjoner for praksis er følgelig begrenset i et systematisk litteratursøk med sortering.

I denne kunnskapsoppsummeringen har vi listet og sortert de inkluderte studiene i vedlegg og vi har lagt inn studiene i et forskningskart. Et forskningskart er et nyttig verktøy for å synliggjøre og visualisere den tilgjengelige forskningen som fins om et spesifikt, bredere forskningsspørsmål. Et forskningskart er interaktivt og er ment å være et levende, nettbasert kart over forskningen innen et felt, organisert i henhold til predefinerte koder (7).

Et forskningskart har flere likheter med et systematisk litteratursøk med sortering. Begge har til hensikt å gi en oversikt over eksisterende forskning på et gitt forskningsspørsmål. Forskjellen er at i et forskningskart blir de inkluderte studiene kodet ut fra et forhåndsdefinert sett av kategorier, og disse presenteres i den interaktive formidlingsplattformen EPPI-Vis, som er tilgjengelig i datahåndteringsverktøyet EPPI Reviewer (8). I tillegg presenteres resultatene sammen med diagrammer og tabeller i den publiserte rapporten.

Trinnene i oppsummeringen er beskrevet i større detalj nedenfor. For ytterligere detaljer om våre metoder og arbeidsform henviser vi til vår metodebok «Slik oppsummerer vi forskning» som fins på FHIs nettsider (9).

Vi utarbeidet oppsummeringen i følgende trinn:

1. Definere forskningsspørsmålet/problemstillingen
2. Utarbeide inklusjon- og eksklusjonskriteriene ut fra forskningsspørsmålet
3. Utarbeide og utføre et litteratursøk basert på inklusjonskriteriene
4. Velge ut litteratur i henhold til inklusjons- og eksklusjonskriteriene
5. Sortere data fra inkluderte studier/publikasjoner og lage lister
6. Kode de inkluderte studiene etter de forhåndsdefinerte kodene

Prosjektplan

Oppsummeringen er gjennomført i tråd med en enkel prosjektplan som ikke er publisert. Den er tilgjengelig fra førsteforfatter. Vi avklarte prosjektplanen med oppdragsgiver Helsedirektoratet før vi utførte oppsummeringen.

Forskningsspørsmål

Hva er utført av forskning innen akuttmedisinske tjenester utenfor sykehus i Norge etter år 2000?

Inklusjonskriterier

Inklusjonskriteriene våre var:

Studiedesign	Empiriske primærstudier
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Populasjon	<ul style="list-style-type: none"> • Pasienter som mottar prehospitaltjenester. • Helsepersonell som behandler pasienter prehospitalt. • Befolkningen/tilskuere som identifiserer sykdomstegn eller skader, varsler helsetjenesten og yter livreddende førstehjelpsinnsetning frem til helseressurser ankommer. • Akutthjelper (First responder), dvs. brann, politi, frivillige, som yter livreddende førstehjelp ved tidskrisiske tilstander.
Ekspone- ring/tema av interesse	<p>Prehospitaltjenester, dvs. akuttmedisinske tjenester som gis til en pasient <i>utenfor</i> sykehuset. Det omfatter all form for akuttmedisinsk helsehjelp, herunder også akutt psykisk helsehjelp, og innebefatter:</p> <ul style="list-style-type: none"> • Kommunal legevaktordning • Kommunal akutt døgnenhet/øyeblikkelig hjelp døgnopphold • Ambulante akutteam/akutte ambulante team • Ambulansetjenesten – bil, båt og luftambulans (helikopter og fly) • Enredder (single paramedic /community paramedic) • Medisinsk nødmeldetjeneste som omfatter legevaktssentraler (116117), AMK-sentraler (113) og kommunikasjonsløsningene mellom publikum og nødmeldetjenesten (telefon og video) og mellom aktørene utenfor sykehus (Nødnett). • Sykehusenes akuttmottak som omfatter akuttmottakets kommunikasjon og samhandling med andre prehospitaltjenester (f.eks. tidlig varsling om pasienter med tidskrisiske tilstander), eller til pasienten blir tilsett av en lege etter ankomst til akuttmottaket og vurdert mht. behandlingsbehov.
Publikasjonsår	2000-2023
Land/Kontekst	Norge
Språk	Sammendrag skrevet på norsk, svensk, dansk eller engelsk
Annet	Ved blandet populasjon (f.eks. pasienter i og utenfor Norge [aktuelt i registerstudier, multisenterstudier]) vil disse publikasjonene bli satt på en egen liste i rapporten.

Ekklusjonskriterier

Vi ekskluderte følgende typer studier og publikasjoner:

- Publikasjoner uten empiriske data (f.eks. kommentarer, prosjektplaner, lederartikler, konferanseabstrakt)
- Publikasjoner som ikke har en tydelig beskrivelse av metode
- Bacheloroppgaver og masteroppgaver
- Doktorgradsavhandlinger (vil bli satt på en egen liste og lagt ved som vedlegg i rapporten)

Litteratursøk

Søk i databaser

Bibliotekar Martin Smådal Larsen (MSL) utarbeidet en søkestrategi i samarbeid med prosjektgruppen og utførte søkene. Bibliotekar Gyri Hval (GH) fagfellevurderte søkestrategien. Søket ble avsluttet i november 2023 og inkluderte søk i følgende databaser:

- Medline (Ovid)
- Embase (Ovid)
- APA PsycInfo (Ovid)
- Cochrane Central

Søket ble bygd opp av emneord og tekstord for Norge om prehospitale tjenester. Om Norge ble også utdanningsinstitusjoner og sykehus brukt som søkekomponenter. Det ble ikke søkt på spesifikke hendelser som overdose eller hjerteinfarkt. Denne avgjørelsen ble tatt for å ikke få skjevhet i søket. Målet med søket var å fange opp det som har blitt gjort av forskning i Norge på prehospitale tjenester og derfor ble strategien å gå bredt ut, og heller finne synonymer for prehospitale tjenester enn å søke etter spesifikke traumer.

I dialog med oppdragsgiver fikk vi hjelp til å definere hva prehospitale tjenester er, og de ulike akuttmedisinske tjenestene ble forsøkt representert i søket, samtidig som søket også søkte mer generelt på prehospitale tjenester. For eksempel ble prehospitale tjenester satt i kombinasjon med Norge på denne måten: ((Norway/ OR Norge OR Viken OR Nordlandssykehuset OR Oslo Universitetssykehus OR OUS ((hospital or sjuk* or sykehus*) adj1 (aker or telemark or ostfold))) AND (prehospital OR ((before OR pre OR acute) adj3 hospital) OR emergency medical service communication systems/ OR EMS OR ((emergency OR accident*) and (police OR firefighter* OR "fire fighter*")) OR ambulance OR (("primary health care" OR GP) and (ems or emergency or accident))).

Fullstendig søkestrategi fins i vedlegg 1. I samråd med oppdragsgiver avgrenset vi søket til publikasjoner fra år 2000 og fram til søkedato. Det ble ikke brukt søkefilter, for eksempel for randomiserte kontrollerte studier, fordi målet med søket var å finne alle typer forskning. Vi lastet søketreffene inn i EndNote (10) for duplikatsjekk, og videre til Eppi-reviewer (8) for enda en dublettsjekk og videre behandling.

Søk i andre kilder

Bibliotekar (GH) utførte litteratursøk i Cristin, og gikk gjennom nettsidene til relevante norske organisasjoner; disse er listet i vedlegg 1. GH gikk også gjennom publiserte kunnskapsoppsummeringer på www.fhi.no, og sjekket samtidig inklusjons- og eksklusjonslister i de kunnskapsoppsummeringene som var relevante.

Prosjektgruppen tok i samarbeid med Helsedirektoratet kontakt med aktuelle fagmiljøer for å be om innspill på listen over inkluderte studier. Dette ble gjort for å redusere risikoen for å gå glipp av relevante studier.

Utvelging av litteratur

Én prosjektmedarbeider (TBJ/GH/MSL/NB) gjorde vurderinger («screening») av titler og sammendrag fra litteratursøket opp mot inklusjonskriteriene. Vi brukte maskinlæringsfunksjoner i det elektroniske verktøyet EPPI-Reviewer (10) for å hjelpe oss med å vurdere titler og sammendrag mer effektivt. Enkelt sagt betyr maskinlæring at vi tar i bruk algoritmer som gjør at programvaren er i stand til å lære fra og utvikle sin beslutningsstøtte basert på empiriske data som vi fører den med. Se strategi for bruk av maskinlæring i vedlegg 2.

Vi piloterte inklusjonskriteriene på de 100 første referansene, for å sikre at prosjektmedarbeiderne hadde en felles forståelse for inklusjonskriteriene. Uenighet om vurderinger av titler/sammendrag løste vi ved diskusjon eller ved å konferere med en tredje prosjektmedarbeider (TBJ/GH/MSL/NB).

Uthenting og sortering av data

På grunn av det høye antallet publikasjoner inkludert i denne kunnskapsoppsummeringen og tidsrammen for prosjektet, hentet vi en begrenset mengde med data ut fra publikasjonene.

Siden hensikten med denne typen kunnskapsoppsummering – et systematisk litteratursøk med sortering – er å kunne gi, i løpet av kort tid, sorterte lister av forskningen/litteraturen på et felt, kodet én medarbeider (TBJ/GH/MSL/NB) publikasjonene ved bruk av verktøyet EPPI-Reviewer. Hver publikasjon ble kodet etter forhåndsbestemte koder laget av prosjektgruppen. Det var i noen tilfeller ingen informasjon tilgjengelig og/eller det var vanskelig å bestemme hvilken kategori/kode som passet best for en publikasjon. I disse tilfellene gjorde koderen en helhetlig vurdering basert på innholdet i sammendraget og ut fra studiens målsetting.

I den grad informasjonen var tilgjengelig kodet forskeren publikasjonene i følgende hoved- og underkategorier:

- Tilstand pasient
 - Hjerteinfarkt
 - Hjertestans
 - Hjerneslag
 - Hypotermi
 - Psykisk lidelse
 - Overdose/rus
 - Skade/tilstand uspesifisert
 - Annet
- Populasjon
 - Pasienter
 - Helsepersonell
 - Tilskuere

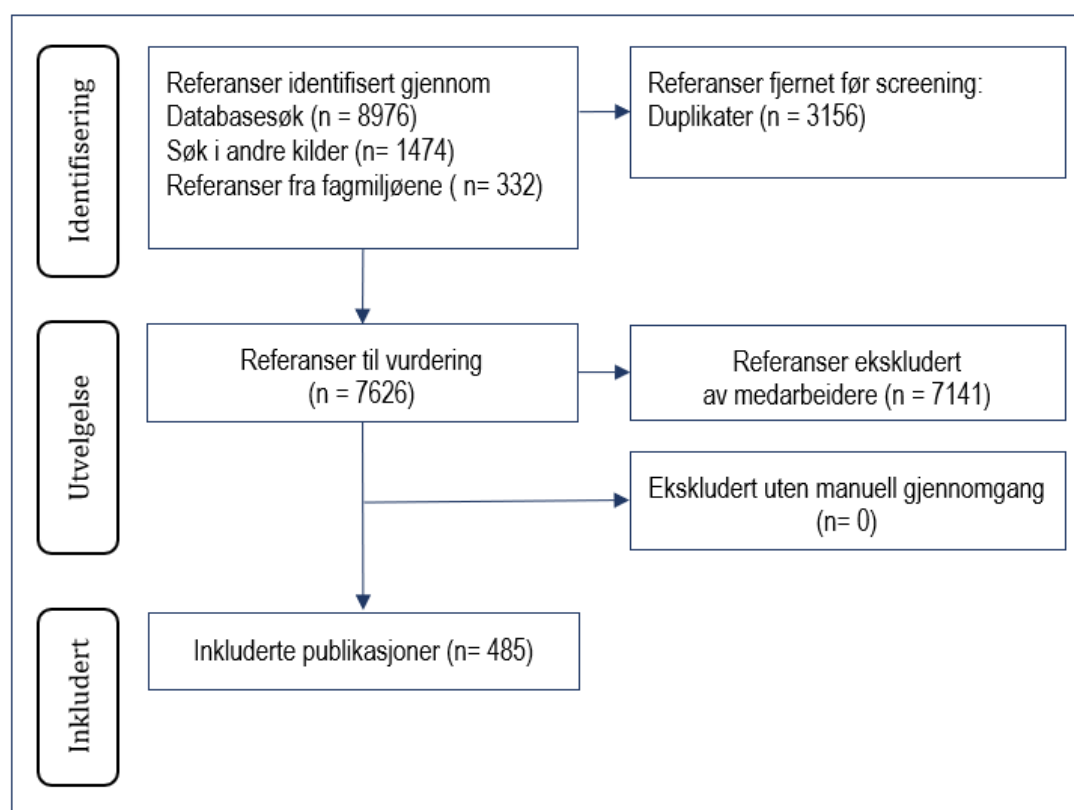
- Akutthjelper
- Eksponering/tema av interesse
 - Kommunal legevaktordning
 - Kommunal akutt døgnenhet/øyeblikkelig hjelp døgnopphold
 - Ambulant akutteam / akutt ambulant team
 - Luftambulansetjenesten (fly og helikopter)
 - Ambulansetjenesten bil
 - Ambulansetjenesten båt
 - Enredder tjeneste
 - Medisinsk nødmeldetjeneste
 - Akuttmottak sykehus (somatisk, psykisk helsevern, rus)
 - Trening/opplæring
 - Akuttmedisinsk tjeneste uspesifisert
- Studiedesign
 - Kvalitativ studie
 - Kohort studie
 - Tverrsnittstudie
 - Kasus-kontroll studie
 - Kontrollert studie
 - Flermetodisk studie
 - Registerstudie
 - Kasusstudie
 - Helseøkonomisk evaluering
 - Annet/uspesifisert studiedesign
 - Uklart/ingen informasjon
- Samhandling og samarbeid mellom flere prehospitaltjenester

Underkategoriene er ikke gjensidig utelukkende og enkelte publikasjoner er kategorisert med flere underkategorier.

Resultater

Resultater av litteratursøket og utvelgelse av studier

Databasesøkene ga 8976 treff før fjerning av dubletter (figur 1). Etter fjerning av dubletter satt vi igjen med 5820 referanser. Søk i andre kilder ga 1474 treff. Vi mottok en liste over referanser fra norske fagmiljøer, av disse ble 332 referanser identifisert som relevante og tatt med til videre vurdering. Totalt vurderte vi 7626 referanser på tittel- og sammendragsnivå. Av alle disse ekskluderte vi 7141 referanser som åpenbart ikke oppfylte inklusjonskriteriene våre. Vi inkluderte totalt 485 publikasjoner (se [forskningskartet](#) for fullstendig liste med referanser, samt vedlegg 3).



Figur 1: Flytdiagram over utvelgelse av studier

Beskrivelse av de inkluderte publikasjonene

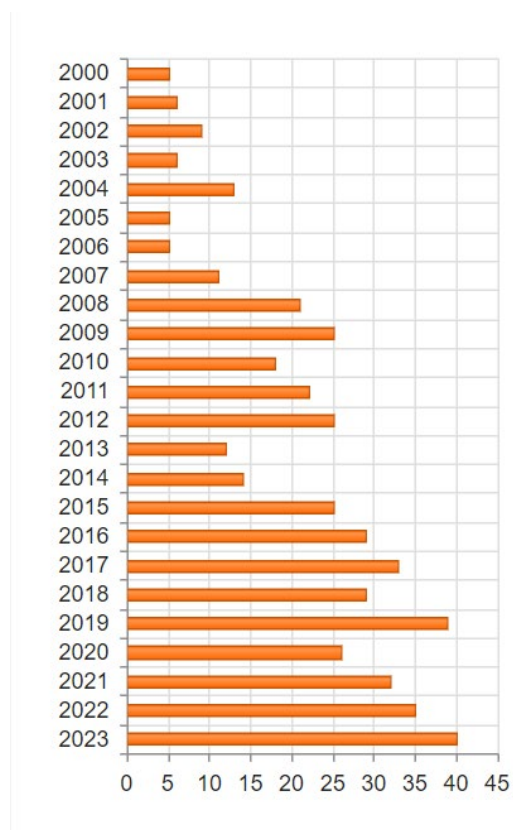
Under presenteres resultatene kort i tekst, illustrert med figurer og diagrammer. En liste over de inkluderte studiene fins i vedlegg 3. I tillegg er resultatene tilgjengelige i

den nettbaserte formidlingsplattformen EPPI-Vis (se [forskningskartet](#)). EPPI-Vis visualiserer blant annet forekomsten av publikasjoner og gir leseren mulighet til å utforske dem basert på kodingen beskrevet under punktet over om 'Uthenting og sortering av data'. Veiledning i bruk av EPPI-Vis fins nederst i resultatkapittelet, samt i vedlegg 4.

Vi inkluderte totalt 485 publikasjoner som inneholder forskning innen akuttmedisinske tjenester i Norge i perioden 2000-2023. Vi gjør leseren oppmerksom på at flere av publikasjonene kan ha helt eller delvis samme utvalg og datamateriale. Gitt tids- og ressursrammene for prosjektet var det ikke mulig å sjekke slik informasjon i alle publikasjonene.

Årstall

Oversikten over antall publikasjoner fordelt på årstall viser en jevn økning i antall publikasjoner i perioden 2000 til 2023, se figur 2. Høyeste antall studier publisert i ett enkelt år var i 2023, med 40 studier. De siste syv årene er det gjennomsnittlige publikasjonstallet 33 publikasjoner pr år, mens det gjennomsnittlige publikasjonstallet i perioden 2000-2006 var på syv studier pr år. Resultatene kan tyde på at det har vært en økning i forskningsinnsatsen innen akuttmedisinske tjenester i Norge i perioden 2000-2023.



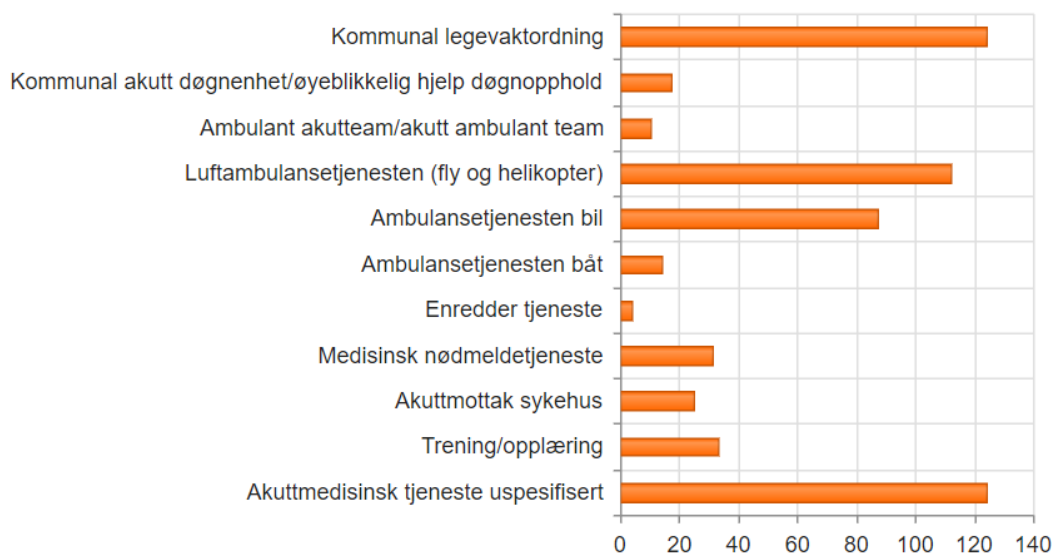
Figur 2: Oversikt over antall publikasjoner fordelt på år

Eksposering akuttmedisinsk tjeneste

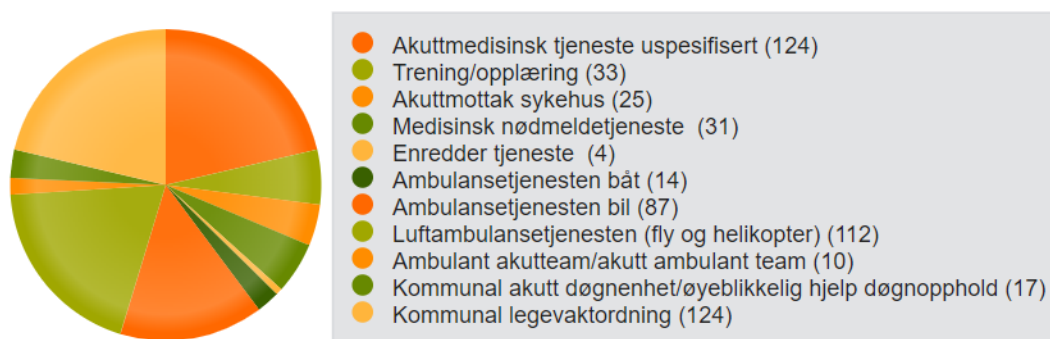
Oversikten over antall publikasjoner fordelt på type akuttmedisinsk tjeneste i perioden 2000-2023 (figur 3 og 4) viser at det var flest publikasjoner innen kommunal legevaktordning med 124 publikasjoner, etterfulgt av luftambulansen og ambulansetjenesten (bil), med henholdsvis 112 og 87 publikasjoner. I kategorien akuttmedisinsk tjeneste

uspesifisert var det 124 publikasjoner. Dette var hovedsakelig studier uten en klart definert akuttmedisinsk tjeneste¹.

Færrest publikasjoner var det for den akuttmedisinske tjenesten en-redder-tjeneste (4 publikasjoner), etterfulgt av ambulansetjeneste (10 publikasjoner), ambulansetjeneste (båt)² (14 publikasjoner) og kommunal akutt døgnenhet (17 publikasjoner).



Figur 3: Oversikt over antall publikasjoner fordelt på de aktuelle akuttmedisinske tjenestene



Figur 4: Oversikt over antall publikasjoner fordelt på de aktuelle akuttmedisinske tjenestene

Tilstand

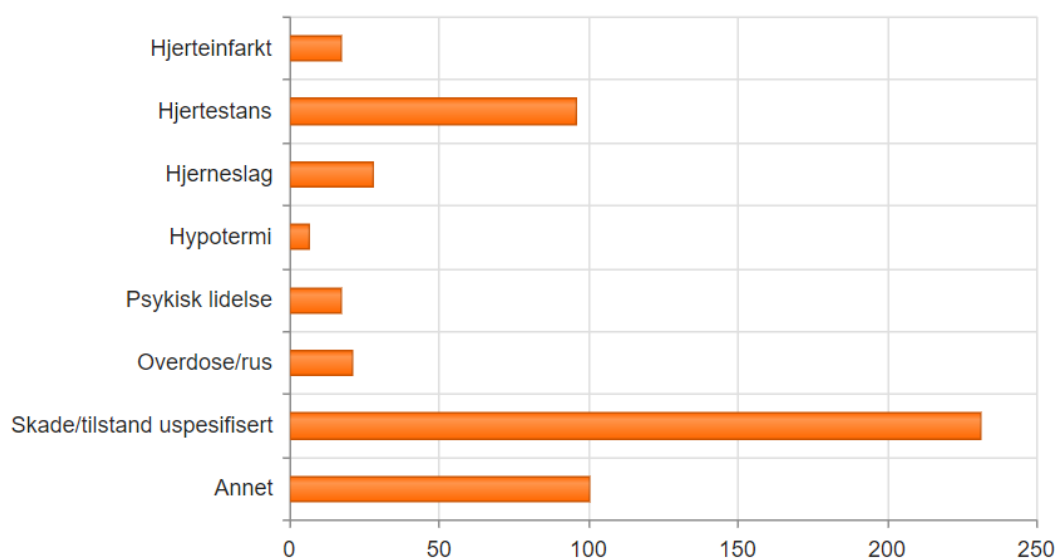
En oversikt over antall publikasjoner i perioden 2000-2023 fordelt på tilstand hos pasienten eller årsak til kontakt med en akuttmedisinsk tjeneste (figur 5 og 6) viser at flest

¹ Vurdering av type akuttmedisinsk tjeneste er basert på gjennomgang av publikasjonenes tittel- og sammendrag. En gjennomgang av en publikasjonenes fulltekst vil kunne gi mer detaljert informasjon.

² Flere publikasjoner omhandler ambulansetjenesten (luft, bil og båt) samlet.

publikasjoner omhandlet hjertestans (96 publikasjoner) etterfulgt av hjerneslag (28 publikasjoner) og overdose/rus (21 publikasjoner). Antall publikasjoner som omhandlet hjertestans var større enn antallet publikasjoner for de øvrige spesifiserte tilstandene samlet.

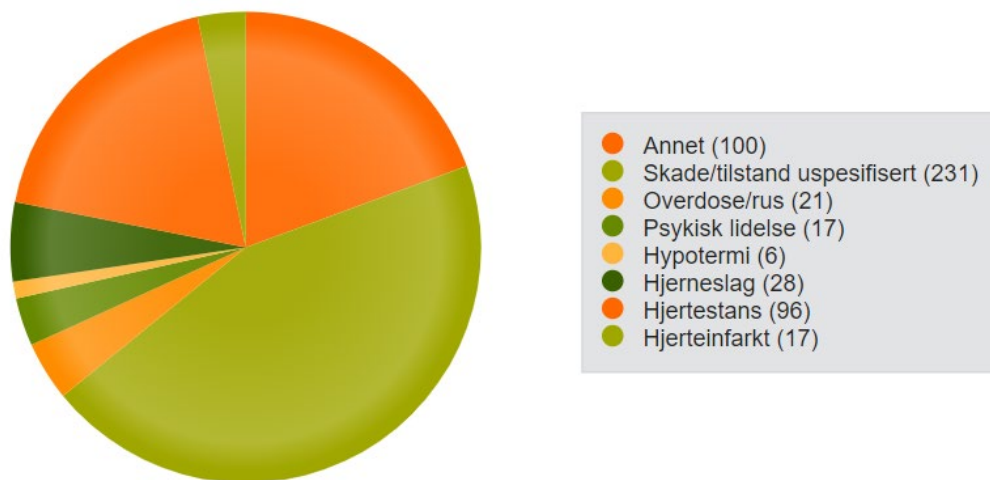
Vi kategoriserte 100 publikasjoner under tilstanden *annet*³. Dvs. publikasjoner som omhandler andre tilstander enn de som er oppgitt i kodeoversikten beskrevet over. Kategorien *annet* omhandler blant annet aggresjon og voldelig atferd ved landets kommunale legevakter, luftveisinfeksjon, smerter og smertelindring, med mer. Videre kategoriserte vi 231 publikasjoner under *tilstand uspesifisert*⁴. For flere av studiene kategorisert under *skade/tilstand uspesifisert* er tilstand ikke angitt, eller er ikke en del av studiens formål, slik som ved undersøkelse av turnusordningen i luftambulansetjenesten.



Figur 5: Oversikt over antall publikasjoner fordelt på tilstand eller skade

³ Det var ikke mulig å lage en fullstendig liste over alle aktuelle tilstander i forkant av kodingen av inkluderte studier. Det var nødvendig å gjøre et utvalg av tilstander, og utvalget er gjort basert på tilstander som fremkommer hyppigst innen akuttmedisinsk forskning.

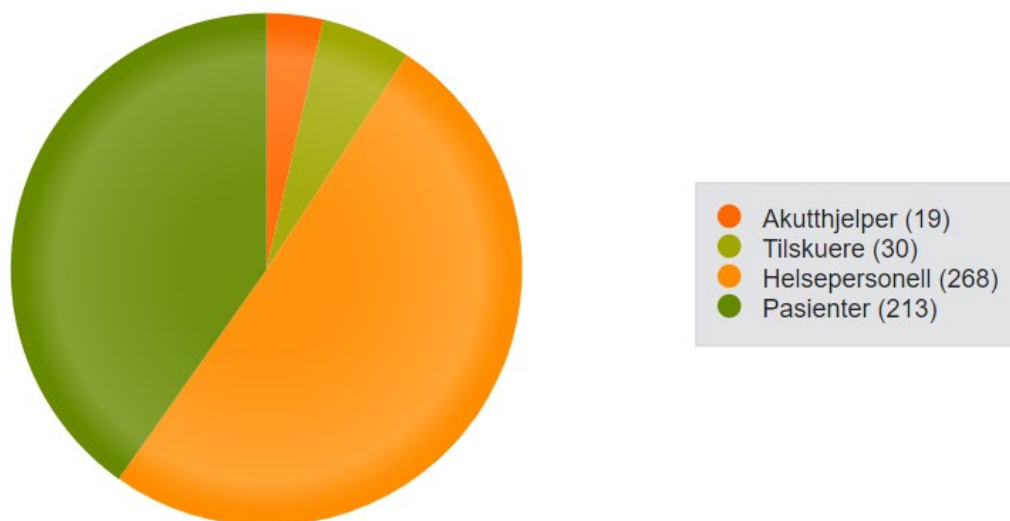
⁴ Vurdering av tilstand er basert på gjennomgang av publikasjonenes tittel- og sammendrag. En gjennomgang av en publikasjonenes fulltekst vil kunne gi mer detaljert informasjon.



Figur 6: Oversikt over antall publikasjoner fordelt på tilstand eller skade

Populasjon

Oversikten over antall publikasjoner fordelt på populasjon i perioden 2000-2023 viste at flest publikasjoner omhandlet helsepersonell (268 publikasjoner) etterfulgt av pasienter⁵ (213 publikasjoner). For tilskuere og akutthjelpere var tallet kun henholdsvis 30 og 19 publikasjoner i samme periode (se figur 7).

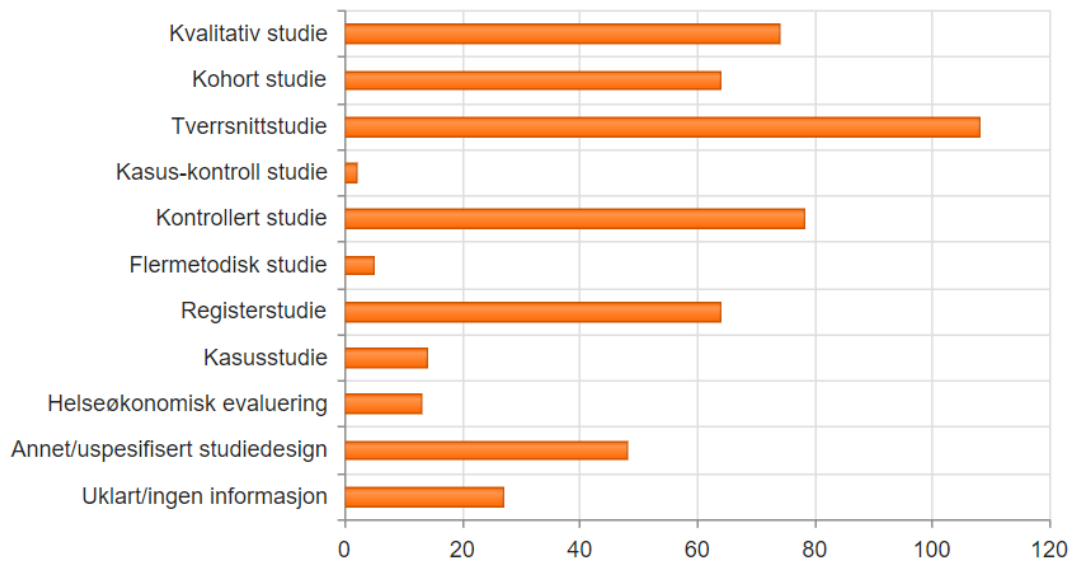


Figur 7: Oversikt over antall studier fordelt på populasjon

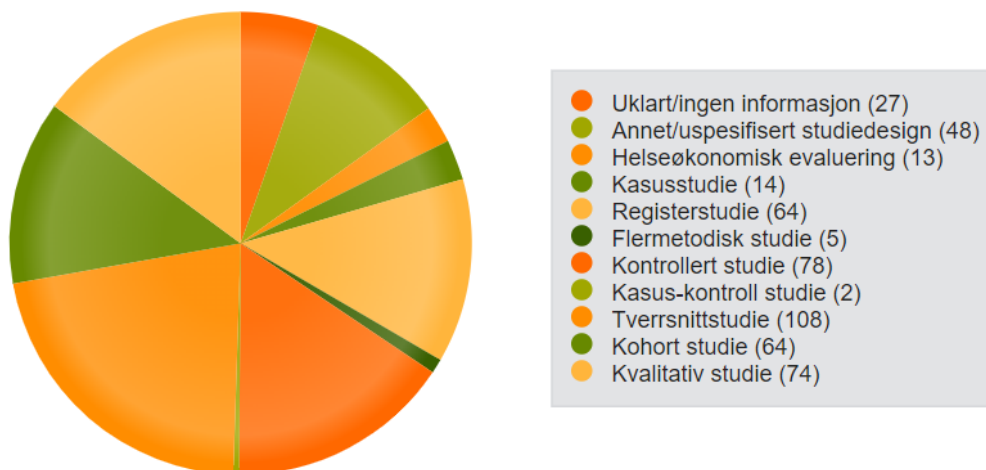
⁵ Underkategorien 'pasienter' skiller ikke på ulike pasientgrupper eller aldersgrupper. Det er mulig å benytte seg av søkefunksjonen i EPPI-Vis til dette formålet. For eksempel gir et søk på 'infant' og 'child' 26 publikasjoner som sier noe om disse pasientgruppene.

Studiedesign

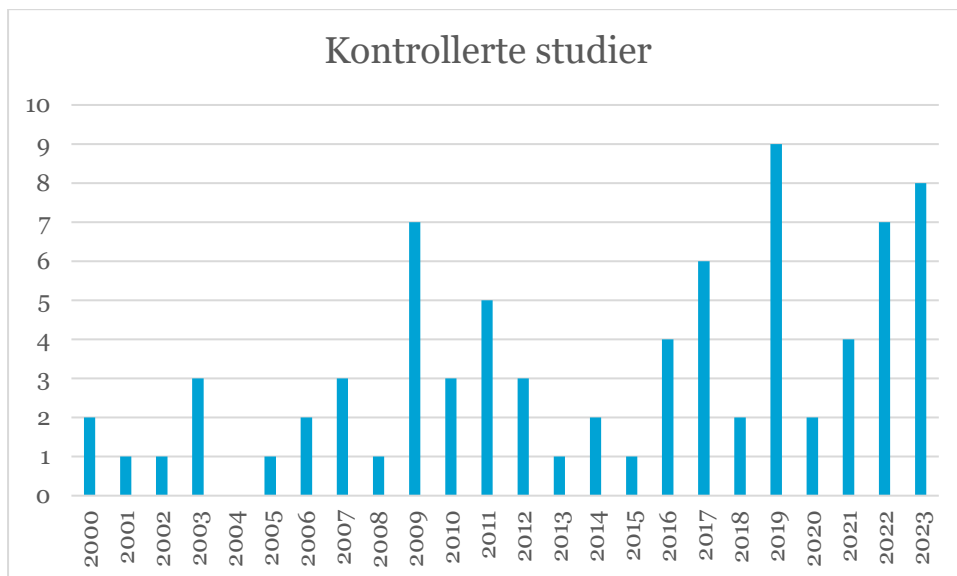
Oversikten over studiedesign viser at det var flest observasjonelle studiedesign og spesielt tverrsnittstudier (108 publikasjoner), etterfulgt av kontrollerte studier (78 publikasjoner) og kvalitative studier (74 publikasjoner) (figur 8-10).



Figur 8: Oversikt over antall studier fordelt på studiedesign



Figur 9: Oversikt over antall studier fordelt på studiedesign



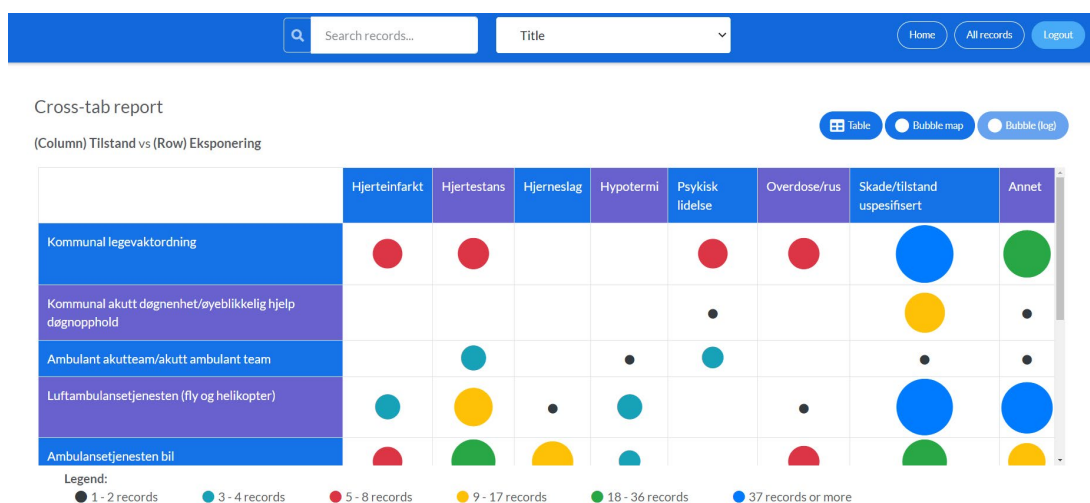
Figur 10: Oversikt over antall kontrollerte studier fordelt på årstall i perioden 2000-2023

I gjennomgangen av litteraturen identifiserte vi flere protokoller til pågående forskningsprosjekter innen akuttmedisinske tjenester i Norge og studier hvor data fra norske pasienter inngår i internasjonale studier eller forskningssamarbeid. En fullstendig liste er tilgjengelig i vedlegg 5 (protokoller) og vedlegg 6 (internasjonale samarbeid/forskningsprosjekter).

Forskningskart

For å få en best mulig oversikt over alle publikasjonene inkludert i denne kunnskapsoppsummeringen laget vi et forskningskart. Forskningskartet med kategorisering av de inkluderte publikasjonene ble laget ved hjelp av EPPI-Vis (8) (se figur 11 for illustrasjon av forskningskart i EPPI-Vis) og er tilgjengelig via følgende lenke:

<https://eppi.ioe.ac.uk/eppi-vis/login/open?webdbid=493>. Veiledning i bruk av EPPI-Vis fins i vedlegg 4.



Figur 11: Illustrasjon av et forskningskart i EPPI-Vis.

Diskusjon

I dette systematiske litteratursøket med sortering kartla vi hva som har blitt utført av forskning innen akuttmedisinske tjenester utenfor sykehus i Norge i perioden 2000-2023. Vi inkluderte totalt 485 publikasjoner. Vi fant at det har vært en jevn økning i antall publikasjoner som omhandler akuttmedisinske tjenester i denne perioden, med flest publikasjoner i 2023. Antall kontrollerte studier utført har også steget jevnt, også her kom det flest publikasjoner i 2023. Oversikten viste imidlertid større variasjon når det kom til antall publikasjoner sett på tvers av tilstand og de ulike akuttmedisinske tjenestene, med en klar overvekt av publikasjoner om somatikk, innen kommunal legevaktordning og luftambulansetjenesten, og færrest innen psykisk helsevern og rusbehandling. Det var også svært få publikasjoner som omhandlet samarbeid eller samhandling på tvers i den akuttmedisinske kjeden, slik som mellom helseforetak og kommuner, og det var få publikasjoner som omhandlet overføring av pasient fra den akuttmedisinske tjenesten *utenfor* sykehuset til mottak av pasienten *i* sykehuset.

Denne systematiske gjennomgangen tyder på at selv om det er en positiv utvikling i mengden forskning som gjennomføres innen akuttmedisinske tjenester utenfor sykehus i Norge, er det flere akuttmedisinske tjenester hvor det ser ut til å være svært begrenset med forskning og hvor det vil være nyttig med en betydelig forskningsinnsats i fremtiden.

Styrker og svakheter

Styrker ved det systematiske litteratursøket er særlig at vi, i tillegg til et søk i tradisjonelle kilder, gikk gjennom lister med foreslåtte studier fra ressursentre, kompetansesentre og fagmiljøer innen akuttmedisinske tjenester i Norge. De fikk anledning til å kommentere på listen over inkluderte studier og gi innspill til studier som burde inngå i denne kunnskapsoppsummeringen i henhold til inklusjonskriteriene. Dette bidro til at vi fikk en mer fullstendig liste og oversikt over forskning utført i Norge i perioden 2000-2023 enn vi ellers ville hatt.

En annen styrke ved denne kunnskapsoppsummeringen er at vi har kombinert et systematisk litteratursøk med sortering med et interaktivt forskningskart. Hvis aktuelt i fremtiden, kan en ny kartlegging av forskning som er gjort innen akuttmedisinske tjenester utenfor sykehuset inngå i dette forskningskartet og som en oppdatering av dette.

Det er også noen svakheter ved vår kunnskapsoppsummering. Som nevnt tillot ikke ressursrammene for prosjektet at vi leste studiene i fulltekst. Gjennomgang av publikasjonenes tittel og sammendrag førte til at gruppen av studier kodet som *tilstand uspesifisert* ble stor. Ved gjennomgang av studienes fulltekst ville flere studier trolig ha blitt kodet i henhold til faktisk tilstand. Ressursrammene tillot heller ikke en så utfyllende liste med koder som ønsket, hvilket gjorde at det ikke var mulig å kategorisere studiene etter alle de ulike tilstandene som fremkom i litteraturen, men måtte i stedet kodes under annet. Et mer detaljert kodesett ville gitt mer inngående oversikt over innholdet i publikasjonene som inngår i forskningskartet, og bør vurderes ved en fremtidig oppdatering av forskningskartet. Videre ble vurdering av publikasjoner for inklusjon kun gjort på tittel- og sammendragsnivå, og både vurdering av studienes relevans og påfølgende koding av inkluderte studier er kun utført av én person. Det betyr at en annen forsker ikke kontrollerte kodingen av de inkluderte studiene, og feil i inklusjon/eksklusjon av studier og koding av studier kan forekomme.

I denne kunnskapsoppsummeringen presenterer vi kun det totale antallet publikasjoner. Vi vurderte ikke antallet *unike* studier. Flere publikasjoner baserer seg trolig på samme utvalg og helt eller delvis samme datamateriale. Dvs. at antall publikasjoner innen en akuttmedisinsk tjeneste eller for en tilstand ikke nødvendigvis gir et korrekt bilde av antall studier som faktisk fins på dette området. Å spesifisere dette krever en mer inngående gjennomgang og kartlegging av publikasjonene.

Dette systematiske litteratursøket med sortering er trolig den første som kartlegger all forskning utført innen akuttmedisinske tjenester i Norge i perioden 2000-2023, og som er tilgjengeliggjort i et forskningskart. Gitt mengden inkluderte studier, og tids- og ressursrammene for prosjektet har vi ikke kunnet kartlegge forhold som studienes formål, hvilke fag- og forskningsmiljøer som har utført forskningen, finansieringskilder, internasjonale forskningssamarbeid eller hvor studiene er publisert. Ved en fremtidig oppdatering av kunnskapsoppsummeringen er dette momenter som kan bidra til mer grundig og helhetlig kartlegging av forskningen på dette feltet.

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Vedlegg 1: Søkestrategi

Søkedato: 13.11.23

Søkeansvarlig: Martin Smådal Larsen

Fagfellevurdering: Gyri Hval

Database	Antall treff
Ovid MEDLINE(R) ALL <1946 to November 10, 2023>	4,637
Embase <1974 to 2023 November 10>	3,188
APA PsycInfo <1806 to October Week 5 2023>	368
Cochrane Central	783
Totalt til importert til EndNote	8,976
Totalt etter dublettkontroll i EndNote	5884
Totalt etter dublettkontroll i Eppi-reviewer	5820

Database:

Ovid MEDLINE(R) ALL <1946 to November 10, 2023>

#	Query	Results from 13 Nov 2023
1	exp Norway/	42,560
2	(norway or Norwegian? or norge or noreg).ti,ab,in,lg,kf,pl.	221,323
3	(Rikshospitalet or Diakonhjemmet or Haukeland or "St. Olavs Hospital" or Helgelandssykehuset or Finnmarkssykehuset or Nordlandssykehuset or "Universitetssykehuset Nord-Norge" or hemit or "Akershus universitetssykehus" or ahus or "Oslo universitetssykehus" or ous or "vestre viken" or Luftambulansetjenesten or "Helsetjenestens driftsorganisasjon for nodnett" or "Helsetjenestens driftsorganisasjon for noednett" or ((hospital or sjuk* or sykehus*) adj1 (aker or "i vestfold" or innlandet or telemark or ostfold or oestfold or baerum or drammen or haugesund or levanger or ringerike or kristiansund or stord or volda or namsos or kongsberg or flekkefjord or moss or lovisenberg diakonale or rjukan or notodden or tynset or sandefjord or larvik or hallingdal or ski or mandal or odda or valen or "haraldsplass diakonale" or laerdal or nordfjord or orkdal or longyearbyen or mosjoen or mosjoeen or psykiatrisk)) or (helse adj (vest or stavanger or fonna or bergen or forde or foerde or midt-norge or "more og romsdal" or "moere og romsdal" or nord-trondelag or nord-troendelag or nord or sor-ost or soer-oest)) or ((universitet* or University or univ) adj3 (bergen or oslo or stavanger or tromso or tromsoe or agder or	144,379

	nord or sor-ost or soer-oest or oslo metropolitan)) or hioa or "Hogskolen i Oslo og Akershus" or "Hoegskolen i Oslo og Akershus" or oslomet or uio or uit or uib or sus or uia or dps or "Distriktspsykiatrisk senter" or "District Psychiatric Center").ti,ab,in,kf,pl.	
4	(Akershus or Viken or Austagder or Agder or Buskerud or Finnmark or Hedmark or Hordaland or Romsdal or Nordland or Nordtrondelag or Trondelag or Nordtroendelag or Troendelag or Oppland or Oslo or Rogaland or Fjordane or Sortrondelag or Soertroendelag or Telemark or Troms or Vestagder or Vestfold or Ostfold or Oestfold or Longyearbyen or innlandet or vestland or sorlandet or soerlandet).ti,ab,in,kf,pl.	101,558
5	or/1-4	257,785
6	emergency medical services/ or advanced trauma life support care/ or emergency medical dispatch/ or emergency service, hospital/ or trauma centers/ or triage/ or after-hours care/ or Emergency Treatment/ or First Aid/ or Resuscitation/ or Cardiopulmonary Resuscitation/ or Resuscitation Orders/ or Advanced Cardiac Life Support/	213,536
7	(prehospital or pre-hospital or prehospitalization or ((before or pre or acute) adj3 hospital adj3 (phase or admission* or admitting* or referral?)) or "Out side hospital" or "Outside hospital" or "Out of hospital" or (emergency adj (medicine or medical or "health service?" or "health care" or healthcare or triage)) or (Emergency adj (service? or care or treatment? or therap*)) or "medical emergency" or Paramedicine or traumatology or multitrauma* or "multi trauma*" or (trauma adj (service? or incident? or patient? or Management or system or care)) or (transfer adj5 trauma) or ((emergency or "medical service") and ("After Hours" or afterhours or "out of hours" or outofhours)) or "accident service" or "accident squad service" or "acute care" or "acute medical care" or ((Emergency or casualty or trauma) adj (Unit? or ward? or department? or room? or clinic? or center* or centre)) or ((acute or ambulant or emergency or ems) adj3 (team or dispatch))).ti,ab,kf.	301,542
8	call centers/ or emergency medical service communication systems/	2,004
9	("Emergency Medical Service Communication" or EMS or AMK or (Call adj (Center* or centre)) or "Emergency Medical Communication" or EMCC or "Emergency call?" or Dispatch or Hotline? or (triage adj (video or phone or mobile))).ti,ab,kf.	21,797
10	emergency services, psychiatric/ or Psychological First Aid/	2,596
11	("Psychological First Aid" or "psychiatric EMS" or ((acute or urgent or emergency or accident*) adj3 ("psychiatric service*" or "psychiatry service*"))).ti,ab,kf.	647
12	(primary health care/ or General Practitioners/) and (emergency or EMS or accident* or urgent or resuscitation or "first aid" or acute).ti,ab,kf.	8,209
13	((emergency adj3 (primary adj (care or service* or healthcare or ward*))) or ((gp or "general practitioner*") and (EMS or emergency or "first aid" or resuscitation or acute or accident* or urgent)) or ("Emergency Outpatient" adj (Unit? or ward? or department? or room? or clinic? or center* or centre))).ti,ab,kf.	12,017
14	Ambulances/ or ambulance diversion/ or air ambulances/ or Transportation of Patients/	18,060

15	((patient or wounded or sick or hurt or emergency or acute or EMS or accident* or "first aid" or resuscitation or trauma) adj3 (transport or transfer* or evacuation)) or ambulance or ((patient or wounded or sick or hurt or accident* or acute or emergency or EMS or "first aid" or resuscitation) adj3 (airplane or helicopter or chopper or boat or vessel))).ti,ab,kf.	30,259
16	emergency responders/ or emergency medical technicians/ or paramedics/	7,328
17	(emergency or EMS or acute or accident* or "first aid" or resuscitation or respond*).ti,ab,kf. and (Police/ or Firefighter/)	1,828
18	((emergency or EMS or acute or accident* or "first aid" or resuscitation or trauma or respond*) adj5 ("fire fighter*" or firefighter* or police or volunteer* or lay or paramedic or responder* or dispatch or bystander* or "mass gathering medicine" or "crowd medicine")) or "medical dispatcher*").ti,ab,kf.	83,853
19	or/6-18	527,473
20	5 and 19	5,615
21	exp animals/ not humans.sh.	5,169,565
22	20 not 21	5,412
23	limit 22 to yr="2000 -Current"	4,637

Embase <1974 to 2023 November 10>

#	Query	Results from 13 Nov 2023
1	Norway/ or "Norwegian (people)"/	49,361
2	(norway or Norwegian? or norge or noreg).ti,ab,in,ad,lg,kf.	287,614
3	(Rikshospitalet or Diakonhjemmet or Haukeland or "St. Olavs Hospital" or Helgelandssykehuset or Finnmarkssykehuset or Nordlandssykehuset or "Universitetssykehuset Nord-Norge" or hemit or "Akershus universitetssykehus" or ahus or "Oslo universitetssykehus" or ous or "vestre viken" or Luftambulansetjenesten or "Helsetjenestens driftsorganisasjon for nodnett" or "Helsetjenestens driftsorganisasjon for noednett" or ((hospital or sjuk* or sykehus*) adj1 (aker or "i vestfold" or innlandet or telemark or ostfold or oestfold or baerum or drammen or haugesund or levanger or ringerike or kristiansund or stord or voldal or namsos or kongsberg or flekkefjord or moss or lovisenberg diakonale or rjukan or notodden or tynset or sandefjord or larvik or hallingdal or ski or mandal or odda or valen or "haraldsplass diakonale" or laerdal or nordfjord or orkdal or longyearbyen or mosjoen or mosjoeen or psykiatrisk)) or (helse adj (vest or stavanger or fonna or bergen or forde or foerde or midt-norge or "more og romsdal" or "moere og romsdal" or nord-trondelag or nord-troendelag or nord or sor-ost or soer-oest)) or ((universitet* or University or univ) adj3 (bergen or oslo or stavanger or tromso or tromsoe or agder or nord or sor-ost or soer-oest or oslo metropolitan)) or hioa or "Hogskolen i Oslo og Akershus" or "Hoegskolen i Oslo og Akershus" or	203,036

	oslomet or uio or uit or uib or sus or uia or dps or "Distriktpsychiatrik senter" or "District Psychiatric Center").in,ad,ti,ab,kf.	
4	(Akershus or Viken or Austagder or Agder or Buskerud or Finnmark or Hedmark or Hordaland or Romsdal or Nordland or Nordtrondelag or Trondelag or Nordtroendelag or Troendelag or Oppland or Oslo or Rogaland or Fjordane or Sortrondelag or Soertroendelag or Telemark or Troms or Vestagder or Vestfold or Ostfold or Oestfold or Longyearbyen or innlandet or vestland or sorlandet or soerlandet).in,ad,ti,ab,kf.	152,841
5	or/1-4	329,948
6	*emergency medical services/ or *advanced trauma life support/ or *emergency medical dispatch/ or *hospital emergency service/ or *emergency health service/ or *patient triage/ or *out-of-hours care/ or *emergency treatment/ or *first aid/ or *resuscitation/ or *advanced cardiac life support/	122,556
7	(prehospital or pre-hospital or prehospitalization or ((before or pre or acute) adj3 hospital adj3 (phase or admission* or admitting* or referral?)) or "Out side hospital" or "Outside hospital" or "Out of hospital" or (emergency adj (medicine or medical or "health service?" or "health care" or healthcare or triage)) or (Emergency adj (service? or care or treatment? or therap*)) or "medical emergency" or Paramedicine or traumatology or multitrauma* or "multi trauma*" or (trauma adj (service? or incident? or patient? or Management or system or care)) or (transfer adj5 trauma) or ((emergency or "medical service") and ("After Hours" or afterhours or "out of hours" or outofhours)) or "accident service" or "accident squad service" or "acute care" or "acute medical care" or ((Emergency or casualty or trauma) adj (Unit? or ward? or department? or room? or clinic? or center* or centre)) or ((acute or ambulant or emergency or ems) adj3 (team or dispatch))).ti,ab,kf.	450,678
8	*call center/ or *emergency health service/	52,335
9	("Emergency Medical Service Communication" or EMS or AMK or (Call adj (Center* or centre)) or "Emergency Medical Communication" or EMCC or "Emergency call?" or Dispatch or Hotline? or (triage adj (video or phone or mobile))).ti,ab,kf.	31,639
10	psychiatric emergency service/ or *psychological first aid/	435
11	("Psychological First Aid" or "psychiatric EMS" or ((acute or urgent or emergency or accident*) adj3 ("psychiatric service*" or "psychiatry service*"))).ti,ab,kf.	806
12	(*primary health care/ or *General Practitioner/) and (emergency or EMS or accident* or urgent or resuscitation or "first aid" or acute).ti,ab,kf.	4,228
13	((emergency adj3 (primary adj (care or service* or healthcare or ward*))) or ((gp or "general practitioner*") and (EMS or emergency or "first aid" or resuscitation or acute or accident* or urgent)) or ("Emergency Outpatient" adj (Unit? or ward? or department? or room? or clinic? or center* or centre))).ti,ab,kf.	19,363
14	*ambulance/ or *ambulance diversion/ or *air medical transport/ or *patient transport/ or *ambulance transportation/	15,664
15	((patient or wounded or sick or hurt or emergency or acute or EMS or accident* or "first aid" or resuscitation or trauma) adj3 (transport	49,001

	or transfer* or evacuation)) or ambulance or ((patient or wounded or sick or hurt or accident* or acute or emergency or EMS or "first aid" or resuscitation) adj3 (airplane or helicopter or chopper or boat or vessel))).ti,ab,kf.	
16	*rescue personnel/ or *paramedical personnel/	11,084
17	(emergency or EMS or acute or accident* or "first aid" or resuscitation or respond*).ti,ab,kf. and (*Police/ or *emergency police dispatcher/ or *fire fighter/)	1,376
18	((((emergency or EMS or acute or accident* or "first aid" or resuscitation or trauma or respond*) adj5 ("fire fighter*" or firefighter* or police or volunteer* or lay or paramedic or responder* or dispatch or bystander* or "mass gathering medicine" or "crowd medicine")) or "medical dispatcher*").ti,ab,kf.	147,190
19	or/6-18	733,293
20	5 and 19	7,319
21	(rat or rats or mouse or mice or swine or porcine or murine or sheep or lambs or pigs or piglets or rabbit or rabbits or cat or cats or dog or dogs or cattle or bovine or monkey or monkeys or trout or marmoset\$ 1).ti. and animal experiment/	1,226,775
22	Animal experiment/ not (human experiment/ or human/)	2,579,492
23	21 or 22	2,648,569
24	20 not 23	7,112
25	limit 24 to embase	3,675
26	limit 25 to yr="2000 -Current"	3,188

APA PsycInfo <1806 to October Week 5 2023>

#	Query	Results from 13 Nov 2023
1	(norway or Norwegian? or norge or noreg).ti,ab,id,lo,in,po,gs.	47,591
2	(Rikshospitalet or Diakonhjemmet or Haukeland or "St. Olavs Hospital" or Helgelandssykehuset or Finnmarkssykehuset or Nordlandssykehuset or "Universitetssykehuset Nord-Norge" or hemit or "Akershus universitetssykehus" or ahus or "Oslo universitetssykehus" or ous or "vestre viken" or Luftambulansetjenesten or "Helsetjenestens driftsorganisasjon for nodnett" or "Helsetjenestens driftsorganisasjon for noednett" or ((hospital or sjuk* or sykehus*) adj1 (aker or "i vestfold" or innlandet or telemark or ostfold or oestfold or baerum or drammen or haugesund or levanger or ringerike or kristiansund or stord or voldal or namsos or kongsberg or flekkefjord or moss or lovisenberg diakonale or rjukan or notodden or tynset or sandefjord or larvik or hallingdal or ski or mandal or odda or valen or "haraldsplass diakonale" or laerdal or nordfjord or orkdal or longyearbyen or mosjoen or mosjoen or psykiatrisk)) or (helse adj (vest or stavanger or fonna or bergen or forde or foerde or midt-norge or "more og romsdal" or "more og romsdal" or nord-trondelag or nord-troendelag or nord or sorost or soer-oest)) or ((universitet* or University or univ) adj3 (bergen or oslo or stavanger or tromso or tromsoe or agder or nord or sor-ost	28,493

	or soer-oest or oslo metropolitan)) or hioa or "Hogskolen i Oslo og Akershus" or "Hoegskolen i Oslo og Akershus" or oslomet or uio or uit or uib or sus or uia or dps or "Distriktpsikiatrisk senter" or "District Psychiatric Center").ti,ab,id,lo,in,pl,gs.	
3	(Akershus or Viken or Austagder or Agder or Buskerud or Finnmark or Hedmark or Hordaland or Romsdal or Nordland or Nordtrondelag or Trondelag or Nordtroendelag or Troendelag or Oppland or Oslo or Rogaland or Fjordane or Sortrondelag or Soertroendelag or Telemark or Troms or Vestagder or Vestfold or Ostfold or Oestfold or Longyearbyen or innlandet or vestland or sorlandet or soerlandet).ti,ab,id,lo,in,po,gs.	22,863
4	or/1-3	54,655
5	Emergency Management/ or Emergency Services/ or Emergency Medicine/ or Crisis Intervention Services/ or Community Mental Health Centers/ or Psychological First Aid/ or CPR/	16,933
6	(prehospital or pre-hospital or prehospitalization or ((before or pre or acute) adj3 hospital adj3 (phase or admission* or admitting* or referral?)) or "Out side hospital" or "Outside hospital" or "Out of hospital" or (emergency adj (medicine or medical or "health service?" or "health care" or healthcare or triage)) or (Emergency adj (service? or care or treatment? or therap*)) or "medical emergency" or Paramedicine or traumatology or multitrauma* or "multi trauma*" or (trauma adj (service? or incident? or patient? or Management or system or care)) or (transfer adj5 trauma) or ((emergency or "medical service") and ("After Hours" or afterhours or "out of hours" or outofhours)) or "accident service" or "accident squad service" or "acute care" or "acute medical care" or ((Emergency or casualty or trauma) adj (Unit? or ward? or department? or room? or clinic? or center* or centre)) or ((acute or ambulant or emergency or ems) adj3 (team or dispatch))).ti,ab,id.	29,824
7	Hot Line Services/	1,220
8	("Emergency Medical Service Communication" or EMS or AMK or (Call adj (Center* or centre)) or "Emergency Medical Communication" or EMCC or "Emergency call?" or Dispatch or Hotline? or (triage adj (video or phone or mobile))).ti,ab,id.	3,444
9	(Emergency Services/ or Emergency management/) and Mental Health Services/	585
10	("Psychological First Aid" or "psychiatric EMS" or ((acute or urgent or emergency or accident* or suicid*) adj3 ("psychiatric service*" or "psychiatry service*"))).ti,ab,id.	733
11	(primary health care/ or General Practitioners/) and (emergency or EMS or accident* or urgent or resuscitation or "first aid" or acute).ti,ab,id.	1,657
12	((emergency adj3 (primary adj (care or service* or healthcare or ward*))) or ((gp or "general practitioner*" and (EMS or emergency or "first aid" or resuscitation or acute or accident* or urgent)) or ("Emergency Outpatient" adj (Unit? or ward? or department? or room? or clinic? or center* or centre))).ti,ab,id.	1,317
13	((((patient or wounded or sick or hurt or emergency or acute or EMS or accident* or "first aid" or resuscitation or trauma) adj3 (transport or transfer* or evacuation)) or ambulance or ((patient or wounded or	2,708

	sick or hurt or accident* or acute or emergency or EMS or "first aid" or resuscitation) adj3 (airplane or helicopter or chopper or boat or vessel)).ti,ab,id.	
14	First Responders/ or Allied Health Personnel/ or Paramedics/ or Emergency Personnel/	2,355
15	(emergency or EMS or acute or accident* or "first aid" or resuscitation or respond*).ti,ab,id. and (Police Personnel/ or Fire Fighters/)	2,133
16	((emergency or EMS or acute or accident* or "first aid" or resuscitation or trauma or respond*) adj5 ("fire fighter*" or firefighter* or police or volunteer* or lay or paramedic or responder* or dispatch or bystander* or "mass gathering medicine" or "crowd medicine")) or "medical dispatcher*).ti,ab,id.	14,852
17	or/5-16	60,345
18	4 and 17	904
19	limit 18 to (yr="2000 -Current" and "remove medline records")	368

Cochrane CENTRAL

ID	Search	Hits
#1	MeSH descriptor: [Norway] explode all trees	1458
#2	(norway or Norwegian? or norge or noreg):ti,ab,kw,la	4474
#3	(Rikshospitalet or Diakonhjemmet or Haukeland or "St. Olavs Hospital" or Helgelandssykehuset or Finnmarkssykehuset or Nordlandssykehuset or "Universitetssykehuset Nord-Norge" or hemit or "Akershus universitetssykehus" or ahus or "Oslo universitetssykehus" or ous or "vestre viken" or Luftambulansetjenesten or "Helse-tjenestens driftsorganisasjon for nodnett" or "Helsetjenestens driftsorganisasjon for noednett" or ((hospital or sjuk* or sykehus*) near/1 (aker or "i vestfold" or innlandet or telemark or ostfold or oestfold or baerum or drammen or haugesund or levanger or ringe-rike or kristiansund or stord or volda or namsos or kongsberg or flekkefjord or moss or lovisenberg diakonale or rjukan or notodden or tynset or sandefjord or larvik or hallingdal or ski or mandal or odda or valen or "haraldsplass diakonale" or laerdal or nordfjord or orkdal or longyearbyen or mosjoen or mosjoen or psykiatrisk)) or (helse NEXT (vest or stavanger or fonna or bergen or forde or foerde or midt-norge or "more og romsdal" or "moere og romsdal" or nord-trondelag or nord-troendelag or nord or sor-ost or soer-oest)) or ((universitet* or University or univ) near/3 (bergen or oslo or stav-anger or tromso or tromsoe or agder or nord or sor-ost or soer-oest or oslo metropolitan)) or hioa or "Hogskolen i Oslo og Akershus" or "Hoegskolen i Oslo og Akershus" or oslomet or uio or uit or uib or sus or uia or dps or "Distriktpsikiatrisk senter" or "District Psychiatric Center"):ti,ab,kw,la	4091
#4	(Akershus or Viken or Austagder or Agder or Buskerud or Finnmark or Hedmark or Hordaland or Romsdal or Nordland or Nordtronde-lag or Trondelag or Nordtroendelag or Troendelag or Oppland or Oslo or Rogaland or Fjordane or Sortrondelag or Soertroendelag or Telemark or Troms or Vestagder or Vestfold or Ostfold or Oestfold or Longyearbyen or innlandet or vestland or sorlandet or soerlan-det):ti,ab,kw	914
#5	#1 or #2 or #3 or #4	8526

#6	[mh ^"emergency medical services"] or [mh ^"advanced trauma life support care"] or [mh ^"emergency medical dispatch"] or [mh ^"emergency service, hospital"] or [mh ^"trauma centers"] or [mh ^"triage"] or [mh ^"after-hours care"] or [mh ^"Emergency Treatment"] or [mh ^"First Aid"] or [mh ^"Resuscitation"] or [mh ^"Cardio-pulmonary Resuscitation"] or [mh ^"Resuscitation Orders"] or [mh ^"Advanced Cardiac Life Support"]	8060
#7	(prehospital or pre-hospital or prehospitalization or ((before or pre or acute) near/3 hospital near/3 (phase or admission* or admitting* or referral?)) or "Out side hospital" or "Outside hospital" or "Out of hospital" or (emergency adj (medicine or medical or health NEXT service? or "health care" or healthcare or triage)) or (Emergency adj (service? or care or treatment? or therap*)) or "medical emergency" or Paramedicine or traumatology or multitrauma* or multi NEXT trauma* or (trauma adj (service? or incident? or patient? or Management or system or care)) or (transfer near/5 trauma) or ((emergency or "medical service") and ("After Hours" or afterhours or "out of hours" or outofhours)) or "accident service" or "accident squad service" or "acute care" or "acute medical care" or ((Emergency or casualty or trauma) NEXT (Unit? or ward? or department? or room? or clinic? or center* or centre)) or ((acute or ambulant or emergency or ems) near/3 (team or dispatch))):ti,ab,kw	24654
#8	[mh "call centers"] or [mh "emergency medical service communication systems"]	67
#9	("Emergency Medical Service Communication" or EMS or AMK or (Call NEXT (Center* or centre)) or "Emergency Medical Communication" or EMCC or Emergency NEXY call? or Dispatch or Hotline? or (triage NEXT (video or phone or mobile))):ti,ab,kw	2083
#10	[mh "emergency services, psychiatric"] or [mh "Psychological First Aid"]	64
#11	("Psychological First Aid" or "psychiatric EMS" or ((acute or urgent or emergency or accident*) near/3 (psychiatric NEXT service* or psychiatry NEXT service*))):ti,ab,kw	86
#12	([mh "primary health care"] or [mh "General Practitioners"]) and (emergency or EMS or accident* or urgent or resuscitation or "first aid" or acute):ti,ab,kw	1967
#13	((emergency near/3 (primary NEXT (care or service* or healthcare or ward*))) or ((gp or general NEXT practitioner*) and (EMS or emergency or "first aid" or resuscitation or acute or accident* or urgent)) or ("Emergency Outpatient" NEXT (Unit? or ward? or department? or room? or clinic? or center* or centre))):ti,ab,kw	2428
#14	[mh Ambulances] or [mh "ambulance diversion"] or [mh "air ambulances"] or [mh "Transportation of Patients"]	327
#15	((((patient or wounded or sick or hurt or emergency or acute or EMS or accident* or "first aid" or resuscitation or trauma) near/3 (transport or transfer* or evacuation)) or ambulance or ((patient or wounded or sick or hurt or accident* or acute or emergency or EMS or "first aid" or resuscitation) near/3 (airplane or helicopter or chopper or boat or vessel))):ti,ab,kw	3242
#16	[mh "emergency responders"] or [mh "emergency medical technicians"] or [mh paramedics]	444
#17	(emergency or EMS or acute or accident* or "first aid" or resuscitation or respond*):ti,ab,kw and ([mh Police] or [mh Firefighter])	54

#18	((emergency or EMS or acute or accident* or "first aid" or resuscitation or trauma or respond*) near/5 (fire NEXT fighter* or fire-fighter* or police or volunteer* or lay or paramedic or responder* or dispatch or bystander* or "mass gathering medicine" or "crowd medicine")) or medical NEXT dispatcher*):ti,ab,kw	28366
#19	#6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18	62019
#20	#5 and #19	783

Cristin

Søkedato: 2023-11-23

Avgrenset til vitenskapelige artikler

prehospital norge/akuttmedisin norge/akutt sykdom norge/ulykker/skadedsted/rusakuttmottak/akuttpsykiatri/ambulanse/ambulansetjeneste/luftambulanse/ambulansefly/ambulanshelikopter/ambulansebåt/ambulansepersonell/legevakt/legevaktlege/legevaktsentral/legevaktmedisin/førstehjelp/gjenoppliving/utryknin/nødmeldetjeneste/nødmeldetjenesten/nødmeldetjenester/amk/responstid/reisevei/reisetid/triage/triagering/triageringsverktøy/traumesystemer/hastegradsvurdering/hastegradsvurderinger: 1464

Relevante organisasjoner

Nasjonalt kompetansetjeneste for prehospital akuttmedisin

Norsk kompetansesenter for legevaktmedisin

Nasjonalt kompetansesenter for helsetjenestens kommunikasjonsberedskap

Nasjonalt senter for distriktsmedisin

Nasjonalt kompetansetjeneste for traumatologi

Vedlegg 2: Bruk av maskinlæring

Vi brukte maskinlæring for å hjelpe oss med å utføre flere av trinnene i denne kunnskapsoppsummeringen mer effektivt. Dette vedlegget beskriver *hvordan* vi brukte maskinlæring. I beskrivelsen benytter vi enkelte engelske begreper grunnet mangel på norske begrepsoversettelser innenfor maskinlæringsfeltet. I slutten av vedlegget er det en forklaring av begrepene vi har brukt for de ulike maskinlæringsfunksjonene som vi brukte i denne kunnskapsoppsummeringen.

Tabell 1: *Beskrivelse av maskinlæringsprosedyre i screeningprosessen*

Beskrivelse av fremgangsmåte	
Steg 1	Vi startet med pilotering av inklusjonskriteriene blant alle prosjektmedarbeidere på ca. 100 referanser, for å sikre felles forståelse av seleksjonskriteriene.
Steg 2	For raskere å identifisere referanser som oppfylte inklusjonskriteriene i arbeidet med å vurdere titler og sammendrag benyttet vi « <i>priority screening</i> », og 6137 referanser i EPPI-Reviewer ble vurdert av én medarbeider i prosjektgruppen.

Begrepsforklaring

Algoritme kan forklares som en fullstendig presis og trinnvis beskrivelse av en prosedyre for operasjoner som er beregnet for å løse et problem (11).

Maskinlæring er en spesialisering innen kunstig intelligens hvor man bruker statistiske metoder for å la datamaskiner finne mønstre i store datamengder (12). Enkelt sagt betyr maskinlæring at vi tar i bruk algoritmer som gjør at datamaskinen er i stand til å lære fra og utvikle sin beslutningsstøtte basert på empiriske data som vi fører den med.

Priority screening er en rangeringsalgoritme i programvaren EPPI-Reviewer (8) som læres opp av forskernes avgjørelser om inklusjon og eksklusjon av referanser på tittel- og sammendragsnivå. Rangeringsalgoritmer er algoritmer som er trent til å gjenkjenne relevante data og til å presentere dataene etter relevans. Referanser som algoritmen anser som mer relevante basert på forskernes avgjørelser om inklusjon blir skjøvet frem i «køen». På denne måten får vi raskere overblikk over hvor mange referanser som muligens treffer inklusjonskriteriene enn om vi skulle lest referansene i tilfeldig rekkefølge.

Vedlegg 3: Inkluderte publikasjoner

Oversikt over inkluderte publikasjoner (N=485)

Førsteforfatter (år)	Tittel
Abrahamsen (2015)	A remotely piloted aircraft system in major incident management: Concept and pilot, feasibility study
Abrahamsen (2015)	Simulation-based training and assessment of non-technical skills in the Norwegian Helicopter Emergency Medical Services: A cross-sectional survey
Abrahamsen (2018)	A socio-economic analysis of increased staffing in the Norwegian helicopter emergency medical service
Ajmi (2019)	Reducing door-to-needle times in stroke thrombolysis to 13 min through protocol revision and simulation training: A quality improvement project in a Norwegian stroke centre
Ajmi (2022)	Cost-effectiveness of a quality improvement project, including simulation-based training, on reducing door-to-needle times in stroke thrombolysis
Alm-Kruse (2023)	Use of healthcare services before and after out-of-hospital cardiac arrest.
Andersen (2020)	Improper monitoring and deviations from physiologic treatment goals in patients with brain injury in the early phases of emergency care
Andersson (2020)	Using optimization to provide decision support for strategic emergency medical service planning - Three case studies
Andresen (2022)	Emergency cricothyroidotomy in difficult airway simulation - a national observational study of Air Ambulance crew performance
Andresen (2023)	Implementation and use of a supraglottic airway device in the management of out-of-hospital cardiac arrest by firefighter first responders - A prospective feasibility study
Anonymous (2019)	Correction: Local emergency medical response after a terrorist attack in Norway: A qualitative study (BMJ Quality and Safety (2017) 26 (806-816) DOI: 10.1136/bmjqs-2017-006517)

Asheim (2019)	Real-time forecasting of emergency department arrivals using prehospital data
Bakke (2015)	Bystander first aid in trauma - Prevalence and quality: A prospective observational study
Bakke (2017)	Effect and accuracy of emergency dispatch telephone guidance to bystanders in trauma: post-hoc analysis of a prospective observational study
Bakke (2017)	A nationwide survey of first aid training and encounters in Norway
Berg (2021)	Changes in performance during repeated in-situ simulations with different cases
Berge (2005)	Helicopter transport of sick neonates: A 14-year population-based study
Bergerud (2009)	[A community short-term crisis unit does not reduce acute admissions to psychiatric wards]
Berve (2017)	Mechanical active compression-decompression with LUCAS2AD provide equivocal PETco ₂ values to the standard LUCAS2 during out-of-hospital cardiopulmonary resuscitation
Birkenes (2012)	Video analysis of dispatcher-rescuer teamwork-Effects on CPR technique and performance
Birkenes (2013)	Time delays and capability of elderly to activate speaker function for continuous telephone CPR
Birkenes (2014)	Quality of CPR performed by trained bystanders with optimized pre-arrival instructions
Bjerkvig (2020)	Cold-stored whole blood in a Norwegian emergency helicopter service: an observational study on storage conditions and product quality
Bjerkvig (2021)	Prehospital Whole Blood Transfusion Programs in Norway
Bjorkli (2012)	Effects of socio-emotional stressors on ventilation rate and subjective workload during simulated CPR by lay rescuers
Bjornsen (2018)	Compliance With a National Standard by Norwegian Helicopter Emergency Physicians
Bjorshol (2008)	Quality of chest compressions during 10min of single-rescuer basic life support with different compression: ventilation ratios in a manikin model
Bjorshol (2011)	Decay in chest compression quality due to fatigue is rare during prolonged advanced life support in a manikin model
Bjørshol (2011)	Effect of socioemotional stress on the quality of cardiopulmonary resuscitation during advanced life support in a randomized manikin study
Blinkenberg (2009)	[Electronic emergency preparedness plans in Norwegian out-of-hours centres]

Blinkenberg (2020)	Correction to: General practitioners' and out-of-hours doctors' role as gatekeeper in emergency admissions to somatic hospitals in Norway: registry-based observational study
Blinkenberg (2023)	The impact of variation in out-of-hours doctors' referral practices: a Norwegian registry-based observational study.
Blix (2017)	Performance of Norwegian civilian EMTs and army medics in penetrating trauma: a controlled simulation-based assessment
Blix (2022)	Norwegian Emergency Medicine Systems' Training and Equipment for Penetrating Injuries: A National Survey-Based Study
Boldingh (2016)	Rescuers' physical fatigue with different chest compression to ventilation methods during simulated infant cardiopulmonary resuscitation
Bolle (2018)	Usefulness of videoconferencing in psychiatric emergencies -- a qualitative study
Bollig (2006)	Airway management by paramedics using endotracheal intubation with a laryngoscope versus the oesophageal tracheal Combitube™ and EasyTube™ on manikins: A randomised experimental trial
Bondevik (2014)	Patient safety culture in Norwegian primary care: a study in out-of-hours casualty clinics and GP practices
Bowim (2012)	Sluttevaluering av SAMLOK
Brandrud (2017)	Local emergency medical response after a terrorist attack in Norway: A qualitative study
Brandstorp (2015)	Leadership practice as interaction in primary care emergency team training
Brandstorp (2016)	Primary care emergency team training in situ means learning in real context
Branes (2021)	Pediatric early warning score versus a paediatric triage tool in the emergency department: A reliability study
Bratland (2020)	Physician factors associated with increased risk for complaints in primary care emergency services: a case - control study
Bratland (2021)	Physician factors associated with medical errors in Norwegian primary care emergency services
Brede (2020)	A needs assessment of resuscitative endovascular balloon occlusion of the aorta (REBOA) in non-traumatic out-of-hospital cardiac arrest in Norway
Brede (2021)	Changes in peripheral arterial blood pressure after resuscitative endovascular balloon occlusion of the aorta (REBOA) in non-traumatic cardiac arrest patients.

Bredmose (2003)	Prehospital thrombolysis in acute myocardial infarction in a very sparsely inhabited area in northern Norway
Bredmose (2021)	Live Tissue Training on Anesthetized Pigs for Air Ambulance Crews
Bredmose (2021)	National Implementation of In Situ Simulation-Based Training in Helicopter Emergency Medical Services: A Multicenter Study.
Bredmose (2021)	Challenges to the implementation of in situ simulation at HEMS bases: a qualitative study of facilitators' expectations and strategies.
Bredmose (2021)	Combining in-situ simulation and live HEMS mission facilitator observation: a flexible learning concept.
Brennvall (2015)	Out-of-hours doctors' decisions on call-outs in emergency situations
Brevik (2022)	Implementing a new emergency medical triage tool in one health region in Norway: some lessons learned
Brudvik (2016)	A comparison of pain assessment by physicians, parents and children in an outpatient setting
Buajordet (2004)	Adverse events after naloxone treatment of episodes of suspected acute opioid overdose
Bugge (2019)	The paramedic norwegian acute stroke prehospital project diagnostics and triage of acute stroke by paramedics using the national institute of health stroke scale (NIHSS)
Bugge (2022)	National Institutes of Health Stroke Scale scores obtained using a mobile application compared to the conventional paper form: a randomised controlled validation study
Burman (2011)	Acute chest pain - A prospective population based study of contacts to Norwegian emergency medical communication centres
Burman (2014)	Chest pain out-of-hours - an interview study of primary care physicians' diagnostic approach, tolerance of risk and attitudes to hospital admission
Burman (2014)	Management of chest pain: a prospective study from Norwegian out-of-hours primary care
Busch (2006)	Portable ultrasound in pre-hospital emergencies: a feasibility study
Busch (2010)	Successful use of therapeutic hypothermia in an opiate induced out-of-hospital cardiac arrest complicated by severe hypoglycaemia and amphetamine intoxication: a case report
Busch (2015)	Carbon Monoxide Exposure in Norwegian Rescue Helicopters
Buskop (2015)	A 10-year retrospective study of interhospital patient transport using inhaled nitric oxide in Norway.

Cuevas-Østrem (2023)	Care pathways and factors associated with interhospital transfer to neurotrauma centers for patients with isolated moderate-to-severe traumatic brain injury: a population-based study from the Norwegian trauma registry.
Dale (2022)	Preparedness and management during the first phase of the COVID-19 outbreak - a survey among emergency primary care services in Norway.
Danielsen, (2010)	Pasienters og pårørendes erfaringer med Bodø legevakt. Resultater fra en brukererfaringsundersøkelse.
Danielsen, (2012)	Brukererfaringer med norske legevakter: resultater fra en spørreskjemaundersøkelse ved Vaktårn-legevaktene Institusjonsvise resultater
Dehli (2016)	Evaluation of a trauma team activation protocol revision: a prospective cohort study
Deilkås (2019)	Variation in staff perceptions of patient safety climate across work sites in Norwegian general practitioner practices and out-of-hour clinics.
Djupedal (2022)	Effects of experimental hypovolemia and pain on pre-ejection period and pulse transit time in healthy volunteers.
Dorph (2002)	Effectiveness of ventilation-compression ratios 1:5 and 2:15 in simulated single rescuer paediatric resuscitation
Dorph (2003)	Dispatcher-assisted cardiopulmonary resuscitation. An evaluation of efficacy amongst elderly
Dorph (2004)	Arterial blood gases with 700 ml tidal volumes during out-of-hospital CPR
Dyrkorn (2016)	Peer academic detailing on use of antibiotics in acute respiratory tract infections. A controlled study in an urban Norwegian out-of-hours service
Egenberg (2011)	Prehospital maternity care in Norway
Eick (2023)	Use of emergency primary care among pregnant undocumented migrants over ten years: an observational study from Oslo, Norway
Eiding (2020)	Potentially Severe Incidents During Interhospital Transport of Critically Ill Patients, Frequently Occurring But Rarely Reported: A Prospective Study.
Eiding (2021)	Interhospital transport of critically ill patients: A prospective observational study of patient and transport characteristics.
Eidstuen (2018)	When do trauma patients lose temperature? - a prospective observational study
Einvik (2020)	Pediatric hypothermic submersion incident - should we do chest compressions on a beating heart?

Ellensen (2014)	Variations in contact patterns and dispatch guideline adherence between Norwegian emergency medical communication centres--a cross-sectional study
Ellensen (2016)	Dispatch guideline adherence and response interval-a study of emergency medical calls in Norway
Ellensen (2018)	Stroke identification by criteria based dispatch - a register based study
Elvik (2002)	Cost-benefit analysis of ambulance and rescue helicopters in Norway: reflections on assigning a monetary value to saving a human life
Engan (2016)	Chest compression rate measurement from smartphone video
Engelsen (2023)	Ascending with ultrasound: telementored eFAST in flight-a feasibility study.
Faiz (2013)	Prehospital delay in acute stroke and TIA
Faiz (2017)	Prehospital path in acute stroke
Fattah (2011)	The lateral trauma position: what do we know about it and how do we use it? A cross-sectional survey of all Norwegian emergency medical services
Fattah (2012)	Major incident preparedness and on-site work among Norwegian rescue personnel - A cross-sectional study
Fattah (2016)	Reporting Helicopter Emergency Medical Services in Major Incidents: A Delphi Study
Fattah (2016)	Experience With a Novel, Global, Open-Access Template for Major Incidents: Qualitative Feasibility Study.
Fevang (2018)	Semiprone position is superior to supine position for paediatric endotracheal intubation during massive regurgitation, a randomized crossover simulation trial
Flaa (2019)	Sleepiness among personnel in the Norwegian Air Ambulance Service
Flaa (2021)	Subjective and objective sleep among air ambulance personnel
Folkestad (2004)	Urgent calls: Response patterns and pre-hospital time consumption in two emergency medical dispatch districts in Norway
Forland (2009)	[Cooperation between ambulance personnel and regular general practitioners]
Fougner (2000)	[Deliveries during transportation and shortly after admission to hospital]
Fremstad (2022)	Veien inn til sykehus for pasienter innlagt ved mistanke om akutt hjerneslag
Friberg (2023)	When disaster strikes: staff recall and the use of staff recall systems during mass patient influx at Norwegian emergency primary health care centers - a cross-sectional study

Gerwing (2021)	Evaluating a training intervention for improving alignment between emergency medical telephone operators and callers: a pilot study of communication behaviours
Gjerland (2015)	Sick-leave and help seeking among rescue workers after the terror attacks in Norway, 2011
Gjersing (2015)	Are overdoses treated by ambulance services an opportunity for additional interventions? A prospective cohort study
Glad (2010)	[Use of MRI for diagnosing scaphoid fracture]
Glomseth (2016)	Ambulance helicopter contribution to search and rescue in North Norway
Grande (2022)	Observational study on chest pain during the Covid-19 pandemic: changes and characteristics of visits to a Norwegian emergency department during the lockdown.
Gravseth (2003)	Occupational injuries in Oslo: A study of occupational injuries treated by the Oslo Emergency Ward and Oslo Ambulance Service
Grusd (2016)	Does the Norwegian emergency medical dispatch classification as non-urgent predict no need for pre-hospital medical treatment? An observational study
Gundersen (2008)	Identifying approaches to improve the accuracy of shock outcome prediction for out-of-hospital cardiac arrest
Gundrosen (2016)	Team talk and team activity in simulated medical emergencies: a discourse analytical approach
Guterud (2023)	The paramedic Norwegian acute stroke prehospital project (ParaNASPP)-Diagnostics and triage of acute stroke by paramedics using the National Institutes of Health Stroke Scale (NIHSS)
Guterud (2023)	Prehospital screening of acute stroke with the National Institutes of Health Stroke Scale (ParaNASPP): a stepped-wedge, cluster-randomised controlled trial
Hagen (2023)	The Causal Effect of Community Hospitals on General Hospital Admissions. Evaluation of a Natural Experiment Using Register Data
Halvorsen (2007)	Use of out-of-hours services before and after introduction of a patient list system
Hanche-Olsen (2002)	High survival in out-of-hospital cardiopulmonary resuscitation--7 years' incidence according to the Utstein template in a small town in Northern Norway
Hansen (2010)	Sykepleieres håndtering av telefonhenvendelser til legevakt
Hansen (2011)	Telephone triage by nurses in primary care out-of-hours services in Norway: An evaluation study based on written case scenarios

Hansen (2011)	Understanding of and adherence to advice after telephone counselling by nurse: a survey among callers to a primary emergency out-of-hours service in Norway
Haraldseide (2020)	Contact characteristics and factors associated with the degree of urgency among older people in emergency primary health care: a cross-sectional study
Hardeland (2016)	Factors impacting upon timely and adequate allocation of prehospital medical assistance and resources to cardiac arrest patients
Hardeland (2017)	Targeted simulation and education to improve cardiac arrest recognition and telephone assisted CPR in an emergency medical communication centre
Harring (2023)	Resuscitation of older adults in Norway; a comparison of survival and outcome after out-of-hospital cardiac arrest in healthcare institutions and at home
Harring (2023)	Gamification of the National Institutes of Health Stroke Scale (NIHSS) for simulation training-a feasibility study
Hasselberg (2013)	Psychiatric admissions from crisis resolution teams in Norway: A prospective multicentre study
Haug (2009)	[Reliability of air ambulances--a survey in three municipalities in Helgeland?]
Haugland (2022)	The effect of the new rescue helicopters on the rescue service's mission profile
Haugstveit (2017)	Design and evaluation of an electronic triage system for prehospital monitoring of patients
Haustaker (2021)	General practitioners not available - out-of-hospital emergency patients handled by anaesthesiologist in a large Norwegian municipality
Heggestad (2002)	Accessibility and distribution of the Norwegian National Air Emergency Service: 1988-1998
Heradstveit (2012)	Factors complicating interpretation of capnography during advanced life support in cardiac arrest--a clinical retrospective study in 575 patients
Hernes (2020)	Associations between characteristics of the patients at municipal acute bed unit admission and further transfer to hospital: a prospective observational study
Heyerdahl (2008)	Pre-hospital treatment of acute poisonings in Oslo
Hilland (2023)	Stayin' alive: The introduction of municipal in-patient acute care units was associated with reduced mortality and fewer hospital readmissions
Hilpusch (2011)	[Nurses and social care workers in emergency teams in Norway]

Hjortdahl (2014)	The role of general practitioners in the pre hospital setting, as experienced by emergency medicine technicians: a qualitative study
Hjortdahl (2016)	Rural GPs' attitudes toward participating in emergency medicine: a qualitative study
Hjortdahl (2018)	Self reported involvement in emergency medicine among GPs in Norway.
Hjortdahl (2021)	GP decisions to participate in emergencies: a randomised vignette study.
Hoff (2019)	Respiratory variations in pulse pressure and photoplethysmographic waveform amplitude during positive expiratory pressure and continuous positive airway pressure in a model of progressive hypovolemia.
Hole (2005)	General practitioner-based prehospital thrombolysis in acute myocardial infarction
Hov (2015)	Assessment of acute stroke cerebral CT examinations by anaesthesiologists
Hov (2017)	Pre-hospital ct diagnosis of subarachnoid hemorrhage
Hov (2018)	Interpretation of Brain CT Scans in the Field by Critical Care Physicians in a Mobile Stroke Unit
Hov (2019)	Stroke severity quantification by critical care physicians in a mobile stroke unit
Hultberg (2008)	Om å arbeide i et ambulant psykiatrisk akutteam–noen erfaringer
Husebo (2019)	Actual clinical leadership: a shadowing study of charge nurses and doctors on-call in the emergency department
Hylander (2019)	Prehospital management provided by medical on-scene commanders in tunnel incidents in Oslo, Norway - an interview study
Hyldmo (2017)	Does the novel lateral trauma position cause more motion in an unstable cervical spine injury than the logroll maneuver
Høiseth (2023)	Haemodynamic effects of methoxyflurane versus fentanyl and placebo in hypovolaemia: a randomised, double-blind crossover study in healthy volunteers.
Haagensen (2001)	[Rescue operations with helicopter ambulances in the Barents sea]
Haagensen (2004)	Long-range rescue helicopter missions in the Arctic
Idland (2022)	From hearing to seeing: medical dispatchers' experience with use of video streaming in medical emergency calls - a qualitative study
Idland (2023)	Assessing bystander first aid_ development and validation of a First Aid Quality Assessment (FAQA) tool

Ingebrigtsen (2022)	Poisoning with central stimulant drugs: an observational study from Oslo, Norway
Islam (2019)	Co-ordination of health care: the case of hospital emergency admissions
Iveland (2004)	337 Home calls during daytime from the emergency medical centre in Oslo
Jacobsen (2022)	Feasibility of prehospital identification of non-ST-elevation myocardial infarction by ECG, troponin and echocardiography
Jaeger (2023)	Diagnostic performance of Glial Fibrillary Acidic Protein and Prehospital Stroke Scale for identification of stroke and stroke subtypes in an unselected patient cohort with symptom onset < 4.5 h
Jagtenberg (2023)	Utopia for Norwegian helicopter emergency medical services: Estimating the number of bases needed to radically bring down response times, and lives needed to be saved for cost effectiveness
Jensvold (2014)	[Pre-hospital observation as an alternative to emergency hospitalisation]
Joa (2012)	Violence towards personnel in out-of-hours primary care: A cross-sectional study
Johannessen (2017)	Beyond guidelines: discretionary practice in face-to-face triage nursing
Johannessen (2018)	Workplace assimilation and professional jurisdiction: How nurses learn to blur the nursing-medical boundary
Johannessen (2018)	Narratives and gatekeeping: making sense of triage nurses' practice
Johannessen (2020)	The function of the Norwegian municipal acute units fails to fulfill the intention of health authorities
Johannessen (2020)	Pre-hospital One-Hour Troponin in a Low-Prevalence Population of Acute Coronary Syndrome: OUT-ACS study
Johannessen (2021)	Comparison of a single high-sensitivity cardiac troponin T measurement with the HEART score for rapid rule-out of acute myocardial infarction in a primary care emergency setting: A cohort study
Johannessen (2022)	Cost-effectiveness of a rule-out algorithm of acute myocardial infarction in low-risk patients: emergency primary care versus hospital setting
Johansen (2009)	Contacts related to psychiatry and substance abuse in Norwegian casualty clinics. A cross-sectional study.
Johansen (2010)	Contacts related to mental illness and substance abuse in primary health care: a cross-sectional study comparing patients' use of daytime versus out-of-hours primary care in Norway

Johansen (2011)	Psychiatry out-of-hours: a focus group study of GPs' experiences in Norwegian casualty clinics
Johansen (2012)	How Norwegian casualty clinics handle contacts related to mental illness: A prospective observational study
Johnsen (2008)	TO SEE OR NOT TO SEE-Better dispatcher-assisted CPR with video-calls? A qualitative study based on simulated trials
Johnsen (2017)	Helicopter emergency medical services in major incident management: A national Norwegian cross-sectional survey
Johnsen (2017)	High-performing trauma teams: frequency of behavioral markers of a shared mental model displayed by team leaders and quality of medical performance
Johnsen (2020)	Major incident management by helicopter emergency medical services in south-east Norway from 2000 to 2016: Retrospective cohort study
Johnsen (2020)	Characteristics of aggressive incidents in emergency primary health care described by the Staff Observation Aggression Scale - Revised Emergency (SOAS-RE).
Johnsen (2022)	Coordinating Mechanisms Are More Important Than Team Processes for Geographically Dispersed Emergency Dispatch and Paramedic Teams
Josendal (2004)	Activities performed by general practitioners in an off-hour emergency service before and after regional organisation and implementation of a list patient system
Josendal (2004)	[Activities performed by general practitioners before and after the introduction of an inter-municipal emergency service and the list patient system]
Jæger (2023)	Diagnostic performance of Glial Fibrillary Acidic Protein and Prehospital Stroke Scale for identification of stroke and stroke subtypes in an unselected patient cohort with symptom onset < 4.5 h.
Kakad (2019)	Erlang could have told you so-A case study of health policy without maths
Kakad (2023)	Using stochastic simulation modelling to study occupancy levels of decentralised admission avoidance units in Norway
Karlsen (2013)	Equipment to prevent, diagnose, and treat hypothermia: a survey of Norwegian pre-hospital services
Kill (2005)	Differences in time to defibrillation and intubation between two different ventilation/compression ratios in simulated cardiac arrest
Kjellemo (2016)	Pediatric Cardiac Arrest Due to Trauma
Klevan (2022)	'No service is an island': Experiences of collaboration with crisis resolution teams in Norway

Kolbjørnsrud (2009)	[Can psychiatric acute teams reduce acute admissions to psychiatric wards?]
Kramer-Johansen (2006)	Quality of out-of-hospital cardiopulmonary resuscitation with real time automated feedback: A prospective interventional study
Kramer-Johansen (2007)	Pauses in chest compression and inappropriate shocks: A comparison of manual and semi-automatic defibrillation attempts
Kramer-Johansen (2008)	Transthoracic impedance changes as a tool to detect malpositioned tracheal tubes
Kramer-Johansen (2021)	Evalueringsrapport for pilotprosjekt OM Bruk AV Video I Medisinsk Nødmeldetjeneste (AMK Og LVS)
Kristiansen (2019)	When it matters most: Collaboration between first responders in incidents and exercises
Kristoffersen (2023)	Responstider for ambulanser og pasientutfall
Krone-Hjertstrom (2021)	Organizing work in local service implementation: an ethnographic study of nurses' contributions and competencies in implementing a municipal acute ward
Kruger (2006)	When should the trauma team be activated?
Kvakkestad (2022)	Short-and long-term survival after ST-elevation myocardial infarction treated with pharmacoinvasive versus primary percutaneous coronary intervention strategy: a prospective cohort study
Labberton (2018)	Differences in and Determinants of Prehospital Delay Times among Stroke Patients-1994 Versus 2012
Landstad (2021)	Nursing qualifications needed in municipal emergency inpatient units. A qualitative study
Lang (2007)	A population based 10-year study of neonatal air transport in North Norway
Langdalen (2018)	A comparative study on the frequency of simulation-based training and assessment of non-technical skills in the Norwegian ground ambulance services and helicopter emergency medical services
Langhelle (2000)	Arterial blood-gases with 500- versus 1000-ml tidal volumes during out- of-hospital CPR
Larsen (2019)	Pre-hospital thrombolysis of ischemic stroke in the emergency service system-A case report from the Treat-NASPP trial
Larsen (2019)	Acute stroke treatment by a physician-based emergency services team in a mobile stroke unit
Larsen (2021)	Ultraearly thrombolysis by an anesthesiologist in a mobile stroke unit: a prospective, controlled intervention study

Larsen (2022)	Streamlining Acute Stroke Care by Introducing National Institutes of Health Stroke Scale in the Emergency Medical Services: A Prospective Cohort Study
Larsen (2022)	Prehospital Blood Pressure and Clinical and Radiological Outcomes in Acute Spontaneous Intracerebral Hemorrhage
Larsen (2023)	Antithrombotic Treatment, Prehospital Blood Pressure, and Outcomes in Spontaneous Intracerebral Hemorrhage
Lenz (2017)	Out-of-Hospital Perimortem Cesarean Delivery Performed in a Woman at 32 Weeks of Gestation: A Case Report
Leonardsen (2016)	General practitioners' perspectives on referring patients to decentralized acute health care
Leonardsen (2017)	Evaluating patient experiences in decentralised acute care using the Picker Patient Experience Questionnaire; methodological and clinical findings
Leonardsen (2019)	Exploring individual and work organizational peculiarities of working in emergency medical communication centers in Norway- a qualitative study
Leonardsen (2021)	Prehospital assessment and management of postpartum haemorrhage- healthcare personnel's experiences and perspectives
Lie (2023)	Hemodynamic effects of supplemental oxygen versus air in simulated blood loss in healthy volunteers: a randomized, controlled, double-blind, crossover trial.
Lindberg (2017)	Antibiotic prescribing for acute respiratory tract infections in Norwegian primary care out-of-hours service.
Lindberg (2021)	Phone triage nurses' assessment of respiratory tract infections - the tightrope walk between gatekeeping and service providing. A qualitative study
Lindberg (2023)	Effect of an educational intervention for telephone triage nurses on out-of-hours attendance: a pragmatic randomized controlled study
Lindner (2011)	Good outcome in every fourth resuscitation attempt is achievable-An Utstein template report from the Stavanger region
Linqvist (2016)	A qualitative study of patient experiences of decentralized acute healthcare services
Ljosland (2000)	[Prehospital ECG reduces the delay of thrombolysis in acute myocardial infarction]
Lonvik (2021)	A prospective observational study comparing two supraglottic airway devices in out-of-hospital cardiac arrest
Lossius (2000)	Efficiency of activation of the trauma team in a Norwegian trauma referral centre

Lossius (2002)	Prehospital advanced life support provided by specially trained physicians: Is there a benefit in terms of life years gained?
Lossius (2012)	Calculating trauma triage precision: effects of different definitions of major trauma
Lovseth (2010)	Confidentiality as a barrier to social support: A cross-sectional study of Norwegian emergency and human service workers
Lund (2009)	Heart rate monitored hypothermia and drowning in a 48-year-old man. Survival without sequelae: A case report
Lund (2012)	Outpatient treatment of acute poisonings in Oslo: poisoning pattern, factors associated with hospitalization, and mortality
Lund (2022)	Cost-Effectiveness of Mobile Stroke Unit Care in Norway
Lund-Kordahl (2010)	Improving outcome after out-of-hospital cardiac arrest by strengthening weak links of the local Chain of Survival; quality of advanced life support and post-resuscitation care
Lund-Kordahl (2019)	Relationship between level of CPR training, self-reported skills, and actual manikin test performance - An observational study
Lunde (2019)	The Concept of Overcommitment in Rescue Operations: Some Theoretical Aspects Based on Empirical Data
Lunde (2019)	Overcommitment: Management in Helicopter Emergency Medical Services in Norway
Lunde (2019)	Patient and rescuer safety: recommendations for dispatch and prioritization of rescue resources based on a retrospective study of Norwegian avalanche incidents 1996-2017
Lunde (2021)	A systems thinking approach to safety in Norwegian avalanche rescue operations
Lønvik (2021)	A prospective observational study comparing two supraglottic airway devices in out-of-hospital cardiac arrest.
Madah-Amiri (2017)	Circumstances surrounding non-fatal opioid overdoses attended by ambulance services
Maehlen (2021)	Pre-hospital critical care management of severe hypoxemia in victims of Covid-19: a case series
Magnussen (2018)	Help we are sinking! Stories from Norwegian dispatch centers on decision-making in unfamiliar and ambiguous situations
Mannsverk (2019)	Trends in clinical outcomes and survival following pre-hospital thrombolytic therapy given by ambulance clinicians for ST-elevation myocardial infarction in rural sub-arctic Norway

Maren (2018)	Prehospital NIHSS in conventional ambulance service identifies acute stroke patients
Mathiesen (2016)	Reactions and coping strategies in lay rescuers who have provided CPR to out-of-hospital cardiac arrest victims: A qualitative study
Mathiesen (2017)	Exploring How Lay Rescuers Overcome Barriers to Provide Cardiopulmonary Resuscitation: A Qualitative Study
Mathiesen (2018)	Effects of modifiable prehospital factors on survival after out-of-hospital cardiac arrest in rural versus urban areas
Mathiesen (2018)	Public knowledge and expectations about dispatcher assistance in out-of-hospital cardiac arrest
Mattingsdal (2022)	Static Rope Rescue Operations in Western Norway: A Retrospective Analysis of 141 Missions
Medby (2014)	Is there a place for crystalloids and colloids in remote damage control resuscitation?
Meinich-Bache (2018)	Real-time chest compression quality measurements by smartphone camera
Melberg (2013)	Gender-specific ambulance priority and delays to primary percutaneous coronary intervention: A consequence of the patients' presentation or the management at the emergency medical communications center?
Melbye (2014)	Mobile videoconferencing for enhanced emergency medical communication - a shot in the dark or a walk in the park? -- A simulation study
Midtbo (2017)	Telephone counselling by nurses in Norwegian primary care out-of-hours services: a cross-sectional study
Midtbo (2022)	From direct attendance to telephone triage in an emergency primary healthcare service: An observational study
Midtbø (2023)	The association between municipal pandemic response and COVID-19 contacts to emergency primary health care services: an observational study.
Morken (2013)	Safety measures to prevent workplace violence in emergency primary care centres--a cross-sectional study
Morken (2015)	Dealing with workplace violence in emergency primary health care: a focus group study.
Morken (2016)	Emergency primary care personnel's perception of professional-patient interaction in aggressive incidents -- a qualitative study
Morken (2018)	The Staff Observation Aggression Scale - Revised (SOAS-R) - adjustment and validation for emergency primary health care
Moutte (2015)	Physicians' use of pain scale and treatment procedures among children and youth in emergency primary care - a cross sectional study

Myhr (2017)	Point-of-care ultrasonography in Norwegian out-of-hours primary health care
Myklevoll (2023)	Primary care doctors in acute call-outs to severe trauma incidents in Norway - associations with factors related to patients and doctors
Naess (2004)	Long term survival and costs per life year gained after out-of-hospital cardiac arrest
Nakstad (2004)	Rapid response car as a supplement to the helicopter in a physician-based HEMS system
Nakstad (2009)	Medical emergency motorcycle--is it useful in a Scandinavian Emergency Medical Service?
Nakstad (2009)	The GlideScope Ranger video laryngoscope can be useful in airway management of entrapped patients
Nakstad (2011)	Incidence of desaturation during prehospital rapid sequence intubation in a physician-based helicopter emergency service
Nakstad (2011)	Airway management in simulated restricted access to a patient--can manikin-based studies provide relevant data?
Nakstad (2011)	Landing sites and intubation may influence helicopter emergency medical services on-scene time
Nakstad (2020)	Late awakening, prognostic factors and long-term outcome in out-of-hospital cardiac arrest - results of the prospective Norwegian Cardio-Respiratory Arrest Study (NORCAST)
Neset (2010)	A randomized trial of the capability of elderly lay persons to perform chest compression only CPR versus standard 30:2 CPR
Neset (2012)	A randomized trial on elderly laypersons' CPR performance in a realistic cardiac arrest simulation
Neset (2013)	Effects of adrenaline on rhythm transitions in out-of-hospital cardiac arrest
Ness (2020)	Patient visits to a psychiatric casualty clinic during the initial phase of the COVID-19 pandemic
Neurauter (2008)	Improving countershock success prediction during cardiopulmonary resuscitation using ventricular fibrillation features from higher ECG frequency bands
Nieber (2007)	[Organization of Norwegian out-of-hours primary health care services]
Nielsen (2002)	When is an anesthesiologist needed in a helicopter emergency medical service in northern Norway?
Nilsbakken (2023)	Effect of urban vs. remote settings on prehospital time and mortality in trauma patients in Norway: a national population-based study
Nilsen (2017)	Patient trajectories in a Norwegian unit of municipal emergency beds.

Nordby (2012)	The ethics of resuscitation: how do paramedics experience ethical dilemmas when faced with cancer patients with cardiac arrest?
Nordby (2013)	Should paramedics ever accept patients' refusal of treatment or further assessment?
Nordby (2015)	The importance of reliable information exchange in emergency practices: a misunderstanding that was uncovered before it was too late
Nordseth (2012)	Dynamic effects of adrenaline (epinephrine) in out-of-hospital cardiac arrest with initial pulseless electrical activity (PEA).
Norum (2010)	Cardiovascular disease (CVD) in the Norwegian Arctic. Air ambulance operations 1999-2009 and future challenges in the region
Norum (2010)	The ambulance services in northern Norway 2004-2008: Improved competence, more tasks, better logistics and increased costs
Norum (2011)	Air ambulance services in the Arctic 1999-2009: A Norwegian study
Norum (2011)	Air ambulance flights in northern Norway 2002- 2008. Increased number of secondary fixed wing (FW) operations and more use of rotor wing (RW) transports
Norum (2017)	Treatment of acute myocardial infarction in the sub-arctic region of Norway. Do we offer an equal quality of care?
Nyen (2010)	Kvaliteten på sykepleieres håndtering av telefonhenvendelser til legevakt.
Nymoene (2022)	Emergency department physicians' distribution of time in the fast paced-workflow-a novel time-motion study of drug-related activities
Nystoyl (2018)	Treatment, transport, and primary care involvement when helicopter emergency medical services are inaccessible: a retrospective study
Nystoyl (2020)	Helicopter emergency medical service (HEMS) activity after increased distance to out-of-hours services: an observational study from Norway
Nystoyl (2022)	Acute medical missions by helicopter medical service (HEMS) to municipalities with different approach for primary care physicians
Nystrom (2021)	What if something happens tonight? A qualitative study of primary care physicians' perspectives on an alternative to hospital admittance
Nystrom (2022)	Finding good alternatives to hospitalisation: a data register study in five municipal acute wards in Norway

Odegaard (2006)	Quality of lay person CPR performance with compression: ventilation ratios 15: 2, 30: 2 or continuous chest compressions without ventilations on manikins
Odegaard (2007)	Chest compressions by ambulance personnel on chests with variable stiffness: Abilities and attitudes
Odegaard (2009)	The effect of transport on quality of cardiopulmonary resuscitation in out-of-hospital cardiac arrest
Olasveengen (2007)	A failed attempt to improve quality of out-of-hospital CPR through performance evaluation
Olasveengen (2007)	Is CPR quality improving? A retrospective study of out-of-hospital cardiac arrest
Olasveengen (2008)	Standard basic life support vs. continuous chest compressions only in out-of-hospital cardiac arrest
Olasveengen (2008)	Quality of cardiopulmonary resuscitation before and during transport in out-of-hospital cardiac arrest
Olasveengen (2009)	Out-of hospital advanced life support with or without a physician: effects on quality of CPR and outcome
Olasveengen (2009)	Progressing from initial non-shockable rhythms to a shockable rhythm is associated with improved outcome after out-of-hospital cardiac arrest
Olasveengen (2009)	Effect of implementation of new resuscitation guidelines on quality of cardiopulmonary resuscitation and survival
Olasveengen (2009)	Intravenous drug administration during out-of-hospital cardiac arrest: a randomized trial.
Olasveengen (2012)	Outcome when adrenaline (epinephrine) was actually given vs. not given - post hoc analysis of a randomized clinical trial
Olsen (2015)	Pre-shock chest compression pause effects on termination of ventricular fibrillation/tachycardia and return of organized rhythm within mechanical and manual cardiopulmonary resuscitation
Olsen (2016)	Chest compression duration influences outcome between integrated load-distributing band and manual CPR during cardiac arrest
Ormstad (2019)	Prehospital CT for early diagnosis and treatment of suspected acute stroke or severe head injury
Osteras (2016)	Helicopter-based emergency medical services for a sparsely populated region: A study of 42,500 dispatches
Osteras (2017)	Factors influencing on-scene time in a rural Norwegian helicopter emergency medical service: a retrospective observational study
Osteras (2018)	Outcomes after cancelled helicopter emergency medical service missions due to concurrencies: a retrospective cohort study

Ovstebo (2023)	Symptoms of post-traumatic stress disorder among first aid providers
Pedersen (2016)	Emergency preparedness and role clarity among rescue workers during the terror attacks in Norway July 22, 2011
Petrovich (2023)	Injuries associated with mechanical chest compressions and active decompressions after out-of-hospital cardiac arrest: A subgroup analysis of non-survivors from a randomized study
Popovaite (2023)	Assembling Collaboration Space: Maps in Practice During Search and Rescue Efforts In Northern Norway
Prytz (2023)	What motivates and demotivates emergency response volunteers? A survey-based factor analysis study
Pytte (2007)	Comparison of hands-off time during CPR with manual and semi-automatic defibrillation in a manikin model
Pytte (2008)	Arterial blood gases during basic life support of human cardiac arrest victims
Qvigstad (2013)	Clinical pilot study of different hand positions during manual chest compressions monitored with capnography
Rad (2016)	Automatic cardiac rhythm interpretation during resuscitation
Rad (2018)	An automatic system for the comprehensive retrospective analysis of cardiac rhythms in resuscitation episodes
Raknes (2013)	Distance and utilisation of out-of-hours services in a Norwegian urban/rural district: an ecological study
Raknes (2014)	[Travel distance and the utilisation of out-of-hours services]
Raknes (2014)	[Travel time and distances to Norwegian out-of-hours casualty clinics]
Raknes (2017)	Reasons for encounter by different levels of urgency in out-of-hours emergency primary health care in Norway: A cross sectional study
Raknes (2017)	Local emergency medical communication centres - staffing and populations
Rasmussen (2019)	Training and assessment of non-technical skills in Norwegian helicopter emergency services: a cross-sectional and longitudinal study
Rasmussen (2023)	Sky-High Safety? A Qualitative Study of Physicians' Experiences of Patient Safety in Norwegian Helicopter Emergency Services
Rebnord (2009)	[Equipment for diagnostics, laboratory analyses and treatment in out-of-hours services]
Rebnord (2012)	Use of laboratory tests in out-of-hours services in Norway
Rebnord (2015)	Point-of-care testing with CRP in primary care: a registry-based observational study from Norway

Rebnord (2016)	Out-of-hours antibiotic prescription after screening with C reactive protein: a randomised controlled study
Rebnord (2017)	Factors predicting antibiotic prescription and referral to hospital for children with respiratory symptoms: secondary analysis of a randomised controlled study at out-of-hours services in primary care.
Rehn (2009)	Precision of field triage in patients brought to a trauma centre after introducing trauma team activation guidelines
Rehn (2010)	A concept for major incident triage: Full-scaled simulation feasibility study
Rehn (2011)	Major incident patient evacuation: Full-scale field exercise feasibility study
Rehn (2012)	Efficacy of a two-tiered trauma team activation protocol in a Norwegian trauma centre
Rehn (2023)	Challenges and Risks in Out-of-Hospital Transport of Patients During the Coronavirus Disease 2019 Pandemic
Rehn (2023)	Challenges and Risks in Out-of-Hospital Transport of Patients During the Coronavirus Disease 2019 Pandemic.
Reid (2018)	Physician-provided prehospital critical care, effect on patient physiology dynamics and on-scene time
Reid (2018)	Inter-disciplinary cooperation in a physician-staffed emergency medical system
Reid (2019)	Search and Rescue and Remote Medical Evacuation in a Norwegian Setting: Comparison of Two Systems
Reid (2020)	Prehospital Stressors: A Cross-sectional Study of Norwegian Helicopter Emergency Medical Physicians
Reid (2022)	A cross-sectional study of mental health-, posttraumatic stress symptoms and post exposure changes in Norwegian ambulance personnel
Reid (2022)	Posttraumatic Stress Responses and Psychological Well-being in Norwegian Medical Helicopter Personnel.
Rimstad (2015)	A retrospective observational study of medical incident command and decision-making in the 2011 Oslo bombing
Risdal (2008)	Automatic identification of return of spontaneous circulation during cardiopulmonary resuscitation
Rognli (2023)	[Poor uptake of service provision at a drug-related emergency department - a qualitative study]
Roislien (2015)	Does transport time help explain the high trauma mortality rates in rural areas? New and traditional predictors assessed by new and traditional statistical methods
Roislien (2018)	Comparing population and incident data for optimal air ambulance base locations in Norway
Romoren (2017)	A structured training program for health workers in intravenous treatment with fluids and antibiotics in nursing

	homes: A modified stepped-wedge cluster-randomised trial to reduce hospital admissions
Rortveit (2009)	[Medical emergencies in a rural community]
Rortveit (2009)	[Development of events in medical emergency situations in a rural community]
Rortveit (2010)	First responder resuscitation teams in a rural Norwegian community: sustainability and self-reports of meaningfulness, stress and mastering
Rortveit (2013)	Changes of triage by GPs during the course of prehospital emergency situations in a Norwegian rural community
Ruud (2016)	Is it a matter of urgency? A survey of assessments by walk-in patients and doctors of the urgency level of their encounters at a general emergency outpatient clinic in Oslo, Norway
Ruud (2017)	Reasons for attending a general emergency outpatient clinic versus a regular general practitioner - a survey among immigrant and native walk-in patients in Oslo, Norway
Rydlov (2023)	Pain Management with Inhalation of Methoxyflurane Administered by Non-Medical Ski Patrol: A Quality Assessment Study
Røislien (2016)	Exploring optimal air ambulance base locations in Norway using advanced mathematical modelling
Raatinieniemi (2013)	Do pre-hospital anaesthesiologists reliably predict mortality using the NACA severity score? A retrospective cohort study
Samdal (2018)	Static Rope Evacuation by Helicopter Emergency Medical Services in Rescue Operations in Southeast Norway
Samdal (2019)	Time Course of Hoist Operations by the Search and Rescue Helicopter Service in Southeast Norway
Samdal (2021)	Dispatch accuracy of physician-staffed emergency medical services in trauma care in south-east Norway: a retrospective observational study
Sandvik (2010)	Working style among regular general practitioners and other doctors in the out-of-hours services
Sandvik (2011)	Hygiene campaign autumn 2009--fewer cases of infection at the emergency centre?
Sandvik (2012)	Which GPs are staffing the emergency medical services?
Sandvik (2012)	Use of emergency medical services by patients encompassed by the Regular GP scheme
Sandvik (2012)	Clinical practice patterns among native and immigrant doctors doing out-of-hours work in Norway: A registry-based observational study

Sandvik (2012)	Immigrants' use of emergency primary health care in Norway: a registry-based observational study
Sandvik (2017)	Contacts with out-of-hours services because of poisonings in Norway 2006 - 15
Sandvik (2018)	Frequent attenders at primary care out-of-hours services: a registry-based observational study in Norway
Sandvik (2019)	Doctors' characteristics and the use of long consultations at out-of-hours services 2008-2017: a registry-based follow-up study in Norway
Sandvik (2019)	Emergency Primary Health Care Consultations on Christmas Eve, New Year's Eve and a Normal Saturday
Sandvik (2020)	Use of non-specific diagnostic codes in out-of-hours services
Sandvik (2020)	Children with gastroenteritis attending emergency primary healthcare units before and after the introduction of the rotavirus vaccine
Sandvik (2020)	Children with otitis attending emergency primary health care units following introduction of pneumococcal vaccine.
Schmidt (2018)	First four years of operation of a municipal acute bed unit in rural Norway
Scott (2022)	Barriers to body temperature monitoring among prehospital personnel: A qualitative study using the modified nominal group technique
Skaiaa (2015)	The impact of environmental factors in pre-hospital tympanic-based tympanic temperature measurement: a pilot field study
Skjeflo (2019)	The effect of intravenous adrenaline on electrocardiographic changes during resuscitation in patients with initial pulseless electrical activity in out of hospital cardiac arrest
Skogvoll (2000)	Helicopter emergency medical service in out-of-hospital cardiac arrest - A 10-year population-based study
Skogvoll (2008)	Dynamics and state transitions during resuscitation in out-of-hospital cardiac arrest
Skulberg (2019)	Pharmacokinetics of a novel, approved, 1.4-mg intranasal naloxone formulation for reversal of opioid overdose-a randomized controlled trial.
Skulberg (2022)	Comparison of intranasal and intramuscular naloxone in opioid overdoses managed by ambulance staff: a double-dummy, randomised, controlled trial
Slotsvik (2023)	Contributions and limitations of relational governance towards the reliability of publicly procured air ambulance services
Sollid (2003)	Pre- and inter-hospital transport of severely head-injured patients in rural Northern Norway

Sollid (2008)	Pre-hospital advanced airway management by anaesthesiologists: is there still room for improvement?
Sollid (2010)	Risk assessment of pre-hospital trauma airway management by anaesthesiologists using the predictive Bayesian approach
Sollid (2010)	Pre-hospital intubation by anaesthesiologists in patients with severe trauma: an audit of a Norwegian helicopter emergency medical service
Sollid (2012)	Oslo government district bombing and Utoya island shooting July 22, 2011: the immediate prehospital emergency medical service response
Sollid (2015)	A prospective survey of critical care procedures performed by physicians in helicopter emergency medical service: is clinical exposure enough to stay proficient?
Soma (2005)	Patients' expectations of antibiotics for acute respiratory tract infections (ARTI): A questionnaire survey at the Oslo emergency centre, winter 2002-2003
Sommer (2011)	Learning amongst Norwegian fire-fighters
Sommer (2012)	Dominant learning processes in emergency response organizations: A case study of a joint rescue coordination centre
Soreide (2007)	Epidemiology and contemporary patterns of trauma deaths: Changing place, similar pace, older face
Sorgjerd (2019)	Comparison of two different intraosseous access methods in a physician-staffed helicopter emergency medical service - a quality assurance study
Sorskar (2019)	Assessing safety climate in prehospital settings: testing psychometric properties of a common structural model in a cross-sectional and prospective study
Sorteberg (2019)	The path from ictus to Neurosurgery: chronology and transport logistics of patients with aneurysmal subarachnoid haemorrhage in the South-Eastern Norway Health Region
Staff (2011)	A retrospective quality assessment of pre-hospital emergency medical documentation in motor vehicle accidents in south-eastern Norway
Staff (2014)	Physiologic, demographic and mechanistic factors predicting New Injury Severity Score (NISS) in motor vehicle accident victims
Stecher (2008)	Transthoracic impedance used to evaluate performance of cardiopulmonary resuscitation during out of hospital cardiac arrest

Steen (2002)	Medical consequences of violence: A two-year prospective study from a primary care accident and emergency department in Norway
Steen (2004)	The new list patient system and the medical emergency system in Bergen, Norway
Steen (2004)	[The new list patient system and emergency service in Bergen]
Steen (2004)	Violence in an urban community from the perspective of an accident and emergency department: A two-year prospective study
Steen (2009)	[Out-of-hours medical services for retirement and nursing homes]
Steen-Hansen (2001)	[How long does it take for an ambulance to arrive?]
Steen-Tveit (2021)	From common operational picture to common situational understanding: An analysis based on practitioner perspectives
Steen-Tveit (2021)	Using live video for communication between lay bystanders and emergency dispatchers in command and control centres
Steinberg (2015)	Minimizing pre-shock chest compression pauses in a cardiopulmonary resuscitation cycle by performing an earlier rhythm analysis
Sterud (2008)	Occupational stressors and its organizational and individual correlates: A nationwide study of Norwegian ambulance personnel
Sterud (2011)	A comparison of general and ambulance specific stressors: Predictors of job satisfaction and health problems in a nationwide one-year follow-up study of Norwegian ambulance personnel
Stordahl (2015)	Nine out of ten trauma calls to a Norwegian hospital are avoidable: A retrospective analysis
Storhaug (2017)	A qualitative study of employees' opinions on establishing a generic call-centre
Sunde (2001)	[Ambulance response intervals in connection with cardiac arrest in Oslo]
Sunde (2010)	Emergency intraosseous access in a helicopter emergency medical service: a retrospective study
Sunde (2012)	Laryngeal tube use in out-of-hospital cardiac arrest by paramedics in Norway
Sunde (2015)	Freeze dried plasma and fresh red blood cells for civilian prehospital hemorrhagic shock resuscitation
Sunde (2022)	Implementation of a low-titre whole blood transfusion program in a civilian helicopter emergency medical service

Svedahl (2023)	Impact of altering referral threshold from out-of-hours primary care to hospital on patient safety and further health service use: a cohort study
Svendsen (2020)	Cabin temperature during prehospital patient transport - a prospective observational study
Svennevig (2012)	On being heard in emergency calls. The development of hostility in a fatal emergency call
Syse (2019)	Gender differences in acute recreational drug toxicity: a case series from Oslo, Norway.
Thesen (2004)	[Cardiopulmonary resuscitation in municipal health services--a simple program for training and maintenance]
Thomassen (2011)	Comparison of three different prehospital wrapping methods for preventing hypothermia - a crossover study in humans
Thomassen (2017)	Mountain rescue cardiopulmonary resuscitation: A comparison between manual and mechanical chest compressions during manikin cardio resuscitation
Thoresen (2016)	Cancer patients' use of primary care out-of-hours services: a cross-sectional study in Norway
Thorvaldsen (2019)	Implementation of new guidelines in the prehospital services: a nationwide survey of Norway
Thorvaldsen (2022)	Coercion in the ambulance setting
Thorvaldsen (2023)	Exploring use of coercion in the Norwegian ambulance service - a qualitative study
Tomlinson (2007)	Compression force-depth relationship during out-of-hospital cardiopulmonary resuscitation
Tomte (2009)	Advanced life support performance with manual and mechanical chest compressions in a randomized, multicentre manikin study
Tonje (2009)	Handling of drug-related emergencies: An evaluation of emergency medical dispatch
Tonsager (2020)	Assignment of pre-event ASA physical status classification by pre-hospital physicians: A prospective inter-rater reliability study
Trondsen (2012)	VIDEOCARE: decentralised psychiatric emergency care through videoconferencing
Trondsen (2014)	Video-confidence: a qualitative exploration of videoconferencing for psychiatric emergencies
Trondsen (2018)	The symbolic affordances of a video-mediated gaze in emergency psychiatry
Tylleskar (2019)	Naloxone nasal spray - bioavailability and absorption pattern in a phase 1 study.
Tylleskar (2020)	Prehospital naloxone administration - What influences choice of dose and route of administration?

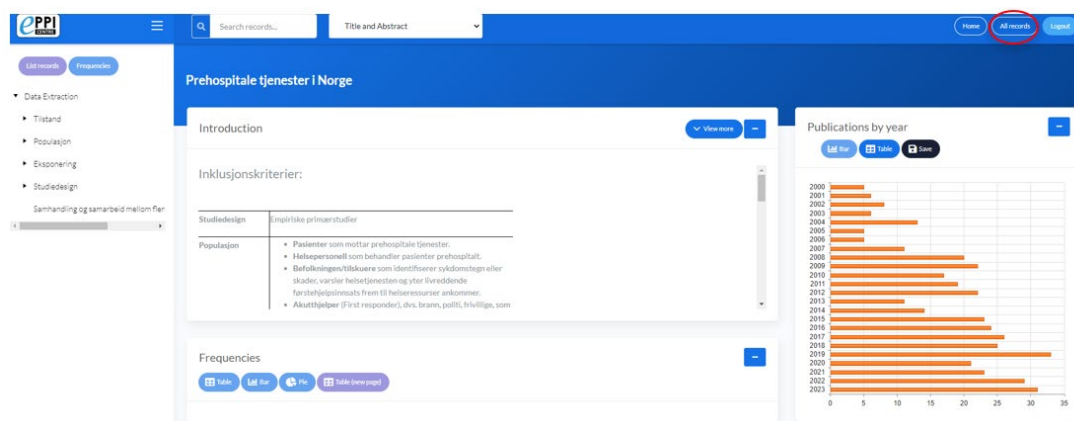
Tylleskar (2021)	The pharmacokinetic interaction between nasally administered naloxone and the opioid remifentanyl in human volunteers
Tylleskar (2021)	The pharmacokinetic interaction between nasally administered naloxone and the opioid remifentanyl in human volunteers
Tømte (2009)	Advanced life support performance with manual and mechanical chest compressions in a randomized, multicentre manikin study.
Uleberg (2015)	Temperature measurements in trauma patients: is the ear the key to the core?
Ulvik (2002)	Emergency medical service with a rescue helicopter in Northern Norway
Ulvik (2002)	[Rescue helicopter service in Bodo--advanced emergency service or alternative transportation?]
Ulvin (2022)	The introduction of a regional Norwegian HEMS coordinator: an assessment of the effects on response times, geographical service areas and severity scores
Ulvin (2023)	Can video communication in the emergency medical communication centre improve dispatch precision? A before-after study in Norwegian helicopter emergency medical services
Utsi (2008)	[Training in multiprofessional emergency medicine in primary health care]
Vabo (2022)	Patient-reported outcomes after initial conservative fracture treatment in primary healthcare - a survey study.
Vabo (2023)	Acute management of fractures in primary care - a cost minimisation analysis.
Vagle (2019)	Emergency medical technicians' experiences with unplanned births outside institutions: A qualitative interview study
Vallersnes (2015)	Patients presenting with acute poisoning to an outpatient emergency clinic: A one-year observational study in Oslo, Norway
Van Den Berg (2019)	Improving ambulance coverage in a mixed urban-rural region in Norway using mathematical modeling
Vasset (2019)	Prehospitalt helsepersonell er usikre på luftveishåndtering av barn
Vatnoy (2020)	Nursing competence in municipal in-patient acute care in Norway: a cross-sectional study
Vibeto (2021)	Treating patients with opioid overdose at a primary care emergency outpatient clinic: a cost-minimization analysis
Vinjevoll (2018)	Evaluating the ability of a trauma team activation tool to identify severe injury: a multicentre cohort study

Vaardal (2005)	Have the implementation of a new specialised emergency medical service influenced the pattern of general practitioners involvement in pre-hospital medical emergencies? A study of geographic variations in alerting, dispatch, and response
Wagner (2008)	Transportation of critically ill patients on extracorporeal membrane oxygenation.
Waje-Andreassen (2020)	A prospective observational study of why people are medically evacuated from offshore installations in the North Sea
Walby (2009)	[Psychiatric treatment of deliberate self-harm in the out-of-hours services]
Welle-Nilsen (2011)	Minor ailments in out-of-hours primary care: an observational study
Werner (2001)	[Emergency service in Arendal--a new model of inter-municipal emergency service]
Wik (2001)	An automated voice advisory manikin system for training in basic life support without an instructor. A novel approach to CPR training
Wik (2003)	Evaluation of a defibrillator-basic cardiopulmonary resuscitation programme for non medical personnel
Wik (2003)	Delaying defibrillation to give basic cardiopulmonary resuscitation to patients with out-of-hospital ventricular fibrillation: a randomized trial
Wik (2016)	Why do some studies find that CPR fraction is not a predictor of survival?
Wik (2022)	Physiological effects of providing supplemental air for avalanche victims. A randomised trial.
Wik (2022)	Physiological effects of providing supplemental air for avalanche victims. A randomised trial.
Wisborg (2001)	Confidence and experience in emergency medicine procedures. Norwegian general practitioners
Wisborg (2008)	Keeping the spirit high: Why trauma team training is (sometimes) implemented
Wisborg (2014)	Air ambulance nurses as expert supplement to local emergency services
Wisborg (2017)	Are severely injured trauma victims in Norway offered advanced pre-hospital care? National, retrospective, observational cohort
Zakariassen (2007)	[Locations, facilities and routines in Norwegian out-of-hours emergency primary health care services]
Zakariassen (2008)	[Motivation and self-assessed competence of defibrillator users]
Zakariassen (2008)	GPs' use of defibrillators and the national radio network in emergency primary healthcare in Norway

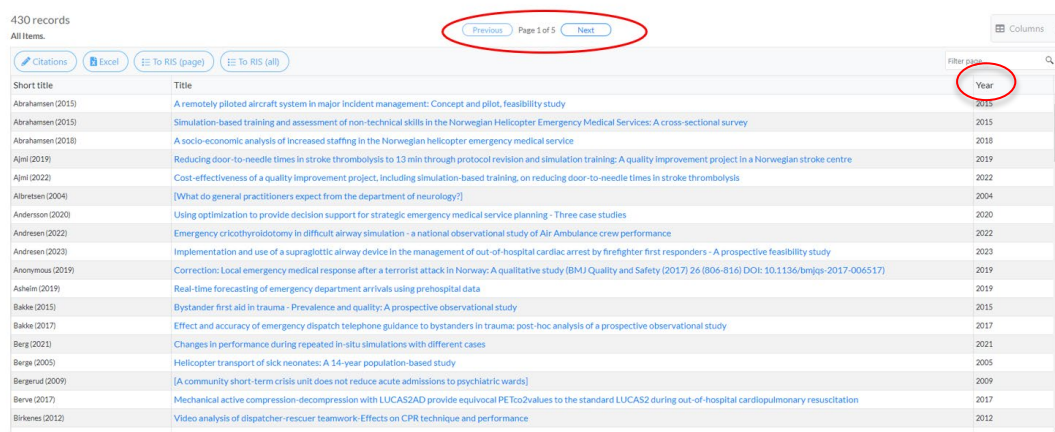
Zakariassen (2008)	Norwegian regular general practitioners' experiences with out-of-hours emergency situations and procedures
Zakariassen (2009)	Incidence of emergency contacts (red responses) to Norwegian emergency primary healthcare services in 2007--a prospective observational study
Zakariassen (2009)	Involvement in emergency situations by primary care doctors on-call in Norway - a prospective population-based observational study
Zakariassen (2010)	The epidemiology of medical emergency contacts outside hospitals in Norway--a prospective population based study
Zakariassen (2015)	Helicopter emergency medical services response times in Norway: Do they matter?
Zakariassen (2016)	Potential cardiac arrest - an observational study of pre-hospital medical response
Zakariassen (2019)	Loss of life years due to unavailable helicopter emergency medical service: a single base study from a rural area of Norway
Østerås (2017)	Outcomes after cancelled helicopter emergency medical service missions due to concurrencies: a retrospective cohort study.

Vedlegg 4: Veileder for bruk av EPPI-Vis

Den enkleste måten å få en oversikt over alle inkluderte studier i forskningskartet er ved å trykke på knappen 'All records' øverst til høyre.



Da vil det komme opp en liste over alle studier i alfabetisk rekkefølge, etterfulgt av studiens tittel. Vær oppmerksom på at det kun er de 100 første studiene som vises, og det er til sammen 5 sider med studier. Her er det også mulig å sortere studiene etter årstall ved å trykke på 'Year' knappen til høyre i listen. Ved å trykke to ganger kommer de nyeste studiene først.



Til venstre på forsiden vil man se hvilke kategorier studiene er kodet etter. For å se underkategoriene trykk på pilen fremfor ordet. Hvis man f.eks. vil se hvordan studiene fordeler seg etter tilstand, trykker man på 'Tilstand' og 'Frequencies' knappen over.

Deretter kan man klikke på de blå tallene for å se *hvilke studier* som er kodet under de ulike tilstandene. Det er også mulig å se *hvordan* studiene fordeler seg ved å klikke på knappen 'bar' eller 'pie' som fins over listen vist under her.

The screenshot shows the 'Prehospital services in Norway' interface. On the left, a navigation menu is visible with 'List records' and 'Frequencies' circled in red. Under 'Data Extraction', 'Tilstand' is selected. The main content area shows a table titled 'Frequencies: Tilstand'. Above the table, there are buttons for 'Table', 'Bar', 'Pie', and 'Table (new page)', with 'Bar' and 'Pie' circled in red. The table lists various conditions and their counts:

Code Name	Count
Hjertefarkt	11
Hjertestans	62
Hjerneslag	13
Hypotermi	3
Psykisk lidelse	10
Overdose/rus	8
Skade/tilstand uspesifisert	77
Annet	111
None of the above	156

I EPPI-Vis kan leseren selv sette opp og se på ønskede kombinasjoner av kategorier. Klikk på «Maps & Crosstabs» nederst til høyre på skjermen. For å velge kategorier som skal vises vannrett må man trykke på den ønskede kategorien i menyen til venstre, bekreft ved å klikke på «set X axis». Gjenta det samme for loddrett kategori, bekreft med å klikke på «set Y axis». Klikk deretter "Get Crosstab" for å se den nye EPPI-Vis oversikten.

The screenshot shows the EPPI-Vis interface. On the left, the navigation menu is visible with 'List records' and 'Frequencies' circled in red. The main content area shows a horizontal bar chart with years on the y-axis (2000-2023) and counts on the x-axis (0-35). In the bottom right corner, there is a panel titled 'Maps(3D) & Crosstabs(2D)' with buttons for 'Get Map', 'Get Crosstab', 'Set X axis', 'Set Y axis', and 'Set segments'. The 'Get Crosstab' button is circled in red.

Under er det gjort en sammenstilling av eksponering (hvilken type prehospital tjeneste) og studiedesign:

Cross-tab report

(Column) Eksponering vs (Row) Studiedesign

	Kommunal legovaktordning	Kommunal akutt døgnerhet/ øyeblikkelig hjelp døgnerhold	Ambulans akuttteam/akutt ambulans team	Luftambulansetjenesten (fly og helikopter)	Ambulansetjenesten bil	Ambulansetjenesten båt	Ennødder tjeneste	Medisinsk nødmedisjetjeneste	Akuttmottak sykehus	Trening/opplæring	Akuttmedisinsk tjeneste uspesifisert	None of these
Kvalitativ studie	12	6	1	11	7	3	0	8	6	4	16	0
Kohort studie	17	3	1	19	12	2	0	3	4	1	15	0
Tverrsnittstudie	24	1	3	22	8	2	0	3	1	3	11	0
Kasus-kontroll studie	2	0	0	0	0	0	0	0	0	0	0	0
Kontrollert studie	2	0	1	15	16	5	0	4	1	12	21	1
Flermetodisk studie	0	0	0	1	2	0	0	0	1	1	1	0
Registerstudie	12	3	1	20	9	5	0	6	5	1	5	0
Kasusstudie	0	1	0	3	4	1	1	1	0	0	3	0
Helseøkonomisk	2	0	0	2	2	0	0	0	1	0	2	0

Hvis man ønsker å se en fremstilling med bobler, fremfor tall, trykker man på 'bubble map' øverst til høyre. Ved å trykke på boblene eller på de blå tallene i matrisen over vil listen over de aktuelle studiene dukke opp i en egen liste under matrisen. Hvis man da klikker seg videre inn på de enkelte studiene skrevet med blå skrift er det mulig å lese sammendraget og se hvordan studien er kodet.



Det fins også en søke-funksjon øverst på siden som gjør det mulig å søke etter bestemte pasientgrupper, tilstander, studiedesign og lignende, som er av interesse. Ved å f.eks. skrive inn ordet child kommer det opp en liste med 21 studier som sier noe om barn.

Generell informasjon

Det er ikke alltid det er mulig å klikke seg tilbake til forrige side, da kan man oppleve at det kommer opp en tom side med beskjed om at siden ikke fins, og man må klikke seg en gang til tilbake og starte på nytt. Det er dessverre en svakhet ved systemet, og greit å være klar over. Hvis man ønsker å komme seg tilbake til forsiden fins det en 'home'-knapp øverst til høyre som tar en til forsiden.

Vedlegg 5: Pågående prosjekter

Oversikt over pågående forskningsprosjekter innen akuttmedisinske tjenester i Norge (N=5)

Dette er ikke en uttømmende liste over pågående forskningsprosjekter i Norge. Siden det ikke har vært en del av oppdraget og følgelig ikke søkt etter, er dette kun en oversikt over studieprotokoller som prosjektgruppen har identifisert underveis i arbeidet med denne kunnskapsoppsummeringen.

Førsteforfatter, år	Tittel
Vifladt (2023)	Team training program's impact on medication administration, teamwork and patient safety culture in an ambulance service (TEAM-AMB): A longitudinal multimethod study protocol
Simensen (2023)	Comparison of three regimens with inhalational methoxyflurane versus intranasal fentanyl versus intravenous morphine in pre-hospital acute pain management: study protocol for a randomized controlled trial (PreMeFen)
Hansen (2023)	Ambulance and helicopter response time. Association with patient outcome and illness severity: Protocol of a systematic literature review and meta-analysis
Nilsbakken (2022)	Assessing Trauma Management in Urban and Rural Populations in Norway: A National Register-Based Research Protocol
Bugge (2022)	Paramedic Norwegian Acute Stroke Prehospital Project (ParaNASPP) study protocol: a stepped wedge randomised trial of stroke screening using the National Institutes of Health Stroke Scale in the ambulance

Vedlegg 6: Oversikt over internasjonale samarbeid om prehospitaler tjenester

Oversikt over internasjonale studier identifisert i litteraturgjennomgangen hvor data fra norske pasienter er inkludert (N=75)

Dette er ikke en uttømmende liste over internasjonalt forskningssamarbeid som inkluderer data fra norske pasienter. Siden det ikke har vært en del av oppdraget og følgelig ikke søkt etter, er dette kun en oversikt over studier som prosjektgruppen har identifisert underveis i arbeidet med denne kunnskapsoppsummeringen.

Førsteforfatter, år	Tittel
Al-Riyami (2022)	Early and out-of-hospital use of COVID-19 convalescent plasma: An international assessment of utilization and feasibility
Amiri (2021)	Nursing Graduates and Quality of Acute Hospital Care in 33 OECD Countries: Evidence From Generalized Linear Models and Data Envelopment Analysis
Apelseth (2023)	Current transfusion practice and need for new blood products to ensure blood supply for patients with major hemorrhage in Europe
Baldi (2021)	The automated external defibrillator: Heterogeneity of legislation, mapping and use across europe. new insights from the ensure study
Beuloye (2016)	Pre-hospital management of acute coronary syndrome patients in belgium and luxembourg and other western european countries: A subset analysis of results from the observational, longitudinal cohort study EPICOR
Blix (2016)	Transfers to hospital in planned home birth in four Nordic countries - A prospective cohort study
Boman (2020)	Differences and similarities in scope of practice between registered nurses and nurse specialists in emergency care: an interview study
Broms (2023)	Prehospital tracheal intubations by anaesthetist-staffed critical care teams: a prospective observational multicentre study

Buanes (2014)	Comparison of in-hospital and out-of-hospital cardiac arrest outcomes in a Scandinavian community
Carlsen (2017)	Swedish-Norwegian co-operation in the treatment of three hypothermia victims: a case report
Castren (2008)	Recommended guidelines for reporting on emergency medical dispatch when conducting research in emergency medicine: The Utstein style
Cnossen (2019)	Prehospital trauma care among 68 European neurotrauma centers: Results of the CENTER-TBI provider profiling questionnaires
Cuthbertson (2023)	Sudden-Onset Disaster Mass-Casualty Incident Response: A Modified Delphi Study on Triage, Prehospital Life Support, and Processes
Dankiewicz (2019)	Targeted hypothermia versus targeted Normothermia after out-of-hospital cardiac arrest (TTM2): A randomized clinical trial-Rationale and design
Di Bartolomeo (2014)	Cross-sectional investigation of HEMS Activities in Europe: A feasibility study
Druwe (2018)	Perception of inappropriate cardiopulmonary resuscitation by clinicians working in emergency departments and ambulance services: The REAPPROPRIATE international, multi-centre, cross sectional survey
Druwe (2020)	Cardiopulmonary Resuscitation in Adults Over 80: Outcome and the Perception of Appropriateness by Clinicians
Druwe (2021)	Impact of perceived inappropriate cardiopulmonary resuscitation on emergency clinicians' intention to leave the job: Results from a cross-sectional survey in 288 centres across 24 countries
Eftestøl (2020)	CinC - A Probabilistic Function to Model the Relationship between Quality of Chest Compressions and the Physiological Response for Patients in Cardiac Arrest
Fattah (2017)	Experience With a Novel, Global, Open-Access Template for Major Incidents: Qualitative Feasibility Study
Flaa (2022)	Sleep and Sleepiness Measured by Diaries and Actigraphy among Norwegian and Austrian Helicopter Emergency Medical Service (HEMS) Pilots
Gehrt (2022)	Hospital Contacts for Infectious Diseases Among Children in Denmark, Finland, Norway, and Sweden, 2008-2017
Gellerfors (2018)	Pre-hospital advanced airway management by anaesthetist and nurse anaesthetist critical care teams: a prospective observational study of 2028 pre-hospital tracheal intubations
Gentile (2023)	Amplitude spectral area of ventricular fibrillation and defibrillation success at low energy in out-of-hospital cardiac arrest

Granholm (2022)	Information sharing during cross-border collaboration from a dialect continua perspective
Gundersen (2009)	Development of the probability of return of spontaneous circulation in intervals without chest compressions during out-of-hospital cardiac arrest: An observational study
Hardeland (2014)	Comparison of Medical Priority Dispatch (MPD) and Criteria Based Dispatch (CBD) relating to cardiac arrest calls
Hardeland (2021)	Description of call handling in emergency medical dispatch centres in Scandinavia: recognition of out-of-hospital cardiac arrests and dispatcher-assisted CPR
Haugland (2019)	Testing quality indicators and proposing benchmarks for physician-staffed emergency medical services: a prospective Nordic multicentre study
Haugland (2020)	Mortality and quality of care in Nordic physician-staffed emergency medical services
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