



UiT Norges arktiske universitet

Medisinsk forskning

Foredrag for Malvik Rotaryklubb, 9.2-21



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Forskerlinjen

- Nasjonalt tilbud fra 2002
- Studenter i medisin, odontologi og psykologi
- Ulike forskningsgrupper
- 1 ekstra studieår
- Start på doktorgrad
- Artikkel og fag



<https://schoolsweek.co.uk/research-why-do-students-value-science-but-not-want-to-be-scientists/>

Forskning

- Hva, hvorfor og hvordan?
- Store norske leksikon: «Undersøke noe vha. vitenskapelig metode for å oppnå ny kunnskap»

3. PERSONLIG UTVIKLING

Medlemskap i Rotary bidrar til ytterligere utvikling av personlige egenskaper gjennom samarbeid med andre og utvidelse av kunnskap om andre mennesker og yrker.

<https://malvik.rotary.no/no/20-gode-grunner#.YBhT7-hKg2w>

4-SPØRSMÅLSPRØVEN

OM SAKER VI TENKER, SIER OG GJØR

- ER DET SANT?

<https://malvik.rotary.no/en/4-sp%C3%B8rsm%C3%A5lspr%C3%B8ven#.YBhUP-hKg2w>

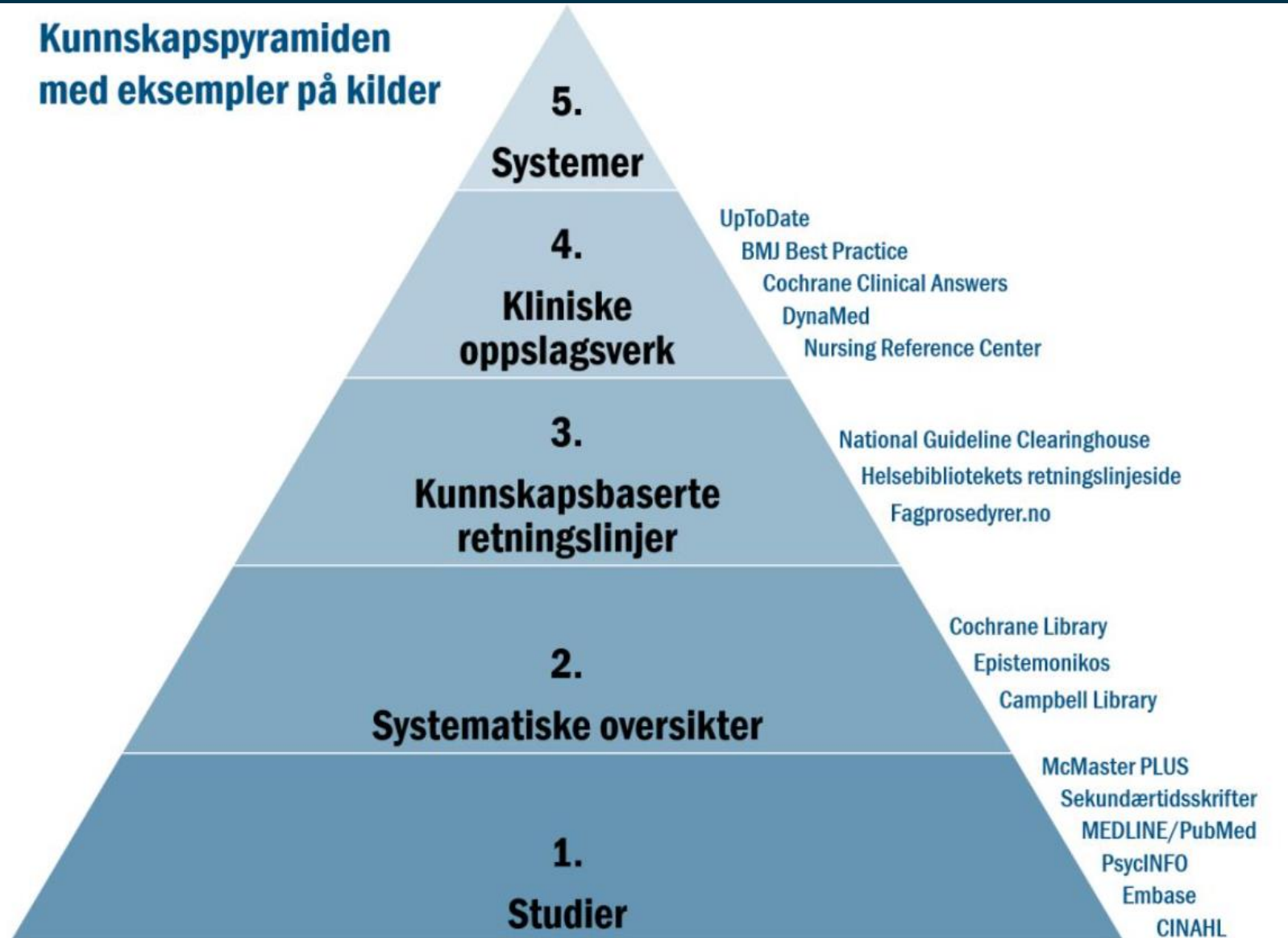
Evidensbasert kunnskap

- Introdusert i 1991
 - Forskningslitteratur skal vurderes med kritisk blikk
 - Tydelig rolle i medisinerutdanningen
- Oppnå en åpen og kritisk holdning til vitenskapelig dokumentasjon for klinisk og forebyggende praksis (2.1)

https://uit.no/utdanning/emner/emne?p_document_id=677310

- «Best tilgjengelige evidens i beslutninger om individuelle pasienters helse»
- Retningslinjer for behandling

Kunnskapspyramiden med eksempler på kilder



Alper BS, Haynes RB. Evidence-Based Medicine 2016;21:123-125.

<https://www.helsebiblioteket.no/kunnskapsbasert-praksis/litteratursok/kildevalg>



<https://www.teenvogue.com/story/trademark-fake-news-stop-donald-trump-from-using-it>

OPPDAG FALSKE NYHETER



VURDER KILDEN

Klikk deg videre og undersøk nettsiden, formålet og kontaktinformasjon



SØK OPP FORFATTEREN

Gjør et raskt søk på forfatteren. Er personen troverdig? Fins han/hun?



SJEKK DATOEN

Deling av gamle nyhetsartikler er ikke alltid relevant for aktuelle hendelser.



ER DU FORUTINNTATT?

Kan dine egne overbevisninger påvirke dømmekraften din?



FORTSETT Å LESE

Sensasjonelle overskrifter genererer klikk. Hva er egentlig saken?



FINS DET KILDER?

Klikk på lenker. Stemmer egentlig informasjonen overens med saken?



ER DET EN SPØK?

Merkelige saker kan være satire. Sjekk nettsiden og forfatteren for å utelukke.



SPØR EKSPERTENE

Spør en bibliotekar, eller oppsøk en nettside for faktasjekk

Oversatt av Kristin Storrusten

Vaksine

- Ikke alltid mulig med fullstendig evidens

ARTIKKEL

Koronavaksine - informasjon til befolkningen

Publisert 23.10.2020 Oppdatert 27.01.2021

Hovedmålet med koronavaksine er å beskytte liv og helse til de som er mest utsatt for covid-19 sykdommen.



Folkehelseinstituttet

<https://www.fhi.no/sv/vaksine/koronavaksinasjonsprogrammet/koronavaksine/>

Mitt forskningsprosjekt

Behandling av hjertesvikt ved
lave kroppstemperaturer

Kulde

Begrepet hypotermi: kroppstemperatur under 35 grader

Hva skjer med kroppen?

- sparebluss

- livstruende komplikasjoner, 40% dødelighet

“ *En pasient er ikke død før vedkommende er varm og død* ”

└ MADIS GILBERT, KLINIKKOVERLEGE

<https://www.nrk.no/dokumentar/xl/grisene-dor-for-at-du-skal-overleve-1.11497268>

Resuscitation from accidental hypothermia of 13·7°C with circulatory arrest

Mads Gilbert, Rolf Busund, Arne Skagseth, Paul Åge Nilsen, Jan P Solbø

In a victim of very deep accidental hypothermia, 9 h of resuscitation and stabilisation led to good physical and mental recovery. This potential outcome should be borne in mind for all such victims.

Mortality from deep accidental hypothermia with circulatory arrest remains high, despite improved prehospital survival, rewarming techniques in hospital, and new types of heart and lung assistance.^{1,2} The lowest temperature reported in a survivor of accidental hypothermia is 14·4°C in a child.³ Long-term survival of up to 33% with minimum cerebral impairment after accidental deep hypothermia (core temperature <28°C) with circulatory arrest has been reported in young healthy adults.⁴

Our hospital uptake area in Norway is sparsely populated and subarctic. In several cases of accidental deep hypothermia we have used continuous prehospital cardiopulmonary resuscitation (CPR), air-ambulance evacuation, and rewarming with emergency cardiopulmonary bypass. No adult patient has yet survived to discharge, despite initial re-establishment of a perfusing cardiac rhythm and normalised organ function. Death has been due to progressive uncontrollable systemic oedema with pulmonary insufficiency and fatal brain swelling.

On May 20, 1999, at 1820 h, an experienced female off-piste skier aged 29 years fell while skiing down a waterfall gully. She and her two companions were junior registrars at the local hospital, trained in CPR, and equipped for extreme conditions. The woman became wedged between rocks and overlying thick ice, and the space was continuously flooded by icy water. Her skis prevented her from sliding and served as a grip by which her two companions tried to extract her. 7 min later, her friends called the emergency medical dispatch centre at Narvik Hospital by mobile telephone. The woman struggled under the ice for 40 min. At 1900 h she had stopped moving.

At 1939 h rescue teams arrived. They cut a hole in the ice downstream and removed her from the water, at which time she was clinically dead. Basic CPR was started immediately. An air ambulance arrived at 1956 h, bringing a rescuer and an anaesthesiologist who performed oral endotracheal intubation, ventilated her with 100% oxygen,

and winched her into the helicopter. CPR and positive-pressure manual ventilation bag-to-tube was continued during the 1 h flight to Tromsø University Hospital. They arrived at 2110 h.

The patient was immediately taken to the operating room. She had no spontaneous respiration or circulation, her pupils were widely dilated and unresponsive to light. Electrocardiography was isoelectric. Separate electronic pharyngeal and rectal temperature probes measured initial temperature as 14·4°C. An arterial blood sample showed normal serum potassium and oxygenation, moderate hypercarbia, and severe metabolic acidosis (table). Foamy pink fluids streamed from the endotracheal tube. A team of cardiac surgeons, anaesthesiologists, perfusionists, and specialised nurses continued CPR with 100–120 external chest compressions and 15–20 ventilations per min, while the patient was prepared for cardiopulmonary bypass by femoral access, using a fully heparin-coated system. Systolic arterial blood pressure was around 75 mm Hg measured at a femoral-artery catheter during CPR. Full cardiopulmonary bypass bloodflow was reached at 2150 h. Rectal temperature decreased to 13·7°C at 2152 h. Mean arterial pressure was kept at 50 mm Hg; cardiopulmonary bypass flow started at 0·5 L/min and increased to 3·5 L/min as the venous return improved.

A maximum temperature gradient of 10°C was maintained between the woman's venous blood and the heat exchanger of the cardiopulmonary-bypass machine. At 2200 h, ventricular fibrillation started, which converted spontaneously to a pulse-generating cardiac rhythm after 15 min. Rectal temperature remained at 14·2°C, whereas pharyngeal and oesophageal temperature had increased to 25·0°C and 31·5°C, respectively. We performed chest drainage followed by a median sternotomy because of bleeding from a lesion in the left subclavian artery caused by previous cannulation of the subclavian vein. The lesion was sutured directly.

We disconnected the patient from cardiopulmonary bypass after 179 min. At 170 min, the patient's rectal temperature had reached 36·0°C. Because of increasing cardiorespiratory insufficiency, we placed new cannulas in the patient's femoral vein and artery and she was

	On admission to operating room	After 5 min on CPB	On CPB with cardiac perfusing rhythm	Just before CPB stopped	Just after CPB stopped	Worst values without CPB	First values on connection to ECMO	First values in intensive care
Time	2120 h	2155 h	2215 h	0028 h	0049 h	0322 h	0445 h	0600 h
pH	6·65	6·54	6·64	7·14	7·10	7·00	7·30	7·29
PaCO ₂ (kPa)	7·7	11·4	8·7	4·6	6·7	12·0	4·5	4·5
PaO ₂ (kPa)	64·6	11·0	10·2	26·5	6·0	7·06	70·1	73·0
Base deficit	27	27	27	15	14	8	8	8
Haemoglobin (g/L)	15·7	13·1	12·2	7·4	9·6	8·1	10·2	9·3
Glucose (mmol/L)	..	..	30·9	..	..	..	15·3	..
Potassium (mmol/L)	4·3	8·2	6·7	4·2	4·0	3·4	3·6	3·1
Pharyngeal temperature (°C)	14·4	18·2	25·0	37·6	37·4	..	..	..
Rectal temperature (°C)	14·4	13·7	14·2	36·0	36·4	..	..	..

CPB=cardiopulmonary bypass; ECMO=extracorporeal membrane oxygenator; PaCO₂=partial pressure of carbon dioxide; PaO₂=partial pressure of oxygen.

Blood chemistry values during CPR and rewarming

John Arve falt (48) ned i en bekk. Var død i syv timer



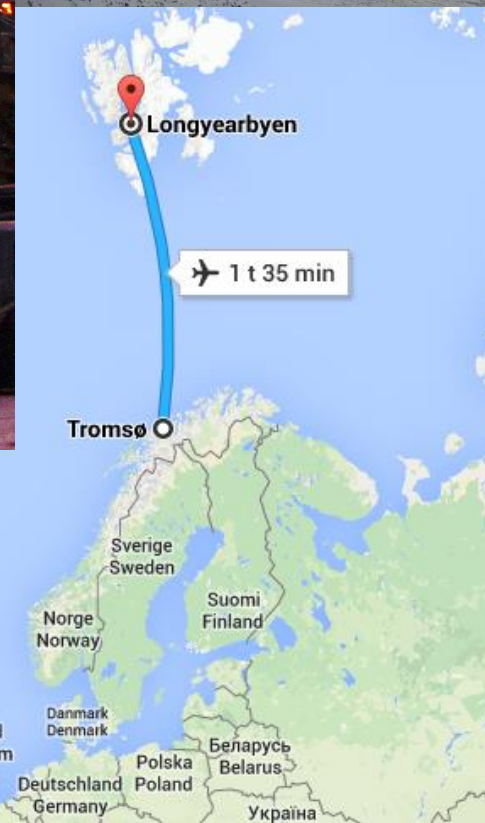
<https://www.nordlys.no/john-arve-falt-48-ned-i-en-bekk-var-dod-i-syv-timer/s/5-34-30267>



Tromsø

Fotografier: Erik Sveberg Dietrichs

Longyearbyen





Fotografi: Royal Navy

Hjertesvikt

- Definisjon: hjertet klarer ikke å pumpe nok blod til å forsyne kroppen tilstrekkelig
- 3 viktige faktorer påvirker:
 - Mengde blod tilgjengelig
 - Kontrakskraft
 - Motstand
- Hypotermi: vedvarende sparebluss



Strategier for behandling

- Ingen medisiner anbefalt under hypotermi
- Øke kontraksjonskraft?
 - Adrenalin
- Redusere motstand

Veileder for håndtering av aksidentell hypotermi i Helse Nord



Utarbeidet på oppdrag fra Helse Nord av Akuttmedisinsk klinikk og Hjerter-
lungelinikken ved UNN Tromsø.

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Torvind Næsheim

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Vår forskning

- Tester legemidler som reduserer motstand



<https://www.colourbox.com/image/heart-medicine-image-4134984>



Fotografi: Anders Lund Selli

- Molekyler inne i cellene
- Temperaturer: 37-20 grader Celsius

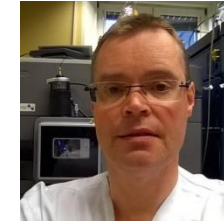
Resultater

- Virker ved hypotermi
 - Kjenner til endringen ved lav temp.
 - Viktig for trygt å kunne gi medisinene
- Kan være viktig i utvikling av bedre retningslinjer for behandling av hypotermipasienter
- Overordnet mål: bidra til økt overlevelse 😊

PDE-inhibitor for cardiovascular support in hypothermia

Project participants

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Experimental and Clinical Pharmacology (IMB)
in collaboration with Anesthesia and Critical Care (IKM)



Takk for meg!



Ullstinden (1078 moh.), Troms, 2018