

Epidemiologie

Unterkühlung Erfrierung

Civilprotect 3. April 2011

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ONLUS

LANDESRETTUNGSVEREIN

ASS. PROV.LE DI SOCCORSO



Definitionen

Unterkühlung: „Exposition gegenüber excessiver Kälte oder excessive Exposition gegenüber Kälte“

- Limit $< 35^{\circ} \text{ C}$
 - Mild 32-35
 - Moderate 28-32
 - Schwer < 28

Erfrierungen / Pernionen / Frostbeulen

- Grad 1
 - Grad 2
 - Grad 3
-
- ICD 10 **X31**

Prädisponierende Faktoren

- Umwelt
 - Niedrige Temp., Wasser, Wind,
- Begleitfaktoren: soziales Umfeld: Obdachlosigkeit, Hilfsbedürftigkeit, Altersextreme
- Aktivitäten: Arbeit, Sport, Retter
- Comorbiditäten
 - Trauma:
 - > 50% haben eine Temp. < 36° C
(P.Sefrin, N & Rettungsmedizin 2009 12:109-116)
 - Herzinsuffizienz
 - Endokrinologische Erkrankungen: Diabetes, Hypothyreose
 - Kachexie, terminale Patienten
 - Drogen: Alkohol, Opiate,
 - Psychiatrische Erkrankungen: Verwirrtheit, suizidales Verhalten,
- Medizinische Maßnahmen: Narkose

Sportarten

- Alpinismus
 - Lawinen
- Kanusport
- Eissegeln
- Tauchen:
 - Todesursache durch Unterkühlung bei 3% der Todesfälle

Fakten

- Datenlage
- Fallberichte
- EBM

pubmed

- **diagnosis, broad und den Stichwörtern "accidental AND hypothermia NOT therapeutic"**
- **ergibt nur 77 hits in der clinical study categories**
- **1 hit unter systematic reviews**

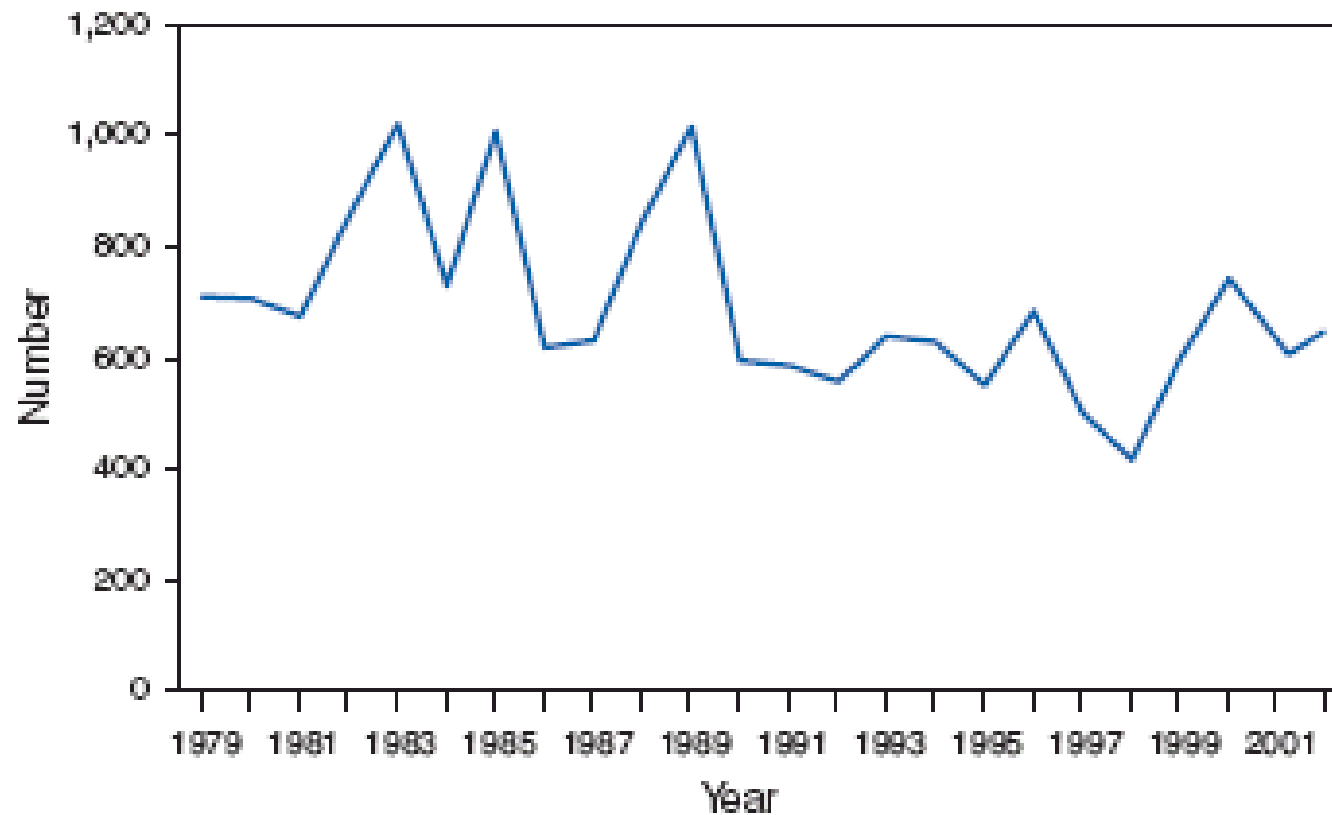
USA

- USA 2003 ca. 600 Todesfälle / Jahr
 - 67% Männer
 - 51% > 65 Jahre
 - 71% November – Februar
 - Todesfälle / 100.000 Einwohner
 - 1,42 Alaska
 - 1,44 Montana
 - 1,04 New Mexico
 - 0,3 Arizona

Centers for Disease Control and Prevention Morbidity and
Mortality Weekly Report (MMWR) March 05, 2004 /
53(08);172-173

Todesfälle 1979 – 2002 USA

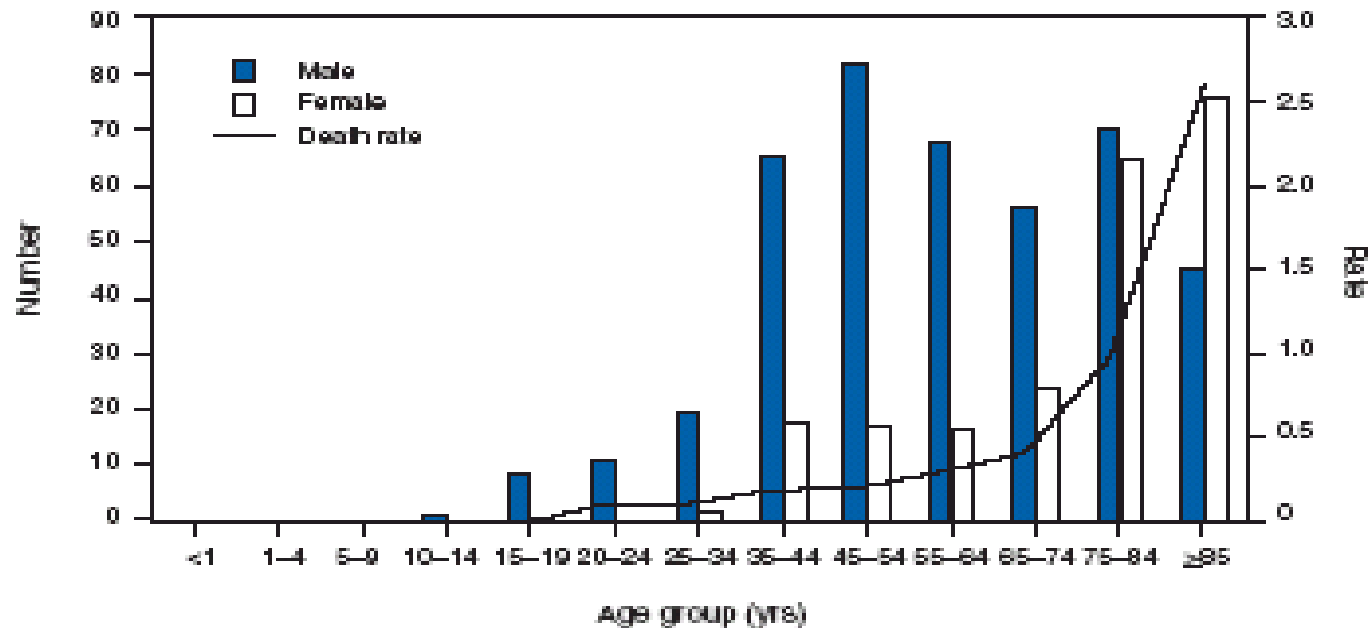
FIGURE 1. Number of hypothermia-related deaths, by year — United States, 1979–2002



Centers for Disease Control and Prevention Morbidity and
Mortality Weekly Report (MMWR) March 05, 2004 /
53(08);172-173

Verteilung nach Geschlecht und Alter

FIGURE 2. Number and rate* of hypothermia-related deaths, by age group and sex — United States, 2002



* Per 100,000 population.

Centers for Disease Control and Prevention
(MMWR) March 05, 2004 / 53(08);172-173

Morbidity and Mortality Weekly Report

Fallberichte

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

- 29 j. Frau, beim Skifahren Sturz ins Eiswasser 20.5.1999
- Bei der Bergung klinisch tot
- 9 stündige Reanimations-Erwärmungs-Stabilisierungsphase
- Restitutio ad integrum

Mads Gilbert MD; The Lancet, Volume 355, Issue 9201, Pages 375 - 376, 29 January 2000

Hypothermieregister



INTERNATIONAL HYPOTHERMIA REGISTRY



IT by Unit of Clinical Informatics -
University Hospitals of Geneva

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EBM und Hypothermie

EMERGENCY MEDICINE PRACTICE

EBMEDICINE.NET

AN EVIDENCE-BASED APPROACH TO EMERGENCY MEDICINE

Accidental Hypothermia: An Evidence-Based Approach

Three physicians, 2 cities, 2 patients, 1 theme, and many questions.

January 2009
Volume 11, Number 1

Authors

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„Medical literature is replete with miraculous survival stories, and there is an abundance of case reports and retrospective reviews of plausible hypothermia treatment and rewarming techniques.

Unfortunately, there is **a striking absence** of large scale prospective or randomized clinical investigations within this body of literature. Even the experts in the field admit that it has not been possible to derive a strong evidence-based practice guideline..“

Med. Maßnahmen

Hypothermie bei KH-Aufnahme

- London HEMS
- Retrospektive Studie 1.7.05-31.12.08
- 1292 Traumapatienten, notärztlich versorgt
- 38% hatten bei Aufnahme bereits eine gemessene Temp.
 - Anästhesierte Patienten mittlere T. von 35,0° C
 - Nichtanästhesierte mittlere T. von 36,2° C
 - $P > 0.001$

Langhelle et al. Emerg Med J (2010) Doi: 10.1136/emj

Kälteschäden



<http://www.medscape.com/features/slideshow/injuries-cold-weather>

Kälteschäden Häufigkeit

Frostbite in Emergency Medicine

United States

- **No standardized reporting system exists**; thus, true frequency of frostbite in the United States and abroad is unknown. Frostbite is uncommon in most of North America, except for northern states, Alaska, and Canada.

International

- In Finland, a nation-wide study of hospital admissions for frostbite from 1986-1995 yielded an incidence of **2.5 cases per 100,000** inhabitants.³

C Crawford Mechem, MD, <http://emedicine.medscape.com/article/770296-overview> Updated: Feb 5, 2010

Finland

Age (yr)	Males	Females	N	Both sexes	
	N	N		N	%
0-9	8	3	11		0.9
10-19	87	19	106		8.3
20-29	154	10	164		12.9
30-39	134	21	155		12.2
40-49	205	31	236		18.5
50-59	191	16	207		16.2
60-69	162	18	180		14.1
70-79	110	31	141		11.1
80+	44	31	75		5.9
Total	1095	180	1275		100.0

Kimmo Juopperi INCIDENCE OF FROSTBITE AND AMBIENTTEMPERATURE IN FINLAND, 1986-1995.

A national study based on hospital admissions. *International Journal of Circumpolar Health* 2002

Kanada

- A 12-year retrospective review of inpatient frostbite injury
- three tertiary hospitals serving a northern prairie population of 650,000
- 125 patients identified
- mean age was 41 years, with a range of 3 to 90 years.
- Predisposing factors were
 - alcohol consumption (46 percent),
 - psychiatric illness (17 percent),
 - vehicular trauma (19 percent),
 - vehicular failure (15 percent),
 - drug use (4 percent).

Valnicek SM, Chasmar LR, Clapson JB. Frostbite in the prairies: a 12-year review. *Plast Reconstr Surg.* 1993 Sep;92(4):633-41.

Kanada

- $< 32^{\circ}$ C was present in 12 percent.
- Anatomic distribution
 - 19 percent upper extremity,
 - 47 percent lower extremity,
 - 31 percent combined upper and lower extremity,
 - 3 percent facial or trunk only.
- Factors correlating with amputation of parts
 - ($p < 0.05$)
 - were duration of exposure, lack of proper attire, remote site of injury, presence of wound infection, and delay in seeking treatment.

Valnicek SM, Chasmar LR, Clapson JB. Frostbite in the prairies: a 12-year review. *Plast Reconstr Surg.* 1993 Sep;92(4):633-41.

Facit

- Datenlage: spärlich
- Nord-Südgefälle
- Keine systematisch Erfassung
- Fallberichte: spektakulär
- Keine randomisierten Studien
- Evidence Based Medicine: fehlt

**Systematische Erfassung von
Unfällen ist nötig.**

A wide-angle photograph of a snowy mountain landscape. The terrain is covered in deep snow with some rocky outcrops visible in the distance. Two people are seen climbing the snow-covered slope. One person is in the foreground, and another is further up the slope. The overall scene is a high-altitude, alpine environment.

Danke für die Aufmerksamkeit

Alaska The Hump

Andreas Rammlmair 2009