Rigshospitalet

Middle ear problems and head and neck cancer in Greenland / the Arctic

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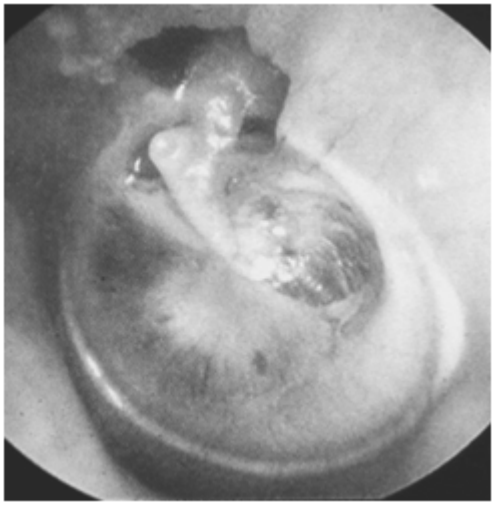
What is middle ear disease or otitis media?

CHRONIC SUPPURATIVE OTITIS MEDIA (CSOM)

ACUTE OTITIS MEDIA (AOM)

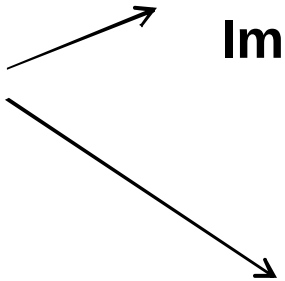


CHRONIC OTITIS MEDIA (COM)

What's the problem?

- CSOM occurs at the critical time of language acquisition.

- Hearing loss



Delayed language and speech
Impaired communication abilities

Behaviour, concentration
Educational difficulties

- Chronic otorrhea —— Parent's lost days at work, Stigmatization, contagious

- Complications: Intra-cerebral infection – 24.000 deaths/year worldwide

Chronic suppurative otitis media: CSOM The problem

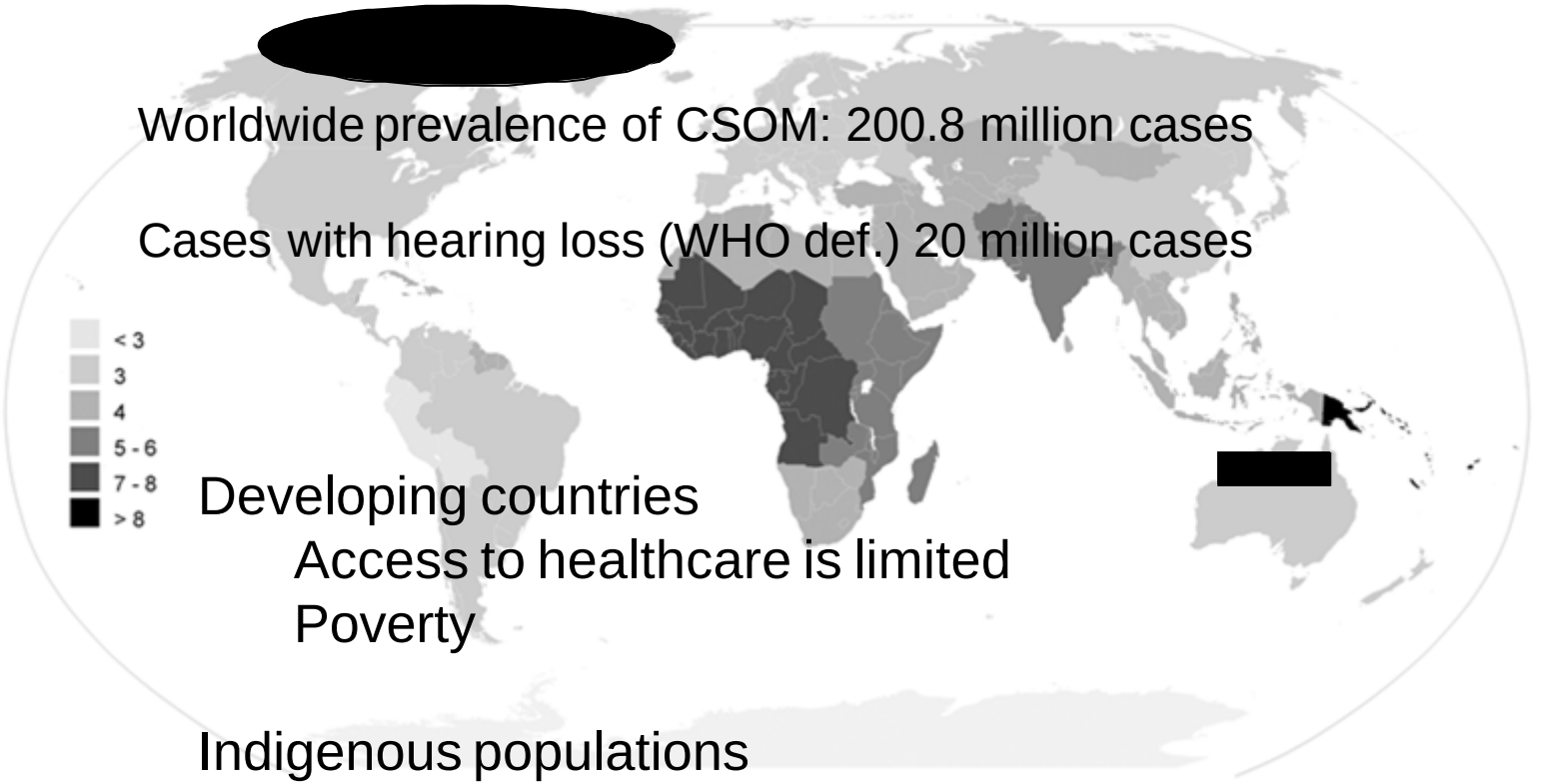
- WHO 2004:
  - 65-330 million people worldwide

WHO 1996:
”A prevalence of >1% of COM in children in a defined community indicates that there is an avoidable burden of the disease…”

”A prevalence of >4% indicates a massive public health problem of COM which needs urgent attention in targeted populations.”

Monasta et al: April 30, 2012:

Global CSOM incidence rate estimates



Worldwide prevalence of CSOM: 200.8 million cases

Cases with hearing loss (WHO def.) 20 million cases

Developing countries
- Access to healthcare is limited
- Poverty

Indigenous populations
- Aboriginees in Australia
- Polynesians
- Inuit = Eskimos in the Arctic - Greenland

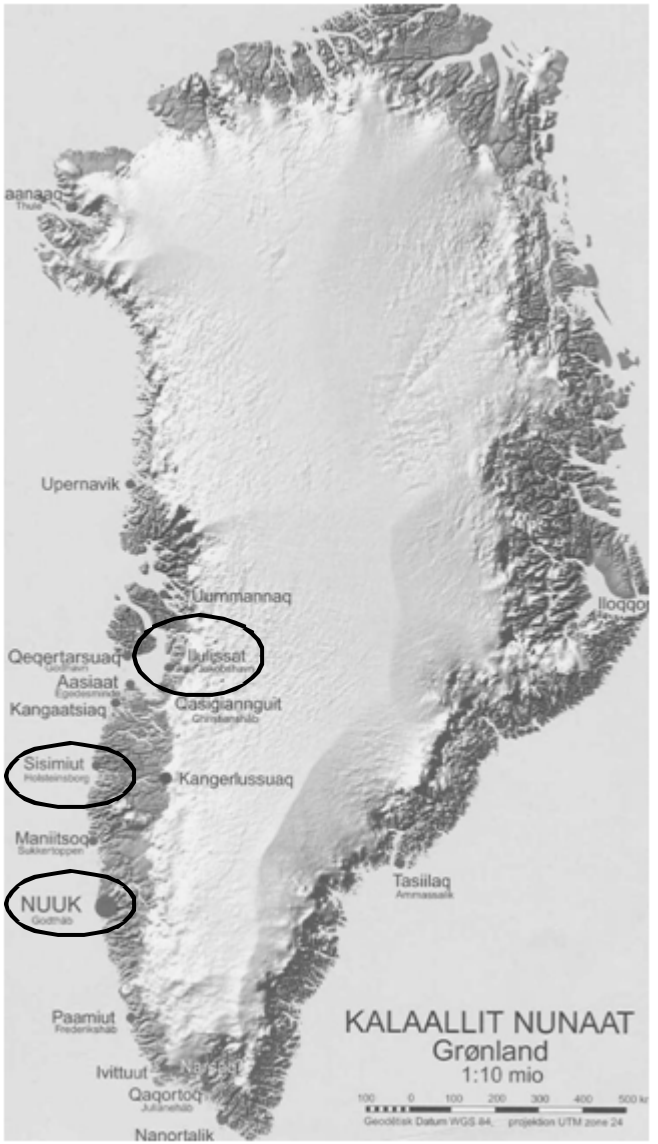
Ear surveys in Greenland…

Major towns

-Nuuk	16.181
-Sisimiut	5.571
-Ilulissat	4.621

Timeline:
1993-94: First survey in Nuuk and Sisimiut
1996-98: Prospective cohort study in Sisimiut
2008-10: Follow-up studies of the cohorts incl. the mother and child birth cohort in Nuuk, Sisimiut and Ilullissat

Principal study sites



CSOM/COM – the Greenlandic experience

Cohort studies:

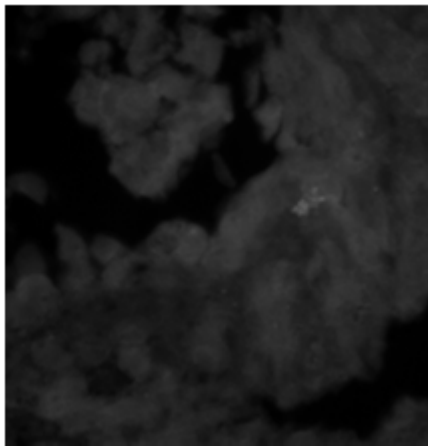
1983-84: 3-8 year-olds	Maniitsoq > 6% Kangamiut
1993-94: 3-8 year-olds	Sisimiut 12% Nuuk 7%
1996-98: 0-4 year-olds	Sisimiut 14%
2008: 11-15 year-olds	Sisimiut: 19%
2009: 18-24 year-olds	Sisimiut+Nuuk: 17%

Ear surveys in Greenland

- Cholesteatoma epidemiology
- Hearing-screening of 167 schoolchildren
- Epidemiology of OM in 740 unselected children
- Middle ear and nasopharyngeal microbiology in 54 children with AOM and 201 unselected children
- Risk factors for OM in 591 children

Ear surveys in Greenland

- Prospective 2-year population-based cohort studies incl. 465 children between 0-4 years old incl. MBL study
- Long-term follow-up surveys of the above cohorts incl hearing loss
- Natural history and tympanic membrane dynamics in COM/CSOM
- POP's and OM in approx. 200 Greenlandic children
- Biofilm in chronic- and chronic suppurative OM
- Hereditary hearing loss and GJB-2 mutations
- Mobile ear surgery results in 274 ear surgeries



Study methods

Data source: the Danish/Greenlandic Civil Registration System

Ethical approvement

1. Clinical examination
    - Otoscopy, otomicroscopy, digital video-otoscopy
    - Tympanometry
    - Audiometry (pure-tone AC and BC)
2. Questionnaires
3. Medical files (paper and electronic)

Methods – Office Work

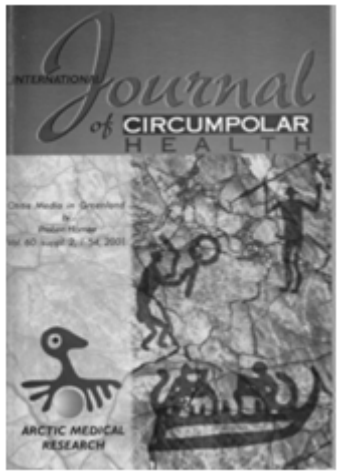
1. Evaluation of clinical, laboratory and paraclinical findings
   Comparison with findings at follow-up examinations

2. Investigation of possible associations between background information and CSOM using binomial logistic regression and multivariate regression analyses.
   - Background information collected in the studies:
     - Socioeconomic factors (educational level, housing conditions)
     - Family history of CSOM or OM
     - Use of childcare
     - Breast feeding
     - Smoking
     - Diet
     - Crowding

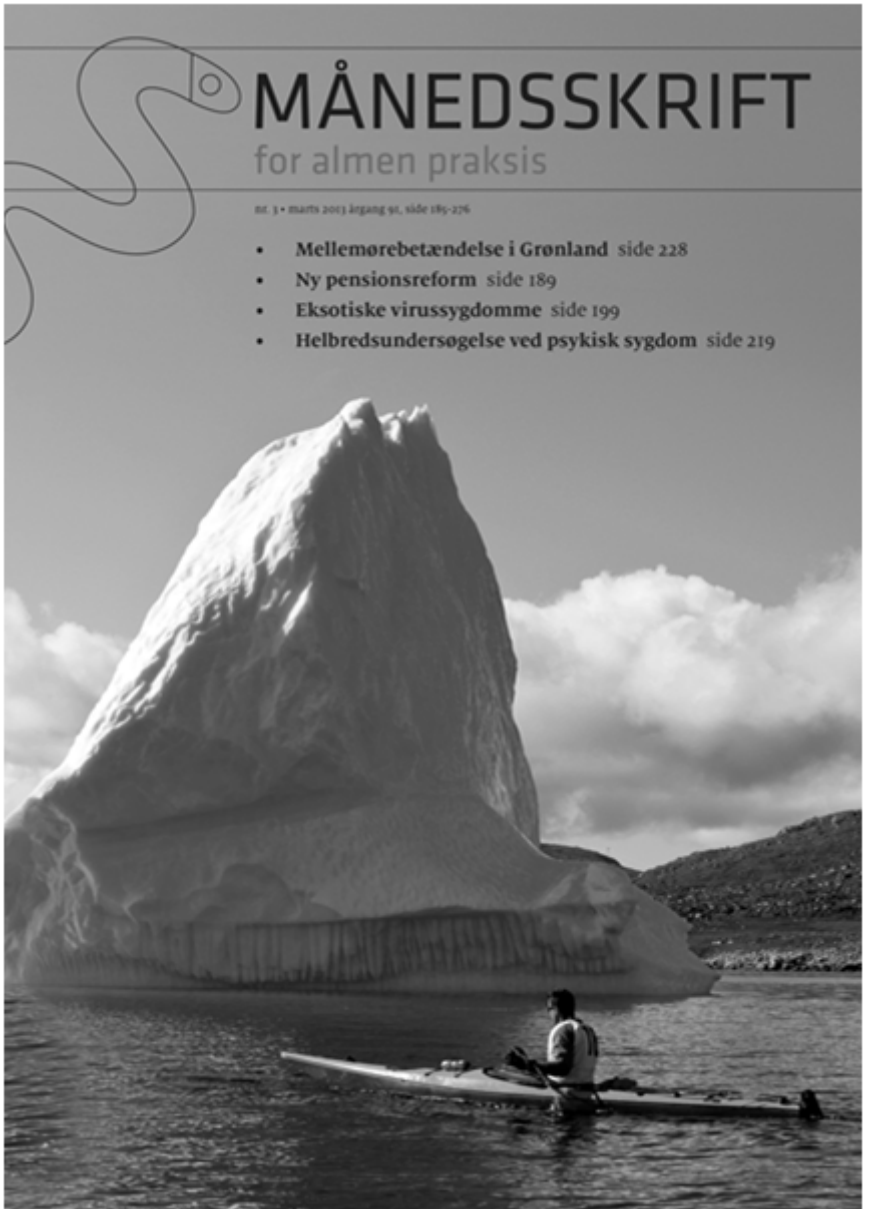
3. Describtion of hearing loss in the cohorts

Scientific contributions until now

1. 5 theses: 3 ph.d., 1 doctoral and 1 master
2. Internationally reviewed publications: > 36
3. Other publications: several



The last publication



How could this be done?

- Collaboration

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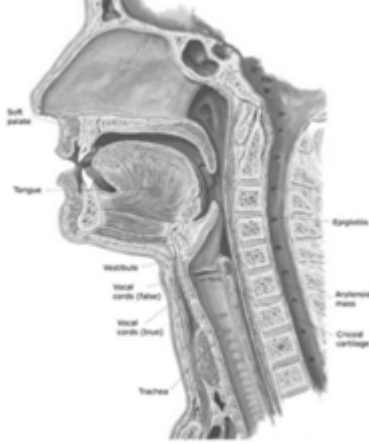
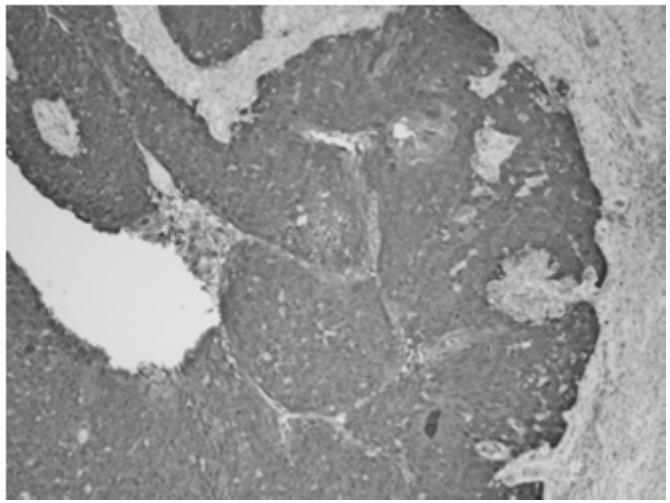
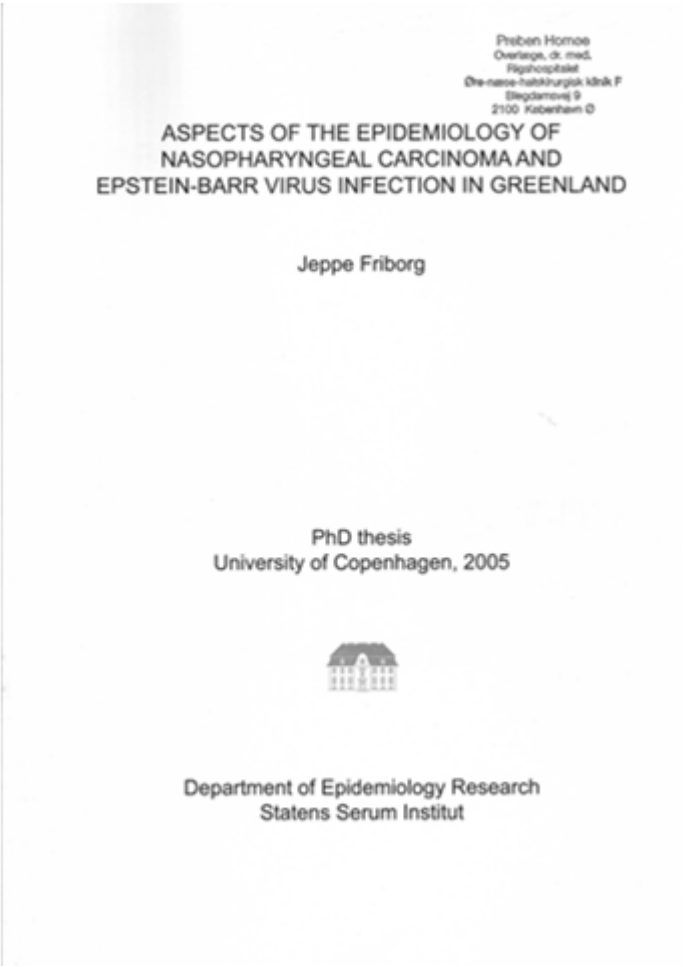
Head and neck cancer in Greenland



- Nasopharynx cancer highly elevated – EBV related
- Salivary gland cancer highly elevated – EBV related
- High rate of HPV associated cervical cancer – oropharynx cancer?
- Survival is very poor – < 35% 5-year crude survival



Head and neck cancer in Greenland



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ASPECTS OF THE EPIDEMIOLOGY OF NASOPHARYNGEAL CARCINOMA AND EPSTEIN-BARR VIRUS INFECTION IN GREENLAND

Jeppe Friborg

PhD thesis
University of Copenhagen, 2005

Department of Epidemiology Research
Statens Serum Institut

ORIGINAL ARTICLE

Survival of head and neck cancer in Greenland

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ABSTRACT

Objectives. Head and neck cancer is frequent in the Inuit population of Greenland and is characterized by a very high incidence of Epstein-Barr virus associated nasopharyngeal carcinoma (NPC). However, information on the treatment and survival of Inuit head and neck cancer patients is practically non-existent. The aim of this study, therefore, was to analyse the epidemiological pattern, time course and survival of head and neck cancer patients in Greenland.

Study design. Retrospective register-based study.

Methods. The Danish Civil Registration System, the Danish Cancer Registry and hospital-based registries were used to identify all patients resident in Greenland diagnosed with head and neck cancer during the period 1994–2003. Data were analysed with regard to clinical characteristics, treatment delay and survival.

Results. A total of 125 patients were identified. The age-standardized incidence rate for all head and neck cancer cases was 28/100,000 for males and 19/100,000 for females. High incidence rates were found for NPC and oral cancers. Of all cancers, 47% were stage IV at the time of diagnosis, while 61% of all NPC's were stage IV. The median delay from date of first symptom to treatment was 248 days for all cancers. The overall crude 5-year survival rate for all sites together was 35% and for NPC 20%.

Conclusion. Survival of head and neck cancer in Greenland is very low. Delays in treatment and inadequate follow-up on treatment complications are probable causes. The improvements in treatment for NPC and other head and neck cancer cases over the last decades are yet to be seen in this Inuit population.

(Int J Circumpolar Health 2010; 69(4):373–382)

Keywords: carcinoma, delay, follow-up, head and neck, Inuit, survival

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TOWARDS NEW HORIZONS

- EAR PROGRAMS
- INTERVENTION

Thanks for your attention

and especially to colleges Ramon G. Jensen, Pete
Bjerregaard and Anders Koch