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Udearealer ved ældreboliger i Sisimiut

Forfatter: Kamilla Nørtoft ; Lise Hounsgaard; Tenna Jensen **Editor:** Flemming Nielsen **Type:** Article | Artikel **Årstal:** 2019 **Emner:** Udearealer; Ældreboliger; Sisimiut **Titel på tidsskrift:** Ilisimatusaat **Udgiver:** Ilisimatusarfik **Udgivelsessted:** Nuuk **Udgivelsesland:** Grønland

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Communication | Formidling > Article | Artikel

Sisimiuni utoqqarnut inissiat eqqaanni aneerfissat

Forfatter: Kamilla Nørtoft ; Lise Hounsgaard; Tenna Jensen **Editor:** Flemming Nielsen **Type:** Article | Artikel **Årstal:** 2019 **Emner:** Sisimiuni utoqqarnut inissiat eqqaanni aneerfissat **Titel på tidsskrift:** Ilisimatusaat **Udgiver:** Ilisimatusarfik **Udgivelsessted:** Nuuk **Udgivelsesland:** Kalaallit Nunaat

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Communication | Formidling > Article | Artikel

Outdoor areas at sheltered housing units for the elderly in Sisimiut

Forfatter: Kamilla Nørtoft ; Lise Hounsgaard; Tenna Jensen **Editor:** Flemming Nielsen **Type:** Article | Artikel **Årstal:** 2019 **Emner:** Outdoor areas; Sheltered housing; Elderly; Sisimiut **Titel på tidsskrift:** Ilisimatusaat **Udgiver:** Ilisimatusarfik **Udgivelsessted:** Nuuk **Udgivelsesland:** Greenland

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Research | Forskning - peer review > Article | Artikel

Population genomics of grey wolves and wolf-like canids in North America

North America is currently home to a number of grey wolf (*Canis lupus*) and wolf-like canid populations, including the coyote (*Canis latrans*) and the taxonomically controversial red, Eastern timber and Great Lakes wolves. We explored their population structure and regional gene flow using a dataset of 40 full genome sequences that represent the extant diversity of North American wolves and wolf-like canid populations. This included 15 new genomes (13 North American grey wolves, 1 red wolf and 1 Eastern timber/Great Lakes wolf), ranging from 0.4 to 15x coverage. In addition to providing full genome support for the previously proposed coyote-wolf admixture origin for the taxonomically controversial red, Eastern timber and Great Lakes wolves, the discriminatory power offered by our dataset suggests all North American grey wolves, including the Mexican form, are monophyletic, and thus share a common ancestor to the exclusion of all other wolves. Furthermore, we identify three distinct populations in the high arctic, one being a previously unidentified "Polar wolf" population endemic to Ellesmere Island and Greenland. Genetic diversity analyses reveal particularly high inbreeding and low heterozygosity in these Polar wolves, consistent with long-term isolation from the other North American wolves.

Forfatter: Mikkel Holger Strander Sinding; Shyam Gopalakrishan ; Filipe G. Vieira ; Jose A. Samaniego Castruita ; Katrine Raundrup ; Mads Peter Heide Jørgensen ; Morten Meldgaard; Bent Petersen ; Thomas Sicheritz-Ponten ; Johan Brus Mikkelsen ; Ulf Marquard-Petersen ; Rune Dietz ; Christian Sonne ; Love Dalén ; Lutz Bachmann ; Øystein Wiig ; Anders J. Hansen ; M. Thomas P. Gilbert **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Population; Genomics; Wolves; North America **Titel på tidsskrift:** PLOS Genetics

[Åben publikation](#)

The evolutionary history of dogs in the Americas

Dogs were present in the Americas before the arrival of European colonists, but the origin and fate of these precontact dogs are largely unknown. We sequenced 71 mitochondrial and 7 nuclear genomes from ancient North American and Siberian dogs from time frames spanning ~9000 years. Our analysis indicates that American dogs were not derived from North American wolves. Instead, American dogs form a monophyletic lineage that likely originated in Siberia and dispersed into the Americas alongside people. After the arrival of Europeans, native American dogs almost completely disappeared, leaving a minimal genetic legacy in modern dog populations. The closest detectable extant lineage to precontact American dogs is the canine transmissible venereal tumor, a contagious cancer clone derived from an individual dog that lived up to 8000 years ago.

Forfatter: Máire Ní Leathlobhair ; Angela R. Perri ; Evan K. Irving-Pease ; Kelsey E. Witt ; Anna Linderholm ; James Haile ; Ophelie Lebrasseur ; Carly Ameen ; Jeffrey Blick ; Adam R. Boyko ; Selina Brace ; Yahaira Nunes Cortes ; Susan J. Crockford ; Alison Devault ; Evangelos A. Dimopoulos ; Morley Eldridge ; Jacob Enk ; Shyam Gopalakrishnan ; Kevin Gori ; Vaughan Grimes ; Eric Guiry ; Anders J. Hansen ; Ardern Hulme-Beaman ; John Johnson ; Andrew Kitchen ; Aleksei K. Kasparov ; Young-Mi Kwon ; Pavel A. Nikolskiy ; Carlos Peraza Lope ; Aurélie Manin ; Terrance Martin ; Michael Meyer ; Kelsey Noack Myers ; Mark Omura ; Jean-Marie Rouillard ; Elena Y. Pavlova ; Paul Sciulli ; Mikkel Holger Strander Sinding ; Andrea Strakova ; Varvara V. Ivanova ; Christopher Widga ; Eske Willerslev ; Vladimir V. Pitulko ; Ian Barnes ; M. Thomas P. Gilbert ; Keith M. Dobney ; Ripan S. Malhi ; Elizabeth P. Murchison ; Greger Larson ; Laurent A. F. Frantz **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Evolution; Dogs; Americas **Titel på tidsskrift:** Science **Volume på tidsskrift:** 361 **Nummer på tidsskrift:** 6397 **DOI nummer:** 10.1101/208330

[Åben publikation](#)

Greenland sled dogs at risk of extinction

Forfatter: Christian Sonne ; Rikke Langebæk ; Rune Dietz ; Emilie Andersen-Ranberg ; Geoff Houser ; Anders J. Hansen ; Mikkel Holger Strander Sinding ; Morten Tange Olsen ; Carsten Egevang ; Thomas P. Gilbert ; Morten Meldgaard **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Greenland; Sled dog; Extinction **Titel på tidsskrift:** Science **Volume på tidsskrift:** 360 **Nummer på tidsskrift:** 6393 **DOI nummer:** 10.1186/s13028-017-0353-5

[Åben publikation](#)

Seroprevalence for *Brucella* spp. in Baltic ringed seals (*Phoca hispida*) and East Greenland harp (*Pagophilus groenlandicus*) and hooded (*Cystophora cristata*) seals

Zoonotic infections transmitted from marine mammals to humans in the Baltic and European Arctic are of unknown significance, despite given considerable potential for transmission due to local hunt. Here we present results of an initial screening for *Brucella* spp. in Arctic and Baltic seal species. Baltic ringed seals (*Pusa hispida*, n = 12) sampled in October 2015 and Greenland Sea harp seals (*Pagophilus groenlandicus*, n = 6) and hooded seals (*Cystophora cristata*, n = 3) sampled in March 2015 were serologically analysed for antibodies against *Brucella* spp. The serological analyses were performed using the Rose Bengal Test (RBT) followed by a confirmatory testing of RBT-positive samples by a competitive-enzyme linked immunosorbent assay (C-ELISA). Two of the Baltic ringed seals (a juvenile male and a juvenile female) were seropositive thus indicating previous exposure to a *Brucella* spp. The findings indicate that ringed seals in the Baltic ecosystem may be exposed to and possibly infected by *Brucella* spp. No seropositive individuals were detected among the Greenland harp and hooded seals. Although our initial screening shows a zoonotic hazard to Baltic locals, a more in-depth epidemiological investigation is needed in order to determine the human risk associated with this.

Forfatter: C. Sonne ; E. Andersen-Ranberg ; E.L. Rajala ; J.S. Agerholm ; Eva Cecilie Bonefeld-Jørgensen; J.P. Desforges ; I. Eulaers ; B.M. Jenssen ; Anders Koch; A. Rosing-Asvid ; U. Siebert ; M. Tyrland ; Gert Mulvad; T. Härkönen ; M. Acquarone ; E.S. Nordøy ; R. Dietz ; U. Magnusson **Type:** Article | Artikel **Årstal:** 2018
Emner: Arctic; Humans; One health; Zoonosis **Titel på tidsskrift:** Veterinary Immunology and Immunopathology **Volume på tidsskrift:** 198 **Udgiver:** Elsevier **DOI nummer:** doi.org/10.1016/j.vetimm.2018.02.005

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Research | Forskning - peer review > Article | Artikel

Future directions for monitoring and human health research for the Arctic Monitoring and Assessment Programme

For the last two and a half decades, a network of human health experts under the Arctic Monitoring and Assessment Program (AMAP) has produced several human health assessment reports. These reports have provided a base of scientific knowledge regarding environmental contaminants and their impact on human health in the Arctic. These reports provide scientific information and policy-relevant recommendations to Arctic governments. They also support international agreements such as the Stockholm Convention on Persistent Organic Pollutants (POPs) and the Minamata Convention on Mercury. Key topics discussed in this paper regarding future human health research in the circumpolar Arctic are continued contaminant biomonitoring, health effects research and risk communication. The objective of this paper is to describe knowledge gaps and future priorities for these fields.

Forfatter: B. Adlard ; S.G. Donaldson ; J.O. Odland ; P. Weihe ; J. Berner ; A. Carlsen ; Eva Cecilie Bonefeld-Jørgensen; A.A. Dudarev ; J.C. Gibson ; E.M. Krümmel ; K. Olafsdottir ; K. Abass ; A. Rautio ; I.A. Bergdahl ; Gert Mulvad **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Arctic; Human health; Biomonitoring; Environmental contaminants **Titel på tidsskrift:** Global Health Action **Volume på tidsskrift:** 11 **Nummer på tidsskrift:** 1 **Udgiver:** Taylor & Francis Online **DOI nummer:** https://doi.org/10.1080/16549716.2018.1480084

Research | Forskning - peer review > Article | Artikel

Immunisation rates among children in Nuuk

The children immunisation programme in Greenland correlates to the one in Denmark with the addition of the Bacille Calmette–Guerin (BCG)-vaccine and the immunisation against Hepatitis B (HBV). The immunisation rate among children in Greenland has been and is currently unknown and this study aims to estimate the immunisation rates among children in Nuuk from 1 July 2015 until 30 June 2016. We did an observational cross-sectional study based on a statistical extraction identifying all children in Nuuk eligible for an immunization in the children immunisation programme from 1 July 2015 until 30 June 2016 and a review of their medical records. We found acceptable coverage rates among children younger than 12 months, but coverage rates lower than recommended by the World Health Organization (WHO) among older children. Among children between 15 months and 4 years the coverage dropped as low as 33.9 %. Increased awareness of child immunisation rates is suggested including continuously monitoring and adjusting of the organisation of the immunisation programme.

Forfatter: N. Albertsen ; I.M. Fencker ; H.E. Noasen ; Michael Lyng Pedersen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Vaccinations; Immunisations; Arctic; WHO; Measles; Greenland; Infectious diseases **Titel på tidsskrift:** International Journal of Circumpolar Health **Volume på tidsskrift:** 77 **Nummer på tidsskrift:** 1 **Udgiver:** Taylor & Francis Online **DOI nummer:** https://doi.org/10.1080/22423982.2018.1426948

Research | Forskning - peer review > Article | Artikel

Serum 25-hydroxyvitamin D, calcium and parathyroid hormone levels in Native and European populations in Greenland

Ca homeostasis is important to human health and tightly controlled by powerful hormonal mechanisms that display ethnic variation. Ethnic variations could occur also in Arctic populations where the traditional Inuit diet is low in Ca and sun exposure is limited. We aimed to assess factors important to parathyroid hormone (PTH) and Ca in serum in Arctic populations. We included Inuit and Caucasians aged 50–69 years living in the capital city in West or in rural East Greenland. Lifestyle factors were assessed by questionnaires. The intake of Inuit diet was assessed from a FFQ. 25-Hydroxyvitamin D (25OHD2 and 25OHD3) levels were measured in serum as was albumin, Ca and PTH. The participation rate was 95 %, with 101 Caucasians and 434 Inuit. Median serum 25OHD (99.7 % was 25OHD3) in Caucasians/Inuit was 42/64 nmol/l (25, 75 percentiles 25, 54/51, 81) (P

Forfatter: Stig Andersen; Paneeraq Noahsen; Karsten Rex; I. Fleischer ; N. Albertsen ; Marit Eika Jørgensen; L.K. Schaebel ; M.B. Laursen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Parathyroid hormone; Calcium; Vitamin D; Ethnicity; Inuit; 25-hydroxyvitamin D; Parathyroid hormone **Titel på tidsskrift:** British Journal of Nutrition **Volume på tidsskrift:** 119 **Nummer på tidsskrift:** 4 **Udgiver:** Cambridge University Press **DOI nummer:** <https://doi.org/10.1017/S0007114517003944>

Research | Forskning - peer review > Article | Artikel

Genetic determinants of glycated hemoglobin levels in the Greenlandic Inuit population

We previously showed that a common genetic variant leads to a remarkably increased risk of type 2 diabetes (T2D) in the small and historically isolated Greenlandic population. Motivated by this, we aimed at discovering novel genetic determinants for glycated hemoglobin (HbA1C) and at estimating the effect of known HbA1C-associated loci in the Greenlandic population. We analyzed genotype data from 4049 Greenlanders generated using the Illumina Cardio-Metabochip. We performed the discovery association analysis by an additive linear mixed model. To estimate the effect of known HbA1C-associated loci, we modeled the effect in the European and Inuit ancestry proportions of the Greenlandic genome (EAPGG and IAPGG, respectively). After correcting for multiple testing, we found no novel significant associations. When we investigated loci known to associate with HbA1C levels, we found that the lead variant in the GCK locus associated significantly with HbA1C levels in the IAPGG ($\text{PIAPGG}=4.8 \times 10^{-6}$, $\beta\text{IAPGG}=0.13\text{SD}$). Furthermore, for 10 of 15 known HbA1C loci, the effects in IAPGG were similar to the previously reported effects. Interestingly, the ANK1 locus showed a statistically significant ancestral population differential effect, with opposing directions of effect in the two ancestral populations. In conclusion, we found only 1 of the 15 known HbA1C loci to be significantly associated with HbA1C levels in the IAPGG and that two-thirds of the loci showed similar effects in Inuit as previously found in European and East Asian populations. Our results shed light on the genetic effects across ethnicities.

Forfatter: E.V.R. Appel ; I. Moltke ; Marit Eika Jørgensen; Peter Bjerregaard; A. Linneberg ; O. Pedersen ; A. Albrechtsen ; T. Hansen ; N. Grarup **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Diabetes; Inuit; Arctic; Greenland **Titel på tidsskrift:** European Journal of Human Genetics **Volume på tidsskrift:** 26

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Research | Forskning - peer review > Article | Artikel

Development of health-related quality of life and symptoms in patients with advanced cancer in Greenland

A prospective national cohort study assessed the development of health-related quality of life (HRQoL) and symptoms in adult patients undergoing treatment and care for advanced cancer in Greenland. HRQoL was examined by EORTC QLQ-C30 version 3.0 questionnaire monthly for 4 months. Changes over time and between-group comparisons were examined. Of 58 patients included in the study, 47% completed the questionnaire four times. Functioning was generally high, and improved social functioning was observed after 1 and 2 months. The highest symptom score was for fatigue followed by pain and nausea/vomiting. A high

score for financial problems remained unchanged during the entire period. Patients with higher income had reduced pain intensity ($p = .03$) and diarrhoea ($p = .05$) than patients with income below the poverty line. After 1 month, reduction in pain intensity was observed for Nuuk citizens compared with non-Nuuk citizens ($p = .05$). After 2 months, non-Nuuk citizens reported improved social functioning compared with Nuuk citizens ($p = .05$). After 3 months, Global Health in Nuuk citizens was improved compared with non-Nuuk citizens ($p = .05$). An important clinical finding was that patients' needs for support are related to social status, and geographical factors should be taken into account when planning palliative care.

Forfatter: Mikaela Augustussen; Michael Lyng Pedersen; Lise Hounsgaard; H. Timm ; P. Sjøgren **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Health-related quality of life; Palliative care; Prospective study; Remote areas; Symptom management **Titel på tidsskrift:** European Journal of Cancer Care **Udgiver:** John Wiley & Sons Ltd **DOI nummer:** <https://doi.org/10.1111/ecc.12843>

Research | Forskning - peer review > Article | Artikel

Measuring social inequality in health amongst indigenous peoples in the Arctic. A comparison of different indicators of social disparity among the Inuit in Greenland

The purpose of the article is to compare different indicators of social position as measures of social inequality in health in a population sample from an indigenous arctic people, the Inuit in Greenland. Data was collected during 2005–2015 and consisted of information from 3967 adult Inuit from towns and villages in all parts of Greenland. Social inequalities for smoking and central obesity were analysed in relation to seven indicators of social disparity in four dimensions, i.e. education and employment, economic status, sociocultural position, and place of residence. For each indicator we calculated age-adjusted prevalence by social group, rate ratio and the concentration index. The indicators were correlated with Pearson's r ranging from 0.24 to 0.82. Concentration indices ranged from 0.01 to 0.17. We could not conclude that one indicator was superior to others. Most of the indicators were traditional socioeconomic indicators used extensively in research in western countries and these seemed to be useful among the Inuit too, in particular household assets and job. Two sociocultural indicators developed for use among the Inuit and which included parameters specific to the indigenous peoples in the transition from a traditional to a modern life style proved to be equally useful but not superior to the traditional socioeconomic indicators. The choice of indicator must depend on what it is realistic to collect in the actual research setting and the use of more than one indicator is recommended. It is suggested to further develop culture specific indicators of social position for indigenous peoples.

Forfatter: Peter Bjerregaard; I.K. Dahl-Petersen ; C.V.L. Larsen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Social inequality; Socioeconomic conditions; Cultural transition; Smoking; Obesity; Inuit **Titel på tidsskrift:** SSM Population Health **Volume på tidsskrift:** 6 **Udgiver:** Elsevier **DOI nummer:** <https://doi.org/10.1016/j.ssmph.2018.08.010>

Research | Forskning - peer review > Article | Artikel

Three lifestyle-related issues of major significance for public health among the Inuit in contemporary Greenland: a review of adverse childhood conditions, obesity, and smoking in a period of social transition

Greenland is a country in transition from a colonial past with subsistence hunting and fishing to an urban Nordic welfare state. Epidemiological transition from infectious to chronic diseases has been evident since the 1950s. Ninety percent of the population is Inuit.

We studied three public health issues based on published literature, namely adverse childhood experiences, addictive behavior, and suicide; diet and obesity; and smoking. Alcohol consumption was high in the 1970s and 1980s with accompanying family and social disruption. This is still a cause of poor mental health and suicides in the generations most affected. The diet is changing from a traditional diet of fish and marine mammals to imported food including food items rich in sugar and fat from domestic animals, and the level of physical

activity is decreasing with an ensuing epidemic rise in obesity. The prevalence of smoking is high at around 60% among both men and women and is only slowly decreasing. Smoking shows large social variation, and tobacco-related diseases are widespread.

The diseases and conditions outlined above all contribute towards a low life expectancy at birth—69 years for men and 74 years for women in 2011–2015—compared with 78 and 84 years for men and women, respectively, on average in the European countries. The translation of government public health programs into local activities needs strengthening, and it must be realized that the improvement of public health is a long-term process.

Forfatter: Peter Bjerregaard; C.V.L. Larsen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Inuit; Greenland; Alcohol; Suicide; Diet; Obesity; Smoking **Titel på tidsskrift:** Public Health Reviews **Volume på tidsskrift:** 39 **Nummer på tidsskrift:** 5 **Udgiver:** BMC **DOI nummer:** <https://doi.org/10.1186/s40985-018-0085-8>

Research | Forskning - peer review > Article | Artikel

RISING SUN: Prioritized Outcomes for Suicide Prevention in the Arctic

The Arctic Council, a collaborative forum among governments and Arctic communities, has highlighted the problem of suicide and potential solutions. The mental health initiative during the United States chairmanship, Reducing the Incidence of Suicide in Indigenous Groups: Strengths United Through Networks (RISING SUN), used a Delphi methodology complemented by face-to-face stakeholder discussions to identify outcomes to evaluate suicide prevention interventions. RISING SUN underscored that multilevel suicide prevention initiatives require mobilizing resources and enacting policies that promote the capacity for wellness, for example, by reducing adverse childhood experiences, increasing social equity, and mitigating the effects of colonization and poverty.

Forfatter: PY Collins ; RA Jr Delgado ; C Apok ; L Baez ; Peter Bjerregaard; S Chatwood ; C Chipp ; A Crawford ; A Crosby ; D Dillard ; H Ericksen ; J Hicks ; CVL Larsen ; R McKeon ; PJ Partapuoli ; A Phillips ; B Pringle ; S Rasmus ; S Sigurðardóttir ; A Silviken ; JP Stoor ; Y Sumarokov ; L Wexler **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Cross-cultural issues; Global mental health; Suicide prevention; Indigenous mental health; Arctic health **Titel på tidsskrift:** Psychiatric Services **DOI nummer:** <https://doi.org/10.1176/appi.ps.201700505>

Research | Forskning - peer review > Article | Artikel

Alcohol use and burden for 195 countries and territories, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016

Background: Alcohol use is a leading risk factor for death and disability, but its overall association with health remains complex given the possible protective effects of moderate alcohol consumption on some conditions. With our comprehensive approach to health accounting within the Global Burden of Diseases, Injuries, and Risk Factors Study 2016, we generated improved estimates of alcohol use and alcohol-attributable deaths and disability-adjusted life-years (DALYs) for 195 locations from 1990 to 2016, for both sexes and for 5-year age groups between the ages of 15 years and 95 years and older.

Methods: Using 694 data sources of individual and population-level alcohol consumption, along with 592 prospective and retrospective studies on the risk of alcohol use, we produced estimates of the prevalence of current drinking, abstention, the distribution of alcohol consumption among current drinkers in standard drinks daily (defined as 10 g of pure ethyl alcohol), and alcohol-attributable deaths and DALYs. We made several methodological improvements compared with previous estimates: first, we adjusted alcohol sales estimates to take into account tourist and unrecorded consumption; second, we did a new meta-analysis of relative risks for 23 health outcomes associated with alcohol use; and third, we developed a new method to quantify the level

of alcohol consumption that minimises the overall risk to individual health.

Findings: Globally, alcohol use was the seventh leading risk factor for both deaths and DALYs in 2016, accounting for 2.2% (95% uncertainty interval [UI] 1.5–3.0) of age-standardised female deaths and 6.8% (5.8–8.0) of age-standardised male deaths. Among the population aged 15–49 years, alcohol use was the leading risk factor globally in 2016, with 3.8% (95% UI 3.2–4.3) of female deaths and 12.2% (10.8–13.6) of male deaths attributable to alcohol use. For the population aged 15–49 years, female attributable DALYs were 2.3% (95% UI 2.0–2.6) and male attributable DALYs were 8.9% (7.8–9.9). The three leading causes of attributable deaths in this age group were tuberculosis (1.4% [95% UI 1.0–1.7] of total deaths), road injuries (1.2% [0.7–1.9]), and self-harm (1.1% [0.6–1.5]). For populations aged 50 years and older, cancers accounted for a large proportion of total alcohol-attributable deaths in 2016, constituting 27.1% (95% UI 21.2–33.3) of total alcohol-attributable female deaths and 18.9% (15.3–22.6) of male deaths. The level of alcohol consumption that minimised harm across health outcomes was zero (95% UI 0.0–0.8) standard drinks per week.

Interpretation: Alcohol use is a leading risk factor for global disease burden and causes substantial health loss. We found that the risk of all-cause mortality, and of cancers specifically, rises with increasing levels of consumption, and the level of consumption that minimises health loss is zero. These results suggest that alcohol control policies might need to be revised worldwide, refocusing on efforts to lower overall population-level consumption.

Forfatter: GBD 2016 Alcohol Collaborators ; Peter Bjerregaard **Type:** Article | Artikel **Årstal:** 2018
Emner: Alcohol; Global burden of disease **Titel på tidsskrift:** The Lancet **Volume på tidsskrift:** 392
Nummer på tidsskrift: 10152 **DOI nummer:** doi: 10.1016/S0140-6736(18)31310-2

Research | Forskning - peer review > Article | Artikel

Associations between vitamin D status and atherosclerosis among Inuit in Greenland

Background and aims: Low levels of vitamin D are suspected to be a risk factor for cardiovascular disease and atherosclerosis. The aim of this study was to assess the prevalence of subclinical atherosclerosis among Inuit in Greenland, and to evaluate the association with vitamin D status. We hypothesized that low vitamin D status could be associated with higher carotid intima-media thickness (IMT) as a marker of atherosclerosis.

Methods: 756 adults from the Inuit Health in Transition (IHIT) study carried out in Greenland in the period 2005–2010 were included. A blood sample donated in 1987 was available for a sub-sample of 102 individuals. Serum 25(OH)D₃ from the IHIT study and the 1987 survey was used as a measure of vitamin D status. IMT measurements were conducted by ultrasound scanning. The prevalence of atherosclerosis was estimated, and the association between serum 25(OH)D₃ and IMT measurements was examined by linear regression.

Results: The overall prevalence of subclinical atherosclerosis was 20.1% (n = 152). The linear regression analyses indicated a weak positive association between serum 25(OH)D₃ level and IMT measurements from the IHIT study, though not statistically significant after adjustment for potential confounders ($\beta = 0.35\%$ per 10 nmol/L 25(OH)D₃, p = 0.06). Linear regression analyses of the association between serum 25(OH)D₃ level in the 1987 survey and IMT measurements also indicated a positive, though not statistically significant, association after adjustment ($\beta = 0.07\%$ per 10 nmol/L 25(OH)D₃, p = 0.86).

Conclusions: Our findings did not support the hypothesis of an association between low vitamin D levels and risk of atherosclerosis.

Forfatter: CU Gjødesen ; Marit Eika Jørgensen; Peter Bjerregaard; IK Dahl-Petersen ; CVL Larsen ; M Noël ; M Melbye ; AS Cohen ; M Lundqvist ; DM Hougaard ; JW Helge ; NO Nielsen **Type:** Article | Artikel **Årstal:** 2018
Emner: Atherosclerosis; Carotid intima media thickness; Vitamin D; Inuit; Greenland **Titel på tidsskrift:** Atherosclerosis **Volume på tidsskrift:** 268 **Udgiver:** Elsevier **DOI nummer:** <https://doi.org/10.1016/j.atherosclerosis.2017.11.028>

Loss-of-function variants in ADCY3 increase risk of obesity and type 2 diabetes

We have identified a variant in ADCY3 (encoding adenylate cyclase 3) associated with markedly increased risk of obesity and type 2 diabetes in the Greenlandic population. The variant disrupts a splice acceptor site, and carriers have decreased ADCY3 RNA expression. Additionally, we observe an enrichment of rare ADCY3 loss-of-function variants among individuals with type 2 diabetes in trans-ancestry cohorts. These findings provide new information on disease etiology relevant for future treatment strategies.

Forfatter: N Grarup ; I Moltke ; MK Andersen ; M Dalby ; K Vitting-Seerup ; T Kern ; Y Mahendran ; E Jørsboe ; CVL Larsen ; IK Dahl-Petersen ; A Gilly ; D Suveges ; G Dedoussis ; E Zeggini ; O Pedersen ; R Andersson ; Peter Bjerregaard; Marit Eika Jørgensen; A Albrechtsen ; T Hansen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** ADCY3; Diabetes; Greenland **Titel på tidsskrift:** Nature Genetics **Volume på tidsskrift:** 50 **DOI nummer:** doi: 10.1038/s41588-017-0022-7

Identification of novel high-impact recessively inherited type 2 diabetes risk variants in the Greenlandic population

Aims/hypothesis: In a recent study using a standard additive genetic model, we identified a TBC1D4 loss-of-function variant with a large recessive impact on risk of type 2 diabetes in Greenlanders. The aim of the current study was to identify additional genetic variation underlying type 2 diabetes using a recessive genetic model, thereby increasing the power to detect variants with recessive effects.

Methods: We investigated three cohorts of Greenlanders (B99, n = 1401; IHIT, n = 3115; and BBH, n = 547), which were genotyped using Illumina MetaboChip. Of the 4674 genotyped individuals passing quality control, 4648 had phenotype data available, and type 2 diabetes association analyses were performed for 317 individuals with type 2 diabetes and 2631 participants with normal glucose tolerance. Statistical association analyses were performed using a linear mixed model.

Results: Using a recessive genetic model, we identified two novel loci associated with type 2 diabetes in Greenlanders, namely rs870992 in ITGA1 on chromosome 5 (OR 2.79, $p = 1.8 \times 10^{-8}$), and rs16993330 upstream of LARGE1 on chromosome 22 (OR 3.52, $p = 1.3 \times 10^{-7}$). The LARGE1 variant did not reach the conventional threshold for genome-wide significance ($p 5 \times 10^{-8}$) but did withstand a study-wide Bonferroni-corrected significance threshold. Both variants were common in Greenlanders, with minor allele frequencies of 23% and 16%, respectively, and were estimated to have large recessive effects on risk of type 2 diabetes in Greenlanders, compared with additively inherited variants previously observed in European populations.

Conclusions/interpretation: We demonstrate the value of using a recessive genetic model in a historically small and isolated population to identify genetic risk variants. Our findings give new insights into the genetic architecture of type 2 diabetes, and further support the existence of high-effect genetic risk factors of potential clinical relevance, particularly in isolated populations.

Forfatter: N Grarup ; I Moltke ; MK Andersen ; Peter Bjerregaard; CVL Larsen ; IK Dahl-Petersen ; E Jørsboe ; HK Tiwari ; SE Hopkins ; HW Wiener ; BB Boyer ; A Linneberg ; O Pedersen ; Marit Eika Jørgensen; A Albrechtsen ; T Hansen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Genetic association; Genome-wide association study; Greenlanders; Inuit; ITGA1; LARGE1; Recessive genetic model; Type 2 diabetes **Titel på tidsskrift:** Diabetologia **Volume på tidsskrift:** 61 **Nummer på tidsskrift:** 9 **Udgiver:** Springer **DOI nummer:** doi: 10.1007/s00125-018-4659-2.

Gonorrhoea in Greenland: geographic differences in diagnostic activity and incidence of gonorrhoea in 2015

For decades the spread of sexually transmitted infections (STIs) has been a health concern in Greenland, especially within the age group of 15–34 year olds. However, no overview exists of the potential differences in regional incidence and management of STIs. This study investigates the age, gender and region specific diagnostic activity and incidence of gonorrhoea in Greenland in 2015. The study design was an observational cross sectional register study with inclusion of patients tested for gonorrhoea in 2015. Patients above 15 years of age were included. Data was obtained from the laboratory system used at The Central Laboratory at Queen Ingrid's Hospital in Nuuk. We found, in 2015, a total of 17,911 tests for gonorrhoea were performed on both men and women. Women accounted for 68% of the tests, while men accounted for 32%. The positivity rate was 7,878 pr. 100,000 of which 56% were women and 44% were men. The regional distribution showed a disparity of the testing rate and the rate of positive gonorrhoea tests.. Thus, we have documented a high diagnostic activity and high incidence of gonorrhoea in Greenland in 2015 among both women and men. We also found significant regional differences in both diagnostic activity and gonorrhoea incidence.

Forfatter: AS Homøe ; S Berntsen ; Michael Lyng Pedersen **Type:** Article | Artikel **Årstal:** 2018
Emner: Neisseria gonorrhoea; Incidence; Diagnostic activity; Venereal disease **Titel på tidsskrift:**
International Journal of Circumpolar Health **Volume på tidsskrift:** 77 **Nummer på tidsskrift:** 1
Udgiver: Taylor & Francis **DOI nummer:** <https://doi.org/10.1080/22423982.2018.1445938>

Research | Forskning - peer review > Article | Artikel

Growth of children in Greenland exceeds the World Health Organization growth charts

Aim: Previous studies have found high rates of stunted linear growth in Greenlandic children. We measured growth patterns in Greenland and compared them with international growth charts.

Methods: The study cohort comprised 279 healthy children aged 6–10 years in 2012. They participated in two pregnancy and birth cohorts in Greenland and longitudinal growth data as birth was extracted from their medical records. Growth reference ranges were estimated with the lambda-mu-sigma (LMS) method and compared with growth charts from Denmark and the World Health Organization (WHO).

Results: The children's mean length, weight and head circumference were significantly larger than the WHO growth charts ($p < 0.001$). We found that 21–28% of the children aged zero to one years exceeded the WHO growth chart for length by more than two standard deviations. For weight and head circumference, 9–16% of the children aged 0–10 years and 9–11% of the children from zero to two years exceeded the WHO charts by more than two standard deviations. The Danish references were exceeded to a lesser degree.

Conclusion: This study showed that the growth of Greenlandic children up to 10 years was no longer stunted. Major determining factors suggested are genetic admixture, maternal overweight, changes in nutrition and improved health.

Forfatter: M Kløvgaard ; NO Nielsen ; TL Sørensen ; Peter Bjerregaard; B Olsen ; PB Júlíusson ; M Roelants ; HT Chistesén **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Greenland; Growth references; Growth standards; Inuit; Linear growth **Titel på tidsskrift:** Acta Pædiatrica **Udgiver:** John Wiley & Sons Ltd **DOI nummer:** <https://doi.org/10.1111/apa.14369>

Research | Forskning - peer review > Article | Artikel

Whole blood mercury and the risk of cardiovascular disease among the Greenlandic population

Background: Studies have found mercury to be associated with cardiovascular disease (CVD), however, primarily in populations with low exposure. The highest levels, and variations in the levels, of whole blood mercury (WBM) worldwide have been found in Greenland. We prospectively assessed the association between

WBM and the risk of developing CVD in the Greenlandic population.

Methods: We assessed the effects of WBM levels on incident CVD among 3083 Greenlandic Inuit, participating in a population-based cohort study conducted from 2005 to 2010. WBM was measured at baseline. Participants were followed in the National Patient Registries for Denmark and Greenland and in the causes of death register for CVD events from inclusion in the study until CVD event, emigration, death or end of follow-up (30/9–2013). Using Cox regression analyses, we calculated the incidence rates and the hazard ratio of CVD events according to WBM levels. Potential interactions with sex were also investigated.

Results: The highest levels of WBM were found in men, who had a significantly higher median level (19 µg/L (IQR:1–44)), compared with women (15 µg/L (IQR: 1–32), (p 0.001)). The crude hazard ratio (HR) for incident CVD was 1.00 (95% CI 1.00–1.00) for 5 µg/l increase in WBM. After adjusting for several potential confounders, there was still no association between WBM and incident CVD (HR 0.99; 95%CI:0.99–1.00). We found no interactions with sex.

Conclusions: In a population with high levels of WBM, we found no association between WBM and the risk of developing CVD in Greenland.

Forfatter: TJ Larsen ; Marit Eika Jørgensen; CVL Larsen ; IK Dahl-Petersen ; PF Rønn ; Peter Bjerregaard; S Byberg **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Whole blood mercury; Cardiovascular disease; Inuit; Greenland **Titel på tidsskrift:** Environmental Research **Volume på tidsskrift:** 146 **Udgiver:** Elsevier **DOI nummer:** <https://doi.org/10.1016/j.envres.2018.03.003>

Research | Forskning - peer review > Article | Artikel

Prevalence of patients treated with anti-diabetic medicine in Greenland and Denmark. A cross-sectional register study

Diabetes mellitus is a large and growing worldwide health issue. Prior to this publication, a direct comparison of the prevalence of persons treated with anti-diabetic medicine in Greenland and Denmark has not been found. Therefore, the aim of this study is to estimate and compare the age- and gender-specific prevalence of patients treated with anti-diabetic medicine comparing Greenland and Denmark. The study was performed as a cross-sectional register study using data from population and medical registers in Greenland and Denmark. A total of 784 Greenlandic and 215,580 Danish patients treated with anti-diabetic medicine were included. The prevalence of patients aged 20–79 years treated with anti-diabetic medicine in Greenland was 2.6% (95% CI 2.4–2.8), much lower (p 0.001) compared to Denmark with 5.2% (95% CI 5.2–5.2). The difference was less pronounced after excluding those treated with insulin and women below 45 years treated with metformin. In conclusion, this study showed a lower prevalence of patients treated with anti-diabetic medicine in Greenland than Denmark. The main reason may be a much higher prevalence of undiagnosed diabetes in Greenland, particularly among the middle-aged. Differences in awareness of diabetes and access to continued primary healthcare may be contributing factors.

Forfatter: I Meklenborg ; Michael Lyng Pedersen; Eva Cecilie Bonefeld-Jørgensen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Diabetes mellitus; Prevalence; Greenland; Inuit; Denmark **Titel på tidsskrift:** Journal of Circumpolar Health **Volume på tidsskrift:** 77 **Udgiver:** Taylor & Francis **DOI nummer:** <https://doi.org/10.1080/22423982.2018.1542930>

Research | Forskning - peer review > Article | Artikel

Contributions of mean and shape of blood pressure distribution to worldwide trends and variations in raised blood pressure: a pooled analysis of 1018 population-based measurement studies with 88.6 million participants

Background: Change in the prevalence of raised blood pressure could be due to both shifts in the entire

distribution of blood pressure (representing the combined effects of public health interventions and secular trends) and changes in its high-blood-pressure tail (representing successful clinical interventions to control blood pressure in the hypertensive population). Our aim was to quantify the contributions of these two phenomena to the worldwide trends in the prevalence of raised blood pressure.

Methods: We pooled 1018 population-based studies with blood pressure measurements on 88.6 million participants from 1985 to 2016. We first calculated mean systolic blood pressure (SBP), mean diastolic blood pressure (DBP) and prevalence of raised blood pressure by sex and 10-year age group from 20–29 years to 70–79 years in each study, taking into account complex survey design and survey sample weights, where relevant. We used a linear mixed effect model to quantify the association between (probit-transformed) prevalence of raised blood pressure and age-group- and sex-specific mean blood pressure. We calculated the contributions of change in mean SBP and DBP, and of change in the prevalence-mean association, to the change in prevalence of raised blood pressure.

Results: In 2005–16, at the same level of population mean SBP and DBP, men and women in South Asia and in Central Asia, the Middle East and North Africa would have the highest prevalence of raised blood pressure, and men and women in the high-income Asia Pacific and high-income Western regions would have the lowest. In most region-sex-age groups where the prevalence of raised blood pressure declined, one half or more of the decline was due to the decline in mean blood pressure. Where prevalence of raised blood pressure has increased, the change was entirely driven by increasing mean blood pressure, offset partly by the change in the prevalence-mean association.

Conclusions: Change in mean blood pressure is the main driver of the worldwide change in the prevalence of raised blood pressure, but change in the high-blood-pressure tail of the distribution has also contributed to the change in prevalence, especially in older age groups.

Forfatter: NCD Risk Factor Collaboration (NCD-RisC) ; Peter Bjerregaard **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Blood pressure; Hypertension; Population health; Global health; Non-communicable disease **Titel på tidsskrift:** International Journal of Epidemiology **Volume på tidsskrift:** 47 **Nummer på tidsskrift:** 3 **Udgiver:** Oxford Academic **DOI nummer:** doi: 10.1093/ije/dyy016

Research | Forskning - peer review > Article | Artikel

Awareness of diabetes in the population of Greenland

Objective: Type 2 diabetes (T2D) may develop slowly with few symptoms and may remain undetected for many years, leading to severe complications that potentially could have been prevented with timely diagnosis and treatment. Undiagnosed diabetes has been reported high in Greenland. However, awareness and knowledges about diabetes in the general population remains unexplored.

Methods: This study was performed as an observational cross sectional study based on telephone interview among a random sample of Greenlanders. The interview was performed in Greenlandic or Danish according to participant' preference and included information about age, gender, place of birth, place of residence, medical history of diabetes, awareness of the diabetes, risk factors, symptoms, complications, and local possibilities to get tested for diabetes.

Results: In total, telephone contact was established with 196 adults. Of those, 161 participants completed the interview while 35 were unwilling to participate in the interview corresponding to a response rate of 82% (161/196). The majority of responders, 85.7%, were aware of diabetes and local testing possibilities. However, only around 65% were aware of risk factors of diabetes. Also, the knowledge about common symptoms of diabetes was quite low, around 50%, and in particular low, around 40%, among males and inhabitants in settlements.

Conclusions: The vast majority of the population was aware of diabetes. However, the present study revealed

shortage of knowledge of common risk factors, symptoms, and complications to diabetes. This is challenging the effort to prevent diabetes and new alternative information strategies are needed. Furthermore, the shortage of knowledges of risk factors may not be isolated to diabetes and further studies on health literacy in Greenland are recommended.

Forfatter: Michael Lyng Pedersen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Diabetes; Greenland
Titel på tidsskrift: Clinical Nursing studies **Volume på tidsskrift:** 7 **Nummer på tidsskrift:** 1
Udgiver: SCIEDU **DOI nummer:** <https://doi.org/10.5430/cns.v7n1p56>

Research | Forskning - peer review > Article | Artikel

Gestational diabetes and macrosomia among Greenlanders. Time to change diagnostic strategy?

Gestational diabetes mellitus (GDM) is a serious condition associated to both maternal and offspring complications. Yet, no globally accepted consensus exists on how to test and diagnose GDM. In Greenland, the clinical criteria for testing and diagnosing GDM are adapted from Danish guidelines. The aim of this study was to estimate the prevalence of GDM among Greenlanders using both the current clinical GDM criteria and the recent WHO 2013 criteria and, further, to study the association between GDM, pre-pregnant overweight or obesity and macrosomia. A cross-sectional study of all 450 Greenlandic women who gave birth to a singleton in Nuuk within 1 year was performed. Based on an oral glucose tolerance test measuring capillary whole blood glucose, 119 women were categorised as having clinical GDM, WHO 2013 GDM or not GDM. Macrosomia defined as birth weight above 4,000 g was used as outcome variable. The prevalence of clinical GDM and WHO 2013 GDM was 0.4% (95% CI; 0–1.1) and 6.9% (95% CI; 4.5–9.2). WHO 2013 GDM, fasting blood glucose, pre-pregnant maternal overweight and obesity were associated with macrosomia. WHO 2013 GDM criteria were superior to clinical criteria in predicting macrosomia indicating that it may be time to consider the diagnostic strategy used in Greenland. Pre-pregnant overweight may also need more intensified lifestyle-intervention.

Forfatter: Michael Lyng Pedersen; O Lind ; T Abelsen ; J Olesen ; Marit Eika Jørgensen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Gestational diabetes; Diagnostic; Prevalence; Macrosomia; Overweight; Inuit; Greenland **Titel på tidsskrift:** Journal of Circumpolar Health **Volume på tidsskrift:** 77 **Udgiver:** Taylor & Francis **DOI nummer:** <https://doi.org/10.1080/22423982.2018.1528126>

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Microvascular complications in Nuuk, Greenland, among Greenlanders and non-Greenlanders diagnosed with type 2 diabetes

Aim: The objective of this study was to estimate and compare between Greenlanders and non-Greenlanders living in Nuuk the proportion of patients with type 2 diabetes with microvascular complications.

Methods: This study was performed as a cross-sectional register study based on information in the Electronic Medical Record (EMR). All patients diagnosed with type 2 diabetes and with permanent addresses in Nuuk were included. Patients born in Greenland were considered to be Greenlanders, while patients born outside Greenland were considered as non-Greenlanders. Proportions of patients with retinopathy, microalbuminuria, nephropathy and neuropathy were estimated based on information from the EMR.

Results: A total of 393 patients (295 Greenlanders and 98 non-Greenlanders) were included. In total 83.0% of all patients have been screened for retinopathy, while 66.4% were screened for microalbuminuria and 64.6% for neuropathy within a two year period. The most frequent microvascular complication was neuropathy, which was observed among half (49.6%) of all patients followed by microalbuminuria (28.4%), retinopathy (10.7%) and nephropathy (7.3%). Retinopathy was observed among 21.4% of the non-Greenlanders compared to only 7.0% of the Greenlanders ($p = .001$). Microalbuminuria was also observed more frequently ($p = .047$) among non-Greenlanders (37.5%) than among Greenlanders (24.9%).

Conclusion: Greenlanders seem to be less prone to especially retinopathy than are non-Greenlanders.

Forfatter: Michael Lyng Pedersen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Type 2 diabetes; Complications; Greenlanders; Inuit; Ethnicity **Titel på tidsskrift:** Diabetes Research and Clinical Practice **Volume på tidsskrift:** 136 **Udgiver:** Elsevier **DOI nummer:** <https://doi.org/10.1016/j.diabres.2017.11.030>

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Validation of cardiovascular diagnoses in the Greenlandic Hospital Discharge Register for epidemiological use

Cardiovascular disease (CVD) is one of the leading causes of death worldwide. In Greenland, valid estimates of prevalence and incidence of CVD do not exist and can only be calculated if diagnoses of CVD in the Greenlandic Hospital Discharge Register (GHDR) are correct. Diagnoses of CVD in GHDR have not previously been validated specifically. The objective of the study was to validate diagnoses of CVD in GHDR. The study was conducted as a validation study with primary investigator comparing information in GHDR with information in medical records. Diagnoses in GHDR were considered correct and thus valid if they matched the diagnoses or the medical information in the medical records. A total of 432 online accessible medical records with a cardiovascular diagnosis according to GHDR from Queen Ingrid's Hospital from 2001 to 2013 (n=291) and from local health care centres from 2007 to 2013 (n=141) were reviewed. Ninety-nine and ninety-two percent of discharge diagnosis in GHDR from Queen Ingrid's Hospital and local health care centres were correct in comparison with diagnoses in the medical record indicating valid registration practice. The correctness of cardiovascular diagnoses in GHDR was considered high in terms of acceptable agreement between medical records and diagnoses in GHDR. Cardiovascular diagnoses are valid for epidemiological use.

Forfatter: M Tvermosegaard ; PF Rønn ; Michael Lyng Pedersen; Peter Bjerregaard; IK Dahl Pedersen ; CVL Larsen ; Marit Eika Jørgensen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Cardiovascular disease; Diagnoses; Inuit; Greenland; Register **Titel på tidsskrift:** International Journal of Circumpolar Health **Volume på tidsskrift:** 77 **Udgiver:** Taylor & Francis **DOI nummer:** <https://doi.org/10.1080/22423982.2017.1422668>

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Reproductive factors, lifestyle and dietary habits among pregnant women in Greenland: The ACCEPT sub-study 2013–2015

Background: During past decades the formerly active lifestyle in Greenland has become sedentary, and the intake of traditional food has gradually been replaced with imported food. These lifestyle and dietary habits may affect pregnant women. Aim: To describe age and regional differences in reproductive factors, lifestyle and diet among Greenlandic pregnant women in their first trimester. Methods: A cross-sectional study during 2013–2015 including 373 pregnant women was conducted in five Greenlandic regions (West, Disko Bay, South, North and East). Interview-based questionnaires on reproductive factors, lifestyle and dietary habits were compared in relation to two age groups (median age ≤ 28 years and > 28 years). Results: In total, 72.4% were Inuit, 46.6% had BMI > 25.0 kg/m², 29.0% were smoking during pregnancy and 54.6% had used hashish. BMI, educational level, personal income, previous pregnancies and planned breastfeeding period were significantly higher in the age group > 28 years of age compared to the age group ≤ 28 years of age. In region Disko Bay, 90.9% were Inuit, in region South more had a university degree (37.9%) and region East had the highest number of previous pregnancies, the highest number of smokers during pregnancy and the most frequent intake of sauce with hot meals and fast-food. Conclusions: Overall a high BMI and a high smoking frequency were found. Age differences were found for BMI and planned breastfeeding period, while regional differences were found for smoking and intake of sauce with hot meals and fast-food. Future recommendations aimed at pregnant women in Greenland should focus on these health issues.

Forfatter: AS Terkelsen ; M Long ; Lise Hounsgaard; Eva Cecilie Bonefeld-Jørgensen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Pregnant women; Greenland – reproductive health; Lifestyle; Dietary habits; Traditional

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Comparing health care workforce in circumpolar regions: patterns, trends and challenges

Background: The eight Arctic States exhibit substantial health disparities between their remote northernmost regions and the rest of the country. This study reports on the trends and patterns in the supply and distribution of physicians, dentists and nurses in these 8 countries and 25 regions and addresses issues of comparability, data gaps and policy implications.

Methods: We accessed publicly available databases and performed three types of comparisons: (1) among the 8 Arctic States; (2) within each Arctic State, between the northern regions and the rest of the country; (3) among the 25 northern regions. The unit of comparison was density of health workers per 100,000 inhabitants, and the means of three 5-year periods from 2000 to 2014 were computed.

Results: The Nordic countries consistently exceed North America in the density of all three categories of health professionals, whereas Russia reports the highest density of physicians but among the lowest in terms of dentists and nurses.

The largest disparities between "north" and "south" are observed in the Northwest Territories and Nunavut of Canada for physicians, and in Greenland for all three categories. The disparity is much less pronounced in the northern regions of Nordic countries, while Arctic Russia tends to be oversupplied in all categories.

Conclusions: Despite efforts and standardisation of definitions by international organisations such as OECD, it is difficult to obtain an accurate and comparable estimate of the health workforce even in the basic categories of physicians, dentists and nurses. The use of head counts is particularly problematic in jurisdictions that rely on short-term visiting staff. Comparing statistics also needs to take into account the health care system, especially where primary health care is nurse-based.

List of Abbreviations ADA: American Dental Association; AHRF: Area Health Resource File; AMA: American Medical Association; AO: Autonomous Okrug; AVI: Aluehallintovirasto; CHA: Community Health Aide; CHR: Community Health Representative; CHW: Community Health Worker; CIHI: Canadian Institute for Health Information; DO: Doctor of Osteopathic Medicine; FTE: Full Time Equivalent; HPDB: Health Personnel Database; MD: Doctor of Medicine; NOMESCO: Nordic Medico-Statistical Committee; NOSOSCO: Nordic Social Statistical Committee; NOWBASE: Nordic Welfare Database; NWT: Northwest Territories; OECD: Organization for Economic Co-operation and Development; RN: Registered Nurse; SMDB: Scott's Medical Database; WHO: World Health Organization.

Forfatter: TK Young ; N Fedkina ; S Chatwood ; Peter Bjerregaard **Type:** Article | Artikel **Årstal:** 2018
Emner: Health workforce; Physicians; Dentists; Nurses; Arctic; North; Circumpolar **Titel på tidsskrift:** Journal of Circumpolar Health **Volume på tidsskrift:** 77 **Udgiver:** Taylor & Francis **DOI nummer:** <https://doi.org/10.1080/22423982.2018.1492825>

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Cancer Incidence and Mortality in Greenland 1983–2014 – Including Comparison With the Other Nordic Countries

Background: During the last decades, social and life-style changes in Greenland have led to an increase in the incidence of several non-communicable diseases. Our aim is to present the cancer incidence and mortality in Greenland and compare the results with the other Nordic countries.

Methods: The data stems from The Danish Cancer Registry and The Danish Register of Causes of Death. Comparable data on cancer incidence and mortality in Denmark, Finland, Iceland, Norway, Sweden, and Greenland are available through collaboration between Nordic Cancer Registries (NORDCAN). We included all individuals residing in Greenland and diagnosed with or died of a cancer from 1983 to 2014.

Findings: The total number of cancer cases in Greenland for the study period was 4716 and there were 3231 cancer deaths. Respiratory and gastrointestinal cancers had the highest incidence as well as mortality in Greenland for the entire time period and for both sexes. Compared to the other Nordic countries, Greenland had significantly higher incidence and mortality rates for several cancers. Cancer of the lip, oral cavity, and pharynx, respiratory cancer, and cancer of unknown sites had the highest incidence rate ratios (2.3–3.9) and mortality rate ratios (2.7–9.9) for both sexes. The time trend from 1983 to 2014 showed a significant increase in cancer incidence in Greenland with nearly the same incidence level as the other Nordic countries. While the cancer mortality decreased in the other Nordic countries during the time period studied, there was no change in the cancer-specific mortality in Greenland.

Interpretations: The trends in cancer incidence and mortality in Greenland compared to the other Nordic countries have not been reported earlier. These data underline a need to focus on cancer-specific mortality in Greenland and prevention of high-incidence cancers related to well-established risk factors.

Forfatter: U Yousaf ; G Engholm ; H Storm ; N Christensen ; E Zetlitz ; H Trykker ; F Sejersen ; Peter Bjerregaard; LC Thygesen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Cancer incidence; Cancer mortality; Greenland; Inuit; Arctic; Cancer; Carcinoma; Nordic countries; Epidemiology **Titel på tidsskrift:** EClinicalMedicine **Volume på tidsskrift:** 2-3 **Udgiver:** The Lancet **DOI nummer:** <https://doi.org/10.1016/j.eclinm.2018.08.003>

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Prevalence of antibodies against *Brucella* spp. in West Greenland polar bears (*Ursus maritimus*) and East Greenland muskoxen (*Ovibos moschatus*)

Zoonotic infections transmitted from terrestrial and marine mammals to humans in European Arctic are of unknown significance, despite considerable potential for transmission due to local hunt and a rapidly changing environment. As an example, infection with *Brucella* bacteria may have significant impact on human health due to consumption of raw meat or otherwise contact with tissues and fluids of infected game species such as muskoxen and polar bears. Here, we present serological results for Baffin Bay polar bears (*Ursus maritimus*) (n = 96) and North East Greenland muskoxen (*Ovibos moschatus*) (n = 32) for antibodies against *Brucella* spp. The analysis was a two-step trial initially using the Rose Bengal Test (RBT), followed by confirmative competitive enzyme-linked immunosorbent assays of RBT-positive samples. No muskoxen had antibodies against *Brucella* spp., while antibodies were detected in six polar bears (6.25%) rendering a seroprevalence in line with previous findings in other Arctic regions. Seropositivity was not related to sex, age or biometrics i.e. size and body condition. Whether *Brucella* spp. antibodies found in polar bears were due to either prey spill over or true recurrent *Brucella* spp. infections is unknown. Our results therefore highlight the importance of further research into the zoonotic aspects of *Brucella* spp. infections, and the impact on wildlife and human health in the Arctic region.

Forfatter: C Sonne ; E Andersen-Ranberg ; EL Rajala ; JS Agerholm ; Eva Cecilie Bonefeld-Jørgensen; JP Desforges ; I Eulaers ; BM Jenssen ; Anders Koch; A Rosing-Asvid ; U Siebert ; M Tryland ; Gert Mulvad; T Härkönen ; M Acquarone ; ES Nordøy ; R Dietz ; U Magnusson **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Arctic; Humans; One health; Zoonosis **Titel på tidsskrift:** Polar Biology **Volume på tidsskrift:** 41 **Nummer på tidsskrift:** 9 **Udgiver:** Springer

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Study of correlation between the NAT2 phenotype and genotype status among Greenlandic Inuit

N-acetyltransferase 2 (NAT2) is the main enzyme metabolizing isoniazid and genotype-based treatment has been studied for years without becoming common practice. To investigate whether genotype-based isoniazid treatment is feasible in Greenland, we sequenced the coding sequence of NAT2 and determined the NAT2 enzyme-activity by caffeine test.

No additional genetic variants were identified in the coding sequence of NAT2, so that genotype status in 260 study participants could be assessed by a well-established 7-SNP panel. Studying the enzyme activity by the ratio of the two caffeine metabolites AFMU and 1X in 260 participants showed a high rate of slow phenotypes with intermediate or rapid genotype. These misclassifications were mainly observed in urine samples with pH3, we observed a moderate level of discrepancies (19 of the 116 individuals with intermediate or rapid genotype status having a slow phenotype). Further investigation showed that drinking coffee and not tea or cola was the most important factor for high levels of both metabolites.

The concordance between phenotype and genotype status with regard to slow metabolism supported the recommendation of lower isoniazid doses in individuals with slow genotype status in order to avoid liver injury, a frequent side effect. The phenotypical variation observed for individuals with intermediate or rapid genotype status warrants further research before increased dosing of isoniazid can be recommended.

Forfatter: E Birch Kristensen ; V Yakimov ; Karen Bjørn Mortensen; B Soborg ; Anders Koch; Mikaela Augustussen; K Birch Kristensen ; L Skotte ; A Ahrendt Bjerregaard ; M Blaszkewicz ; K Golka ; JG Hengstler ; B Feenstra ; M Melbye ; F Geller **Type:** Article | Artikel **Årstal:** 2018 **Emner:** N-acetyltransferase 2; Greenland; NAT2 genotype status; NAT2 enzyme activity; Caffeine test; Isoniazid **Titel på tidsskrift:** EXCLI Journal **Volume på tidsskrift:** 17 **DOI nummer:** <https://dx.doi.org/10.17179%2Fexcli2018-1671>

Research | Forskning - peer review > Article | Artikel

Summary of available surveillance data on hepatitis C virus infection from eight Arctic countries, 2012 to 2014

We summarised available hepatitis C virus (HCV) surveillance data for 2012–14 from Arctic/sub-Arctic countries/regions. We sent a HCV data collection template by email to public health authorities in all jurisdictions. Population statistics obtained from census sources for each country were used to estimate rates of reported acute and chronic/undifferentiated HCV cases. Seven countries with Arctic regions (Canada, Denmark, Finland, Greenland, Norway, Sweden and the United States, represented by the state of Alaska), including three Canadian territories and one province, as well as 11 Russian subnational Arctic regions, completed the data collection template. Data on acute HCV infection during 2014 was available from three Arctic countries and all Russian Arctic regions (rate range 0/100,000 population in Greenland, as well as Nenets and Chukotka Autonomous Okrugs (Russian subnational Arctic regions) to 3.7/100,000 in the Russian Republic of Komi). The rate of people with chronic/undifferentiated HCV infection in 2014 ranged from 0/100,000 in Greenland to 171.2/100,000 in Alaska. In most countries/regions, the majority of HCV-infected people were male and aged 19–64 years. Differences in surveillance methods preclude direct comparisons of HCV surveillance data between Arctic countries/regions. Our data can inform future efforts to develop standardised approaches to HCV surveillance in the Arctic countries/regions by identifying similarities/differences between the surveillance data collected.

Forfatter: PP Gounder ; Anders Koch; G Provo ; A Lovlie ; JL Ederth ; M Axelsson ; CP Archibald ; B Hanley ; A Mullen ; M Matheson ; D Allison ; H Trykker ; TW Hennessy ; M Kuusi ; V Chulanov ; BJ McMahon **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Viral hepatitis; Surveillance; Prevention and control; Indigenous populations; North America; Northern Europe **Titel på tidsskrift:** Euro Surveillance **Volume på tidsskrift:** 23 **Nummer på tidsskrift:** 40 **DOI nummer:** <https://dx.doi.org/10.2807%2F1560-7917.ES.2018.23.40.1700408>

Tuberculosis in the Circumpolar Region, 2006–2012

SETTING: The northern circumpolar jurisdictions Canada (Northwest Territories, Nunavik, Nunavut, Yukon), Finland, Greenland, Norway, Russian Federation (Arkhangelsk), Sweden and the United States (Alaska).

OBJECTIVE: To describe and compare demographic, clinical and laboratory characteristics, including drug resistance and treatment completion, of tuberculosis (TB) cases in the northern circumpolar populations.

DESIGN: Descriptive analysis of all active TB cases reported from 2006 to 2012 for incidence rate (IR), age and sex distribution, sputum smear and diagnostic site characteristics, drug resistance and treatment completion rates.

RESULTS: The annual IR of TB disease ranged from a low of 4.3 per 100 000 population in Northern Sweden to a high of 199.5/100 000 in Nunavik, QC, Canada. For all jurisdictions, IR was higher for males than for females. Yukon had the highest proportion of new cases compared with retreatment cases (96.6%). Alaska reported the highest percentage of laboratory-confirmed cases (87.4%). Smear-positive pulmonary cases ranged from 25.8% to 65.2%. Multidrug-resistant cases ranged from 0% (Northern Canada) to 46.3% (Arkhangelsk). Treatment outcome data, available up to 2011, demonstrated >80% treatment completion for four of the 10 jurisdictions.

CONCLUSION: TB remains a serious public health issue in the circumpolar regions. Surveillance data contribute toward a better understanding and improved control of TB in the north.

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Type: Article | Artikel **Årstal:** 2018 **Emner:** Arctic; Epidemiology; Northern; Surveillance; Treatment
Titel på tidsskrift: The International Journal of Tuberculosis and Lung Disease
Volume på tidsskrift: 22 **Nummer på tidsskrift:** 6 **Udgiver:** International Union Against Tuberculosis and Lung Disease
DOI nummer: <https://doi.org/10.5588/ijtld.17.0525>

Enhancing Well-Being Among Older People in Greenland through Partnerships of Research, Practice and Civil Society

This article focuses on the methodology of the project Ageing in the Arctic (AgeArc) – Wellbeing, Quality of Life and Health

Promotion among Older People in Greenland, and how the use of a collaborative approach aims at integrating ageing research,

practices and policies to the benefit of the Greenlandic society. Thus, the aim of the article is to discuss how collaboration between

research and practice can be an important factor in sustainable development of welfare solutions for older people in Greenland.

In the project we study ageing policy, homecare, institutions, professional practices and municipal administration of these as well

as older people's health, well-being, everyday life and historical perceptions of the roles of older people in Greenland. Moreover,

researchers and municipalities collaborate on developing policies, initiatives within municipalities and civil society as well as

creating network across the municipalities and between municipal administrations and civil society. In addition to this, we

develop educational material for healthcare workers and professionals and work to create more public

awareness about ageing in Greenland. We present three examples of our collaborative methods and discuss how the approach influences development and implementation of specific co-creation projects involving researchers, professionals and citizens on equal terms.

Forfatter: K Nørtoft ; S Carroll ; A Siren ; Peter Bjerregaard; CVL Larsen ; M Brædder ; Lise Hounsgaard; Tenna Jensen **Editor:** L Heininen ; H Exner-Pirot **Type:** Contribution to book/anthology | Bidrag til bog/antologi
Årstal: 2018 **Emner:** Greenland; Arctic; Well-being; Elderly **Udgivelsessted:** Akureyri **Udgivelsesland:** Iceland **Værtpublikationens hoved- & undertitel:** Arctic Yearbook 2018 **Forlag:** Northern Research Forum

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Research | Forskning - peer review > Article | Artikel

Genetic variations, exposure to persistent organic pollutants, and breast cancer risk: A Greenlandic case-control study

This study investigated the effects of single nucleotide polymorphisms (SNPs) in xenobiotic and steroid hormone-metabolizing genes in relation to breast cancer risk and explored possible effect modifications on persistent organic pollutants (POPs) and breast cancer associations. The study also assessed effects of Greenlandic BRCA1 founder mutations. Greenlandic Inuit women (77 cases and 84 controls) were included. We determined two founder mutations in BRCA1: Cys39Gly (rs80357164) and 4684delCC, and five SNPs in xenobiotic and oestrogen-metabolizing genes: CYP17A1 -34T>C (rs743572), CYP19A1 *19C>T (rs10046), CYP1A1 Ile462Val (rs1048943), CYP1B Leu432Val (rs1056836) and COMT Val158Met (rs4680). We used chi-square test for comparison of categorical variables between groups. Odds ratio (OR) estimates with 95% confidence interval (95%CI) were obtained using logistic regression models. The variant allele of BRCA1 Cys39Gly increased breast cancer risk (Gly/Cys versus Cys/Cys, OR: 12.2, 95%CI: 1.53; 98.1), and carriers of the variant allele of CYP17A1 -34T>C had reduced risk (CT+CC versus TT, OR: 0.44, 95%CI: 0.21; 0.93). CYP17A1 -34T>C was an effect modifier on the association between perfluoroalkyl acids (PFAAs) and breast cancer risk (Σ PFAA, ratio of OR: 0.18, 95%CI: 0.03; 0.97). Non-significant modifying tendencies were seen for the other SNPs on the effect of polychlorinated biphenyls, organochlorine pesticides and PFAAs. In summary, the BRCA1 Cys39Gly and CYP17A1 -34T>C genetic variations were associated with breast cancer risk. Our results indicate that the evaluated genetic variants modify the effects of POP exposure on breast cancer risk; however, further studies are needed to document the data from the relatively small sample size.

Forfatter: M. Wielsøe ; H. Eiberg ; P. Kern ; O. Lind ; M. Ghisari ; Eva Cecilie Bonefeld-Jørgensen **Editor:** Annemette Nyborg Lauritsen **Type:** Article | Artikel **Årstal:** 2018 **Emner:** Arctic; Greenland **Titel på tidsskrift:** BCPT **Volume på tidsskrift:** 123 **DOI nummer:** <https://doi.org/10.1111/bcpt.13002>

Research | Forskning - peer review > Article | Artikel

Persistent organic pollutants and hematological markers in Greenlandic pregnant women: The ACCEPT sub-study

The Arctic populations have high blood concentrations of persistent organic pollutants (POPs). Exposure to POPs was related to adverse health effects e.g. immune, neurological and reproductive systems. This study investigates associations between serum POP levels and haematological markers in Greenlandic pregnant women. This cross-sectional study included 189 women enrolled in 2010–2011 at the Greenlandic West coast by the inclusion criteria ≥ 18 years of age and had lived for 50% or more of their life in Greenland. The associations between the sum of the POP variables polychlorinated biphenyls (sumPCBs), organochlorine pesticides (sumOCPs), perfluoroalkylated substances (sumPFASs) and 24 haematological markers were analysed using linear regression adjusted for age, pre-pregnancy BMI, parity, gestation week, plasma-cotinine and alcohol intake. It showed a significantly inverse association between several haematological markers

(eosinophil, lymphocyte, neutrophil and white blood cells) and sumPCBs, sumOCPs and sumPFASs. In addition, the monocyte, mean corpuscular haemoglobin concentration, plateletcrit and platelet count markers were significantly inversely associated with sumPFASs, but the haematocrit and mean erythrocyte corpuscular volume were positively associated with sumPFASs. In conclusion, exposure to POPs influenced several haematological markers, especially cell count parameters, suggesting immunosuppressive potential of POPs in Greenlandic pregnant women. The data need further investigations.

Forfatter: AKS Knudsen ; M Long ; H Sloth Pedersen ; Eva Cecilie Bonefeld-Jørgensen **Type:** Article | Artikel
Årstal: 2018 **Emner:** Persistent organic pollutants; Blood samples; Haematological markers; Inuit; Pregnancy
Titel på tidsskrift: International Journal of Circumpolar Health **Volume på tidsskrift:** 77 **Nummer på tidsskrift:** 1
Udgiver: Taylor & Francis **DOI nummer:** <https://doi.org/10.1080/22423982.2018.1456303>
