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Utgis vanligvis med to regulære nummer pr. år. I tillegg kommer supplement med sammendrag fra Norsk forening for epidemiologis årlige konferanse, og doktorgrader.

DEN TIENDE NORSKE EPIDEMIOLOGIKONFERANSEN

TRONDHEIM, 14-15. NOVEMBER 2002

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DEN TIENDE NORSKE EPIDEMIOLOGIKONFERANSEN

Britannia Hotel, Trondheim, 14.-15. november 2002

Kjære deltaker,

velkommen til hver og en av dere!

Inspirert av den flotte konferansen i Tromsø i fjor, var det enkelt å starte planleggingen av årets evenement. Pessimister advarte om at årlige norske epidemiologikonferanser var litt for ambisiøst. Men det tok vi ikke inn over oss. Det at Britannia Hotel kunne tilby både konferanselokaler, overnatting og rammer for 10 års jubileumsmiddagen satte en ekstra spiss på forberedelsene. For en trondhjemmer er Britannia det nærmeste en kan kalle byens stortue hvor høytidsdager bør feires.

Da det nærmet seg påmeldingsfristen i høst ventet vi spent på responsen. Og den var overveldende. Det førte til at vi måtte lage to parallelle sesjoner for det meste av konferansen, slik at vi til tider må dele oss. Men dette demper nok ikke aktiviteten.

Emnene vi tar opp på konferansen er både knyttet til en helt konkret problemstilling – hva kan epidemiologer bidra med i debatten om mammografiscreening – og til den mer grunnleggende debatten om hva epidemiologiens styrke og begrensninger er.

Spenningen knyttet til årets æresepidemiolog skal vi holde på til siste minutt. At dette innlegget også kommer til å engasjere – er de innvidde overbevist om.

Den norske epidemiologikonferansen vil også i år først og fremst være preget av de mangfoldige interessene hos deltakerne. Hva holder de nå på med kollegene i nord og syd – øst og vest. Hvordan vi kan utnytte dette samarbeidet bedre, vil bli tatt opp gjennom presentasjonen av CONOR.

Hjertelig velkommen!

Hilsen arrangementskomiteen:

Berit Schei, Trond Peder Flaten, Siri Forsmo, Roar Johnsen, Arnulf Langhammer, Tom Ivar Lund Nilsen, Ragnhild Maaø, Pål Romundstad, Berit Rostad, John-Arne Skolbekken og Steinar Westin

DEN TIENDE NORSKE EPIDEMIOLOGIKONFERANSEN

14.-15. november 2002
 Britannia Hotel, Trondheim

PROGRAM

Torsdag 14. november

- 1000 Registrering. Kaffe
- 1100 Åpning ved professor Berit Schei, Institutt for samfunnsmedisinske fag, NTNU
- 1115 **Hva kan epidemiologer bidra med i debatten om mammografiscreening?**
 Moderator: Professor Eiliv Lund, Institutt for samfunnsmedisin, Universitetet i Tromsø
 Deltakere: Professor Peter C. Gøtzsche, The Nordic Cochrane Centre, København
 Professor Steinar Tretli, Kreftregisteret/NTNU
- 1215 Foredrag basert på innsendte bidrag (2 parallelle sesjoner)
1A-5A: Reproduksjon og barn 1B-5B: Antropometri
- 1330 Lunsj
- 1415 Foredrag basert på innsendte bidrag (2 parallelle sesjoner)
6A-12A: Hjerte/kar 6B-12B: Kreft
- 1600 Kaffe
- 1615 Foredrag basert på innsendte bidrag (2 parallelle sesjoner)
13A-17A: Osteoporose I 13B-17B: Metode
- 1730 Æresepidemiolog 2002
- 1800 Årsmøte i Norsk forening for epidemiologi
- 1930 Festmiddag m/ underholdning

Fredag 15. november

- 0900 **Epidemiology – challenges and limitations**
 Professor Shah Ebrahim, Department of Social Medicine, University of Bristol
- 1000 Foredrag basert på innsendte bidrag (2 parallelle sesjoner)
18A-20A: Farmakoepidemiologi 18B-20B: Psykososiale faktorer
- 1045 Kaffe
- 1100 Foredrag basert på innsendte bidrag (2 parallelle sesjoner)
21A-24A: Osteoporose II 21B-24B: Livsstil
- 1200 Lunsj
- 1300 **CONOR – informasjon**
 Førsteamanuensis Jostein Holmen, Institutt for samfunnsmedisinske fag, Hunt
 forskningscenter, NTNU
 Professor Grethe Tell, Institutt for samfunnsmedisinske fag, Universitetet i Bergen
- 1345 Foredrag basert på innsendte bidrag (fellessesjon)
1F-6F: Allment
- 1515 Pris for beste bidrag
- 1530 Oppsummering og avslutning

DEN TIENDE NORSKE EPIDEMIOLOGIKONFERANSEN

Trondheim 14.-15. november 2002

Foredrag basert på innsendte bidrag

Torsdag 14. november

Parallellsesjon 1A-5A: Reproduksjon og barn (12.15-13.30)

Tid	Foredragsholder	Ordstyrere: Leiv S. Bakketeig og Finn Egil Skjeldestad	Nr.
12.15-12.30	Annett Arntzen	The effect of maternal and paternal education on infant mortality. A population-based study of trends in Norway, 1967-1998	1A
12.30-12.45	Merete Eggesbø	Is maternal preeclampsia a risk factor for subsequent allergic diseases in the infant?	2A
12.45-13.00	Wenche Nystad	Baby swimming increases the risk of recurrent respiratory tract infections and otitis media	3A
13.00-13.15	Finn Egil Skjeldestad	12-month incidence of C trachomatis in young Norwegian women	4A
13.15-13.30	Inger Johanne Bakken	Ectopic pregnancy 1970 to 1999 in the county of Sør-Trøndelag, Norway – decreasing incidence in the younger cohorts	5A

Parallellsesjon 1B-5B: Antropometri (12.15-13.30)

Tid	Foredragsholder	Ordstyrere: Per Nafstad og Jostein Holmen	Nr.
12.15-12.30	Jostein Holmen	Vektendringer i løpet av 11 år – en prospektiv studie av 45 920 voksne i en uselektert populasjon (HUNT)	1B
12.30-12.45	Sigrid Bjørnelv	Changes in the distribution of standard weight in Norwegian adolescents. Percentiles for body mass index in a Norwegian adolescent population	2B
12.45-13.00	Wenche B. Drøyvold	Weight change and leisure time physical activity. An 11-years follow-up study of 9,357 healthy, 20-49 years old, normal weighted females	3B
13.00-13.15	Lise Lund Håheim	Endring i relativ vekt etter alder	4B
13.15-13.30	Tom Ivar Lund Nilsen	Høydeutvikling hos kvinner født i første halvdel av 1900-tallet	5B

Parallellsesjon 6A-12A: Hjerne/kar (14.15-16.00)

Tid	Foredragsholder	Ordstyrere: Inger Cappelen og Solfrid Romundstad	Nr.
14.15-14.30	Aage Tverdal	Dødelighet av hjerteinfarkt blant 65-67 åringer med tidligere hjerteinfarkt	6A
14.30-14.45	Lise Lund Håheim	Gjør tannverk mer enn vondt?	7A
14.45-15.00	Jostein Holmen	Sesongvariasjoner av systolisk og diastolisk blodtrykk. Helseundersøkelsen i Nord-Trøndelag 1995-97 (HUNT 2)	8A
15.00-15.15	Ottar Bjerkeset	Is myocardial infarction (MI) a risk factor for long-term anxiety and depression?	9A
15.15-15.30	Solfrid Romundstad	Microalbuminuria and all-cause mortality in self-reported hypertensive individuals. a 4.3-year follow-up study (HUNT 2)	10A
15.30-15.45	Solfrid Romundstad	Microalbuminuria and all-cause mortality in apparently healthy individuals. A 4.4-year follow-up study (HUNT 2)	11A
15.45-16.00	Kurt Kvenild	Mikroalbuminuri og kardiovaskulære sykdommer/risikofaktorer hos ikke-diabetiske blodtrykkspasienter (HUNT 2)	12A

Parallellsesjon 6B-12B: Kreft (14.15-16.00)

Tid	Foredragsholder	Ordstyrere: Inger Torhild Gram og Berit Rostad	Nr.
14.15-14.30	Tom Grotmol	The effect of World War II on the risk of colorectal cancer in the Nordic countries	6B
14.30-14.45	Arnstein Mykletun	Anxiety and depression as risk factors for development of cancer	7B
14.45-15.00	Berit Rostad	Risk factors for cervical cancer in Mozambican women	8B
15.00-15.15	Per Nafstad	Miljø og lungekreft i en kohort Osломenn	9B
15.15-15.30	Tom K. Grimsrud	Smoking rates and trends in lung cancer incidence among young Norwegian men and women	10B
15.30-15.45	Inger Torhild Gram	Alcohol consumption in relation to mammographic patterns	11B
15.45-16.00	Lise Lund Håheim	Nytten av mammografiscreening evaluert ved sekundær litteratur	12B

Parallellsesjon 13A-17A: Osteoporose I (16.15-17.30)

Tid	Foredragsholder	Ordstyrere: Anne Johanne Søgaard og Solfrid E. Lilleeng	Nr.
16.15-16.30	Kari Alvær	Regionale forskjeller i bentetthet i Oslo	13A
16.30-16.45	Astrid Bergland	Elderly women – fall predictors	14A
16.45-17.00	Lisa Forsén	Compliance in the use of external hip protectors – An intervention in 17 nursing homes in two municipalities in Norway	15A
17.00-17.15	Anne Johanne Søgaard	Helseundersøkelsen i Oslo: Konsekvenser av å leve med diagnosen osteoporose	16A
17.15-17.30	Arnulf Langhammer	Association between use of inhaled corticosteroids and bone mineral density in subjects with asthma diagnosis or asthma related symptoms	17A

Parallellsesjon 13B-17B: Metode (16.15-17.30)

Tid	Foredragsholder	Ordstyrere: Randi Selmer og Pål Romundstad	Nr.
16.15-16.30	Bjørn Bølviken	On the use of ecological analysis in epidemiology	13B
16.30-16.45	Steinar Krokstad	Classifying people by social class in population based health surveys – two methods compared	14B
16.45-17.00	Petter Kristensen	Bias from dependent error of information in observational studies	15B
17.00-17.15	Eystein Glatte	Fractal analysis of a matched case-control study	16B
17.15-17.30	Lise Lund Håheim	Medisinsk metodevurdering	17B

Fredag 15. november

Parallellsesjon 18A-20A: Farmakoepidemiologi (10.00-10.45)

Tid	Foredragsholder	Ordstyrere: Svetlana Skurtveit og Trond Peder Flaten	Nr.
10.00-10.15	Svetlana Skurtveit	Pågrepelse på grunn av kjøring under påvirkning av psykoaktive medikamenter, risikofaktor for tidlig død	18A
10.15-10.30	Kari Furu	Use of psychotropic drugs in an urban adolescent population: the impact of health-related variables, lifestyle and sociodemographic factors. The Oslo Health Study 2000-2001	19A
10.30-10.45	Sabine Ruths	Multidisciplinary medication review among nursing home residents – what are the most significant drug-related problems?	20A

Parallellsesjon 18B-20B: Psykososiale faktorer (10.00-10.45)

Tid	Foredragsholder	Ordstyrere: Annett Arntzen og Steinar Westin	Nr.
10.00-10.15	Ingvar Bjelland	Homocystein og depresjon	18B
10.15-10.30	Dag Neckelmann	Chronic insomnia as a risk factor for the development of anxiety and depression: a longitudinal study	19B
10.30-10.45	Kristian Green	Akademisk mestring og sosial støtte fra medelever og lærere hos elever med lese-/skrivevansker	20B

Parallellsesjon 21A-24A: Osteoporose II (11.00-12.00)

Tid	Foredragsholder	Ordstyrere: Lisa Forsén og Siri Forsmo	Nr.
11.00-11.15	Solfrid E. Lilleeng	“Skjør med tiden?” Oppfølging av osteoporoseprosjektet i HUNT II	21A
11.15-11.30	Siri Forsmo	Effect of smoking on forearm bone density in Norwegian men and women – the Nord-Trøndelag Health Study (HUNT)	22A
11.30-11.45	Liv Berit Augestad	The Nord-Trøndelag Health Study: The association between physical activity and forearm bone mineral density in healthy premenopausal women	23A
11.45-12.00	Solfrid E. Lilleeng	Bentetthetsmåling i underarm i HUNT II: Forskjeller mellom maskinene og betydning for måleresultatene	24A

Parallellsesjon 21B-24B: Livsstil (11.00-12.00)

Tid	Foredragsholder	Ordstyrere: Bjørn Straume og John-Arne Skolbekken	Nr.
11.00-11.15	Øyvind Næss	Cumulative deprivation by individual and area-based measures, and mortality risk (all cause and cause specific) in Oslo	21B
11.15-11.30	Thomas Clausen	Alcohol consumption among the elderly in Botswana: Is it a health problem?	22B
11.30-11.45	Arnulf Langhammer	Sex difference in perceived vulnerability of tobacco smoking without corresponding difference in lung function	23B
11.45-12.00	Magritt Brustad	Change in plasma levels of vitamin D after consumption of cod-liver and fresh cod-liver oil as part of the traditional north Norwegian fish dish «Mølje»	24B

Fellessesjon 1F-6F: Allment (13.45-15.15)

Tid	Foredragsholder	Ordstyrere: Aage Tverdal og Steinar Krokstad	Nr.
13.45-14.00	Camilla Stoltenberg	The Norwegian Network of Human Research Biobanks and Health Studies. BIOHEALTH-NORWAY	1F
14.00-14.15	Randi Selmer	Seleksjonsbias i en stor befolkningsbasert undersøkelse	2F
14.15-14.30	Florence Dalgard	Self reported skin complaints: Validation of a questionnaire for population surveys	3F
14.30-14.45	Kristian Tambs	Hørselstap som følge av støy, ørebetennelser og hodeskader i Nord-Trøndelag	4F
14.45-15.00	Tonje Braaten	Education and risk for breast cancer: the Norwegian-Swedish women's lifestyle and health cohort study	5F
15.00-15.15	Jostein Holmen	Holdninger til genetisk epidemiologi illustrert ved spørsmål om fornyet samtykke fra 61426 deltakere ved Helseundersøkelsen i Nord-Trøndelag (HUNT)	6F

DEN TIENDE NORSKE EPIDEMIOLOGIKONFERANSEN

Trondheim 14.-15. november 2002

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Plenumforedrag, torsdag 14.11. kl. 1115**Mammography screening**

Peter C. Gøtzsche

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It is an attractive principle to detect cancer early, before it spreads. Accordingly, mammography screening is being recommended with the claims that it saves lives and saves breasts. The first claim is doubtful, the second is wrong.

In a careful assessment of the seven large screening trials, we found evidence that the primary outcome, breast cancer mortality, is unreliable and biased in favour of screening. Some breast-cancer deaths among screened women are misclassified as deaths from other cancers or from heart problems.

If it were true that screening reduced breast cancer mortality by 29% as found in the Swedish overview from 1993, then all-cancer mortality would be expected to decrease by 5%, corresponding to a relative risk of 0.95. However, for deaths ascribed to any cancer, we found that the relative risk was 1.02 (95% CI 0.95–1.10) for the two best trials (from Malmö and Canada) and 1.00 (0.91–1.10) for the Two-County study. Relative risk for overall mortality was 1.00 (0.96–1.05) for the two best trials and 1.00 (0.98–1.02) for the four Swedish trials (data from 2000 overview).

In the 2002 overview of the Swedish trials there was a non-significant reduction of 2% in overall mortality. In comparison with the overview from 2000, the Kopparberg part of the Two-County study is now left out of the overview, but in Kopparberg, the relative risk was also 1.00 for overall mortality, so this should not make any difference. The Malmö II study is now included but this study was not done according to a formal protocol, and its reliability can be questioned. The 2% reduction is surprising and may be related to the fact that the Östergötland part of the Two-County is still included and provides about half of all the deaths in the overview. In Östergötland, women were randomised to only 24 clusters and a possible imbalance in socio-economic factors at baseline could easily explain the 2% apparent reduction in all-cause mortality which was not only observed in the overview, but also in Östergötland.

There is no reliable evidence documenting a decrease in mortality caused by screening. In contrast, it is well documented that screening leads to important adverse outcomes. We found increased surgery rates in the screened women, both for tumourectomies and for mastectomies. Epidemiological data from the UK and southeast Netherlands lend support to these findings. Since more women will lose their breast when they are screened, the public has been badly informed.

There are three major effects of screening: 1) another cause of death is sometimes written on the death certificate; 2) there is overdiagnosis and overtreatment; 3) important psychological distress related to false positive diagnoses will occur for many months in more than one-tenth of the healthy population.

The National Breast Cancer Coalition in USA believes that there are public health interventions that could save more lives and use fewer health care resources than mammography screening programmes. I find it thought provoking that these statements come from those who have the disease.

Plenumforedrag, fredag 15.11. kl. 0900**Epidemiology – challenges and limitations**

Shah Ebrahim

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Is epidemiology a discipline with a glorious past, of decreasing relevance as description (epidemiology) is replaced by explanation (gene expression)? The rapid investment and associated developments in genomics and proteomics make it essential to examine the role of epidemiology in the 21st century. Epidemiology's glorious past can be recounted: the exploration of the distribution and determinants of cholera epidemics in USA and Britain were the foundations of the science of epidemiology. The link between smoking and lung cancer, first reported by Nazi German investigators and confirmed in Doll's more elegant and convincing studies were the major success of the 20th century. And the century ended with the birth of the fetal origins chronic disease hypothesis.

But to turn to epidemiology's failures. Peptic ulcer was a major killer but the birth cohort pattern was puzzling and the favoured aetiologies were psycho-social, being strongly influenced by the prevailing paradigm: that chronic disease was of non-infectious origin and was dependent on the mode of life in adulthood. The true cause, *H. pylori* infection acquired in childhood was discovered by a clinical scientist. Years of groundbreaking epidemiological investigation of peptic ulcer had essentially no impact on unravelling the aetiology and developing treatment and prevention strategies for a disease which showed an epidemic rise in industrialised countries during the last century.

Beta-carotene, a micro-nutrient, has been repeatedly shown to be beneficial in observational cohort studies but in randomised controlled trials, no benefits, and possible harms have been found. There are now a series of similar examples: hormone replacement therapy, vitamin E and vitamin C intake in relation to cardiovascular disease, or fibre intake in relation to colon cancer among them. What these examples have in common is that the groups of people who were apparently receiving protection from these substances in the observational studies were very different from the groups not using them, on a whole host of characteristics of their lives.

So what lies ahead for epidemiology? The high profile of genetic research will surely increasingly influence epidemiology. Indeed relative risks only a little above unity get treated with considerably more excitement (and journal receptivity) than if similar relative risks were associated with other exposures. This has some sense, as confounding is a less serious problem in most studies relating polymorphisms to disease than in studies of behavioural patterns or environmental exposures. The population attributable risk of such polymorphisms will be low, however.

Epidemiology faces the potential danger of only studying what can be studied according to specific methodologies – particularly in the light of the current obsession with method – rather than applying the most robust methodologies to the most important health problems. Epidemiologists must continue to observe the big picture: large magnitude changes in disease rates that occur within populations, the yawning gap in health status between poor and rich countries and the substantial health gaps according to ethnicity, socioeconomic position and gender within countries. These are not explainable by genomics and have potential to greatly improve human quality and quantity of life.

1A

The effect of maternal and paternal education on infant mortality.

A population-based study of trends in Norway, 1967-1998

Annett Arntzen, Sven Ove Samuelsen and Camilla Stoltenberg

Objectives: The aim of this study was to examine the present association between educational level and infant mortality and how the association has developed over time.

Methods: Data from the Norwegian Medical Birth Registry were linked to information from Statistics Norway of parental educational level attained by 1998. The study population consisted of all live born infants in Norway between 1967 and 1998. There were 1 777 364 livebirths, and 15 517 infant deaths during this 30 years period. Logistic regression analyses were applied.

Results: The overall infant mortality rate has decreased and the average level of education has increased in the period under study. Inequalities in infant mortality according to educational level still exist in Norway. Examining maternal and paternal educational level separately and combined, it was found that the mother's educational level had the greatest impact on infant mortality. After adjusting for maternal age, parity, plurality and the spouse educational level in the logistic model, the ratios were still significant. Compared with parents at the highest educational level, parents with low educational level (<10 years) were at higher risk for infant mortality (OR 1.5 in the 1970s, OR 1.8 in the 1980s and OR 2.5 in the 1990s). The population attributable fraction of infant mortality when all mothers with < 10 years of education were moved to the highest level of education was 19.2% in the 1970s, 20.5% in the 1980s and 19.0% in the 1990s.

Conclusions: Different measures affect the size and pattern of differences but do not cast doubt on their existence. Educational level was a strong predictor of infant mortality, especially in the 1990s.

2A

Is maternal preeclampsia a risk factor for subsequent allergic diseases in the infant?

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Background: The observed increase in allergic diseases during the last centuries points to the importance of environmental factors. The early onset of food allergy, during the first weeks of life, indicates that factors in pregnancy may be of importance. Factors tied to the development and maturation of the immune system are of particular interest. Preeclampsia has been described as an excessive, maternal inflammatory response to pregnancy. We speculate that the extensive inflammatory changes described in preeclampsia may affect the development of the fetal immune system negatively, ultimately increasing the child's susceptibility to future allergic disease. The aim of this study was therefore to explore the effect of preeclampsia on the risk of food allergy in the child.

Methods: In a population-based birth cohort of 2803 children, information on mode of delivery, birth weight, gestational length and potential confounders was obtained from parental reports. The mothers were also asked, at the maternal ward, to specify any complications during pregnancy. Information regarding parentally perceived reactions to egg, fish or nuts in their children, was obtained from postal questionnaires when the children were 12, 18 and 24 months. The operational definition of the outcome "food allergy" was parentally perceived reactions to egg, fish or nuts, consistently reported at all age points.

Results: Preliminary results are reported. Food allergy was 4 fold (OR 4.5, CI 1.3–15.0) more common among children whose mothers had reported preeclampsia and 3 fold (OR 3.7, CI 0.9–16.0) more common if the mothers had reported high blood pressure during pregnancy. A multivariate logistic regression analysis with food allergy as the outcome, was then conducted, adjusting for gestational length, birth weight of the child, maternal allergy, first parity, maternal smoking and socioeconomic factors. The OR for food allergy in children born from pregnancies with preeclampsia was 3.1 (CI 0.8 to 11.9) as compared to children born from pregnancies without preeclampsia.

Discussion: The strength of the observed association may indicate that a causal mechanism is involved. We hypothesize that inflammatory mediators involved in preeclampsia may influence and aggravate the immune deviation associated with food allergy. Future studies applying strict criteria for the preeclampsia diagnosis are needed to confirm our findings, and to further elucidate the association and possible mechanisms.

3A

Baby swimming increases the risk of recurrent respiratory tract infections and otitis media

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Structured baby swim classes is a recent phenomenon in western societies, but the relationship between baby swimming and infant health is not sufficiently investigated. Furthermore, there is suggested that persons with and without a genetic disposition for allergic diseases may respond differently to environmental exposures.

The objective was to examine the association between baby swimming and recurrent respiratory tract infections and otitis media in the first year of life in children of parents with and without atopy.

School children (n=2862) in Oslo, Hallingdal and Odda were enrolled in a cross-sectional study of asthma and allergy in Norway using the questionnaire of the International Study of Asthma and Allergies in Childhood (ISAAC). The outcomes were parental retrospective report of recurrent respiratory tract infections and otitis media diagnosed by a physician in the first year of life. The exposure was baby swimming during the same time period.

The prevalence of recurrent respiratory tract infections was higher (12.3%) among children who took part in baby swimming than among those who did not (7.5%). The prevalence of recurrent respiratory tract infections during the first year of life was 10.5% and 5.6%, respectively, in children of parents with and without atopy, whereas the prevalence of baby swimming was 5.1% and 5.6% in the two groups. Stratified analysis using parental atopy as strata, showed that the increased risk of recurrent respiratory tract infections was only present among children of parents with atopy aOR 2.08 (1.08–4.01). A similar trend was present for otitis media.

The results suggest that baby swimming is associated with infant respiratory health among children with atopic parents. The mechanisms involved are, however, incompletely investigated and need to be studied further in a longitudinal design.

4A

12-month incidence of C trachomatis in young Norwegian women

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Objective: To study 12-month incidence of C trachomatis in a young Norwegian female population.

Material and methods: Young females, age 16-23, who participate in a study on natural history of HPV infection, were screened at baseline and at month 12 for C trachomatis. At baseline, at 6- and 12-month follow-up detailed interviews were performed of lifestyle habits, including sexual activity. Specimen for C trachomatis was collected from cervix uteri after swabs for HPV were collected. PCR technology was applied for detection of C trachomatis. Logistic regression analyses were used for assessing risk factors at baseline and follow-up in risk assessment of C trachomatis. For the present analyses data for 747 of 898 participating women are available.

Results: The 12-months incidence for C trachomatis was 2.7 per 100 w-years (20:747). From logistic regression analyses we can conclude that only the number of lifetime sexual partners (ltsp) at baseline was a significant determinant of infection 12 months later. With the category 1-3 ltsp as reference, young women with 4-9 ltsp had a 10-fold increase in risk, while women with 10-106 ltsp had a 30-fold increase in risk for C trachomatis infection. Predictors such as age (16-17, 18-21, 22-24 yrs of age), use of contraception (none, condom, OC, else), previous pregnancy (0, 1+), previous treatment for C trachomatis (0, 1), smoking (none, 1-9, 10 or more cigarettes daily), sexual activity over the last 30 days prior to testing (0-1, 2-9, 10 or more), years since sexual debut, the number of new partners of the last 12-months (0, 1, 2+) were all insignificant in predicting C trachomatis infection in this low incidence population. Screening for C trachomatis would only be cost-effective for those women who had 10 or more ltsp at baseline. In this subset of 93 women, negative for C trachomatis at baseline, only 8 turned out to be positive 12 months later.

Conclusions: In Norway recommendation of testing all sexual active women 24 years of younger at 1-2 years interval may be reconsidered. By decreasing prevalences in laboratory data, and the low incidence as shown in this study, may support a more aggressive testing of the most sexually active women and intensive contact tracing as the most successful strategy in reducing the burden of Chlamydial infection in the Norwegian society.

5A

Ectopic pregnancy 1970 to 1999 in the county of Sør-Trøndelag, Norway – decreasing incidence in the younger cohorts

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Objective: to study cumulative incidence of ectopic pregnancy by birth-cohort over a 30-year time-period.

Material and methods: In- and outpatient cases with a diagnosis of ectopic pregnancy have been identified in the discharge registry and registry for outpatient treatments at the two hospitals; St. Olavs Hospital and Orkdal Hospital in the county of Sør-Trøndelag, Norway from 1970 through 1999. Eligible for analyses were residents of the county who all had a histologically verified diagnosis. Units for analyses were five-year time-periods, 1970-74 etc., five-year age-groups 15-19 etc., five-year birth-cohorts 1950-54 etc. Separate analyses were done for 1st ectopic pregnancy.

Results: Overall the general incidence (15-44 years) increased linearly from 0.4 to 1.6 during the time-period 1970-74 to 1990-94 ($p < 0.01$). Over the last 10-year period the overall incidence decreased from 1.6 to 1.2 (1995-99) ($p < 0.01$). The age-specific incidence increased by increasing age during the years 1970-74 to 1990-94. The age-specific incidence decreased more in the age-groups 34 years or less over the last 10-year period. By birth-cohort the cumulative incidence of ectopic pregnancy increased for all birth-cohorts from 1950-54 to 1960-64. However, the birth-cohort of 1965-69 had a 30% lower cumulative incidence by age 30 compared with the older cohorts. The major part of this decrease could be attributed to women who had their 1st ectopic pregnancy.

Conclusions: The decreasing trend of ectopic pregnancy observed over the years 1995-1999 can be explained by decreasing incidence of ectopic pregnancy in the birth-cohort of 1965-69. The 1965-69 birth-cohort was 17 years of age in 1982 when extensive screening for Chlamydia trachomatis started in the county of Sør-Trøndelag.

1B

Vektendringer i løpet av 11 år – en prospektiv studie av 45 920 voksne i en uselektert populasjon Helseundersøkelsen i Nord-Trøndelag (HUNT)

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Bakgrunn: Det er godt dokumentert at overvekt (BMI = 25-29,9 m/kg²) og fedme (BMI ≥ 30 m/kg²) er assosiert med økt mortalitet og morbiditet, og det er bekymring for at vi står foran en global epidemi av vektrelaterte helseproblemer. Imidlertid er de fleste studiene som beskriver vektøkningen på populasjonsnivå tverrsnittstudier, de har få aldersgrupper eller de er basert på selvrapporterte data. HUNT, som omfatter to helseundersøkelser med 11 års mellomrom, gir anledning til å følge en stor populasjon på individnivå prospektivt. Målet ved denne studien var å analysere endringer i kroppsvekt i løpet av 11-årsperioden i ulike aldersgrupper hos kvinner og menn.

Metode: Ved HUNT 1 (1995-97) ble høyde, vekt og andre helserelaterte data samlet hos 74 977 personer 20 år og eldre (88,1% frammøte). Ved HUNT 2 (1995-97) ble tilsvarende data samlet for 65 333 personer 20 år og eldre (70,4% frammøte). Til sammen 45 920 personer deltok ved både HUNT 1 og HUNT 2, dvs. ca. 11 år etter, og inngår i analysene. Ved bruk av personnummeret ble data fra samme individ koblet, slik at det er mulig å følge endringer for hvert individ i løpet av perioden. BMI (kg/m²) ble gruppert i følge WHO's klassifikasjon.

Resultater: I 11-års perioden fra HUNT 1 til HUNT 2 økte gjennomsnittlig kroppsvekt hos menn fra 79,0 kg til 83,2 kg, dvs. 4,2 kg (5,3%). Hos kvinner økte gjennomsnittsvekta fra 66,3 kg til 71,0 kg, dvs. 4,7 kg (7,1%). Vektøkningen var mest uttalt i de yngste aldersgruppene. Menn i aldersgruppen 20-29 ved HUNT 1 var gjennomsnittlig 6,4 kg tyngre ved HUNT 2, mens tilsvarende vektendring for kvinner i samme aldersgruppe var 7,3 kg. Vektøkningen var gradvis mindre med økende alder, og i aldersgruppen 70-79 (81-90 år ved HUNT 2), hadde gjennomsnittsvekta gått ned. Ved HUNT 1 (1984-86) var 0,3% av mennene og 1,9% av kvinnene undervektige (BMI < 18,5 kg/m²), mens de tilsvarende tallene for HUNT 2 (1995-97) var 0,3% og 0,8%. Ved HUNT 1 ble 6,7% av mennene og 11,0% av kvinnene klassifisert som fete (BMI ≥ 30,0 kg/m²), mens tilsvarende tall for HUNT 2 var 15,5% og 21%. I aldersgruppen 20-29 var andelen klassifisert som fete (BMI ≥ 30 kg/m²) ved HUNT 1 2,9% hos menn og 3,7% hos kvinner, mens andelen hos de samme individene ved HUNT 2, dvs. 11 år seinere, var økt til 12,4% og 11,9%, dvs. en 3-4-dobling.

Diskusjon: Flere rapporter de siste årene har vist at gjennomsnittsvekta i befolkningen har økt vesentlig. Resultatene fra denne prospektive studien av en stor uselektert populasjon viser et nyansert bilde, med en betydelig vektøkning blant unge voksne, samtidig med en vektreduksjon i de eldste gjenlevende. Denne vektreduksjonen kan delvis være resultat av en seleksjon på grunn av økt dødelighet hos overvektige. At en så stor andel av de unge voksne bokstavelig talt må bære sin overvekt i mange år, gjør at de er ekstra utsatt for helseskader. Bekymringen for økte vektrelaterte helseproblemer i framtida er av den grunn særlig knyttet til utviklingen hos de unge.

2B

Changes in the distribution of standard weight in Norwegian adolescents. Percentiles for body mass index in a Norwegian adolescent population

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Objective: The aim of this study was to describe the distribution of BMI in an Norwegian adolescent population, to compare those results with today's Norwegian standards for height and weight and with international standards for gender- and age-adjusted BMI-percentiles.

Methods: 9131 adolescents participated in a health study in Nord-Trøndelag County, Norway (YOUNG-HUNT). Their height and weight were measured in a standardised way, and the results were compared with the standardised national percentile-charts. Age- and gender adjusted BMI-percentiles were constructed, and compared with corresponding percentiles from Europe and USA.

Results: There has been a considerable increase in weight related to age as well as height for both girls and boys. There is a skewed distribution, with the greatest increase in the highest percentiles (50th percentile: 2-4 kg, 97.5th percentile: 9-14 kg). Gender- and age-adjusted BMI-percentiles show that this adolescent population is more like the American population than Europeans.

Conclusion: Obesity is an increasing problem in children and adolescents, and may lead to both somatic and psychiatric disorders. There are different etiological factors causing this epidemic, and to follow the changes in BMI-percentiles is important to be able to initiate appropriate health-preventing programs. The age- and gender adjusted BMI-percentiles from this material should be used as new Norwegian standards.

Table. age-adjusted BMI-percentiles for males and females in UNG-HUNT.

Age (year)	N		Mean		5 th percentile		15 th percentile		85 th percentile		95 th percentile	
	F	M	F	M	F	M	F	M	F	M	F	M
13	706	716	20,2	19,6	16,2	15,8	17,3	16,9	23,4	22,4	25,7	24,4
14	773	755	20,8	20,4	16,7	16,5	17,9	17,6	23,7	23,4	26,5	26,6
15	775	756	21,3	21,0	17,2	17,4	18,5	18,4	23,9	23,7	26,9	26,4
16	666	658	21,8	21,5	17,9	17,8	18,9	18,9	24,7	23,8	27,9	27,8
17	610	639	22,3	22,3	18,3	18,4	19,5	19,6	25,0	24,8	28,5	28,1
18	542	499	22,8	22,9	18,4	18,3	19,6	20,0	26,0	26,0	29,7	29,4

3B

Weight change and leisure time physical activity. An 11-years follow-up study of 9,357 healthy, 20-49 years old, normal weighted females – The Nord-Trøndelag Health Study (HUNT), Norway

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Objective: To study the association between self-reported leisure time physical activity at baseline (1984-86) and weight change during an 11-years follow-up period among 20-49 years old, healthy, normal weighted and not pregnant females.

Material and methods: In Norway, a general population based health survey was performed both in 1984-86 (HUNT 1) and 1995-97 (HUNT 2). All data were linked to the personal identification number, enabling linkage of data for each individual. Participants who took part in both HUNT 1 and HUNT 2 were selected for this study. Body weight was used to calculate the weight change in the period from HUNT 1 to HUNT 2. Information about leisure time physical activity (intensity, duration and frequency) was collected at baseline (HUNT 1, 1984-86) and three activity levels were created: high, moderate and low. Women, who at baseline (HUNT 1) reported diabetes, stroke, angina, myocardial infarction and/or long-term illness impairing function in daily life, were excluded. Linear regression analyses were used to adjust for confounding.

Results: In total, 9,357 females were included in the study. Increasing levels of leisure time physical activity was associated with less weight gaining ($p < 0.05$), but not even the high level of leisure time physical activity prevented weight gain. The difference in weight change between low and high level of leisure time physical activity was -0.436 kg (SD 0.169) during the follow-up period after adjusting for age, education, follow-up time and BMI at baseline.

Conclusions: Data demonstrates an inverse association between leisure time physical activity at baseline and reduced weight gaining during the 11-years follow-up period. The study supports that physical activity might be an important weight regulation factor on a population level.

4B

Endring i relativ vekt etter alder

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Formål: Vise endring over 28 år av relativ vekt etter alder, og hvordan endringen er assosiert med andre risikofaktorer for hjerte- og karsykdom blant menn.

Metode: Menn fra Oslo-undersøkelsen 1972/73 som var bosatt i Oslo eller Akershus og som ikke deltok i intervensjonsstudier, ble innkalt til ny helseundersøkelse i 2000. Mennene var i alderen 20-49 år ved første undersøkelse. I alt 5323 menn deltok ved begge undersøkelsene.

Resultater: Etter 28 års oppfølging er det en markant endring i vekt og relativ vekt /BMI i alle aldersgrupper. Korrelasjonsanalyser viser at endring i BMI er sterkest assosiert med endringer i triglyserider ($r = 0,255$) og diastolisk blodtrykk ($r = 0,200$). Resultat fra multippel lineær regresjon bekrefter styrken i assosiasjonen med hensyn på alder, triglyserider og diastolisk blodtrykk. Andre signifikante faktorer er økning i glukose og økning i systolisk blodtrykk. Kolesterolenkende og blodtrykkssenkende medikamenter er negativt assosiert med økende BMI. Økt fysisk aktivitet er negativt assosiert. Det å slutte å røyke er positivt korrelert i motsetning til det å være dagligrøyker.

Konklusjon: Endring i BMI har forekommet i alle undersøkte aldersgrupper og er assosiert med endring i flere andre faktorer. Den store endring i BMI er bekymringsfull m.h.p. økt risiko for diabetes og hjerte- og karsykdom.

5B

Høydeutvikling hos kvinner født i første halvdel av 1900-tallet

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Bakgrunn: Sesjonsdata har vist en betydelig økning i høyde blant norske menn fra begynnelsen av 1900-tallet og frem til ca 1980, mens det for kvinner har manglet gode data for å studere høydeutviklingen.

Formål: Å beskrive høydeutviklingen hos kvinner født i første halvdel av 1900-tallet.

Materiale og metode: Vi har registrert informasjon om alle fødsler ved E.C. Dahls stiftelse i Trondheim i tidsrommet 1920-1958; blant annet mors høyde og hennes sivile og sosiale status. Tidstrender for mors høyde er presentert grafisk, og justert for alder og sivil og sosial status ved bruk av *general linear models*. I tillegg har vi brukt lineær regresjon for å studere sammenhenger mellom fødselsår, sivil og sosial status og høyde.

Resultat: Vi hadde informasjon om 43,373 fødsler og av disse var 19,531 (45%) førstegangsfødsler fra kvinner som selv var født mellom 1876 og 1943. Median alder for førstegangsfødende kvinner var 25 år for hele perioden, men økte fra 23 til 26 år i perioden 1920 til 1940, før den ble redusert til 24 år mot slutten av 50-tallet. Gjennomsnittshøyden blant førstegangsfødende kvinner økte med 4,9 cm fra begynnelsen av 1920-årene til slutten av 1950-årene; fra 158,5 cm til 163,4 cm. Den samme trenden var gjeldende også når vi samholdt høyde med kvinnenens fødselsår; høyden økte fra 158,2 cm for kvinner født før 1890 til 163,5 for kvinner født i 1930 eller senere. Lineær regresjon viste at for hvert fødselsår mellom 1885 og 1940 økte kvinnenens voksne høyde med 0,1 cm. Økningen i høyde ser imidlertid ut til å ha stagnert for kvinner som fødte sitt første barn mellom 1950 og 1958, eller som selv var født i 1930 eller senere. Stratifiserte høydekurver tyder på at kvinner som føder sitt første barn etter fylte 30 år i gjennomsnitt er høyere enn yngre førstefødende kvinner. I tillegg fant vi at kvinner med lav sosial status i gjennomsnitt var 1-2 cm lavere enn kvinner med høyere sosial status, og at ugifte kvinner hadde lavere gjennomsnittshøyde enn gifte kvinner. Disse forskjellene ser imidlertid ut til å bli gradvis mindre utover 1900-tallet.

Konklusjon: Datamaterialet viser en betydelig økning i norske kvinners høyde i første halvdel av 1900-tallet, tilsvarende den man tidligere har funnet hos norske menn. Dataene viser også at ulike sosiale klasser har hatt forskjellig gjennomsnittshøyde, men har likevel hatt tilnærmet samme relative økning i høyde. Den økte høyden man ser utover 1900-tallet gjenspeiler sannsynligvis økt velstand i det norske samfunnet og et mer energirikt kosthold i perioder med lengdevekst.

6A

Dødelighet av hjerteinfarkt blant 65-67 åringer med tidligere hjerteinfarkt

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Formål: Risikoen for hjerteinfarkt er lavere for kvinner enn for menn. Dødeligheten er rundt 6 ganger høyere for menn opp til alder 40 år, 4 ganger høyere opp til 70 år og deretter 2 ganger høyere. Et spørsmål er om denne forskjellen også er til stede hos dem som tidligere har hatt et hjerteinfarkt. Vi studerte dette i en dødelighetsoppfølging av personer som hadde møtt til en hjerte-karundersøkelse.

Materiale og metode: 13 517 menn og kvinner i alder 65-67 år møtte til hjerte-karundersøkelse i Nord-Trøndelag, Møre og Romsdal og Hordaland i perioden 1989-92. Frammøtet var nær 85%. Personene fikk målt blodtrykk, høyde og vekt og avga en ikke-fastende blodprøve og svarte på et spørreskjema. Blant spørsmålene var: Har De eller har De hatt: Hjerteinfarkt?, Angina pectoris (hjertekrampe)?, Hjerneslag?, Suktorsyke?. Personene ble også spurt om de var under medikamentell behandling for høyt blodtrykk. Tre grupper ble definert: 1) De som svarte Ja på spørsmålet om hjerteinfarkt, 2) De som svarte Nei på spørsmålet om hjerteinfarkt og Ja på ett eller flere av de andre spørsmålene og 3) De som svarte Nei på samtlige av disse spørsmålene. Vi justerte for andre variable ved Cox regresjon.

Resultater: Menn har høyere dødelighet enn kvinner i alle de tre kategoriene (tabell 1). Den relative forskjellen er klart minst i gruppen som har hatt hjerteinfarkt. For menn er dødeligheten 7 ganger høyere i infarktgruppen enn i gruppen uten kardiovaskulær historie, mens for kvinner 19 ganger høyere dødelighet. Justering for alle kjente risikofaktorer gir uendret forskjell for menn mens for kvinner reduseres forskjellen litt ned til 15 ganger høyere dødelighet.

Konklusjon: Kjønnforskjellen i infarktdødelighet er nesten opphevet i gruppen som har hatt hjerteinfarkt.

Tabell 1. Dødelighet av iskemisk hjertesykdom hos menn og kvinner 65-67 år.

Har eller har hatt:	Menn				Kvinner			
	Antall	Personår	Antall døde	Per 100 000	Antall	Personår	Antall døde	Per 100 000
Hjerteinfarkt	678	3961	122	3080	214	1265	28	2213
Annen kardiovaskulær sykdom	1699	10588	123	1162	2232	14675	55	375
Ingen kardiovaskulær sykdom	3938	25682	116	452	4756	31175	37	119

7A

Gjør tannverk mer enn vondt?

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Formål: Å studere om tannekstraksjoner er assosiert med hjerte- og karsykdom.

Metode: Menn som tidligere var invitert til "Oslo-undersøkelsen 1972/73" og nå var bosatt i Oslo eller Akershus, ble invitert til ny helseundersøkelse i 2000. I alt 12 675 menn ble invitert til "Andre runde av Oslo-undersøkelsen". Av disse deltok 5 323 menn som hadde deltatt i den første helseundersøkelsen. Mennene var nå i alderen 48 til 77 år. Opplysninger om hjerteinfarkt, hjerneslag, daglig røyking, antall år med utdanning og tannhelse var selvrappert.

Resultater: Av disse mennene hadde 578 menn hatt hjerteinfarkt og 348 hadde hatt hjerneslag. Ved logistisk regresjonsanalyse ble prediksjon av tannekstraksjoner for hjerteinfarkt og slag vurdert. Delta-gerne ble i 2000 spurt om forekomst av ekstraksjoner og årsakene til disse. Her blir vurdert to årsaker som betennelse i tannkjøttet og betennelse i enkelttenner. Det ble kontrollert for kjente risikofaktorer målt i 1972/73 som daglig røyking, total kolesterol og diastolisk blodtrykk i tillegg til antall år med utdanning og alder. Det å ha trukket tenner noen gang uansett årsak predikerte hjerteinfarkt ($p = 0,026$), men ikke slag ($p = 0,37$). Ekstraksjoner ved betennelse i tannkjøttet var ikke en signifikant prediktor for verken hjerteinfarkt eller slag. Ekstraksjoner ved tannverk i enkelttenner var signifikant prediktor for hjerteinfarkt ($p = 0,001$), men ikke hjerneslag ($p = 0,107$). Det er i disse analysene ikke tatt hensyn til om en person har opplevd begge årsaker til ekstraksjon.

Konklusjon: Ekstraksjoner på grunn av infeksjoner i munnen medfører en økt risiko for bakteremi med mulig påvirkning av utvikling av aterosklerotisk plakk og emboli. Resultatene her indikerer en spesiell risiko for hjerteinfarkt ved ekstraksjon av tenner uansett årsak og hvis årsaken er infeksjon i enkelttenner, på linje med kjente risikofaktorer for hjerte- og karsykdom som daglig røyking, høyt blodtrykk og total kolesterol.

8A

Sesongvariasjoner av systolisk og diastolisk blodtrykk.

Helseundersøkelsen i Nord-Trøndelag 1995-97 (HUNT 2)

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Bakgrunn: Sesongvariasjoner av arterielt blodtrykk er rapportert tidligere. Formålet med denne studien var å undersøke hvordan sesongvariasjoner i blodtrykket varierer med alder, blodtrykk, kroppsvekt, kardiovaskulær sykdom, diabetes og subjektiv helseoppfatning.

Metode: Ved HUNT 2 (1995-97) ble blodtrykket målt hos til sammen 64 753 personer i alder 20 år og eldre. I tillegg ble det målt høyde og vekt, og selvrapporterte opplysninger om hjerte- og karsykdommer, diabetes og subjektiv helseoppfatning ble registrert ved hjelp av spørreskjema. Temperatur, nedbør og solskinnstimer ble i toårsperioden fortløpende registrert på to steder i fylket.

Resultater: Både systolisk og diastolisk blodtrykk viste sesongvariasjoner med høyeste verdier om vinteren og laveste om sommeren. Gjennomsnittsvariasjonen fra sommer til vinter var 4,5/3,5 mm Hg hos menn og 3,9/2,4 mm Hg hos kvinner. Blodtrykket varierte inverst i forhold til utendørs temperatur og solskinnstimer. Bivariate analyser viste sesongvariasjoner i alle aldersgrupper og hos personer med og uten hypertensjon, blodtrykksmedikasjon, hjerte- og karsykdommer, diabetes og selvopplevd dårlig helse. For systolisk blodtrykk var det størst sesongvariasjoner hos personer over 60 år og hos personer med blodtrykk i den laveste eller høyeste kvartil. Også ved multivariate analyser var årstid signifikant assosiert med systolisk og diastolisk blodtrykk etter kontroll for relevante confoundere. På samme måte som blodtrykket, var kroppsvekta høyest om vinteren, og sesongvariasjonene i blodtrykket samvarierte med vektendringene.

Konklusjon: Sesongvariasjon av blodtrykket kan muligens delvis forklares av sesongvariasjoner i kroppsvekta. Men for å finne ut i hvor stor grad sesongvariasjoner i kost, mosjonsvaner og kroppsvekt kan forklare sesongvariasjonene i blodtrykk, er det nødvendig med prospektive studier. Sesongvariasjonene bør tas i betraktning ved design og tolkning av longitudinelle studier, og det kan også være aktuelt å vurdere sesongvariasjonene ved diagnostiske rutiner og ved monitorering av pasienter på behandling.

9A

Is myocardial infarction (MI) a risk factor for long-term anxiety and depression?

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Objective: In previous 12-month follow-up studies after myocardial infarction (MI), major depression was highly prevalent (17-22% after one year). Major depression often tends to a chronic/recurrent course, yet to our knowledge there have been few studies on the psychiatric long-term outcome after an MI. Our interest was to explore the risk factors for and the continued course of post-MI depression and anxiety.

Method: The Nord-Trøndelag health study (HUNT) was carried out in 1984-86 (HUNT1) and 1995-97 (HUNT2). All adults aged 19 years and older in Nord-Trøndelag county (n=94 194), Norway, were invited to participate. Respectively 88.4% and 72.3% attended the surveys. We studied 25 205 participants aged 35-79 years without coronary heart disease at the time of HUNT1 who also attended HUNT2. The Hospital Anxiety and Depression rating Scale (HADS), a 14-item self-rating scale, was used to assess the psychiatric symptoms in HUNT2. The cut off on the anxiety (HADS-A) and depression subscale (HADS-D) was 8. We used binary logistic regression in SPSS, p <0.05.

Results: 918 (3.6%) cases reported an initial MI and 1108 deaths (4.4%) were registered due to MI in our cohort between the two surveys. In those who had suffered their first MI less than 5 years ago (n=512), the actual MI was only a modest risk factor (adj. OR 1.18) for post-MI depression, but not anxiety, in both genders. This regardless of a high (n=60) or a low (n=452) depression/anxiety level at the time of HUNT1, no gender difference was observed. However, women had an increased risk for both depression (adj. OR 2.33) and anxiety (adj. OR 2.34) within the first two years after an MI.

Conclusions: Psychiatric morbidity prior to an initial MI is a stronger predictor for long-term or recurrent post-MI depression and anxiety (9-fold) than the actual MI in our study. Men and women also have different levels and patterns of psychiatric symptoms. We suggest that the clinician should pay close attention to female survivors the first two years after an initial MI as well as explore the patient history for possible anxiety and depression prior to the MI in all cases.

10A

Microalbuminuria and all-cause mortality in self-reported hypertensive individuals. A 4.3-year follow-up study

The Nord-Trøndelag Health Study (HUNT 2), 1995-97

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Aim: To examine the association between microalbuminuria (MA) and all-cause mortality in self-reported treated hypertensive individuals.

Materials and methods: We conducted a 4.3-year follow-up of 2,307 men and 3,062 women (≥ 20 years) with self-reported treated hypertension, all identified in HUNT 2 ($n=65,258$). Urine albumin and creatinine were analysed in three morning spot urine samples, and albumin-to-creatinine ratio (ACR) was used as an expression for MA. The main outcome measures were relative risk (RR) of all-cause mortality according to increasing albuminuria, defined at different ACR levels (mean of three ACRs expressed in quartiles and quintiles) and in one, two or three urine samples above the different levels.

Results: During 23,153 person-years of follow-up, 256 men and 237 women died. The RR of all-cause mortality for each quartile compared with the first quartile ($ACR < 0.55$ mg/mmol), was only significantly increased for the fourth quartile ($ACR \geq 1.57$ mg/mmol), RR 1.7 (95% CI 1.2–2.4), analysing men and women combined. Separating men and women, the fourth quartile was significantly increased compared with the first quartile in men ($ACR \geq 1.70$ mg/mmol), RR 1.7 (95% CI 1.1–2.6), but not in women ($ACR \geq 1.48$ mg/mmol), RR 1.6 (95% CI 0.9–2.7). When comparing each quintile with the first quintile ($ACR < 0.50$ mg/mmol), RR of all-cause mortality was also significantly increased in women for the fifth quintile ($ACR \geq 1.75$ mg/mmol), RR 2.0 (95% CI 1.1–3.6). The RR significantly increased with three urine samples above the different ACR levels. The lowest ACR level associated with increasing mortality applying three urine samples was the 20th percentile ($ACR \geq 0.50$ mg/mmol), RR 1.6 (95% CI 1.0–2.6), analysing men and women combined. Separating men and women, a lower ACR level was associated with all-cause mortality in men (25th percentile = 0.56 mg/mmol), RR 1.6 (95% CI 1.0–2.6), than in women (50th percentile = 0.84 mg/mmol), RR 1.5 (95% CI 1.0–2.3). One and two ACR above the different levels did not show significant increase in RR, except in men with one and two ACR above the fifth quintile (2.09 mg/mmol) compared to the four lower quintiles, and in men with one ACR above the fourth quartile (1.70 mg/mmol) compared to the three lower quartiles.

Conclusions: This study confirms the association between all-cause mortality and MA in self-reported treated hypertensive persons. The lowest ACR level associated with all-cause mortality, applying three urine samples with ACR above the chosen level, was lower in men than in women and might reflect the difference of cardiovascular risk. So far, no clinical trials have demonstrated treatment effect on morbidity and mortality at such low ACR levels. Before clinical cut-off level is established, clinical trials are necessary.

11A

Microalbuminuria and all-cause mortality in apparently healthy individuals. A 4.4-year follow-up study

The Nord-Trøndelag Health Study (HUNT 2), 1995-97

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Aim: To examine the association between microalbuminuria (MA) and all-cause mortality in non-diabetic/non-hypertensive individuals.

Materials and methods: We conducted a 4.4-year follow-up of 972 men and 1117 women (≥ 20 years) without diabetes and treated hypertension, randomly selected from HUNT 2 (n=65,258). They all delivered three morning spot urine samples where urine albumin and creatinine were analysed. Albumin-to-creatinine ratio (ACR) was used as an expression for MA. The main outcome measures were relative risk (RR) of all-cause mortality according to increasing albuminuria, defined at different ACR levels and in one/two or three urine samples.

Results: During 9,238 person-years of follow-up, 41 men and 24 women died. The lowest ACR level associated with increasing mortality was the 60th percentile (≥ 0.76 mg/mmol), analysing men and women combined (RR 2.4 (95% CI 1.1–5.2)). Separating men and women, a lower ACR level was associated with all-cause mortality in men (0.87 mg/mmol) than in women (1.07 mg/mmol). The RR significantly increased with three urine samples above the different levels. The RR was highest with three ACRs above the 95th percentile (≥ 2.50 mg/mmol), RR 5.4 (95% CI 1.8–16.2) in men and RR 11.2 (95% CI 2.8–45.4) in women. The specificity decreased successively to the lowest level significantly associated with increased mortality, the 75th percentile in men and in women, 0.87 mg/mmol and 1.07 mg/mmol respectively, RR 3.8 (95% CI 1.3–11.0) in men and RR 4.2 (95% CI 1.5–11.9) in women. Due to few cases, one and two ACR above the chosen cut-off levels were analysed combined, and did not show significant increase in RR, except in men at 90th percentile (1.54 mg/mmol), RR 4.6 (95% CI 1.4–14.9), and 80th percentile (0.98 mg/mmol), RR 3.8 (95% CI 1.2–12.7). This might reflect the general higher cardiovascular risk in men compared to women.

Conclusions: This study confirms the association between all-cause mortality and MA in non-diabetic/non-hypertensive individuals. The lowest ACR level associated with all-cause mortality was lower in men than in women and might reflect the difference of cardiovascular risk. So far, no clinical trials have demonstrated treatment effect on morbidity and mortality at such low ACR levels. Before clinical cut-off level is established, clinical trials are necessary.

12A

Mikroalbuminuri og kardiovaskulære sykdommer/risikofaktorer hos ikke-diabetiske blodtrykkspasienter

Helseundersøkelsen i Nord-Trøndelag 1995-97 (HUNT 2)

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Bakgrunn: Mikroalbuminuri (MA) er en vel etablert risikofaktor hos diabetikere, mens studier av MA hos blodtrykkspasienter har vist sprikende resultater, bl.a. fordi studiene har omfattet relativt små og selekterte pasientgrupper, det er brukt ulike målemetoder, og definisjonen av MA har variert. Formålet med denne studien var å studere assosiasjonen mellom MA og kardiovaskulære sykdommer og risikofaktorer hos blodtrykkspasienter i en stor uselektert populasjon.

Materiale og metode: Ved Helseundersøkelsen i Nord-Trøndelag 1995-97 (HUNT 2) ble alle innbyggerne i fylket 20 år og eldre invitert ($n = 92703$), og 65258 personer (70,4%) deltok. De som oppga at de hadde diabetes eller høyt blodtrykk og et 5% tilfeldig utvalg, til sammen 11 661 personer, fikk utlevert prøvetutstyr og informasjonsmateriell og bedt om å sende inn tre morgen-urinprøver fra tre ulike dager for måling av MA og kreatinin. Til sammen 7199 personer oppga at de brukte blodtrykksmedisiner på tidspunktet for undersøkelsen. 765 personer som oppga at de hadde diabetes ble ekskludert. Av de resterende 6434 pasienter returnerte 5755 pasienter (89,4%) tre urinprøver. De som hadde urinvegsinfeksjon, hematuri eller menstruasjon ble også ekskludert, slik at 5369 pasienter inngikk i studien, 2307 menn (gjennomsnittsalder 64,3 år) og 3062 kvinner (gjennomsnittsalder 66,7 år). Som indikator for albuminekskresjon har vi brukt albumin kreatinin ratio (ACR).

Resultater: Prevalensen av MA var 13,7% (11,6% hos kvinner og 16,6% hos menn), definert som $ACR \geq 2,5$ i gjennomsnittet av tre urinprøver. Prevalensen hadde en U-formet assosiasjon med alder hos begge kjønn. $ACR \geq 2,5$ var signifikant assosiert både med systolisk og diastolisk blodtrykk og med middelarterietrykk og pulstrykk. Ved multivariate analyser var det (i ulike modeller) signifikant assosiasjon med blodtrykk (systolisk, diastolisk, middelarterietrykk og pulstrykk) og med alder, HDL kolesterol, serum kreatinin, røyking, glukose, liv/hofte-ratio og gjennomgått hjerte- og karsykdom.

Konklusjon: Resultatene viser at i denne store, uselekterte populasjonen av blodtrykkspasienter var MA assosiert ikke bare med blodtrykk og nyrefunksjon, men også med flere andre risikofaktorer for hjerte- og karsykdommer. Dette understøtter hypotesen om at MA ikke bare er en indikator på nyreaffeksjon, men er assosiert med generell økt risiko for hjerte- og karsykdom.

6B

The effect of World War II on the risk of colorectal cancer in the Nordic countries

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A recently performed Age-Period-Cohort (APC) modelling of Norwegian colorectal cancer incidence data for the period 1958-97 indicated that the risk for the disease was reduced for those being born before or during World War II (WWII). This was consistent for all sub-sites (proximal and distal colon and rectal cancer) and both genders. Since all the Nordic countries (except Iceland) were more or less affected by the war, it was reasonable to study whether a “war-effect” was present also in the other Nordic countries. Data from the respective national cancer registries were obtained, and a similar kind of analysis was performed.

The preliminary results (AC-modelling) indicate that a similar risk reduction related to WWII is also present in the other Nordic countries (except Iceland). The effect, however, is not as consistent as in Norway since it is not observed for all sub-sites in both genders. The magnitude of the “war-effect” is present in the following decreasing order: Norway > Denmark > Sweden > Finland.

These findings support our hypothesis that conditions prevailing during WWII provided a protective effect against colorectal cancer to a certain extent in all these countries. Our results are analogous to previously published results that the testicular cancer risk is reduced for those being born during WWII, both in Norway, Sweden and Denmark. The mechanisms underlying our observations are unclear, but it is most likely attributable to nutritional conditions. The average calorie intake during WWII dropped with about 25% in Finland and Norway, whereas the reduction in Sweden and Denmark was only about 5%. This gradient deviates somewhat from the magnitude of the “war-effect” and thus indicates that a general energy restriction is not able to fully explain our findings.

Another important factor to consider, is the altered balance between the food components that took place during WWII. A consistent change in both Norway, Sweden, Denmark and Finland, was a reduced intake of fat, sugar, and meat and an increased intake of vegetables and potatoes. Other components were affected less consistently, such as fish intake, which increased more than two-fold in Norway whereas the other Nordic countries showed only a small increase in this regard.

In conclusion, the observed effect of WWII on the risk of colorectal cancer indicates that exogenous risk factors acting very early in life may play a more important role for this cancer form than previously recognised.

7B

Anxiety and depression as risk factors for development of cancer

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Aim: The aim of the present study is to test the hypothesis that anxiety and depression is a risk factor for development of cancer.

Material: Anxiety and depression was measured using the Hospital Anxiety and Depression Scale (HADS) in the HUNT-II study in Nord-Trøndelag County, Norway, in 1995-97. HUNT-II was a population-based health study for the entire adult population (N=62591), with good participation rate (68%). Cancer was identified using the National Cancer Registry.

Methods: Episodes with cancer was included only if diagnosis was established after attendance to HUNT-II. Logistic regression analysis was used with adjustment for previous known cancer, age and gender.

Results: Of the participants in HUNT-II (N=62591), 2161 persons was registered with reliable cancer diagnosis in the follow-up period, and additionally 849 with unreliable diagnoses. HADS anxiety and depression in HUNT-II was predictors of unreliable cancer diagnoses, but not reliable diagnoses (adjusted OR=1.29 and 1.24 respectively).

Discussion: It is from the literature not clear whether anxiety and depression are risk factors for cancer, and the present study does not settle this question.

8B

Risk factors for cervical cancer in Mozambican women

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Objective: Cervical cancer is the leading cause of death from cancers among women in developing countries. The etiology of cancer of the cervix has been described in many populations of the world, but very few researchers have targeted sub-Saharan Africa. The principal objective of the study was to identify characteristics of women of high risk of developing cervical cancer.

Material and methods: A hospital-based case-control study of 113 women with invasive cervical cancer and 120 control women free of any cervical malignancy, enabled evaluation of risk factors.

Results: This study supports the findings of previous research that excess risk is associated with multiple sexual partners, early first sexual intercourse, multiparity, and low socioeconomic status. Women with more than six sexual partners, initiation of coitus \leq 15 years of age, and parity of five or more were at significantly elevated risks. Low educational attainment was found to have independent effect on risk for cervical cancer.

Conclusions: Differentials in reproductive history, sexual behavior and socioeconomic status can explain some of the variations in cervical cancer prevalence. Cancer cervix is a preventable disease with a readily detectable and treatable precursor stage. Handling cervical cancer in impoverished countries least equipped to deal with this disease, may seem like a daunting exercise, but the implementation of simplified screening programs, coupled with health education may be practicable measures for reducing the prevalence of cervical cancer.

9B

Miljø og lungekreft i en kohort Oslomenn

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Formål: å studere miljøforholds betydning for utviklingen av lungekreft i en kohort Oslomenn.

Materiale og metode: I 1973 deltok 16209 40-49 år gamle Oslomenn i en undersøkelse om risikofaktorer for hjerte/karsykdommer. I den forbindelse ble blant annet deltageres røykevaner og type arbeid registrert. Disse data har blitt koblet sammen med data fra Kreftregisteret om lungekreftutviklingen blant deltagerne i perioden 1973 til 1998 og med data fra Statistisk sentralbyrå om utdanning. Videre har Norsk institutt for luftforskning beregnet årlig nivå av luftforurensning på deltageres hjemsted i perioden 1972 til 1995. Sammenhenger mellom miljøforhold og lungekreft er analysert ved hjelp av Cox regresjon.

Resultater: Foreløpige analyser viser at ved slutten av 1998 hadde 422 menn i kohorten utviklet lungekreft. Bare 5 av disse var registrert som ikke-røykere. Å røyke 20 sigaretter per dag i 1972 medførte etter justering for andre forhold en relativ risiko for å utvikle lungekreft på 35,5 (95% konfidensintervall (KI) 14,6–86,7) sammenlignet med ikke-røykere. Å være eksponert for et årlig gjennomsnitt på mer enn 30 $\mu\text{g}/\text{m}^3$ nitrogenoksyder (NO_x) i perioden 1973-78 var positivt assosiert med risikoen for å utvikle lungekreft (justert relativ risiko 1,4, 95% KI: 1,0–1,8) sammenlignet med en gjennomsnittlig eksponering på $< 10 \mu\text{g}/\text{m}^3$. Utdanningsnivå var også en risikofaktor for å utvikle lungekreft (justert relativ risiko 0,6, 95% KI: 0,4–0,9) når man sammenlignet personer med 12 år eller lenger utdanning med personer med mindre enn 10 års utdanning.

Konklusjon: Røyking var som ventet den dominerende risikofaktoren for å utvikle lungekreft, men analysene viste også at lungekreft var assosiert med luftforurensningsnivået på deltageres hjemsted på 1970-tallet og til deres utdanningsnivå.

10B

Smoking rates and trends in lung cancer incidence among young Norwegian men and women

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Trends in lung cancer incidence in young adults may be of interest as an indicator of future risk. Limited information is available on the relationship between these trends and historical smoking habits.

Between 1954 and 1998, a total of 1108 cases of lung cancer, exclusive of carcinoid tumours, were reported to the Cancer Registry of Norway in individuals aged 20-44 years. Temporal variations were studied in age and sex specific incidence rates, in age-adjusted rates, and by means of age-period-cohort modelling. The association between cancer incidence and smoking prevalence in birth cohorts was evaluated at an aggregated level.

In women aged 35-44, a pronounced rise in incidence was found throughout the whole study period, whereas the rate in men of the same age was quite stable during the last 30 years. Female lung cancer incidence is catching up with that of men. Age-cohort models were sufficient to provide an adequate fit to the data among men, and the cohort parameter also contributed significantly among women. For men and women separately the proportion of cigarette smokers aged 40-44 was fairly constant for all birth cohorts. However, the lung cancer incidence rate at this age was highly correlated to the proportion of teenage smokers within the corresponding birth cohorts ($r > 0.82$).

Conclusions: The lung cancer incidence rate in young Norwegian women now equals that of men. In addition to age, there are characteristics of each cohort that seem to predict lung cancer incidence. The finding of a high correlation between cancer incidence and the proportion of teenage smokers is in agreement with earlier findings that smoking is a risk factor for lung cancer early in life, and that duration, and hence the age of onset of smoking, may be important.

11B

Alcohol consumption in relation to mammographic patterns

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Introduction: Several studies have shown a dose dependent association between alcohol consumption and breast cancer. From etiologic research we know that high-risk mammographic patterns may be used as a surrogate endpoint for breast cancer. Recently, a positive relation between alcohol consumption and mammographic patterns has also been suggested.

Materials and methods: We examined the association between alcohol consumption and mammographic patterns among 3,251 Norwegian women, aged 40-56, participating in the Third Tromsø study (1986-87). Standardized measurements of height and weight were recorded. Epidemiological data were collected from two questionnaires. The first was filled out at the screening facility and the second at home. The following five questions from the latter questionnaire were utilized: a) are you a teetotaler (yes/no); frequency of intake of b) beer, c) wine, and d) spirits, graded 1-5 (never or just a few times a year, once or twice a month, about once a week, 2-3 times a week, more or less daily); e) frequency of heavy consumption during the last year, i.e. intake of the amount of alcohol corresponding to at least one bottle of wine, graded 1-4 (not at all the past year, a few times, once or twice a month, 3 or more times a week). Women reporting to drink daily were grouped with women reporting drinking alcohol two to three times a week. The mammograms taken were categorized into five groups based on anatomic-mammographic correlation (Tabar classification). For analysis, patterns I through III were combined into a low-risk group and patterns IV and V into a high-risk group. Univariate and multivariate analyses were performed on all women combined and were also stratified by menopausal status. Odds ratios (OR) are given with 95% confidence interval (CI).

Results: Among pre- and postmenopausal women 11.5% and 21.4% reported to be teetotalers, respectively. Using teetotalers as the referent group a crude positive association between reported alcohol consumption and mammographic patterns was present for all the four drinking categories. These associations weakened when adjusted for the following confounders: age, body mass index, age at 1st pregnancy, parity, menopausal status, current smoking, and physical activity. Among postmenopausal women, those reporting alcohol consumption once or twice a month were twice as likely (OR=2.05, 95% CI 1.23–3.40) to have high-risk mammographic patterns compared to those reporting to be teetotalers. However, no dose-response association was revealed between reported alcohol consumption and high-risk mammographic patterns.

Conclusions: Our study did not show any consistent association between reported alcohol consumption and high-risk mammographic patterns. This may be due to chance, or the fact that very few women in our study reported to be heavy drinkers. Also, the previously shown association between alcohol consumption and breast cancer may be due to a biologic mechanism that do not involve mammographic patterns.

12B

Nytten av mammografiscreening evaluert ved sekundær litteratur

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Formål: Formålet er å vurdere nytten av mammografiscreening (MS) ved redusert brystkreft død og eventuelle negative konsekvenser av screening. Bakgrunnen er diskusjoner om nytten av MS, er MS å anse som et veletablert helsetiltak for kvinner i aktuell alder og er den informasjonen kvinnene får i tråd med best mulig kunnskap.

Metode: Senter for medisinsk metodevurdering ble anmodet av Sosial- og helsedirektoratet etter samråd med Nasjonalt råd for prioriteringer i helsevesenet om å utføre en vurdering av nytten av MS. Tiden var begrenset og rapporten ble basert på grunnlag av sekundærlitteratur (metaanalyser/systematic reviews). Grunnlaget for denne litteraturen var 7 randomiserte studier. Resultater i metaanalyser mhp. brystkreft død og total død ble vurdert. Absolutte og relative verdier ble vektlagt. Økonomiske forhold ble kartlagt. Områder som ikke ble evaluert pga. tidsrammen var kvinners reaksjoner og livskvalitet, overbehandling, endring av screening intervall m.m. Data fra primærstudiene ble ikke reanalyisert. Utkastet til rapporten ble peer reviewed av norske og nordiske eksperter.

Resultater: MS påvirker ikke kvinners totale dødelighet. I aldersgruppen 50-69 år gir metaanalysene et estimat på effekt på 6-27% i reduksjon på brystkreft dødelighet. I aldersgruppen 40-49 år er effekten mindre og ikke signifikant. Det er få norske kostnadsanalyser. En femtedel av kreftilfellene blant deltagere i screeningprogram er intervallkreft (kreft som diagnostiseres mellom to screeninger). Falske positive mammografier øker med antall screening runder. Mammografi oppdager flere forstadier/tidlig kreft som ductalt carcinoma in situ (DCIS), og prognosen for DCIS er usikker.

Konklusjon: Gjennomgang av metaanalyser mhp. brystkreft død ved deltagelse i MS studier viser nytte for aldersgruppen 50-69 år, men ikke like stor nytte for 40-49 år gamle kvinner. Total død er ikke påvirket av MS. Kvinner må informeres om risiko for interval cancer og forekomst av falskt positive mammogram.

13A

Regionale forskjeller i bentetthet i Oslo

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Formål: Oslo har de høyeste ratene av hoftebrudd og underarmsbrudd som noen gang er påvist internasjonalt. Også i forhold til andre steder i Norge, ligger bruddhyppigheten i Oslo høyt. Eksempelvis er risikoen for hoftebrudd 50% større i Oslo sammenlignet med Sogn og Fjordane og Nord-Trøndelag (upubliserte data). Det er også innad i Oslo påvist geografiske forskjeller i hoftebrudd, med de høyeste bruddratene i Oslo indre øst, og de laveste i vestlige bydeler. Målet med denne studien er å undersøke om det er øst-vest forskjeller i benmasse i Oslo som kan være med å forklare tidligere viste forskjeller i bruddhyppighet.

Material og metoder: I forbindelse med Helseundersøkelsen i bydeler og regioner i Oslo (HUBRO) ble benmassen målt i underarmen på tilfeldige kjønns- og aldersspesifikke utvalg blant personer i alderen 30 år, 40 år, 45 år, 60 år og 75 år, totalt 2190 personer. Målingene ble gjort med apparatet av typen Single X-ray Absorptiometry (SXA). Vi har i denne analysen inkludert norske kvinner i alderen 40 år, 45 år, 60 år og 75 år, i alt 702 kvinner. Oslo ble delt inn i fire regioner – indre øst, ytre øst, indre vest og ytre vest – en inndeling som tilsvarer den som ble brukt i ”Oslohelsa” fra 1998. Sammenligningen av gjennomsnittlig bentetthet i regionene ble foretatt ved variansanalyse justert for alder.

Resultater: Hos kvinnene som deltok i undersøkelsen var gjennomsnittlig bentetthet signifikant lavere hos de som bor i Oslo øst enn blant de som bor i Oslo vest ($p = 0,001$). Forskjellen i bentetthet tilsvarer den forskjellen som tidligere er funnet mellom kvinner i Nord-Trøndelag og i Oslo.

Konklusjon: Resultatene er foreløpige, men antyder at forskjeller i bentetthet kan bidra til å forklare regionale forskjeller i bruddhyppighet i Oslo.

14A

Elderly women – fall predictors

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Aims: In the elderly, balance and walking impairments are assumed to play an important role in causing falls. We have assessed prospectively the predictive ability of health, function and balance variables regarding falls and their location.

Material and methods: Falls which occurred during one year in a random sample of 307 women aged 75 years and over (mean 80.8 years, response rate 74.5%), living in the community, were recorded, and related to base-line registrations of health, medication and tests of walking and balance.

Results: In all, 155 women (50.5%) reported 308 falls. Outdoor falls were significantly more frequent than indoor falls (57.5% vs. 42.5%). The variables having had a fall before the start of the study, osteoporosis, hypertension, feeling depressive, unable to climb 40 cm high steps and walking slowly all independently predicted a higher number of falls overall. Regarding fall location, having experienced a fall before study start was associated with more falls indoors as well as outdoors. Vision impairment, symptoms of depression, a faster comfortable walking speed, and being able to cope with higher steps were all independent predictors of more outdoor falls also after adjustment for outdoor exposure. A slower comfortable walking speed, a higher amplitude of the centre of pressure movements in the frontal plane, a poorer score on the timed up & go test, multimorbidity, poor cognition and hypertension were independent risk factors for indoor falls. Neither number of drugs used nor any specific medication appeared as independent risk factors of falls in this study.

Conclusions: Indoor and outdoor falls in the elderly are predicted differently. Location of fall is an important confounder in studies of predictors of falls in the elderly which should encompass this type of information.

15A

Compliance in the use of external hip protectors – An intervention in 17 nursing homes in two municipalities in Norway

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Aim: Norway has one of the highest incidences of hip fracture in the world, and it has increased during the last decades. Globally the number of hip fractures will increase significantly if we do not manage to improve the work of prevention. Since use of hip protectors in high risk groups has shown significant reduction in the number of hip fractures, the present project introduced hip protectors into 17 nursing homes in two municipalities outside the capital of Oslo as a regular part of the health care for the residents. Studies have shown that the acceptance and daily use of the hip protector often may be low because many elderly find the protector uncomfortable by resting and difficult by clothing and undressing. The aim of the present study was to analyze the information relating to compliance of the hip protector in the intervention project. We wanted to compare the acceptance of the hip protector in the different nursing homes and to analyze the length of time until the users gave up the hip protector or were censored.

Method: The health care authorities offered hip protectors, free of charge, to residents in 17 nursing homes in Asker and Bærum including totally 965 beds, from March 1998 to December 1999. The project manager instructed the employees on how to implement hip protectors in their nursing home, and provided ongoing motivational activities aimed at encouraging and supporting their participation. The employees filled out questionnaires about the use of hip protectors and about falls among the residents continuously. The head project manager had a contact person among the employees in each nursing home. They were physiotherapists or nurses. Logistic regression was used to study use/non-use controlled for age and sex. Kaplan-Meier curves were used to study and compare the length of time that the residents continued to be a daily user of the hip protector. By means of Cox regression the comparison between different groups of nursing homes was controlled for sex and age.

Results: Women had a higher degree of acceptance of the hip protector than men, however, the difference was non-significant when controlled for age. The difference between men and women in the probability of continued use of the hip protector among the users was not statistically significant. The percentage daily users of the hip protector varied from 35% in the first months to 22% at the end of the period. Around 40% of the users used the protector continually. Nursing homes with a physiotherapist as the contact person showed better compliance than nursing homes with a nurse as the contact person.

Conclusions: The employee's attitude to the hip protector is important for the compliance. It is important to encourage the daily users of the hip protector to use the protector continually. An effort must be to produce hip protectors that are comfortable and easy to use and at least as protective as the ones we have utilized in the present project.

16A

Helseundersøkelsen i Oslo: Konsekvenser av å leve med diagnosen osteoporose

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Formål: Enkelte fagfolk har de senere år reist spørsmålet om risikofokusering og screeningprogrammer kan ha uheldige sider. Kan denne type medisinsk praksis bidra til lavere livskvalitet og dårligere selv-vurdert helse? Ved hjelp av data fra Helseundersøkelsen i Oslo (2000-2001) har vi undersøkt subjektiv helse blant de deltakere som oppgir å ha osteoporose og som virkelig har osteoporose i henhold til WHO-kriterier for sykdommen – versus de som har like lav benmasse, men som ikke vet at de har osteoporose.

Material og metoder: I forbindelse med Helseundersøkelsen i bydeler og regioner i Oslo (HUBRO) ble benmassen målt i underarmen på tilfeldige kjønns- og aldersspesifikke utvalg blant personer i alderen 30, 40, 45, 60 og 75 år, samt på et større utvalg av 59 årige kvinner, totalt 2694 personer. Målingene ble gjort med apparatet av typen Single X-ray Absorptiometry (SXA). Vi har i denne analysen inkludert norske kvinner i alderen 59/60 år og 75 år, i alt 857 kvinner. Materialet er analysert ved hjelp av krysstabulering og logistisk regresjon.

Resultater: Av de 98 kvinnene som svarte at de hadde osteoporose, hadde 56 (57,1%) en benmasseverdi som tilsa osteoporose (= t-score $\leq -2,5$ standardavvik i forhold til gjennomsnittet for premenopausale kvinner) (gruppe A). Av de 716 personene som sa at de ikke hadde osteoporose, hadde 152 (21,2%) en benmasseverdi som tilsa osteoporose (gruppe B). 43 av de undersøkte hadde ikke svart på spørsmålet om osteoporose. Det var større andel i gruppe A (62,5%) enn i gruppe B (36,1%) som oppga dårlig/ikke helt god helse på spørsmålet "Hvordan er helsen din nå?" Etter eksklusjon av kvinner som hadde hatt brudd i lårhals (n=22), brudd i håndledd/underarm (n=218) og kvinner som rapporterte sterke smerter i korsrygg (n=92)/øvre del av ryggen (n=59) i løpet av de siste 4 ukene, var de tilsvarende prosentene 78,6 og 29,0. Sammenlignet med gruppe A var det statistisk signifikant høyere OR (aldersjustert) for å ha god subjektiv helse i gruppe B, både uten – og med eksklusjon av dem med tidligere brudd og nå-værende ryggmerter.

Konklusjon: Av kvinner som fikk påvist en bentetthet under grensen for diagnosen osteoporose, hadde en større andel av de kvinnene som kjente til at de hadde osteoporose, enn dem som ikke visste det – dårlig subjektiv helseoppfatning. Mulige forklaringer på denne sammenhengen vil bli diskutert.

17A

Association between use of inhaled corticosteroids and bone mineral density in subjects with asthma diagnosis or asthma related symptoms

The Bronchial Obstruction in Nord-Trøndelag Study (BONT)

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Background: Inhaled corticosteroids (ICS) are recommended for regular treatment of patients with persistent asthma. Although systemic exposure is low with use of ICS, there is concern about adverse effects on bone metabolism.

Objectives: To study the association between use of ICS and bone mineral density (BMD)

Methods: All residents aged ≥ 20 years (92,000), of the Nord-Trøndelag County, Norway, were invited to a health study, HUNT 1995-97. A 5% random sample and those who in the main questionnaire reported ever having had asthma, ever having used asthma medication, or asthma symptoms during the last 12 months, were invited to the BONT study phase I. This consisted of bone densitometry of the forearm, flow volume spirometry and interview with focus on respiratory symptoms and asthma medication.

Results: Totally 8.624 subjects were included based on report of asthma, asthma related symptoms or use of asthma medication. Some 2.113 subjects reported ever use and 1.516 subjects use during the last 6 months of ICS. Totally 663 subjects reported daily doses during the last week ≥ 800 μg and 917 subjects reported having used ICS ≥ 5 years. The median estimated cumulative dose was 730 mg and 876 mg in women and men, respectively. Compared to never users of ICS, we found 2% lower BMD in those reporting only use of ICS, and 6% lower BMD in those reporting more than six months use of oral corticosteroids ($p < 0.01$). We did not find any dose response effect on BMD, neither of duration, dose, nor cumulative dose of ICS.

Conclusions: In this population with mostly use of moderate doses of ICS, ever users of ICS had lower BMD compared to never users. However, the lack of dose response effect might indicate that other characteristics of this patient group contribute to lower BMD.

13B

On the use of ecological analysis in epidemiology

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The effects of confounders make many researchers sceptical about the usefulness of ecological analysis in epidemiology. The "ecological fallacy" is another difficulty. This concept indicates that associations obtained for disease rates in groups of patients versus environmental parameters may not be valid for individuals. The paper discusses such problems based on examples from Norway and China. In Norway high rates of *multiple sclerosis* in the inland are associated with high contents of Rn in indoor air and low fallout of Mg with precipitation. In China extremely high rates of *nasopharyngeal carcinoma* in the South-Eastern parts of the country are associated with high levels of Th and U as well as with low contents of Mg, Ca and Sr in the soil. These associations point to the possibility that naturally occurring radioactive elements may be risk factors in both these cases. Such hypotheses for two diseases with incompletely known aetiology should be followed up by case control studies instead of rejecting them offhand as a result of confounders or sheer coincidence.

14B

Classifying people by social class in population based health surveys – two methods compared

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Aims: In this study we evaluate the accuracy of a reclassification from a 10-category questionnaire-based occupational classification used in health surveys into the Erikson Goldthorpe Portocarero (EGP) social class scheme, by comparing it to the standard procedure based on occupational codes. Comparisons are based on socioeconomic inequalities in self rated health.

Methods: Individual data on occupation and health in a Norwegian cross sectional total county population, The Nord-Trøndelag Health Study (HUNT) in 1984-86, was linked to 1980 national census occupational code data from Statistics Norway. A cross tabulation comparison of two classification methods was done using Kappa statistics. Inequalities in health were measured by logistic regression models. The study population was economically active men aged 20-59 years.

Results: 57% of all respondents were assigned to the same social class in both social class schemes, 23% of the respondents were classified to the nearby classes, Kappa = 0.47 suggested moderate agreement. The value of Kappa was 0.66, suggesting good agreement, for the most occupationally stable groups using three broad social classes in the analysis. Differences in health inequalities measured by the two different elaborated social class schemes were small. The prevalence odds ratio between social class V+VI+VII versus I+II for *self perceived health less than good* was 2.11 (1.86, 2.38) using the HUNT reclassification method, and 2.07 (1.88, 2.32) using the Nordic Occupational Classification (NYK) reclassification.

Conclusions: Reclassification into the EGP social class scheme from a 10-category occupational classification used in population based questionnaire showed moderate to good agreement compared to the more resource demanding standard method. Fairly similar health inequality estimates were found in the two methods.

15B

Bias from dependent error of information in observational studies

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Background: Macleod et al (BMJ 2002; 324: 1247-51) found self-reported stress (Reeder stress inventory) to be associated with subsequent cardiovascular disease if the diagnosis was based on self report (Rose angina) but not when the diagnosis was based on objective readings (ECG). The association between self-reported determinant and outcome could be biased from dependent error (degree of error in one variable being dependent on degree of error in the other variable). Bias from dependent error is probably not uncommon but is not well described in the literature. My objective was to explore the impact of dependent error in a hypothetical data set.

Methods: A set of 100 000 data were generated randomly for the independent variable E and the dependent variable D in SPSS. Both variables were normally distributed (mean=0, SD=1). A random 10% sample were assigned values that were 1 SD higher than true values for E and D (mimicking "yes-set" responders), another random 10% were assigned E and D values 1 SD lower than true values ("no-set" responders). Linear regression coefficients (β) in "true" and manipulated data sets were compared. E and D were also dichotomized (exposed if E value was higher than 1 SD above mean; diseased if D was higher than 2 SD above mean). Odds ratio (OR) estimates in sets of true and manipulated data were compared.

Results: β in the true data set was 0.002 (-0.004 to +0.008). Manipulated data with dependent non-differential error yielded a $\beta = 0.17$ (0.16 to 0.18). Dichotomous data showed that the OR in the true and manipulated data sets were 1.0 (0.9 to 1.1) and 2.2 (2.0 to 2.3), respectively.

Discussion: Dependent error under realistic assumptions is likely to produce bias with an inflated positive association between determinant and outcome. The core problem of dependent error is the common source of information on the two variables, which could occur in studies where data on main determinant and outcome both are based on self report. This situation is not too uncommon in different fields of epidemiology. A presupposition for bias from dependent error is that reporting correctness of both determinant and outcome is influenced by variability in population reporting threshold ("yes-set" and "no-set" responders). Such variability need not be specifically related to the study question. It is worth considering that both "yes-set" and "no-set" responses contribute to the bias. Furthermore, serious bias may result from data of high quality from a descriptive point of view (which was the case for the manipulated data in the hypothetical example). The Macleod et al results is plausibly an example of bias from dependent error: self-reported determinant and outcome produced a strong positive association that vanished when objective outcome data were chosen; Rose angina is influenced by "yes-set" responders; finally, it is likely that Reeder stress is influenced by population threshold variation. The only way to avoid bias from dependent error is to break the common link between data on determinant and outcome, i.e., to gather data on the two from different sources. The Macleod et al results could, in addition, be biased from lack of construct validity in the Reeder and Rose questionnaires. Quite other measures would be needed to avoid such bias (improving validity of the two questionnaires).

16B

Fractal analysis of a matched case-control study

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Background: Hosmer and Lemeshow, in their textbook on logistic regression analysis (1), presented a matched case-control study about risk factors that may be associated with benign fibrocystic disease of the female breast. By means of the data-set one can i.e. test the hypothesis that age at first pregnancy (AGP1) is associated with fibrocystic disease. Using data for the case and first control in logistic regression analysis gives $OR=1.07$ with 95% CI (0.95–1.21). The hypothesis must in other words be rejected. If, however, one includes all matched controls, the hypothesis is weakly corroborated with $OR=1.14$ with 95% CI (1.03–1.27). Epidemiology has been criticised for the use of weak study designs that yield inconsistent results, particularly the case-control-design. We have applied a novel analytic approach based on principles of fractal mathematics (2-3) on the Hosmer and Lemeshow material.

Material: The data are presented in Appendix 5 of (1). This material consists of sets of one case and three controls matched for age, altogether fifty sets presented as a roster. Cases are women with a biopsy-confirmed diagnosis of fibrocystic disease. The healthy controls were selected from among other women admitted to the hospital. AGP1 is given in whole years.

Methods: Fractal investigation utilizes a set of methods aimed at disclosing fractal characteristics of e.g. time-series of observations. Detrended fluctuation analysis, i.e. DFA, is the method used to determine the power-law exponent denoted self-affinity parameter (α). The non-euclidean dimension is $D = 2 - \alpha$ (4) and the β -exponent of power spectrum $S(f) = 1/f^\beta$ is $\beta = 2\alpha - 1$. Fractal investigation also includes Zipf's power-law test.

Results: It follows from the DFA analysis that α is 0.56 with 95% CI (0.45–0.68) for the series of AGP1-values of cases while it is 0.80 with 95% CI (0.65–0.94), 0.74 with 95% CI (0.63–0.85), and 0.75 with 95% CI (0.63–0.86) for the first, second and third AGP1 control-series, respectively. The non-euclidean dimension is close to 1.50 for the case-series and varying around 1.25 for the three AGP1 control-series. The four AGP1 series are therefore fractals. The power spectrum for the case-series is $S(f)=1$ with $\beta=0$ when α is set to 0.5 because its 95% CI includes 0.5. For the three control-series β takes on values within the interval $0 < \beta < 2$. The case-series represents white noise while the control-series represent pink or 1/f-noise. Zipf's test is negative for all four.

Discussion: It has been shown that four AGP1 series of the data-set in Appendix 5 in (1) are fractal quantities showing a clear difference in scaling behaviour between cases and healthy controls. The case-series represents white noise being stripped of auto-correlation. The three control-series, on the other hand, represent 1/f-noise that is ubiquitous in nature. They exhibit long-range auto-correlation. The Goldberger-group (3) has demonstrated the same type of scaling difference between healthy and diseased hearts. AGP1 in the population is determined/influenced by a complexity of interacting factors. In case of women with fibrocystic disease this complexity has become more primitive.

Conclusions: Fractal analysis deepens one's understanding of the association between AGP1 and fibrocystosis. It adds a new dimension to regression analysis.

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17B

Medisinsk metodevurdering

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Formål: I flommen av artikler som publiseres innen medisinsk forskning hvert år, kan det være vanskelig å være oppdatert på enkeltområder til enhver tid. Da vil det være behov for systematisk identifikasjon og kritisk vurdering av tilgjengelig dokumentasjon for nye og etablerte medisinske metoder. Senter for medisinsk metodevurdering (SMM) ble opprettet i 1997 med dette som formål.

Metode: SMM foretar metodevurderinger over etablerte eller nye metoder innen forebyggende tiltak, diagnose og behandling. SMM's oppgave er å utføre en systematisk litteraturgjennomgang i samarbeid med fagekspertene. De er med på prosessen fra vurdering av abstrakter valgt etter spesifikk søkestrategi i aktuelle litteraturdatabaser til nøye gjennomgang av utvalgte artikler og skriving av rapportene. Dette settes i perspektiv med situasjonen i Norge og med helseøkonomiske, etiske og organisatoriske analyser avhengig av problemstillingen. SMM er knyttet opp til et internasjonalt nettverk av andre lands tilsvarende sentre for "Health Technology Assessment". Nytt av internasjonalt samarbeid er i utveksling av informasjon ved planlegging av prosjekt til aktuell fornorskning av andre lands metodevurderinger. Det er etablert et system for "metodevarsling" (early warning).

Resultater: Vi har til nå foretatt egne litteraturvurderinger over et bredt spekter bl.a. trombolysbehandling ved hjerneslag, brachyterapi ved cancer prostata, ventilasjon i operasjonsstuer og dets sammenheng med postoperative infeksjoner m.m. Vi har foretatt vurderinger av nye metoder som genterapi, PET m.m. Vi har laget norske versjoner av rapporter om bl.a. nakkeslengskader og svart på forspørsler om bl.a. mammografiscreening.

Konklusjon: SMM har utført mange metodevurderinger og flere er under utarbeidelse. Det er behov for en institusjon som utfører analyser av primær og sekundær vitenskapelig litteratur for anvendelse av medisinske metoder i Norge for å sikre kvaliteten i norsk helsevesen.

18A

Pågrepelse på grunn av kjøring under påvirkning av psykoaktive medikamenter, risikofaktor for tidlig død

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Formål: Flesteparten av sjåførene som registreres som rusmiddelpåvirkede i forbindelse med påvirket kjøring, er etter alt å dømme rusmiddelmissbrukere. Dette kan tolkes ut fra tidligere studier som viser et stort antall tunge alkoholbrukere blant alkoholpåvirkede bilførere, påvisning av flere forskjellige rusmidler samtidig i deres blodprøver, samt at det finnes høye blodkonsentrasjoner av medikamenter. En høy andel av disse bilførere blir arrestert på nytt for samme forhold. En nylig avsluttet studie viste at dødelighet blant bilførere påvirket av andre rusmidler enn alkohol var opp til 20 ganger høyere enn generelt i befolkningen i samme aldersgruppe. Formålet med denne undersøkelsen var å studere dødeligheten blant bilførere tidligere arrestert for kjøring under påvirkning av psykoaktive medikamenter.

Materiale og metode: Statens rettsstoksikologiske institutt har register over alle bilførere i Norge, som ble arrestert på grunn av kjøring i påvirket tilstand. Studiepopulasjonen omfattet alle mannlige (n=598) og kvinnelige (n=207) bilførere i alderen 20-49 år, pågrepet og testet positivt i 1992-1996 på psykoaktive legemidler alene eller i kombinasjon med alkohol. De hyppigste påviste medikamenter var benzodiazepinene flunitrazepam (eks. Rohypnol®) og diazepam (eks. Valium®). Antall personår for hver bilfører ble beregnet fra den dagen blodprøven ble tatt, til dødsdag, emigrasjonsdag fra Norge, eller til slutten av studien (31.12.2001). Gjennomsnittlig observasjonsperioden var 6,8 år. Standardisert dødelighetsratio (SMR) ble beregnet som forhold mellom observert antall døde i kohorten og forventet antall døde basert, på alder, periode og kjønnsespesifikke rater i totalpopulasjonen.

Resultater: 139 bilførere som ble pågrepet for kjøring under påvirkning av psykoaktive medikamenter døde senere i løpet av observasjonsperioden, 110 menn og 29 kvinner. SMR for menn var 15,8 (95% KI: 13,0–19,0) og for kvinner 21,2 (95% KI: 14,2–30,5).

Konklusjon: Vi fant betydelig forhøyet dødelighetsrisiko blant norske bilførere som var arrestert tidligere for kjøring under påvirkning av psykoaktive medikamenter. Dødelighetsraten var 16 ganger så høy hos mannlige og 21 ganger hos kvinnelige bilførere. Vellykket behandling og forebyggende tiltak mot denne risikogruppe bør gi gevinster både for helse- og rettsvesen, i tillegg til reduserte tragedier for de berørte enkeltpersoner.

19A

Use of psychotropic drugs in an urban adolescent population: the impact of health-related variables, lifestyle and sociodemographic factors

The Oslo Health Study 2000-2001

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Objective: The aims of the study were to examine the use of psychotropic drugs among 15-16 years olds and to study the association between such use of drugs and of health-related variables, lifestyle, and sociodemographic factors.

Material and methods: The youth part of the Oslo Health Study 2000-2001 included all individuals in 10th grade specified on the class list for each school in Oslo County in the years 2000 and 2001. A total of 3612 boys and 3695 girls participated, yielding a participation rate of 86.1% for boys and 90.6% for girls. All the students filled in two questionnaires during two school-hours. The self-administered questionnaires included questions on various health behaviours including use of medicines in the course of the last four weeks. Persons who answered that they used hypnotics, anxiolytics, and/or antidepressants daily or every week last month was defined as users. In the data analysis we used both bivariate and multivariate techniques.

Results: Seventy (2.0%) boys versus 51 (1.4%) girls had used at least one of the drugs daily or every week the last four weeks. The proportion of drug users was not significantly different between males and females. However, among the daily users of hypnotics there was a significant higher proportion of users among boys versus girls, 0.8% and 0.2% respectively ($p < 0.001$). The users of hypnotics, anxiolytics, and antidepressants were more likely than non-users to report poor health and mental disorders. The group who used psychotropic drugs had a higher proportion of subjects, who reported head and neck/shoulder pain and also a higher proportion who reported use of health service-psychologist or psychiatrist than nonusers. Drug users were more likely than nonusers to be smokers, and among males the drug users were also significantly more likely to be alcohol consumers. Adolescents exposed to violence and adolescents with sexual intercourse experience are over-represented among drug users both for females and males. Gender differences in significant predictors were observed in the multivariate logistic regression: Self reported mental disorders, HSCL-10, sexual intercourse experience and lower education plans were significant predictors for male users of hypnotics, anxiolytics, and antidepressants. Poor self reported health, use of psychologist or psychiatrist and smoking were significant predictors for female users.

Conclusions: Gender differences were observed in the predictors for use of hypnotics, anxiolytics, and antidepressants among 15-16 years olds in Oslo.

20A

Multidisciplinary medication review among nursing home residents – what are the most significant drug-related problems?

The Bergen District Nursing Home (BEDNURS) study

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Aim: Based on a multidisciplinary drug utilization review among nursing home residents, this study aimed to identify clinically relevant medication problems, and to analyse them according to the drugs and types of problems involved.

Materials and methods: Cross-sectional study auditing drug use among 1354 residents in 23 nursing homes in Bergen, Norway. A physician/pharmacist panel performed a comprehensive medication review with regard to indications for drug use, and active medical conditions. The drug-related problems were subsequently classified according to the drugs involved, and according to the types of problems (i.e. indication, effectiveness, and safety issues).

Results: 2445 potential medication problems of 1036 (76%) residents were identified. Multiple drug use significantly increased the probability for drug regimens to be considered inappropriate. Psychoactive drugs accounted for 38% of all problems; anti-psychotics were the class most often questioned. Multiple psychoactive drug use was considered particularly problematic. Potential medication problems were most frequently classified as risk for adverse drug reactions (26%), inappropriate drug choice for indication (20%), and probable under-treatment (13%).

Conclusions: Multidisciplinary team review identified medication problems judged to be clinically relevant in three of four nursing home residents. Psychoactive drug use, drugs considered unnecessary, and under-usage of beneficial drug treatment are areas with great potentials for quality improvements.

18B

Homocystein og depresjon

Ingvar Bjelland, Grethe S. Tell, Stein E. Vollset, Helga Refsum og Per M. Ueland

Bakgrunn: Studier har vist en sammenheng mellom folatmangel og depresjon. Betydningen av homocystein, vitamin B12 og C677T metylentetrahydrofolat reduktase polymorfismen (MTHFR-677C→T) er derimot lite undersøkt. Angst, som ofte forekommer sammen med depresjon, har ikke blitt inkludert i disse studiene.

Materiale og metode: Logistiske regresjonsanalyser ble utført på ca. 5.000 individer i Homocystein-kohorten i HUSK (The Hordaland Homocysteine Study II) som hadde HADS skårer (utfallsvariabler) og resultater på målinger av folat, homocystein, vitamin B12 og MTHFR 677C→T polymorfismen (forklaringsvariabler).

Resultater: Både MTHFR TT-genotypen og homocystein var signifikant assosiert med depresjon, men ikke angst. Folat og vitamin B12 var svakt/usikkert assosiert med depresjon, men ikke med angst.

Konklusjon: MTHFR TT genotypen og hyperhomocysteinemi ser ut til å være risikofaktorer for depresjon.

19B

Chronic insomnia as a risk factor for the development of anxiety and depression: a longitudinal study

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Objective: This study examined the relationships between insomnia and the development of anxiety and/or depression prospectively in a general population.

Methods: Data from two health surveys (HUNT-1 from 1984-6 and HUNT-2 from 1995-7) were used. After excluding individuals with significant anxiety or depression in HUNT-1, 25933 individuals aged 20-69 at the time of HUNT-1 were analysed for the presence of anxiety and depression in HUNT-2 (11 years later).

Results: After adjusting for comorbidity, age and gender, insomnia in HUNT-2 only was associated with increased OR for having developed anxiety and depression. Insomnia in HUNT-1 that had resolved by the time of HUNT-2 was associated with an increased OR for having developed anxiety, but not depression. Relative to reporting insomnia in HUNT-2 only, reporting insomnia in both HUNT-1 and -2 was associated with a significantly higher OR for having developed anxiety but not for depression.

Conclusions: Insomnia was associated with both anxiety and depression. Long-standing chronic insomnia may be associated with an increased risk of developing anxiety. In contrast, we found no evidence to suggest that long-standing chronic insomnia was associated with an increased risk of developing depression.

20B

Akademisk mestring og sosial støtte fra medelever og lærere hos elever med lese-/skrivevansker

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Formål: Formålet med undersøkelsen er å studere faktorer assosiert med lese-/skrivevansker, akademisk mestring (karakterer), og sosial støtte fra medelever og lærere.

Materiale og metoder: Studien baserer seg på data fra Helseundersøkelsen i bydeler og regioner i Oslo (HUBRO). Alle 10.-klassinger i 1999/00 og 2000/01 ble invitert til å delta (N=8316). Det ble benyttet selvutfylte spørreskjema, utfylt på skolen. Antall fullverdige datasett er 7329 (88,13%). Variabelen "lese-/skrivevansker" ble dikotomisert slik at elever med store/middels lese-/skrivevansker ble betraktet som én gruppe, versus elever med lette/ingen lese-/skrivevansker. Data er behandlet med statistikkprogrammet SPSS, og det er utført multivariate analyser ved hjelp av logistisk regresjon (justert odds ratio; 95% C.I.).

Resultater: Forekomsten av lese-/skrivevansker i materialet var 20,4%, omtrent som forventet. 9,3% hadde store/middels lese-/skrivevansker. Følgende faktorer var assosiert med store/middels lese-/skrivevansker: Gutter (1,93; 1,54, 2,42), store konsentrasjonsvansker (1,49; 1,15, 1,94), store vansker med å forstå læreren (1,80; 1,34, 2,42), og opplevd mobbing (1,94; 1,51, 2,49). Assosiert med dårlig akademisk mestring var først og fremst store/middels lese-/skrivevansker (4,50; 3,24, 6,26) og lave utdanningsambisjoner (11,44; 9,05, 14,46), samt bl.a.: gutter (1,77; 1,51, 2,06), utenlandske foreldre (2,43; 1,96, 3,01), opplevd mobbing (1,26; 1,02, 1,57) og lite selvopplevd sosial støtte fra lærere (1,44; 1,23, 1,68). Det var ingen signifikant assosiasjon mellom store/middels lese-/skrivevansker og opplevelse av lite sosial støtte fra medelever (1,05; 0,80, 1,37) eller lærere (0,79; 0,60, 1,04).

Konklusjon: Lese-/skrivevansker er assosiert med dårlig akademisk mestring, men viser ingen sammenheng med (selvopplevd) sosial støtte fra medelever og lærere.

21A

“Skjør med tiden?” Oppfølging av osteoporoseprosjektet i HUNT II

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Bakgrunn: I Helseundersøkelsen i Nord-Trøndelag 1995-97 (HUNT II) ble det utført bentetthetsmåling i underarm av til sammen 18265 kvinner og menn over 19 år. Målingene var et samarbeid mellom Osteoporoseprosjektet og BONT (Bronkial Obstruksjon i Nord-Trøndelag). En oppfølgingsstudie med nye målinger (“Skjør med tiden?”) ble gjennomført i 2001 på et utvalg av deltakerne i HUNT II, fortsatt som et samarbeid med BONT. Formålet er å studere naturlige endringer i bentetthet hos kvinner og menn og å avdekke prediktorer for raskt bentap. Vi vil her presentere gjennomsnittlig endring i bentetthet per år og etter alder for alle kvinner og menn som møtte til oppfølgingsstudien.

Materiale og metode: Invitasjon til måling ble sendt ut sammen med spørreskjema. Totalt 6656 personer (hvorav 1401 menn) møtte til måling, oppmøte ca. 65%. Målingene ble gjort i ikke-dominant underarm, distale og ultradistale radius. Det ble benyttet samme protokoll for bentetthetsmålinger som i HUNT II, og alle måleområder i underarm ble revurdert manuelt. De rekalkulerte bentetthetsverdiene legges til grunn ved analysene.

Resultater: Hos kvinner så man en tydelig og statistisk signifikant negativ endring, større ultradistalt enn distalt i aldersgruppen 45-49 år i 1995-97 (4-6 år eldre ved oppfølging). Blant kvinner >60 år ved baselinemålingen var den negative endringen høyere i distale enn i ultradistale radius. Blant menn øker gjennomsnittlig reduksjon i bentetthet per år nokså jevnt fra rundt 35 år og ser ut til å starte tidligere ultradistalt enn distalt. Årlig bentap er høyere blant menn >70 år enn blant kvinner i samme aldersgruppe, spesielt i ultradistale radius.

Konklusjon: Disse prelimiminære resultatene bekrefter et tydelig fall i bentetthet blant kvinner i perimenopause. Den negative endringen avtar hos kvinner over 65 år, mens den for menn i samme aldersgruppe ser ut til å øke. Blant både kvinner og menn er bentapet tidligere målbart i ultradistale radius, et område med overvekt av trabekulært benvev.

22A

Effect of smoking on forearm bone density in Norwegian men and women – the Nord-Trøndelag Health Study (HUNT)

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Background: Smoking is known to be a risk factor of low bone mineral density and fractures. The fracture incidence in Norway is one of the highest in the world. About 30% of the adult population are current smokers. The purpose of this study was to analyse the association between tobacco smoking and forearm bone mineral density (BMD).

Material and methods: In 1995-97 all inhabitants aged >19 years were invited to the HUNT study. The participants answered comprehensive questionnaires on demographics, life style, risk factors, symptoms and diseases. Among 92.000 invited subjects a 5% sample was randomly selected for bone mineral density (BMD) measurement of the non-dominant forearm single X-ray absorptiometry (Osteometer DTX100). From the point of 8 mm distance between radius and ulna, the area 24 mm in proximal direction was identified as the distal area, whilst the area in distal direction to the endplate of radius was identified as the ultradistal area. The non-dominant arm was measured, provided no previous fracture in distal radius. Totally 71% of the invited participated at the screening, but about 60% of the random sample participated in this substudy. A total of 2779 (1505 women and 1274 men) were eligible for analysis. Mean age for men and women was 50.5 and 49.9 years (range 20-97), respectively.

Results: In men, 29.5% and 32.0% reported current or prior smoking, respectively. In women, 30.6% reported current and 20.3% prior smoking. The percentage of never smokers was highest in men <40 and in women >60 years of age. No difference in mean BMD between current, prior and never smokers was found, neither in men nor women < 50 years of age. After the age of 50, BMD decrease was more accentuated in smokers. In bivariate linear regression, a strong statistically significant negative association between packyears of smoking and BMD was found in males ($R^2 = 4.0\%$), but not in females. Adjusting for age and body weight, a statistically significant negative association was also found in women at both sites. In male smokers, 50 years or older, weight adjusted odds ratio of being in the lowest age specific BMD tertile, compared to never smokers, was 2.2 (95% CI: 1.4–3.5) at distal and 2.6 (95% CI: 1.5–3.8) at ultradistal radius. Corresponding OR in female smokers were 1.8 (95% CI: 1.2–2.7) and 1.5 (95% CI: 1.0–2.3). Adjusting for estrogen therapy and age at menopause did not change the outcome.

Conclusions: This study shows that the effect of smoking on the skeleton in both men and women is found after the age of 50 and that the effect is possibly stronger in males. It is, however, of special concern in women, as more young females than males start smoking.

23A

The Nord-Trøndelag Health Study: The association between physical activity and forearm bone mineral density in healthy premenopausal women

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Objective: The aim of the study was to assess the association of forearm bone mineral density (BMD) with concurrent and prior physical activity (PA) at work and during leisure time in healthy premenopausal women. We take advantage of the population-based design of this study to estimate the prevented fraction, a measure of public health impact.

Methods: During 1984-1986, a population-based health survey (HUNT-1) was conducted among women and men aged >19 years in Nord-Trøndelag county in Norway. The second follow-up survey (HUNT-2) was conducted during 1995-1997. The subjects in this study consist of healthy premenopausal women (N=1396) younger than 45 years when they participated in HUNT 2, who also participated in HUNT-1, and who underwent distal and ultradistal radius densitometry in 1995-1997, performed with single-energy X-ray absorptiometry.

Results: Women with the highest score of estimated combined recreational and occupational physical activity (PA) score in 1984 and 1995 had significantly higher BMD in the distal radius (mean BMD = 0.487, 95% CI = 0.474-0.500, $p_t = 0.04$), and ultradistal site of radius (mean BMD = 0.403, 95% CI = 0.385-0.420, $p_t = 0.017$) compared to those with lower PA score (mean BMD distally = 0.480, 95% CI = 0.478-0.483; mean BMD ultra distally = 0.384, 95% CI = 0.381-0.387). After adjusting for age, marital status, smoking, amenorrhea, body mass index (BMI) and daily milk consumption the associations remained the same or got even stronger. The prevented fraction for low BMD distally is 5%, and 6% ultra distally assuming this relationship is causal. These prevented fractions were low largely because few women exercised heavily. If all women had been in the heaviest activity group about 50% reduction might have been achieved, again assuming causal relationship.

Conclusions: Only the small group of women in the highest category of PA had a significantly higher forearm BMD, and the smallest risk of low BMD. Important unanswered questions remain about the optimal relationship between intensity, amount and type of physical activity, and BMD, and later risk of developing osteoporosis. The association might have been stronger if more detailed information about type, level, amount and intensity of physical activity had been included in the questionnaire, or if the sites for measuring BMD had been in weight bearing parts of the skeleton. Further research on BMD as a surrogate measure of structural and architectural bone quality, in addition to research on sensitivity of different measuring sites for estimation of the effect of PA on bone is warranted.

24A

Bentetthetsmåling i underarm i HUNT II: Forskjeller mellom maskinene og betydning for måleresultatene

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Formål: I Helseundersøkelsen i Nord-Trøndelag i 1995-1997 (HUNT II) ble bentetthet i underarm målt hos 18265 kvinner og menn over 19 år. Tre forskjellige SXA densitometer (Osteometer DTX-100) ble benyttet. Måleområdene i underarm, distalt (kortikalt benvev) og ultradistalt (trabekulært benvev), ble automatisk identifisert og bentettheten beregnet maskinelt. På grunn av problemer knyttet til den automatiske identifiseringen av radius' endeplate og av området hvor avstanden mellom radius og ulna er 8 mm, ble måleområdet identifisert manuelt på hele materialet og bentettheten kalkulert på nytt. Dette redigerte materialet er benyttet for testing av systematiske forskjeller mellom maskinene.

Materiale og metode: Hver person ble kun målt kun en gang, og til sammen 18 265 målinger inngår i beregningene. Maskinene ble kalibrert daglig med produsentens spesiallagde fantom. Lineær regresjon er benyttet for å estimere maskinenes innflytelse på målt bentetthet. I modellen er det tatt hensyn til at maskinene er anvendt på tre ulike utvalg ved å kontrollere for alder, kjønn, vekt, høyde og røyking. På grunn av at variasjonen i de ultradistale verdiene er ulik variansen til de distale bentetthetsverdiene, er disse modellert hver for seg. For å karakterisere materialet er alder, vekt og høyde tatt med i modellen.

Resultater: Maskinenes relative betydning med hensyn på systematisk påvirkning av målt bentetthet er estimert med tilhørende konfidensintervall i tabell 1. Den relative effekten er avhengig av måleområde og maskin, der maskin 1 gir systematisk høyeste verdier i ultradistale radius, men ikke for det distale området. De systematiske avvik er i størrelsesorden 3-6 mg/cm³ og tilsvarer 10% av standardavviket til fordelingen av bentetthet for unge kvinner (T-score).

Konklusjon: Forskjellene mellom maskinene er små og innenfor produsentens angivelser. De er allikevel av en slik størrelsesorden at det må tas hensyn til dem før det konkluderes med positiv eller negativ endring i bentetthet ved gjentatte målinger.

Tabell 1. Maskinenes relative effekt på målt bentetthet (g/cm³).

	Bentetthet ultradistalt område		Bentetthet distalt område	
	Relativ effekt	95% Konfidensintervall	Relativ effekt	95% Konfidensintervall
Maskin 2 versus maskin 1	-0.005	[-0.007, -0.002]	-0.002	[-0.004, 0.001]
Maskin 3 versus maskin 1	-0.006	[-0.008, -0.004]	0.001	[-0.001, 0.003]
Maskin 2 versus maskin 3	0.001	[-0.001, 0.004]	-0.003	[-0.005, -0.001]

21B

Cumulative deprivation by individual and area-based measures, and mortality risk (all cause and cause specific) in Oslo

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Background: In recent years the influence of social conditions across the life-course on health is increasingly investigated. Neighbourhood-influence on health has also been increasingly studied as one has moved from individual to ecological proxies of deprivation. The evidence regarding the relative influence of context or composition of an area is not yet settled. Rather few studies have mortality-risk as dependent variable and none of these have independent variables from more than one point in time. Thus, any effect detected could be a spurious finding as people move a lot and lead to serious bias of an effect when place of residence is measured cross-sectionally or only once. In this study the purpose was to see if deprivation measured at several points in time during a life-course gives a stronger mortality-risk than when measured only once. The effect of this for various causes of death known to be associated differently along the life-course was investigated. This will first be studied at the individual level. But attempts will further be made to investigate if there is a dose-response effect of neighbourhood deprivation on all cause and cause-specific mortality risk when neighbourhood deprivation is measured several times.

Methods: This is a registry-based study linking the death registry with Cences from 1960, 1970, 1980 and 1990. The population includes all inhabitants in Oslo, 1.1.1990. The age-group used was 30-69 years in 1990. Place of residence was determined by the administrative borders known as electoral wards collected on all residents of Oslo 1.1.1990 in the Cences 1960, 1970, 1980 and 1990. These Cences also include information on some aspects of housing conditions on each individual in 1960, 1970 and 1980. Individual-level analysis was conducted and the separate years were compared and summed by constructing a relative index of inequality (RII). A set of ward definitions based on the 1960 resolution was constructed for the years 1970, 1980 and 1990. A z-score of each individual's measured housing condition based on the whole population was calculated. The mean value of this for each ward was calculated and ascribed to each individual as value of neighbourhood-influence. Two age-groups were selected: 30-49 and 50-69 years in Oslo 1990. All cause and cause-specific mortality risk were calculated based on area-influence in 1960, 1970 and 1980.

Results and conclusions: At the individual level, our study suggests that deprivation measured at several times yields a larger estimate of mortality-risk compared to separate years. This is particularly strong in young men. When adjusting the separate years for each other, most give independent associations of mortality risk. For some specific causes of death, this pattern varies. Causes like cardiovascular, smoking-related and chronic obstructive pulmonary disease are associated with a cumulative increase of risk along the life-course. Other causes like violent deaths are more associated with recent deprivation. This has particular consequences when the socioeconomic influence of mortality risk is studied because it suggests that a full life-course perspective should be adopted. However, this will vary according to how various causes is determined by socioeconomic deprivation along the life-course. Design and preliminary results of cumulative area-influence will also be presented.

22B

Alcohol consumption among the elderly in Botswana: Is it a health problem?

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Aim: To study drinking patterns in relation to health problems among the elderly in Botswana.

Material and methods: Data were collected in 1998-99 as part of a national medical survey among inhabitants above 60 years of age in Botswana. A national representative sample of 372 respondents (response rate 72%) were visited at home; interviewed with questionnaires and subjected to a medical examination. In this paper only self-reported data on health and alcohol consumption are used. AUDIT, a WHO approved 10-item questionnaire to detect hazardous alcohol drinking was applied to all current drinkers.

Results: Of the total study population 34% were current drinkers, 24% previous drinkers and 42% were life-time abstainers. A sorghum based homemade beer was the most commonly consumed beverage. This beer has an alcohol content of 2.3-8.5% vol. and has a high nutritional value. About three times as many men were current drinkers compared to women (O/R; 3.3 [1.8-6.3]). Multinomial logit regression analyses show that higher socioeconomic status and being a Christian reduces the likelihood of being a current drinker, whereas marital status and age does not have any significant effect. Among the 126 current drinkers, 36% had an Audit score of 8 or above, which indicates a level of drinking that may cause social harm or added health risk. No significant trends or differences were seen when comparing different health outcomes in the two groups of current drinkers; those with Audit 7 or below and those with Audit 8 or above. In contrast, when the group of current drinkers as a whole is compared with the previous drinkers and life time abstainers the following differences were found: 10% of the current drinkers reported to have severe health problems, 33% of previous drinkers and 8% of life-time abstainers reported the same. 9% of the current drinkers have BMI above 30, compared with 20% of previous drinkers and 23% of lifetime abstainers. For BMI below 18, the corresponding figures are; 16%, 13% and 10% respectively. Among the current drinkers 30% also smoked tobacco, whereas only 6% of previous drinkers and 7% of life time abstainers did so.

Conclusions: In addition to being female, higher SES and being a Christian contribute to reducing the likelihood of drinking alcohol in this population. Previous drinkers report more health problems than current drinkers and life time abstainers. But even though current drinkers report "good health", risk factors like drinking, smoking and poor nutrition cluster in this group.

23B

Sex difference in perceived vulnerability of tobacco smoking without corresponding difference in lung function

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Background: A higher vulnerability for deleterious effects of tobacco smoking is reported in women compared to men regarding lung growth, bronchial hyperreactivity, and respiratory symptoms.

Objectives: To compare the effect of tobacco smoking on lung function in men and women as conflicting results have been reported regarding gender differences.

Methods: From 1995 to 1997 all inhabitants aged ≥ 20 years of the county of Nord-Trøndelag in Norway (N=92,000) were invited to the Nord-Trøndelag Health Study (HUNT). A 5% random sample (n=2,791) and those reporting ever having had asthma or asthma related symptoms during the last 12 months (n=8,150) performed flow volume spirometry, answered questionnaires, and were interviewed.

Results: Tobacco smoking was associated with increased prevalence of respiratory symptoms and reduced lung function. Adjusted for age, body mass index and lung function, women had 50% higher risk per pack-year of cigarettes for reporting respiratory symptoms as attacks of wheezing, breathlessness and cough, compared to men ($p > 0.01$). However, no gender difference was found in the association between tobacco smoking and expiratory lung function. The women reported lower score on global self-rated health (SRH) than men, but no gender difference was found in the association between SRH and respiratory symptoms.

Conclusions: Women reported more symptoms and lower SRH compared to men with similar smoke burden. However, this difference in symptoms and perceived health was not reflected by differences in lung function.

24B

Change in plasma levels of vitamin D after consumption of cod-liver and fresh cod-liver oil as part of the traditional north Norwegian fish dish «Mølje»

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Objective: To assess changes in plasma 25(OH)D concentrations after ingestion of «Mølje», a traditional north Norwegian fish dish rich in vitamin D.

Methods: Thirty-three volunteers all living in the City of Tromsø, located in northern Norway (latitude 69°), were served a «Mølje» meal consisting of cod, hard roe, cod-liver, and fresh cod-liver oil. The amounts of liver, and cod-liver oil consumed were weighed and recorded. Blood samples were collected before the meal, and at 4 hours, 12 hours, and 5 days after it. The cod-liver and cod-liver oil were analysed for vitamin D content and the plasma samples for the metabolite 25(OH)D. Trends in plasma 25(OH)D levels during the five-day observation period were analysed. To estimate the participant's usual daily vitamin D intake, all participants answered a semi-quantitative food-frequency questionnaire. The questionnaire explored the intake of fish and fish products rich in vitamin D, including questions on seasonal variations of consumption for each fish variety. Use of vitamin D-fortified foods like margarine, butter, and milk were also addressed, as well as the consumption of cod-liver oil supplements including seasonal variations and use of other fish oil capsules and vitamin supplements. The study was conducted in the beginning of April of 2000.

Results: Among the participating subjects, 69.7% had baseline plasma 25(OH)D concentrations below 50 nmol/l and for one quarter of the subjects they were < 37.5 nmol/l. The participants who acknowledged taking cod-liver oil supplements had significantly higher baseline 25(OH)D plasma levels at the outset of the study compared to those reporting not doing so (p=0.02). The correlation between estimated daily vitamin D intake based on the questionnaire and 25(OH)D levels in blood was r=0.36 (p=0.04). Ingested vitamin D from the served «Mølje» meal did not predict the variation in plasma 25(OH)D over time (p=0.86). Mean plasma 25(OH)D change at 5 days was significantly different between BMI groups (p=0.02). Changes in plasma 25(OH)D plasma levels relative to baseline concentrations were significantly associated with BMI (p<0.01). Subjects with BMI < 25 kg/m² showed a mean increase in 25(OH)D levels at 4 hours and 5 days; by contrast, subjects with BMI ≥ 25 kg/m² exhibited mean decreases at 4 hours, 12 hours and 5 days. When the response variable was alteration in plasma levels of 25(OH)D relative to baseline levels, and baseline concentrations was re-coded into a dichotomous variable ([25(OH)D] < 37.5 nmol/l and [25(OH)D] ≥ 37.5 nmol/l), the plasma level change was significantly different between the two groups (p=0.02). The subjects with moderate deficiency had on average an increase, while subjects with 25(OH)D concentrations above 37.5 nmol/l showed a decrease.

Conclusions: In conclusion, one meal was not sufficient to change the overall vitamin D status of the study group, but repeated meals over time may be anticipated to have a beneficial effect. However, modest beneficial effects were noted for those with low baseline levels and for leaner individuals. Vitamin D status and related health outcomes in populations living in circumpolar areas require more research to investigate to what degree people are at increased risk for vitamin D insufficiency during winter and to elucidate further the role of the traditional diet in preventing deficiency.

1F

The Norwegian Network of Human Research Biobanks and Health Studies BIOHEALTH-NORWAY

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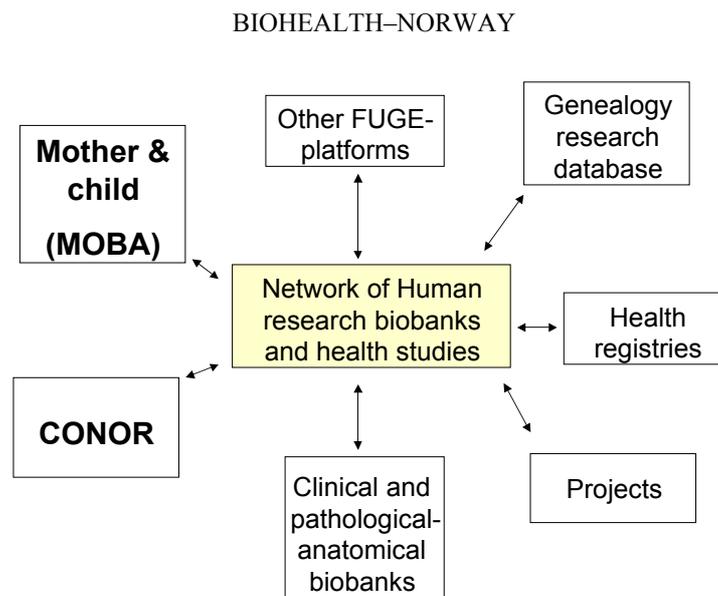
The Norwegian government has decided to stimulate functional genomics (FUGE). A call for proposals to set up technology platforms to serve research on a national level was made in the spring of 2003. In collaboration with four regional health surveys and universities we responded to this challenge by building on existing networks of human biobanks and population-based health studies in Norway. The proposal has now received preliminary support. The core components of BIOHEALTH-NORWAY are:

1. CONOR – a cohort of 200 000 subjects including blood samples and standardised health and exposure data
2. The Norwegian Mother and Child Cohort Study (MOBA) – a cohort of 100 000 pregnant women, 100 000 children and 70 000 fathers including biological samples and standardised health and exposure data

An important addition to the core components is the genealogy database, which will provide the degree of relationship between Norwegian subjects. Health registries and clinical biobanks will be of high value for follow-up purposes. By utilising high-throughput genotyping, microarray analyses of RNA and proteins as well as measures of environmental exposure in biological samples, many very specific research questions can be resolved. BIOHEALTH will provide technology support for other biobanks and will interact with other platforms such as the platforms on bioinformatics, SNP genotyping and microarrays. BIOHEALTH will serve a large number of research projects in collaboration with other FUGE platforms.

Overall Purpose

To improve prevention and treatment of disease by increased knowledge of the molecular nature of disease, based on discoveries of new genes associated to complex diseases and new information on the interaction between genes and environmental factors.



2F

Seleksjonsbias i en stor befolkningsbasert undersøkelse

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Formål: Studere betydningen av seleksjonsbias i Helseundersøkelsen i Oslo.

Materiale og metode: I 2000-2001 ble alle menn og kvinner som i 2000 fylte 30, 40, 45, 59, 60, 75 eller 76 år invitert til Helseundersøkelsen i Oslo. Undersøkelsen var et samarbeid mellom Statens helseundersøkelser, Universitetet i Oslo og Oslo kommune. Den omfattet utfylling av spørreskjemaer og kliniske målinger. Det sentrale personregister dannet grunnlag for invitasjonene. Herfra fikk vi opplysninger om sivilstand, fødeland og bydel i Oslo. Fra ulike registre i Statistisk sentralbyrå er det dessuten koblet til opplysninger om utdanning, inntekt og visse trygdeytelser. Den anonymiserte filen har gitt grunnlag for analyser av deltagelse etter ulike bakgrunnsvariable. Fordelingen av ulike bakgrunnsvariable blant inviterte og deltagere gir oss informasjon om hvor representative deltagerne er for hele populasjonen. Disse fordelingene gir grunnlag for etterstratifisering og justeringer. Mottak av uføretrygd kan sees på som en utfallsvariabel, som vi kjenner for både fremmøtte og ikke fremmøtte. Sammenhengen mellom uføretrygd og utdanning har blitt studert for både deltagere og ikke deltagere i undersøkelsen.

Resultater: Av 40 889 inviterte, deltok 18 751 personer (45,9%). Fremmøtte var noe høyere blant kvinner enn menn, det økte med økende alder, var større blant gifte enn ikke gifte og noe høyere blant personer født i Norge sammenlignet andre. Deltagerprosenten var også noe høyere i ytre enn i indre bydeler. Det var en positiv sammenheng med utdanningsnivå. Deltagerprosenten økte med størrelsen på samlet inntekt opp til et visst nivå for deretter å avta for de høyeste inntektene. Sammenhengen mellom fødeland og fremmøtte ble borte når vi justerte for utdanning i en logistisk regresjonsmodell. Etterstratifisering etter utdanningsnivå blant de inviterte gav en endring i estimert forekomst av dagligrøyking på mindre enn to prosentpoeng. Tilsvarende tall finner vi for andre etterstratifiseringer. Andel som mottok uføretrygd, varierte med kjønn, alder og utdanning. Andelen var lavere blant deltagerne enn blant ikke deltagere, men sammenhengen med utdanning, målt med odds ratio, var nokså lik i de to gruppene for både menn og kvinner (ingen signifikant interaksjon, tabell 1).

Konklusjon: Fordelingen av ulike bakgrunnsvariable er litt forskjellig for deltagere og ikke deltagere i Helseundersøkelsen i Oslo. Etterstratifisering og justering etter utdanningsnivå blant de inviterte gav liten effekt på beregnet forekomst av dagligrøyking som har en sterk assosiasjon til utdanning. Assosiasjonen mellom uføretrygd og utdanning var også den samme blant deltagere og ikke deltagere selv om nivået var forskjellig i de to gruppene.

Tabell 1. Odds ratio for mottak av uføretrygd etter utdanning. Referanse: grunnskole.

	Menn		Kvinner	
	Deltager	Ikke deltager	Deltager	Ikke deltager
	Alder 40/45 år			
Videregående	0,34	0,31	0,47	0,47
Høgskole/universitet	0,12	0,13	0,22	0,19
	Alder 59/60 år			
Videregående	0,40	0,41	0,46	0,52
Høgskole/universitet	0,11	0,12	0,22	0,27

3F

Self reported skin complaints: validation of a questionnaire for population surveys

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Objectives: To validate a simple instrument assessing skin morbidity in the general adult population, predicting clinical skin morbidity from self reported skin complaints.

Methods: The questionnaire was validated against clinical signs in two samples of an urban population, 100 health care seeking adults in a dermatological clinic, and 100 non health care seeking adults. A total self reported symptom score was calculated and validated against severity of clinical signs from no signs to trivial, moderate or severe. The inter rater agreement was assessed in a small study including 16 patients from a dermatological clinic.

Results: The participation rate was 99%. A total symptom score of 1.3 in the non health care seeking population showed a sensitivity of 61%, a specificity of 69%, a positive predictive value of 82%. The kappa agreement was 0.6 between the two observers for clinical skin morbidity.

Conclusions: This questionnaire is a simple and acceptable tool to evaluate skin morbidity in an adult population. Although it has a low clinical precision, the use of self reported complaints to predict clinical morbidity adds new sources of knowledge in dermato-epidemiology. Further studies are needed to improve the instrument.

4F

Hørselstap som følge av støy, ørebetennelser og hodeskader i Nord-Trøndelag

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Formål: Å beregne effekten av ulike typer støy, ørebetennelser og hodeskader for hørselstap.

Materiale og metode: Som en del av HUNT2 i Nord-Trøndelag i 1995-97 ble deltakerne tilbudt en hørselsundersøkelse. 51 975 personer fra 20 til 100 år gjennomgikk en rentone-audiometri og besvarte et spørreskjema om støy på arbeidet og i fritiden. Hørselen ble målt på 8 frekvenser fra 250 Hz til 8000 Hz. Hørselstap ble målt som gjennomsnitt over begge ører for lave frekvenser (250-500 Hz), middels frekvenser (1000-2000 Hz) og høye frekvenser (3000-8000 Hz). Analysene ble gjort separat for unge (20-44 år), middelaldrende (45-64 år) og eldre (65+ år) kvinner og menn. Det ble gjort lineær og logistisk regresjonsanalyse med et stort antall prediktorer, deriblant alder.

Resultater: Alder forklarer langt mer av variasjon i hørselstap enn alle andre prediktorer til sammen, selv etter stratifisering på alder. Effekten av alle typer arbeidsstøy adderer seg til oppimot 9 dB for høyere frekvenser blant de 10 prosent høyest eksponerte blant middelaldrende og eldre menn. Skyting alene har en skadeeffekt i samme størrelsesorden. Blant kvinner var effektene av støyskader sjeldne. Effektene av ørebetennelser var klart signifikante, men vanligvis ikke dramatiske.

Konklusjon: Resultatene viser mer moderate effekter av støy enn det som tidligere har vært antatt, men stemmer brukbart med resultater fra andre ferske epidemiologiske hørselsundersøkelser.

5F**Education and risk for breast cancer: the Norwegian-Swedish women's lifestyle and health cohort study**

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Objective: The positive relation between socio-economic status (SES) and female breast cancer risk is well established through several studies, applying different measures of SES. However, previous studies only partially achieve to assess the causal pathways leading to this disparity. The purpose of our study was to examine how risk for breast cancer varies with level of education, and to make an effort at explaining this variation by adjusting for a number of possible confounding factors.

Material and methods: Data is collected from a population-based prospective cohort study including 102 860 women from Norway and Sweden, aged 30-49 years at recruitment. They responded to a four pages questionnaire in 1991/92, containing detailed information on characteristics of women's life and behaviour that might affect breast cancer risk. Follow-up through 1999 accomplished by linkage of the cohort members to nationwide databases revealed 1090 incident primary invasive breast cancer cases, distributed as 701 pre- and 389 postmenopausal cases. The Cox Proportional Hazards Model was used to calculate relative risks (RR) with adjustment for age and other confounders. Pre- and postmenopausal women were analysed both together and separately.

Results: In the analyse of the entire cohort, women with more than 16 years of education had a 36% increased risk of breast cancer compared to the lowest educated (7-9 years) (Age adjusted RR=1.36; 95% CI 1.10–1.69). Adjusting for parity and age at first birth reduced the risk estimate considerably (RR=1.16; 95% CI 0.92–1.45). Then, by subsequently adding a couple of other covariates to the model, the risk difference was almost eliminated (RR=1.04; 95% CI 0.82–1.32). For premenopausal women only a weak association was found, though still with a significant trend across education levels (age adjusted RR=1.23 for highest vs. lowest educated; 95% CI 0.93–1.62). For the postmenopausal women the observed positive association was stronger (RR=1.70; 95% CI 1.25–2.33 for higher vs. lower group). But – in both cases the relative risk estimates turned close to 1 by adjusting for parity, age at first birth, body mass index, height, age at menarche, menopausal status, use of oral contraceptives, and consumption of alcohol.

Conclusions: The results of our study suggest a clear positive gradient in risk for breast cancer by level of education, which can be fully explained by known risk factors.

6F

Holdninger til genetisk epidemiologi illustrert ved spørsmål om fornyet samtykke fra 61 426 deltakere ved Helseundersøkelsen i Nord-Trøndelag (HUNT)

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Bakgrunn: Til tross for at det har vært mye mediaomtale og arbeid med et eget lovforslag om biobanker, er det liten kunnskap om hvilke holdninger folk har til genetisk epidemiologi. Ved Helseundersøkelsen i Nord-Trøndelag 1995-97 (HUNT 2) ble det brukt to ulike samtykkeformularer, der det i det ene sto følgende om den lagrede blodprøven: ”- ved bruk av blodprøven skal mitt samtykke innhentes”. Dette formularet ble signert av de første 35 000 som møtte til HUNT 2. Datatilsynet godtok så en ny formulering: ”- ved bruk av blodprøven, skal dette kun skje i samråd med Regional komite for medisinsk forskningsetikk i Midt-Norge (REK) og Datatilsynet”. Dette formularet ble signert av ca. 32 000 personer. Etter samråd med REK og Datatilsynet ble det lagt planer for innhenting av nytt, konfirmerende samtykke fra alle som hadde avgitt blodprøve ved HUNT 2. Hovedtemaet var at blodprøvene i HUNT biobank nå også kunne brukes i genetiske studier.

Metode: Dette nye samtykkeprosjektet hadde følgende hovedelementer: 1) Utsending av personlig informasjonsbrev til alle på samme tidspunkt. På brevet var en svarslipp som skulle signeres dersom vedkommende ønsket å reservere seg mot bruk av blodprøven. Svarslippen var påtrykt strekkode som inneholdt fødselsnummer, og dessuten fødselsnummer i klartekst. 2) Sendingen inneholdt også en brosjyre med utfyllende informasjon samt en frankert svarkonvolutt. 3) Det ble laget egne nettsider på HUNT's hjemmeside med opplysninger om genetisk epidemiologi og om genetisk forskning. 4) Det ble gitt informasjon via media. 5) Det ble etablert telefonberedskap i fire uker etter utsendingen.

Resultater: I løpet av to dager primo april 2002 ble til sammen 61 426 brev ble sendt ut. I dagene etter kom til sammen 43 telefonhenvendelser, men få av henvendelsene gjaldt samtykkeproblematikken. Det kom til sammen 1185 signerte svarslipper (1,9%) fra personer som ønsker å trekke sitt samtykke (46,7% menn, 53,3% kvinner). I forhold til deltakerne var det lavest andel reservasjoner i de yngste aldersgruppene og størst andel blant de eldste.

Diskusjon: I den pågående debatten om moderne genteknologi kan det være vanskelig å skille mellom ulike typer genforskning. Ofte blandes begreper som genmanipulering og kloning sammen med genetisk epidemiologi. Målet med prosjektet var å informere HUNT-deltakerne på en så god måte at de kunne forstå hva blodprøvene skulle brukes til, og sette dem i stand til å gjøre et reelt valg om de fortsatt ønsket å delta. Selv om det er stor enighet om at slik forskning skal foregå på basis av et informert, aktivt, skriftlig samtykke, godkjente både REK og Datatilsynet at det i denne spesielle situasjonen ble innhentet passivt samtykke. Reaksjonene fra HUNT-deltakerne gir holdepunkter for at folk flest forstår nytten av genetisk epidemiologi, forutsatt at det gis god og nøktern informasjon.