

The background image is a composite. The top half features a light, hazy sky with a faint silhouette of a person running. The bottom half shows a body of water reflecting a bright, low sun, creating a large, vibrant orange and yellow reflection. Several large, smooth, rounded stones are scattered in the water and on the shore. One stone is a pale greenish-blue, and another is a bright yellow. The overall mood is serene and active.

The Nordic region as a global health lab

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NordForsk

The Nordic region as a global health lab

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For NordForsk by Monday Morning

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Sammendrag

De nordiske lande har potentiale til at blive globale frontløbere når det gælder udvikling af innovative løsninger, der kan forebygge kroniske sygdomme. Oplægget The Nordic region as a global health lab beskriver en vision for, hvordan nordiske forskere og videns-institutioner med afsæt i en ny tænkning, nye partnerskaber og nye platforme kan blive drivkraft for en ambitiøs indsats, der har til formål at bremse den globale vækst i kroniske sygdomme.

Kroniske sygdomme – en global udfordring

Med mere end 30 mio. dødsfald i 2002 – et tal, der forventes at stige til 50 mio. i 2020 – udgør stigningen i antallet af kroniske sygdomme i form af hjertekarsygdomme, diabetes, fedme og visse kræfttyper den største trussel for folkesundheden på globalt plan. Konsekvenserne af denne udvikling er uoverskuelige set i forhold til de menneskelige, økonomiske og sociale omkostninger, der er forbundet med udgifter til behandling, for tidlig død samt tab af arbejdskraft og skatteindtægt.

Stadig flere regeringer og myndigheder på både nordisk og global plan søger gennem handleplaner og strategier at sikre en mere effektiv forebyggelse af fedme og kroniske livsstilssygdomme. Denne indsats stiller krav til adgang om mere viden i forhold til hvad der virker og for hvem. I denne sammenhæng spiller forskere og vidensmiljøer en helt afgørende rolle.

Behov for nye løsninger

Hidtidige forsøg på at begrænse antallet af kroniske sygdomme synes at have spillet falit. Dette skyldes, at sygdomme som fedme og diabetes ofte betragtes som sygdomme, der er livsstilsrelateret og dermed primært forårsaget af individers manglende viden og vilje til at ændre livsstil. Sundheds-væsnen har traditionelt haft fokus på behandling frem for forebyggelse og de offentlige myndigheder har med afsæt i et motiv om rationel handlen primært søgt at bekæmpe væksten i kroniske sygdomme gennem informationskampagner, der i det store perspektiv har vist sig ineffektive.

Det står i dag klart at tilgange som disse langt fra er tilstrækkelige, når det gælder om at begrænse antallet af kroniske sygdomme. Denne indsats kræver nye og innovative løsninger, der formår at hjælpe og motivere individer såvel som grupper til at vælge en sundere livsstil. Konkret er der behov for målrettede løsninger, der på én og samme tid er lokalt forankret, men som samtidig formår at engagere de organisationer og institutioner, der dikterer rammerne for sundhed og forebyggelse på samfundsniveau. I denne sammenhæng er der behov for nye typer af forskning, der specifikt adresserer kroniske sygdomme og som samtidig kan udvikle de standarder og redskaber, der skal gøre det muligt at gennemføre interventionsstudier på tværs af discipliner og befolkninger.

Forskningsdreven forebyggelse

– tre udfordringer

Oplægget identificerer tre udfordringer, der skal imødekommes for at Norden kan indtage en førerposition inden for forskningsdreven forebyggelse af kroniske sygdomme. Der er behov for at udvikle og udbrede en ny tænkning og dagsorden, der prioriterer forebyggelse og intervention over behandling og observation. Der er behov for at etablere nye partnerskaber og inddrage de relevante aktører, der på tværs af sektorer, institutioner og brancher skal sikre en innovativ udvikling af nye forebyggelsesløsninger. Og der er behov for at etablere nye platforme, der gør det muligt at dele viden og afprøve konkrete løsninger i praksis.

1) Behov for en ny tænkning og dagsorden

Fundamental for evnen til at styrke og effektivisere hele forebyggelsesindsatsen er en øget og mere avanceret forståelse af hvad der påvirker ikke kun individers valg af livsstil, men også deres reelle handling. Ny viden og discipliner som fx behavioural economics, etnografi og forskning i forbrugeradfærd gør sig i øget omfang gældende inden for forebyggelse og folkesundhed. Udover at inddrage denne type viden er der behov for at udvikle nye metoder og et nyt forskningsdesign, der kan udfordre det traditionelle evidens-begreb. Øget brug af interventionsstudier og praksisbaseret forskning er i tråd med den trend, der under betegnelsen 'modus 2 forskning' argumenterer for et paradigmeskifte inden for forskningsverdenen, herunder et skift fra observationsbaseret til interventionsbaseret forskning.

Til at understøtte udviklingen af en ny tænkning og forskningsdagsorden i Norden er der behov for et styrket infrastruktur, der kan koble de forskellige forskningsområder af relevans for denne indsats. Deling af databaser og udviklingen af fælles indikatorer udgør i denne sammenhæng et vigtigt første skridt idet dette vil gøre det muligt at dele og sammenligne viden og resultater på forebyggelsesområdet de nordiske lande imellem.

2) Behov for nye partnerskaber

En øget forskningsindsats kan ikke stå alene i kampen mod de kroniske sygdomme. Der er

behov for et øget samarbejde mellem forskere og vidensmiljøer og så de mange sektorer og institutioner, der kan påvirke forebyggelsesindsatsen betydeligt som fødevarerindustrien, dagligvarehandlen og cateringindustrien, medicinalindustrien, sundhedsvæsenet, forsikringsbranchen, branche- og forbrugerorganisationer, patientorganisationer, lokale og nationale myndigheder. En stærk indsats er nødvendig for at fremme etablering af konkrete partnerskaber og klynger på tværs af de nordiske lande.

3) Behov for nye platforme:

Helseeksperimentarier

Manglen på viden om hvad der virker og for hvem udgør en central barriere for en effektiviseret forebyggelsesindsats. Forskere og vidensinstitutioner kan ændre på dette og imødekomme dette behovet for ny viden gennem etablering af praksisorienterede helseeksperimentarier, der bygger på nye forståelser og tilgang til forebyggelse, og som understøttes af en stærk og stabil infrastruktur, der kan sikre kontinuerlig udvikling og distribution af ideer og innovative løsninger på tværs af lande og institutioner.

Med helseeksperimentarier forstås institutionelle platforme, der kan danne grundlag for at teste og udvikle et bredt udvalg af nye typer forebyggelsesløsninger. Konkret handler det om at afprøve løsningerne i deres 'naturlige omgivelser' som når fx arbejdspladser eksperimenterer med sund kantinemad og firmasport for at gøre deres medarbejdere sundere, byer og bygninger bruges som testplatform til at få viden om hvorvidt flere grønne områder og rekreative faciliteter forbedrer indbyggernes sundhed, og supermarkeder, der vælger at lægge vægt på sundhed i de produkter og services, som de tilbyder deres kunder.

Oplægget opstiller en række anbefalinger i forhold til at etablere og lede helseeksperimentarier. Det overordnede formål med denne type initiativer er at bringe forskningen ud af elfenbenstårnet ved at stille den værdifulde viden, der her produceres, til rådighed sammen med muligheden for at monitorere og indsamle den data, der er afgørende for at kunne vurdere hvilke initiativer, der bør implementeres i et større omfang.

Nordiske forudsætninger for helseeksperimentarier

De nordiske lande har en række forspring når det gælder forebyggelse af kroniske sygdomme i Norden såvel som på globalt plan. Sverige, Norge, Danmark, Finland og Island råder over styrkepositioner inden for flere områder, der er af stor betydning for evnen til at udvikle innovative forebyggelsesløsninger. Til disse hører veletablerede offentlige sundhedssystemer, der understøtter tilstedeværelsen af stærke forskningsinstitutioner. En historisk tradition for at gennemføre store befolkningssundersøgelser betyder, at der i dag er adgang til store mængder af data og dermed værdifuld viden om bl.a. sundhedsmønstre i befolkningen. Dertil kommer et øget nationalt fokus på behovet for forebyggelse, en stærk forskningstradition inden for epidemiologi og konkurrence-dygtige industrier inden for fødevarer-, medicinal-, og ingredienssektoren. Ligeså vigtigt er den politiske stabilitet, der er kendetegnende for de nordiske lande sammen med en høj grad af tillid til det offentlige system og befolkninger, der er omstillingsparate og åbne for at afprøve nye ideer.

En nordisk satsning for bedre forebyggelse

Som et uafhængigt forskningsorgan, der opererer under Nordisk Ministerråd med ansvar for at koordinere forskningsinitiativer de nordiske lande imellem har NordForsk mulighed for at spille en central rolle som den aktør, der kan styrke innovationen på forebyggelsesområder og dermed bidrage til at realisere visionen om at gøre Norden til en globalt helseeksperimentarium.

Som et centralt element i denne strategi anbefales etablering af et Nordic Centre of Excellence Programme målrettet forebyggelse af kroniske sygdomme. Programmet skal have til formål at opbygge forebyggelse som et integreret, sammenhængende og tværfagligt forskningsområde, der bygger på viden fra en lang række discipliner inden for medicin, humaniora og samfundsvidenskab og som inddrager relevante aktører fra flere sektorer.

Programmet skal søge at imødekomme de tre udfordringer, der er beskrevet i oplægget, dvs. det skal styrke forebyggelsesindsatsen gennem udvikling af innovative løsninger, der bygger på en ny tænkning, nye partnerskaber og nye platforme i form af helseeksperimentarier. Programmet bør være omdrejningspunkt for flere forskningscentre målrettet konkrete problemstillinger inden for forebyggelse af kroniske sygdomme. Oplægget lister i denne sammenhæng elementer til et forskningsdesign, som programmet bør søge at udvikle som led i at fremme modus 2 forskning og en ny tænkning på forebyggelsesområdet.

Afslutningsvist opstilles en række anbefalinger til NordForsk omkring etablering af samarbejde med regionale og internationale aktører. Centralt er anbefalingen om etablering af et Nordic Centre of Excellence Programme målrettet forebyggelse. Andre initiativer anbefales inklusiv etablering af et Nordic Action Centre for Prevention og udarbejdelsen af en Prevention Monitor.

Introduction

In March 2007, at a summit hosted by the Nordic Council of Ministers on ‘Global risks – Nordic Opportunities’, editor-in-chief and CEO of Scandinavia’s leading independent think-tank Monday Morning, Erik Rasmussen, outlined the Nordic region’s potential as a global leader and ‘hub’ in the development of innovative solutions to improve health and quality of life.

In October 2007, Monday Morning was requested by NordForsk to elaborate on this vision by focusing on the research efforts necessary to realise this vision. The results are presented in this discussion paper on ‘The Nordic Region as a Global Health Lab’.

The paper will be presented and discussed at a pre-seminar on ‘The Nordic Region as a Global Health Experimentarium’ organised in conjunction with the conference ‘New Trends on Nordic Innovation’ taking place in Oulu, Finland on 29-30th November 2007.

The paper has been produced with the contribution of the following Nordic health experts within the fields of prevention and public health:

- Finn Diderichsen, Professor and Head of Department of Social Medicine at University of Copenhagen, Denmark
- Dr. Marlie Ferenczi, National Prevention Research Initiative, UK
- Hans Siggard Jensen, Head of Department at Learning Lab Denmark, Denmark
- Finn Kamper-Jørgensen, Director, Danish Institute for Public Health, Denmark
- Stephan Rössner, Professor, Department of Medicine, Karolinska Institute, Sweden
- Else Smith, Director of the Danish National centre for Health Promotion and Prevention, Denmark
- Camilla Stoltenberg, Deputy Director at the Norwegian Institute of Public Health, Norway
- Stig Wall, Professor in Epidemiology and Public Health Sciences at Umeå University, Sweden

We thank them for contributing with their time and expertise in interviews and meetings. We also greatly appreciate the expertise and collaboration of Senior Adviser Bo Wesley, Health Futures in Novo Nordisk, and director Jacob Jaskov, Value Leap, in developing the proposals for a new science agenda for prevention.

Executive summary

The Nordic region has the potential to become a global role model in developing innovative, research-based solutions for preventing chronic diseases. This paper sets out a vision of how scientific research, through new mindsets, new partnerships and new platforms, can make a significant contribution to improving health standards by curbing the global crisis of chronic diseases.

The staggering societal challenge of chronic diseases

The rise in obesity and chronic diseases poses a major threat to global public health today, claiming more than 30 million lives in 2002. In 2020 the number of deaths resulting from chronic diseases at a global level is expected to reach 50 million. The consequences are staggering, considering the human, economic and welfare costs associated with premature deaths, treatment expenses and lost work and tax income.

In the face of this enormous challenge, governments and policy makers – also in the Nordic region – are now responding with action plans and strategies to increase efforts to ensure a more effective prevention of obesity and chronic diseases. Science and research communities play a key role in ensuring that these plans have the intended effects, by addressing the lack of knowledge of what is effective and for whom.

Need for new preventive solutions

The solutions applied so far, in the battle against chronic diseases, have had meagre results. A

major problem is that obesity and chronic diseases have been perceived mainly as lifestyle-related, i.e. that individuals simply lack the knowledge or necessary willpower to prevent the development of chronic diseases. The healthcare system has tended to focus on treatment solutions, while the public health system has tended to overemphasise information campaigns assuming a model of rational health behaviour by individuals.

It is now becoming increasingly evident that the challenge of obesity and chronic diseases is one that requires new and innovative social solutions that can support and motivate individuals and groups to choose healthier lifestyles. In the expanded landscape of prevention, solutions are being developed at local level, which target not only the individual, but also communities and social networks, as well as the broader societal framework for health standards and prevention. For these new preventive solutions to become effective at a larger scale, they must be supported and driven by research, which addresses the problem more broadly, and delivers assessment standards and evaluations that allow interventions to be applied across platforms and populations.

Three challenges for research-driven prevention

The paper identifies three key challenges that must be addressed if the Nordic region is to take a leading role in research-driven prevention of chronic diseases. First of all, a new mindset and science agenda, giving priority to preventive

measures (over treatment) and intervention (over observation), need to be developed and disseminated throughout the Nordic research communities. Secondly, new partnerships for preventive research and innovation that engage relevant players across sectors, institutions and borders, are crucial for intervention initiatives to succeed. Finally, new platforms must be developed, which allow the sharing of knowledge of the effectiveness of interventions for prevention in practice.

1) New mindset and science agenda

A sophisticated understanding of the mechanisms that affect individuals' choice of lifestyle and actual behaviour is fundamental to the development of preventive solutions that are effective. New fields of research are beginning to be applied to prevention and public health, including e.g. behavioural economics, applied ethnography and consumer behavioural research. In addition to broadening the scope of relevant research input, new methods and design of prevention research must also be developed and thereby challenge the traditional evidence construct. Emphasising more intervention- and practice-oriented prevention research is in line with the overall trend within science known as 'Modus 2 research'; a shift of paradigm, which shifts focus from a 'science of observation' to a 'science of intervention'.

Underpinning the new mindset and science agenda in the Nordic region, there is a need for an improved infrastructure, connecting the different fields of scientific research relevant to effective action on prevention. Shared databases and the development of common indicators are necessary as a critical first step, allowing the sharing and comparison of information on prevention across the Nordic region.

2) New partnerships

While scientific research is a key driver in successful prevention for health, science cannot succeed in the task by itself. A wide range of sectors and institutions have significant roles to play in partnership with researchers and academics, including the food industry, retail and catering industries, the biopharmaceutical industry, the healthcare sector, insurance, trade and consumer associations, patient organisations, national and local government. Targeted partnerships and

clusters for social innovation in prevention must therefore be strengthened and promoted across the Nordic region.

3) New platforms: Prevention labs

A key barrier to more effective preventive solutions is a lack of knowledge of what works and what does not work. To accelerate the development of new effective solutions, science communities can take the lead in creating real-life prevention labs, building on the new mindset for understanding prevention, and supported by a strong and stable research infrastructure to ensure the active diffusion of innovative ideas and interventions.

Prevention labs are institutional platforms that can act as a testing ground and incubators for a broad range of prevention initiatives. These initiatives can be seen as 'natural experiments' – from workplace initiatives on sports or healthy food aimed at improving the health of employees, to cities and urban structures as testing ground for finding out whether better access to green urban spaces and recreational facilities will improve health of citizens, or supermarkets providing packages of health-related products and services to their customers.

The paper sets out a number of key principles for the development and operation of the prevention labs. The overall aim is to free public health science from its ivory tower and bring it down to earth. Thus providing access to valuable knowledge, by making it possible to monitor and gather data crucial for judging whether or not the initiatives should be implemented at a larger scale.

Nordic advantages as a global health lab

The Nordic countries have significant advantages when it comes to addressing the challenges of chronic diseases, within the region as well as at a global scale. Sweden, Norway, Denmark, Finland and Iceland possess 'first mover advantages' in several fields necessary for the development of innovative solutions for prevention. These include well-established and publicly funded health care systems that provide access for public health research institutions. Furthermore, extensive population and health data registers provide fundamental knowledge of e.g. health patterns within

the population. In addition are national initiatives for prevention, a strong research tradition within epidemiological science, and competitive industries within the food sector, pharmaceuticals and ingredients. Equally important is a strong state, a high degree of trust in societal institutions, as well as populations relatively open to innovation and testing new approaches.

Accelerating Nordic prevention research efforts

As an independent Nordic research board operating under the Nordic Council of Ministers and charged with coordinating research efforts across the national communities, NordForsk has the opportunity to take a leading position as an innovation accelerator and thereby drive forward the vision of the Nordic region as a global health lab.

As a key strategy in these efforts, the paper recommends the creation of a Nordic Centre of Excellence Programme in prevention of chronic diseases. The aim of this programme should be to enhance the development of prevention as an integrated, comprehensive and multi-disciplinary field of research, building on knowledge from a wide range of disciplines within medicine, humanities and social science, and engaging relevant partners across societal sectors.

The task of the programme should be to pursue the three main challenges outlined in the paper, i.e. developing innovative preventive solutions that build on a new mindset of prevention, new partnerships and new platforms in the form of prevention labs. The programme should host several centres each targeting a specific challenge related to the prevention of chronic diseases. The paper outlines a research design to be promoted within the programme that includes elements characteristic of Modus 2-research and the new mindset of prevention.

Finally, the paper puts forward recommendations for NordForsk to engage in partnerships with regional and international players. A central recommendation is that NordForsk set up a Nordic Centre of Excellence Programme for Prevention. Additional initiatives are also suggested, including a Nordic Action Centre for Prevention and a Prevention Monitor.

Chronic diseases demand new solutions for prevention

Chronic diseases – a major challenge to health care systems and societies

The rise in obesity and chronic diseases poses a major threat to global public health. Today, the increase in heart diseases, strokes, cancer, chronic respiratory diseases and type 2 diabetes has taken on proportions that far surpass the impact of communicable diseases like HIV/AIDS, tuberculosis and malaria. In 2005, chronic diseases claimed more than 35 million lives at a global scale.¹ By 2015, they will be the most common causes of death in both developed and developing countries.²

The Nordic countries are no exception to this unfortunate trend, with cancer and cardiovascular diseases accounting for the majority of deaths of both men and women. As in the rest of the world,

the explanation for this is mainly to be found in changing habits and lifestyles, with unhealthy diets, smoking and low physical activity leading to obesity and chronic diseases. Almost 60 per cent of the male population in the Nordic region are overweight (BMI >25) or obese (BMI >30), and this is true for around 40 per cent of Nordic women too. In relation to obesity alone, the Finnish population seems to be taking a disturbing lead with one in five men being obese.

The human and societal costs related to chronic diseases are massive, and the economic consequences are impossible to ignore. In the Nordic countries, the current costs associated with unhealthy diet, physical inactivity and overweight are estimated to take up between 1 and 2 per cent of GDP. In addition to this are expenses related

TABLE 1 UNHEALTHY LIFESTYLES

	 Overweight or obese % of female population BMI > 25 2005	 Overweight or obese % of male population BMI > 25 2005	 Smokers Proportion of daily smokers of the population	 Alcohol consumption litre per capita 2005
Denmark	38,2	51,9	26,0 (2004)	11,3
Finland	40,1	59,7	21,8 (2005)	10,0
Iceland	40,4 (2002)	57,0 (2002)	19,3 (2006)	7,1
Norway	34,0	52,0	24,0 (2006)	6,4
Sweden	36,2	51,8	15,9 (2005)	6,6

Source: WHO Europe, 2005.

Chronic disease epidemics

WHO refers to the development of chronic diseases as having 'epidemic proportions' to highlight the fact that the total number of people dying from chronic diseases is double that of all infectious diseases. The main chronic diseases referred to in this context are cardiovascular diseases, mainly coronary heart disease and stroke, cancer, chronic respiratory diseases, mainly chronic obstructive pulmonary disease and asthma, and diabetes, mainly type 2-diabetes. Sometimes the term 'non-communicable diseases' is used to make the distinction from communicable diseases, while 'lifestyle-related diseases' is used to emphasise the contribution of behaviour to the development of chronic diseases.

Money to gain from healthier behaviour

- An assessment carried out by the Swedish Institute of Public Health a.o. concludes that if all the Swedes that are physically inactive today become moderately active, it will provide the Swedish society with a gain EUR 20 billion in the period covering the rest of their lifetime. For Denmark, this number would be 8.2 billion. Presuming that 11 per cent of the population living in Finland, Norway and Iceland are physically inactive today, the gains that the Nordic countries could obtain in total if all those who are inactive became moderately active would amount to somewhere around EUR 55 billion.
- In Denmark, where more than 1.5 million people live with chronic diseases, unhealthy lifestyles are estimated to burden society annually with a loss of production of DKR 45 billion, 8 million days of absence and 16.000 new disabled pensioners. The costs associated with smoking alone are predicted to amount to DKR 20.7 billion, while the use of alcohol costs 7.2 billion, physical inactivity 7.5 billion and unhealthy diets 0.8 billion. Despite this fact, studies show that in Denmark, every time DKR 1000 is spent on treatment, rehabilitation, care or compensation such as sick pay or incapacity benefit, only DKR 1 is invested in preventive measures.

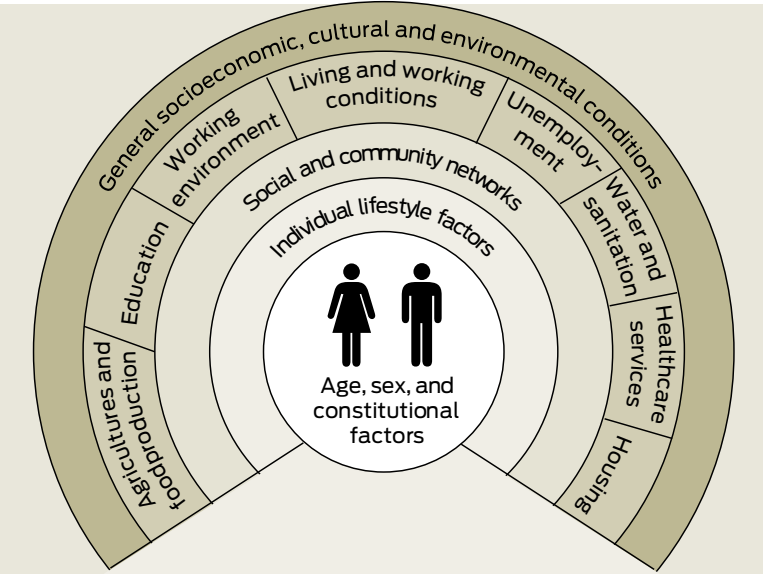
Sources: Nordic Council of Ministers, 2006. Juel, Sørensen and Brønnum-Hansen, 2006. Mandag Morgen, 2006.

to loss of production, days of absence and disabled pensioners that can be ascribed to chronic diseases. In Sweden, overweight and obesity alone is calculated to burden society with around EUR 1.7 billion, representing approximately 0.7 per cent of Sweden's GDP.³ Conversely, new studies are showing that there are huge economic gains to be made through successful prevention of chronic diseases. See text box.

Treatment expenses related to chronic diseases already place a heavy burden on healthcare expenses, adding to the pressures on the public health sector by the aging populations and rising demands for personalised and high quality healthcare services. With 75-85 per cent of health care expenditures financed by the public sector in the Nordic region,⁴ policy makers now acknowledge the urgent need for action to combat the pandemics.

Chronic diseases are particularly challenging as the current organisation and resource distribution at policy and institutional levels is incapable of dealing effectively with the threat. Combating chronic diseases, requires radical new approaches, which challenge status quo within almost every societal sector and institution – including research communities. Among the key questions to be addressed are how to prioritise prevention of chronic diseases in favour of treatment, and how to focus and design prevention efforts to achieve the greatest impact.

TABLE 2 A SOCIAL MODEL OF HEALTH



Source: Dahlgren and Whitehead, 1991.

Prevention on the national policy agendas

Obesity and chronic diseases can, to a large extent, be prevented from ever occurring in the first place. According to WHO, up to 80 per cent of premature heart disease, strokes and diabetes can be prevented and more than 40 per cent of incidences of cancer can be prevented through healthy diet, the maintenance of normal weight and physical activity.⁵ This figure is even higher for certain types of cancer, e.g. lung cancer, where a complete ban on smoking is estimated to lead to a reduction of 80 per cent within a few generations.

Current resources invested in prevention are still minor, however, compared to the resources invested in treatment of chronic diseases. Health-care systems and societal responses to health challenges are dominated by a medical discipline and professional culture oriented towards treatment rather than prevention and public health. In the Nordic region, the resources devoted to prevention and public health seem scarce compared with total health expenditures. According to the OECD, only up to 3.9 per cent of the total expenditure on health⁶ is spent on preventive measures and public health within the Nordic countries⁷, with Iceland hitting rock bottom with 0.6 per cent. In comparison, Canada and the Netherlands spend 6.1 and 4.7 per cent, respectively, of their total health expenses on initiatives for prevention and public health. See table 3.

At a government and policy level, the intent to battle chronic diseases through prevention is growing both nationally and internationally. The Nordic countries confront the challenges of chronic diseases through the formulation and implementation of national public health policies, action plans and prevention programmes for promoting healthier lifestyles. But across the region, the specific content and focus of the preventive efforts vary due to differences in priorities and organisational set-up of the public health care sector. For example, while the public health sector in Sweden emphasises the role played by social factors in relation to chronic diseases and includes efforts to improve social equality (economic, education etc.) as a key element in preventive efforts, the national initiatives for prevention in Denmark focus more narrowly on diet, physical activity and life style factors (smoking, alcohol) as key elements.

The national initiatives supplement joint

TABLE 3.
PREVENTION EXPENCES
Top 25, Total expences used for prevention,
per cent of total health expences, 2005

1	Canada	6,4
2	New Zealand	6,0
3	Hungary	5,3
4	Netherlands	4,7
5	Finland	3,9
6	United States	3,5
7	Germany	3,3
8	Mexico	3,3
9	Poland	2,3
10	Slovak Republic	2,3
11	Denmark	2,2
12	France	2,1
13	Switzerland	2,1
14	Austria	2,0
15	Norway	1,9
16	Japan	1,9
17	Portugal	1,8
18	Belgium	1,7
19	Czech Republic	1,7
20	Korea	1,7
21	Australia	1,5
22	Spain	1,5
23	Italy	0,7
24	Luxembourg	0,7
25	Iceland	0,6
X	Sweden	N/A

Source: OECD Health Data 2007.

Need for action

As recently stated in a report published by the World Cancer Research Fund, several things can be done to reduce the risk of getting cancer. Based on an analysis of 7000 previous studies of the causes of cancer, the report represents the most detailed examination ever conducted of the relationship between cancer and the way we live. Amongst the advice given, are the already well-known prescriptions: to be as slim as healthily possible, exercise every day and reduce the intake of alcohol and calories.

Source: World Cancer Research Fund, 2007

Prevention policies and action plans in the Nordic countries

- **In Sweden**, a national action plan to promote healthy dietary habits and increase the general physical activity of the Swedish population has been developed by the National Food Administration and the National Institute for Public Health. Focusing on the need to create social conditions that can ensure a better health standard for the entire population, including those groups that are most vulnerable to ill health, the plan lists 79 different proposals for measures to improve the prerequisites for healthy dietary habits and increased physical activity.
- **In Denmark**, a prevention commission has been appointed as part of a newly launched strategy by the Danish government to improve standards within the public sector. By the end of 2008, the commission will publish its recommendations that will form the basis for a national strategy for prevention to be launched in 2009.
- **In Norway**, the government has launched a national health plan for 2007–10, which aims at improving the standard within the public health sector. Among several areas addressed, the plan acknowledges the need to make it easier to live a healthy life and recommends that more resources be allocated to activities within prevention and public health.
- **In Finland**, the Government Resolution for Health 2015 consists of a cooperation programme that provides a broad framework for health promotion in various areas of society. It reaches across different sectors of administration, since public health is largely determined by factors external to health care: lifestyles, living environment, quality of products, factors promoting and factors endangering community health. The concepts 'settings of everyday life' and 'course of life' play a key role in the programme. The strategy presents eight targets for raising public health, which focus on problems requiring coordinated action by various bodies. They indicate the desired outcomes in different phases of a life-span.
- **In Iceland**, a national health plan identifies seven sectors as the main targets for health efforts until 2010. The plan sets ambitious goals for efforts within prevention and health promotion in relation to e.g. use of tobacco and alcohol, emphasising the need for improving public health and preventing diseases through a coordinated effort including a range of different players from the public and private sectors.

Sources: National Institute of Public Health, Sweden, 2005; Regeringen, Denmark, 2007; Helse- og Omsorgsdepartementet, Norway, 2006; Ministry of Social Affairs and Health, Finland, 2001; The Ministry of Health and Social Security, Iceland 2004;

efforts undertaken at a Nordic regional level and by the EU. The Nordic Plan of Action on Health, Physical Activity launched in July 2006 by the Nordic Council of Ministers constitutes the first step to create a common Nordic policy, preventing chronic diseases through healthy diet and physical activity. Included in this effort, is the establishment of a common monitoring system with data collection every second year, enabling a continuous assessment of achievements within the Nordic countries and ensuring that comparable methods are used.⁸

The need for a joint European action for prevention has also been acknowledged with the decision by the European Commission to launch

a strategy aiming at reducing ill health due to poor nutrition, overweight and obesity. The plan, which was launched in the spring of 2007, is the first of its kind in EU health policy.⁹

The new prevention landscape

The national and regional action plans and strategies bear witness to the political acknowledgement that to combat the pandemics and control the explosion of expenditures on healthcare, much greater emphasis must be placed on prevention in the future. But significant challenges remain for the policy documents to translate into concrete initiatives that produce the desired effects.

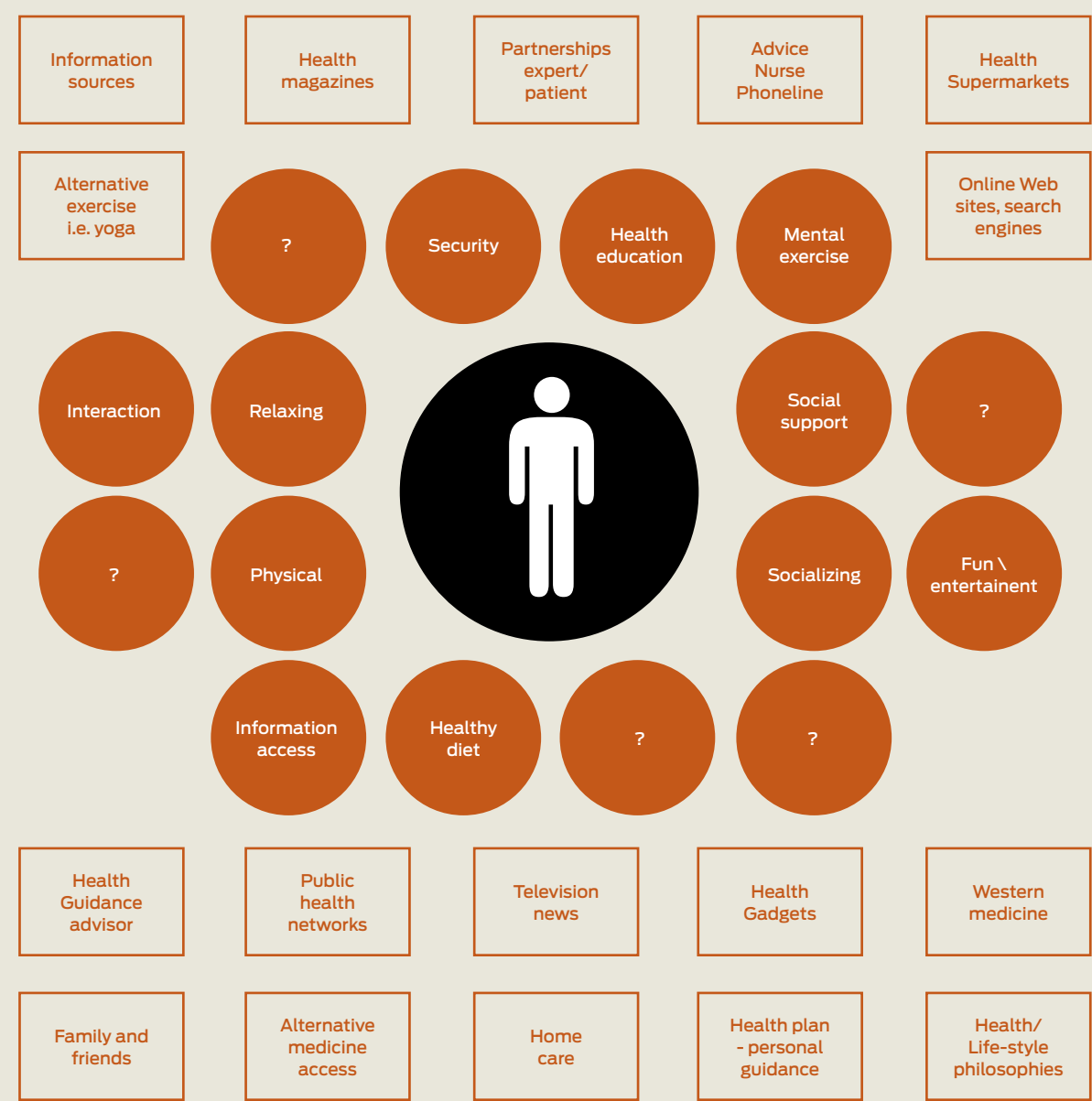
The key to effective prevention is behavioural



The background features several large, solid orange geometric shapes. On the left, there are three horizontal bars of varying lengths. On the right, there is a large, thick, diagonal line that starts from the top right and extends towards the bottom left. These shapes overlap with the text, creating a layered effect.

INTENT TO
BATTL E CHRON
DISEASES
THROUGH
VENTION S
INCREASING AT
BOTH
NATIONAL
INTERNATIONAL
LEVELS

TABLE 4 THE NEW PERSONAL HEALTH ECOLOGY



Source: Monday Morning, 2005.

Policies are moving in the right direction

Policy makers are increasingly recognising that prevention efforts cannot be reduced to efforts targeting lifestyle choices of individuals. For example the European Action plan for Prevention recommends that nations carry out comprehensive health promotion in a range of settings such as schools, workplaces, families and local communities, recognising that the lifestyle-related determinants of health that play a role in relation to chronic diseases are multi-dimensional, life-course specific and possibly linked to cultural aspects and socio-economic factors. The resolution on health put forward by the Finnish government is also on step towards a new mindset using the concepts 'settings of everyday life' and 'course of life' as key elements in a strategy acknowledging that public health is largely determined by factors outside the traditional health care system.

Sources: Commission of the European Communities, 2007; Ministry of Social Affairs and Health, 2001.

change. The question, then, is how to ensure significant and sustained behavioural change.

The traditional approach to chronic diseases and prevention argues that these diseases are a result of the particular lifestyle of the individual, who has made an informed and autonomous choice to engage in the risk behaviour commonly associated with chronic diseases: smoking, alcohol consumption, physical inactivity and unhealthy diet. Societal efforts to promote behavioural change, risk being paternalistic, setting up a 'nanny state' that aims to force people to change their actions against their free will. Public health campaigns, in this perspective, focus predominantly on the individual and on providing him with information that may influence him to make different, healthier, choices.

This approach is failing. It is becoming increasingly clear that chronic diseases cannot be combated effectively by simply allocating more resources into existing public health programmes aimed at lifestyle changes through health promotion and campaigns. As obesity and chronic diseases are becoming the norm in our modern societies, we must adopt a completely different mindset that acknowledges a new enlarged landscape of prevention. See table 4.

In the new landscape of prevention, chronic diseases are understood not as a result of individual lifestyle choices, but as a result of the structure of our civilisation. This opens for new perspectives on three fundamental levels: *who* should be the target of prevention efforts?; in *which arenas* should prevention policies and initiatives be implemented?; and *how* should prevention efforts be designed?

■ **Who is the target:** The traditional public health approach to prevention communicates broadly to the entire population, or perhaps to high-risk groups. The assumption seems to be that everyone has the same opportunities to choose a healthy lifestyle. This overlooks the fact that people are very different in terms of genetic, cultural and social setup. It is simply not true that everyone is equally disposed to live a healthy life in a modern civilization with all its temptations and at the same time maintain an adequate level of physical activity.

In the new landscape of prevention,

initiatives are tailored to the relevant needs of specific groups, segments and individuals.

■ **What are the arenas of prevention:** According to the traditional approach, prevention is something that takes place in consultation with the family doctor or general practitioner (GP), where the patient receives information packages, leaflets and counseling face-to-face with the GP. But decisions relevant to health standards are made all places in society (in the supermarket, at school, at work, transportation etc.) and not merely in the GP's office. And many people typically do not consult their GP until they have already developed disease symptoms following their unhealthy lifestyle. Studies from Denmark also show that some GPs feel uncomfortable discussing e.g. the need for weight loss with some patients and therefore avoid doing so. Another study indicates that GPs are giving the right health advice, but to the wrong patient groups, e.g. advising women to loose weight when men are more often subject to overweight or advising older people about diet when diets of young people are often more unhealthy.¹⁰

In the new landscape of prevention, it is recognised that everyday choices of what to eat, whether to smoke or consume alcohol or whether to exercise or not, are all made within a specific context. The relevant arenas for preventive efforts therefore include those communities, networks and social structures that can induce and sustain behavioural change at the individual level. See table 4.

■ **How to design prevention:**

The traditional focus on lifestyle presumes that people act rationally on the basis of adequate information. On the contrary, people normally act 'irrationally'. Information does not automatically lead to action, nor does good intention necessarily explain people's behaviour. Information brochures and food labelling can provide consumers with information necessary to make healthy choices, but transforming that knowledge into action is a different story.

In the new landscape of prevention, preventive efforts are designed as interventions that redesign the environment and produce experiences that point towards and support new patterns of individual behaviour.

Prevention on national and regional research agendas

The new landscape of prevention makes room for innovative preventive initiatives involving new players, institutions and sectors across society. But the multidisciplinary approach also complicates the picture, challenging existing boundaries between organisations and sectors, and creating a need for policy decisions on what to focus on and where to allocate resources.

In this context, knowledge of what works, and for whom, is crucial for the support for policy decisions and resource allocations. Research communities therefore play a central role in enhancing knowledge creation in relation to health prevention, particularly linking behaviour, health and effective health promoting initiatives. The lack of monitoring and adequate research methods is currently a barrier to the development of a comprehensive, user-oriented and coordinated prevention research agenda. This is e.g. recognised in the Swedish action plan for health that calls for simultaneous interventions that can provide access to measuring the effects of multisectoral interventions.¹¹ Another barrier is the current prioritisation of research fields and resources: on the one hand there is a need for more coordination across distinct areas of research that have relevance to the new expanded landscape of prevention, and on the other hand there is a need to re-focus the design and methods adopted in current approaches to preventive research.

Public health research in the Nordic region

Statistics indicate that the Nordic region has several strong points in public health research. Research on public health amounts to 7–8 per cent of total health research in the Nordic countries, compared to 4–5 per cent at a global scale.¹² Compared with the rest of Europe, the Nordic region also ranks high in terms of research papers published within the field of public health, including health service research, health promotion and health management. The Nordic countries produce between 54 and 70 publications per million people, while the scientific production in countries like the Netherlands and UK only amounts to 53 publications per million people. See table 5.

When it comes to the research priorities carried out by the national public health associations,

Scandinavia ranks as number one within all four dimensions included in public health research: services and systems, promotion, chronic diseases and epidemiology. An explanation for this is mainly to be found with reference to the strong public health sector, characteristic of the Nordic region. See table 6.

Even though the Nordic region seems to hold a strong position in public health science, knowledge of how the different research areas within this field are prioritised is much less evident and only obtainable on a fragmented basis. See text box on national research councils.

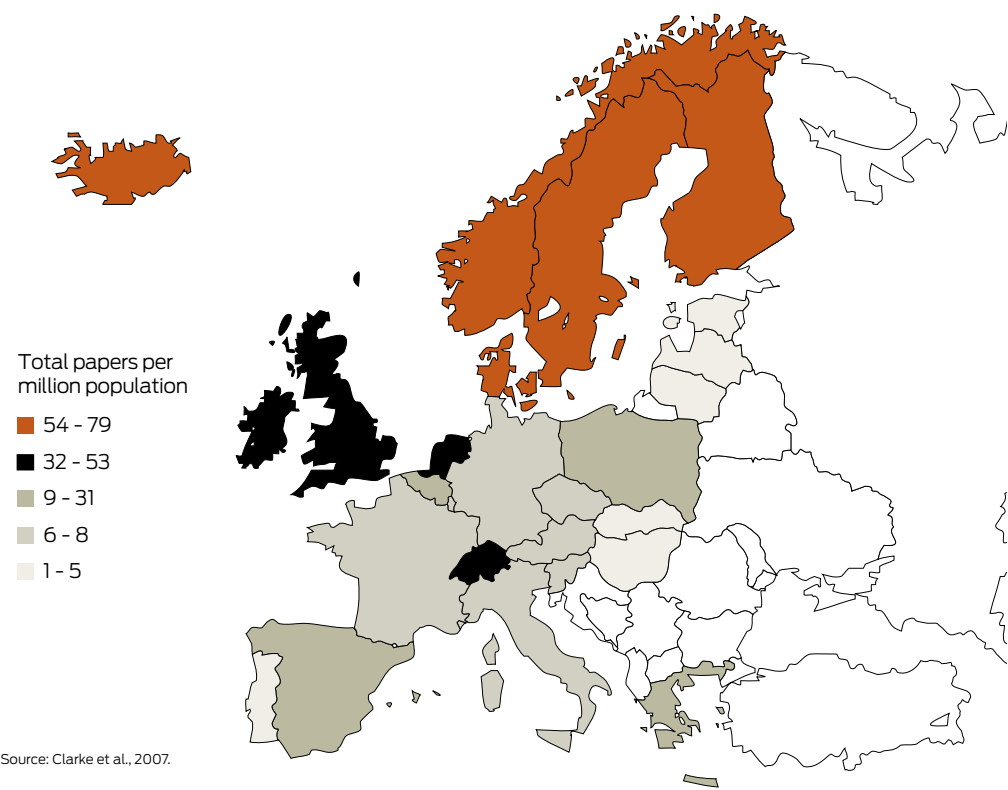
There are several reasons for the difficulties in obtaining data on prevention research:

- **First**, the complex concept of prevention, and the lack of a common understanding of the term, proves that it is difficult to delineate research boundaries, as many scientific disciplines may provide relevant insights and knowledge.
- **Second**, since prevention is a multidisciplinary discipline, the research efforts are not placed in one single institution or university but are carried out within several fields, sector programmes and units, from medical institutions to social science departments, private compa-

Public health research

- is undertaken at the population or health service level (compared with biomedical or clinical health research at laboratory and patient levels)
 - is designed to gain general knowledge, although this may be within a specific health system or context being researched
 - if often goal-oriented, with policy-relevance, and may be published in either academic journals or institutional reports
 - uses a range of observational methods, including surveys, registers, data-sets, case-studies and statistical modelling
 - draws on disciplines including epidemiology, sociology, psychology and economics, and interdisciplinary fields of environmental health, health promotion, disease prevention, health care management, health services research and health systems research.
- Sources: SPHERE, 2007.

TABLE 5 HARDWORKING
Average annual public health publications by country



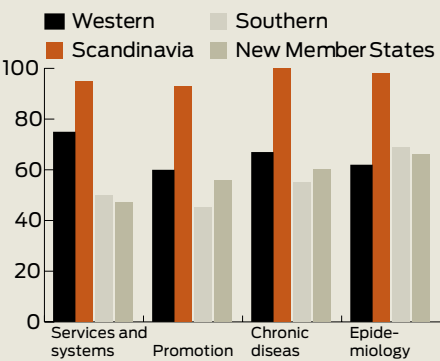
nies and interest organisations. This makes it difficult to get a full view of the efforts taking place at a national or regional level, which then complicates a prioritisation of the initiatives to be carried out in the future.

■ **Third**, the fact that prevention as a research field is still in its embryo complicates the gathering and monitoring of data necessary to upgrade the effort. Research targeting prevention specifically is only beginning to show in the statistics as a separate measure from health care. In the Nordic statistics of health and social indicators (NOMESCO (Nordic Medico-Statistical Committee), NOSOSCO (Nordic Social Statistical Committee)) there is no separate estimation of the prevention expenditures within the Nordic countries³³ The same is the case within research.

Despite the lack of data on the status of research within prevention and public health specifically in the Nordic region, some conclusions can be

TABLE 6
NATIONAL PUBLIC HEALTH ASSOCIATIONS

Public health research priorities of national public health association, pct.



Note: The figure is based on a poll to national public health associations in Europe performed by SPHERE (Strengthening Public Health Research in Europe). The Nordic institutions that participated in the poll were University of Oslo in Norway, Lund University, Department of Health Sciences, Division of Social Medicine and Global Health in Sweden, the Iceland Public Health Association and the National Research and Development Centre for Welfare and Health in Finland. 100 % indicates that all respondents in the field prioritise the particular research field.

Source: SPHERE, 2007.

Preventive research priorities of Nordic national research councils

No collected data exists on research initiatives within the fields of prevention and public health carried out with support from the national research councils in the Nordic countries. However, it is possible to get an impression of the efforts by looking at the different research programmes and strategies adopted by the national research councils.¹

■ **Sweden:** The Swedish Research Council, Vetenskapsrådet, is the largest provider of public funds to Swedish basic research with a budget of EURO 308 million a year. The council has no research strategy addressing prevention of chronic diseases specifically, but research projects on this issue are mostly included in the field of medical research administered by the Scientific Council of Medicine. In 2006, EURO 62 million was granted for research in all fields of medical science including dentistry, pharmacy and health care science. Of these, 2.4 per cent was marked public health, in specific, while research in diabetes and cancer received respectively 4.7 and 4.5 per cent.

■ **Denmark:** The Danish Medical Research Council provides funding for basic research in clinical research, biomedicine, social medicine, treatment, epidemiology and public health. In 2006, DKR 210 million was granted for research within this field, but more specific data on how this funding was distributed is not available. The same is the case for the Programme Commission on Food and Health that in 2006 provided DKR 145 million for strategic

research investigating the relations between food, health, life style and medicine resistance. Several of these initiatives focus on the prevention of chronic diseases, which is the case with e.g. the Danish Obesity Research Centre, which received DKR 40 million for a research project on specific nutrients that can have an impact on the development of obesity.

■ **Norway:** The Research Council of Norway supports medical and health science research activities over a broad spectrum encompassing basic and applied fields in human medicine, dentistry and psychology as well as research in multi-disciplinary fields such as epidemiology, health services, preventive and health-promoting initiatives. No data exists on research activities that target prevention specifically, but the field is addressed in a research programme on public health research that focuses on individual, social, cultural and societal factors influencing health. Running from 2006 to 2010, the programme in its first year granted NKR 18.1 million to 45 different research projects covering e.g. the development of social competencies among children.

■ **Finland:** As the main national research body, the Academy of Finland funds 16 per cent of national R&D spending in Finland. The funding, which is provided for basic research only, covers several research programmes within medicine and public health. No data exists on research activities that target prevention

specifically, but a research programme on nutrition, foods and health targets the area by supporting research that can make it easy for consumers to make healthy and safe food choices. EURO 7 million have been reserved for the programme within a four-year period. Prevention is also a main element in two larger upcoming research programmes worth up to EURO 9 million each, one focusing on identifications of factors leading to diseases, the other targeting the challenge of childhood obesity.

■ **Iceland:** The Icelandic Centre of Research (RANNIS) has no full overview of publicly funded research activities taking place within the areas of public health and prevention in Iceland. While low in absolute figures, relative levels of public R&D funding in Iceland are high, and increasing in international comparison. Environment and health policies interact closely with science and technology policy, both domains are seen as important topics for research and technology development activities in Iceland. Among the initiatives highlighted in the resolution for the Science and Technology Policy Council are healthy food and health, while research in health and nutrition is pinpointed as a specific area of research of high importance to the Icelandic nation.

Sources: Vetenskapsrådet, 2007; Det Frie Forskningsråd, 2007; Det Strategiske Forskningsråd, 2007; Norges forskningsråd, 2007; The Academy of Finland, 2007;

¹ The following data have been collected through conversations with representatives from the national research institutions and, where it was judged necessary, representatives from national research institutions and universities. The data is not to be regarded as complete or representative, but is collected with the purpose of creating an impression of the effort carried out in the field within the Nordic region.

drawn on the basis of research activities and programme priorities today.¹⁴ Each one of the Nordic countries seems to hold strong positions within the field of epidemiological research thanks to a large number of population based registries and censuses that have been made possible by the tradition of civil registration systems in the Nordic region. Conversely, research in intervention studies on preventive measures is very weak in the Nordic region.

In addition, each country has specific competences within preventive research. Finland has a high level of experience in research into the genetic background and lifestyle factors of major diseases and a long tradition in effective interventions in disease prevention. This is best exemplified with the world-acclaimed North Karelia Project carried out in the 1970s. See text box page 36. The Danish research environment is strong when it comes to monitoring e.g. health status and risk factors due to access to registries and databases on biomarkers, while Sweden has a tradition within research linking health and social parameters, and Norway is known for a praxis-based approach to research within the field.

A new research approach to accelerate prevention

While the Nordic countries seem to possess complementary competencies within prevention and public health research, the lack of an overview of on-going initiatives complicates a strategic effort to put more resources into and determining new priorities within the field. Also, while Finland has set some historical standards within intervention research, it seems that analytical research, which can explain mechanisms for social inequalities in health, is scarce and intervention research almost non-existing.¹⁵ The lack of knowledge, which can explain how behaviour is related to lifestyle, makes it difficult to know where to commence.

In sum, the need for an improved effort to accelerate prevention and prevention research calls for action on three levels:

- **Mindset:** We need a mindset shift in relation to how we perceive preventive research. The old-school way of thinking of prevention, is a barrier to designing intervention studies that work, due to the lack of focus on broader mechanism and drivers of behaviour. A new mindset must amongst other things build on a new and extensive use of qualitative methods, a widened evidence concept and interdisciplinary research.
- **Partnerships:** For prevention initiatives to become effective, we need access to a wide range of complementary knowledge and disciplines. While each Nordic country possesses competencies within specific research fields, knowledge sharing within the region is a prerequisite for strengthening the effectiveness of intervention studies carried out at a national level. Already, there are examples of partnerships working to share knowledge of preventive practice and research, e.g. the Nordic conferences on social medicine and public health that take place every third year⁶, but more networks are needed, which include players within the scientific community, health care and social services, as well as representatives from the private sector such as companies and civil society organisations.
- **Platforms:** We need to strengthen knowledge creation, data registration and monitoring to allow evaluation and increase in interventions. Today, a number of small-scale initiatives are already being carried out at a local level within the Nordic countries. However, these interventions are seldom evaluated in a way that allows knowledge-sharing. To improve and accelerate the overall preventive efforts, we need to establish dedicated test platforms that can contribute to the development of a common knowledge base.

In the following section these three fields of action are examined in more detail.



How science can accelerate prevention

To effectively combat the pandemics of obesity and chronic diseases, we need to develop preventive solutions that work for people in their everyday life. Science has a key role to play in this regard to increase our understanding of the mechanisms that influence human behaviour and life style across all levels – ranging from the individual to social networks, institutions and society as a whole. But to fulfil this role, there is a fundamental need for a shift of paradigm within the science of public health: What is needed is a shift of focus from ‘observational sciences’ in controlled laboratory environments to ‘real-life intervention sciences’ in social communities, carried out in collaboration with new partners.

The following chapter examines how science can contribute to accelerating prevention

of chronic diseases through the development of a new mindset and new partnerships for prevention, and how valuable knowledge can be developed in practice, through the creation of prevention labs.

A NEW MINDSET FOR THE SCIENCE OF PUBLIC HEALTH

Confronted with the widely expanded landscape of prevention, scientists and researchers face new complex challenges. Interviews with Nordic experts and extensive desk research indicate that the practice of research on prevention is not yet attuned to the new trends, although steps are being taken towards this.

The need for a new mindset follows a larger trend within science labelled ‘*From Modus-1 Research to Modus-2 Research*’. This theory is

TABLE 7 FROM MODUS-1 RESEARCH TO MODUS-2 RESEARCH

A movement from knowledge production in the universities	to knowledge production in many social contexts
From the autonome research institution in academia	to interdisciplinary research
From knowledge evaluated in regard to the researchers internal criteria	to knowledge evaluated in regard to criteria of relevance and application in society
From the question of reliability and validity	to the question of social sustainability

Source: Gibbons et al., 1994.

new science of public health must be based on natural experiments and field studies of intervention. New standards and scientific tools are therefore needed to assess and evaluate the results. This includes transferability and scalability. A key requirement is to expand the concept of *evidence*.

Today, an accepted hierarchy of evidence for scientific results exists. See table 8. The highest quality of evidence is attributed to randomised controlled trials, based on a scientific ideal from the natural sciences. Public health studies, based on the human and social sciences, has much greater difficulty in living up to the ‘ideal conditions’, which should be satisfied to document the effect of an initiative according to the natural sciences:

The effect must be measured. With regard to preventive interventions, we lack comparable measures. Our understanding of the prob-

lems is reasonable (the common risk factors for non-communicable diseases i.e. smoking, alcohol, physical inactivity and unhealthy diets). But until now, very little knowledge exists on how to react to the problems: We generally don’t know what works. A fundamental problem is the time frame involved: Broad civilisation changes take time; they are seldom brought about within the time span of an election period or a PhD research programme.

The effect must be the object of the intervention.

Because of the complex landscape of prevention, and the many factors influencing individual behaviour, it is a challenge to isolate cause-and-effect factors and apply traditional epidemiological evaluative schemes in the evaluation.

The intervention should be transferable.

Preventive interventions should be designed to maximise impact within a specific context, but this also makes it difficult to assess whether the intervention is transferable, i.e. would work in other contexts.

The intervention should be cost effective.

In the field of prevention studies, we have very little knowledge of effectiveness compared to efficacy. The assessment of the cost-effectiveness of prevention interventions requires the contribution of the fairly new disciplines of health and socio-economics to demonstrate effectiveness in relation to impact within and across context settings.

TABLE 8 THE HIERARCHY OF EVIDENCE	
Research design	Evidence
systematic review of randomized controlled trials (RCT's), cochrane analysis, meta analysis.	High
Randomized controlled trials (RCT's)	High
Controlled, non-randomized study, cohort studies, direct diagnostic test.	Middle
Case control study, decisionanalysis, descriptive study.	Middle
Smaller series, literature review, expert statements, editorials.	Low

Source: DSI Institut for Sundhedsvæsen, 2006.

AN INTERVENTION STUDY is a study, in which the conditions are under the control of the investigator, i.e. a study in which the investigator allocates people (individuals, communities or populations) to an intervention (which receives a health promotion activity or programme e.g. an exercise programme) or to a comparison group which either receives a different activity or programme, or acts as a control group. The investigator then assesses and compares the results from the two groups. A randomised controlled trial is a specific form of intervention study.

Source: Clarke et al., 2007

AN OBSERVATIONAL STUDY is a study, in which the investigator acts as an observer to what happens when populations or communities vary 'naturally', for example during the extent of the exercise. Similarly, the investigator assesses and compares the outcomes between groups. Cohort and cross-sectional studies are examples of observational studies.

Source: Clarke et al., 2007

An expanded concept of evidence

Public health research must build on an expanded concept of evidence encompassing the development of new knowledge within three dimensions¹⁷: 1) Knowledge of the causes and the prevalence of disease 2) Knowledge of the effectiveness of interventions 3) Knowledge of the design (organisation and implementation) of interventions. The first dimension has had the highest priority in prevention research until today, but it is the second and particularly the third dimension that must be the cornerstones of the new science of public health. See table 9 next page.

1. Knowledge of the causes and prevalence of disease

Understanding the scale of the problem and the causes of disease are crucial aspects of public health research. Epidemiological research gives us insight into the causes of diseases, but its observational nature makes it difficult to distinguish between associations between two events and causation. There are many population-based registries describing the education, income, occupation, living conditions and health of the population. The population registries in the Nordic countries make the follow-up simple, inexpensive and reliable for the entire life span. It is only in the Nordic countries that diseases, health factors, social factors and cultural factors can be studied over long periods with affordable financial resources, and this makes the Nordic region world champions when it comes to epidemiology. However, the research potential of the registries

could be much improved by linking them to ongoing ‘natural experiments’, i.e. interventions on prevention in the field.

2. Knowledge of effectiveness of interventions

Evidence in relation to interventions is about assessing what works and what does not work. Many evaluations of preventive interventions are conducted locally, nationally and internationally. However, very few studies are able to live up to the strict clinical research standards of randomised controlled trials (RCT) – see above. The problem may simply be that preventive interventions cannot be assessed by clinical standards, because they are often very complex and are often conducted at population level, and there are political and ethical problems associated with randomising – not to mention the expense. In addition, interviews with Nordic experts and desk research points to the following challenges for effectiveness research.

- Effectiveness studies have not been prioritised in the Nordic region. Experience from Sweden indicates that despite available funding, the lack of high quality projects acts as a barrier to research. Part of the solution may be the establishment of a better infrastructure and environment for research on prevention and on the effectiveness of preventive interventions.

TABLE 9 THREE DIMENSIONS OF KNOWLEDGE			
	Knowledge of the causes and the prevalence of disease	Knowledge of the effectiveness of interventions	Knowledge of the organisation and implementation of interventions in a local context (the design)
Questions	What is the problem	What works	How does it work, for who, where and when
Type of knowledge	Epidemiological knowledge based on population-based registries and studies	Systematic reviews and meta analysis based on randomized controlled trials	Sociological knowledge based on qualitative and quantitative methods
Challenges	To understand the mechanisms behind disease	To rethink the RCT-norm To share knowledge To measure and monitor	To find and collect knowledge

Source: Evidens i forebyggelsen, Sundhedsstyrelsen, 2007.

- There are many international databases on evidence (see fact box), which provide valuable insight into the evidence base of prevention research, but a major problem is the lack of a common set of indicators to ensure a standardised way of measuring both the interventions themselves and their effects. For the Nordic region to accelerate preventive efforts, there is a need for a new infrastructure connecting the different fields of scientific research. Shared databases and the development of common indicators are necessary as a critical first step, allowing the sharing and comparison of information on prevention across the Nordic region.
- There are many small-scale local prevention initiatives being carried out, which can be seen as ‘natural experiments’. These should be exploited much better and more systematically since they represent a major knowledge reservoir, but this requires a higher acceptance of practice-based rather than research-based evidence.

The methodology of cost effectiveness studies must be developed to increase their applicability for broader health promotion interventions, when compared to clinical prevention. A recent study shows that there appears to be certain methodological features in the practice of economic evaluations that might bias the choice between prevention and cure in favour of the latter¹⁸.

3. Knowledge of organisation and implementation

RCTs may be a powerful instrument when it comes to monitoring, measuring and evaluating current interventions, but they are fundamentally weak when it comes to developing and constructing new and innovative interventions

from scratch. A wider knowledge/evidence concept including a deeper understanding of human behaviour is crucial for a more tailored approach to the design of interventions.

Today, we are only beginning to scratch the surface in terms of understanding the motives and cause-effect relations behind behavioural change in individuals and groups. It is undisputed that obesity and chronic diseases are more highly concentrated in lower income groups, but prevention research needs to deliver more than the observation of a certain association between social status and health. In this regard, the new public health science, focusing on prevention, can draw on a wide range of emerging disciplines and research fields, which all contribute with new vital insights into behavioural change.

New perspectives on understanding ‘irrational’ behaviour

The traditional prevention approach to lifestyle change has been based on the assumption that the individual can set rational goals, then follow them and shift to optimal health behaviour. Hardly a week goes by in which we don’t see an introduction of a new product or service with the aim of making people lose weight, improve their general shape, and get healthier. The disheartening truth is that few of these products and services deliver. People go to fitness centers, they read self help books, they buy what seem to be healthy foods, they invest in various sports gear, and they even seek professional help in the health care system. But all this is of little help. Very few succeed in achieving their goals.

Somehow these solutions miss what is necessary to help people in losing weight. They do not fit into people’s lives, but presuppose that they should change their lives to match the products. What is even more discouraging is that the initiatives mentioned are amongst the most successful! At least people try them. Many well-intended public health activities never even get to that point. We know that campaigns have very little effect on public behaviour. They help change attitudes, but attitudes alone rarely lead to change in behaviour¹⁹.

International databases on evidence:

www.nice.org.uk
 www.thecommunityguide.org
 www.cochrane.org
 www.campbellcollaboration.org
 www.york.ac.uk/inst/crd
 www.vichealth.vic.gov.au

New disciplines enter the field of prevention studies

Some of the most relevant disciplines that can inspire interaction-oriented prevention research are behavioural economics, applied ethnography and consumer behaviour research.

Behavioural economics is an emerging discipline that grapples with human limitations and complications related to choice, self-control and behaviour. It combines insights from cognitive science, learning theory and traditional economics in order to understand and influence behaviour – especially behaviour that is deemed 'irrational'. In one recent example of policy advice from the perspective of behavioural economics 'What does behavioural economics mean for policy? – Challenges to savings and health policies in the Netherlands' (2007), the authors Kooreman & Prast distinguish between 'classical' and 'new' types of intervention. While the first type presumes that institutions know what is good for citizens, the new approach presumes that citizens themselves know what is good for them, but does not act upon it for several reasons. Rather than reducing negative 'externalities' and promote positive 'externalities', the purpose with the new approach is to reduce negative 'internalities' through the use of different commitment mechanisms, labels, regulations etc.

Applied ethnography can give us a deeper understanding of people's everyday interactions with their material world, thus providing valuable input to new product and service development. Ethnographers (and anthropologists) are specialised in doing fieldwork and studying people's behaviour in their physi-

cal and social environment. Ethnographic methods have been used for quite a few years in the field of medical anthropology. Until now, most research has focused on the cultural dimensions of health, which helps to improve health communication, but it falls short when it comes to designing new solutions. However, there is much to learn from how design agencies and innovation teams use ethnographic methods and field research to understand user activities in their specific physical environment. How do people interact with their material environment and what shortcomings do they experience? This is a way of uncovering opportunities for new product and solution development.

Consumer behaviour research can leverage insights from probably the largest pool of experience when it comes to influencing behaviour: advertising and marketing. Marketing is being reshaped these years by a strong drive towards contextual, almost invisible communication. This goes on in two ways: In interactive media and in our shops. Firstly, through interactive media, advertisers can create micro segments and target people when they are most receptive to their messages, for example when they are searching Google for certain information. Secondly, the new marketing strategy manipulates consumers when they are shopping and making consumption choices. These choices are easiest to influence in the physical environment of the shop, because most behaviour is driven by environmental impulses.

Source: Kooreman & Prast, 2007; Underhill, 1999.

Need for environmental re-design

Products and services also fail insofar as they rely on an intention-driven effort to change lifestyle by their users. Intentions only explain a small part of people's subsequent behaviour.²⁰ Competing drivers influencing behaviour often rely on other mechanisms than intention. They are based on interactions that give pleasurable feedback or diminish non-pleasurable effort. Since both types of feedback are short term-focused they have a higher proba-

bility of sustaining the users' courses of action. Short-term feedback is much more important than long-term feedback in shaping human behaviour.²¹ The environment we live in, constantly gives us short-term impulses that are counter-productive in the long run.

Design is about creating solutions that match the lifestyle of user, the user's activities, and the context of use. Good design ensures that productive functionality and good experience go hand in hand. The so-called 'good

“WE KNOW LITTLE OF EFFECTIVENESS COMPARED TO EFFICACY. FOR EXAMPLE, WE HAVE DONE RANDOMISED CONTROLLED TRIALS ON EFFICACY AS PART OF MAMMOGRAPHY SCREENINGS, BUT WHAT WILL HAPPEN WHEN WE IMPLEMENT IT IN THE COMMUNITY IN TERMS OF EFFECTIVENESS AND THE RELATED COSTS?”

Stig Wall, Professor in Epidemiology and Public Health Sciences at Umeå University

design’ is one of the key reasons why we have trouble with obesity. Design has made us enormously productive and given us much pleasure. We can achieve much with little effort, and get positive experiences while doing what we do. Transportation, eating, working, housekeeping; all is accomplished with less and less effort and more immediate pleasure than before.

It is the small choices that matter

All this ‘good design’ is accomplished through an understanding of people in their context, and through the creation of experiences that are perceived as valuable. If we want to change what people do, we need to change their interaction environment and produce experiences that point towards new patterns of behaviour. We need to re-design the existing so-called good designs. We need to create designs that encourage healthier behavioral patterns. Most people have made radical decisions to become healthy, but it is the small choices in everyday life that matter and form our behaviour. We need to make the many small healthy choices easier to make.

In order to create new patterns of behaviour we need to understand what kind of interactions draw people towards healthier living. And we need to understand how these interactions can become sustainable and scalable. This implies a two-dimensional approach: On the one hand we need to learn from and synthesize the experience of other relevant and emerging research disciplines. See fact box next page. On the other hand there is a need for diffusion and social anchoring. Behavioural change does not exist in a social vacuum, but is dependent on social norms, social institutions and social interactions. Design, monitoring and evaluation of prevention interventions should take place between individuals, groups and at a societal level. Emerging research fields add new perspectives to prevention science at each of these three levels.

Innovative prevention initiatives to combat childhood obesity

Childhood obesity is a global challenge, which is also increasingly familiar to the Nordic countries. The consequences for children's overall health, social and psychological wellbeing are severe. Weight in childhood years is significantly related to weight in puberty and adulthood, indicating that the earlier a child becomes overweight or obese, the more difficult it will be to alleviate the consequences of obesity later in life. In future, rising childhood obesity will therefore lead to increasing overweight and obese adult populations followed by further growth in chronic diseases and a reduction in the life expectancy and general quality of life.

The Nordic countries have recognised the need for action to combat childhood obesity. As a consequence, a growing number of public health campaigns target children directly by promoting increased physical activity. Both Norway and Sweden have adopted legislation prohibiting advertisements for unhealthy food and soft drinks in television broadcasting for children.

However, information campaigns and policy regulations are far from adequate to deal effectively with the challenge. To fight childhood obesity, we need to shift focus from information to action and involve new players, new methods and new channels of communication. The initiatives must apply the tools and platforms that children and youth are in contact with on a daily basis. Television shows and the diffusion of new technologies such as the Internet and mobile phones provide significant opportunities for innovative prevention initiatives targeting children and youth. See case examples below.

1. LazyTown

LazyTown is an award-winning Icelandic TV-show, which aims to increase the overall level of physical activity among children and to encourage healthier eating habits and diets. This is done through an imaginary world where a cartoon superhero changes the behaviour of an entire lazy town. The TV-show

primarily appeals to children aged 4-7. The show is a very good example of how to engage with children on their terms, making preventive activities and physical activity a kind of entertainment rather than information and education. The TV-show has also proved to be quite an export success. Today it is sold and broadcasted in 103 countries, and that number is increasing.

2. Fitness Adventure

Fitness Adventure combines a mobile game and fitness exercise. The concept is designed to motivate users to go out for a walk or a run, using the application with his/her own mobile phone and GPS location technology to move from place to place and be entertained with an interesting story spiced up with information on different sites along the route that the person is walking or running. The concept has been developed to target senior citizens, but can also be applied to children and youth.

3. Legepatruljen

Legepatruljen is a Danish concept developed by the Danish Cancer Society in collaboration with TrygFonden, Kompan A/S, the Danish Gymnastics and Sports Association e.a. The purpose of the project is to increase schoolchildren's physical activity in breaks between classes through play, games and exercise. Older pupils are trained as play patrols and it is their job to engage and inspire younger pupils to play, increasing their overall level of physical activity and providing children with 'cool' role models instead of boring information pamphlets. The principal organisers represent different sectors of society and include major national patient organisations, manufacturers of toys and outdoor playgrounds, gymnastics associations and grant foundations.

Sources: WHO Europe, 2005; Livingstone, 2001; Lambrechtsen, 2000; Wedderkopp et al., 2001; www.lazytown.com; http://nsg.jyu.fi/index.php/Fitness_Adventure; www.legepatruljen.dk;

NEW PARTNERSHIPS FOR PREVENTION

Public health science must mirror the expanded landscape of prevention by designing interventions to promote new patterns of individual health behaviour in partnership with a wide range of relevant sectors and institutions. In addition to researchers and academics, these include e.g. the food industry, retail and catering industries, the biopharmaceutical industry, the healthcare sector, insurance, trade and consumer associations, patient organisations, media organisations, as well as national and local government. All have a direct and specific role to play in designing the framework and environmental conditions that can draw people towards new patterns of healthier behaviour.

Catalysing social innovation for prevention

In these new partnerships, research communities become part of a social innovation movement aiming to accelerate preventive measures. Social innovation²² aims to develop innovative activities and services that meet a social need, and is particularly characterised by engaging and mobilising all sectors of society. This happens in the new types of partnerships, which are necessary to put the innovative ideas into practice. In this approach, a vital role must be played by the ‘connectors’, i.e. the idea brokers, entrepreneurs and institutions that link together ideas, financial resources, people and decision-making competencies.

Social innovation is often the result of new combinations or hybrids of existing elements, rather than being wholly new themselves. An example from Finland is the introduction of the TERVA programme, an innovative health coaching and disease management programme initiated by private as well as public partners (Pfizer, the Finnish National Innovation Fund and the Finnish National Technology Agency). The programme aims to improve health by promoting a healthy lifestyle and by helping people maintain better health through the appropriate use of medications. The initiative draws on Pfizer’s experiences from “Florida: A Healthy State”, an earlier health

management initiative from the US, illustrating how a combination of experience and knowledge from different fields and sectors can prove valuable for setting up new preventive initiatives.

Involving all actors of society

The development of new interventions, solutions and organisations for furthering the prevention agenda must draw upon and combine approaches, ideas and competencies across sectors. Much can be gained by involving and learning from other actors from different fields and sectors of society.

■ **Social movements and non-governmental organisations** operate in the space between politics and civil society. They possess great strength as drivers of change by contributing e.g. legitimacy and public advocacy, insofar as they work not-for-profit and for a worthy cause. A good example is the major national patient organisations with a broad membership base and self-funded research of very high quality.

■ **Politics and government** are responsible for the overall legislative and environmental framework conditions, as well as supplying funding and strategic direction for new research and innovation activities.

■ **Markets and private business** can also be a very effective driver for change and diffusion of new ideas through the development of new commercial markets for products and services. Small companies, mission related investment and consumer and shareholder activism continuously develop niche markets which over time may become mainstream. One example of a successful product, which has improved the level of physical activity, especially among the elderly, is the specially designed Nordic walking pole.²³ Private businesses also have a major role to play as employers, with the workplace taking on a primary role in preventive activities today.

Public-private partnerships for prevention

To develop new solutions and interventions for preventing chronic diseases, it is necessary to engage a wide range of societal actors in new partnerships and relationships. Among these are new forms of private/public partnerships, which include private companies, civil society and media among others. In the following, we draw attention to a few already existing and promising partnerships, which utilise the potentials of joining forces across the private and public sectors.

Supermarkets as proactive actors of prevention

The large international supermarket chains are acting proactively to address issues of health promotion and disease prevention. They increasingly recognise healthy food products as a winning competitive parameter. In other words, they know their consumers increasingly demand healthy products and services, and they choose to act to meet these demands. For example, the British supermarket chain Sainsbury's have developed their own product labelling system, which in a very simple manner informs the customer of the amount of fat, saturated fat, salt, sugar and calories in every product. British Tesco's actively promote their whole-grain products, and American Wal-Mart offer walk-in health care services, providing one-stop convenience for many basic health-care needs.

An innovative example of a private/public circle of actors engaging in changing society radically is the case of the American Food Trust's Supermarket Campaign. The general aim of this campaign is to improve access to supermarkets in underserved communities and to address the negative impacts related to the lack of food retail choices in communities across the United States. Whereas poor communities often only have access to food through fast-food chains, the initiative works to place healthy retail stores at strategic, central and easily accessible places.

The Oxford Health Alliance

Oxford Health Alliance (OxHA) is an international initiative launched by the Danish pharmaceutical company Novo Nordisk in partnership with Oxford University. It involves a wide range of key international stakeholders within chronic disease prevention. As part of its overall agenda, OxHA has launched the Community Interventions for Health project, a public health research programme to

enhance scientific knowledge about the effectiveness of community interventions in reducing the prevalence of chronic diseases. The initiative acts upon the urgent need to design, implement and assess cost-effective and comprehensive interventions adaptable to different cultures and communities. The research is unique in its scale and scope – the interventions will be tracked across multiple countries and multiple settings: schools, health-care centres, workplaces and local communities. The aim is to develop and showcase sustainable interventions in addressing poor diet, tobacco use and physical activity, demonstrating their effectiveness in a way that is both practical and scientifically rigorous. Project outcomes will be a best-practice 'roadmap' of guidance to address the risk factors and chronic diseases; and a comprehensive international database of process and outcomes of the interventions. The initiative is particularly interesting insofar as it is funded by a series of multinational corporations e.g. PepsiCo and Nestlé SA, proving that it is possible to engage corporate interests in a cooperative and forward-looking manner.

National Prevention Research Initiative

The National Prevent Research Initiative (NPRI) is a UK-based effort comprising government departments, research councils and major medical charities, all working together to encourage and proactively support relevant research into chronic disease prevention.

The NPRI was founded in 2004 on the initiative of the National Cancer Research Institute. It has an initial budget of around £12 million over five years. In addition to providing further research funding, the NPRI aims to encourage and facilitate cross-disciplinary collaborations in UK preventative research. This happens through the involvement of individuals and communities in improving their own health standard. Furthermore, the NPRI encourages research aimed at risk reduction in communities/ social groups with a high incidence of cancer, coronary heart disease and diabetes. Finally, the NPRI explores approaches that will reduce inequalities in incidence from these diseases.

Sources: www.sainsburys.co.uk; www.oxha.org; www.ncri.org.uk;

A NEW INFRASTRUCTURE: PREVENTION LABS

A key barrier to more effective prevention solutions is a lack of knowledge of what works and what does not work. To accelerate the development of new solutions that work, research communities can take the lead in creating real-life prevention labs, building on the new mindset for understanding prevention, and supported by a strong and stable research infrastructure to ensure the active diffusion of innovative ideas and interventions.

What are prevention labs?

Prevention labs are institutional platforms that can work as a testing ground for a broad range of prevention initiatives. On the one hand, they can range from single workplaces used as testing grounds for interventions within corporate sports, healthy food and other initiatives seeking to improve the health of employees. On the second hand, they can consist of cities and urban structures that can be used as testing grounds for interventions, which seek to improve access to green urban spaces and recreational facilities for citizens.

In this way, the prevention labs provide access to valuable knowledge by making it possible to monitor and gather data crucial for judging whether or not the single initiative should be pursued and implemented at a larger scale. The data can be linked to central public health registers in order to evaluate whether or not an intervention has potential to improve the health status of citizens.

The idea of labs is not new, cf. examples below, and it is not limited to the field of public health. Labs of prevention build on the philosophy that theories and ideas should be tested in reality. By doing this, they are closely tied to the new mindset for prevention and symbolise the development from Modus 1 to Modus 2 research. They are bottom-up processes involving wider groups of society in a process of social innovation.

Labs of prevention can either be hard or soft, and both types are relevant to accelerate the development of prevention solutions:

Hard labs are scientific and built on research institutions and hypotheses and methods. These types of labs are especially suited to the area of health care systems and prevention, because they build on strict scientific professionalism and evidence and methods.

Soft labs have a looser structure and build on experiences and tests at a smaller scale. These types of labs are especially suited to the care and nursing sector where personal experiences and narratives are important.

Principles for the operation of prevention labs

- Focus should be on *generic conclusions* making it possible to share knowledge across regions and countries: Despite the common characteristics of the Nordic counties, differences in local context settings makes it difficult to generalise results from i.e. an intervention study based near the woods of Finland to urban areas of Denmark. Therefore, evaluation should not only relate to the results but also to the structural conditions surrounding the intervention, the intervention type and process. However, the dependency of the intervention studies on the local environment should not be over-emphasised leading to the disregard of results from other countries. For instance, when large meta-analyses show that alcohol-consumption is price sensitive, then this result should not be ignored in Denmark, but, rather, taken into account. Generic conclusions should therefore be a common method principle for the prevention labs in the Nordic countries.
- The design of the interventions should involve *multiple disciplines* including e.g. behavioural economics, anthropology, urban design, bio-medicine, public health and more. This ensures tailoring interventions to the specific needs of specific groups of people. Though it might be time-consuming to begin with, interdisciplinary research is worth the effort in the long run.

“IN THE NORDIC COUNTRIES WE HAVE A WELL-FUNCTIONING INFRASTRUCTURE WITH A HIGH LEVEL OF SOCIAL CAPITAL, NETWORKS, HOMOGENEITY, A HIGH KNOWLEDGE LEVEL AND STABLE SOCIAL STRUCTURES. PREVENTION LABS COULD NOT BE ACCOMPLISHED IN A SOCIETY CHARACTERISED BY MISTRUST AS THE FRENCH SOCIETY. THE HIGHER THE LEVEL OF SOCIAL CAPITAL, THE EASIER IT IS TO ACCOMPLISH THIS TYPE OF INFORMAL INITIATIVES.”

Hans Siggard Jensen, Head of Department at Learning Lab Denmark

- The labs should be carefully monitored ensuring the *gathering of knowledge and evidence on actual behavioural change over time*: This should play a crucial part of the evaluation process ensuring the necessary knowledge of the mechanisms for behavioural change. Often these mechanisms are an overseen aspect of behavioural change. But they might hold the key to the understanding of where and how to intervene.
- The labs should involve *social innovation processes* by combining traditional research elements in a new way – e.g. the combination of censuses and real-life labs. This is important to ensure that the innovative potential of the prevention lab is attained in concordance with the already established strongholds of the Nordic region.
- The labs should have the potential of *expanding* the interventions: It is important that the interventions are scalable and replicable to ensure knowledge sharing. The goal is to find or create practices that are more capable than the prevailing ones to reduce morbidity and mortality, and to make these improvements quickly. This can be assured by scalable interventions. The point is, however, that innovative processes should be actively, not passively spread, to ensure the move from small-scale experiments to prevalent norms in society²⁴.
- *Specific research funds and grant criteria need to be developed* for the implementation of prevention labs in practice: For prevention labs to become a reality, research funds and grant criteria must adapt to the new research mindset. This means that priority should also be given to new types of study design in alternative prevention arenas. We will not see the rise of prevention labs until research funds support this new research mindset.

A tradition for intervention studies

The following are examples of intervention and experiments that can inspire the development of new prevention labs targeted at individuals, social groups and norms and social structures. They are examples of research-based and rather classic intervention studies. There is, however, a tendency towards more practice-based approaches to prevention. See cases page 38.

Targeting the individual:

- The Ebeltoft Experiment was a health intervention carried out in Denmark from 1991–97. A number of general practitioners invited 2,000 randomly selected patients to a health check and conversation with the aim of reducing the number of people with high risk of developing heart diseases. In an evaluation, the project was found to become cost-effective within a 5–6 year period of time. Targeting social groups and norms:
- The Ringsted Experiment in Denmark from 2001–04: An example of a prevention intervention using the Social Norm Approach which is founded in the social norms that surround for instance alcohol and drug abuse. In this approach, it is the social aspect of the abuse that you seek to influence i.e. the experience of others' norms and behaviour. The experiment is controlled and concerns social exaggerations with alcohol and drugs.
- The Skejby Experiment in Denmark in 1973: A social experiment where people with and without criminal impact were mixed. The experiment was based on the assumption that the non-criminals would have a positive norm transfer on the criminals.
- Inter99: A population-based intervention among persons at high risk for cardiovascular disease. Amongst around 13.000 people invited to a screening programme, a computer-based programme identifies persons in high risk for cardiovascular disease. Smokers and persons with diabetes were offered health counselling in groups focusing on smoking cessation and counselling and on physical activity and diet. Inter99 is the first large-scale randomised multifactor intervention study based on individual risk assessment and using modern educational and behavioural methods.

Multi-level: Targeting the individual and social groups:

- Nordkarelien in Finland was one of the first local community-intervention programmes with the purpose of changing health behaviour on several levels: From the individual level to the institutional and organisational level. The programme was labelled as a community action; a health oriented prevention strategy involving the community and key persons and local organisations. The experiment was launched in 1972 and ran for 10 years involving 430.000 inhabitants, with Nordkarelien as the intervention area and Kuopio as the reference area. The overall purpose was to prevent heart disease. For this reason the intervention was primarily aimed at behaviour in relation to smoking, physical activity and diet. After 10 years there was a documented reduction in heart diseases.
- In 1974, the Stanford Community Study was launched. Through the mass media information to the inhabitants in two cities in total covering 30.000 inhabitants. The purpose of this intervention was to reduce the daily intake of fat through a diet. In one of the two cities, individual information was given in addition. After two years of intervention there was a documented reduction of fat intake and a reduction in the cholesterol level in both cities.

Targeting social structures:

- In New Zealand, a three-year project was launched in 1982 aimed at preventing alcohol related problems through a Community Action Project. In this programme, the starting point was not a goal to change individual behaviour alone, but rather to focus on a local community strategy with the aim of influencing and changing the attitude and the measures in relation to alcohol at a societal level i.e. by influencing the availability, the price etc. This strategy was chosen in the light of the defeat of the individual level campaigns. In stead, a combination was introduced of access to health information in relation to alcohol and information through the mass media and local policy measures. The result of the project was a heightened level of knowledge and a positively altered attitude towards alcohol in general.
- Massachusetts: A political/policy/social experiment, which imposes a system of shared responsibility with universal health insurance – everyone is required to get an insurance card. The law combines the obligatory health insurance with government subsidies that will make healthcare more affordable.

Sources: Balvig et al., 2005; Elmeland, 2000.

“THERE IS A LOT OF TALK TODAY ABOUT THE IMPORTANCE OF CONTEXT WHEN IT COMES TO ASSESSING INTERVENTIONS – WHAT WORKS IN ONE COMMUNITY, DOES NOT NECESSARILY WORK IN ANOTHER COMMUNITY AND SO FORTH. WE HAVE USED SOME SMALL COMMUNITIES AS A KIND OF APPETISER OR TEST AREA. BUT MORE INTERDISCIPLINARY RESEARCH HAS TO BE DONE IN RELATION TO THE QUESTION OF HOW TO TRANSFER RESULTS FROM INTERVENTIONS IN ONE CONTEXT TO ANOTHER CONTEXT.”

Stig Wall, Professor in Epidemiology and Public Health Sciences at Umeå University

Ideas for future prevention labs

- Exploiting new prevention arenas such as e.g. the supermarket. The giant chain Wal-Mart has set up walk-in health centres, where people can combine shopping with easy access to health services such as e.g. blood pressure and BMI monitoring.
- Implementing new design and layout of supermarkets that challenges the routines in several ways: By promoting healthy groceries and placing the less healthy ones more out of immediate sight, and by allowing an aesthetic dimension to the products thereby stimulating the consumers' senses more directly.
- Exploring the potential of social innovations in partnerships to promote physical activity between e.g. leisure and sports organisations and workplaces or schools.
- Testing the workplace as an arena of preventive interventions i.e. by promoting physical activity and corporate health management.
- Altering and influencing the design and structure of cities through urban planning, thereby facilitating movement, sports and leisure activities.
- Reducing the social health gaps in society through up-stream social policy intervention, for instance by intervening in children's upbringing or in housing conditions.

Interventions targeting individuals, groups and societies

Behavioral change depends on the norms, institutions and interactions between individuals and communities and society in general. Interventions for prevention of chronic diseases must therefore be designed and implemented across all three levels. Some initiatives doing just that, at various societal levels, are highlighted in the following.

A micro approach – focusing on individuals: Diabetes towards 2025

A micro approach aims to obtain a clearer picture and more precise knowledge of a specific group of users by analysing their lifestyle, habits, values, as well as their sociological characteristics (age, education, gender etc.) and framing ‘tailor-made’ initiatives just for these particular individuals.

The major Danish pharmaceutical company Novo Nordisk has engaged trendspotters and futurologists in creating scenarios, which explore how the company’s markets and user segments will develop in the future. The scenario work does not specifically focus on prevention, but more broadly on gaining a better understanding of what drives and motivates the individual consumer as well as broader market development. In this respect, the project is a good example of an approach that may support the creation of solutions targeted at specific and clearly defined user segments.

One of the main conclusions from the study is that the lifestyles and values of individuals have an important influence on their behaviour. Values are primarily driven by socio-economic change, and in thriving economies such as the Nordic countries, personal and publicly expressed values are rapidly shifting towards post-materialism, self-expression and the search of meaning. The scenario work resulted in the generation of the hypothesis that four archetypical personas of people with diabetes can be identified, based on their individual coping strategies. See figure.

A meso approach – focusing on groups: 6 a-day campaigns

A meso approach aims to form and focus new initiatives in a manner that builds on the social dynamics within groups and communities to promote healthier lifestyles. The groups could be e.g. schools, workplaces, prisons, eldercare or families, with the meso approach aiming to understand the dynamics of each specific group and use them as an advantage.

All the Nordic countries except Iceland have experiences with so called ‘6 a-day campaigns’, i.e. campaigns launched by a partnership of private and research actors with the aim of increasing the population’s daily fruit and vegetable intake to 600 grams. It is well documented that the initiatives have had a strong and positive effect on the public diet.

Perhaps the most interesting aspect of these campaigns, however, is their ability to continuously come up with initiatives aimed at specific groups such as schools, workplaces etc. Thus the 6 a-day campaigns do not merely target the wider public, but continue to develop new sub-initiatives which target specific groups in society, such as the elderly, children, the working population, immigrants etc., driven by an understanding of the motivations and behaviour of different groups.

A macro approach – focusing on society: Cycling across the Nordic countries

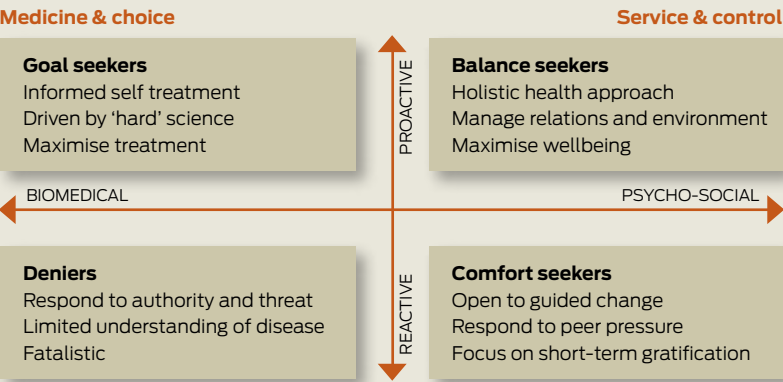
A macro approach aims to transform society to make it easier for individuals to live a healthier life. Today’s convenient choices are often the unhealthy ones. Macro approaches target society and the population as a whole in designing and regulating society so that the healthy choices and decisions become more obvious, convenient and easy to make.

Modern societies are not designed to encourage walking and cycling to increase daily physical activity. But a range of Nordic initiatives are working to change these conditions and make walking and especially cycling a feasible, safe and attractive option. Through various means (substantial revision of present transport policies, creating safer roads, less noise and air pollution), the initiatives aim to actively create or re-establish urban planning that allows the individual inhabitant to integrate physical activity into daily routines.

Some examples are the “Challenge Gothenborg” initiative in Sweden, or the “We’ll bike to work” initiative in Denmark, in which co-workers in a company form teams that compete with each other to cycle the most kilometres. In Iceland, the educational and promotional project “Iceland on the Move”, and in Finland the “Jaloin Project” also aim to practically and politically promote cycling as a healthy and economical means of transportation for everybody.

Sources: Novo Nordisk, 2006; Seymour et al., 2004; Davis, 2002;

INDIVIDUAL COPING STRATEGY: FOUR PERSONAS







THE NORDIC
REGION COULD
BECOME A

GLOBAL
MODEL IN
ACCELERATING
PREVENTION

The Nordic region as a global health lab

As shown in part 2, the three main challenges for public health science to make a significant contribution to accelerating preventive research revolve around developing a new mindset, new partnerships and new platforms for prevention. In the following, we highlight some of the strong points of the Nordic region and Nordic scientific communities. This analysis support the notion that the Nordic region could become a global role model in accelerating prevention, and it sets out recommendations for NordForsk to take on a leading role as a catalyst in this development.

NORDIC STRENGTHS

The prevention efforts required to curb the pandemic of chronic diseases are enormous, resource demanding and complicated to implement and measure. Even though the challenge is notable, the countries in the Nordic region possess significant advantages that may serve as a foundation for becoming a global role model in the development of future-oriented prevention solutions and strategies. These include a well-established health care system, strong public health research institutions and fundamental knowledge of e.g. health patterns within the population.

In addition, several complementary factors may be highlighted to indicate the competencies of the Nordic region in relation to becoming a global leader and exporter of knowledge and solutions within prevention and public

health. These can be traced back to the main characteristics that bind the region together and constitute what has been referred to as ‘the Nordic winner model’. See text box and table 10.

1. A social model supporting equal access to health for all

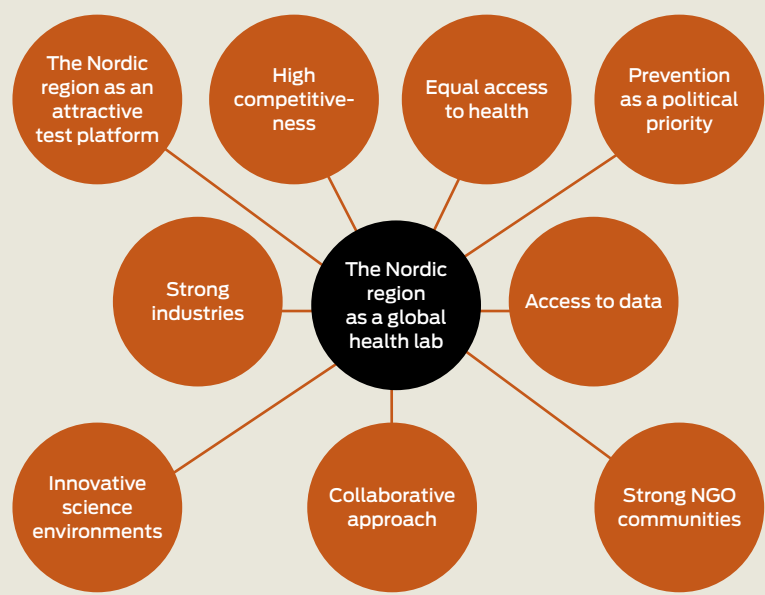
On a societal level, the Nordic countries share the same state model distinctive for the Nordic region, characterized by welfare states with large public sectors, similar administration and governmental structures, high tax rates and a corresponding high level of public welfare benefits.²⁵

The Nordic tradition for public-funded and tax-based health care systems provides

The Nordic Region as a global winner

A study carried out by Monday Morning for the Nordic Council of Ministers confirms that there is something distinctively Nordic, but that this is easier to state than to define. The study is based on interviews with 27 Nordic opinion leaders, who identify four basic conditions and eight values characteristic to the Nordic countries. A shared societal model, common languages and a shared approach to self-realisation are among the basic conditions identified, while equality, trust, low power distance, inclusion, flexibility, respect for nature, a protestant work ethic and aesthetics make up the core ‘Nordic values’. Sources: Mandag Morgen, 2005.

TABLE 10 NINE NORDIC STRONG POINTS



Source: Monday Morning, 2007.

a strong basis for future prevention initiatives. So far, equal access to health benefits despite differences in e.g. income, education and social status has prevented a health gap from developing between those who can afford treatment and those who cannot. Absence of large health discrepancies within populations in the Northern region provides a strong basis for implementing and carrying out prevention efforts in the future.

2. Prevention as a top Nordic policy priority

Governments and authorities are turning prevention of chronic diseases into a top priority. Within the last years, efforts have increased in all the Northern countries with national health promotion programmes, health policies and strategies that aim at encouraging healthier diets and physical activity (see page 15). Among the common areas of priority chosen by the Nordic governments are efforts for enabling children and youth to make healthy choices, the use of targeted action to reach vulnerable risk groups and overall initiatives for making healthier choices easier for all. Initiatives like the Nordic Plan of Action on health, food and physical activity strengthen the basis for creating a common Nordic policy within the field.²⁶

3. Access to valuable data

Carrying out effective prevention initiatives requires access to relevant knowledge. While knowledge on what kind of prevention efforts work for whom, is still lacking, the Northern countries have access to valuable knowledge in terms of a wide range of databases, health registries and bio banks. All the countries have civil registration systems and population-based registries describing education, income, occupation, living conditions and health of the population. The registers are more thorough than in most other countries, and due to the general high level of trust in public institutions, the population is open to registration. Public trust is supported by highly developed legislation in the area, for example on patient rights, ethical committees and data supervision.

The use of screening for e.g. breast cancer has also provided important data and access to valuable samples. Despite the fact that health status differs within the Nordic countries in terms of e.g. life expectancy²⁷, access to this data in all the countries makes possible comparative research and strengthens the effort for a joint Nordic effort on prevention.

NCoE Programme on Food Nutrition, and Health

Food, Nutrition and Health is a research field where the Nordic countries are known to be strong. For this reason, the Nordic Centre of Excellence (NCoE) Programme on Food, Nutrition and Health was launched in Oslo, June 2007, with the main objective to create Nordic strength by promoting scientific excellence and enhance Nordic research collaboration in the field. The programme will run in 2007-2011 with a total annual funding up to EURO 2.3 million. So far, three centres have been identified, among these HELGA: Nordic Health – Wholegrain Food, which focuses on the potential health aspects of whole grain products characteristic for the Nordic diet. Source: www.nordforsk.org.

New Nordic Food

The "New Nordic Food" project is an attempt by the Nordic governments to preserve Nordic values and exploit the benefits of them. The project is consistent with the vision of the Nordic Council of Ministers 'The Nordic Region as a Global Winner Region' and aims at branding the Nordic values by linking the strengths of the Nordic Region in i.e. regional values, gastronomy, business development, raw materials and tourism. The Nordic Innovation Centre (NiCe) has launched New Nordic Food as a new focus area through the investment of NOK 10 millions in Nordic projects and cooperation platforms that combine the food, tourism and experience industries. Source: www.nordicinnovation.net

4. Strong civil society organisations

Flat hierarchies and a culture that favour consensus over conflict have fostered a strong culture of non-governmental institutions and interest organisations that enjoy the trust and respect of governments and the population in general. National cancer societies and heart foundations play an important role in preventing chronic diseases by supporting relevant research and investing in specific prevention initiatives such as campaigns to stop smoking and to promote healthier diets.

The presence of strong NGO communities strengthens future prevention initiatives within the Nordic societies, as they have an important role to play in partnership with the public health authorities. The NGOs may serve a key function as platform providers linking public researchers and public partners together in the new kind of innovative partnerships that are needed to battle chronic diseases.

5. Strong conditions for collaboration

The short power distance and high levels of trust, characteristic to the Northern countries, facilitate cross-disciplinary cooperation as well as collaboration across sectors and organisations and institutions.²⁸ The region is therefore well positioned to develop the joint initiatives necessary for future prevention efforts.

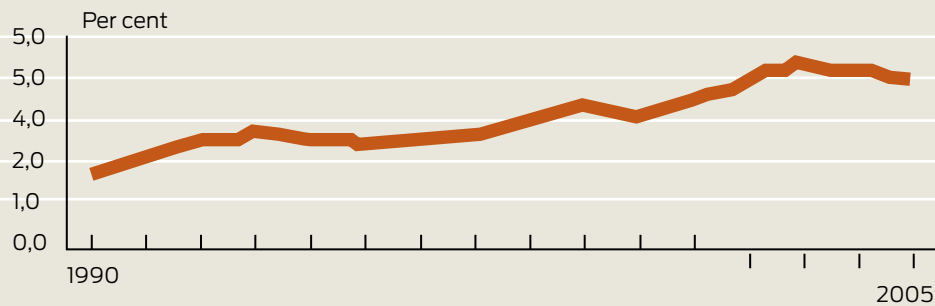
Regional institutions such as the Nordic Council, Nordic Council of Ministers and NordForsk provide strong platforms for collaboration within the fields of public health and prevention, supported by institutions such as the Nordic Cochrane Centre, which prepares, maintains and disseminates systematic reviews of health care in the region.

6. Innovative science environments

The Nordic countries have recently undertaken major reorganisations of the research and innovation funding and advisory systems. This has resulted in an increased focus on innovation-oriented activities, and a clearer distinction between basic research on the one hand and strategic research and innovation on the other.²⁹

Even though research into prevention and public health still requires much more attention, the foundation for creating a strong research environment within this field has been strengthened

TABLE 11
MEDICO INDUSTRY INCREASES THE NORDIC EXPORT
 Annual value of the Nordic medico export compared to the total value of Nordic export



Source: Nordic Statistical Yearbook, 2006.

TABLE 12
GLOBAL COMPETITIVENES
 Global Competitiveness Index 2007-2008

1	United States
2	Switzerland
3	Denmark
4	Sweden
5	Germany
6	Finland
7	Singapore
8	Japan
9	United Kingdom
10	Netherlands

Source: World Economic Forum, 2007.

by the recent reorganisations. This is already evident in the new generation of research projects launched within the last few years such as the programmes for Nordic Functional Foods and New Nordic Food, see text box, both led by Nordic Innovation Centre, or the Nordic Centre of Excellence Programme on Food, Nutrition and Health led by NordForsk.³⁰

7. Strong industries

To ensure innovation and development of new solutions to prevention challenges, the presence of a strong food industry is important. The Nordic region, fostering global companies such as Arla Foods and Danisco, enjoy strong presence of industries within agriculture, food processing and ingredients.

In Denmark, the agricultural sector accounts for around 12 per cent of total exports, while medico is considered one of the fastest growing

industries across the Nordic countries. See table 11. The Nordic countries also have a strong position within biotechnology, as exemplified with the biotechnology cluster located in the southern part of Sweden.

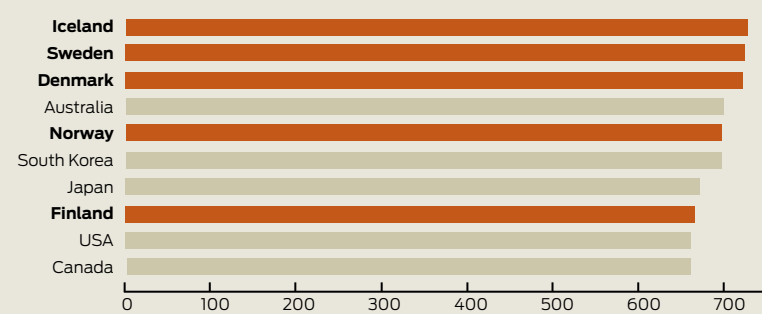
8. A competitive Nordic region

In terms of becoming a global market leader for prevention solutions, the Nordic countries possess strong advantages in the shape of competitiveness and innovation skills. When the World Economic Forum recently published the annual ranking of the world’s most competitive economies, three Nordic countries were to be found among the top ten, as is shown in table 12. Despite the high tax pressures distinctive for the Nordic countries, the region enjoys the status as a beneficial place to do business due to the presence of e.g. a highly skilled work force, high living standards and strong health systems.

9. Demanding consumers provide a strong platform for user-driven innovation

With nearly three out of four Nordic citizens having access to the Internet, the Nordic region proves a strong platform for using the web as a tool for developing and testing new and alternative solutions for prevention that target larger population groups. See table 13. Also, studies suggest that the Nordic countries provide a strong platform for testing new products to global markets. See table and text box. This makes the Nordic region ideal for attracting global companies interested in developing and testing new tools for prevention.

TABLE 13 INTERNET DISTRIBUTION
Number of users per 1,000 inhabitants, 2005



Dansk Industri, 2007.

NORDFORSK: A KEY DRIVER FOR A NEW NORDIC PREVENTION RESEARCH AGENDA

As an independent Nordic research board operating under the Nordic Council of Ministers and charged with coordinating research efforts across the national communities, NordForsk has the opportunity to take on a leading role in driving the vision of the Nordic region as a global prevention accelerator. To realise the ambition, NordForsk must aim to strengthen prevention research efforts in the Nordic countries and turn the region into a world-class provider of innovative prevention solutions that work.

This mission is closely aligned with NordForsk’s primary mission: to enhance the competitiveness of the region and the living conditions of the populations by strengthening and further developing the Nordic region as one

of the most dynamic regions in the world for research and innovation. New and effective prevention solutions will lead to a reduction of chronic diseases and – correspondingly – an increased quality of life for populations of the Nordic countries.

The presence of a strong Nordic public health sector, and national research communities with complementary strengths within public health research, support the proposition that prevention of chronic diseases is a highly relevant target area for NordForsk.

At the European level, initiatives within prevention and public health are taking off as part of a joint effort to strengthen the overall health standard of the European population. See page 11. Strong European partnerships are crucial, but cannot replace a joint effort within the Nordic countries for carrying out research and implementing projects that bring together the complementary knowledge, competencies and strengths, present in the Nordic region.

The task demands huge efforts within all the Nordic countries to make prevention a top priority and allocate more resources to the field. These efforts are already taking off throughout the region, as governments and research authorities strengthen their policies and strategies within prevention and public health. See page 15. But to deliver on the ambitious goals, joint platforms are needed to provide access to knowledge sharing, secure additional funding, and implement joint efforts within research and prevention initiatives.

What is NordForsk?

NordForsk is a Nordic research board operating under the Nordic Council of Ministers for Education and Research; responsible for Nordic collaboration in research and research training. NordForsk coordinates important research priorities that have been identified as suitable for joint Nordic efforts, concentrating its efforts on research areas where the Nordic countries have an international position of strength.

Source: www.nordforsk.org

Nordic Centre of Excellence Programme for Prevention

While NordForsk alone cannot bring this ambition to life, the organisation can come to play a crucial role in terms of strengthening the overall effort for prevention within the Nordic region as well as at a global level.

With its Nordic Centre of Excellence Programmes, NordForsk has developed a concept for collaboration between the Nordic countries that aim at increasing the quality, efficiency, competitiveness and visibility of Nordic research within specific fields. Until now, five Nordic Centre of Excellence Programmes with a total of 16 NCoEs have been identified within the areas of food, nutrition and health; welfare; global change; molecular medicine; and humanities and social sciences. All five areas have been selected for a five-year period based on the presence of an excellent scientific quality and 'hot spots of research', highly competitive in an international context.

Adding to the research areas already selected, it is recommended that NordForsk considers the establishment of a Nordic Centre of Excellence Programme focusing on prevention of chronic diseases.

As noted earlier, the Nordic countries possess complementary strengths in terms of research within prevention and public health. Knowledge and research expertise is strong within specific fields of research, but the communities are scattered in universities, public health institutions and private companies all around the Nordic region, making it difficult to gather the critical mass and knowledge needed for creating world-class research within the field. That preventive research is an emerging multidisciplinary field, building on knowledge from a wide range of disciplines within medicine, humanities and social science, adds relevance to the need for a joint research platform that can help gather the essential knowledge and competencies.

As a basis for the creation of a Nordic Centre of Excellence Programme for prevention, more detailed documentation should be developed of the high quality of the current research carried out today in the Nordic region within this field. However, this documentation

must include information on research potentials that transcend the borders of 'traditional' public health research and cover the entire new landscape of prevention (see part 2). For example, since urban planning is important in terms of changing the framework for healthy living, intervention and research potentials within architecture and urban planning should be included.

A Nordic Centre of Excellence Programme for prevention will strengthen the Nordic research position relative to international communities as well as help create awareness among prospective partners in other sectors as well as the general population, all of whom play a key role in the success of the overall prevention efforts.

Targeted research centres

Within the scope of the NCoE programme, a number of research centres can be selected for a limited period (e.g. four years) and on the basis of open competition.

While the particular research centres must

A global research agenda: the grand challenges in chronic diseases

In an article in NATURE, top global researchers and opinion leaders have presented a list of the top 20 policy and research priorities to combat chronic diseases. These are termed 'the grand challenges' and may be seen as laying out a comprehensive policy and research agenda, which may form a basis for a Nordic prevention initiative. The challenges include better understanding of environmental and cultural factors that change behaviour, making business a key partner in promoting health and preventing disease, and studying and addressing the links between the built environment, urbanization and chronic non-communicable. Among the research initiatives demanded are e.g. studies investigating the impact and effectiveness of food-labelling legislation, studies identifying reasons for low awareness and advocacy of chronic diseases in societies, and studies that investigate health and economic impact of comprehensive communitybased interventions. Sources: Daar et al., 2007

live up to excellent scientific quality already present within the Nordic region, it is recommended that the centres through practice-based intervention studies target some of the great challenges within the field such as e.g. how to increase the availability and consumption of healthy food or how to promote life-long physical activity. The centres should explicitly draw in the competences and insights of emerging fields like behavioural economics, applied ethnography and consumer studies. The centres could also be set up with selected target groups in mind, e.g. childhood obesity, to highlight the importance of interdisciplinary and problem-based research clearly linked to the specific needs, motivations and behaviour drivers of the target groups.

Recommendations for research design

As shown in part 2, the challenge of chronic diseases calls for new types of preventive efforts that build on a new mindset of prevention, new partnerships and new platforms. A Nordic Centre of Excellence Programme for Prevention can strengthen efforts within all three areas.

First, the NCoE Programme should work to set a new global agenda for preventive research by supporting existing and new research collaborations that include elements characteristic of Modus 2-research and the new mindset of prevention. Among these are the following:

- **Widened evidence concept:** Research, which builds not only on strict research-based evidence, but also includes knowledge developed through practice-based studies. Research seeking to build on and include knowledge from ongoing natural experiments that take place at different levels of society.
- **Qualitative methods:** Enhancing the understanding of mechanisms for behavioural change by supporting research, which includes new methods designed to provide this specific type of knowledge, e.g. ethnographic methods, observation and interviews.

- **Interdisciplinary research:** Promoting interdisciplinary research efforts and PhD programmes that link disciplines such as epidemiology, public health science and sociology with fields not traditionally associated with public health research such as behavioural economics, marketing and design.

Secondly, the NCoE Programme should act as a catalyst for creating new partnerships necessary for carrying out innovative preventive research. These partnerships can take on different forms, from soft networks for knowledge exchange to hard networks like coalitions or contract partner-

Think forward!

Foresight projects aim to develop new possibilities and alternatives by drawing on current knowledge and expectations from state-of-the-art science and technology as well as major societal developments and trends. In the UK, a recently published Foresight report 'Tackling Obesities: Future Choices' has generated much debate and is seen as a milestone in moving the public health and prevention agenda beyond the simple portrayal of obesity as an individual issue. The report asserts that the causes of obesity are extremely complex, encompassing biology and behaviour set within a cultural, environmental and social framework.

Despite a strong foresight tradition in the Nordic countries, we have yet to see a Nordic foresight project focusing on prevention. Generally foresight projects in Sweden, Denmark and Finland have created debate, raised awareness and mobilised discussion among key actor groups. Among the Nordic foresight projects in other fields are the following:

- A Danish Energy Foresight, contributing to reformulation of the Danish government's energy policy and expenditures on energy-related R&D.
- The Finnish project FinnSight2015, generating useful background information for defining the scope and priority areas of new centres of excellence.
- A Danish Nanotechnology Foresight, contributing to political decisions concerning the focus areas of a newly established High Technology Foundation.

Sources: Nordic Innovation Centre, 2007; Eerola & Jørgensen, 2002.

ships, where the different actors come together to solve specific challenges. The partnerships must break down the barriers between public and private players by encouraging collaboration across different sectors and industries, e.g. food industry, healthcare sector, insurance and biopharmaceutical industry. See text box on foresight projects.

Thirdly, the NCoE Programme must aim to promote the use of new arenas of intervention. Supermarkets, workplaces, schools and day care centres constitute important platforms for interventions in the new prevention landscape. The Programme should therefore support research collaborations that use these types of ‘real life’ platforms for carrying out intervention and observational studies.

As part of this effort, the centres could be encouraged to engage in collaborations with national authorities with the aim of establishing regional ‘test beds’ that can be used as platforms for experimentation for larger development projects within preventive research. These ‘test beds’ could be shaped as whole communities such as a city or municipalities that are interested in experimenting with larger prevention initiatives such as healthy lunch in schools, programmes to encourage physical activity, workplace programmes or community-based health counselling.

Another possibility is to team up with private stakeholders such as the food industry and the retail industry to use i.e. supermarkets as ‘test beds’ for experimenting with new products and services. Furthermore, to test the design and layout of the stores with the aim of giving consumers easier access to healthier solutions.

The need for teaming up

NordForsk can gain by engaging in partnerships with complementary institutions and organisations that can provide new perspectives supporting innovation and outcomes. One obvious partner is the Nordic Innovation Centre (NICE), which is currently carrying out several projects closely related to the field of prevention including the programmes for New Nordic Food and Functional Food.

Traditionally, the focus of NordForsk is on research, while NICE works to promote an inno-

vative and knowledge-intensive Nordic business sector. The booming global market for health-related products and services speaks in favour of joint initiatives, where knowledge and experiences produced within a research framework can be used to develop products and solutions attractive to the Nordic as well as global markets. Conversely, platforms investigated at the initiative of NICE, with the aim of developing new markets and innovative business ideas, can be exploited from a research perspective to gather knowledge, which can be valuable in terms of strengthening future efforts and recommendations within prevention and public health.

At an international level, it is recommended that NordForsk engages in partnerships with global players and nations outside the Nordic region with the aim of strengthening the overall efforts within preventive studies. One example could be setting up foresight projects within preventive research: Collaboration with institutions and organisations in e.g. US and UK that are already carrying out these kinds of initiatives, can be of great value to a Nordic effort.

Further recommendations

The establishment of a Nordic Centre of Excellence Programme can be supplemented by several other initiatives, some of which can be carried out by or at the initiative of NordForsk, while others must take place at the initiative of the national research councils, research institutions and/or private organisations. The following recommendations are meant as suggestions for inspiration.

■ A Nordic Action Centre for Prevention

While the Nordic Centre of Excellence Programme for Prevention has its focus on knowledge production and sharing, a Nordic Action Centre for Prevention could support the effort to put this knowledge into action. For example, the Centre could work as a ‘virtual library’ (database), in which national authorities and institutions, responsible for carrying out public health projects, could access and ‘borrow’ experiences and solutions from other parts of the Nordic region. Inspired by initiatives carried out by the Canadian Cancer Society, the centre can offer a ‘virtual catalogue of

ideas' divided into different categories such as schools or workplaces and challenges like physical inactivity and obesity with the aim of providing easy access to action.³¹

Despite the fact that the Nordic populations differ in a number of aspects, access to sharing innovative ideas across the Nordic region is very important, as the prevention field is still in its embryo. Also, the centre could be of vital importance in terms of promoting and exporting prevention solutions to global markets.

■ **Prevention monitor**

Common indicators and assessment standards are a prerequisite for sharing and comparing experiences on preventive action in the Nordic region. A prevention monitor could be the driver of developing a framework of Nordic indicators to compare results across the region and at the same time register developments and improvements within the field. Inspired by the Innovation Monitor, published by the Danish Innovation Council, a prevention monitor could highlight and rank best practice in prevention and public health according to defined parameters. The three challenges listed in this paper – mindset, partnerships and platforms – could be used as guiding principles for judging good performance and best practice.

Besides strengthening the prevention effort, a prevention monitor can help create awareness among governments and authorities for making this particular field of research top priority and provide scientists and academics within the field with professional recognition. Finally, a monitor could encourage the private sector to engage in the development of innovative preventive solutions for a global market.



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Legepatroljen:
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Fitness Adventure:
http://nsg.jyu.fi/index.php/Fitness_Adventure

**The future of the Nordic Welfare Model – the 18th Nordic
Conference in social medicine and public health:**
www.socialmedicine.fi/Nordic

Nordisk Innovationscenter:
www.nordicinnovation.net

NordForsk:
www.nordforsk.org

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Canadian Cancer Society:
www.cancer.ca

Oxford Health Alliance:
www.oxha.org

Sainsbury's:
www.sainsburys.co.uk

National Cancer Research Institute:
www.ncri.org.uk

NOTES

- 1 WHO, 2005.
- 2 Monday Morning, 2005.
- 3 Nordic Council of Ministers, 2006.
- 4 NOMESCO, 2007.
- 5 WHO Global Report, 2005
- 6 Included in the OECD statistics on health care expenditure are expenditures covering social services to older people and handicapped. Also note that since the structures and systems of the different countries may differ, it is difficult to make exact comparisons.
- 7 According to OECD, total expenditure on prevention and public health comprise expenditure on services designed to enhance the health status of the population as distinct from the curative services that repair health dysfunction. This also includes vaccination campaigns and programmes.
- 8 Nordic Council of Ministers, 2006
- 9 Commission of the European Communities, 2007
- 10 Larsen, 2007.
- 11 National Institute of Public Health, Sweden, 2005.
- 12 Bondjers, 2006.
- 13 www.nom-nos.dk
- 14 The following statements are gathered through desk analysis (data and statistics provided by the national research councils) and interview with key experts in the field, cf. reference list of experts, and is therefore not to be regarded as complete.
- 15 Kamper-Jørgensen, 2007
- 16 The 18th conference took place in Helsinki, October 2007. For more information, see www.socialmedicine.fi/Nordic
- 17 Sundhedsstyrelsen, 2007
- 18 Schwappach et al, 2007.
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- 25 Mandag Morgen, 2005.
- 26 Nordic Council of Ministers, 2006.
- 27 Nordic Council of Ministers, 2007.
- 28 Nordic Council of Ministers, 2007.
- 29 Nordic Innovation Centre, 2007.
- 30 www.nordicinnovation.net, www.nordforsk.org.
- 31 www.cancer.ca

The rise in obesity and chronic diseases poses a major threat to global public health. Governments and policy makers are now responding with action plans and strategies to ensure more effective prevention. In this context, knowledge of what works and for whom, is crucial for the support of policy decisions and resource allocations. Research communities therefore play a central role in enhancing knowledge creation in relation to health prevention.

The Nordic region has the potential to become a global role model in developing innovative, research-based solutions for preventing chronic diseases. The NordForsk Policy Brief *The Nordic region as a global health lab* sets out a vision of how scientific research, through new mindsets, new partnerships and new platforms can make a significant contribution to improving health standards by curbing the global crisis of chronic diseases.

The analysis is conducted for NordForsk by Monday Morning.

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