The Department of Public Health

Faculty of Health and Medical Sciences
University of Copenhagen
The Department of Public Health

The Department of Public Health is a department within the Faculty of Health and Medical Sciences at the University of Copenhagen. Established in 1997, the Department has a staff of about 200, of which about 160 are researchers, and has an annual budget of approximately DKK 130 million. The majority of the Department is located at the Centre for Health and Society at the former Copenhagen Municipal Hospital.

Through its research, the Department seeks to strengthen the scientific foundation for improving the health of the population and to provide greater insight into the relation between health and society. The research focus is on the occurrence, distribution and causes of diseases and their associated consequences in the population. Research studies involve health promotion, prevention and rehabilitation efforts as well as studies of the organisation, function and efficacy of the health services.

In a multidisciplinary collaboration with biomedicine and clinical research, the Department comprises a number of core competencies within method disciplines such as biostatistics, epidemiology, medical ethics, medical psychology, qualitative research methods, etc. Research methodology spans from molecular biology, experimental models and epidemiology to social science and the humanities.

Researchers in the Department teach both theoretical and clinical subjects within most of the study programmes of the Faculty with a particular focus on Medicine, Public Health, Health Informatics and various PhD courses.

In this introduction to the Department of Public Health, we highlight a number of researchers who talk about their work. First, there is a description of the research into the causes of disease and health throughout our lifespan and health conditions in different social groups. This is followed by research into the function and effectiveness of the health care sector. Next, our very strong Section of Biostatistics is highlighted along with a brief description of our Teaching programme. We conclude with a presentation of the medico-historical museum (Medical Museion).

Enjoy!

Mette Madsen, Head of Department
Health over the Lifespan

This research examines how our health is shaped by intrinsic and external factors during the lifespan. The ambitious goal is to study the interaction between social, psychological and biological factors and the impact of these factors on development and health throughout the lifespan.

The unique data collected over many years on individual human life and health may provide answers to many pressing questions about health over the lifespan. We are primarily focused on the factors that trigger disease and the possibilities for implementing preventative strategies rather than focusing on a cure.

“Over the years, we have built up substantial experience in establishing and conducting research on the basis of comprehensive population studies,” says Anne-Marie Nybo Andersen, Professor of Social Epidemiology with particular focus on the early stages of life.

So-called “cohort studies” in which population data collected over a number of years on health and lifestyle, provide an invaluable resource for epidemiological research. The Department has, for instance, followed a cohort consisting of males born in 1953. Today – at over 60 years old – these individuals have reached an age at which they will start suffering from age-related diseases. Based upon the extensive information available about their lives, researchers hope to obtain knowledge about which of the factors experienced during childhood, youth and adulthood have contributed to disease incidence across the lifespan.

Research Positive Danes

The results of such studies may be fraught with uncertainty. Who chooses to take part year after year? Fortunately, we can draw on major public registers on health conditions and social issues that cover the entire Danish population. Professor of Medical Psychology Erik Lykke Mortensen points out:

“It is important that researchers have access to these registers, but unfortunately there is widespread distrust of the system in many countries.” Anne-Marie Nybo Andersen adds:

“We strive to live up to the great trust that we, as researchers, receive from the Danish population. We can get access to an abundance of data if for instance we use register research databases, including those through Statistics Denmark. These registers are completely anonymous, and the system is designed to avoid data and information leaks about the individuals. I find that the Danish population has a positive attitude towards research, including such register research.”

Photo: Christoffer Regild
Health during the Early Stages of Life

The foetal stage and the first year of life are of vital importance not only to a child’s attachment to its mother but also for its biological health. This is the period when it is decided whether specific genes are to be used or not. A combination of our surroundings may determine whether a gene is “switched on” or not.

Recent discoveries suggest that the particles a mother inhales during pregnancy will have an influence on which genes will be expressed in the child. There is no other time when these epigenetic changes are more pronounced than at this early stage of life,” says Anne-Marie Nybo Andersen.

“It matters what a pregnant woman eats and drinks, what she inhales, which chemicals she is exposed to and, quite possibly, what degree of emotional strain she has experienced.”

Denmark is one of the most egalitarian societies in the world yet great social differences exist in early life health. Why are the social conditions so important when it comes to preterm childbirth?

“We use the cohorts, since they encompass all of the necessary information to allow us to get new insight,” says Professor Nybo Andersen, who is responsible for following-up on a cohort of 100,000 children born between 1997 and 2004 – the Danish National Birth Cohort.

“We have followed the children regularly from the time they were in their mother’s womb, when they were babies and onwards. Today they have all reached the age of 11, and another health survey of both children and parents is currently underway. The next questionnaire cycle will be conducted when they reach the age of 17. In teenagers, the most predominant health issues are obesity, allergies, and musculoskeletal disorders, not to mention impaired mental wellbeing, such as depression, ADHD, eating disorders, self-harm behaviours and early signs of serious mental disease. These disorders often start during childhood and follow the person into adolescence and adulthood and are amongst the most expensive diseases in Denmark as measured by the number of quality years lost.”

Psychological Influences and Health

Lifespan research in Psychology seeks to build a bridge between biomedical and social-scientific research. In his research and teaching, Professor of Medical Psychology Erik Lykke Mortensen focuses on the significance of psychological features on health and disease. His primary interest is not mental diseases but rather the factors that have an impact on psychological development. To examine these factors, he often uses large birth cohorts such as a group of children born between 1959 and 1961 at Rigshospitalet in Copenhagen.

“We focus on aspects of cognitive, intellectual and personality development and on the association between early motor development and adult psychological traits or characteristics. This material is quite unique, as we can follow people throughout their entire life,” says Professor Mortensen, who also researches healthy aging together with Associate Professor of Social Epidemiology, Rikke Lund.
The Department of Public Health

Researchers are looking for factors over our lifetime that increases the risk of premature aging. Preliminary results show clear variations in cognitive and physical functioning and great social inequality between those with healthy aging versus premature aging.

“We have examined the tests for a low degree of inflammation, a marker for a number of aging-related conditions. We can retrospectively examine earlier life stages to analyse whether social conditions have an influence on this marker for accelerated aging. Might it be possible to intervene in time to prevent a loss of functionality? It probably sets in earlier than we believe.”

“A society with many elderly people is a demographic challenge. This is why it is of the utmost importance to identify the health inhibiting factors that can be shaped,” says Rikke Lund.

What about the “epidemic” of dementia we often hear of. Is it true? “Our brain is a robust organ, and dementia is primarily an age issue. However, thanks to the pharmaceutical development, among other things, more and more people live for so long that their brain cannot keep up,” says Erik Lykke Mortensen.

Multidisciplinary Research

Researchers literally have access to data about our lives from gestation to death. Social inequality is present already from birth, but the inequality is most profound among the elderly. Upon reaching middle age, a person may already have been exposed to factors that will trigger disease in old age. So what can be done?

“It is important that we identify the factors that can be influenced.” Statements such as, ‘Tough luck; you have had a hard life and now you are paying the price’ lack every trace of vision,” says Rikke Lund and continues, “Our lifecycle research is a multi-disciplinary collaboration with other sciences where we try to put the pieces of a very complex puzzle together in order to better understand the interaction of biology with social and mental health conditions. It is an exciting challenge!”

Healthy Aging

More and more Danes live to reach high age, which presents more challenges to our knowledge about the factors that promote healthy aging with a minimum of disabilities. To examine healthy aging, a group of 18,000 middle-aged people was invited to take part in a multi-disciplinary project in 2009, which also included a biobank of genetic material called the Copenhagen Aging and Midlife Biobank (CAMB).
Health within Different Population Groups

Denmark has one of the lowest degrees of inequality expressed by income in the world. This leaves researchers with an apparent paradox that inequality in health conditions in Denmark are on a par with countries which have much larger income differences and which can barely be called welfare states.

It is not easy to understand this difference, let alone the fact that it is twice as big as it was 25 years ago,” says Professor Finn Diderichsen. In the Nordic welfare states, negative social heritage has been reduced and social mobility has increased, but new results seem to indicate that you have to look for the causes for the inequality in health at a very early stage in life:

“If you have problems reading and writing after your first year at school, there is a risk that you will have poor health later on in life. When we look at the young men who have not completed youth education programmes before the age of 20, their risk of dying before the age of 30 is five times higher than is the case with those who have completed youth education. It is the things that happen to you early in life that will cause you problems later on in your education and, in turn, on the labour market and may cause you to start living an unhealthy and risky life rather early on.”

Smoking and alcohol are notorious killers, however, social differences in their impact on health have been noted as well.

For instance, alcohol consumption is very high amongst the well-educated in the affluent area north of Copenhagen, however, these people do not die from the harmful effects of alcohol to the same extent as those with less education and smaller incomes.

“Vulnerability and the effect of excessive drinking and smoking are different for the social groupings because of all the influences they have been exposed to. High blood pressure, a poor working environment, and an unhealthy diet all lump together with the less educated groups,” says Finn Diderichsen.

When people become ill, it matters where they live. In more rural areas, for example, there may not be a general practitioner, specialist doctor, a municipal health centre or a hospital close by. In other words, the structure and organisation of the health services contribute to inequality. Since rehabilitation following an illness requires perseverance from the patient, without adequate and accessible resources available to the individual, they may remain ill.

Centre for Migration, Ethnicity and Health (MESU)

As a population group, immigrants do not contribute to the low average life expectancy in Denmark, as they generally have lower mortality rates than ethnic Danes. However, immigrants often have poorer health conditions than ethnic Danes.

Strains during the migration process combined with poor socio-economic conditions, changes in family roles and stressful living conditions all add to immigrants’ being more exposed to other and increased risks of disease than is the case with ethnic Danes. Immigrants are also faced with linguistic and cultural barriers when accessing the Danish health care system,” says Associate Professor of Health Services Research, Signe Smith Nielsen.

“Our group researches migrants’ health behaviour, degree of illness and access to the health care system. Migrants are a heterogeneous mix of immigrant workers, refugees, asylum seekers, family reunified individuals, etc. In general, we look mostly at people from non-Western countries, as they belong to the most vulnerable groups. Compared to ethnic Danes, immigrants often have different health behaviours. On the positive side, they eat more fruit and vegetables, drink less alcohol, and many have a lower risk of contracting various forms of cancer, for instance, breast cancer. On the negative side, they are generally less active physically, and some immigrant groups smoke more, while others are genetically disposed for chronic diseases such as diabetes.
There is a direct correlation between length of stay in the recipient country - and thus an increased attachment to the labour market and increased earnings - and the deterioration of health. The exact opposite is true, however, where ethnic Danes are concerned, leaving us to wonder why. The higher average life expectancy among immigrants may be explained by the fact that many of them return to their native countries when they get old and sick, and therefore they do not show up in the statistics. On the other hand, perhaps individuals who come to Denmark are generally “Healthy Migrants.”

“Migrants’ health is an area of research that is growing very fast in Europe. We are moving away from descriptive studies of disease and mortality patterns towards more theoretically well-founded analytical studies that contribute to explaining and understanding these patterns and towards intervention studies with testing and active intervention for improving the access to the health care sector and preventing the ethnic inequality in health,” says Signe Smith Nielsen.

Work, Family and Health

How stressed do you feel? Do you manage your everyday life? When you investigate the complex of exposures related to stress, you may choose to ask the Danish population directly. Associate Professor Naja Hulvej Rod is head of a research group on psychosocial stress exposure. The group works with self-reported and biological measures of stress.

We examine the health consequences of stress and we look into stress exposures within both occupational and private life. What happens to your health when you are stressed from various angles at the same time? At this point, people start experiencing physiological stress reactions and may eventually fall apart with stress,” says Naja Hulvej Rod. The problem affects the individual but is, in fact, a managerial and social problem for which there are limited tools available at the moment. “We lack some basic research!”

Åse Marie Hansen, Professor of Psychosocial Medicine, uses biophysiological methods to study the stress factors in the working environment. Some of her material comes in small plastic containers:

“We measure the content of the stress hormone cortisol, the sleep hormone melatonin and testosterone in our saliva. We send the containers off with a questionnaire, and people are quite good at returning them,” she says. She takes a broad view on stressors: diurnal disturbance due to nightshifts, high demands and low control, experiencing injustice, negative social relations at work, etc.

“We just received a large three-year grant together with the Department of Psychology and the National Research Centre for the Working Environment. In this project, we will study negative social relations at the workplace and use a more differentiated view of what work means today!”

Associate Professor Lone Schmidt’s research focuses on stress in family life triggered by involuntary childlessness. The dream of having a baby and perhaps the shattered hopes of getting help through fertilisation treatments are a less noticed, but equally real, stress factor.

“We have developed a new questionnaire on stress and childlessness which has attracted international attention, and we will now look into how it works in other countries. We already know that the perception of the importance of motherhood differs from country to country.”
Environment and Health

During pregnancy, mother and child are closely connected, but precisely which environmental exposures affect the unborn baby? The researchers at the Section of Environmental Health use biological material and laboratory tests in their experimental work.

Current research involves the use of placentas from Rigshospitalet in Copenhagen, which are attached to a circuit and exposed to various substances, environmental toxins, particle pollution and various stimulants. This enables researchers to study substance migration from mother to child. Professor Lisbeth E. Knudsen has specialised in techniques to biomonitor environmental and occupational exposures:

“Substances such as caffeine, alcohol and tobacco go right through while, for instance, brominated flame retardants take more time. We have also studied particles, and they seem to become embedded in the tissue.”

The model replaces animal testing in the risk assessments conducted by Lisbeth E. Knudsen’s unit. They also investigate other substances such as phthalates, cadmium and mercury, and the results are used as a basis for policy recommendations on the regulation of the use of these substances.

Air Pollution and Health

Particles reappear when Professor Steffen Loft talks about research into the effects of air pollution on health. His research is focused on how our body absorbs and handles hazardous compounds. Air quality and particle levels at outdoor and indoor locations are related to effects on the people present assessed by blood tests and the function of blood vessels and lungs as well as by development of disease. The biological effects of the particles and the mechanisms are also studied in cell cultures and, when necessary, test animals, which are used to test the influence of pollution.

“By combining many different cell types in cultures, we try to make the cultures resemble human tissue. Exhaust particles can cause adverse effects in the whole body and we are worried that the new nanoparticles used in food, paint and clothing will do the same. Nanoparticles are also being developed for carrying medicine in the body, and together with the Department of Pharmacy, we use the same models to find out if such transport systems are safe,” says Steffen Loft.

In comparison with many other countries, air pollution in Denmark is modest, but there is always room for improvement. It is still considered a health risk to live close to a busy road, and as emissions from power plants and motor vehicles are being regulated, attention is drawn to other sources of pollution.
Prevention

Instead of instilling guilt in physically inactive people, why not increase their motivation to be active? A new collaboration between the Municipality of Copenhagen and the University of Copenhagen led by Professor Henning Langberg has initiated a series of studies of how new, innovative technology can motivate people to become physically active to improve health, prevent diseases and rehabilitate people with lifestyle-related and chronic diseases.

As a result of the Danish structural reform of 2007, the municipalities have assumed ownership of a number of health tasks focusing on prevention and rehabilitation. It is a well-known fact that physical inactivity is an important factor in a long list of lifestyle-related and chronic diseases. This is why we have started a number of research projects on the implementation, motivation and innovation of physical activities, in particular within these areas,” says Denmark’s one and only Professor of Technology-supported Rehabilitation, Henning Langberg. A former senior researcher at the Institute of Sports Medicine at Bispebjerg Hospital, he has researched the effect of physical activity and rehabilitation on the connective tissue of our bodies, among other things.

“An abundance of studies show that physical activity is good, but it is often difficult to motivate those who need it the most. We work with diabetics, COPD patients, people with cardiovascular diseases, and those with locomotor apparatus problems. Using various technologies such as sensors, wearables and apps for smartphones and tablets, we try to motivate patients to choose healthier alternatives and become more physically active. The goal is to empower patients and encourage them to make the “right” decisions. The goal is sustainable rehabilitation with the patient in focus. Using the technology, we motivate COPD patients and diabetics to establish and maintain good habits after completing their rehabilitation, at which point they would typically be left on their own. I come from a research tradition steeped in basic science on tissue samples and cells, but am fascinated by this opportunity to do translational research. We develop evidence-based rehabilitation in controlled lab settings and use the City of Copenhagen as a Living Lab where we can test our hypotheses on large scale “real life”. Research only matters if it can be implemented. Currently we are riding on a wave of newly developed welfare technology, and with our research we have the opportunity to mould the future for the benefit of our patients,” says Henning Langberg, smiling.

The multidisciplinary collaboration on the development of welfare technological solutions and devices involves researchers from the Danish Technical University, the Copenhagen Business School, other departments at the University of Copenhagen and private companies. “The motivation to change lifestyle is a dynamic process that differs from person to person and depends on context. We have to acknowledge this and learn how we can implement our knowledge in the real world. This is very interesting work indeed!”
General Practice

General practice is the largest medical specialty in Denmark and a basic pillar in our health care sector. The doctor’s consultation room is where the primary contact between citizen and system takes place. Lars Bjerrum and Jakob Kragstrup are both Professors of General Medicine and practitioners. At the University of Copenhagen, a medical practice has been established in an effort to combine clinical and research work.

When you teach and research, it is important not to lose contact with your patients, especially those who have not been referred, those who walk in from the street,” says Lars Bjerrum.

Medical education is heavily weighted with theoretical subjects, but Jakob Kragstrup and Lars Bjerrum’s courses are all about practice, patient contact and communication. The subject “Early Patient Contact” is quite deliberately a first semester course. Doctors in all specialties must learn to listen and communicate and be able to handle the fact that people present with many different symptoms that must be diagnosed without having a lot of equipment at your disposal.

Antibiotics and Resistance
About 90% of all antibiotic prescriptions are issued by a general practitioner. According to the WHO, the abuse of antibiotics, leading to antibiotic resistance, is considered one of the most serious threats against our health. Lars Bjerrum researches antibiotics resistance at the interdisciplinary, “Centre for Control of Antibiotic Resistance” at the University of Copenhagen. The Centre comprises researchers from four departments, including doctors, veterinarians, molecular biologists, pharmacists, sociologists, economists and humanists.

“The 20th century is considered the century of antibiotics. The discovery of penicillin is one of medicine’s greatest achievements yet it has been used and abused to such an extent that it no longer has the same effect. At the research centre, we try to elucidate antibiotics prescriptions and the resistance problem from many different angles, and it is vital that we engage general practitioners if we want to be effective in reducing resistance. By lowering the consumption, one also lowers the resistance. We cannot expect new antibiotics to solve this problem of resistance for us. The pipeline has run dry,” as Lars Bjerrum points out.

Multimorbidity and Polypharmacy
Colleague Professor Jakob Kragstrup works with multimorbidity: when a patient suffers from two or more chronic diseases at the same time. “We are talking about more than 50% of the population over the age of 65. Since we are reorganising our health care sector towards specialised entities, multimorbidity will prove to be a significant problem. Speciality departments only take care of one particular problem and have very short admission times. Therefore, patients with complex problems are left for the general practitioner to deal with.”

A challenge of multimorbidity is polypharmacy: taking different kinds of medication for different conditions. The challenge here is that the medications used for certain co-occurring conditions often counteract and are difficult to administer.

“This makes being a patient – and the health care services for that matter - very complex. We try to use research to open up this field. You cannot just follow the medication instructions if a patient has three different diseases, and having multiple diseases shouldn’t consume your entire life either.”
The health care sector is, in principle, a bottomless hole where new technologies and medications could, in theory, consume all available financial means. How do we optimise the various parts of the health care system without destroying our budgets? What options are available for potential public/private partnerships?

“We need tools to structure the process and establish a basis for decision-making. This is more or less what the subject ‘Health Economy’ is all about. It is a question of prioritising and determining how we get most value for our money in terms of quality-adjusted life years,” says Karsten Vrangbæk who smiles at his own rather academic formulation. “I have several projects involving the collaboration between municipalities and regions; how to organise to avoid unnecessary hospitalisation and ensure that patients get the best possible service and treatment throughout the health care services.”

International collaboration is also important. Professor Vrangbæk is on his way to Tallinn to meet with the Baltic ministers of health to discuss the implementation of a new EU directive which opens up for the free choice of hospitals across country borders. There are also bi-national projects with the other Nordic countries:

“It is good to get another perspective and a contrast to your own; mirroring in systems in other countries makes it easier to question your own systems, and such knowledge is in great demand.”

Research and Politics
As a member of the steering committee for the Danish Study of Power and Democracy, Signild Vallgårda researched power as exercised in health promotion. What means of power do politicians apply to make people change behaviour in order to become healthy? This gave rise to analyses of ethics in public health, for instance, the extent to which it is defensible to apply banning or coercion. As a Professor of Health Policy Analyses, Signild Vallgårda is focused with these questions, which she researches together with her students.

Information, banning or complete liberalisation? There is no political consensus on the route to improved public health, however, it is for the researchers to present their results to give decision-makers the opportunity to reflect on their policies.

“I cannot say for certain that my research has led to any concrete decisions, but I may have been able to shift some pieces of a very big puzzle and make someone think differently. We are obliged to publish our results as broadly as possible, and the value of teaching should not be underestimated,” says Signild Vallgårda, co-author of various textbooks within the area. “I hope people read them – at least if they are going to be examined in this subject!” she says, smiling.

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Health Economy and Politics

With his dual professorship at the Department of Political Science and the Department of Public Health, Karsten Vrangbæk is a multidisciplinary bridge builder between social sciences and health science at the University of Copenhagen. He heads a new centre of research and teaching in health economy.
Evaluating Screening Programmes

Screening for breast and cervical cancer is a politically-charged preventive measure, proven to reduce the mortality rate for these diseases. Or does it? Mammography can reveal tissue changes which may never lead to cancer but which still count in the statistics. The term ‘over diagnosis’ is a methodological challenge for epidemiologists like Professor Elsebeth Lynge.

"Whether screening has any effect in theoretical scientific studies is one thing; whether it works in the health care system where there are many other considerations is something entirely different. After 10 years of screening for breast cancer in Copenhagen, however, it was a welcome surprise that mortality had fallen by 25%," she says. Another programme is screening for uterine cancer, where pre-stages of cancer will be discovered. The programme has been very successful, as both the occurrence of the disease and mortality have fallen. However, the women have paid a price. Compared to every instance of uterine cancer detected, six to eight young women have been operated on to prevent the pre-stages from developing into cancer."

"We cannot tell which pre-stages will develop into cancer. That is the disadvantage of screening, and therefore it is important that we try to find alternative solutions. Now we have a vaccination, but it will take years before the girls that have been vaccinated will be old enough for us to see if there is any effect on the occurrence of cancer. Meanwhile, we must resort to the other possibilities available, and there are indicators that pre-stages of cancer disappear if women protect themselves against papilloma virus over a period of some months by having safe sex. It would be great if we could reduce the number of surgeries this way, and I am very keen on having a randomised trial in Denmark," says Professor Elsebeth Lynge in conclusion.
We look at how medical technology is applied in the health care system; how technology and know-how establish the framework for how we understand ourselves and our society,” says Mette Nordahl Svendsen, Associate Professor and head of MeST.

“One of our projects examines how health professionals, patients and relatives define and understand what constitutes a ‘worthy’ life. Will a baby born prematurely with severe handicaps be able to live a worthy life? How far should one go in trying to keep severely demented people alive with medicine and technology if they get sick? Rather than trying to deduce the answers from philosophical principles, we examine how the management of life and dignity takes place in practice in close interplay with new technology, organisational practices in the health care system and cultural understandings of what it means to be a human being.”

Another project looks into how different socially defined conceptions of right and duty, body and person, and life and death influence the donation of organs, tissue and sperm, but also how the medical technologies that use the cells, tissue and organs change Danish society and the very same conceptions, explains Professor Klaus Hoeyer. “In many ways, this is about achieving an understanding of the new worlds that will be created with the new technologies and know-how,” says Associate Professor Henriette Langstrup who continues, “Technology is usually created with a specific purpose or intended use, but there will typically be a number of unintended effects. We have to identify them and take them into consideration.”

Medical Science and Technological Studies

Political, financial, social and cultural differences are all of major importance to the health care system as are patients’ daily practice and use of health technology. These are the focal areas of research at the Centre for Medical Science and Technological Studies (MeST).
Our own research is about further developing statistical methods. We also function as statisticians on research projects, but we like to think of the two activities as one, since the most interesting biostatistical method developments may emerge from concrete medical applications,” explains Per Kragh Andersen, Professor of Biostatistics.

The various public registers contain much information about the population, and by exploiting them (strictly anonymously), biostatistical principles and techniques may be applied to shed light on many scientific questions. Is there a tendency, for instance, for psychiatric patients to choose other psychiatric patients as life companions? This could have an influence on the incidence of psychiatric diseases, as these have a genetic cause component. The answer to this question was researched by following psychiatric patients through the registers and comparing their choices of partner to those of a healthy control group. Doing this revealed e.g. that a woman suffering from depression is 3.3 times more likely to find a partner with a depression than is the case for a healthy woman.

The statisticians not only supply methods; very often, being critical sparring partners in collaborations is just as important. “One of our typical contributions is that we can think of time in the right way,” says Associate Professor Theis Lange. “Events happen in a certain sequence, and future events cannot be used for predicting the past. When that happens anyway, undigested ‘truths’ may end up on the front pages and confuse the concepts, as when the Danish newspaper Politiken printed “news” that people who have had skin cancer, perhaps due to sun exposure, would live longer than those who had not. There was no truth in the story, and when the correct analysis was carried out, it became clear that there was no reason to question the public health recommendations of being careful with sun exposure.”

Per Kragh Andersen: “It is also our job to explain the basis and conditions for our analyses to our collaborative partners.”
Teaching Programme at the Department

The employees at the Department of Public Health contribute to most of the education programmes at the Faculty of Health and Medical Sciences. Two of the studies, the Bachelor and Master Degree in Public Health Science and Master of Public Health are anchored at the Department. The subjects taught cover a diverse area, from natural science and medical science to social science and the humanities.

The five-year master’s degree in Public Health Science is an interdisciplinary education aimed at providing candidates with the skills necessary to work with prevention and health promotion and other health-related fields. Candidates in this programme have two distinctions: strong methodological qualitative and quantitative competencies and specialist knowledge in both health science and social science, allowing them to work with people with different professional backgrounds. The candidates find work in a broad range of public and private arenas: the state, regions, municipalities, research institutions, the pharmaceutical industry, NGOs and international organisations.

The intensive study of a diverse range of specialties is academically demanding as students need to acquire an understanding of different scientific-theoretical and methodological approaches; however, it prepares them to tackle the many different tasks they will encounter once they enter the labour market.

The short, 18-month Master Degree in Public Health has some of the same subjects, and is targeted towards people who already have work experience within the health services.

In the words of student Rasmus Christophersen, the Master Degree in Public Health is very concrete and relevant to work and life: “What is really great about this programme, is that you don’t just read public health, you study public health. You get so hooked and absorbed into the material that you end up studying when you’re shopping, waiting for the bus, or working out at the local gym.”

At many of the Department’s other programmes, the Department teaches subjects such as statistics, scientific theory, epidemiology, medical sociology, medical psychology, and environmental medicine, amongst many others. Most teaching resources are allocated to medical education, where additional clinical subjects such as general medicine, social medicine and occupational medicine, patient contact and communication, and the organisation of the health services are taught.

Associate Professor Theis Lange from the Section of Biostatistics says about the medical education: “We convey a lot of insight from outside the hospital room in a broad spectrum of courses for medical students from day one until the graduation. The challenge for my area is that statistics rest on pure mathematics so even though students entering the programme had good grades in high school, the teaching should be guided by good examples rather than pure theory.”
Medical Museion

Medical Museion, the University of Copenhagen’s medical museum, is part of the Department of Public Health. Housed in the late 18th century Royal Surgical Academy building in Bredgade in central Copenhagen, it is open to everyone with an interest in health and disease in a historical and cultural perspective.

Drawing on some of the richest medical historical artefact collections in Europe, the museum’s aim is to engage a broad audience in discussion about how the health sciences help set the agenda for our lives; in the past, present and future.

Medical Museion’s outreach activities, including exhibitions, public events, and web-based platforms, are based on research in medical humanities and science communication studies. Current exhibitions deal with the topics of obesity and gastric bypass surgery, epidemic diseases in history, classical and modern conceptions of the body, and Danish medical technology over the last 40 years. In late 2014 the museum will open a major exhibition on the relationship between the collection of body parts and medical knowledge, throughout history and including the biobanks of today.

The listed Academy building in Bredgade in central Copenhagen also hosts numerous public events, where the museum’s rich material collections are used as a backdrop for discussing topical issues such as genomics, biohacking, and antibiotic resistance. The aims of these events is to bring the strange past, the confusing contemporary, and the uncertain future together, exploring medical science and technology as a part of our culture and everyday life. By letting the museum artefacts out of the storage rooms and inviting biomedical researchers to bring their own material objects to the event, the museum tries to create a space for conversation and reflection, both about scientific content and about the research process itself.

The museum is renowned for its work on the interface between art, design and medical science. In the entrance hall the visitor in confronted with the larger-than-life “pill dress” Femme Vitale, created by UK-based art group Pharmacopoeia. Her dress is made up of 27,774 prescription tablets and capsules, equivalent to ten years of use for a patient with so-called metabolic syndrome, which includes type 2 diabetes, high cholesterol levels, and hypertension. Another current art installation, Genomic Enlightenment, is made up of 650 gene chips, which were used in a recently completed epidemiological research programme on possible genetic causes of the metabolic syndrome.

Medical Museion has worked across the whole health care sector to build the largest and most experimental museum for public engagement with health and medicine in northern Europe. “We want to cooperate with biomedical scientists, general practitioners, health care personnel, pharma and medical device companies, and patient organisations to raise the public awareness of the importance of health science and technology”, says the museum director, Professor Thomas Söderqvist.