Women, Disadvantage and Cardiovascular Disease: Policy Implications

Conference Proceedings
WOMEN, DISADVANTAGE AND CARDIOVASCULAR DISEASE:
POLICY IMPLICATIONS

CONFERENCE PROCEEDINGS

The Women’s Health Council
Comhairle Shláinte na mBan

&

HEALTH PROMOTION BOARD
Department of Health and Children

22nd APRIL 2004
The Women’s Health Council

The Women’s Health Council is a statutory body established in 1997 to advise the Minister for Health and Children on all aspects of women’s health. Following a recommendation in the Report of the Second Commission on the Status of Women (1993), the national Plan for Women’s Health 1997-1999 was published in 1997. One of the recommendations in the Plan was that a Women’s Health Council be set up as ‘a centre of expertise on women’s health issues, to foster research into women’s health, evaluate the success of this Plan in improving women’s health and advise the Minister for Health on women’s issues generally.’

The mission of the Women’s Health Council is to inform and influence the development of health policy to ensure the maximum health and social gain for women in Ireland. Its membership is representative of a wide range of expertise and interest in women’s health.

The Women’s Health Council has five functions detailed in its Statutory Instruments:
1. Advising the Minister for Health and Children on all aspects of women’s health.
2. Assisting the development of national and regional policies and strategies designed to increase health gain and social gain for women.
3. Developing expertise on women’s health within the health services.
4. Liaising with other relevant international bodies which have similar functions as the Council.
5. Advising other Government Ministers at their request.

The work of the Women’s Health Council is guided by three principles:
♦ Equity based on diversity – the need to develop flexible and accessible services which respond equitably to the diverse needs and situations of women.
♦ Quality in the provision and delivery of health services to all women throughout their lives.
♦ Relevance to women’s health needs.

In carrying out its statutory functions, the Women’s Health Council has adopted the WHO definition of health, a measure reiterated in the Department of Health’s Quality and Fairness document (2001). This definition states that

‘Health is a state of complete physical, mental and social well being.’
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Facts and Statistics

There is strong international evidence that gender is a determining factor in cardiovascular disease across the life course, both in relation to biological and social determinants. Extensive evidence over many years also highlights the importance of obstetrical outcomes to long-term health and research into cardiovascular disease shows the persistence of early life risk factors influencing adult risk for cardiovascular disease.

Policies to address cardiovascular disease must take into account the different patterns of risk for men and women across the life course including pregnant women and early life influences. An inter-sectoral approach using gender sensitive policies is required to address the link between cardiovascular disease and disadvantage.

Incidence and General Characteristics
- Over her lifetime a woman is 10 times more likely to develop coronary heart disease than she is breast cancer.
- Heart attacks and stroke kill twice as many women as all cancers combined.
- In 2001 over 40% of women died from cardiovascular disease.
- During the years 1989-1998, an average of 4,252 women in this country died from ischaemic and other heart diseases each year.
- Ireland has the second highest rate of ischaemic heart disease among women in Europe, with a standard death rate of 125.8 per 10,000 women, compared to a European average of 74.2.
- Women are on average 10 years older than their male counterparts when they develop CHD. The peak age range for hospitalisation of males with ischaemic heart disease is 60 to 74 years, and for women is 65 to 79 years.
- Women are experiencing an increasing prevalence of heart failure, especially in older age groups.

Diagnosis and Treatment
- Women with a myocardial infarction are more likely than men to be misdiagnosed.
- Women are less likely than men to be referred to a specialist or to have revascularization.
- Women are less likely than men to have their risk factors (body mass index, smoking, blood pressure) recorded.
- Women are less likely to be prescribed aspirin, beta-blockers and cholesterol lowering drugs.
Cardiovascular Disease and Gender

- 20% of studies report significant differences in cardiovascular outcomes by gender, where gender-based analysis is present.
- Women’s total cholesterol levels peak between 55 and 65 years of age, about a decade later than in men.
- Raised cholesterol predicts death from coronary heart disease in men of all ages and in women under the age of 50.
- More women than men develop hypertension as they get older, particularly women over 45 years.
- Having more than two children substantially increases the risk of coronary heart disease in both men and women, but significantly more so in the female population.
- For women, recurrent pregnancies carry biological consequences, as some women become insulin resistant in pregnancy, a condition that carries an increased risk of heart disease.
- There is comprehensive empirical support for the proposition that the differences in risk between men and women have a constitutional basis, in addition to expected environmental influences.

Disadvantage

- There is a substantial difference in premature circulatory disease mortality depending on occupational class, with rates in the lowest occupational class being 312 higher than rates in the highest occupational class.
- The lower the socio-economic group, the higher the prevalence of risk factors, for example, smoking.
- Household headed by an ill or disabled person, or headed by a woman are the ones at most risk of poverty.
- Older women are the group singularly most at risk of poverty.

Early Life Influences

- Coronary heart disease does not begin at 50 years or over, it begins early in life.
- Birth weight and the foetal experience in utero represent very important factors for the onset of cardiovascular disease.
- Because of the importance of early life factors improving health services for women and children is vital.
OPENING ADDRESS

Prof. Cecily Kelleher, Chair of the Women’s Health Council opened the conference and chaired the morning session. She welcomed all the delegates and speakers for attending before introducing Mr. Ivor Callely T.D., the Minister of State in the Department of Health and Children with special responsibility for services for older people.

Address by Mr Ivor Callely T.D.

Minister of State
Department of Health and Children

Introduction
The Minister thanked the Women’s Health Council and the Health Promotion Unit for inviting him to open this conference on women, disadvantage and cardiovascular disease.

He pointed out that cardiovascular disease is the biggest killer of Irish people, both men and women. Social and economic factors play an important part in the development of this largely preventable disease. Studies have found that the risk of cardiovascular disease is greater in less well-off or disadvantaged groups. In order to reduce such inequalities and to achieve health and social gain in relation to cardiovascular diseases, a comprehensive strategy was developed which was accepted and endorsed by the Government five years ago.

He stated that the Government is committed to the promotion of cardiovascular health and has made it a major theme of the current Irish Presidency of the European Union. He expressed his delight at seeing that the Women’s Health Council is supporting this commitment by hosting this conference, following the publication last year of their position papers “Women and Disadvantage” and “Women and Cardiovascular Health.”

Cardiovascular Health Strategy
The Minister referred to the “Building Healthier Hearts” strategy, which was launched by An Taoiseach in July 1999. It set out the blue print for tackling heart disease in Ireland in the long term. The document indicated that a multi-faceted approach was required, right across society and right across the health services and that is exactly what the Cardiovascular Health Strategy has developed and is working to deliver.

In practical terms, Minister Callely highlighted, the government has funded the appointment of almost 800 new staff in the first years of implementation. These include:

- **139 health promotion officers** providing guidance on smoking cessation, nutrition and physical activity.
- **113 primary care and pre-hospital care personnel** supporting prevention, diagnosis and rapid response to the care of people in the community.
- **328 hospital-based professionals** have been employed as well as funding allocated for the appointment of 17 additional consultant cardiologists.
109 additional cardiac rehabilitation staff are now in post, so that today, most acute hospitals treating people with heart disease have developed structured cardiac rehabilitation services.

Finally, the 81 additional staff employed in the area of information systems, audit and research are improving the quality of and agreeing guidelines for patient care. Work on information systems includes developing clinical databases such as the Coronary Heart Attack Ireland Register that will provide essential data on the quality of treatment for patients.

The successful implementation of the Strategy is the result of a number of factors:

- the Government’s commitment to tackling heart disease and its ongoing support for the implementation of the Cardiovascular Health Strategy,
- the prioritisation of the recommendations,
- the national and regional implementation structures that have maintained strategic direction for service developments, and
- the enthusiasm, energy and commitment of personnel at all levels.

Irish Presidency of the EU

Through the implementation of the Cardiovascular Health Strategy, Minister Callely claimed, Ireland has shown leadership in its approach to heart health, and our current Presidency of the European Union gives us the opportunity to share experiences, challenges and successes in tackling heart disease with other Member and Accession States.

At a conference on Promoting Heart Health earlier this year, conclusions were reached on the best approaches for promoting heart health and tackling heart disease across the EU. This is a major step for heart health in Europe and the importance of this consensus cannot be underestimated. The conclusions from this conference will be brought to the EU Health Council meeting in June 2004.

In addition, Ireland will also be hosting a meeting to agree European data standards for priority databases in cardiology next month.

Women and Cardiovascular Disease

The Minister stressed that thanks to the work carried out by the Women’s Health Council, we are now more aware of the challenges involved in addressing the particular heart health needs of women.

Women are as affected by cardiovascular disease as men, although typically at a later age. Indeed, women are far more likely to develop coronary heart disease than breast cancer. However, the experience of women may differ from that of men. It is important, therefore, to educate both women and their doctors about these differences and to develop gender sensitive policies.

He then referred to the fact that the Women’s Health Council is co-operating with the gender mainstreaming unit of the WHO Regional Office in Europe to conduct an in-depth
review of the development of gender sensitive policies. He described himself as particularly pleased that the Women’s Health Council will review the Cardiovascular Health Strategy as the Irish contribution to the project and said that he looked forward to the outcome of that review.

Future Challenges
Minister Callely maintained that nurturing the resource that is the health of our population and equality of access to health services, delivered to a high quality and with accountability, are the basic principles of the National Health Strategy “Quality and Fairness”. Ongoing implementation of the Cardiovascular Health Strategy will continue to be guided by these principles. The key challenges can be categorised as follows:

• Improving population health,
• Reducing inequalities,
• Ensuring equity of access to services, and
• Improving the quality of services.

He felt that it is important that we do not lose the momentum and goodwill surrounding the implementation of the Cardiovascular Health Strategy. The Government will do everything within its resources to ensure that this momentum is maintained to address the challenges ahead and to achieve comprehensive implementation of the Cardiovascular Health Strategy.

Conclusion
Finally, he thanked all of today’s speakers in advance – both Irish and those who have travelled from abroad. He hoped that their contribution will stimulate interesting discussion, and looked forward to receiving the conference conclusions. He also expressed his appreciation to the Women’s Health Council, its Director, Ms Geraldine Luddy and its Chair, Professor Cecily Kelleher for organising this conference.
KEYNOTE SPEECHES

Women, Disadvantage and Cardiovascular Disease: Policy Implications

Prof. Cecily Kelleher, Chair
The Women’s Health Council

In her welcome address to all, Prof. Kelleher started off by framing the context of this meeting against the background of a number of programmes and events currently taking place in Ireland:
- The National Cardiovascular Strategy.
- The Women’s Health Council work programme and resultant position papers; and
- Ireland’s European Union presidency from January to June 2004 with a particular focus on CVD.

She then set out the background to this issue, with three main questions:
1) Why is Ireland, North and South, at the top of existing European Union membership in terms of risk of heart disease? This is of particular relevance as we welcome the accession states into the expanded EU since many of these countries are experiencing very high rates of heart disease currently.
2) What does more recent research tell us about patterns of heart disease and hence prevention and treatment strategies? This means taking account of life-course considerations, and the relative impact of social, environmental and genetic factors in determining risk.
3) Are there specific issues of relevance to the differing patterns between men and women?

Because of the statutory remit of the Women’s Health Council, she stated, the Minister’s regard for their initiative in highlighting the importance of tackling cardiovascular disease in women and its links to disadvantage situations is very important and therefore his presence at the meeting was particularly welcome and appreciated. The programme for the day’s meeting included contributions from the international research community, statutory and voluntary agencies within the Republic of Ireland as well as those responsible for policy implementation, to achieve as wide-ranging an inter-sectoral dialogue as possible.

Prof. Kelleher then highlighted the Key Issues on which the delegates should focus on during this conference:
1) The relative contribution of constitutional, socio-economic and lifestyle factors across the life course to heart disease patterns.
2) The consequences then for effective inter-sectoral intervention.

She emphasized that these issues would be given special attention during the afternoon workshops, which will key into 3 areas:
- Public and Social Policy Implications
- Health Promotion and Prevention
- Health Care Service Delivery

Prof. Kelleher went on to refer to the SLÁN (Survey of Lifestyles, Attitudes and Nutrition) data, and what it tells us about the risk factors for cardiovascular disease. She pointed out that smoking prevalence is highest among the youngest groups (18-34 years of age). There was also found to be an inverse relationship between education and smoking prevalence, with respondents in the lower socio-economic groups being more likely to smoke. Moving on to physical activity, older women and teenage girls were the groups least like to take exercise, also experiencing a strong inverse radiant in relation to level of education. In the SLÁN analysis, smoking was now apparently a more important predictor of CVD risk in women than men. The main issue about lifestyle social gradients was to understand why they exist in order to intervene effectively. Hence the link between disadvantage and cardiovascular disease needs to be explored and addressed in Ireland.

She stressed that General Medical Services eligibility is a very powerful proxy in assessing the relationship between disadvantage and experiences of ill health. GMS status has been proven to be a very robust measure of actual income, and current data tell us that most primary holders of medical cards are older women. This highlights issues of both equity and access to be addressed generally and for women in particular. Older women tend to experience the onset of cardiovascular symptoms about 10 years later than their male counterparts, escalating from the mid 50s onwards. The differing patterns of risk for men and women across the life-course was an important area of novel research to be discussed at the meeting.

Finally, Prof. Kelleher anticipated a ‘state of the art’ discussion during the afternoon workshops and indeed the final plenary session on women, disadvantage and cardiovascular disease. She announced that a summary of the conference proceedings would be compiled in order to contribute to ongoing policy debate both in the national and international arena. Finally, the Women’s Health Council would also submit a report to the office of the Minister for Health and Children based on today’s presentations, discussions and final recommendations.
**Women, Disadvantage & Cardiovascular Disease:**  
*Key Issues*

Aoife O’Brien, Research Officer  
The Women’s Health Council

Ms. O’Brien in her presentation aimed to summarise some of the key points made in the two recent Women’s Health Council documents: ‘Women and Cardiovascular Health’ and ‘Women, Disadvantage & Health’. She stated that cardiovascular disease is currently the major cause of mortality among women in Ireland.

In 1998 over 40% of women died from cardiovascular disease. During the years 1989-1998, it was found that an average of 4,252 women in this country died from ischaemic and other heart diseases each year. Ireland also has particularly high rates of heart disease when compared to other European Union countries. Ireland has the second highest rate of ischaemic heart disease among women in Europe, with a standard death rate of 125.8 per 10,000 women, compared to a European average of 74.2 (Eurostat, 2002).

Despite the figures, women in this country seem to remain largely unaware of their risk of developing cardiovascular disease, and seem to be far better informed and concerned about the risks of conditions such as breast cancer. In fact, it has been found that over her lifetime, a woman is 10 times more likely to develop coronary heart disease than she is breast cancer (Ulstad, 2001), and that heart attacks and stroke kill twice as many women as all cancers combined (The Lancet, 2003).

Ms. O’Brien suggested that the neglect of cardiovascular disease may be largely due to the mistaken perception of the condition as a male phenomenon. In reality, lifestyle and risk factors are similar in women and men, and over their lifetimes women are as affected as men by cardiovascular disease, although women usually develop the disease at a slightly later age. This stereotyping of cardiovascular disease as ‘male’ has produced a number of worrying trends. There is evidence in the literature, for example, of less focus on women’s needs regarding cardiovascular health at all levels, from health promotion through to tertiary care.

Ms. O’Brien pointed out that the Women’s Health Council has stressed that attention must be paid to gender equity in relation to the prevention, treatment and management of cardiovascular disease among women. Action must also be taken to increase awareness about the incidence and symptoms of cardiovascular disease among both women and their health care providers.

One of the significant differences between men and women regarding heart health is the later age at which women develop disease. Research has found that women are on average 10 years older than their male counterparts when they develop CHD, and the incidence of heart attack among women has been found to lag behind that of men by up to 20 years. The Framingham Study in the United States [a prospective longitudinal...
epidemiologic study initiated in 1949 with a general population sample] found that in women the incidence of cardiovascular events lagged behind men by 10-20 years. The gap was found to close with advancing age and cardiovascular disease became the leading cause of death in older women as well as men. Information from the Irish Hospital In-Patient Enquiry (HIPE) database for 1999 had similar findings. It showed that while the peak age range for hospitalisation of males with ischaemic heart disease was 60 to 74 years, that for women was 65 to 79 years (Codd, 2001).

This time lag, coupled with women’s longer lifespans, Ms. O’Brien indicated, could have important health service implications. Health Services will need to take account of the growing numbers of older women at risk in the population, and of the additional complications that may be present among these older patients. For example, older women may have other co-existing diseases such as arthritis or osteoporosis that could mask cardiovascular symptoms. It is therefore very important to ensure that health service professionals are fully up to date on all the symptoms of cardiovascular disease among women.

The issue of symptoms is an extremely important one when considering women’s experience of cardiovascular disease. This is because women may not present with the chest pain or any of the other generally accepted symptoms of heart disease. Instead, women may experience symptoms such as neck, shoulder or abdominal pain, dyspnea (shortness of breath), fatigue, nausea or vomiting. The difference in male and female experience of the disease has only been recognised and documented fairly recently - to the point that the literature still consistently refers to women’s ‘atypical’ experience of heart disease, with men’s symptoms being perceived as ‘normal’. The perception of cardiovascular disease as typical to men stems both from the different manifestations of the disease in men and women and also from the lack of clinical research on women’s cardiovascular health.

Ms. O’Brien maintained that the concentration on male subjects is probably due to the historical tendency in medicine to see the male body as ‘normal’, but also to assume that data collected on male subjects could be extended to females. A recent analysis of thirty systematic reviews on cardiovascular health held in the Cochrane Library confirmed this situation. Women made up only 27% of the total pooled population of the 258 relevant trials. 196 of the 258 trials included men and women, but of these only 33% examined outcomes by gender. Where gender-based analysis was present, 20% reported significant differences in cardiovascular outcomes by gender.

When gender-based analysis is carried out, Ms. O’Brien claimed, evidence of the gender bias that currently exists is clear:
- When women present with myocardial infarction they are more likely than men to be misdiagnosed, and they are also more likely to die of their first infarction (Bedinghaus, 2001).
- Several studies have shown a systematic bias towards men when looking at secondary prevention of heart disease. Women were found to be:
  - less likely to be referred to a specialist or to have revascularization than men;
- less likely than men to have their risk factors (body mass index, smoking, blood pressure) recorded;

There was some acknowledgment of women’s needs in the original cardiovascular health strategy document, *Building Healthier Hearts* (1999). The report noted that special attention is required to ensure adequate participation by women and by older patients in cardiac rehabilitation programmes and recommended that current services be expanded appropriately. However, it would also be useful to incorporate the recommendation of the European Institute of Women’s Health (1996) to develop a two-sided approach to dealing with heart disease. The Institute identified the need to examine how health care professionals screen for the disease, and the need for women-specific research in the area.

Ms. O’Brien went on to elaborate on the main risk factors among both women and men. These are smoking, raised levels of cholesterol in the blood, and raised blood pressure. These are influenced by people’s lifestyles, their genetic make-up and their socio-economic grouping. It is important to note that although men and women have the same overall risk factors, their experiences of each may be quite different.

With smoking, for example, the reasons men and women take up and continue the habit have been found to be quite different: women are more likely to say they smoke to relieve stress, anger, boredom or depression; women are also more likely than men to cite smoking as a strategy for weight loss, and more likely to cite weight gain as a reason for relapsing after giving up smoking.

**High cholesterol:** Women’s total cholesterol levels peak between 55 and 65 years of age, about a decade later than in men (Ulstad, 2001).

With regard to **Hypertension**, more women than men have been found to develop the condition as they get older, particularly women over 45 years.

Ms. O’Brien stated that she would not cover all of the risk factors as she was confident the audience were all already aware of most of them; but she did note that for most risk factors women and men have quite distinct needs and experiences and there is a need for gender based research in this area to identify and target these needs.

The one risk factor that is specific to women is in relation to hormones and **oestrogen** in particular. The possible cardio-protective effects of oestrogen for women is a hotly debated topic within the area of cardiovascular health, as is the potential of hormone replacement therapy (HRT) to prevent the development of the disease. Ms O’Brien anticipated that the delegates would be hearing more about this topic in Prof. Ebrahim’s presentation.

The risk factor she did expand on, however, was that of socio-economic group. She felt that it is essential to take socio-economic factors into account as well as examining the
individual and biological factors for developing cardiovascular disease. Studies in many countries including Ireland have previously found important differences between the social classes in mortality rates from CVD and in the prevalence of risk factors for cardiovascular disease. It is clear that the risks of developing and dying from the disease are substantially higher in disadvantaged groups. Ireland’s Changing Heart (DoH&C’s Heart Health Task Force, 2003) noted that rates of circulatory diseases increased from 90 per 100,000 in the professional socio-economic group to 279 per 100,000 in semi- and unskilled groups. The most recent SLÁN report (Kelleher et al, 2003) also showed that the lower the socio-economic group, the higher the prevalence of risk factors, for example, smoking.

The links between disadvantage and ill health are a serious cause for concern and not just in terms of cardiovascular health, Ms. O’Brien emphasised. In spite of Ireland’s outstanding economic progress in recent years, the benefits of the economic boom have not been evenly distributed across Irish society. The richest twenty percent of the population in this country now receive 5.3 times more income than those in the least well off category. This means Ireland has one of the widest gaps between rich and poor in Europe. The gap between men and women has widened, with 23% of women now at risk of falling below the poverty line in comparison with 19% of men (Eurostat, 2003).

Women in less well-off socio-economic groups have consistently been shown to be at the greatest disadvantage with regard to many aspects of health. Studies have found, for example, that when food is scarce women will cut back on their own allowance in favour of feeding the children (Polakoff & Gregory, 2002; McIntyre et al, 2003). Similarly, women in low income situations often have to make choices about whether to attend to their own health needs or to use their scarce resources to pay for the needs of their children instead (NWCI, 2002).

Ms. O’Brien, however, also pointed out that it is very important to note women are not a homogenous group and some are more disadvantaged than others. This means that the needs of a broad spectrum of women in Ireland should be taken into account when planning services.

However, Ms. O’Brien highlighted some reasons for optimism:

- The Heart Health Task force’s *Ireland’s Changing Heart* report noted that targeting people living in disadvantaged areas remains a priority for health promotion.
- Health boards have established specific initiatives for promoting cardiovascular health aimed at disadvantaged groups, including employing community dieticians to work primarily with people living in disadvantaged areas.
- More generally, the needs of disadvantaged groups around health have been targeted in the National Anti-Poverty Strategy, and
- The Department of Social and Family Affairs has also identified a number of its programmes which have potential in supporting the Cardiovascular Health Strategy.

Ms. O’Brien wished to stress, on behalf of the Women’s Health Council, the need for gender proofing of strategies and programmes, however, to ensure that the distinct and specific needs of men and women are identified and targeted in a meaningful way.
Finally, the key recommendations made by the Women's Health Council in the report *Women and Cardiovascular Health* were:

- Addressing inequalities
- Reducing major risk factors - and in particular taking action on smoking, diet and exercise
- Raising awareness of cardiovascular disease both among women and their health care providers
  - to inform people about the different manifestations of cardiovascular disease among women, and
  - to tackle how health care professionals screen for the disease, and
  - to stress the need for more women-specific research in the area.
- Providing appropriate services and management for both men and women around cardiovascular disease.
- Taking a holistic and intersectoral approach when planning policy and services around cardiovascular health.
Longitudinal Follow-up of Risk Factors of Cardiovascular Disease in Adult Women and Men

Prof. Hanno Ulmer
Department of Biostatistics and Documentation
Innsbruck Medical University

Prof. Ulmer presented two recent studies carried out in Austria and drawing data from one database, the Vorarlberg Health Monitoring and Promotion Programme (VHM&PP). The first study focused on the tracking of cardiovascular risk factors, and the second analysed gender-specific patterns in cholesterol and other risk factors related to cardiovascular and all-cause mortality.

The Vorarlberg Health Monitoring and Promotion Programme (VHM&PP) is a longitudinal health study based on Austrian general health examinations that have been documented prospectively in the province of Vorarlberg, the most Western Austrian province, since 1985. It is carried out by an agency focusing on social and preventive medicine. Between 1985 and 1999, there was a self-selected sample of 72,126 female and 58,923 male participants. The age of participants ranged from 95 years (mean age 42 for both men and women), and, for certain age ranges, it covered more than 50 percent of the entire population. Between 1985 and 1999, men underwent 191,629 (42.2 percent) and women 262,819 examinations (57.8 percent), a total of 454,448 medical examinations. Participants underwent unequal numbers of repeated measurements (on average 3 measurements per person on a range of 1 to 14). Prof. Ulmer compared his sample to the WHO standard population participation profile and found that it fit very well. However, from 65 years on, men were underrepresented by a factor of 0.63 and women by a factor of 0.86.

Standardised examinations by trained general practitioners and internists included a physical examination and the recording of socio-demographic information. Total cholesterol, triglycerides, GGT, and blood glucose were determined enzymatically by two central laboratories. A total of 5,373 persons died in the course of follow-up and cause of death was linked to the database.

Study One: Tracking of cardiovascular risk factors.
The purpose of the first study analysis, Prof. Ulmer stated, was to address the tracking of classical cardiovascular risk factors, i.e. body mass index, blood pressure, glucose and serum lipids. He provided three common definitions of tracking:

1) stability of risk factors over time;
2) relation/correlation between early measurements and measurements later in life; and
3) maintenance of a relative position in the population.

Tracking is either operationalised through the calculation of tracking coefficients or the calculation of predictive values or risk measures. The research team estimated tracking coefficients by multivariable regression models using the GEE estimation method.
From the analysis, Prof. Ulmer concluded that BMI had the highest stability as a risk factor for women (tracking coefficient 0.85), followed by cholesterol (0.69) and systolic blood pressure (0.59). Results for men were similar, with BMI, cholesterol and systolic blood pressure scoring at 0.87, 0.66, and 0.52 respectively as risk factor tracking coefficients. More interestingly from the preventive point of view, Prof. Ulmer pointed out, considerably lower tracking coefficients were found for both women and men with high risk factor levels. The rate of improvement for men was higher, but not significantly so.

Further findings using the concept of tracking were:
1) Physical activity tracks reasonably well from childhood into young adulthood (Malina, 1996).
2) Over the long term, body-mass-indexes (BMI) before maturity were poor predictors of middle-aged BMI status in females but were good predictors in males.

In general, Prof. Ulmer concluded, the persistence of multiple cardiovascular risk factors from childhood to adulthood points to the need for preventive measures early in life (Webber, 1991).

Study Two: Gender-specific patterns in cholesterol and other risk factors related to cardiovascular and all-cause mortality.
Prof. Ulmer then went on to introduce his second study, which had two aims: to examine how levels of total cholesterol (both low and high) across the age spectrum relate to cardiovascular and all-cause mortality, taking into account other known risk factors, and to document differences in patterns according to sex.
Two methods were utilized in the analytical process:
- Cox proportional hazard models for visit 1 measurement and mortality, and
- GEE regression models to evaluate the repeated measurements.
Since cholesterol and body-mass-index show a U-shaped association with mortality a quartiles approach was used for statistical modeling.

A clear picture emerged, and these were Prof. Ulmer’s main findings:
- Raised cholesterol predicted death from coronary heart disease in men of all ages and in women under the age of 50.
- Low cholesterol was significantly associated with all-cause mortality in men of all ages, and in women from the age of 50 onwards only.
- Low cholesterol predicted death from cancer, liver disease, and mental disease.
- Smoking, systolic blood pressure and GGT were significantly predictive for all-cause mortality at all ages in men and in women.
- Low BMI was significantly predictive for men at all ages and for women older than 65 years of age.
- Total mortality risk was increased in blue-collar workers up to the age of 64 and in women up to the age of 50.
- Participants who were married had a lower risk.

Finally, Prof. Ulmer concluded that the results of this study provides comprehensive empirical support for the proposition that the differences in risk between men and women
have a constitutional basis, in addition to expected environmental influences. Thus, both social and lifestyle factors as well as biological factors are important for risk assessment.

Full details of these studies may be found in the following publications:


Women and Coronary Heart Disease

Prof. Shah Ebrahim
Department of Social Medicine
University of Bristol

Prof. Ebrahim started his presentation by pointing out that Ireland and the UK, which have very similar rates of heart disease, have been experiencing a decline the rates of coronary heart disease for both men and women since the mid-1970s. However, both countries have high rates relative to other European Union countries.

He then described how the first large British study focusing on women and heart disease was established only five years ago - the British Women’s Heart and Health Study - which analysed heart disease rates in twenty-three towns across Britain. Twenty years ago, the British Medical Research Council, when establishing the British Regional Heart Study, decided to study only men to remove extraneous biological variation. The women’s study found that the prevalence of heart disease is high, affecting about 1 in 5 women aged between 60 and 79 years, and varies throughout Britain.

Despite the observed decrease in heart disease incidence among men and women, Prof. Ebrahim stresses that there is still an urgent need to redress the fact that breast cancer is still erroneously perceived as the main female killer. For women in the UK 30 percent of deaths before the age of 75 are due to coronary heart disease or stroke (the corresponding figure in men is 40 percent).

Prof. Ebrahim then focused on the factors that make women's experience of cardiovascular disease different:

1) Life course epidemiology approach
   Birth Weight
   In relation to this disease, and indeed many others, Prof. Ebrahim stated that it is crucial to take a life course epidemiological approach. Birth weight and the foetal experience in utero represent very important factors. What happens in the womb during foetal development and in childhood as well as in later life is all significant. In fact, coronary heart disease does not suddenly begin when you are 50 years of age, it begins in early life.
   Research has found that foetal development in the womb can explain the risk of having heart disease, however, we are just beginning to find how complex the process of laying down of risks is. In a study that analysed the relationship between women’s weight at birth and their later risk of developing heart disease, women born within the lowest weight bracket, were later found to have the highest prevalence of coronary heart disease (the same results were also found for men).
**Insulin resistance**

Being insulin resistant may indicate a prediabetic state as such women tend to develop diabetes in later life. It refers to the body’s attempt to metabolise sugar in the bloodstream, Prof. Ebrahim explained. A measure of insulin resistance is obtained by multiplying the level of serum insulin in your bloodstream by the level of glucose. In British Women’s Heart and Health study using occupational social class as a measure, it was found that increased insulin resistance was related to increased disadvantage, and what was found to be particularly significant was the social class of the person as a child, i.e. the parents’ socio-economic position. Hence, if childhood social class plays such a determinant role in this condition, it is important to intervene in early life, he concluded.

2) Having children

Research conducted by the British Women’s Heart and Health study, found that having more than two children substantially increases the risk of coronary heart disease in both men and women, but significantly more so in the female population. Women experienced a 30 percent increase in odds ratio for coronary heart disease for each child after their second born. The rate increase for men was by 12 percent.

Prof. Ebrahim highlighted the fact that big families tend to be poorer and have unhealthy lifestyles which explains the increased risk in men, but only partly in women. For women, recurrent pregnancies have clear social repercussions. However, they also carry biological consequences for women, as some women become insulin resistant in pregnancy, a condition that carries an increased risk of heart disease. The increased risk in women may reflect the metabolic effects of recurrent pregnancy.

3) Endogenous oestrogen

At this point, Prof. Ebrahim reviewed the relevance of hormonal changes during a woman’s life course. He explained that breast cancer – an oestrogen dependent cancer - increases up to the point of menopause and decreases after the menopause due to the change in the hormonal environment. For cardiovascular disease, however, no change is observed at the point of menopause. Its incidence rate steadily increases over the life span. Hence, he concluded, unlike in breast cancer, oestrogens are not that important in causation.

4) Hormone Replacement Therapy

The issue of HRT is a vexed and controversial one, Prof. Ebrahim declared. He recounted how the US National Institutes of Health had recently stopped the comparison of hormone replacement with unopposed oestrogen in the Women’s Health Initiative, because the benefits for participants were not considered to outweigh the risks.

He wondered why it was ever thought to be good as a preventive measure. He then stated that women who take HRT tend to be more educated, lead healthier lifestyles and be richer, hence they are also at less risk of cardiovascular disease. Initially, failure to account fully for these factors led to the belief that HRT was having a positive effect and lowering their risk of heart disease. However, randomised controlled trials proved that no benefits were observed from the use of HRT when the effect of social class was removed. What seems more likely now is that, if anything, the use of HRT increases the risk of coronary heart disease instead.
Therefore, the reality is that there is a marked social patterning of women who take HRT emerging from national surveys. More advantaged women (and hence already at a lower risk of cardiovascular disease) take HRT. HRT intake is a mark of social advantage, not a preventive measure against heart problems.

Nowadays the availability of better treatment is helping to lower the rate of coronary heart disease in the population.

Prof. Ebrahim then raised the question of prevention. He maintained that there is ongoing debate about the advantages of medicalising a whole raft of the population by prescribing preventive drugs just to prevent small numbers of heart attacks (in order to prevent one woman from suffering from a heart attack, a hundred have to be prescribed preventive drugs). This approach is costly in financial terms, and the relevant medication also has a number of undesirable side effects.

If a general increased medicalisation of the population is not favoured, the other option at our disposal is health promotion. However, health promotion along health education lines has not been found to be very effective, and evidence of success of the ‘health police’ is remarkably poor. On the other hand, health protection through fiscal and legislative measures would probably be more effective than the health education approach adopted until now. For instance, if lessons were to be drawn from the American experience, the conclusion would be reached that complex multifactorial smoking prevention programmes were unsuccessful, with no visible reduction in smoking levels. While taxing and preventing smoking in public worked. At this point, Prof. Ebrahim took the opportunity to praise to Irish initiative to ban smoking in the workplace as a measure to improve the health of the general population.

To date, Prof. Ebrahim emphasised, attempts to shift the general population level of risk downwards has proved to be the most effect tool in the prevention of coronary heart disease and other diseases in general. Indeed, it is important to increase the health of the population as a whole to prevent cardiovascular disease, instead of blaming individuals for their risk behaviours. Health promotion should target the wider population rather than high-risk individuals.

Then Prof. Ebrahim provided a quick overview of the main risk factors in the Irish setting. Trends in smoking rates have decreased for all ages, and comparably small percentages of men and women are still smoking. On the other hand, looking at diet, Ireland has one of the lowest intakes of fruit and vegetables in European Union. Greece and other Mediterranean countries have an intake 2-3 times higher. In this case, the important issues to address are local availability and cost. Physical exercise plays a critical role in coronary heart disease prevention. Ireland scores quite well compared to other European Union countries, with only 14 percent of all adults doing no exercise at all compared to 32 percent EU average. In this regard, it is important not to be coercing people to take exercise, but to look at opportunities to take exercise during one’s normal day. In relation to the housework debate, i.e. the fact that women do a lot of housework and this should qualify as physical exercise, evidence from the British Women’s Heart & Health study has found that doing housework is not as good as exercising to achieve physical fitness as measured by resting pulse rate and body mass index. Finally, obesity in Ireland is fairly low at 8% against a European Union average of 10 percent.
Prof. Ebrahim concluded that in order to prevent and cure coronary heart disease effectively a life course perspective is needed, that is, we need to look at the relevant factors at all stages of life. When focusing on coronary heart disease today, the real concern is about living a fruitful long healthy life. The adoption of a life course policy is necessary in order to maintain independence in later late and it would benefit the whole population, from children to old people.

Prof. Ebrahim summarised his main point as follows:

- Coronary heart disease is a major killer of women and a major focus of disability. We actually do not know why its incidence rate has decreased.
- One of our biggest challenges now is how to assess sex differences in an appropriate and valid way.
- To do so we need to concentrate on how early life factors interact with later factors and find out more about the mechanisms at work here.
- We also need to focus on socio-economic position so that we can understand more about its interaction with biological factors.
- Irish women have unfavourable smoking and dietary habits compared to other EU countries, but their activity levels are good.
- Health promotion efforts should take a population rather than high-risk approach.
- A life course approach is helpful in understanding both the causation of coronary heart disease and its prevention.
Dr. Anne Segonds-Pichon
On behalf of the Lifeways Cross-Generational Cohort Study Steering Committee & Heart Research Board Unit for Health Status and Health Gain

Dr. Segonds-Pichon introduced her findings by stating that heart disease is an important health problem in Ireland with the heart disease mortality rates being twice as high as the European Union average. She then progressed to talk about the determinants of health in general and cardiovascular health in particular taking a life course perspective. Her data came from the Lifeways Cross-Generation Cohort Study. This study was mainly designed to answer the question: ‘How does life course/early life factors influence adult health?’

The sample was constituted of 1124 mothers-to-be recruited during the first antenatal visit to the University College Hospital in Galway (West) and the Coombe Hospital in Dublin (East). Data was also collected in relation to newborn babies, parents and grandparents. The research instruments used in this study were: a self-completed health, lifestyle and nutrition questionnaire; a self-completed adult record of early health events; a examination booklet completed by a nurse; and a self-completed parent held child study record on baby’s health events during the 5 first years.

Mothers-to-be
Dr. Segonds-Pichon summarised the results on the mothers’ data as follows: 31per cent were recruited in the western area, and 69 per cent from the eastern area. They were 29.4 years old on average, and their ages ranged from 14 to 43. Fifty per cent of them had achieved 3rd level education. 24 per cent were smokers. 64 per cent of them were married. 66 per cent worked outside the home. The average household net weekly income was €343, and 24 per cent of them fell below 60 per cent poverty line. Finally 18 per cent held a medical card.

While Dr. Segonds-Pichon was unable to provide any data on cardiovascular disease at this time, she concentrated on self-rated health (SRH) results. Almost three quarters of the sample gave a self-rated health quality of excellent or very good. Among the 9 potential predictors of SRH tested (region of origin, age, working status, household income, GMS status, marital status, education of the mother-to-be, of her partner and the combined level of education achieved by both her parents), only household income, GMS and marital status and maternal grandparents education were significant. Women who were happier about their health did not hold a medical card and belonged to a household with high income. Whereas the presence of a partner is known to have a positive effect on a woman’s health, for the Lifeways pregnant women, being married to her partner was of significant importance. Finally, women whose parents had achieved third level education were almost 8 times more likely to rate their health well than all the other women.
**Babies**

In relation to the babies, Dr. Segonds-Pichon illustrated that the mean birth weight was 3491 grams, with a range of 840 to 5360 grams. Among the factors tested (from the mother: age, BMI, smoking status, education, GMS and marital status; from the maternal grandmother: BMI, maternal grandparent education), only mother’s BMI and maternal grandparent education were significant. The highest baby birth weights were associated with high mother’s BMI and maternal grandparents having achieved a high level of education. In turn, the lower the level of education achieved by maternal grandparents, the higher the BMI of their daughter. Hence, cross life perspective and early life factors are obviously very important in predicting health either at birth or for adults, she concluded.

From the data gathered by both SLÁN and the Lifeways studies, Dr. Segonds-Pichon concluded that:

- social position is important in predicting cardiovascular disease;
- men and women display different patterns of onset, symptoms and care;
- pregnant young women’s self-rated health is class related; and
- cross generational influences are an important factor for mothers-to-be and babies.

Dr. Segonds-Pichon finally pointed out to a number of implications of the Lifeways study:

- Population measures on lifestyles are required to develop policy strategies for reduction in rates of heart disease.
- Early life influences are very important and need to be monitored.
Women, Disadvantage and Health

Ms. Helen Johnston, Director
Combat Poverty Agency

Introduction
Helen Johnston expressed her delight at being invited to speak at the conference, and complimented the Women’s Health Council on their initiative in highlighting the link between health and disadvantage in relation to women, and cardiovascular disease in particular. As the Director of the Combat Poverty Agency, she explained that she came from quite a different perspective than the other speakers, who were academics or researchers. She would hence provide more of an overview and policy perspective, setting out some policy responses in relation to disadvantage and health.

Poverty and Health
Helen Johnston claimed that it is quite clear that people experiencing poverty become sick more often and die younger than those who are better off. She then addressed the question of what exactly is meant by poverty, and listed its two main manifestations: 1) low level of income and resources, and 2) as a consequence of this, exclusion from certain aspects of life:

‘People are experiencing poverty if their income and resources (material, cultural and social) are so inadequate as to preclude them from having a standard of living which is accepted by Irish society generally. As a result of inadequate income and other resources people may be excluded and marginalized from participating in activities which are considered the norm for other people in society’ (Irish National Anti-Poverty Strategy).

The other important consideration is that it is not the poorest countries that experience the greatest health inequalities but societies in which the gap between the rich and poor is greatest.

Health is defined by the World Health Organisation (WHO) as: ‘Health is a complete physical, mental and social well-being and not merely the absence of disease’ (WHO).

‘Health is a positive concept emphasizing social and physical resources as well as physical and mental capacity’ (Irish National Health Strategy).

The determinants of health status have been identified as:
- fixed individual factors (i.e. biological and constitutional factors)
- lifestyle
- social and community networks
- living and working conditions
- general socio-economic, cultural, political and environmental conditions.

Helen Johnston then focused on these determinants while looking at poverty trends in Ireland. There are two measures of poverty used in Ireland. Consistent poverty refers to when people are below a certain income level, (in 2001, below €187 per adult per week) and being deprived of basic items, like a warm coat for the winter or a regular meal every day. In 1998 the proportion of the population in Ireland experiencing consistent poverty
was 8 percent; in 2001 it had fallen to 5 percent. The percentage of women in consistent poverty is falling but it remains substantially higher than for men.

The second poverty measure, relative income poverty, relates to income only, (in 2001 this was €164 per adult per week i.e. at the 60% median income line). This is the measure used at European level. In Ireland in 1998, just below 20 percent of the population fell below the 60 percent income poverty line. In 2001, this figure had risen to 22 percent. The percentage of women in income poverty rose, and is higher at 23% than for men at 19%. The Celtic Tiger economic boom caused income to rise in absolute terms. However, the rate of increase was greater at the top than at the bottom, causing a widening gap between high and low incomes.

Looking at Labour Force status, households headed by an ill or disabled person, or headed by a women working in the home, have the highest risk of poverty. Older women are the group most at risk. A number of situations also increase the risk of poverty for women, such as being a lone parent, having a disability, older age, being a member of the Travelling community, being a refugee or an asylum seeker, being homeless or abusing drugs, experiencing violence and being a lesbian. Poverty issues clearly impact on people’s health. Likewise, people suffering from illness or disability are also more likely to be poor.

When considering women and their risk of poverty, Helen Johnston highlighted a number of factors, such as the nature of their work, low pay associated with many jobs carried out by women and, in some cases, wage differentials. Moreover, some of the work carried out by women, such as caring for other people, goes unpaid. There is also little information on the actual allocation of resources within households, as income information is collected at household level, and the assumption is made that it is equally shared within the household. This may not necessarily be the case.

Helen Johnston then presented some figures based on a number of European Union Common Indicators of poverty. In relation to persistent risk of poverty, that is, the risk of being poor for three out of the last four years, the risk is slightly higher in Ireland than in the rest of the EU (12 percent against 9 percent). Income distribution is also slightly more unequal (4.9 to 4.6). On the other hand, the long-term unemployment rate is less than half of the EU average (1.3 percent against 3.1 percent), and the percentage of people in a jobless household is lower than the EU average (8.6% against 8.9%). However, life expectancy at birth is still lower in Ireland than in the rest of the EU (75.8 years against 78.6 years).

Policy Responses

Helen Johnston then moved her focus onto policy responses. She pointed out that Ireland was one of the first countries to have a National Anti-Poverty Strategy. The aim of the Irish National Anti-Poverty Strategy, which was produced in 1997, is to ‘reduce substantially and ideally, eliminate poverty in Ireland and build a socially inclusive society’. Its key target is to reduce consistent poverty from 5 percent in 2001 to 2 percent by 2007.

In relation to health, the strategy aims to ‘reduce the inequalities that exist...by making health and health inequalities central to public policy’, and it has the clear target of reducing ‘the gap in premature mortality between the lowest and highest socio-economic groups by at least 10 percent for circulatory diseases, for cancers and for injuries and poisoning’.
At the moment there is a substantial difference in premature mortality for these causes between the highest and the lowest occupational classes. For instance, for circulatory diseases there is a 312 percent difference between these groups, for cancers the percentage is 223, while for respiratory diseases and injuries/poisoning the percentage difference rises to 619 percent and 614 percent respectively. This difference is linked to wider socio-economic factors.

Helen Johnston emphasized the need to tackle health inequalities but said that questions remain as to how this will be done and who is going to do it. The health strategy ‘Quality and Fairness’ gives important commitments of reducing the difference in health status currently running across the social spectrum in Ireland, and to ensuring equitable access to services based on need. However, to date, few inroads have been made in tackling health inequalities in Ireland. While there is now a recognition of the need to address these issues, there are still questions on how progress can be achieved.

Helen Johnston then identified a number of key issues which, in her view, need to be addressed to reduce health inequalities. She suggested that because of the clear links between income inequality and health inequality, the need to reduce income inequalities is paramount. Ireland spends a lower proportion of both GDP and GNP than many other EU countries on social provision. She also emphasized the importance of integrated multi-sectoral approaches, while acknowledging that these are very hard to implement effectively in practice. However, she cited some initiatives which have experienced some level of success.

Helen put forward a number of tools which can contribute to reducing health inequalities, particularly among women. Poverty proofing, the practice of assessing policies for their impact on poverty, is a tool which is working in a limited way by raising awareness among policy makers, but there are questions as to how much it has been able to impact on poverty reduction. Gender mainstreaming is another important tool in addressing gender issues and is driven quite strongly at EU level. However, there is still a lot of work left to do in Ireland. Health Impact Assessments can also contribute to reducing health inequalities. All of these policy tools are important and need to be developed further. More and better information and research are necessary in order to maximize these tools and understand these issues better.

Specifically, in relation to health measures, Helen Johnston suggested that it is essential to improve access to health services, especially for low-income families. Networking and partnerships between all stakeholders are very important. Examples of these are the Public Health Alliance and the Health Anti-Poverty Learning Network. These are collaborative initiatives working towards the implementation of health strategy objectives. Community development is also important in improving the health of disadvantaged groups by supporting people to develop their own initiatives, especially in relation to primary care and for health promotion. A key issue to improve health among low-income groups is to substantially increase the threshold levels for medical cards. The evidence shows that people delay visits to their GPs because of costs and only go when their illness becomes serious. This is actually costing more in terms of secondary and tertiary care. Finally, Helen Johnston stated that health promotion remains pivotal in trying to increase the health of the population as a whole.
Setting the Scene for the Workshops

Dr. Emer Shelley
National Heart Health Advisor

Dr. Shelley presented a number of comparative graphs in relation to coronary heart disease mortality and noted that Ireland has rated quite poorly among the current European Union Member States. However, the gap is narrowing between Ireland and France, France being the country with the lowest coronary heart disease mortality rates. With the accession of ten new countries to the EU on 1\textsuperscript{st} May 2004, Ireland will rank 17\textsuperscript{th} out of the 24 countries for which data have been accessed.

Death rates from coronary heart disease in Ireland have been decreasing steadily in men and women since the 1980s. Dr. Shelley summarized that in the ‘old days’ men died of heart disease but women were more likely to live with angina or heart failure. Because women did not die to the same extent, particularly in middle age, there was a low level of awareness of their high risk of cardiac conditions. Now that death rates are decreasing, ‘men are living with heart disease and women are living longer with heart disease’. Women in particular are experiencing an increasing prevalence of heart failure, especially in older age groups.

In relation to stroke, death rates are decreasing in many developed countries. Dr. Shelley illustrated these trends. For example, Ireland used to have much higher rates than Italy in the 1970s but now rates are fairly similar in the two countries. Likewise, death rates in Hungary were considerably higher than Irish rates but are now coming down in parallel.

Life expectancy has increased in Irish men and women in middle age, more treatments for coronary heart disease are available and they are more effective than in the past. This has created a multiplier effect over the last two decades, with lower mortality rates but increased numbers of older people with a history of coronary heart disease or related conditions.

It is important that the national Cardiovascular Health Strategy continues to be implemented in order to maintain the downward trend in mortality which has occurred since the 1980s. It is also important that the lessons learned in implementing the Strategy are applied in the future, to cardiovascular strategies and also to other national strategies. Dr. Shelley suggested that the challenges for the future are: to improve the populations’ health, to reduce inequalities in cardiovascular health and mortality, to provide equitable access to services and to improve the quality of services. These represent a microcosm of the challenges for the health services as a whole.

In relation to public policy, she noted, several public strategies refer to health impact assessment but few actually ‘health proof’ the impact of their policies. There is a low level
of awareness in other sectors of how their policies affect health. For instance, looking at socioeconomic issues, it is difficult for women to take care of their health if they are too busy looking after others, from children, to partners, to older people. Hence, increased provision is necessary for childcare, and support systems are required for carers. At local government level, housing policies need to be reviewed to allow for more local services, including leisure facilities to promote physical activity.

In relation to health services, resources have been increased with the implementation of the Cardiovascular Health Strategy, with expenditure on diagnostic equipment and on staff to develop and expand services. There is now a better spread of services across the country, Dr. Shelley explained. So the focus can now shift to targeting disadvantaged groups, particularly to ensure equity of access to cardiac rehabilitation.

Those known to have coronary heart disease and those identified as being at high risk require ongoing monitoring and preventive services which are appropriate, sensitive and supportive. Much of the ongoing care of patients with coronary heart disease takes place in general practice. The Heartwatch programme involves 20% of GPs, to provide structured care for patients with coronary heart disease.

When implementing guidelines for the care of patients with acute chest pain, special attention is required to the differences in presentation between men and women. Similar issues are relevant in chest pain units.

However, Dr. Shelley emphasized, solutions beyond the context of the Cardiovascular Strategy are also needed. For example, the long time lag from training stages to having staff working as qualified professionals has to be addressed. Staff training is also relevant to the quality agenda, with the implementation of clinical guidelines, health information systems and clinical audit.

Dr. Shelley concluded that while a lot has been achieved since the launch of the Cardiovascular Health Strategy in 1999, major challenges remain to continue our health promotion and treatment strategies in general, and in relation to cardiovascular disease in particular.

Prof. Kelleher then introduced the three workshops planned for the afternoon session:
1) Public and Social Policy Implications
2) Health Promotion and Prevention
3) Health Care Service Delivery

She also advised the delegates to focus particularly on issues relating to:
- The need for a disease specific approach against a more holistic approach; and
- The importance of addressing gender differences in prevention, diagnosis and treatment.
Public & Social Policy Implications

**Issues for discussion:**
1. Issues of equity, access, availability.
2. Gender differences – how best to make recommendations for public and social policies. Keeping gender at the centre.

**Issues identified:**

The group felt that there is still a research gap around women and cardiovascular health, and that a full picture in relation to heart disease is not available yet. The need to translate the research currently available into public information geared at raising awareness and creating debate was also stressed. It was suggested that the importance of pregnancy and early life influences, for instance, should also be highlighted in the public arena.

The tools that were identified by the participants as beneficial in the arena of policy making were:

- The translation of Health Impact Assessment into action. This step was considered essential in order to raise public awareness in relation the health issues both among the female public and the medical profession.
- Ensuring that policy makers ‘buy in’ to health impact assessments. There was a recognition by the group that politics can impact on how and whether recommendations are implemented and endorsed, making it important to ensure that policy makers’ awareness is raised about these issues.
- The inclusion of gender as a health determinant. It was emphasized that gender needs to be included in a developmental way, as it was felt that it is not currently seen as a risk factor in health and in health policy. Moreover, it was considered important to make the case for gender before gender impact assessments (G.I.A.) are introduced so that its significance is understood and appreciated. It was feared that if this is not the case, G.I.A would become another empty ‘ticking boxes’ exercise.
- The involvement of the community sector. It was agreed that it is paramount to highlight and promote the interconnection between health at national level and that at community/voluntary/local level. Therefore, any health strategy has to include a greater involvement of the community sector. These stakeholders have to be actively involved so that they can also push the issues. In this regard, the Community Pharmacy Programme in Northern Ireland, where pharmacists go out into the community (e.g. to cattle marts) to give advice, was mentioned as a very successful example of a community sector approach.
**Policy Changes**

Workshop participants felt that the issue of changing the culture in Ireland is broader than just making women aware of the health and risk factors; change is needed in how society thinks about health matters. For instance, Irish culture needs to address the issue of alcohol use.

Furthermore, a more holistic approach also needs to be adopted in relation to policy. For example, in relation to exercise, women are asking for well-lit streets, and better footpaths so that they can exercise safely, but big car-dependent housing estates are still the norm in new developments. Hence, the increased popularity of apartment living may represent a positive development in relation to health matters. However, even in these residential facilities, planners should enforce the requirement of providing green areas so that the community can exercise and children have a place for exercise and play. This means that policy makers need to look beyond just promoting messages among women, the group agreed, but to take what women are saying into account when they are planning services, such as housing and infrastructures. That is to say that the structures and policies that should be implemented to ensure heart health for the population need to go beyond the area of ‘health’, and those who are responsible for their implementation must take a cross-sectoral and holistic approach.

In conjunction with a more enlightened and holistic policy approach, the participants pointed out, adequate resources should be put in place for any of these ideas to become a reality. Hence, it is essential to have leadership, as money and resource allocation represent a huge issue in policy making and implementation.

**Medication**

The group agreed that medication is one of the solutions of address cardiovascular disease. Measures to promote lifestyle support, smoking prevention, and education are also crucial. One participant mentioned the D.U.M.P. (Dispose of Unwanted Medications Properly) project in the South Western Area Health Board in which 20 percent of unused medications that were collected were cardiovascular meds. This means that people are not taking the medicines they are being prescribed, and it raises questions about possible over-prescription, and about people’s understanding of how to use the medication.

Medications are also very costly, the General Medical Services (GMS) budget for cardiovascular drugs has gone up €47 million in recent years as there are now guidelines for structured care that require doctors to prescribe certain medications if a patient is diagnosed with cardiovascular disease.

Lifestyle support was also described as essential and ought to be made available to women and men in tandem with drug treatment and prescriptions. The ‘Heartwatch’ programme was mentioned as a model of best practice. However, not everyone is in a position to make lifestyle changes, for example if they are disadvantaged and under financial constraints, so complementary policies that look at factors outside of ‘health’ (mentioned above) are also crucial.

**Education**

The workshop members also raised the issue of education and how access to education needs to be increased. For instance, pre-school and early education should be provided for those living in disadvantaged areas so that health promotion messages can be passed...
on at an early stage. Moreover, education should not just refer to reading and writing but also include social skills and developing healthy habits.

Access
In relation to access to services for women, issues of transport, affordable childcare, the role of women as carers, and the demands this caring role makes on a woman’s own health needs were all mentioned as requiring urgent attention.

The tension between economic and social policy turned out to be one of major relevance for the discussion group. Economic policy was perceived as always taking precedence over public social policy, showing that political considerations often make policymakers prioritise cost effectiveness over considerations for the common good.

Health Promotion & Prevention

Issues for discussion:
1. Lifestyle factors
2. Population prevention

Issues identified:

Population against high risk approach
The participants agreed that a combination of the population approach and, at a later stage, the individual approach is needed. The risk factors related to cardiovascular disease are related to many other diseases therefore a general approach with some attention to factors specific to cardiovascular disease would be the most beneficial.

Also, lifestyle choices need to be addressed at an early age, and hence the focus should be on mothers and children.

Finally, awareness among women of their potential risk needs to be increased, and the information available to women in relation to their ‘atypical’ symptoms, and the risk associated with the use of Hormone Replacement Therapy should be improved.

Nutrition
As a nation, the participants pointed out, Ireland has a very poor level of consumption of fruit and vegetables. Again, the need to establish healthy eating habits in early life was reiterated, as eating patterns are passed on from parents to children. More generally, a change in the population’s eating habits at all ages needs to take place.

However, it was highlighted, even when people do have the necessary information in relation to nutrition and diet, it is hard for them to implement changes in their daily diet in practical terms. Hence, it is crucial to provide practical advice as well as just information, for example the fact that tinned fruit and vegetables retain their nutritious value and are easier to prepare as well as being cheaper. The same is valid for canned fish.
The cost factor entailed in a nutritious diet needs to be addressed, as at the moment it discriminates against the disadvantaged sections of the population. For instance, for older women, who are most at risk of heart disease and are also most at risk of disadvantage, buying expensive fruit, vegetables or fish might not always be a viable option. Local availability also needs to be considered and improved.

Finally, the role of the media in avoiding food scaremongering and promoting healthier messages was described as crucial.

Smoking and exercise

Girls have been found to be the one population group in which smoking take-up has been steadily increasing, and hence they represent a high risk group in terms of future heart disease prevalence. It was pointed out that most girls start smoking because this activity is perceived to be cool and in order to promote weight loss. Around the age of 12 to 13, when they are no longer required to play teams sports in school, girls are more likely than boys to give up exercise within the school environment. They are also more likely to smoke and less likely to take up exercise at a later stage. One discussion member stressed the lack of positive role models for girls in sports, and the fact that sporting bodies are still very much male-dominated organizations.

The group also expressed the clear need to target young children in relation to physical exercise and to ensure that this is maintained from childhood throughout the lifecourse. In relation to exercise, the participants felt that we need to find a way to make room for exercise as part of normal life by advertising forms of it that can be easily integrated into a daily routine, e.g. walking. In this context, the need for more considered housing policy was also mentioned, for instance providing better lit roads to promote the safety of people jogging and walking, increasing the availability of cycling lanes, and providing exercise facilities in suburban and rural communities.

Finally, the importance of extending the provision of medical card services was also underlined as vital in any preventive strategy. It was felt that if you cannot afford to visit your GP, you are unlikely to go seeking advice or attend for a preventive check.

One member of the discussion group mooted the proposal that if you could do just one thing to improve health of the population what you should do is target mothers and children, and improve lifestyle choices at an early age through better diet. Secondly, economic conditions should also be addressed so that children can continue education. Education has been proved, even by the Lifeways study, to be a clear factor influencing better health choices and hence improve healthy living.
Health Care Service Delivery

Issues for discussion:
1. Primary care strategies
2. Gender and disadvantage

Issues identified:

Patients as key
Generally it was felt by the group that policies relating to health issues were adequate in that they addressed the most significant issues. However, there were problems with policy implementation. And a health impact assessment should be made compulsory for all policies drawn up in other public interest areas.
The participants also felt that in Ireland there is a tendency to focus on setting projects up rather than evaluating what is in place and finding ways of building on or following up on what is already there. The current theory of the primary care strategy was found to be good but often not working in practice.
Furthermore, cross-departmental working was deemed to be an essential part of government policymaking and implementation.
Finally, the lack of a system to manage chronic illness was highlighted.

Community Approach
Communities were seen as having played an important role in addressing their own health needs. It was felt that there needs to be more acknowledgement of the contribution that communities make towards meeting the health, educational and employment needs of their members.
A distinction was made between three aspects of the health sector: community development initiatives, health promotion and health professionals. It was suggested that more could be done to link the three.

Health and Gender
It was suggested that women tend to focus on the health needs of their children and others whom they care for rather than their own health needs. Moreover, personal health is not a priority for some people and more research is needed into why this is the case, especially among people living in poverty.
Also, differences in service providers’ response to women and men with symptoms of heart disease were discussed. It was stressed that there is a need to re-educate service providers about heart disease in women and how symptoms may differ from those experienced by men.

General Medical Service and Disadvantage
All participants stated the urgent need to redefine the availability of General Medical Service as the people most in need of medical treatment in relation of cardiovascular disease are often on the margins and unable to access the necessary services.
contract for General Practitioners also needs to be addressed as it does not encourage doctors to carry out health promotion work.

In relation to gender specifically, looking at the evidence from the ‘Heartwatch’ programme, it was found that only a third of the women who had been referred to it attended its sessions. Women from a lower socio-economic background were more likely to opt out of the programme, and women in general were found to discontinue attendance under the misconception that they did not need it. Hence, research is required into the reasons why women do not access services, and whether this occurrence is linked only to financial considerations or whether other factors, like family responsibilities, come into play.
PLENARY SESSION

Dr. John Bowman, Chair of the Heart Health Task Force facilitated this session.

In order to start off this session, the rapporteurs from the workshops provided a short summary of the issues covered during the discussions and any recommendations derived from them (as above).

The question and answer session was then opened up to the audience. The first question focused on how policy can be converted into action. In order to elucidate one of the possible strategies available to achieve this goal, the participant herself introduced the work done by the Northern Ireland Health Strategy. This body set up four partnerships between statutory and voluntary organizations. The inclusion of the voluntary sector meant that the community development agenda was being fostered concurrently with the health strategy, and this process also aided in taking the health policy agenda to the wider community. By using this approach, the Health Strategy Executive was able to make people responsible for promoting their own health. Another focal point of this strategy was sending services into communities instead of waiting for women to access services in medical settings, that is to say an outreach approach was adopted in relation to health prevention and treatment. This approach has been tested and proved successful in the arena of educational programmes as well.

Supporting the previous speaker’s point on the effectiveness of the outreach approach in relation to health matters, another delegate mentioned the existence of the Community Pharmacy Scheme, whereby pharmacists are now attending cattle marts and providing information to encourage people to take medical issues on board and to think about their health.

A third participant highlighted the need to focus on the most effective ways of engaging with women’s groups in the community. She expressed her wish to emphasise the role of community development in implementing a cardiovascular strategy, and pointed out that social inclusion has positive health outcomes in itself, and especially for women, insofar that it creates social networks and support groups.

Prof. Kelleher pointed out that the Women’s Health Council has a dedicated Personal and Community Development Sub-Committee to explore and promote this approach, and in June 2003 the Council also published a position paper on the role of community involvement in relation to primary care services for women.

Then another delegate expressed the wish to stress the fact that the two most important areas for prevention work are pregnancy and early life, and mothers and children. Targeting mothers and children was found to provide the best value for money and result in a real impact at population level. Hence concentrating our energies at that point would be very important, she concluded.
Prof Kelleher concurred with this speaker referring to how the importance of early life influences was a recurrent theme in most of the workshops. She announced that a forthcoming position paper from the Women's Health Council will focus on early life influences on maternal and infant health.

Reiterating the importance of mothers in promoting population health, the delegate wished to add that this is the approach taken when trying to improve health conditions in third world and developing countries; health strategies there always focus on the health of mothers first conscious that the rest will follow.

Following up on these remarks, the Dr. Bowman stressed the need to educate women, because when women are more educated family size decreases and health levels increase for all. He summarized his final remarks through two main messages:

1) Women are hugely important and we need to look after them.
2) We need to break down the population in as many target groups as possible in order to have effective strategies for each one of them, as women are not a homogeneous group.

He then claimed that he felt assured that the conference had achieved its stated aims of opening up the debate in relation to women, disadvantage and cardiovascular disease, covering the main issues involved in this health condition, presenting new research findings, and making relevant policy recommendations. Finally, Dr. Bowman expressed the urgent need to turn policy recommendations into action, to increase the availability of medical care services to address the issue of disadvantage, and, finally, to establish specific target groups for prevention.

Brian Brogan, in his conclusive remarks, further emphasised the role of prevention and the need for a long term and population approach in relation to health issues, in general, and coronary heart disease, specifically. He also wished to underline the success of the National Cardiovascular Health Strategy in lowering morbidity and mortality rates for cardiovascular disease. He stated that the conference had been a success in bringing people together to discuss the issues relevant to cardiovascular disease. And, finally, he pointed to a number of challenges that are still to be met at a general population level:

- improving the health of the population,
- reducing inequality,
- improving services, and
- addressing gender sensitive issues.

In relation to gender, he wished to express his delight at the Women's Health Council's participation in a WHO project that is looking at the implementation and assessment of gender mainstreaming in relation to health issues.

In dealing specifically with heart disease, he felt that a lot of work remains to be done in the following areas:

- The perception of the disease as a 'male' condition needs to be changed.
- The gender balance in the research setting needs to be addressed. Research sampling needs to be balanced so that our knowledge of the disease as it manifests itself in men is not just erroneously transposed to women.

- The importance of early life policies needs to be stressed in order to ensure that health prevention takes place as early in life as possible.

- At departmental level, a multi-sectoral approach must be implemented in order to provide a broader environment that is conducive to effective prevention and treatment.

In conclusion, he wished to stress that if we were able to address and counteract the risk factors for cardiovascular disease, we would also decrease the risk factors for cancer, and a number of other conditions. Referring to the Cardiovascular Health Strategy, he pointed out that lots of structures have now been put in place, and a lot of new posts are now staffed. Finally, he wished to say that the Health Promotion Unit was delighted to be involved with the organisation of this conference and expressed his gratitude to the Women’s Health Council for hosting it.
Recommendations

The recommendations presented below are drawn from the conference on ‘Women, Disadvantage and Cardiovascular Disease’ jointly hosted by The Women’s Health Council and The Health Promotion Unit, Department of Health and Children. This conference saw contributions from the international research community, statutory and voluntary agencies within the Republic of Ireland as well as those responsible for policy implementation. During the day’s proceedings cutting edge international research findings were presented and a number of inter-sectoral discussions took place. The following recommendations are the result of these contributions and are aimed at contributing to ongoing policy debate in both national and international arenas.

The recommendations emerging from the conference focused on three main areas:

1. Public and Social Policy Implications
2. Health Promotion and Prevention
3. Health Care Service Delivery

1. Public and Social Policy Implications

Issues
Gender and disadvantage emerged as the core issues to be addressed at policy level in relation to health strategies. Hence, policy measures already endorsed by the government and relevant to these issues, such as gender mainstreaming and poverty proofing, need to be fully implemented in all government departments. Moreover, health impact assessments should be introduced in a manner conducive to gender sensitive strategies, as research carried out in Ireland, Britain and Austria found gender to have a significant biological and social effect on health in general and cardiovascular disease in particular.

In relation to disadvantage, lower socio-economic class, especially in childhood, was found by the British Women’s Heart and Health study to be a particularly significant determinant of higher incidence of cardiovascular disease in later life. An inverse relationship between socio-economic class and cardiovascular health was also found in recent Irish health surveys presented at the conference.
Therefore, it is imperative that poverty proofing measures currently available are fully implemented in all government polices in order to ensure that the more disadvantaged layers of society are not discriminated against when it comes to health and access to services. For instance, increased eligibility to General Medical Services, the often prohibitive cost of a nutritious diet, and the dearth of public exercise facilities need to be urgently addressed in order to prevent financial discrimination in the areas of primary care and health promotion.

Access to education must also be improved, as education has been proven to influence better health choices and hence improve healthy living. Moreover, the concept of
education should be broadened to include a greater social dimension, covering, among other issues, the importance of a healthy lifestyle (see Health Promotion).

**Policy Approach**

All government departments need to be involved in the planning and implementation of health policies in order to achieve positive outcomes in relation to health in general, and cardiovascular disease in particular. Housing policies were singled out as having a major effect on the ability of the population to access exercise facilities, as well as promoting a car-dependent culture. Their revision would therefore play a very important part in health promotion. However, education, employment, transport and social welfare policies, to name a few, were also deemed to play a vital role in ensuring that a healthy lifestyle can be adopted.

A community development approach is to be encouraged as a strategy to improve inclusion and ownership of health programmes by the general population. Within this model, it was felt that an outreach strategy might be the most appropriate.

Finally, the balance of power between social and economic policy at government level should be addressed, with efforts being made within the political arena to ensure that social policy would take precedence heretofore.

2. Health Promotion and Prevention

**Lifestyle Factors**

A positive shift in the overall level of the population’s health should be encouraged. However, a combination of a general population approach, and, in later life, complimented by an individual approach was thought to be the most effective preventive strategy in relation to coronary heart disease.

Focusing on the general population, health protection through fiscal and legislative measures, such as the recently introduced smoking ban, is considered to be effective and should be implemented as appropriate.

The importance of lifestyle factors, such as smoking, diet and exercise was also highlighted. An Austrian study presented at the conference found that smoking and high blood pressure were significantly predictive of mortality at all ages in both men and women.

The general eating habits of the Irish population need to be improved, especially in relation to fruit, vegetables and fish consumption, which is currently two to three times lower than in Mediterranean countries. Information on healthy eating needs to be increased and practical advice made available on how to incorporate nutritious foods into daily meals.
Better local availability also needs to be promoted. Likewise, forms of exercise that can be integrated into a daily routine, such as walking, should be encouraged. In order to prevent and cure coronary heart disease effectively a comprehensive life course perspective is needed, that is to say that all relevant factors at all stages of life need to be considered.

**Early Life Factors**
Within the realms of health promotion, special attention needs to be given to early life influences. In relation to all the factors mentioned above, it was considered crucial for a general population approach to commence health promotion as early in life as possible. Specifically to cardiovascular disease, an Austrian study confirmed that the persistence of multiple risk factors from childhood to adulthood points to the need for preventive measures early in life.

The importance of educating mothers during pregnancy and the neonatal period is also crucial, as British research has found that foetal development in the womb could explain the risk of having heart disease. Likewise, parents should be encouraged to adopt healthy habits in relation to diet, exercise and lifestyle in general, as these have been found to be generally passed on from generation to generation. Pre-schools and schools should also be encouraged to expand their role in relation to health promotion.

**Media**
The role of the media was stressed as a crucial tool in supporting a strong health promotion message. The Children’s Advertising Code recently published by the Broadcasting Commission of Ireland is a positive example of the leading role the media can take in relation to health promotion matters. Age and gender specific messages need to be formulated in order to reach all relevant target groups. For example, teenage girls and older women have been found to be the members of the population who are least likely to exercise. Teenage girls have also been found to be to be the section of the population in which smoking take-up has been steadily increasing. Hence, specific messages would need to be promoted to target these groups successfully.

3. **Health Care Service Delivery**

**Medical Services**
Awareness needs to be raised among both women and their health care providers to inform them of the different manifestations of cardiovascular disease among women. Appropriate gender sensitive diagnostic measures should be introduced. Women should also be encouraged to participate in both primary and secondary prevention programmes, as their attendance in both of these is low.
Consideration should be given to the provision of a comprehensive General Medical Services scheme, and eligibility to this needs to be substantially expanded, as the people most in need of medical treatment in relation to cardiovascular disease are often unable to access the necessary services. GPs contracts also need to be revised in order to encourage primary care providers to carry out health promotion work, and greater links should be established between community development and health promotion initiatives and health professionals.

The role of medication in relation to cardiovascular disease needs to be revisited, as it has been found that many patients are not taking the medication prescribed to them. Hence, the issues of over-prescription and of patients’ understanding need to be examined.

Finally, a system to manage chronic illness needs to be put in place, as, with increased life expectancy, women in particular are now living with the burden of heart disease for longer.

**Research**

Research needs to be carried out to establish why women’s participation in preventive programmes in Ireland is low, and whether this situation is due to financial constraints or other factors. The gender balance of sampling frames within clinical research nationally and internationally also needs to be addressed so that data can be gathered to inform gender specific prevention, detection, treatment and rehabilitation programmes.
Dr. John Bowman, Chair, Heart Health Task Force
Dr. John Bowman is a broadcaster, journalist and historian. He is Chairman of the Heart Health Task Force.

Prof. Shah Ebrahim, Dept of Social Medicine, Bristol University; Co-Ordination Editor, Cochrane Heart Group
Shah Ebrahim is an epidemiologist with a clinical background in Geriatric Medicine and holds a professorship in epidemiology of ageing in the University of Bristol. He is coordinating editor of the Cochrane Heart Group and co-editor of the International Journal of Epidemiology. He runs the British Women’s Heart & Health Study, and is Associate Director of the Medical Research Council Health Services Research Collaboration. His research interests are in the causes of cardiovascular disease in women and locomotor disability.

Ms. Helen Johnston, Director, Combat Poverty Agency
Helen Johnson has worked at the Combat Poverty Agency for 11 years. She has been centrally involved in the development, implementation and analysis of the Irish National Anti-Poverty Strategy (NAPS). Currently, Combat Poverty is undertaking work on poverty and health, in which women’s health is a key element. Helen has also worked as Head of Research at the National Disability Authority and the Equality Authority, and as a Research Officer in the Northern Ireland Civil Service.

Prof. Cecily Kelleher, Chair, Women’s Health Council
Cecily Kelleher, Chair of the Women’s Health Council, is Professor of Public Health Medicine and Epidemiology, University College Dublin and Honorary Consultant and Head of Department of Preventive Medicine, St Vincent’s University Hospital. Previously, she was the foundation Chair of Health Promotion at NUI Galway, where she developed an inter-disciplinary research programme that included the direction of Ireland’s first national lifestyle survey, SLAN. Cecily has contributed actively to public policy documents and national committees and is a member of the National Council for Bioethics at the Royal Irish Academy. Her interests are in the contribution of social factors to the development of chronic ill-health, particularly cardiovascular disease.
Dr. Emer Shelley, National Heart Health Advisor, Depart of Health & Children
Emer Shelley is Ireland’s National Heart Health Advisor. She is on secondment from her post as Specialist in Public Health Medicine with the Eastern Regional Health Authority. She worked with the Strategy Group in the preparation of the Cardiovascular Health Strategy and is currently supporting the implementation of the Strategy. Emer previously worked with the Medico-Social Research Board and undertook post-graduate studies at the London School of Hygiene and Tropical Medicine. She was Project Leader for the Kilkenny Health Project, a community demonstration project for cardiovascular disease prevention in the South East of Ireland. She is currently a member of the Irish Heart Foundation Council for Heart Disease in Women and has previously been Medical Director of the Irish Heart Foundation.

Ms. Aoife O’Brien, Research Officer, Women’s Health Council
Aoife O’Brien has been the Women’s Health Council’s Research Officer since 2001. As part of this role, she was centrally involved in the development of the Council’s position papers on Cardiovascular Health and on Disadvantage. She has Masters degrees in both Sociology and Applied Social Research, and has previously carried out research for the National Social Work Qualifications Board on cross border issues. Aoife has also worked for the Drug Misuse Research and Disability Databases Divisions of the Health Research Board.

Dr. Anne Segonds-Pichon, Senior Researcher, University College Dublin
Anne Segonds-Pichon is an epidemiologist and a senior researcher in the Department of Public Health Medicine and Epidemiology at University College, Dublin since September 2003. She is currently analysing the data from the Lifeways Cross-Generation Cohort Study. The study investigates the influence of early life factors on adult health. The cohort includes three participating generations of 1000 Irish families.

Prof. Hanno Ulmer, Dept of Biostatistics & Documentation, University of Innsbruck
Hanno Ulmer is a biostatistician who has been with the Department of Biostatistics and Documentation of the Medical University Innsbruck for the past 10 years. He collaborates with investigators from various departments within the Medical University of Innsbruck, including internal medicine, neurology, anaesthesia, intensive care medicine, surgery, urology, otolaryngology, ophthalmology, radiology, hygiene and preventive medicine. Recently, his main research interests are in the epidemiology of cardiovascular diseases, risk factors, health surveys and women’s health.
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