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eurohealth



Health and the Environment

The challenges of enlargement for public health Improving the quality of healthcare The developing role of nursing The Commission's Health Strategy: view from the Committee of the Regions Public health policy in the EU is being shaped by several political and structural forces. At the political level, the increased emphasis on public health issues that has taken place in recent years is highlighting the centrality of health issues across the public policy spectrum. Quite apart from the overt requirement for public health to be recognised in policy design across directorates, the intrinsic presence of public health issues in various areas of policy requires in itself that there is a health focus in setting the policy agenda. This is perhaps nowhere more true than in environment policy where issues such as pollution are in essence public health issues.

Environment Commissioner Margot Wallström here sets out the importance of health concerns in environmental policy making and describes the initiatives and polices being pursued in order to address the serious environmental health concerns that face the European Union as a modern industrial society. Erwin Jackson of Greenpeace discusses climate change and its potential impact on human disease and agriculture. The emergence or return of infectious diseases through changing climatic conditions is a real issue for public health planners and managers. Mark McCarthy concludes this section with a look at central and east European countries a decade after the end of the Soviet era, which left massive environmental problems in a context of economic disruption and institutional breakdown.

The approaching enlargement to the east is itself another political question facing all of Europe's policy makers. Martin McKee and Laura MacLehose discuss the implications for communicable diseases and the ability of Community initiatives to deal with an increasingly important policy area in the face of an ever broadening single European market. Following his Health and Enlargement Report to the European Parliament, John Bowis MEP discusses the severe problems facing central and east European countries and the difficulties incurred by the continued delay in their full membership. Magdalene Rosenmöller notes that while a great deal of progress has been made in preparing for enlargement, there is a lot more that both the Commission and the candidate countries need to do.

The organisation and structure of healthcare delivery are also changing rapidly and are other sources of pressure on policy makers, managers and healthcare practitioners. Two important areas are examined here. Thanks are due to Professor David Banta for his editing of a series of articles on quality in healthcare. This section looks at quality management and the potential for improvement in the quality of healthcare across Europe. Three articles consider the changing, and expanding, role of the nursing profession within European healthcare systems.

Finally, we begin with a contribution from Roger Kaliff detailing the report of the Committee of the Regions on the Commission's new health strategy. This will be an ongoing subject of debate in future issues as the effectiveness of the strategy becomes clear and its various aspects are implemented, including the precise shape of the new Health Forum.

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Contents

European Union

There are major variations in health status among the citizens of the Union, and this will become even clearer as enlargement progresses. This means that there will be major opportunities to significantly improve health in many countries and among large groups of the population, but this will not happen automatically.

The report of the Committee of the Regions on the Commission's proposed health strategy for the EU concludes that the focus of the EU's new health strategy must be on achieving improvements in health for all, with the overriding goal being to reduce inequalities in health. The report is based on broad consultation between the regions of Europe.

Good health is an issue of the highest priority for the citizens of Europe and an area in which they have high expectations, and this will of course continue to be so. If young people are asked what they believe to be the most important thing in life, then health usually comes at the top of the list.

How is health created?

Generally speaking, we can say that our health has improved enormously within the Union. In only a century, average life expectancy has increased from just over 50 to almost 80 years in many Member States. In other words, we can count on living almost half a lifetime longer than our forebears of a few generations ago. This trend has nothing to do with genetic changes. The reasons for this unparalleled change are to be found in background factors such as economic development and social policy. Is average life expectancy so important? An increase in the average life span is not only a question of a few extra years at the end of our lives, it also has to do with more children surviving infectious diseases and fewer middle aged men dying from cardiovascular diseases. The trend means not only that we are living longer, but also that we feel better. Nor have the opportunities for a longer and better life been entirely exhausted. They are, however, largely dependent on the policies that can be pursued both jointly for, and individually in, the countries of the EU.

The importance of various areas of policy to public health

The Commission has proposed, in accordance with the Amsterdam Treaty, that public health aspects should be taken into

The Public Health Programme

The Commission's proposed Public Health Programme is, like the rest of the health strategy, very ambitious. The Commission proposes that a comprehensive information system should be developed and aimed at the policy makers, health professionals and the general public. This is a proposal that is well in line with the rapid development of information technology and the opportunities it offers.

Surveying and following health trends in the different countries may provide great added value for public health policy within the Community, and consequently for the health of the people of Europe. Such comparisons will make it possible to detect health risks that may otherwise be difficult to identify. They can also help to tighten up health policy.

It can be tempting to give priority to mea-

The health challenges of enlargement



John Bowis MEP

"Bad habits move fast. Good practice moves more slowly." "I look to the Commission to initiate more collaborative action with the World Health Organisation"

There is a large majority in the European Parliament and also in the Council and Commission who want the process of enlargement to succeed. We must, therefore, make it clear both to the applicant countries and to ourselves that the process of enlargement should not simply be an obstacle course or a set of exam questions.. It is a process whereby we work together to enable all of our European family of nations to join us in a

way that makes them and us feel comfortable with the Union.

We must remember, however, just where we have all been in the past sixty years. First our European family was separated by war and then by peace and by the new alliances after the war. The West took the capitalist road and the East took the road of socialism. That latter road led away from freedom, although some of the Eastern countries had barely experienced freedom under their ancien regimes. It led to many cases of repression. Yet it also provided a degree of stability. Then the iron curtain was ripped aside. Freedom dawned, but at a price. How often people in some former Soviet republics have said to me, "We like the freedom but we wish we still had the economic certainties of the communist years". Others have relished the independence from the old Soviet dominance of Comecon and the Warsaw Pact and have moved steadily to a free market system, despite the odd political, economic or social bump on the way. What is certain is that, give or take Belarus and Turkmenistan, virtually all our Eastern family is on the move in a political and economic sense and it is our duty and our wish to help that process.

There is, of course, an acquis and there are genuine concerns – some serious – which we must tackle and surmount. But those who say, "Clear the hurdles or don't come in", knowing very well that some of the acquis hurdles are still not met by current Member States, must be firmly told to put away their rule book and get out their guide book.

Our neighbours to the east have seen and felt the seismic changes of the end of communism. When Pandora opened her box all the ills of mankind were released and sometimes that is how it must have felt as opened borders meant a two-way traffic of bad habits. Bad habits move fast. Good practice moves more slowly. And many of these bad habits were linked to health: infectious diseases – some drug resistant and some we thought we had seen the last of; drug abuse and the horrors of AIDS and syphilis; and the negative impact of tobacco and alcohol.

But that, of course, happened before, not after, enlargement. You cannot erect some new curtain – a cordon sanitaire to protect west from east and east from west. Enlargement of the EU or no, it is in our mutual and collective interest that such problems are dealt with. It is my belief that enlargement can help that process.

In my Health & Enlargement Report, now adopted by the Parliament, I summarised the position as being that :

- Virtually all Applicant Countries have economic difficulties, with less money available for public spending.
- Virtually all have lowered the priority of health in their spending plans, so health has a smaller portion of a smaller cake.
- Some aspects of health provision were good and remain so, such as the number of doctors – even if too many of them are in hospitals and too few in the community.
- Some aspects were good and have deteriorated, such as the vaccination coverage of children.
- Some aspects were bad and are now improving, such as the abuse of psychiatry.

Enlarging the European Union: Implications for communicable disease control?



Martin McKee



Laura MacLehose

For as long as international trade has existed there has been a tension between the free movement of goods and people and the control of epidemic disease. The planned enlargement of the European Union by 12 countries and 105 million¹ people brings this issue to the forefront once again.

In March 1998, accession negotiations were formally opened with six countries: the Cyprus, Czech Republic, Estonia, Hungary, Poland, and Slovenia. The process was widened in February 2000 to include six additional candidates: Bulgaria, Latvia, Lithuania, Malta, Romania and the Slovak Republic. Turkey is also a candidate country for accession to the EU although not yet in accession negotiations.

The first formal agreement recognising the problems created by trade and travel for communicable diseases was the adoption of the International Health Regulations by the 22nd World Health Assembly in 1969. By the 1960s and 1970s, many were optimistic that the burden of disease and premature death due to infectious diseases would soon be relegated to history. Fired by the successes of anti-microbial drugs and immunisation programmes, an American Surgeon General declared that infectious diseases had been conquered.² These hopes were soon dashed. Antibiotic resistance, the re-emergence of old threats, such as tuberculosis, and the appearance of new ones such as HIV and legionnaires disease, shattered the complacency.

In the past three decades these threats have returned with a vengeance. One reason is the vast increase in the scale and pace with which people and goods are moving across

Note:

This paper draws on a report on the management of outbreaks of communicable disease affecting more than one EU Member State, undertaken by the authors and others on behalf of the European Commission (Brand H, Camaroni I, Gill N, Fulop N, MacLehose L, McKee M, Reintjes R, Schaefer O, Weinberg J. An evaluation of the arrangements for managing an epidemiological emergency involving more than one EU Member State. Bielefeld: L_GD, 2000) as well as on work being undertaken as part of a study of the implications of accession for health and healthcare, by the European Observatory on Health Care Systems.

international boundaries. The development of the European Union has contributed considerably to this increased mobility by removing obstacles such as tariffs and, at least within the Schengen countries, frontier checks.

The public health response

In contrast to this openness, the public health response has largely remained constrained within national boundaries. Surveillance and control systems within the EU continue to be the responsibility of Member States, with the international dimension based primarily on the 1969 International Health Regulations. It is, however, rapidly becoming apparent that the growth in international travel and trade has stretched these systems to the limit, as highly publicised food safety and other crises have highlighted the challenges to national surveillance systems arising from an increasing global environment. From the European Union perspective, these challenges emerge in three situations:

- outbreaks detected in one country which may affect people in other countries;
- outbreaks that can only be detected by pooling national surveillance data;
- outbreaks arising outside the EU that pose a potential public health threat to the EU.

The European Union has responded to these challenges, within the framework of what is permitted by the Treaties. In recognition of the health implications of increased trade, the European Union's competence in public health has steadily expanded. While some mention of health was present in the early treaties, going back as far as European Coal and Steel Community (ECSC) Treaty of 1951, its

first substantive appearance was in the Single European Act of 1987, which enabled the development of the Europe Against Cancer and Europe Against AIDS dardised laboratory practices for many common diseases. It has been shown, for example, that EWGLI has detected many more outbreaks than was previously the case.⁷

Health challenges

The health challenges facing the candidate countries vary considerably, with some, such as the Czech Republic and Poland, showing rapid gains in life expectancy while in others, such as Romania and Bulgaria, it is stagnating and, for some groups, continuing to deteriorate. Malta and Cyprus are, of course, exceptions, as they do not display the high levels of adult mortality seen throughout central and eastern Europe. In general, however, levels of communicable disease are higher than in existing Member States while investment, both physical and human, in the capacity to detect, investigate and manage them may be more limited. Earlier gains in communicable disease control, particularly with tuberculosis and syphilis, have been lost in some of countries. Rates of tuberculosis are significantly higher than in the European Union, rising to over six and seven times the European Union average in Lithuania and Romania in 1998 (see Figure).⁸

Participation

Against this background, preparation for participation in the EU surveillance initiatives will be extremely important. Some candidate countries already participate informally in the Enternet network and the EWGLI network has also expanded beyond the borders of the EU. There are, however, a number of challenges to be addressed. One is in the training in modern epidemiological methods, which has been given lower emphasis in some countries because of the dominant role of microbiologists in the response to communicable diseases. Microbiology laboratories will also need to be upgraded in some areas and in some cases, the use of common case definitions and laboratory procedures may need to be introduced. The speed with which disease can now spread means that there is also a need for enhanced communication systems, taking advantages of the growing role of the internet.

Participation in European Union surveillance and prevention activities should not necessarily have to wait for formal accession. The scale of the challenge is such that,

implementation and enforcement structures. This is also true for health related areas such as health and safety at work, phyto-sanitary health and consumer protection.

Progress on the Tobacco directive has been

now participate as observers in public health programme committees, and have a say on programmes that directly concern them. Yet there are no experts from candidate countries in the all important scientific committees, which are generally open to non-EU scientists. A targeted search for suitable scientists would elicit candidatures and help strengthen the countries' scientific capacity in health and consumer protection.

The Commission has organised various expert rounds on different health related topics specially aimed at the candidate countries. The Commission's Public Health Policy Unit and Taiex (Technical Assistance Information Exchange Office), together with the Spanish and Catalan Health Ministries, organised a workshop on health and enlargement at IESE Business School in Barcelona in July 1999. This workshop offered officials from candidate countries a comprehensive overview of health related areas at European level. Enlargement has been on the programme of the yearly European Health Forum, Gastein and there is an increasing number of informal exchanges at all levels. But more guidance or support from the Commission would be helpful.

Although Commissioner Byrne, at the EP Public Hearing on health and enlargement in July 2000, again described the Staff Working Paper as an important initiative, he did not give details about how the 'options' it put forward have actually been followed up. The reorganisation of the Commission in 1999 strengthened the role of health at EU level, but the inevitable delay in the Commission's activity and the departure of the Director of the Public Health Directorate in summer 2000 go some way to explaining why health and enlargement did not get attention as

some existing standards have been established with the 'average' adult in mind without taking into account the need to protect particularly vulnerable groups in society such as children and elderly people.

Children - the 'living' indicators of

"Climate change would be expected to exacerbate problems with malaria in eastern European countries." It is also expected that the number of deaths related to cold weather will decrease. For example, one study of the UK suggests a decrease in annual deaths from cold by around 20,000 by 2050. However, as social and behavioural changes play a major role in cold related deaths in countries with high rates of winter mortality, improvements in socio-economic conditions – e.g. reduced fuel poverty in the UK – will probably play a bigger role in reducing cold related deaths than will climate change.³

In addition to the direct loss of life and injury associated with extreme events, floods, storms and heat waves have other short term and long term health consequences. Floods for example, may increase the risk of communicable diseases such as leptospirosis, overload water purification and sewage systems, and cause the discharge of toxic chemicals as waste sites and industrial centres overflow. Mental health problems have also been associated with extreme weather. For example, in Poland 50 suicides were attributed to floods in 1997.

Indirect effects of climate change on health in Europe

Climate change is expected to affect the distribution and occurrence of a number of infectious diseases. The World Health Organisation has identified diseases carried by intermediate ('vector') organisms such as insects as being particularly vulnerable to climate change. Climatic factors such as temperature, humidity and rainfall have a strong influence on both the disease and the host organism. In the case of malaria, for example, rainfall affects the availability of breeding sites for mosquito vectors, and

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1. McMichael AJ, Haines A, Slooff R et al (eds). *Climate Change and Human Health – An Assessment Prepared by a Task Group on Behalf of the WHO, WMO and UNEP.* WHO/EHG/96.7. Geneva: World Health Organisation, 1996.

2. Parry ML (ed). *Assessment of Potential Effects and Adaptations for Climate Change in Europe: Summary and Conclusions.* Norwich, UK: Jackson Environment Institute, University of East Anglia, 2000.

3. Kovats S, Haines A, Stanwell-Smith R et al. Climate Change and Human Health in Europe. *British Medical Journal* 1999;318:1682–85.

4. Githeko AK, Lindsay, SW, Confalonieri UE et al. Climate change and vector-borne diseases: a regional analysis. *Bulletin of the World Health Organization* 2000;78:1136–47. temperature affects the reproduction and maturation rate of the disease.

A number of European vector-borne diseases are likely to be affected by climate change including Lyme disease and tickborne encephalitis (TBE).^{3,4} Lyme disease is the most common vector borne disease in Europe and there is concern about its increased incidence, as well as that of TBE, in the northern part of the continent.

Climate directly and indirectly affects the disease carrying ticks, their environment and host animals (e.g. mice, deer and birds), the time between blood meals, and disease transmission. If host animals are available, climate change is expected to enable tick-borne diseases to expand into higher latitudes and altitudes. Milder winters could reduce host mortality and extend the time that the ticks are active. Swedish researchers conclude that the recent northern shift of one tick species is related to the decrease in winter days below -12°C.⁵ In southern Sweden, milder spring and autumn months also appear to have increased tick activity.

In addition to tick-borne diseases, climate change would be expected to exacerbate problems with malaria in eastern European countries where the public health infrastructure has broken down and poverty has increased. Changes in average climate or extremes could also facilitate the introduction of previously unidentified diseases into populations (such as hantavirus pulmonary syndrome in the USA).

Conclusions

Climate change is likely to affect the health of European populations in a multitude of ways. While significant uncertainties exist, it is the judgement of health experts that these impacts will be largely negative. Some impacts will be obvious and direct (mortality from flood and heat waves) while others will be indirect and harder to identify (the spread of infectious disease). It is also clear that populations in poorer eastern European countries will suffer more than richer northern and western European populations. Outside Europe significant impacts are expected across developing country populations.

While policy measures are required to adapt to the climate change that is already occurring, unless the primary causes of climate change are addressed – the burning of fossil fuels – the rate and magnitude of impact will grow along with the acceleration of changes in the climate.

^{5.} Lindgren E, Tälleklint L, Polfeldt T. Impact of Climatic Change on the Northern Latitude Limit and Population Density of the Disease-Transmitting European Tick Ixodes ricinus. *Environmental Health Perspectives* 2000;108:119–23.

Local environment and health practice in central and eastern Europe

A striking revelation to people in western European countries following the 'velvet revolutions' in countries of central and eastern Europe in 1989/90 was the state of the environment. Dramatically evident in the Ukraine in the aftermath of the GhDramaticinclur Eur



Mark McCarthy

Rapid changes in economic conditions in the 1990s have led to many of the industrial sites closing, and investment in cleaner technologies has also reduced pollution. But there remains strong public and political concern for the environment, and its consequences for health. The European Union's 'acquis Communautaire' (criteria for accession) includes exacting standards in environmental Directives. National legislation is needed, but local management and control will be crucial for effective implementation.

The systems of the former governments did, in fact, often include decentralised environmental services with epidemiological expertise. But these services had little encouragement to investigate statemanaged industries, and could be sidelined into monitoring rather than intervening. Much local action at present is led by new non-governmental organisations (NGOs), often supported by western aid agencies as alternatives to the public structures and sympathetic to western commercial investment.

Developments

The environment has received less attention from the health sector in recent years than economic and organisational reform of health services for two reasons. Environmental action is usually outside the control (especially economic) of the health sector; in addition, epidemiological evidence linking diseases with environmental exposure has been less strong than conventional 'risk factor' approaches. Especially when large populations are exposed at very low levels, the causal links are often open to debate. Considering how the tobacco industry has sought to deflect the compelling evidence of the effects of cigarettes, it is not surprising that the effects of other low level environmental exposures remain controversial.

WHO Europe

The World Health Organisation European Region has taken a steady and progressive approach, working from principles of scientific evidence towards action programmes. WHO has organised three international meetings for ministers of environment and ministers of health of its member states. (The WHO European region includes states of the former Soviet Union, and thus ranges from countries with a long environmental tradition, such as Norway to the new central Asian republics with pressing environmental problems, such as the Aral Sea region in Uzbekistan.)

Much of the science linking environment with health was set out in an authoritative report, *Concern for Europe's Tomorrow*, prepared for the second WHO Ministerial Conference held in Helsinki. The report considers traditional environmental concerns, such as drinking water purity, waste disposal and air quality. But the debate on environment has broadened for two reasons. The 'determinants' of pollution are seen to include more complex human systems such as transport and habitation; and environmental concerns for sustainable development have shown the need to work across sectors as well as within them.

Issues

The third Ministerial Conference held in London in June 1999 discussed two big issues – water quality, and transport, environment and health – as well as nine other themes including research, children and local implementation.

Water is of greatest concern in the east of the region, especially the Newly Independent States (NIS). More than 100 million people are without an adequate supply, either an absolute lack or using water that is polluted. Water borne infectious diseases such as hepatitis A and parasitic infections are common, even in major cities, and sporadic outbreaks of cholera have occurred. The solutions are partly technical, including better equipment and alternative methods of water capture and supply. They are also economic, for example in reducing industrial pollution. And they are social, including improving hygiene in rural areas.

Quality of healthcare in Europe: An introduction

Concerns about the quality of healthcare are increasingly visible in health policy circles in Europe. While the overall benefits of healthcare seem relatively clear, there is considerable evidence that optimal care is not being given. This set of articles concerns quality of healthcare in Europe. They focus on approaches to improving the quality of care.



David Banta

"Health outcome is the predominant factor in defining and measuring quality of care." No country can claim to have addressed quality concerns adequately, although some countries are certainly attempting to improve quality with more structured approaches to the problem, and there is some evidence of improving quality in these countries.

Definitions of quality of care

To discuss quality it is necessary to have a clear definition. 'Quality' implies a degree of excellence. However, there is no consensus on the actual definition of quality nor on those aspects of care that should be measured to determine quality. This is difficult to understand. The goal of the health system is to help the individual and the population to become more healthy. For example, the US Office of Technology Assessment in 1988 defined quality as "the degree to which the process of care increases the probability of outcomes desired by patients and reduces the probability of undesired outcomes, given the state of medical knowledge."¹ This definition is consistent with definitions put forward by the World Health Organisation and others, in emphasising health outcomes. However, others consider the focus on health outcomes alone inadequate. For example, Wilson and Goldschmidt insist that the definition has four elements:

- 1. technical quality (leading to improved health outcome)
- 2. cost of care
- 3. patient satisfaction
- 4. value trade-offs among the three dimensions.²

Others emphasise equity, access, or efficiency. For the purposes of this paper,

health outcome is considered the predominant factor in defining and measuring quality of care, and the goal of quality assurance or quality improvement activities is – and should be – primarily the improvement in health outcomes.

Evidence of problems in quality of care

Evidence of unsatisfactory care comes from many sources.³ Ideally, one would wish to evaluate quality on the basis of health outcomes and compare doctors, facilities, and even countries in order to identify and disseminate practices shown to be beneficial and cost-effective. However, mortality is not very susceptible to healthcare intervention. Studies of the use of mortality rates in measuring quality in Europe has not produced useful insights on guality. For example, Mackenbach et al found that eleven studies of mortality from 'amenable causes' (causes that could be addressed effectively by healthcare) showed relatively little difference between Western European countries.⁴ In fact, death rates from amenable causes were low and had declined rapidly. The picture was not so positive in Eastern European countries, but the main differences could be attributed to environmental and personal behavioural factors, not to differences in healthcare.

Therefore, tentative conclusions concerning quality of care must come from indirect evidence, such as evidence of use of ineffective health technology, broadly defined, and evidence of lack of use of effective technology. Twenty years of studies of variations of use in different regions and countries have shown dramatic differences that are difficult to explain.³ The problem of variations in use has led to studies of inappropriate care. Care considered to be inappropriate, that is, use of technology that has not been found to be beneficial in the defined circumstances, has been found to occur in as many as 30 per cent of cases. The rates of medical errors have been examined by the US Institute of Medicine, which concluded that a large number of preventable errors in healthcare occur in the United States.⁵

Approaches to improving quality of care

The papers that follow will give some insights into formal programmes for improving quality and their cost-effectiveness. The traditional method is to examine structure, process or outcomes of care in relation to accepted norms or standards of care, although the relation between the structure and process of care and the outcomes of care is often not clear. Evidence for the validity of many standards, which assume links between structure/process of care and health outcomes, is generally lacking, and hampers the evaluation of such quality activities as medical audits and hospital accreditation. Gulacsi and Banta examine this problem further in the last paper in the section.

A more recent development has followed from the introduction of ideas concerning quality from outside the health field. These approaches emphasise the providers' motivations to provide good care and seek to help them meet their goals in this area. Thus, such terms as 'continuous quality management' and 'quality improvement' seem to be supplanting the earlier terms such as quality assessment and quality assurance. This is well-illustrated by Isuf Kalo's paper, describing the approach of the World Health Organisation.

The evidence of widespread use of ineffective technology or overuse of beneficial technology has led to the establishment of agencies and programmes to assess health technology, broadly defined, in terms of health outcomes and costs. This subject is covered in more detail below.

Institutionalisation of quality of care Europe shows a mix of voluntary internal and external mechanisms for improving quality of care. It has been stated that the definition of quality in Europe has often been physician-orientated, whereas the United States and Canada have followed a more patient-orientated definition emphasising health outcomes.⁶

As shown in the papers that follow, Europe has made progress in implementing quality improvement programmes during the last decade, although it must be said that this progress is disappointing in relation to the needs for quality improvement. Developments in quality improvement have been given a further impetus by the health policy paper published by the European Commission in 2000. The main approach by the European Commission will be to try to improve information on quality and approaches to its improvement, including carrying out and implementing health technology assessments.⁷ Eastern Europe is behind Western Europe in such developments, but as the article by Gulacsi et al shows, rapid progress has been seen in some countries.

Quality improvement and HTA

The main goal of health technology assessment (HTA) is to improve health outcomes by assessing technology and implementing its results into policy and practice. Virtually every Member State of the European Union now has a formal agency or programme in HTA, and Eastern European countries are rapidly following suit. One of the main activities of HTA is to examine the efficacy (health benefits) from new and existing technology, broadly defined.

'Health technology' includes the drugs, devices, and medical and surgical procedures of healthcare and the supportive and organisational systems in which care is provided. Thus, a drug or machine is a technology, but so is a system of care. For that matter, quality improvement activities can be considered a health technology and also ecuystem of cD6ce8024 Tc 0.1 T duricD60 -1.262 Tnusuia decad1 TD 0.004 Tc5t be said that thifits)1.2rTc y orgapde (ISTAHC), International Society for Quality (ISQua), ExPeRT (European Union project on External Peer Review Techniques), European Forum for Quality Management (EFQM) European Quality

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At the national level, several countries, including Belgium, Denmark, Norway, Sweden, and the United Kingdom have initiated national strategies for quality development. Most of them focus on development of quality of care. In other member states (Hungary, Poland, Romania and Slovenia), national quality and HTA structures have been set up which are acting as National Coordinating Centres for quality development. In the field of accreditation particularly, several programmes are operating at national level in Croatia, France, Germany, Ireland, Italy, the Netherlands, Slovenia, Spain and the United Kingdom.

National societies for quality in healthcare have been established in Austria, Belgium, Denmark, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Norway, Poland, Spain, Sweden, the United Kingdom and Yugoslavia. In some countries of central and eastern Europe and newly independent states (Bosnia & Herzegovina, Estonia, Kazakhstan, Kyrgyzstan, Russia and Uzbekistan) World Bank and USAID have initiated accreditation projects focused mainly on specific activities or subsystems such as primary healthcare or hospitals.

The new concept of quality development

In line with current reforms within the Regional Office and the new country strategy of 'Matching services to new needs', the former Quality of Care and Technologies programme has broadened its scope to become the Quality of Health Systems (QHS) programme. The quality concept is based on a system approach which aims to optimise interaction between all parts of the health system. The development of quality is based on management of stability or minimisation of variation (quality assurance) and progressing upwards in a spiral of continuous quality improvement. The main idea of the quality programme is to apply evidence based thinking at the level of everyday practice to all activities of a health system. In this context the QHS programme will advocate that:

Quality should be considered in all components of the health system

It should encompass not just the field of care provision but all activities pertaining to the promotion, restoration and maintenance of health. Also, it will focus on a country framework rather than on individuals, clinicians or health centres.

Health system quality should be approached in its complexity as an interface between quality at the 'macro level' and 'quality/best practice level'

This means tackling different dimensions and components including:

- service organisations (standards,

accreditation, documentation)

- finance (budget reports, payment systems and control mechanisms)
- technical performance (external quality assurance systems)
- clinical practice (internal self assessment, clinical audit, guidelines, indicators)
- clinical training (curriculum, licensing, certification, accreditation)
- citizen and patient satisfaction (wellbeing, rights, empowerment)
- safety and health protection (legislation, inspection, risk management)
- linked quality information systems (indicators, databases, standards, tools, evidence)

A broader scope should be applied to quality values

In addition to best outcomes, safety, equity, effectiveness, efficiency, appropriateness, access, user choice, acceptability and availability are now all being taken into account.

Countries should identify an appropriate mix of values and design quality programmes by making choices and trade-offs in accordance with their priorities and circumstances.

The involvement of all stakeholders

In addition to politicians, health administrators and professionals, payers, users, other interested local and international parties, particularly the EU, World Bank, industry and NGOs should be approached.

Links should be established with health technology assessment institutions and programmes

Health technology programmes are crucial for helping health systems to select and do the 'right things' and the quality development programme has to ensure adequate mechanisms to monitor and evaluate continuously to ensure that things are done correctly. Joint activities between the Regional Office and ISTAHC have been planned for setting up national comprehensive strategies for health technology assessment and quality development.

Challenges for development of quality in health systems

The development of quality is difficult and progresses slowly, requiring fundamental change in the health system. It must bring together, in a common strategy framework, four main players: healthcare providers, health authorities, consumers and payers, taking into account that each group has its own vision and expectations of quality. Other challenges are related to the difficulty in measuring quality, generating valid information, and making policy decisions, given the inadequate, incomplete or ambiguous evidence available. In implementing quality programmes, an appropriate mix of incentives and sanctions, and an acceptable mix of quality components,

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The history of health technology assessment and the history of continuous quality development both go back many centuries, and although they derive from different origins they have many similarities. Where the health technology assessment could be defined as "What is the right thing to do?", continuous quality development could be defined as "Do we do it in the right way?". The nature of continuous quality development differs from health technology assessment. While health technology assessment *Follow up* meaning monitoring and evaluating the impact of the action taken, continuously monitoring and assessing the quality of care, and identifying positive outcomes in order to update the quality criteria and standards.

As described above there is an overlap between health technology assessment (HTA) and continuous quality development both in methodology and definitions. Figure 1 shows a model of health technology assessment. A health technology assessment starts with the documentation, continues with the primary review of knowledge acquired by existing data sources such as research, clinical databases and healthcare statistical databases, leading to the proposal of Clinical Practice Guidelines (CPG), and ends with the decisions based on social, legal and ethical factors.

The process of continuous quality development contains the same elements, starting with the clinical practice guidelines and the results of the health technology assessment, criteria, standards and indicators are developed. This is followed by documentation in clinical databases followed by secondary review of the collected knowledge. This review should be followed by a revision of the Clinical Practice Guidelines. After this the circle is repeated. As a consequence, continuous quality development can be seen as continuous or repeated health technology assessment. Some basic requirements of continuous quality development should be observed:

- When clinical practice guidelines are developed evaluation of the guidelines must be included.
- For the acceptance of quality development staff participation and commitment is mandatory.
- Professional acceptance of the developed standards and indicators is necessary.

Even though there are many overlaps between the theory and the implementation of health technology assessment and continuous quality development, there are some basic differences. Health technology assessment has a long tradition for basing the knowledge acquisition on evidence based medicine in the form of meta analysis. There has lately been a discussion about the problems of selection bias and publication bias of this type of analysis. Continuous quality development is primarily collection data through the use of clinical databases. Over recent years several studies have reported on databases constructed for continuous quality development that have been used in evaluation of technology^{5,6} It is however known that the collection of data from a daily clinical setting normally will cause problems with the validity of the data. Experiences have shown that through quality assurance and external evaluation of the data collection these problems can be solved. It is certain that the use of meta analysis provides us with knowledge that could not have been obtained in any other way, but the implementation of clinical documentation systems and the use of continuous quality development might lead us to a more scientific and solid solution based on practice data.

East-West life expectancy gap: the possible role of quality improvement Life expectancy at birth in EU countries for males as well as females is five to ten years longer than in most of the Central and East European Countries (the CEECs), and that between 1990 and 1995 the gap has widened instead diminished.¹ As Jozan et al point out, "In the first decade of the 20th Century, men and women in the Netherlands could expect to

The need for cost effective quality improvement interventions



David Banta



Laszlo Gulacsi

"Quality improvement can be seen as a mirror confronting healthcare providers with the results of their work."

Need for evaluation of the effectiveness, cost and cost effectiveness of quality improvement programmes The articles in this section have indicated that quality improvement (QI) is a very important tool. However, the same or similar goals might be achieved through the implementation of very different QI programmes. Structure, process and outcome orientated programmes can be used separately or in almost infinite combination. Numerous process and/or outcome indicators can be used and various educational, training, regulatory and control methods can be implemented. There are many ways

can be implemented. There are many ways to improve the effectiveness of QI, for example to improve cost effectiveness. Administrative, financing and regulatory tools can be used, licensing, accreditation, peer review, audit and guidelines are common tools. Healthcare settings have to implement effective and cost effective QI programmes to improve their capacity to provide cost effective services.

The role of QI

As already discussed in these papers, the main aim of QI activities is to improve the actual benefit of a given healthcare service where there is the possibility of achieving further benefit. This is a rather narrow, but very practical focus of QI, which is used in this paper.

QI is part of medical technology

According to the definition of the US Office of Health Technology Assessment (OTA, 1978) the "Medical Technology: The drugs, devices, and medical and surgical procedures used in medical care, and the organisational and supportive systems within which such care is provided." QI is just one more health technology competing for scarce healthcare resources. It is an organisational technology, well within a standard definition of technology, and it should be subject to rigorous assessment, in the manner now properly being demanded for all health technologies. QI is not free of charge. It requires staff, clinicians' time, facilities, equipment, information and other resources. All these resources might be used in other ways, such as to treat patients, to undertake clinical research, or to engage in education or professional development. In the long run, the investment of healthcare resources in QI activities has to be justified by results.

Judging quality and cost

There is no general understanding and agreement on the meaning of quality and cost. The term 'quality' is used in many different ways. In fact, QI does not often focus on health outcomes. Most QI activities have dealt with the structure or process of care.

There is also a lack of clarity in definitions of cost. Is it direct, indirect, average, marginal, incremental or opportunity cost? Each of these has a very different meaning. Is it the cost of poor or good quality? Poor quality is expensive and a waste of resources while improvements in quality can reduce costs and might be considered as investment instead of expenses. Pure data on costs of quality are impossible to interpret and cost information without understanding of quality is meaningless.

Towards cost effective QI

To create cost effective QI interventions, four challenges have to be faced. Good information is needed on:

- effectiveness (both achieved and achievable) of healthcare interventions;
- effectiveness (both achieved and achievable) of QI interventions;
- cost;
- cost effectiveness of QI programmes.

First challenge – effectiveness of healthcare

It is clear that information about the effectiveness of present healthcare interventions is often lacking. The actual performance of the care processes can only be described in qualitative terms and virtually no quantitative data on actual effectiveness can be found.

Given limited resources and the difficulties in changing professional behaviour, QI activities should be focused on those areas of clinical practice where good evidence exists and change would be worthwhile. Measuring the size of the gap between efficacy and effectiveness is crucial. Efficacy shows the maximum benefit achievable by a given intervention under idealised conditions: effectiveness show the actual benefit achieved under actual conditions. Due to the different conditions, especially the patient sample (co-morbidity, severity of illness) and settings of care, efficacy as defined by randomised clinical trials can rarely be achieved. There are differences in the actual effectiveness due to the limited availability of resources (financial resources, knowledge, staff); differences in the health or sickness of patients, and differences in the appropriateness and effectiveness of the quality assurance tools. The achievable benefit of every given situation has to be defined carefully, by benchmarking in any given QI programme.

Policy makers and administrative and clinical decision makers at all levels need this information. The marginal utility of additional spending may be quite low. Large differences between efficacy and effectiveness can point the way to significant cost effective interventions to improve quality within a relatively short time frame.

Second challenge – effectiveness of QI interventions

Another challenge is to find information on the effectiveness of investment in QI strategies. As it was pointed out by Donabedian,¹ there is very little information available on the effectiveness of QI. Developing information indicates that a great deal of ineffective and/or non cost effective quality assurance activity is in use in healthcare.

The level of achievable benefit has to be defined, predicted and explicitly stated within all QI programmes. Achievable benefit, as a crucial cornerstone of every QI activity, has to be tailor made. Different aspects have to be taken into consideration, for example, the size, location and teaching status of the hospitals or other healthcare settings.

Although there is some evidence of the efficacy of various QI tools (for example, medical audit, peer review, accreditation status) there is little evidence of their effectiveness. According to the literature, for instance, evidence is available to show that practice guideline setting and implementation is a good tool in changing physicians' behaviour and probably to improve health outcomes.²

Third challenge - economic costs

Studies conducted in industry show that the cost of quality is estimated to equal 20 per cent to 40 per cent of the total organisational costs.³ These costs are due to the waste incurred through poor quality and unnecessary work, rework waste and redesign waste. In healthcare, the cost of providing quality care, including the price of conformance and the price of nonconformance, was estimated by Berwick et al. to consume up to 50 per cent of all healthcare costs.⁴

Unfortunately, very few studies on the cost of quality are available and most of them are incomplete and suffer from various methodological weaknesses.⁵ Development of guidelines and other QI tools has largely ignored the issue of costs.⁶

Fourth challenge – cost effectiveness of QI programmes

According to the literature very little is known about the cost effectiveness of QI programmes, due to the lack of data on quality of care and its outcome and the cost implications of different alternatives. However, this probably means a lack of evidence rather than a lack of cost effectiveness of all QI interventions.

Accountability of QI

Further development of QI requires information about its results, costs (cost per unit of additional benefit has to be calculated – incremental cost) and cost effectiveness. New evidence needs to focus on the cost effectiveness of improvements in the 'real world' (how should it be done?). Increasingly, studies on the effectiveness of QI programmes have to include consideration of cost effectiveness.

Quality improvement can be seen as a mirror confronting healthcare providers with the results of their work. The time has come to hold up the same mirror to QI programmes, evaluating their effectiveness and probably most important, demonstrating their cost effectiveness. On the one hand, this is required by 'clients' of quality endeavours: providers, purchasers and patients; on the other hand, this has become an increasingly important factor for quality professionals trying to promote their work.

"Very little is known about the cost effectiveness of QI programmes."

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The picture at face value looks gloomy. Yet despite all the negatives, the vast majority of nurses and midwives seem to be pushing back the frontiers and doing their utmost to manage the crisis and develop their roles in a changing healthcare world in the European region. The lead up to the WHO Ministerial Conference on Nursing and Midwifery in Munich in June 2000 provided a useful opportunity to do a stocktake on where nursing and midwifery is positioned at the beginning of the 21st century. Numerous conferences and summits over the previous decade, advocated a range of developments in education, practice, manan important new development as this sector increases its role in service provision. Nurses are also beginning to work more effectively in integrated teams of physicians and others.

In some countries nurses are taking a more crucial role in primary care, acting as front line workers and only referring to the family physician when the needs of patients and families can be met more adequately by his/her expertise.

In the United Kingdom, nurses, through the advent of the Primary Care Trusts, are managing the whole primary care service and are employing doctors, social workers and others to provide comprehensive care to individuals and families. Nurses in Iceland[®] are undertaking the direct access Nurse Practitioner role and nurses in Sweden It is a rare moment when there is a coming together of ideas and beliefs, as has happened with nursing and Government policy over recent years. Nursing's credo is founded upon being patient centred and upon social justice. Essential to these ideas are equality of access, compassion and humanism, and the promotion of patient autonomy. Putting the person back into patient care has been at the heart of nursing innovation over the last 20 years. And now so much of nursing's agenda – of what we think is important in the way care is delivered – suddenly resonates with the present Government's modernisation programme.

Opportunities for nurses

The opportunities opening up for nursing and nurses are huge. The power base within the heath service is beginning to shift. This is especially apparent with innovations such as the nurse-led telephone triage service in England known as NHS Direct. This is nursing at its creative best with nurses being free right from the start to develop a brand new service, unrestricted by the structures and structures of the past. The service not only enables nurses to become the new gatekeepers of the NHS. It is also pioneering a model of healthcare that is driven by what people want and how people live their lives today.

Further opportunities include:

- Nurses taking up posts in the planning and commissioning of healthcare.
- The introduction of consultant nurses.
- Investment in nursing leadership.
- The development of new and comprehensive intermediate care services.
- The creation of the 'modern matron' where senior clinical nurses are given more responsibility and authority to

organise and develop the environment of care.

 A focus on patient centred measures of quality.

All of these things recognise the enormous potential of nurs61 TD 00a66 Tw (potentiasoa66 Tw w a n t a n d

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"Community Chief Nurses are unique to Swedish healthcare." ments between the municipalities and county councils are therefore needed to ensure that the elderly in these settings receive proper medical care. A survey has shown that collaboration works best where there are written agreements regarding the contributions from the physicians. In the same survey, directed towards the Community Chief Nurses, 70 per cent of them replied that such agreements exist but that there is still room for improvement.¹

2. that decisions to delegate responsibility for care activities are compatible with patient safety.

Follow-up:

A survey directed at the country's approximately 384 Community Chief Nurses (86 per cent response) showed that 72 per cent consider that the delegation of nursing assignments functioned well or very well, while 22 per cent consider that it functions less well or badly. When this is the case, this depends primarily on the fact that the assignments are delegated to too many individuals or that there are too few nurses in the enterprise.²

3. that a report is made to the board in charge of medical services if a patient, in conjunction with care and treatment, is affected by, or exposed to the risk of being affected by serious injury or disease - Lex Maria.*

Follow-up:

In the years following implementation of the Care of the Elderly Reform, municipal healthcare noted a considerable increase in the number of Lex Maria complaints. The complaints primarily concerned mistakes or faults related to pharmaceutical treatment, surgical or pharmaceutical measures, and nursing issues. The greatest number of complaints was noted in 1994 – after this the numbers have diminished in the municipalities. The reduction here consists mainly of a reduction in the number of pharmaceutical incidents. This reduction has progressed over several years and cannot be regarded as random, but almost certainly corresponds to the introduction of safer procedures in dealing with pharmaceuticals in assisted living environments.³ Other explanations may also be found, for example that, at the outset, the Community Chief Nurses reported incidents unnecessarily. Awareness of what is and what is not to be reported to the National Board of Health and Welfare** has improved.

Another statute requires the Community Chief Nurse to be responsible for the following:

1. that patients receive safe and appropriate care and treatment of good quality within the field of responsibility of the municipality.

Follow-up:

In the 1999 survey, 37 per cent of the Community Chief Nurses replied that it is possible always to guarantee safe and appropriate care and treatment. Fifty-two per cent state that they can only sometimes do this and only two percent consider that they can seldom do this. If there is a problem with guaranteeing safety, this is primarily due to inadequate resources and collaboration with other levels of care.²

2. that patient records are kept in accordance with the Patient Records Act.

Follow-up:

The patients in the municipalities are frequently in need of both health and social care. In Sweden this means that different occupational groups work according to different statutes implying that differing preconditions apply for the care. This also applies to the documentation. As far as the patient is concerned it is of little interest that this is the case. Regardless of the rules, one has the right to receive safe and appropriate care and treatment. A large part of the work of Community Chief Nurses has been to provide the requisite safe documentation. A survey from 1997 shows that 84 per cent of the Community Chief Nurses questioned work with quality related to documentation.⁴

The same statute also states that *patients* shall receive the care and treatment prescribed by a physician and that there shall be appropriate, properly functioning procedures for handling pharmaceuticals.

Follow-up:

As seen earlier, various surveys indicate that there are shortcomings with regard to physician participation and pharmaceutical handling in the municipalities, but that the

^{*} Lex Maria – the regulations are to be found in the Health and Medical Services Act (Professional Activity) (1998:531) on occupational activities in the field of healthcare, and in directions and general recommendations in this field issued by The National Board of Health and Welfare (SoSFS 1996:23). A report is to be filed if a patient undergoing healthcare suffers or encounters the risk of suffering serious injury or illness. A great number of complaints regarding a certain activity need not indicate that the activity is extremely bad, but rather that the care provider has a properly functioning quality system capable of tracking and noting faults and deviations.

^{**} The National Board of Health and Welfare is the governmental authority responsible for health and medical care issues, and serves as the expert body on these issues for the Swedish Government

Community Chief Nurses are working to bridge this with the aid of agreements and guidelines, etc.^{1,2,3}

Discussion

It can be established that the municipalities, during the 1990s, have been given several new roles and a particular responsibility in the issue of healthcare and nursing. Community Chief Nurses have had considerable importance for the safe and successful implementation of the changes.

However, with the detailed regulation of the function that only exists in municipal healthcare, Community Chief Nurses are unique to Swedish healthcare. They have a comprehensive responsibility while at the same time it is not a question of an executive function in its traditional meaning. A primary responsibility for the individual patient is not included in the function. On the other hand, they are liable to intervene in individual cases if this is needed to provide safe and appropriate care. The responsibility may be designated as supervisory and when carrying out the statutory assignments, the Community Chief Nurses are neither subordinated to the head of the enterprise, nor any other in the municipality.

The status in the organisation of the Community Chief Nurses varies considerably, which means that they still play many different roles. Twelve per cent of

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NICE SUMMIT

The European Council convened an Intergovernmental Conference (IGC), held in Nice 7-11 December, to address issues left open in the Treaty of Amsterdam that need to be settled before the enlargement of the EU.

Five main themes were on the agenda; the size and composition of the EU, the weighting of votes in the Council, the possible extension of qualified majority voting in the Council and other amendments regarding the European institutions and pending enlargement. Some issues remain unsettled, including for example the size of the Commission following enlargement.

The Nice Council led to some positive developments in the area of social affairs. Article 137 of the Treaty drawn up at Nice, for example, gives the EC greater competence to complement and support actions to fight social exclusion and to modernise social protection systems. This does not, however, entail the harmonisation of laws and regulations between Member States, as the EC must respect Member States' rights to define the fundamental principles of their systems. The Social Policy Agenda (which was accepted during the Social Affairs Council on 28 November 2000) was also formally adopted during the summit.

The Nice Treaty and the Presidential Conclusions of the Summit are available on the Council website: http://ue.eu.int/en/summ/htm

European Commission and World Health Organisation to intensify their cooperation

On 14 December 2000 Dr. Gro Harlem Brundtland, Director-General of the World Health Organisation (WHO) and Health and Consumer Protection Commissioner David Byrne signed an agreement to strengthen and intensify cooperation in the field of health between their two institutions. According to Dr. Brundtland, "Whist the nature, means and procedures (of the two institutions) are different ... Member States of the European Communities and those of the WHO have repeatedly stressed the need for cooperation that will help reduce unnecessary duplication in the effort to reach common objec-

Swedish Council Presidency

On 1 January 2001 Sweden for the first time assumed the Presidency of the EU Council of Ministers, a position it will hold until 30 June 2001. The Swedish Government's initiatives will focus on three principal areas – the 'three Es' of Enlargement, Employment and Environment. The Swedish Presidency also intends to strengthen the Union's profile in public health issues. A document outlining the programme states that Sweden tives." The WHO and the EU have been working together since 1982, which has produced positive results in areas such as health research, development and humanitarian aid, environment, chemical products and food safety, surveillance of communicable diseases and health monitoring. The Agreement reflects a major political commitment to intensify this cooperation.

The letters exchanged between the WHO and the Commission concerning the consolidation and intensification of cooperation can be viewed on website: http://europa.eu.int/comm/ health/ph/key_doc/who_letters_de. html

will aim to ensure that the new public health framework programme is adopted and that efforts to ensure a high standard of health protection are intensified. The Government's public health initiatives will focus on alcoholism, drug abuse amongst young people, tobacco and blood safety.

Sweden's programme is available on the Swedish Presidency website: www.eu2001.se

French Presidency Health Conference

The French Presidency and the European Public Health Association (EUPHA) organised a Conference in Paris on 14-16 December 2000 on Access to Health Care for the most Underprivileged and on Nutrition and Health in Europe. Amongst the aims of the Meeting were to collate Europe wide experience on access to healthcare for the most disadvantaged sections of society and to initiate a European network on access for all. During the Meeting, EUPHA put forward proposals to develop a European policy to reduce inequalities in morbidity and mortality rates.

A detailed account of the meeting, speeches given and the topics covered is available on website: www.sfsp-publichealth.org/pagecongres.htm

World AIDS day: Commission pledges action

While attending World Aids Day on 1 December 2000, European Commissioners Poul Nielson , Pascal Lamy, Philippe Busquin and David Byrne confirmed their commitment to combat the disease by all means at their disposal. Trade Commissioner Lamy pledged that the Commission would pursue its campaign to make safe, affordable medication available. Research Commissioner Busquin stated that the European Science community and vaccine industry are working together to develop vaccines.

Information:

DG Development's policy on Health, AIDS and Population programme at http://europa.eu.int/ comm/development/sector/social/health_en.htm

DG Trade Action for Access to Medicines at http://europa.eu.int/ comm/trade/ csc/med.htm

DG Research's vaccine and drug research, contact Stephane Hogan (+32 2 299 1860) or Michel Claessens (+32 2 295 8220)

DG Health and Consumer Protection "Europe against Aids" programme at www.europa.eu.int/ comm/health/index_en.htm

Europe funds a scientific world first: breakthrough in sequencing the plant genome

The first full sequencing of a plant genome has been completed with the help of a EUR 26m European research grant. This scientific breakthrough is the longest and most complete sequencing of a genome yet achieved. Fifteen laboratories from the European Union, the United States and Japan sequenced 115 'base pairs', encoding nearly 26,000 genes – more than any other genome to be completely sequenced so far. This represents a major breakthrough in the scientific understanding of plants, including how they cope with pests and diseases and how they interact with their environment. The sequence was made available to the international scientific community through publication in the Scientific Journal *Nature*

Conference on genetics and the future of Europe

As part of the Commission's initiative to stimulate scientists to communicate with society (politicians, industry and social leaders), a Conference on Genetics and the Future of Europe was held on 6–7 November 2000. The aim of the Conference was to generate debate on the responsible use and exploitation of genome information in health, food, environment and society. It was the first event arranged by the Life Sciences High Level Group that was assigned by European Research Commissioner Philippe Busquin to advise him on any likely developments of life sciences and technologies.

More information about the Conference and its outcomes is available on website: http://europa.eu.int/ comm/research/quality-oflife/genetics.html

NEWS IN BRIEF

Report of the EU-US Biotechnology Consultative Forum Available The EU-US Biotechnology Consultative Forum presented its