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Contents

Screening for disease – considerations for policy

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It is a very attractive proposition to be able to identify characteristics in an individual that suggest the presence of a condition (that may lead to the later development of disease) at a time that the condition is reversible and amenable to treatment.

The practice of screening in health care – that is, actively seeking to identify a disease or pre-disease condition in people who are presumed and presume themselves to be healthy – is one that has grown rapidly in recent years and now has wide acceptance in our societies.

Originally, screening was introduced as a public health measure to detect conditions such as tuberculosis which might be a health hazard to the community. Since then demand for screening has greatly increased. It is now considered applicable to the prevention of disease and is considered to be a logical extension of medical practice. However, it has become apparent that there are also disadvantages, and as with all medical procedures, certain principles have to be satisfied before screening programmes are started.

This article is based on previously published research by the author: Walter W Holland and Susie Stewart, *Screening in Disease Prevention. What Works?* Oxford, Radcliffe Publishing, 2005 and Walter W Holland, Susie Stewart and Cristina Masseria, *Policy Brief: Screening in Europe*, European Observatory on Health Systems and Policies, Brussels, 2006.

Definition

It is important to distinguish between population screening, where people thought to be at risk are invited for screening, as in the national programmes for cancer of the breast and cervix, and opportunistic screening, for prevention or case-finding where individuals have sought medical advice for a specific symptom or complaint and opportunity is taken to suggest various other tests, such as the measurement of blood pressure or cholesterol.

Criteria

There is an *ethical difference* between everyday medical practice and screening. If an individual asks a medical practitioner for help, the doctor does the best he or she can. However, doctors are not responsible for defects in medical knowledge. If, however, the practitioners initiate a screening procedure they are in a very different situation; they should have evidence that screening can alter the natural history of disease in a significant proportion of those screened. These criteria include:

1. It has been accepted that the conditions sought should be an important health problem whose *natural history*, including development from latent to declared disease, is adequately understood. The conditions should have a recognizable latent or early symptomatic stage.

2. A safe, acceptable suitable *diagnostic* test should be available. This should be based on

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agreed standards as to whom to regard as patients.

3. There should be an accepted effective *treatment* or *intervention* for individuals identified as having the disease or pre-disease condition and facilities for treatment should be available.

4. The cost of case-finding should be economically balanced in relation to medical care as a whole.

5. Evaluation must also be an integral part of any screening procedure. This includes:

Simplicity in test performance and interpretation.

Acceptability to those undergoing it.

Accuracy i.e. a true measurement of the condition or symptom.

Cost in relation to the benefits of early detection.

Repeatability i.e. consistent results in repeated trials.

Sensitivity – the test should be capable of giving a positive finding when the individual screened has the condition being sought.

Specificity – the test should be capable of giving a negative finding when the individual being screened does not have the condition being sought.

Benefits and disadvantages

The benefits of screening are straightforward. Early and accurate diagnosis and interventions will lead to an improved prognosis in some patients. At an early stage, any treatment required may be less radical. Scarce health resources will be saved by treating diseases before they progress and those with a true negative test can be reassured.

It is important to understand that there are also disadvantages. There will be longer periods of morbidity for patients whose prognosis is unchanged and there may be over treatment of non-serious conditions or abnormalities identified. There are also resource costs in finding more illness and the subsequent management of whatever is found. It is necessary to be clear that some individuals with false negative results will be reassured, even though they may have the condition sought and others may be identified with false positive results necessitating, at a minimum, unnecessary anxiety, and at the worst, inappropriate treatment. There is also, however remote, the possibility of hazard from the screening test itself. Furthermore, all individuals tested are likely to be anxious in the interval between undergoing the screening test and the final diagnosis.

The introduction of screening is often demanded by the public – and promoted by vested interests, political and commercial. It is crucial that before any screening test is introduced the essential criteria and prerequisites are met. An example of this is in screening for cancer of the prostate, where the current screening test, prostate specific antigen (PSA), does not meet acceptable criteria of specificity or accuracy. The rhetoric of screening also often does not meet the practical implementation problems, for example, diabetic retinopathy screening. It is crucial to accept that screening is not a panacea, has disadvantages, problems in implementation and important resource consequences.

Key issues

Genetics

Genetic screening is an area that has developed very rapidly in recent years with the mapping of the human genome. Many see it as the hope of the future of disease prevention. But caution is essential. The two most frequently cited objectives of screening for a recessive carrier state, for example, are to reduce the prevalence of the disorder and to inform the reproductive choices of individuals and couples at risk. Information is regarded as worthwhile in itself. While this type of screening can certainly help to evaluate risk and may be appropriate in certain high-risk groups if nothing can be done to alter the finding, the need for, and use of, such information must be very carefully considered. Is it useful to diagnose without being able to treat?

The main purpose of genetic screening at present is to prevent rather than to treat disease. But it must not be allowed to neglect the basic principles and criteria of screening. Information cannot be regarded as worthwhile, regardless of the outcome.

Genetic screening can be used for diagnostic testing to confirm or exclude a suspected genetic disorder in an asymptomatic individual. Predictive testing is used in individuals who are asymptomatic but have a family history of a genetic disorder (for example, Huntington's disease) or when eventual development of symptoms is possible, but not certain, because of predisposition (for example, breast cancer). Predictive testing is indicated if early diagnosis will allow an intervention that reduces morbidity or mortality and can influence life-planning decisions. But because it is so problematic, particularly in the absence of effective interventions, even if it enhances the ability of individuals to make informed decisions, it is essential that key prerequisites are met. These issues are fully discussed in Holland and Stewart, 2005.[1]

Information

Clear information about the benefits and harms of any screening procedures should be available to all individuals invited to participate in any programme. This must be more than the provision of a simple leaflet or a discussion aimed at maximising a positive response.

Information must be provided based on the results of respectable scientific trials, in a form that is acceptable and understandable to those receiving it. This must include all parts of the screening procedure including a comprehensive description of the follow-up tests (which may be invasive and unpleasant) and to give a balanced and understandable picture of the options and of the possible outcomes, with the endpoint of truly informed consent (or refusal) to participate.

Economics

As economic knowledge has expanded its methods have also been applied in screening. This has highlighted that screening is not a universal panacea. All screening procedures require the testing

of large numbers of individuals to find a few with an abnormality. Those who undergo screening are understandably anxious while waiting for the result and become even more anxious if they have to undergo a further test. These people may or may not be pain and/ or risk free, and those that are found to be normal may still have residual anxiety that something may be wrong.

Moreover, although screening procedures are usually cheap because they involve large numbers of people the actual costs are not trivial. Further investigations of those found to be positive may be expensive. Thus, screening services will consume resources not available for use elsewhere. Economic analysis may also show conflicting aspects of policy – increasing efficiency may reduce equity. Thus, expert economic analysis and advice must be an integral part of a screening system.

Ethics

Ethical consideration must be a crucial component in the consideration of any screening programme. There will always be advantages and disadvantages to both the individuals screened and the population from which they come. No screening test can be foolproof; there will always be human and technical error and variability. These must be properly explained, as well as the procedure itself and what follows for those invited to be screened. Obviously the ability to treat those found to be positive on screening must be a prerequisite. It is vital that the basic principles on which screening should be based remain in sharp focus. Ethical considerations are becoming of greater importance in view of the commercial and political pressures to introduce screening programmes as they are often considered to be a simple solution.

Audit, evaluation and quality control

As with any service programmes, adequate steps must be taken to ensure that the original objectives are being met and that the methodology meets appropriate standards. In the United Kingdom there is a National Screening Committee responsible for the assessment of all proposed screening programmes before they are introduced into practice. It is responsible for advising the National Health Service in the four constituent countries on what programmes should be introduced and ensuring that such screening programmes continue to be performed in the way intended to be effective. This model has been shown to be useful in ensuring that only proven programmes are introduced and that appropriate standards are maintained. The importance of maintaining and checking on the quality of screening programmes should not be underestimated.

Current Screening Programmes

It is easiest to consider screening programmes at each stage of the life cycle.

Antenatal and neonatal screening

Care must be taken not to medicalize this normal stage of the life cycle, which usually has a successful outcome. There must be full, balanced and understandable information available for pregnant women and properly trained heath professionals with time to provide and explain it.

In early pregnancy blood should be taken to test for anaemia, blood group and RhD status, hepatitis B, HIV, risk factors for pre- eclampsia, rubella immunity, and syphilis. Urine should be tested for bacteriuria. Ultrasound and blood tests are indicated between 18 and 20 weeks for foetal anomalies such as anencephaly, spinal bifida and Down's syndrome. In high risk cases blood tests should be done for Thalassaemia, Sickle cell disease and Tay-Sachs disease. In all cases it is crucial that adequate arrangements are available to follow-up and treat any possible abnormalities.

Testing for such conditions as Duchenne Muscular Dystrophy, Chlamydia infection, Gestational diabetes, fragile X Syndrome, hepatitis C, genital herpes, HTLV1 and streptococcus B, although advocated by some, still requires much more research before it is universally adopted.

In the neonatal period it is worth testing for Phenylketonuria, congenital hypothyriodism, cystic fibrosis and sickle cell disease by bloodspot examinations. Physical examination by adequately trained individuals should be done for hearing impairment, congenital heart disease, congenital cataract, cryptorchism and congenital dislocation of the hip (with ultrasound) and other congenital malformations.

There is insufficient research evidence, at this time, for the use of tests for biotinidase deficiency, congenital adrenal hyperplasia and Duchenne Muscular Dystrophy.

Childhood and adolescence

Screening and surveillance in childhood are important in following up difficulties identified earlier and ensuring that adequate treatment has been given for those identified. The most important conditions to consider are hearing impairment by follow-up of neonatal findings, case-finding to identify late onset or progressive hearing impairment, and the investigation of any children with educational or behaviour problems. For Amblyopia and impaired vision there should be screening of 4–5 year olds by an orthoptist. Dental disease screening should be encouraged. Children identified earlier with congenital dislocation of the hip should be reviewed. Deprived, disadvantaged or socially isolated children need to be identified by suitable screening or case-finding.

The more deprived and disadvantaged children, particularly refugees or asylum seekers, may have missed out on earlier medical and dental checks and strenuous efforts should be made to identify them and make sure any omissions are remedied.

Screening in adolescents and young adults is a crucial area that needs to be handled with great sensitivity in view of the emotional needs of this group of the population. The only screening programme shown to be effective is opportunistic screening for Chlamydia in those aged less than 25 years.

In children and adolescents education

about healthy living, for example, diet, smoking, exercise and sexual health is far more important than screening tests, to enable them to bridge the difficult gap between childhood and maturity.

Adults

Screening in adults is potentially big business. Media interest is insatiable and stokes the desire of people to have health problems identified early and treated. But the often quoted simile of an 'adult MOT' is fallacious. The programmes which meet the necessary criteria can be summarized as follows.

1. National programme of screening for breast cancer by mammography for women aged 50–70; there is pressure to lower the recommended age to 40, but this lowers both sensitivity and specificity.
2. National programme of screening for cancer of the cervix for women aged 25–64 years using cervical smears. This may justify change to liquid based cytology.
3. National programme of screening for colorectal cancer by faecal occult blood tests for adults aged 50–74 years.
4. National programme for screening for abdominal aortic aneurysm of men aged 65 or over by ultra-sound screening.
5. National programme of screening for sight-threatening diabetic retinopathy in all diabetics aged over 12 years.
6. Surveillance/case-finding approach in primary care for the risk factors of coronary heart disease/stroke – blood pressure, cholesterol, smoking cessation and weight.

In all these programmes it is essential that they are subject to continuous review and audit to ensure that appropriate quality criteria are met. In all instances the importance of providing participants with easily understandable, balanced information is essential. There must also be assurance of the availability of adequate diagnostic, treatment and follow-up facilities.

The elderly

A system of regular surveillance and case finding in primary care is probably the most effective form of screening. Simple tests identifying difficulties with sight, or hearing, and problems with feet can make a huge difference to quality of life. Depression and social isolation are two other problems to look out for. Physical assessment for hypertension, early heart failure, hearing loss, vision loss, incontinence, lack of physical ability, foot problems, as well as a regular review of medication are recommended. Mental assessment for depression and alcohol use and social assessment for falls, undernutrition and isolation are also important.

Conclusion

Screening is big business. There is pressure from politicians, the media and the public, as well as business interests, to introduce screening programmes in the hope that it will lead to lowering the burden of illness and improve health. It is now recognized that screening for certain conditions is worthwhile and can improve health. But the number of instances where this is the case is limited. As I have attempted to describe, certain basic principles and criteria need to be met if such services are to do more good than harm.

Countries need to develop a clear policy on screening that heeds the crucial criteria and principles on what should be done. For screening to be effective accurate population registers are essential to facilitate adequate call/recall systems. Screening must be adapted to the particular needs of differing local populations – one size does not fit all – and there must be rigorous, continuous checking of the quality of screening services and their evaluation, including medical audit.

There is a continuing need for good research on screening. The development of new and appropriate tests is crucial. But research needs to take into account the possible hazards, disbenefits and problems rather than only concentrating on possible benefits.

Screening for prostate cancer is an obvious example of a gap – there is no test, at the moment, which meets the essential criteria, but there is tremendous public pressure, stimulated by commercial interests, to introduce a suitable programme. Another gap is the development of information for those participating in screening programmes which provide easily understood advice to participants. This gap has been highlighted, particularly, in breast cancer screening. The development of better screening tests for continuing current practice in some areas is also necessary, for example, in testing for cervical cancer by cytology or other techniques. Some screening methodologies, using current knowledge, are unpleasant, for example, cancer of the colon screening and better methods need to be developed.

Finally, there is a major task to educate and inform the media and public as to what screening can and cannot do . It is a powerful tool – if properly evaluated and used – but too often pressure to use unproven, dangerous techniques are advocated.

The case studies in this issue demonstrate that there are wide variations in screening policies between different countries. It may thus be seen that policies for effective screening procedures vary in Europe. Although a country may have a national policy it may not be utilized appropriately or adequately by the total population eligible to undergo testing. Unfortunately, data on variability of uptake, acceptability or effectiveness in individual countries with widely varying cultures, environmental conditions or genetic make-up are not available.

REFERENCE

1. Walter W Holland and Susie Stewart, *Screening in Disease Prevention. What Works?* Oxford, Radcliffe Publishing, 2005, pp. 17–32.

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Screening for Tuberculosis

Screening for tuberculosis (TB) is not at the moment recommended as a national programme in the United Kingdom although it was originally the earliest screening programme introduced with successful results.

Screening for TB is performed in several European countries and particularly in the new member states and candidate countries. In Hungary, for example, TB screening is based on a defined population register with a system for targeting and recalling individuals (aged 18 years and over), on an annual basis. In 2003, 134 fixed and 48 mobile pulmonary screening stations were operating, and over 3.7 million screening examinations were carried out (43% of the adult population was screened).

A massive TB screening programme is also in place in Romania. Thousands of people are screened by X-ray examination: soldiers, recruits, teachers in schools (every year), children entering kindergarten and their parents, couples before marriage and prisoners. All individuals who work in the food industry or those who handle food also require an annual X-ray examination.

In Turkey, there is a national policy for screening, monitoring and treating TB. This is based on a defined population, which includes primary school children (between 7 and 11 years of age), registered sex workers (once a year), and men conducting their compulsory military service (20–41 years). TB screening is also a procedural requirement for all job applications associated with joining any of the existing insurance schemes.

In Bulgaria, given the increasing prevalence of cases of TB in the last 10–15 years, the Ministry of Health first developed a national prevention programme in 2000 and the current National Tuberculosis Control Programme covers the period 2004–2006. Under this programme, there are fluorgraphic check-ups of populations at risk, for example, people living in regions with TB morbidity rates higher than the country average; prisoners; and people living in psychiatric and community establishments. The programme is also considering the development of a common computerized system for registering all new TB cases and the results of their treatment.

While most countries in the central and eastern European region saw a rise in TB infections in the early 1990s, in 2004 Poland still had a TB infection rate that was twice as high as the (then) EU-15. The World Health Organization DOTS strategy for treating TB is used in Poland. A central Institute for Tuberculosis and Lung Diseases in Warsaw (and several of its regional branches) organizes and monitors TB treatment, and the central register of people with tuberculosis also monitors the treatment of patients.

Screening for Chlamydia

Chlamydia trachomatis is a common curable sexually transmitted bacterial infection. It is often asymptomatic or produces only mild, non-specific signs in both men and women. In women, the infection can lead to life threatening ectopic pregnancies, pelvic inflammatory diseases and infertility.

Testing by urine sample is acceptable to young women. The difficulty is how to persuade young adults to be screened. It is therefore recommended that opportunistic testing of those aged 25 years or less, who access sexual health services, be used.

Policy for screening for this infection is not common in Europe at this time. The United Kingdom is beginning a programme of opportunistic screening in sexual health clinics. In Denmark testing is offered in every GP surgery and larger hospitals for 16–25 year olds. A yearly home test is being considered. In Finland the policy is opportunistic, except for first-year university students. France is undertaking pilot studies of how best to introduce a system. Portugal, Spain and Italy encourage opportunistic screening in youngsters. Other countries do not seem to have a policy.

Screening for Prostate cancer

Screening for prostate cancer is the subject of continuing controversy. The incidence of the disease is rising worldwide because of the growth of the elderly population and because more cases are being diagnosed.

The main diagnostic test is prostate-specific antigen (PSA), while digital rectal examination and transrectal ultrasound can also be used, with confirmation by biopsy. There is enormous pressure to introduce population-based screening from a variety of pressure groups.

However, these is no evidence available at this time that screening will identify those in need of treatment or that it will reduce mortality. This is because of lack of knowledge of the natural history of the disease, poor accuracy of the screening tests and a lack of evidence of the effectiveness and cost-effectiveness of treating localized prostate cancer.

In the United Kingdom population screening is not recommended, but men may seek to have a PSA test done. At this time, in Europe, only Spain is considering a screening programme on 50–69 year old men.

Based on Walter W Holland, Susie Stewart and Cristina Masseria, Policy Brief: Screening in Europe, European Observatory on Health Systems and Policies, Brussels, 2006.

Cervical cancer screening

Although the mortality from cervical cancer has fallen in most countries in recent years there is good evidence that screening for the condition is still necessary. To be effective a planned programme is necessary.

There are problems with cervical cancer screening. For example, there is a problem of over-detection and thus an imperative to avoid needless anxiety about border-line changes; abnormalities that will not progresses to invasive cancer should be identified in order to avoid unnecessary removal of organs; and the suggestion of potentially harmful chemotherapy or radiation treatment of women who do not need them needs to be avoided. Probably, liquid-based cytology is the best method and there is some evidence that testing for human papilloma virus (PHV) increases sensitivity.

In the United Kingdom women are first invited to be screened at age 25. They then receive an invitation at three-yearly intervals until age of 49. Between 50–64 years there is a five-yearly interval. After 65 years only those women not screened since age 50 are invited or those with abnormal results.

Almost all European countries have a policy on screening for cervical cancer (see Table 1). The major variations are in the age-range included, the method of testing, and whether a planned register-based call-recall system is used or only an opportunistic use of contact with gynaecological services. The Czech Republic, Germany, Greece and Malta have an opportunistic system without a call-recall mechanism to approach and monitor women at risk. In all the countries that have a population based call-recall system women aged 23 -69 years are included (in some the upper age is somewhat less). All countries in this group have a minimum of five year interval, some three years. In many of the European Union member and candidate countries the screening programme is in the process of evolution and is limited, at first, to prescribed areas.

Based on Walter W Holland, Susie Stewart and Cristina Masseria, Policy Brief: Screening in Europe, European Observatory on Health Systems and Policies, Brussels, 2006.

Table 1. Cervical cancer screening in selected European countries

Country	Target Group
Austria	Women aged 19 and over
Belgium	Women aged between 25–64 for both communities
Czech Republic	Not specified
Denmark	Women aged 23–59 (aged 25–45 in Copenhagen county councils); those aged 60–74 are also invited by some councils
Finland	Women aged 30–60; 25–65 in some areas
France	Women aged 25–69
Germany	Defined by different Statutory Health Insurance joint committees; generally women 20 years and over
Greece	Women aged 20–65
Hungary	Women aged 25–65
Ireland	For national pilot programme, women aged 25–60
Italy	Women aged 25–64
Latvia	Women aged 20–70
Malta	Not specified
Netherlands	Women aged 30–60
Poland	Women aged 30–59
Portugal	Women aged 20–64 years
Romania	Women aged 25–65
Slovakia	Women aged 25–64
Slovenia	Women aged 20–64
Spain	Women aged 25–65 in most regions; 35–64 in some regions
Sweden	Women aged 23–60
United Kingdom	Women aged 25–64

Sources: WW Holland, S Stewart and C Masseria, *Policy Brief – Screening in Europe*.

Type of Programme	Frequency
Opportunistic with some organized programmes. Part of general voluntary precaution check up, which includes a gynaecological routine-control checkup.	Yearly
Mainly opportunistic with movement to more organized programme in Flemish areas.	Every 3 years
Opportunistic. Part of preventive gynaecological examination extended to adult women.	Yearly
Organized. Invitations to target groups for pap smears in all 14 county councils, with nationwide coverage since 1996. Call and recall system in place.	Every 3 years
Organized screening programme in place since 1963.	Every 5 years
Opportunistic with some organized programmes (in 4 *departements*). Cancer screening strategies are part of the National Cancer Plan for 2002–2006.	Every 3 years (after 2 normal smears 1 year apart)
Opportunistic. National programme for cervical cancer for individuals covered by Statutory Health Insurance	Defined by SHI joint committees. Generally yearly.
Opportunistic only.	Yearly
Organized screening programme in place since 2003.	Every 3 years
Opportunistic. Phase 1 of a National Cervical Screening Programme offers free pap smear to target group in the Mid-Western Health Board (MWHB) area.	Every 5 years
Organized programmes cover approximately 55% of target population specified by National Health plans. Implementation is through regional health authorities and regional health plans.	Every 3 years.
Organized. Cancer screening part of prophylactic programme for adults with oncological test administered.	Every 3 years for 20–35 year olds and annually for 36–70 year olds.
Opportunistic. Women may request a smear test from a gynaecology clinic in the area health centre or through private clinics.	N/A
Organized. Programmes are regional but with nationwide coverage.	Every 5 years.
Opportunistic with some limited organized screening.	Every 3 years (after 2 normal smears 1 year apart)
Opportunistic, with some organized regional programmes in central Portugal.	Every 3 years (after 2 normal smears 1 year apart)
Opportunistic, with an organized regional programme in Cluji	Every 3 years
Opportunistic.	Every 3 years
Organized national programme, with call and recall system.	Every 3 years (after 2 normal smears 6 months apart)
Opportunistic, with some organized regional programmes.	Every 3–5 years (after 2 normal smears 1 year apart) depending on the region.
Organized regional programmes with national coverage since 1973.	Every 3 years for 23–50 year olds and every 5 years for 51–60 year olds.
Organized national programme with computerised call-recall system in place since 1960s.	Every 3 years for 25–49 year olds and every 5 years for 50–64 year olds.

European Observatory on Health Systems and Policies, Brussels, 2006 and European Cervical Cancer Association, www.ecca.fr

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Antenatal and neonatal screening

Every newborn child should be both wanted and able to enjoy a full life. Examination and testing of mothers and newborns has become an expected procedure in most European countries. The three conditions which are indicative of practice and for which accepted, accurate tests are acknowledged as available are for Phenylketonuria (PKU), Downs' syndrome and spina bifida.

Phenylketonuria screening is done by testing a bloodspot obtained from the newborn baby within one week of birth. If positive the baby is put on an appropriate diet. The primary objective of antenatal screening for Down's syndrome and spina bifida is to allow parents the choice of whether to continue with an affected pregnancy or have it terminated. Some screening, by at least a double-test but better by triple or quadruple tests, is done during the second trimester of pregnancy. It may be accompanied by ultra-sound screening, amniocentiesis or chronic villus sampling may be undertaken in cases of a suspicious serum test. Spina bifida screening is done by serum screening and ultrasound in the second trimester of pregnancy.

In European countries PKU screening is done almost universally. It is not considered necessary for native Finns but is applied to migrants from other countries living in Finland. Malta and Turkey have no national policy for PKU screening and in Italy policy varies in different regions.

Policy for Down's syndrome and spina bifida is much more variable. Although the tests, including ultrasound, are available to pregnant mothers in all countries, national polices for screening only exist in the United Kingdom, Denmark, France, Netherlands, (for over 35 year olds), Bulgaria, Czech Republic, Estonia, Hungary, Latvia and Slovakia. Greece (for over 35 year olds), Portugal, and Sweden have policies for Down's syndrome.

Forthcoming Observatory Study

Mental Health Policy and Practice Across Europe

Edited by Martin Knapp, David McDaid, Elias Mossialos and Graham Thornicroft

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This book maps the current state of service provision and funding for mental health across Europe, taking account of the differing historical contexts influencing the development of services and the ways in which they are delivered. A holistic approach is adopted, looking not only at mental health care services, but also at the influence of environmental factors such as housing, poverty, employment, social justice, and displacement on mental health.

The legal rights of people with mental health problems take on special significance; the right to liberty of individuals must be balanced against the need to protect individuals from self-harm. Stigma, social exclusion and discrimination need to be addressed.

The role of service users and families in the development of mental health services and policy are also considered. Policy and economic analysis, reflections on approaches to reform, and the future development of services for the promotion of good mental well-being and treatment/rehabilitation of people with mental health problems are also provided.

This comprehensive collection will be of interest to policy-makers, academics and those working in the field of mental health services.

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