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Economics of schizophrenia

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The value of public and private investment in clinical health services and economic research, which aims to reduce the burden of illnesses on patients, their families and society as a whole, is an issue that is currently being debated at national and international levels.

Any public or private investment in research and development (R&D) requires information on the most effective way of allocating resources according to its aims. Government institutions, researchers, advocacy groups, providers of health services and health technologies, are beginning to explore the role of research, its financing, its possible biases and the utility of feedback systems for evaluating the returns at specific time points within public or private research financing strategies.

Rupp *et al* in this supplement address the policy decisions concerning the allocation of public research funds across various illnesses in order to reduce their burden. The importance of cost-of-illness studies, performed according to a societal perspective, and their utilisation in health policy formulation is emphasised by the authors. Strategies for financing research should take into account the current availability of effective interventions for different illnesses. When the illness is not treatable by current medical techniques, investment in further biomedical and clinical research is necessary. When the illness is treatable, research should be aimed at identifying the barriers to service accessibility and at evaluating the financial and health policy interventions for improving access of the population to cost-effective health services.

Although, at present, there is no knowledge about the differences in return on investments in research among various illnesses, Rupp *et al* note that while 10.4% is spent on mental health out of the US total health care expenditure, only 7.2% of the life sciences research budget is spent on research on mental illness. In particular, research on schizophrenia represents 2.5% of total US health care expenditure and only 0.5% of the federal life sciences budget is allocated to research on schizophrenia. In other sectors of society, such as industrial or corporate R&D, funds averaged about 3.1% of net sales in 1989, while 1.3% of health expenditure was spent on research by the US Federal Government.

Murray *et al* (1994) estimates the world global investment in health R&D is about US$55.8 billion, or about 3.4% of health expenditure worldwide. Funds for R&D mainly came from two sources: governments (US$28.1 billion, 50.4%) and the pharmaceutical industry (US$24.7 billion, or 44.3%). The balance (US$3 billion, 5.4%) came from the private non-profit-making sector.

The share of gross domestic product invested in publicly financed health R&D in 1992 ranged from 0.23% in the USA to 0.02% in Spain (Germany, 0.16%; Italy, 0.12%; France, 0.11%; Japan, 0.10%; UK, 0.06%; *Ad Hoc* Committee on Research Related to Future Interventions Options, 1996). Researchers, clinicians, government officials, advocacy groups and taxpayers in general might be interested in the national and international impact of the public funds allocated for health R&D in their own country on the advancement of science, improving the health of the population and on economic return.

If R&D in pharmaceuticals is considered, some different aspects and perspectives of decision-making should be taken into account, including the following: (a) the decision-making of purchasers (public or private) for allocating a share of their health services budget to pharmaceuticals for mental disorders; (b) the decision-making of drug companies allocating investment in R&D for the mental health sector; (c) the decision-making of government institutions aimed at developing policy tools for encouraging private investment in R&D in pharmaceutical health sectors and illnesses that, although comparably less attractive on the basis of the expected sales revenues, are demonstrated to have a high social and economic burden on the population.

Maynard & Bloor in this supplement underline the need of purchasers to rely on high-quality and detailed information about the clinical effectiveness and cost-effectiveness of pharmaceuticals as well as clear guidelines regarding the efficient and appropriate production of this information. Notably, guidelines for economic studies of drugs have been prepared for the pharmaceutical industry, and the first legislative requirement for economic evaluation in Australia has encouraged the debate in different countries to give cost-effectiveness a status similar to the results for efficacy and safety.

Maynard & Bloor point out the limitations of much clinical data in the literature used by health economists for economic analysis, including those for two drugs aimed at the treatment of schizophrenia, clozapine and risperidone. These limitations include inadequate research design, clinical data information limited strictly to efficacy and the lack of prospective randomised clinical trials which simultaneously collect cost and effectiveness data. The authors propose regulatory obligations requiring drug companies to complement initial modelling of cost-effectiveness with full randomised clinical trials with economic components in order to enable purchasers to rely on data collected in clinical practice.

Finally, Maynard & Bloor stress the importance of monitoring and enforcing economic guidelines in order to avoid deficiencies, deliberate or accidental, in industry-sponsored economic evaluation, and the development of codes of conduct in order to guard against bias in the conduct of economic evaluation. This issue is now particularly relevant in medicine. Biases and selective interpretation of the data have been reported when those who finance research, both in the private (Kessler *et al*, 1994) and in the public (Heien & Pittmann, 1993) sectors, need 'results' to be used for supporting their policies and strategies.

It was claimed that until the introduction of clozapine, there were no significant new drugs for schizophrenia for decades (Frankenburg, 1993). In the USA Rice & Miller (1996) estimated the percentage of psychotropic/mental health services expenditures in 1990 to be 3.2%; in the same year the percentage of drug expenditure for

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global health costs was 6.8%. The percentage of drug expenditure for the direct costs of schizophrenia was 2.4%.

In my view, research should analyse whether there are any illnesses with a gap between private pharmaceutical R&D investment and the social and economic burden on society. This may be the case for schizophrenia, which could benefit from the use of some measures and policy tools (such as a period of marketing exclusivity and tax credits) aimed at encouraging private investment in R&D in this area.

Another relevant issue in the economic analysis of severe mental disorders and schizophrenia is the management of 'high cost' service users and of those who require the coordination of multiple services (often diverse). It is a process that suggests the evaluation of different health personnel combinations with the aim of informing mental health professionals and policy makers on cost-effective models of providing comprehensive and coordinated community care interventions.

Hu & Jerrell in this supplement analyse the total costs of services for people affected by severe mental disorders and then compare the cost impact of three alternative case management programmes for severe mental illness. The programme for assertive community treatment (PACT) model is a case management programme provided under a traditional assertive community principle staffed with a psychiatrist. The clinical team model is staffed with social workers and psychiatrists who carry a heavier case load than in the PACT model, and the intensive broker model staffed with para-professionals and no psychiatrists. The underlying belief in designing these three alternative approaches is that staff with various professional backgrounds (and different wages) combined with different service user : staff ratios, may result in lower overall costs of services. A programme with less professional staffing could have lower costs than programmes with professional staffing, even with a lower service user : staff ratio.

People with severe mental illness who were discharged from in-patient or other subacute care episodes within the past year (having had at least two episodes) or who were being discharged from lengthy residential treatment and repeated emergency psychiatric visits were identified and randomly assigned to one of the three models of case management services. Data were collected during the baseline period (six months before programme entry) and in follow-up interviews at six, 12 and 18 months after programme entry. The results indicate that all three case management programmes significantly reduced the costs of caring for service users with severe mental illness. The major reduction was in the use of in-patient mental health services.

These studies take into account the personnel variables that, in the case of people with severe mental disorders, account for 70–80% of direct costs, focusing the research on the estimation of the impact of different service user : staff ratios and of different staffing combinations. In my view, long-term data collection that allows comparison with care that does not use one of the three case management programmes as well as the availability of short-, medium- and long-term clinical and social disability data (disaggregated according to diagnosis) would be useful. While this research takes into account three groups of patients considered comparable and tries to identify the most cost-effective programme for severe mental disorders, a further analysis should identify whether there is a more cost-effective programme for subgroups or individuals that is not the most cost-effective for the whole group. It could provide decision makers with further information for offering more appropriate services to patients.

The issue of large variations in health and economic course and outcomes among patients is considered by Knapp in this supplement. The illness characteristics (such as diagnosis, type, severity and duration of symptoms and disabilities, medical and psychiatric comorbidities, their repercussions on patients' social behaviour according to age, gender and education), the characteristics of the patients' family and social milieux, those of the mental health services provision and those qualities related to access and use may have an impact on the course and outcomes of patients affected by severe mental disorders, especially schizophrenia.

This complexity makes frequently chronic, severe psychiatric disorders a challenge for clinical and social evaluation, for the development of a comprehensive and tailored system of care, and for careful economic evaluation. In my view these disorders can be judged as being at the extreme of the complexity range in the medical sector, unlike other disorders in which individual medical interventions (such as minor surgery) can substantially predict their course and outcome with only little variation and with the above-quoted social influences having assumedly a negligible effect. While the costs attributed to these disorders and interventions are easily predictable for providers and purchasers, a major effort is needed by researchers involved in severe and frequently chronic disorders to analyse main influential factors for certain variations such as patients' characteristics and types of services provided. Further research on multivariate examinations is encouraged by Knapp: controlling for these variables is expected to provide information to clinicians and policy makers for developing and offering more appropriate services to patients.

Many of the authors of the articles published in this supplement are health economists with a particular interest in the mental health field. In the past the integration of clinical health services and economic research at speciality level, as well as its proper application by health policies, have not often been interactively developed and many research findings were frequently unknown to psychiatrists, health economists or public health researchers because they are published beyond the range of journals related to their speciality. A number of monograph issues and supplements in psychiatric journals (*Schizophrenia Bulletin*, vol. 17, issue 3, 1991; *Social Psychiatry and Psychiatric Epidemiology*, vol. 30, issue 5, 1995; Moscarelli & Sartorius, 1995) as well as the *Handbook of Mental Health Economics and Health Policy* (Moscarelli *et al*, 1996) have been published. I am glad of the opportunity to publish papers in this area.

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