Letters

A tale of two Germanys

Health problems in eastern Germany are clearly related to transition

EDITOR—The fall of the Berlin Wall in 1989 marked the beginning of the end of communism in eastern Europe and in eastern Germany. As McKee and Fister point out,¹ certain constellations of epidemiological and demographic variables characterise the resultant process of political and economic transition: low or even decreasing life expectancy (especially for men) and higher prevalences of alcoholism and obesity. This has happened in the post-communist Länder (federal states) of eastern Germany.

East Germany is different from other east European countries in that its healthcare sector was not deconstructed, with periods of severe dysfunction: it simply adopted the healthcare system of West Germany. Despite this, life expectancy at birth is still lower in eastern Germany than in western Germany, although the difference had diminished at the end of the 1990s.²

Alcoholic disease is a feature of the typical transition process. The number of people discharged from hospital with alcoholic disease was higher in eastern Germany in 1994 and 1999 than in western Germany.³

Obesity is another transition related problem and a risk factor for many diseases.⁴ The proportion of the population with obesity (body mass index > 29.9) is higher in eastern Germany than in western Germany. This difference has remained for over 10 years after the fall of the Berlin Wall.

In the medium term, the situation is set to even out. But it is remarkable that in spite of the same, well equipped (curative) health

system, health care does not strongly modify mainly lifestyle linked health effects in a population that is exposed to transition after communism. For eastern Germany, the end of this transition process is in sight.

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- 2 Statistisches Bundesamt. *Bevölkerung Deutschlands bis 2050. 10. Koordinierte Bevölkerungsvorausberechnung*. 2003. www.destatis.de/presse/deutsch/pk/2003/bev_2050b.htm (accessed 14 Jul 2005).
- 3 Bundesministerium für Gesundheit und Soziales, Statistisches Bundesamt. *Krankenhausstatistik—Diagnosen der Krankenhauspatienten. Gesundheitsberichterstattung des Bundes*. www.destatis.de/download/qualitaetsberichte/qualitaetsbericht_diagnosekhp.pdf (accessed 14 Jul 2005).
- 4 Robert Koch Institut. *Gesundheitsberichterstattung*. Berlin: RKI, 2003.

Some patients in former East Germany were more equal than others

EDITOR—Further to the comments by Schwartz and Buser (previous letter), selective treatment was carried out to a considerable extent in elderly people during the communist decades of East Germany (O Nehrlich, personal communication).¹

If an elderly patient was in productive employment he or she was valuable to the system and deserving of medical treatment when needed. If the patient was retired and therefore a drain on the public purse the situation changed drastically. Diagnostic examinations such as radiography were

often not done with the simple explanation that “at your age there is no need for x rays” (O Nehrlich, personal communication).² People were not discouraged from travelling to the free world after retirement, and no one cared if they stayed there—purely an economic policy (O Nehrlich, personal communication).^{2,3}

Life expectancy and health in general in the two regions, eastern and western Germany, ought to become similar gradually, although enough negative circumstances in the east prevail that still lead people to a higher consumption of alcohol, something that was not discouraged under the communist regime. It is also worth mentioning that programmes existed in East Germany to improve and maintain the health of people who were still working. Fitness was encouraged and subsidies for sports were freely available. Factory workers were given breaks during working hours, during which they exercised. All this applied only to those who were part of the workforce.

HHN lived in East Germany until September 1961, and his father, Otto Nehrlich, was a medical professor in the East German health system.

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- 1 Bollin C, Fischer-Bollin P, Mauer. In: Werner Weidenfeld W, Korte K-R, eds. *Handbuch zur deutschen Einheit 1949-1989-1999*. Bonn: Government of the Federal Republic of Germany, 1999:547-59.
- 2 Brockmann H. *Why is health treatment for the elderly less expensive than for the rest of the population? Health care rationing*. Rostock: Max-Planck-Institut für demografische Forschung, 2000. (MPIDR working paper.)
- 3 *Deutsch-Deutscher Freiheitskampf '88—Für Freies Auswandern, Singen, Reisen, Baten*. Marxistische Studentenzeitung, 3rd ed. Munich: Verein zur Förderung des marxistischen Pressewesens, 1988.

East Germany's health system provides lessons 14 years on

EDITOR—Public health outcomes in East Germany have substantially improved since unification with West Germany.^{1,2} This process should be two way,³ and neglected aspects of the east's former healthcare system have indeed resurfaced in Germany's healthcare reform.

State owned health centres (policlinics) were one component of primary health care in former East Germany, housing general and specialist doctors and dentists. This integrated model was efficient and cost saving: facilities and laboratories were shared, alternative treatment and prevention strategies were coordinated, and referrals to specialists were well monitored, as well as each patient's case. Policlinics did not con-

Transition—early phase

form to the west German concept of independently contracted doctors paid on the basis of an item of service, so they did not survive in east Germany after 1995, as predicted in 1992.⁴

In 2000 integrated healthcare centres were instigated in Germany's healthcare reform to increase cooperation between general doctors, specialists, and hospitals; to improve communication between institutions; and to reduce healthcare costs.⁵ Implementation has been slow because of traditional conflicts of interest and the lack of direct financial incentives, but recent legislation introduces the possibility of integrated healthcare centres being run by independent management companies.

These centres are similar to the polyclinics of former East Germany. Had they survived they would have been a working example of how integrated healthcare centres can operate.

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- 1 Nolte E, Shkolnikov V, McKee M. Changing mortality patterns in east and west Germany and Poland. II: Short-term trends during transition and in the 1990s. *J Epidemiol Community Health* 2000;54:899-906.
- 2 Pittrow D, Krappweis J, Rentsch A, Hach I, Schindler C, Bramlage P, Kirch W. Patterns of prescriptions issued by nursing home based versus office-based physicians for frail elderly patients in German nursing homes. *Pharmacoepidemiol Drug Safety* 2003;12:595-9.
- 3 Nolte E. Integration of east Germany into the EU: Investment and health outcomes. In: McKee M, MacLehose L, Nolte E, eds. *Health policy and European Union enlargement*. Maidenhead: Open University Press, 2004: 73-81.
- 4 Freudenstein U, Borgwardt G. Primary medical care in former East Germany: the frosty winds of change. *BMJ* 1992;304:827-9.
- 5 Bundesministerium für Gesundheit und Soziales. *Sozialgesetzbuch: Fünftes Buch*. www.bmgs.bund.de/download/getsetze_web/getsetze.htm#sgb05/sgb05xinhalt.htm (accessed 26 Jan 2005).

Health care based on priorities is lost in decentralisation

EDITOR—Decentralisation of the health system was applied in all transition countries in the 1990s.¹⁻³ In most countries it was encouraged by the necessity to reform the inherited model of health organisation and to achieve the final goal—an efficient and fair health system. Croatia has special experience in decentralisation, primarily because of its geographical, political, and administrative circumstances but also because of its decentralised health system during the socialist regime in the 1980s.

Firstly, Croatia is a country with extreme differences between its regions. The income per head in the richest region is 10 times that in the poorest region.

Secondly, decentralisation reforms were not based on analyses of the problems and assessment of resources but on maintaining the framework within which they were implemented. Such implementation of the

changes resulted in a complete change of the essence of the local health system, whereas the given framework imposed limitations on the development and changes, instead of fostering them.

Thirdly, decentralisation was implemented without having organised a local network of professionals that would work on the local level and would be able to manage local health needs.

Decentralisation is always a challenge in any health system and is mostly looked at as a series of political and organisational measures. Unfortunately, the expectation that decentralisation will ensure successful professional activities is often overlooked in the analyses. Furthermore, the measures and the purpose of decentralisation are often not recognised as important elements of political culture. The primary purpose of decentralisation—health care based on the real priorities and resources—therefore remains marginal.

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- 2 Fuenzalida-Puelma HL. *Health care reform in Central and Eastern Europe and the Former Soviet Union*. Budapest: OSI (Local Government and Public Services Reform Initiative), 2002:81-8.
- 3 Horvath MI, ed. *Decentralization: experiments and reforms*. Budapest: OSI (Local Government and Public Services Reform Initiative), 2000:15-8.

Poland is losing its doctors

EDITOR—The political transition in formerly communist countries has affected not only the health of their populations but also their healthcare systems.¹ Healthcare reform introduced in Poland in 1999 influenced the organisation of health care, but the working environment of Poland's doctors has not improved. Since Poland's accession to the European Union, many doctors have left the country to look for jobs in west European countries, particularly the United Kingdom and Scandinavia (almost 500 Polish doctors registered in the UK in 2004, 30 times as many as in the previous year).

Why do so many doctors decide to leave their native country after democracy has been won?

Firstly, salaries are low, especially in hospitals—much lower than the average salary in public institutions (in a public hospital, doctors typically earn about €300 (£206; \$362) per month after tax). This is not enough to live on, so doctors (particularly young ones) cannot be fully independent and have to seek financial support from their families. Many cope with this problem by being employed in several places, and some work in the pharmaceutical industry (doctors working as sales representatives are probably rather unusual in other countries).

Secondly, the residency system is poorly developed, so after graduating many doctors are denied the possibility of specialisation.

Sometimes the only way to specialise in the chosen area is to emigrate from Poland. But not only financial reasons matter. The standard of living and the working conditions seem better in west European countries. Doctors can stick to just one job, which means shorter working time and fewer patients. In west European countries, access to new technologies of diagnosing and treating patients is much better. The variety of opportunities to develop professionally is also important, for clinicians as well as scientists.

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- 1 McKee M, Fister K. Post-communist transition and health in Europe. *BMJ* 2004;329:1355-6. (23 July.)

Perindopril monotherapy and PROGRESS in Europe

EDITOR—Perindopril has been registered in Poland as monotherapy for the prevention of recurrent stroke. The perindopril protection against recurrent stroke study (PROGRESS) is given as the only supporting evidence for this new indication, which is difficult to reconcile with the trialists' admission in the text of the publication that treatment with perindopril alone showed no discernible reduction in the risk of stroke.¹

Promotion of the new indication for perindopril is ongoing in Poland. Full page advertisements have run in *Medycyna Praktyczna* (issues 7-8/2004), announcing this "NEW INDICATION FOR USE," the capitalised words situated above a cartoon brain.

Polish advertisement for perindopril monotherapy

Below the brain we read: "Secondary prevention of cerebrovascular incidents. THE ONLY ACEI registered for secondary prevention of cerebrovascular incidents in patients regardless of their age." Prominently displayed is the familiar PROGRESS logo.

No mention of indapamide is made in the prescribing instructions. No mention is made in the registration information that risk reduction in PROGRESS was seen only if indapamide was given in combination with perindopril.

In Italy, based on PROGRESS, perindopril (4 mg/day) has been granted a similar extended indication as monotherapy for the prevention of recurrent stroke. The Italian advertising inserts ignore the critical role of indapamide in PROGRESS.² Yet in their *BMJ* commentary, the PROGRESS trialists admit that perindopril in monotherapy at 4 mg/day provided no detectable benefits for prevention of recurrent stroke.³

It is unclear how these registration mistakes may have arisen. Both perindopril and indapamide are manufactured by Servier, a sponsor of the PROGRESS trial (perindopril is currently under patent protection; indapamide is no longer protected by patent). It is possible that the promoters of perindopril in these countries have misunderstood the findings of the PROGRESS trial. Whatever the origins of the mistakes, they are problematic sequelae of the ambiguously reported clinical trial data.⁴

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- 1 PROGRESS Collaborative Group. Randomised trial of a perindopril-based blood-pressure-lowering regimen among 6,105 individuals with a previous stroke or transient ischaemic attack. *Lancet* 2001;358:1033-41.
- 2 Bobbio M, Della Penna V, Tarascio A. Inchiesta sull'indicazione terapeutica del perindopril. Dall'evidenza basata medicine all'advertisment based medicine. *Ochiro Clinico* 2005;3:6.
- 3 MacMahon S, Neal B, Rodgers A, Chalmers J. Commentary. The PROGRESS trial three years later: time for more action, less distraction. *BMJ* 2004;329:970-1.
- 4 Wennberg R, Zimmermann C. The PROGRESS trial three years later: time for a balanced report of effectiveness. *BMJ* 2004;329:968-70.

From the former Soviet Union

Maternal education seems to determine pregnancy outcomes in Russia

EDITOR—Social resilience is the ability of human communities to withstand and recover from external shocks or disturbances to their infrastructure. The countries of the former Soviet Union seem to have been more vulnerable to the recent political, economic, and social changes than the countries of central Europe, which are showing signs of recovery from the crisis.

Although the changes have been more profound in the former Soviet republics than in central Europe, social determinants of health in the former Soviet countries have received less attention. For example, no

Maternal factors strongly influence pregnancy outcomes in Russia

studies on socioeconomic determinants of maternal and child health based on Russian data have been published in international, peer reviewed journals.

We studied social determinants of pregnancy outcomes and infant growth in Severodvinsk, a town in northwest Russia, one of the regions that have suffered most since 1990.¹ All 1559 pregnant women registered at municipal antenatal clinics during 1999 were enrolled in a cohort and followed through delivery. Their infants were followed up during the first year of life.

Social variations in birth weight² and preterm birth rates³ were among the largest in Europe. Maternal education was the most important social factor influencing pregnancy outcomes in the area, even after suspected explanatory mechanisms were included in the analyses. Poor housing conditions, stress, and smoking also influenced fetal growth indices.⁴ Variations in linear growth of infants by maternal education tended to increase during the first year of life.⁵

Evidence of the existence of social inequalities in health is an important first step towards addressing these problems. It advocates the development of policies designed to reduce these inequalities. From a scientific perspective, larger, well designed studies are needed to reveal the mechanisms behind the large social disparities in pregnancy outcomes in Russia.

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A full text copy of the thesis by AMG, entitled "Sociodemographic determinants of pregnancy outcomes and infant growth in transitional Russia," is available by emailing him.

Competing interests: None declared.

- 1 Walberg P, McKee M, Shkolnikov V, Chenet L, Leon DA. Economic change, crime, and mortality crisis in Russia: regional analysis. *BMJ* 1998;317:312-8.
- 2 Grijbovski AM, Bygren LO, Svartho B, Magnus P. Social variations in fetal growth in a Russian setting: an analysis of medical records. *Ann Epidemiol* 2003;9:599-605.
- 3 Grijbovski AM, Bygren LO, Svartho B, Magnus P. Housing conditions, perceived stress, smoking, and alcohol – determinants of fetal growth in northwest Russia. *Acta Obstet Gynecol Scand* 2004;83:1159-66.
- 4 Grijbovski AM, Bygren LO, Yngve A, Sjöström M. Large social disparities in spontaneous preterm births in transitional Russia. *Public Health* 2005;119:77-86.
- 5 Grijbovski AM, Bygren LO, Yngve A, Sjöström M. Social variations in infant growth performance in Severodvinsk, northwest Russia: community-based cohort study. *Croat Med J* 2004;45:757-63.

Socioeconomic health inequalities exist in post-communist Lithuania

EDITOR—With regard to the health problems highlighted by McKee and Fister,¹ socioeconomic differences and changes are relevant contributors for health policy makers in Lithuania. Lithuania is characterised not only by a high level of social inequality but also by low social care expenditure. Social care expenditure comprises 25-35% of gross national product in European Union countries, whereas it accounts for only about 15% in Lithuania. The income inequality indicator (Gini coefficient) was 35.4% in 2002.² Social inequality has been strongly influenced by the fact that even 17% of the working population is engaged in agriculture and nearly one third of the rural population lives in rural districts.

According to our data analysis, the prevalence of self reported health problems is 72.2% in the rural population and 60.3% in the urban population. A higher prevalence of self reported health problems (69.7%) was estimated in women than in men (57.6%). The prevalence of health problems was dependent on social structure: it was higher in women than in men and in the rural population than in the urban population. For the low income rate, the prevalence of health problems was 3.9 times higher in the rural population and 2.4 times higher in the urban population. The prevalence of health problems at low and high income levels was 3.2 times higher in women and 2.3 times higher in men.

Health inequalities between urban and rural populations are predetermined by a different income level related to investments, market opportunities, and social care possibilities.

Differentiation and essential differences in socioeconomic changes between urban and rural populations have the pivotal role in health inequalities in post-communist Lithuania.

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- 1 McKee N, Fister K. Post-communist transition and health in Europe. *BMJ* 2004;329:1355-6. (11 December.)
- 2 Lazutka R. [Population's income inequality]. In Lithuanian. *Filosofija Sociologija* 2003;2:22-9.

Georgia to Georgia initiative

EDITOR—A consortium of academic communities in the US city of Atlanta, Georgia (Emory University, Georgia State, Georgia Tech, Grady Hospital, and Morehouse School of Medicine) has been working with a similar group and the health ministry for the former Soviet country of Georgia since 1992. This partnership has produced several accomplishments:

- Forty medical school graduates of Georgia have received postgraduate specialty training or their MPH degrees in Atlanta
- A Western-type BBA and MBA school was established in Tbilisi, Georgia's capital, and a faculty of 63 Georgians trained in Atlanta teaches a student body of 800
- A learning centre teaches healthcare workers how to find up to date medical information on the internet
- Nursing school and healthcare management schools staffed by Georgians trained in Atlanta are being established
- A women's wellness centre in Kutaisi teaches breast health, perinatal care, preventive health care, and reproductive counselling
- The research infrastructure of the country is being built up with collaborative activities in AIDS and tuberculosis funded by the National Institutes of Health
- Young Georgian scientists receiving training in Atlanta are being taught how to be competitive for grants
- A training centre for emergency medical services was established and trains hundreds of policemen, firemen, and others in resuscitation at the scene of an incident. Numerous student exchanges have occurred between Atlanta and Tbilisi
- One medical student in Atlanta showed that 64% of newborn infants in Tbilisi had hypothyroidism because of a lack of iodinated salt in the country, resulting in corrective efforts by the government of Georgia and international organisations.

The partnership illustrates that academic communities provide a uniquely rich resource for establishing sustainable, long term development and reform in countries exemplified by Georgia; information technology has been a key resource for this effort; and Georgia's geographical position produces a fertile environment for broadening the scope of knowledge crucial for establishing sustainable development programmes in regions characterised by diversity and instability.

These activities have received funding from the US Agency for International Development and other organisations.

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Nuclear weapons are another post-communist health hazard

EDITOR—In their editorial McKee and Fister highlight many of the major health issues in the post-communist countries of Europe.¹ Another critical threat to health is the nuclear weapons in various European countries, and particularly Russia. According to a recent estimate, Russia has 7800 operational nuclear warheads in its arsenal,² of which about 4400 are strategic warheads. This relic of the cold war poses risks of accidental explosions or of missile launches, since some of these weapons are on high alert status. There is also a risk that actual weapons and fissile materials associated with them could be stolen and sold to terrorists. Maintaining the system for producing and maintaining nuclear weapons is also a drain on national economies—with fewer financial resources available for health and other essential services.

Good riddance

European countries need to accelerate progress towards a Europe that is free of nuclear weapons. In particular, the relevant countries (Russia, France, and the United Kingdom) need to meet their obligations for nuclear disarmament under the Nuclear Non-Proliferation Treaty. Other European countries that have US nuclear weapons on their territories (Belgium, Germany, Italy, Netherlands, and Turkey³) need to follow Greece (another member of the North Atlantic Treaty Organisation) in having these removed. Without such actions, European and other populations will continue to be threatened by weapons that are not able to deal with the real security threats now facing the world.

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- 1 McKee M, Fister K. Post-communist transition and health in Europe. *BMJ* 2004;329:1355-6.
- 2 Norris RS, Kristensen HM. Russian nuclear forces, 2004. *Bull Atomic Scientists* 2004;60:72-4. www.thebulletin.org/article_nn.php?art_ofn=ja04norris (accessed 7 Jul 2005).
- 3 Norris RS, Kristensen HM. U.S. nuclear weapons in Europe, 1954-2004. *Bull Atomic Scientists* 2004;60:76-7. www.thebulletin.org/article_nn.php?art_ofn=nd04norris (accessed 7 Jul 2005).

TB in immigrants is not public health risk, but uncontrolled epidemics are

EDITOR—Before the second world war no medicines existed to cure tuberculosis (TB). Only 50 years later, strains of tuberculosis that are resistant to all major drugs have emerged.¹ Many areas of the former Soviet Union have been found to harbour high incidences of multidrug resistant tuberculosis.² In many Western countries, an increasing number of cases of tuberculosis in foreign born residents has resulted in a change from the expected downward trend.³

Over the past years, increasing numbers of people have left the new states of the former Soviet Union. In neighbouring Scandinavian countries there is public concern that increased immigration may result in increased transmission of infectious diseases, such as multidrug resistant tuberculosis. More than 30 000 former Soviet citizens have arrived in Norway since 2001.⁴ Only four of these were diagnosed with multidrug resistant tuberculosis on arrival, and their infections were not transmitted to other people in Norway.^{4 5}

Little evidence exists that increased immigration and imported tuberculosis threaten public health in the neighbouring countries of the former Soviet Union. Tuberculosis is rarely transmitted from immigrants,^{2 4 5} and, from a global point of view, it is far more threatening to the public health if epidemics are uncontrolled than it is to take part in controlling them. So long as tuberculosis remains a major health problem in some parts of the world, no country can expect to eliminate this disease.

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- 2 Dahle UR, Sandven P, Heldal E, Caugant D. Continued low rates of transmission of *Mycobacterium tuberculosis* in Norway. *J Clin Microbiol* 2003;41:2968-73.
- 3 Statistics Norway. Immigrant population by sex and country background. <http://statbank.ssb.no/statistikbanken/default.asp?PLanguage=1> (accessed 6 Jul 2005).
- 4 Winje BA, Mannsaaker T, Heldal E, Blystad H, Dahle UR. Tuberculosis in Norway 2004. *MSIS report* 2005;33:26 (www.fhi.no/dav/DF14FB5348.PDF). [In Norwegian.]
- 5 Winje BA, Mannsaaker T, Blystad H, Dahle UR. Tuberculosis in Norway 2003. *MSIS report* 2004;32:32. (www.fhi.no/dav/A5FE92684EPDF). [In Norwegian.]