



## Introducing a complex health innovation—Primary health care reforms in Estonia (multimethods evaluation)

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### Abstract

All post-Soviet countries are trying to reform their primary health care (PHC) systems. The success to date has been uneven. We evaluated PHC reforms in Estonia, using multimethods evaluation: comprising retrospective analysis of routine health service data from Estonian Health Insurance Fund and health-related surveys; documentary analysis of policy reports, laws and regulations; key informant interviews. We analysed changes in organisational structure, regulations, financing and service provision in Estonian PHC system as well as key informant perceptions on factors influencing introduction of reforms.

Estonia has successfully implemented and scaled-up multifaceted PHC reforms, including new organisational structures, user choice of family physicians (FPs), new payment methods, specialist training for family medicine, service contracts for FPs, broadened scope of services and evidence-based guidelines. These changes have been institutionalised. PHC effectiveness has been enhanced, as evidenced by improved management of key chronic conditions by FPs in PHC setting and reduced hospital admissions for these conditions. Introduction of PHC reforms – a complex innovation – was enhanced by strong leadership, good co-ordination between policy and operational level, practical approach to implementation emphasizing simplicity of interventions to be easily understood by potential adopters, an encircling strategy to roll-out which avoided direct confrontations with narrow specialists and opposing stakeholders in capital Tallinn, careful change-management strategy to avoid health reforms being politicized too early in the process, and early investment in training to establish a critical mass of health professionals to enable rapid operationalisation of policies. Most importantly, a multifaceted and coordinated approach to reform – with changes in laws; organisational restructuring; modifications to financing and provider payment systems; creation of incentives to enhance service innovations; investment in human resource development – was critical to the reform success.

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## 1. Introduction

The breakup of the Soviet Union and a move from planned to market economy led to major upheavals in health-care systems of transition countries in Eastern Europe and Central Asia (ECA). Many ECA countries have attempted to strengthen their PHC systems as part of health sector reforms by introducing new financing schemes as well as modern methods of organization and care delivery to improve quality and, access to care, and to increase health system efficiency.

Approaches and models of PHC reforms introduced have varied widely from country to country and sometimes within a single country. Some countries have attempted systemic interventions combining legal, structural, organizational, financing, programmatic and instrumental reforms. Most of the countries have attempted to introduce new models of PHC based on family medicine (FM). The reforms have touched one or more aspects of PHC with changes in: (i) legislation; (ii) organization and ownership of services (including privatization of services in some countries); (iii) improvement of physical assets (buildings and equipment); (iv) introduction of new care methods through evidence-based protocols; (v) changes in the professional profile of PHC staff; (vi) training of physicians and nurses; (vii) definition of the package of services to be provided in PHC; and (viii) methods of contracting and provider payments [1].

Although many countries implemented pilot projects of new PHC models scaling up to cover the whole country has met with resistance. Some countries have introduced deeper changes in certain areas than others. Few countries, however, have adopted a holistic approach aimed at comprehensive change. Hence, in most post-Soviet countries PHC reforms remain uneven, fragmented and not scaled-up [1].

The investment in PHC reforms by the international agencies and countries themselves has been substantial. For example, to date the World Bank investment in the ECA Region for strengthening PHC amounts to over US\$ 200 million of lending, corresponding to 80% of total investment in health. In many of these countries the WHO and the World Bank successfully established joint investment programmes with other agencies such as SIDA, UK DFID and USAID.

However, despite such significant investment the programmes to strengthen PHC have not been system-

atically evaluated and the experience is still sketchy and the lessons learned scarce. Therefore, there is a need to capture the experience, draw lessons from successes and failures, and establish an evidence base to inform decision makers.

Estonia, a Baltic State with a population of 1.38 million is the first post-Soviet country to fully scale-up and institutionalise family medicine-centred PHC reforms. Estonia regained its independence from the Soviet Union in 1991 and in 2004 joined the European Union. Prior to independence, Estonian health system was based on the Soviet Semashko model, characterised by a large network of secondary care institutions, and a fragmented PHC level with a tripartite system of adult, children and women's polyclinics and specialised dispensaries. Family medicine specialty did not exist. Polyclinics were staffed by therapists, paediatricians, gynaecologist and subspecialists. PHC level exercised limited gatekeeping, which was further compromised by the citizens, who bypassed PHC to directly access emergency and specialist services in dispensaries or hospitals. All hospitals and PHC units were publicly owned and health personnel were salaried public employees. Doctors who worked at PHC level had low status and pay as compared to specialist. The system had curative focus with excessive secondary care structures to be financially sustainable.

There have been a number of descriptive and analytical discourses of the introduction of family medicine and the PHC reforms in Estonia [2–8]. Additionally, evaluations have explored changes in efficiency [9], sustainability of resource use [10], access [11], equity [12–14], service delivery [15,16], service utilization [17] as well as user acceptability and satisfaction [18–20]. This study adopts a holistic approach to evaluating reforms, and as compared with earlier published studies adds two new viewpoints: first, qualitative interviews with the key stakeholders, and second analysis of the impact of PHC reforms on the management of key chronic illnesses in PHC. We analyse the changes in organisation, regulation, financing, resource allocation, provider payment systems and service provision. We explore changes in PHC effectiveness, as measured by improvements in managing key chronic conditions. We identify factors which enabled the introduction of PHC reforms. More detailed findings of the study are reported elsewhere [21].

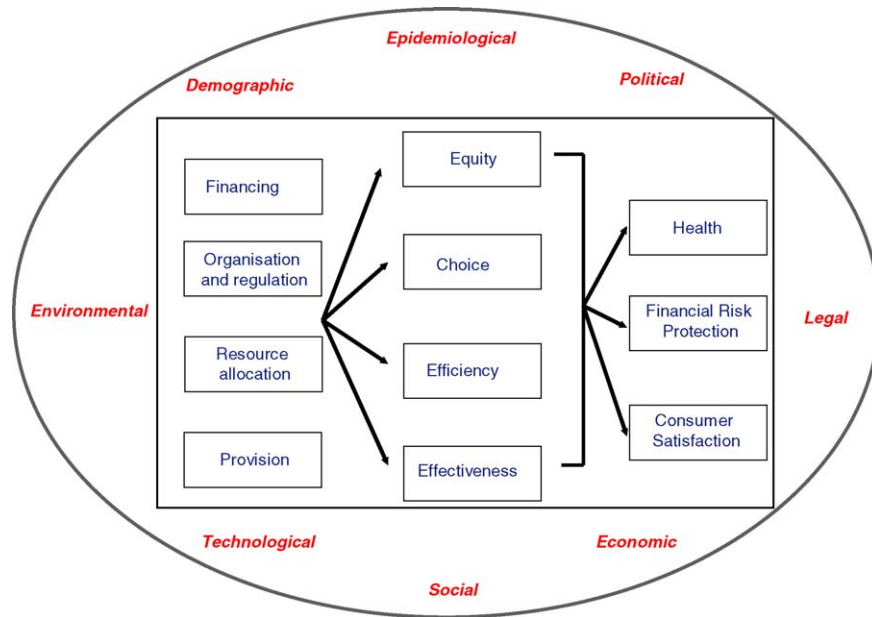


Fig. 1. A framework for health systems analysis.

## 2. Methodology

The framework used for the evaluation builds on those developed by Hsiao [22] and the World Health Organization [23] and is shown in Fig. 1 [24]. The framework identifies four policy ‘levers’ as organization and regulation; resource allocation; and service provision. Modification of these levers enables policy makers to achieve health system objectives and goals (Box 1). The framework provides a number of intermediate (equity, choice, efficiency, effectiveness) and ultimate goals of the health system (health, financial risk protection, consumer satisfaction) achievement of which were evaluated using approaches described below.

The evaluation took place between December 2003 and 2004. It explored changes in the policy environment in the period 1992–2004, and changes in service utilization in the period 2000–2004. Qualitative and quantitative methods of inquiry were employed in data generation. Primary research used qualitative methods. We used ‘purposive sampling’ with ‘snowballing’ to capture a multi-level multi-stakeholder sample [25] of 35 key informants involved in policy design, development and implementation during the PHC reforms from

several levels (including the Ministry of Social Affairs (MOSA), Estonian Health Insurance Fund (EHIF), Tallinn and Tartu City Health Departments, University of Tartu, five urban and rural family practices, Estonian Family Medicine Association, Estonian Nursing Association, Emergency Ambulance Services, and Estonian Health Care Board) who were interviewed in two stages. First stage used a proprietary semi-structured questionnaire developed by the lead author, in collaboration with MOSA and WHO officials in Estonia, for face-to-face interviews. The questionnaire was piloted with MOSA officials and subsequently refined during the first stage of interviews. The second stage of interviews used a topic guide for in-depth exploration of key themes that emerged from the first set of interviews. Interviews were recorded by contemporaneous note taking. Data was grouped by emerging themes. Iterative analyses allowed further categorisation of data to identify emerging sub-themes derived from the main themes [26]. No further interviews were taken once saturation was reached and no new information was emerging. Data emerging from interviews were validated internally through triangulation with information from documentary, routine, and other sources gathered prior to and during the fieldwork. The interpretations

**Box 1: Framework used for analysing PHC reforms in Estonia**

Kutzin suggests a three-step approach to evaluating health reforms to describe: (i) key contextual factors driving reform, (ii) the reform itself and its objectives, and (iii) the process by which the reform was (is being) implemented [44]. To this approach three further steps can be added: (iv) describing the changes introduced by the reforms, (v) analyzing the impact of these changes on health system objectives and goals—such as equity, efficiency, effectiveness, choice, improved health (level and distribution), financial risk protection and user satisfaction, and (vi) establishing whether the reforms have achieved the policy objectives set by the Government.

Establishing causal links and attributing outcomes to broad reform initiatives are difficult—as often, reforms are not clearly discernable interventions or isolated experiments in controlled settings but are multifaceted and complex change programmes. Health reforms do not happen in a laboratory: they are not ‘ahistorical’ or ‘acontextual’ but tend to follow a trajectory over a period of time—and hence are part of a continuum rather than a discrete event. Hence, it is more appropriate to think in terms of ‘health system development’ rather than ‘health system reform.’ Further, changes in health system objectives and outcomes are influenced by personal and contextual factors—for instance, the level of economic development, income, education, lifestyle choices, poverty, environment and housing [45]. Given these difficulties, evaluation of complex policy interventions will have limitations. Nevertheless, a systematic approach to evaluation can yield useful information which can be used to reach plausible conclusions to inform policy.

A number of frameworks have been developed to analyze performance of health systems. That developed by the WHO compared health systems performance in terms of attainment of a number of goals: average health level, distribution of health, average responsiveness, distribution of responsiveness and fairness of financial contribution for comparative evaluation of health systems performance and was the basis of the World Health Report 2000 which generated much debate [24]. Other frameworks used in analysis of health systems focus on efficiency [44], equity of access or financial sustainability [46]. In relation to PHC, there are evaluation frameworks which focus on quality alone [39]. These frameworks have strengths and limitations as they emphasize measuring health sector inputs, resources and processes. It is necessary to measure outputs or outcomes as well as interrelationships between the health system elements which interact to affect system outcomes.

In our framework for analysis, health, financial risk protection and consumer satisfaction are identified as the goals of health systems, and equity (technical and allocative) efficiency, effectiveness and choice are intermediate goals or objectives. We identify four levers which the policy makers can modify to achieve these objectives and goals: (i) ‘financing’ (how the funds are collected, pooled); (ii) ‘resource allocation and provider payment systems’ (how the pooled funds are allocated, and the mechanisms and methods used for paying health service providers); (iii) ‘organisational and regulation’, which describe the policy and regulatory environment, stewardship function, and structural arrangements for purchasers, providers and market regulators; (iv), ‘provision’ lever, which refers to the ‘content’—that is, what services the health sector provides rather than the structures within which this ‘content is delivered. The framework also allows analysis of the wider context within which the health system is embedded: exploring political, economic, legal, demographic, epidemiological, technical, environmental and social changes (Fig. 1).

of triangulated thematic data were discussed with key stakeholders for further modification and amendment [25,26].

Secondary research included a systematic review of published literature on Estonian health reforms, supplemented by documentary analysis of published reports [1,2,21] including but not limited to those by the EHIF [27], studies published in peer reviewed journals [3–11,14–20], statistical documents [28–31], key legal instruments and policy documents [32–37] and user surveys [38].

In addition, we were given access to the EHIF database which included routinely collected individual-level data for consultations by family practitioners (FPs), admissions, referrals and prescriptions for the 4-year period 2001–2004. A data query function was developed by the authors and EHIF statisticians to enable detailed analysis of service utilization in PHC, specialist out-patient visits or hospitalizations of patients referred by FPs, and prescribing patterns. Analysis was performed in several dimensions for each year, for which the data were available, by patient sex, age groups (0–1; 2–7; 8–14; 15–44; 45–64; 65+), rural-urban place of living (distinguishing all counties), cause of visit (by three digit ICD-10 codes on pre-selected codes). For prescription of medicines we developed query to analyse FP prescribing data by ICD-10 codes and ATC codes (Anatomical Therapeutic Chemical Classification System for pharmaceutical products) to ascertain evidence-based-prescribing for chronic conditions commonly encountered in PHC [39], namely: hypertension (ICD-10 code—ICD I10), non-insulin-dependent diabetes mellitus (ICD E11), asthma (ICD J45), ischaemic heart disease/angina (ICD I20 and ICD I25), heart failure (ICD J50), and depression (ICD F32).

### 3. Results

#### 3.1. Changes in organisation and regulation

In 1992, Estonia introduced health reforms to separate planning, purchasing and provision functions and develop a FM-centred PHC system. Strategic planning was retained by the MOSA with some planning responsibilities decentralized to county level, contracting and purchasing devolved to the newly established EHIF and

provision delegated to PHC units owned family practitioners and to hospitals—which were established as autonomous legal entities with own boards accountable to the State and the local governments. The hospital sector was rationalised according to the Estonian Hospital Masterplan 2015. Between 1993 and 2001, the number of hospitals declined from 115 to 67 and hospital beds from 14,400 to 9200, while the average length of hospital stay declined from 15.4 to 8.7 days. The rationalisation of hospital sector was simultaneously supported by the development of PHC which experienced a rise in the number of consultations from 2.57 million in 2000 to 3.94 million in 2003—an increase of almost 53% [2].

In 1993, FM was designated as a specialty—the first post-Soviet country to do so. A 3-year residency programme for new graduates and in-service training for specialists working in PHC were introduced.

In 1997, changes in health service regulations required Estonian citizens to register with FPs contracted by EHIF to provide PHC services to their registered population. Ministerial regulations defined responsibilities of FPs, the practice of the specialty and introduced a new per capita payment system mixed with fee-for-service and allowances, including a special payment for doctors trained and certified as FM specialists.

The principles of the first ministerial-level regulations for PHC were included in The Health Services Organization Act and subsequent regulations in 2002 which consolidated tripartite polyclinic structure (which had hitherto separately provided services to women, children and adults) into unified FM centres that managed all citizens irrespective of age and gender, specified requirements for PHC facilities and equipment for service delivery [32–36]. The changes also established family physicians as private practitioners who contracted with the EHIF. The Health Insurance Act of 2002 defined the eligibility criteria for health insurance [37].

PHC reforms were rolled out rapidly in all regions except for the capital Tallinn, where the heads of polyclinics supported by Tallinn Municipal Health and Social Care Department resisted change and advocated retention of polyclinics with salaried doctors. In 2001, there were 557 doctors trained as FM specialist in whole Estonia. In 2004 this number had reached over 900—enough to cover all of Estonia. By 2003, all



FM specialists working in Estonia had a patient list of around 1600 and a contract with the EHIF.

### 3.2. Changes in financing

Health system financing changed in 1991: from a general tax financed system where budgets were allocated to providers, to a mixed system, where financing came mainly from earmarked payroll taxes (so-called social tax), additional transfers from the state budget and official out-of-pocket payments [2]. In the period 1992–2002, total health expenditure, as a proportion of GDP, increased from 4.5% to 5.5%, well below the EU average of 8% but similar to other post-Soviet republics [40]. In 2002, public sector financing accounted for 76.3% and private expenditure for 23.7% of the total: of which majority (20% of total expenditure) was out-of-pocket. The bulk of the public sector financing was from health insurance revenues (65–67%), while the state contributed the remaining 8–9% of the total. Health insurance revenues and budget transfers were pooled at the EHIF and used to provide coverage for 94% of the population.

### 3.3. Changes in resource allocation and provider payment systems

Funding for PHC comes predominantly from the EHIF. In 2003, 14% of total EHIF expenditure on health services was allocated to PHC, 77% to hospitals, 8% to dental services and 1% to health promotion. The expenditure on PHC, as a proportion of the total health expenditure, declined from 8.2% in 1998 to 5.5% in 2000, thereafter increasing to 8% in 2002. Additional funds for PHC come from local municipalities which cover a portion of the costs of FP premises as well as part of the treatment costs for the uninsured: although this practice is not uniformly applied in all regions.

Contracts with EHIF replaced salaries of FPs with a mixed payment system comprising, age-adjusted capitation (three age groups 0–1; 2–70; 70+), fee-for-service, basic practice payment, additional allowances and cost-sharing for home visits payable by patients, except for the exempt groups such as children and the pensioners. Capitation payment accounts for the largest proportion (70%) of FP income, while FFS and basic allowances account for a further 14% each. This

proportion has been generally maintained. A mix of payment mechanisms created an incentive for FPs to improve the organization and delivery of PHC services and effectively manage clinical and managerial aspects of the practice: for example avoiding unnecessary intervention and treatment and managing human resources in their practices.

### 3.4. Changes in service delivery patterns

Specialist training of FPs and the EHIF contract significantly broadened the scope of services delivered in PHC setting. Evidence-based-guidelines for management of acute and chronic conditions, commonly encountered in PHC, introduced in the late 1990s, encouraged FPs to manage these conditions and reduce referrals to narrow-specialist.

Between 2000 and 2003, the number of FM consultations for ischaemic heart disease and angina, heart failure, asthma and diabetes mellitus initially increased between 2000 and 2001, in line with increased number of consultations in PHC, then stabilized (Fig. 2) while the consultations for depression grew by almost 350%. In the same period, the number of hospital admissions for these conditions, when referred by FPs, initially increased, in line with increased consultations in PHC, and then declined to levels below those observed in 2000 (Fig. 3).

Against a backdrop of increased consultations for asthma patients, the number of prescriptions for oral theophyllines and beta-2-agonists declined by 7.1%

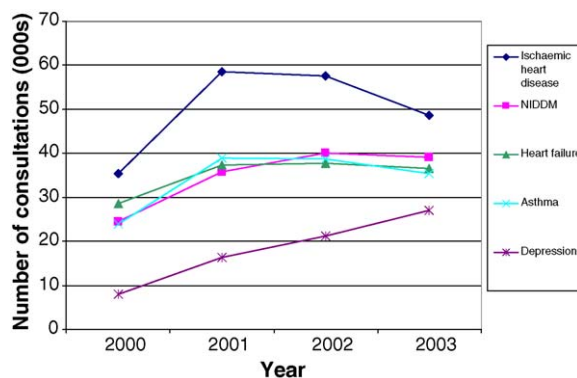


Fig. 2. Number of annual consultations in primary health care (in thousands), for common chronic illnesses, in the period 2000–2003. NIDDM: non-insulin dependent diabetes mellitus.

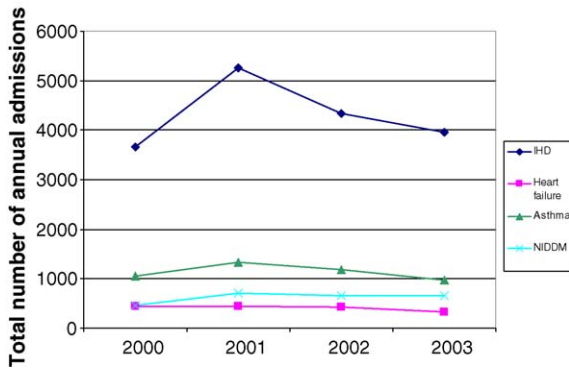


Fig. 3. Number of hospital admissions (in thousands) when referred by family physicians, for common chronic illnesses, in the period 2000–2003 IHD: ischaemic heart disease.

from 11,423 in 2000 to 10,613 in 2003. In the same period, the number of antibiotic prescriptions declined by 38%, from 1044 in 2000 to 647 in 2003 while the ratio of oral inhaled beta-2-agonists to oral inhaled steroids declined from 1.83 to 1.65, indicating a greater emphasis on preventative management of asthma patients (Fig. 4).

For diabetes mellitus patients, in the period 2000–2003, the number of prescriptions for glibenclamide increased by 49% from 20,147 to 30,107, while that for metformin increased by almost 500% from 5307 to 25,304. The ratio of glibenclamide to met-

formin declined from 3.8 to 1.2, probably reflecting better targeting of the diabetic patients with high body-mass-index.

For patients with depression, between 2000 and 2003, the number of selective serotonin uptake inhibitors prescriptions increased by 329% from 6677 to 28,631, as with the number of tricyclic antidepressants which increased by 42% from 2941 to 4187. In contrast, the number of benzodiazepine prescriptions sharply declined by 74% from 2222 to 567.

For heart failure patients, the number of prescriptions for angiotensin converting enzyme inhibitors and diuretics increased almost three-fold, from 5594 to 15,766 and 25,636 to 60,286, respectively.

For ischaemic heart disease, the number of prescriptions for nitrates increased by almost 100% from 58,000 to 114,000, and for beta blockers by 150% from 9600 to 23,500. In contrast, that for calcium channel blockers declined by 40%, from 4900 to 3000. However, in this period, 250-fold increase in the number of prescriptions for Statins, from 200 to 4560, was observed (Fig. 5): indicating increased use of preventative treatment to lower cholesterol levels.

The new PHC model is accepted by the majority of the population. Surveys undertaken by EHIF show that 79% of the people surveyed in 2001 and 88% in 2003 were either very-satisfied or generally satisfied with PHC services. Ninety percentage of the popula-

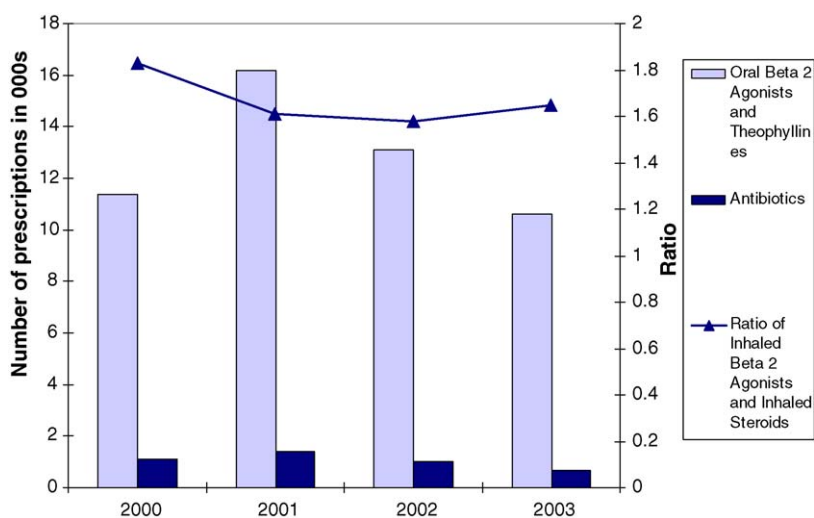


Fig. 4. Prescribing patterns of family physicians for asthma.

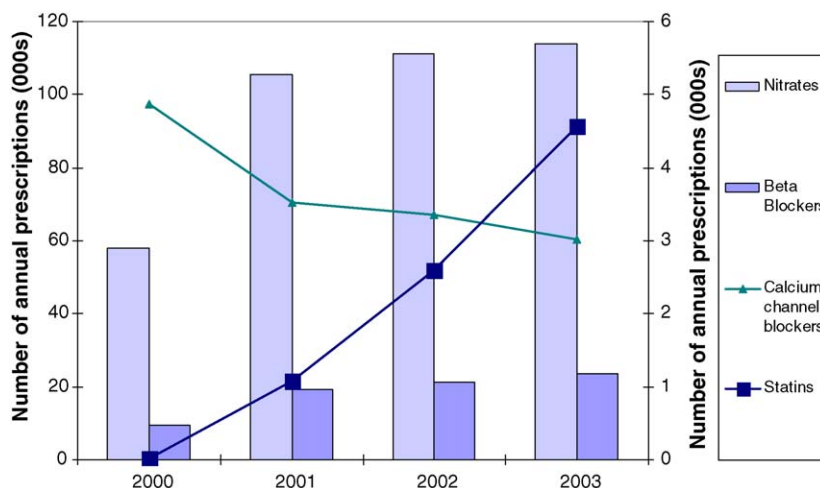


Fig. 5. Prescribing patterns of family physicians for ischaemic heart disease, 2000–2003.

tion knew their personal FP and only 15% had changed their FPs in the previous mainly because of change of residence [38].

### 3.5. Findings of qualitative research

Most of the respondents emphasized that key achievements of the family medicine-centred PHC reforms were: (i) increased coverage of the whole population; (ii) a focus on the user; (iii) more personalized service; (iv) enhanced “continuity of care and overview”; (v) ability to treat all age groups; (vi) horizontal view of the patient and illness; (vii) increased professionalism at PHC level, with enhanced role of family physicians and nurses; (viii) increased independence for the health professionals (family physicians and nurses); (ix) clearer responsibilities to the users as now a single professional was responsible for the patient in contrast to “the polyclinic model of the past where the responsible person not clear.”

The respondents pointed out that, the ability of the users to choose their FM specialists, the contract with the EHIF and the regulations which specified citizens’ rights and levels of cost-sharing, encouraged transparency, as commented by a senior policy maker:

“The patient is now the king. In the past patients had no rights, waited long time and received poor care . . .

Patients now have a named doctor and personalized care . . . [they] are better informed and know their rights and responsibilities.”

The PHC reforms had empowered family physicians (FPs) and nurses, increased their independence and professionalism, expanded the scope of their work, and enabled more involvement in management, as remarked by a FP:

“FPs now have the possibility to manage own clinical work and practice. Most enjoy the responsibility. This independence motivates them.”

The changes meant that the FM specialists had clearer responsibilities to the users in contrast to “the polyclinic model of the past where the responsible person [was] not clear”, a view shared by most respondents:

“PHC teams now try and give high quality service, trying to respond the needs of the patients.”

#### 3.5.1. Factors which created an enabling environment for rapid uptake of reforms

Many respondents commented that proximity to countries with advanced PHC systems, such as Finland and Sweden, enabled collaborations to positively influence perceptions of FM-centred PHC and gave a glance



into what could be achieved. Small size of Estonia helped rapid roll-out. The long sought independence gave Estonians an impetus to improve themselves and ensure that as a small nation they would survive without continued dependence on external assistance. These feelings were captured in comments by a policy maker from the MOSA:

“There was a willingness to learn more and an enthusiasm change the old health system, which was not Estonian and was imposed by the Soviet Union.”

The presence of “an enthusiastic group of pioneers” and strong leadership from University of Tartu, the MOSA and the EHIF was acknowledged as being critical. These “important people were in the right place at the right time”, provided strong stewardship, acted as role models and developed around them a critical mass of able professionals to conceive and implement the reforms. The views expressed by a number of family physicians were widely shared:

“The pioneers were very enthusiastic. They were the ‘fuel’ and ‘motor’ of the reforms.”

“There was strong support and leadership... good cooperation between the MOSA and the EHIF, and good trust between the Minister, the Deputy and the technical team.”

This close collaboration created a link between policy and operational levels and enabled development of “realistic policies” which were “organized in the right order.” University staff and FM Association were cognizant of the importance of this flexible and orderly approach:

“Ministry started with decrees, rather than a law, to enable independent contracting with the EHIF, the law followed... The legislation in 1996–1997 [which followed] was flexible—so there was no straitjacket.”

### 3.5.2. *Window of opportunity*

Rapid pace of liberalization meant that the Parliament and politicians were focused on economic reforms rather than health but supported initiatives aimed at improving health services for the citizens.

There was, as one policy maker remarked, “readiness to do the right things”:

“In the 1990s health was not a political issue and was not on the political horizon. Political debate focused on liberalization and privatization. Politicians were not interested in health so the reformers were able to push through the reforms rapidly.”

“The process until 1997 was not political—[there was a] practical approach... This avoided having too many opponents.”

### 3.5.3. *Out of sight-out of mind*

The policy makers were careful not to encourage excessive publicity in the early stages of PHC development and worked to identify paths of least resistance for implementation. This policy of “lying low”, before a critical mass of FM providers had emerged, was an explicit tactic pursued by the policy makers at MOSA. As a policy maker commented:

“Media was quiet when changes were introduced in the rural areas. Started to notice when changes introduced in Tallinn, but by then the model had spread to the whole country.”

### 3.5.4. *Simple beginnings*

Policy makers were realistic with what could be achieved. Key elements of the reform, such as the payment system and the contract, were kept simple. This attention to simplicity in early stages of the reforms was singled out by most respondents as the key strength of the reforms. The views of a member of the EHIF were shared by most respondents:

“Reforms started with a simple decree... We opted for a simple mixed financing model using per-capita and fee-for-service.”

“EHIF developed a realistic contract—learnt from experience of other countries.”

### 3.5.5. *Early institutionalisation of FM and reforms*

FM was recognised as a specialty soon after independence. The EHIF, contract, which gave FM legal recognition and much needed security, was identified

as a critical instrument of change. The view expressed by a family physician was widely shared:

“EHIF contract drove change. It sent a strong signal that FM was a specialty and allowed country wide standardisation of FM.”

### 3.6. Challenges which remain to be addressed

Despite the success in implementing PHC reforms, challenges remain. Most respondents comment that only a small number of policy makers and politicians have a sound understanding of health system and PHC issues. Amongst the politicians, there is a reluctance to accept that health reforms are part of an ongoing change process and the health system needs to evolve continually to meet evolving needs. Instead, many politicians in the parliament, who are narrow medical specialist, resist change and erect unnecessary barriers by undue involvement in technical and operational matters relating to health system. These concerns are captured in remarks made by senior policy makers:

“Biggest barrier to development of PHC is the ‘lack of real knowledge about PHC’ at the policy level and amongst the politicians. Politicians get involved in micro issues (because we are a small country) but ignore macro and structural issues. Very few people have education on health systems organization and management.”

“The Parliament is [now] dominated by the secondary care specialists . . . PHC is not accepted well by the politicians who oppose FM model.”

“A problem is that once reforms have been implemented there is a belief that the reform will solve all the problems and no further change needs to be done. This results in ‘entrenchment’ of positions and rigidity and a barrier to further change.”

The laws which govern PHC need to change to keep up pace of development as there are a number of legal barriers to sustained change and innovation: especially in relation to human resources, skills substitution and data collection. For example, it is not possible to create partnerships in family medicine practices. One person is recognised in law as the ‘principal’ and the

rest are classified as assistants. This creates a problem for part-time family physicians who want to work part-time and be partners. Consequently, university lecturers/professors who are FM trainers cannot become partners nor have their own list. Most doctors feel too “overloaded with administrative work” and “have less and less time for the patients.” These views were shared by most of the respondents, and captured in remarks made by FPs and senior members of the Estonian FM Association:

“Around 95% of the FPs is female. They can now only have a list if they are working full time. This prevents part-time work and flexibility.”

“[We] want to revise the regulation/legislation to remove barriers to change. Need more flexibility in the system to allow innovation and change in the system. The system encourages standardization and minimum standards but does not encourage improved quality.”

“Regulation of human resources in PHC too rigid . . . [there is] no flexibility for skills substitution or teamwork.”

“Many FPs are frustrated to be managers. Legislation needs to change to allow doctors to work in groups and also share a manager. The workload is creating negative image. There are too many legal, ethical and financial problems. These are too much for a single doctor.”

Success in rapid service development has meant that the workload of the PHC level had increased every year without a corresponding increase in funding levels, a view shared by all the family physicians interviewed:

“In five years the workload has increased. More and more tasks delegated to FPs, including work that is not in the contract or the job description: Social work in particular for assessing disability.”

Membership of the European Union has meant that many health professionals who work in PHC, especially nurses, could leave Estonia to work in Europe, and in particular in Finland or Sweden. Most family physicians complained bitterly that it was very difficult to find locum family physicians and this prevented

family physicians from taking annual leave or have protected time for continuing medical education:

“Human resource shortage is an issue. Young people will probably immigrate to other EU countries but those who are settled will not move . . . No clear plans for incentives . . . to retain health professionals.”

There is still substantial allocative inefficiency in the system, with hospitals consuming a large proportion of the health system resources:

“Politicians pushed for a price increase for hospital services. Forced an increase of 24% in the global budget allocated to hospitals reflected in increase in the price of services in the middle of 2003 . . . PHC received an increase of 9%.”

Buying or renting premises in cities is very costly. This discourages young FPs to enter practice as they who do not want to take a personal risk and invest in practice premises. The comments from FPs and residents highlight some of these financial risk problems identified:

“Starting a new [FP] practice is difficult. [There is] no capital allowance or rent support in Tallinn too expensive for new FPs. The per capita payment does not take account of the ‘market forces’ factor and the capital–cost variation in regions. Need a systematic approach for the country as a whole. In rural areas the family physicians get support from municipalities but not in the cities.”

“Initially ‘independence’ identified as an incentive. But now residents (over 50%) want to become salaried employees.”

#### 4. Discussion and conclusions

While most post-Soviet countries struggle with their PHC reforms and none are yet to fully introduce FM or scale up PHC reforms, Estonia has successfully introduced and institutionalised multifaceted PHC reforms, scaled-up to cover urban and rural areas. Estonia is the first and only post-Soviet country to fully scale-up and institutionalise family medicine-centred PHC

reforms. Hence, there are important policy lessons for post-Soviet and other countries, which are implementing family medicine-centred PHC reforms.

Structurally, the Estonian health system which was based on a public-integrated model – the Soviet Semashko model – has been transformed to a ‘Bismarckian’ public-contract model, with separation of purchasing and provision functions.

Organisationally, the hospital sector has been rationalized and novel organisational structures, such as independent practitioners and partnerships, have been established in PHC. New Laws have established FM specialty and defined scope and content of FM services.

Financing reforms have transformed a tax-funded health system to a mixed model, funded predominantly by health insurance supplemented by official private out-of-pocket payments and State contributions. Budget-based resource allocation system to providers has been replaced by purchaser–provider contracts and new PHC provider payment system incorporating weighted-per-capita pay, fee-for-service and allowances. As patients have a choice of their FPs, money follows the patient; service provision has changed with broadened scope of PHC services driven by evidence-based guidelines.

There is increased effectiveness of PHC with enhanced continuity and comprehensiveness of services, with reduced hospital referrals from FPs for chronic conditions, improved management of chronic illness in PHC setting evidenced by changing prescribing patterns – which point to increased uptake of best-developed-practice – and increased user satisfaction.

There are important policy lessons which emerge from experience of introducing PHC reforms in Estonia—a complex innovation that involves structural, organizational, financial, clinical and relational changes. A strong emphasis on change management and multifaceted approaches to implementation are needed for successful implementation of complex innovations.

Context matters: early in transition health was not ‘high-politics’. This created a window of opportunity for the policy makers to introduce health reforms with minimal opposition from politicians. The early stage of the reforms, as one respondent commented, “bypassed the politicians.”

The policy makers were astute in pursuing an ‘encircling strategy’ to fully scale up FM in rural areas before

introducing it to Tallinn. Even when the reforms were introduced to Tallinn this was in the form of ‘pilots’ which was voluntary. This ‘Trojan Horse’ approach helped prevent strong resistance from narrow specialists and polyclinic chiefs opposed to the reforms.

The explicit policy of keeping ‘simple’ new payment systems and contracts appears to be a critical success factor in securing ‘buy-in’ from FM specialists who were able to understand the changes introduced.

Strong leadership, collaboration, early investment in training and involvement of FM specialists in policy dialogue ensured ‘buy-in’, a policy-operation link, development of realistic policies and a critical mass of FPs to rapidly operationalise policies and diffuse the innovation [41].

Early institutionalisation of FM and use of contracting as a key instrument of change provided appropriate signals and security to the adopters and demonstrated a ‘relative advantage’ of the innovation to them [42,43].

Our study has limitations (Box 1). Retrospective data available does not allow estimating any changes in case-mix of patients attending PHC in 2000–2003. However, we used country-level aggregate data to minimize the effect of these changes. We adopted a qualitative method. To overcome these limitations we maintained a systematic approach to our research rigour at every stage of the study. Our sample, though not statistically representative, was theoretically informed, relevant to the research questions and hence appropriate to our research. To ensure rigour, we sampled from different levels.

Although findings of the qualitative research are clearly context-specific, and hence may be of limited generalisability, they highlight the importance of identifying key context-specific issues that must be addressed locally to ensure reform success.

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