Analysis of how the health systems context shapes responses to the control of human immunodeficiency virus: case-studies from the Russian Federation

Rifat A. Atun,1 Martin McKee,2 Francis Drobniewski,3 & Richard Coker2

Objective To develop a methodology and an instrument that allow the simultaneous rapid and systematic examination of the broad public health context, the health care systems, and the features of disease-specific programmes.

Methods Drawing on methodologies used for rapid situational assessments of vertical programmes for tackling communicable disease, we analysed programmes for the control human of immunodeficiency virus (HIV) and their health systems context in three regions in the Russian Federation. The analysis was conducted in three phases: first, analysis of published literature, documents and routine data from the regions; second, interviews with key informants, and third, further data collection and analysis. Synthesis of findings through exploration of emergent themes, with iteration, resulted in the identification of the key systems issues that influenced programme delivery.

Findings We observed a complex political economy within which efforts to control HIV sit, an intricate legal environment, and a high degree of decentralization of financing and operational responsibility. Although each region displays some commonalities arising from the Soviet traditions of public health control, there are considerable variations in the epidemiological trajectories, cultural responses, the political environment, financing, organization and service delivery, and the extent of multisectoral work in response to HIV epidemics.

Conclusion Within a centralized, post-Soviet health system, centrally directed measures to enhance HIV control may have varying degrees of impact at the regional level. Although the central tenets of effective vertical HIV programmes may be present, local imperatives substantially influence their interpretation, operationalization and effectiveness. Systematic analysis of the context within which vertical programmes are embedded is necessary to enhance understanding of how the relevant policies are prioritized and translated to action.

Keywords HIV infections/prevention and control/legislation; Acquired immunodeficiency syndrome/prevention and control/legislation; Delivery of health care/organization and administration; National health programs/organization and administration; Process assessment (Health care)/methods; Health expenditures; Politics; Socioeconomic factors; Case reports; Evaluation studies; Russian Federation (source: MeSH, NLM).

Mots clés Infection à VIH/prévention et contrôle/législation; SIDA/prévention et contrôle/législation; Délivrance soins/organisation et administration; Programme national santé/organisation et administration; Evaluation méthodes santé/méthodes; Dépenses de santé; Politique; Facteur socioéconomique; Étude de cas; Étude évaluation; Fédération de Russie (source : MeSH, INSERM).

Palabras clave Infecciones por VIH/prevención y control/legislación; Síndrome de inmunodeficiencia adquirida/prevención y control/legislación; Prestación de atención de salud/organización y administración; Programas nacionales de salud/organización y administración; Evaluación de proceso (Atención de salud)/métodos; Gastos en salud; Política; Factores socioeconómicos; Casos clínicos; Estudios de evaluación; Federación de Rusia (fuente: DeCS, BIREME).
Introduction

Organizational interventions in health care are complex: their design and implementation are shaped by pragmatic responses to local context. Their success or failure is often influenced, or even determined, by contextual factors, thus demanding analyses that consider both the intrinsic performance of the intervention and its context (1, 2).

One of the ways of overcoming this complexity of organizational interventions has been to adopt vertical programmes, focusing on a single disease or intervention. Such programmes are often established in parallel with existing health systems, with lines of accountability quite separate from them. Although the design and structuring of vertical programmes may vary, the set of interventions within them (such as treatment regimes) is largely standardized (though delivery methods may also vary), and they have specific and measurable objectives. This has the benefit of decontextualizing the interventions so that constraints, such as lack of trained staff or weak procurement systems, can be overcome without having to address the wider health system problems. This makes analysis of the vertical programme easier, especially if such an analysis is limited to narrow technical questions of effectiveness or efficiency (3).

Vertical programmes often lead to the fragmentation and duplication of services and a reduced likelihood of effective integration into the broader health system. This, in turn, increases the risk of governments diverting resources away from areas covered by externally-supported vertical programmes, reducing the “added-value”, and chances of long-term sustainability of these programmes (4, 5). Yet vertical programmes can be effective, allowing innovative methods to be developed within defined parameters before being “rolled-out” using existing infrastructure, as long as they are embedded effectively within the broader health system (6).

Many constraints faced by vertical programmes have their roots not in the technical content of the programme, but in the structures, policies and organizational frameworks within which they are working (7). Addressing health systems issues and strengthening the health system within which programmes operate, rather than the vertical programme alone, improves the chances of sustainability.

In addition to methods that assess vertical programmes, there are tools for assessing a health system (8) or its elements (9–12). However, these are too general to offer useful insights into specific disease challenges. One challenge, therefore, is to develop tools to simultaneously assess both programmes and health systems.

A further issue to consider when conducting the analysis relates to generalizability. Whereas one question to be asked is “does this intervention work?”, a second question is “would this intervention work in this situation?”. Both are relevant to policy-makers. However, while the former may be appropriately studied by means of research projects, it is not cost-effective to undertake such a study to assess every individual implementation of the intervention in question. Instead, there is a need for a method that will be reasonably inexpensive, operate over a short timescale and provide practical guidance. At the second stage, the findings from such analyses can be combined to adduce the role that contextual factors play in the success or otherwise of an intervention.

Rapid assessment approaches, which often incorporate qualitative and quantitative methods of enquiry, can be a less costly way of analysing complex health interventions (13–16); they include manuals jointly developed by WHO and the Joint United Nations Programme on HIV/AIDS (UNAIDS) for rapid assessment of HIV/AIDS programmes (17, 18). Although some of these manuals, through approaches that use a combination of methods (a “multimethods approach”), try to address the challenge of complexity, they take a limited view of the health system and of the wider context within which the programme operates.

In this paper we focus on vertical programmes designed to control infection with human immunodeficiency virus (HIV). The success of such programmes is often determined by the constraints posed by health systems (19, 20). Indeed, the Director-General of WHO, identified comprehensive engagement with, and strengthening of, health systems as necessary starting points for scaling up HIV/acquired immunodeficiency syndrome (AIDS) interventions (21, 22). However, despite the

---

Box 1. Systemic rapid assessment toolkit

The toolkit is based loosely on a “T” model and has two elements which are explored both individually and in terms of their linkages to each other. The “horizontal element” has modules to assess the macro context and the health system within which the infectious disease programme is embedded from a variety of perspectives: political, legal, social, demographic, economic, technological, financing, organizational arrangements, resource allocation, provider payment systems and provision. The “vertical element” has modules which allow assessment of key elements relating to the infectious disease programme such as epidemiology, service delivery, diagnostics laboratory networks and treatment.

The modular structure allows flexibility in use according to the area in question, context and resource availability. Each module addresses a specific area (e.g. legal, political, financing or epidemiology) and uses a predefined set of key questions to obtain the necessary information rapidly. A multimethods approach by a multidisciplinary team enables cross-referencing and triangulation of data. Where possible, the toolkit utilizes routinely obtained data.

The toolkit has three stages of analysis. The first (“screening”) stage, involves reviews of documents and analysis of data to address predefined questions for each module that are used to provide qualitative and quantitative information on the context, past patterns and other historical information, trends, responses to emerging challenges, processes and mechanism for the programme in question.

The second stage involves a field visit and interviews with key informants, purposively identified to capture a representative group, to rapidly elicit more detail on the health system and vertical programme to fill gaps identified by the screening questions and to elucidate information obtained at stage one. Qualitative data predominate, but routine quantitative data, especially in the areas of financing and epidemiology, are also collated for analysis to identify areas for further in-depth longitudinal analysis at stage three. Through an iterative process of information gathering and discussions, the team triangulates the findings for scenario building. The second stage typically takes 3–5 working days for a team to complete.

The aim of stage three is to provide detailed qualitative and quantitative information on areas identified as being critical to the success of the programme and not easily collated during the rapid assessment stages, i.e. stages one and two. This new information is collected over a longer period of time and used to inform programme implementation.
Methods

The toolkit is modular in structure and has two linked elements applied simultaneously: a “horizontal” element to analyse the health system within which the HIV programme is embedded and a “vertical” element to analyse the HIV programme itself (Box 1). The toolkit employs a multimethods approach to analysis, undertaken by a multidisciplinary team — enabling cross-referencing and triangulation of data — and, to the extent possible, uses routinely obtained data.

The analysis was undertaken by multidisciplinary teams of two to four people in three regions of the Russian Federation: Pskov, Samara, and Tatarstan — chosen because, although many of the overarching post-Soviet political traditions and structures in these regions are similar, the epidemiological trajectories of the HIV epidemics and the regional policy responses to the epidemic differ (Box 2).

Analysis took place in three stages. First, published data, documents and routinely collected quantitative data, obtained from local counterparts, were analysed. Second, key informants from numerous administrative and professional levels and HIV-positive patients, purposively selected and further recruited by the snowballing technique (26), were interviewed during a field visit over 3–5 days. Third, further data were collected and analysed for triangulation and to fill gaps. Interviews were recorded in notes taken during the course of the interview. The research team reviewed findings in daily meetings to identify emerging themes and to triangulate findings. No further interviews were conducted when no new information was emerging (indicating saturation point). Data were grouped by emerging themes and issues, as they emerged. Data obtained from interviews were validated internally through triangulation with data from documentary, routine and other sources gathered prior to and during the fieldwork. The interpretations of triangulated thematic data were discussed with key stakeholders and modifications and amendments were made during both the second and third stages of analysis (27).

Results

Federal legal context

An explicit legal framework, developed by the federal government, sets out in detail core actions and interventions to be taken to achieve control of HIV/AIDS in the Russian Federation (Box 3) (28). The law does not specify how programmes should be organized.

Civil and criminal laws that have an impact on the control of HIV/AIDS do not provide an enabling legal framework. For example, article 45 of the Russian Administrative Code deters commercial sex workers (CSWs) from seeking medical treatment for sexually transmitted infection (STI) — as the law prohibits people with STIs from concealing their illness and the identities of their sexual contacts (29). Although a Ministry of Health edict in 1999 recommended harm reduction programmes to combat HIV (30), the Russian Criminal Code and the 1998 federal law on narcotics hinder effective promotion of harm reduction programmes for injecting drug users (IDUs) (31). For instance, Article 230 of the Russian Criminal Code can be used to punish those who show the inclination to use narcotics or psychotropic substances and those who do — but the code makes no exception for counselling or advice to users to reduce risk of HIV acquisition and transmission (32).

Federal organizational context

The organization of HIV control in Russia is complex (Fig. 1) with three federal organizations, six supra-regional HIV centres and over a thousand regional-level units — comprising 78 territorial HIV centres, 700 diagnostic laboratories and 250 anonymous testing offices. Three other vertical subsystems,
Rifat A. Atun et al.   Health systems context and HIV control

Fig. 1. Organizational structure of the network for the prevention and control of HIV/AIDS in the Russian Federation

(organizationally and financially separate from HIV control) for “narcology”, STI and tuberculosis, also provide services to people with HIV. The need for collaboration between subsystems is recognized and articulated in regulatory documents that recommend the establishment of regional commissions (33), but separate reporting lines for the HIV control, STI and narcology departments further hinder collaboration.

Federal level financing
The federal programme on “Prevention and control of disease of social character” covers diabetes mellitus, tuberculosis, immunization, cancer care, STI, HIV and disaster-preparedness and has earmarked funding of Russian roubles (RR) 9.2 billion (~US$ 300 million) for the period 2002–06. Of this, RR 2.8 billion (approximately US$ 0.12 per person per year) is allocated to the federal HIV programme (Table 1), around two thirds of which is allocated for pharmaceuticals and diagnostics (Table 2). The inadequacy of funding is recognized and local initiatives draw on alternative resources (34).

Case studies of Pskov, Samara and Tatarstan
In addition to the shared but contradictory legal framework, and limited federal budget, there are some similarities, framed by the federal nature of Russia and the centralized nature of policy-making, for instance: vertical organization of the narcology, STI and AIDS centres involved in HIV control with consequent operational gaps in the care process; a well-developed and hospital-led programme for the prevention of mother-to-child transmission, highlighting the dominant role of hospitals in the health system of the Russian Federation; a regional committee responsible for HIV, as prescribed by the federal law, which has the potential to evolve as a multisectoral coordinating agency.

Despite these similarities, there are, however, some significant differences between the regions in the stages of the epidemic, the sociocultural context and the health systems elements.

Stage of the epidemics in the regions
Pskov, Samara and Tatarstan are at different stages in the trajectories of their HIV epidemics (Fig. 2). In Pskov the epidemic is in its infancy, with approximately 100 infected individuals, most of whom are IDUs. By contrast, in Samara, more than 20 000 individuals have become infected: although the epidemic began in IDUs it is now evolving into an epidemic that is sexually and vertically transmitted, and has spread from urban centres to rural regions. In Tatarstan, the magnitude of the epidemic, which began in IDUs, is less pronounced than Samara, but greater than in Pskov (Table 3 web version only, available at: http://www.who.int/bulletin). However, official statistics are unreliable and there can be a fivefold difference between reported and real figures.

Sociocultural context in regions
The social, religious and cultural context of the three regions differs: Pskov is overwhelmingly ethnically Russian and Russian Orthodox; Tatarstan is predominantly Tatar and Muslim; and Samara is a mixture comprising mainly ethnic Russians with Tatars (who are Muslim) and Chuvashians.


In Pskov, the emerging epidemic of HIV is framed principally as an issue of drug control and “sociopathic behaviour”, and policy responses are frail. In contrast, in Tatarstan, HIV is perceived as societal problem, and there is integrated policymaking involving many stakeholders, with interventions focusing on marginalized groups. In Samara, political, religious and social beliefs create a complex societal context, and despite strong support from the senior officials responsible for HIV prevention, multisectoral policies and harm reduction programmes are constrained (Table 3 web version only, available at: http://www.who.int/bulletin).

**Financing in the regions**

The three regions allocate varying proportions of their total health expenditure to HIV and have differing priorities. As compared with Pskov and Samara, Tatarstan allocates a larger proportion of its health expenditure to HIV and provides significant funding to harm reduction activities (Table 4). Samara has invested substantial resources in a blood safety programme, but allocates no funding to harm reduction. Pskov allocates limited funding to harm reduction activities in its AIDS centre.

**Organization and delivery in the regions**

The Russian Criminal Code and the federal decrees on HIV are interpreted differently in the three regions. In Tatarstan, there is good collaboration between the Ministries of Interior and Health, when dealing with CSWs or IDUs, and comprehensive HIV-prevention interventions in the penitentiary sector, but this is not the case in Samara or Pskov. The nongovernmental organization sector is strongly involved in HIV control in Tatarstan, but not in the two other regions (Table 3, web version only, available at: http://www.who.int/bulletin). A true multisectoral approach was observed only in Tatarstan, which has a network of harm reduction units staffed by a mix of health-care staff, volunteers, ex-IDUs and CSWs. In Pskov and Samara, prevention activities are unisectoral and limited in scope.

Varying interpretation of the law, combined with decentralization of financing of HIV and care delivery, have allowed different models of public health responses and service delivery systems (which differ between regions in scope, scale and emphasis) to emerge. In Tatarstan, voluntary counselling and testing (VCT) for HIV and hepatitis is available and free for anyone requesting it; in Pskov, VCT is available only in the Regional AIDS Centre; and, in Samara in five urban VCT centres — but a lack of clarity in the interpretation of the law on confidentiality deters many IDUs and CSWs from attending (Table 3, web version only, available at: http://www.who.int/bulletin).

Although all three regions provide a programme for the prevention of vertical mother-to-child-transmission, monitoring of HIV-seropositive patients and the availability of antiretroviral therapy differs. In Pskov, where few individuals...
have developed AIDS, antiretroviral treatment is offered to all. In Samara, where there are increasingly large numbers of individuals with AIDS, free antiretroviral drugs are restricted to pregnant women and those who were exposed occupationally. In Tatarstan, intensive antiretroviral therapy is offered to all AIDS patients and the disease progression of 75% of the HIV-seropositive patients is monitored (Table 3).

Conclusion
The analysis shows that although many similarities exist between the three regions studied, there are considerable differences as regards: stages of the epidemic; organizational arrangements; the political environment; social attitudes to HIV; finances allocated to HIV; monitoring and clinical management of HIV/AIDS patients; civil society involvement; interorganizational links and; multisectorality of responses to the HIV epidemic.

Each region displays some commonalities arising from the Soviet traditions of public health control. Yet, despite an apparently clear federal policy, accompanied by funding, there is considerable diversity in the priorities identified, policies pursued and translation of the policies into action.

Although each region draws on a common legislative framework, the interpretation of the law differs. These examples show how, within an apparently rigid post-Soviet public health system, some policy-makers have seized the opportunity to galvanize their community to mount a multisectoral response to HIV prevention and control. On the other hand, and of concern, our analysis shows how the gaps in the legal base for combating HIV can be used by policy-makers and practitioners to prevent an appropriate public health response to the emerging epidemics.

The reasons for this diversity can be explained in part by: the degree of autonomy enjoyed by the regions (especially an autonomous republic such as Tatarstan which has a greater degree of freedom when interpreting federal laws); predominately local financing of the HIV programmes, which further reinforces this autonomy; varying interpretations of criminal codes and federal orders relating to HIV/AIDS; the nature of the local sociocultural and politico-economic context; peculiarities of local health systems within which the programmes operate; and the behaviour and values of health professionals and administrators, some of whom see HIV as a problem of IDUs and unlikely to affect the “normal” population (Table 3, web version only, available at: http://www.who.int/bulletin).

We have described a complex political economy within which efforts to control HIV sit, an intricate legal environment, and a high degree of decentralization of financing and operational responsibility. This complex environment and the interaction between the system elements affect the way the rules, norms and enforcement mechanisms are interpreted to generate system responses that may not be easy to predict and may indeed be counterintuitive (35, 36). For instance, we observed: in Pskov, despite a limited multisectoral response and little political commitment, an excellent harm reduction programme; in Samara, a leading reformist region with an internationally supported STI–HIV control programme, a fragmented response with no harm reduction programmes; and in Tatarstan, not a leading reformist region as regards health, a sophisticated multisectoral response.

Our analysis shows how contextual and health system factors influence the translation of policies to action. Therefore, a broader and more detailed analysis of the context and health system elements, than that usually done by specific programmes, will enable better prediction of the effects of a specific policy and promotion of sustainability. A simplistic situational analysis may result in the most important causes of the problem being overlooked and a risk that decisions taken to eliminate a problem could have unforeseen consequences and result in “policy resistance” (37, 38). One way to reduce this policy resistance is to adopt “systems thinking”, which requires a detailed analysis of the context and drawing on lessons learnt to devise effective responses (39, 40).

A key lesson emerging from the results from the Russian Federation and countries attempting to address the HIV epidemic is that technical solutions alone are not adequate to mount effective scaled up responses. This is because the responses are influenced by complex health systems and the sociopolitical environment within which the HIV programmes are embedded. An effective scaled up response to HIV prevention and control must take these into account.

<table>
<thead>
<tr>
<th>Table 4. Comparison of public health expenditures for Tatarstan, Samara and Pskov, 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pskov</strong></td>
</tr>
<tr>
<td>Health financing per capita in US$ (compulsory health insurance included)</td>
</tr>
<tr>
<td>Health expenditure as % of total regional government budget</td>
</tr>
<tr>
<td>Financing of the HIV system as % of total health expenditure</td>
</tr>
<tr>
<td>Per capita HIV budget in US$ (2002)</td>
</tr>
</tbody>
</table>

* Figures include capital expenditure on blood safety: if this amount is subtracted, the per capita expenditure on prevention, administration and treatment would be US$ 0.33.
Our approach has certain limitations: in adopting a multidisciplinary and multimethods approach, this model (rather than a single qualitative or quantitative method) could be considered to fall in epistemological gaps; the assessments are rapid, requiring limited resources; and, although our analysis offers a generalizable conclusion on the importance of simultaneous and joint analysis of the health systems context and the vertical programmes, the findings themselves are clearly context-specific and hence may be of limited generalizability (limitations also attributed to other rapid assessment techniques). However, these features may also be seen as strengths, making possible the rapid identification of key context-specific issues that must be addressed locally.

We would caution against drawing over-simplistic conclusions from our findings. We analysed programmes in three settings, all of which were the sites of increasing epidemics of HIV although somewhat different in nature. Although lessons drawn from this research might inform policy-making and planning in similar settings, further analysis, perhaps drawing upon the approaches we have outlined, should be conducted elsewhere to enable further development and improvement of the methodology and the toolkit. Similarly, the analysis of HIV control programmes in very different settings, such as low-income countries where HIV epidemics are mature, should, through an iterative honing of these analytical methods, facilitate further development of models or “theories” that help to explain the successes, failures, challenges, and limitations of these programmes, taking account of their place in health systems, and inform pragmatic decision-making.

In conclusion, we have described the application of a novel toolkit enabling systematic, simultaneous, yet rapid analysis of HIV control programmes within their broader health systems context and illustrated this through three case-studies in the Russian Federation. We suggest that if HIV programmes are to be effective and sustainable they need to be informed by an analysis of the impact on HIV programmes of broader health systems. Understanding the health systems contexts and embedding vertical programmes within them is a necessary prerequisite to achieving sustained success.

Competing interests: none declared.
Resultados Hemos observado que las actividades de control del VIH se inscriben en un complejo marco de economía política, con un intrincado entorno legal y un alto grado de descentralización de la financiación y la responsabilidad operacional. Aunque las regiones muestran algunos puntos en común que se remontan a los mecanismos tradicionales de control de la salud pública que empleaba el régimen soviético, se observan diferencias considerables en lo que atañe a las tendencias epidemiológicas, las respuestas culturales, el entorno político, la financiación, la organización y la prestación de servicios, y la magnitud de la actividad multisectorial en respuesta a las epidemias de VIH.

Conclusión Dentro del sistema de salud centralizado postsoviético, las medidas centralizadas de mejora del control del VIH pueden tener distinta repercusión a nivel regional. Aunque se apliquen los principios centrales de los programas verticales eficaces contra el VIH, los imperativos locales influyen sustancialmente en su interpretación, operacionalización y efectividad. Es necesario realizar un análisis sistemático del contexto en que se enmarcan los programas verticales a fin de comprender mejor la manera de priorizar las políticas pertinentes y de traducirlas en medidas.

References


<table>
<thead>
<tr>
<th>Table 3. Summary of key findings from case-studies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pskov</strong></td>
</tr>
<tr>
<td><strong>Epidemiology</strong></td>
</tr>
<tr>
<td>• Early epidemic concentrated in IDUs* with a cumulative total of approximately 100 HIV-seropositive people.</td>
</tr>
<tr>
<td>• In 2002, HIV prevalence was 18/100 000</td>
</tr>
<tr>
<td>• Estimated 5000 IDUs</td>
</tr>
<tr>
<td>• Estimated 3.3% of prisoners are IDUs, with a few reported HIV-positive prisoners</td>
</tr>
<tr>
<td>• Explosive epidemic commenced in 2000 with a cumulative total of over 20 000 persons</td>
</tr>
<tr>
<td>• In 2002, HIV prevalence was 52/100 000</td>
</tr>
<tr>
<td>• Prevalence of HIV in pregnant women 1.8% in 2003, with approximately 1000 children born to HIV-seropositive mothers</td>
</tr>
<tr>
<td>• Most HIV infection is in IDUs but heterosexual spread increasing: 50% of the infected women acquire HIV through sexual spread</td>
</tr>
<tr>
<td>• Substantial proportion of prisoners inject drugs</td>
</tr>
<tr>
<td><strong>Organization</strong></td>
</tr>
<tr>
<td>• Limited multisectoral intervention</td>
</tr>
<tr>
<td>• Regional AIDS Centre</td>
</tr>
<tr>
<td>• HIV-related activities are performed by a variety of institutions, but with little integration and coordination</td>
</tr>
<tr>
<td><strong>Service delivery</strong></td>
</tr>
<tr>
<td>• Limited NGO involvement</td>
</tr>
<tr>
<td><strong>NGO and private business involvement</strong></td>
</tr>
<tr>
<td>• Limited NGO involvement</td>
</tr>
<tr>
<td>*IDUs = Injecting drug users</td>
</tr>
<tr>
<td>*VCT = voluntary counselling and testing</td>
</tr>
<tr>
<td>*STI = Sexually transmitted infection.</td>
</tr>
</tbody>
</table>