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Evaluation of health care delivery integration: The case of the Russian Federation

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ABSTRACT

Fragmentation in organization and discontinuities in the provision of medical care are problems in all health systems, whether it is the mixed public-private one in the USA, national health services in the UK, or insurance based one in Western Europe and Russia. In all of these countries a major challenge is to strengthen integration in order to enhance efficiency and health outcomes. This article assesses issues related to fragmentation and integration in conceptual terms and argues that key attributes of integration are teamwork, coordination and continuity of care. It then presents a summary of service integration problems in Russia and the results of a large survey of physicians concerning the attributes of integration. It is argued that characteristics of the national service delivery model don't ensure integration. The Semashko model is not an equivalent to the integrated model. Big organizational forms of service provision, like polyclinics and integrated hospital-polyclinics, don't have higher scores of integration indicators than smaller ones. Proposals to improve integration in Russia are presented with the focus on the regular evaluation of integration/fragmentation, regulation of integration activities, enhancing the role of PHC providers, economic incentives.

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1. Introduction

The issue of health services delivery integration is relatively new. Many health systems for decades have faced the problem of fragmentation, that is the lack of interaction between various providers. But the attention to it has increased mostly over the last 15–20 years. The need for the integration is usually linked to aging of populations and subsequent increase in the incidence of chronic and comorbidity diseases which requires more coordination between providers. From the patients' point of view, the integration of care becomes a critical element in their evaluation of quality of care. For example, a survey in Germany demonstrated that the issue of more coordinated interaction of outpatient clinics and hospitals as well as between

physicians of various specialties is regarded as the second priority of chronic patients [12]. A study in the UK showed that most of respondents face difficulty in making progress through the system. It is suggested that the concept of progress may be an appropriate indicator for monitoring health service performance [23].

A substantial body of literature is focused on the causes of fragmentation and mechanisms to overcome it. For example, Enthoven [7] relates the issue of fragmentation in the US health system to the dominance of individual physician practices, fee-for-services method of payment, the professional culture and values of physicians—their orientation on individual rather than team work, on provision of detailed service rather than the final health gain achieved through coordination of providers of various levels. Halvorson [10] points to the lack of responsibility and incentives for a closer communication of various providers.

Much less attention is paid to the issue of fragmentation/integration evaluation. There are some attempts to evaluate the extent of the problem through health

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managers surveys. For example, the study of 29 OECD countries showed that the programs of chronic disease management (an approach for the integration of services for a specific diagnosis) are implemented only in 10 countries; a regular exchange of data in electronic form between physicians and hospitals is available only in 4 countries; 17 countries face the problem of the low interaction between hospitals and long term care organizations [21].

These examples demonstrate that fragmentation exists in the mixed public-private health system in the USA, national health services in the UK, or insurance based one in Western Europe. Improvement of integration is a global challenge.

The selected attributes of fragmentation/integration in the literature vary substantially and are not based on the conceptual approaches to the evaluation. Also, much more detailed evaluation of interaction between providers is required.

The recently implemented policies for integration have prompted a number of questions. What are the major characteristics of integration which may serve as the model for its evaluation? What is the actual evidence of fragmentation/integration problem in the context of the specific countries? What are the policy implications of integration evaluation? What can be done to strengthen integration?

This paper attempts to answer these questions by exploring the issues of fragmentation/integration in the Russian Federation. First, the characteristics of service delivery integration are discussed and the conceptual model of integration evaluation is suggested. Second, empirical evidence based on the conceptual model is provided. Third, the empirical results are discussed to suggest possible ways to strengthen integration.

2. Conceptual framework for integration evaluation

For integration evaluation it is necessary to determine its major attributes and then a set of specific indicators which can be empirically tested. The attributes discussed in the literature relate to different health systems. For the US health system Enthoven [7] suggests: (a) new cultures, values and leadership (team work and commitment to joint objectives), (b) patient-centered and population health focus, (c) coordination and sharing of information, (d) financial incentives (e.g. capitated payments to provider organizations, shared revenue stream, (e) evidence-based medicine: all providers adhere to scientifically-proven practice guidelines, (f) comprehensive and preferably electronic records of patients so that they can be tracked through the system, (g) ability to “right size” capacity, that is to optimize the number and structure of physician specialties and primary care physicians.

Berwick et al. [1] suggest as attributes of integration: (a) recognition of a population as the unit of concern (that is commitment to enrolled groups of population), (b) externally supplied policy constraints (such as a total budget limit or the requirement that all subgroups be treated equitably), (c) existence of an “integrator” able to focus and coordinate services to help the population on all dimensions at once. Halvorson [10] makes the emphasis on shared

information as the instrument of coordination of providers. Cortese and Smoldt [4] add to this more coordinated hospital-physician relationships within various forms of integrated delivery system (physician or hospital-led), as well as new business environments and payment policies.

In the literature on European health systems similar integration attributes are suggested mostly in the context of chronic disease management. The most comprehensive description is a “chronic care model” which covers many dimensions, including forming multidisciplinary teams, the implementation of joint evidence-based guidelines, shared clinical information [20]. Leutz [13] proposes an “integration framework” that describes three levels of integration responding to the varied needs of patients with chronic conditions. The new integration attribute in this framework is management of transitions across settings.

Thus the suggested attributes cover a wide range of activities in the areas of service delivery organization, provider payment methods and sharing patient information. But these activities conceptually are not systematic enough for the purpose of fragmentation/integration evaluation. The essence of an integration process strongly overlaps with its instruments. For example, integrated payment methods serve as an instrument to encourage integration but can hardly characterize the process itself. Also, the above mentioned attributes are usually not measurable and require a set of specific indicators.

We suggest an analytical model of integration evaluation which includes attributes, instruments and indicators of this process. The attributes are: (1) teamwork of various providers, (2) coordination of their interaction, (3) continuity of care at various stages of service delivery. They most comprehensively reflect integration: multispecialty groups of providers are established that work on the basis of joint clinical guidelines; their members interact with each other to achieve clinical and economic outcome; every stage of patients’ “route” in the health system is highly connected with the previous and subsequent ones.

Teamwork, coordination and continuity are determined by three major groups of instruments (Fig. 1):

Clinical information exchange ensures sustainable links between various providers, integrates various stages of service delivery, allows to avoid duplication of tests, gives new leverage for the interaction of providers and patients. *Integrated payment methods* are designed to create incentives for physicians and hospitals to work together, ensure continuity of care.

Joint clinical guidelines determine the clinical rules for the joint work of providers on different stages of service delivery, and specify integrated patient pathways from one provider to another.

The selection of specific indicators to be measured requires better understanding each of the three attributes of integration.

Teamwork. Two types of teamwork are usually specified in the literature. First—joint work of health providers with other services affecting health—community care, education, social support, etc. [13]. Second—integrated efforts in the health system itself related to preventive care, health

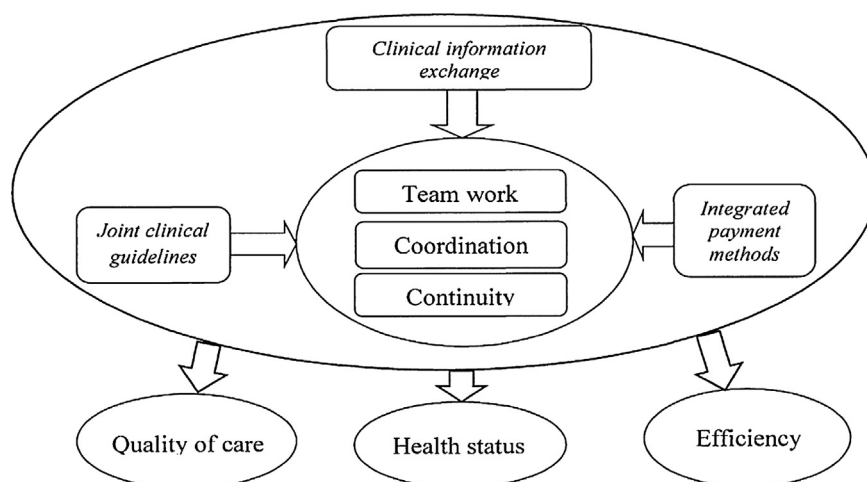


Fig. 1. Conceptual model of service delivery integration.

promotion, diagnostic, curative and rehabilitative services [8]. In this paper we focus on the second type of teamwork. *Coordination*. A GP or other first-contact outpatient doctor as a gatekeeper plays a special role in coordinating care. Such a physician acts as a patients' guide through the health system and ensures continuity of treatment—refers patients to other providers, keeps the patient's medical record, provides curative and rehabilitative care after admissions.

In modern health systems coordination is not limited to GPs activity. More complex arrangements with coordinating role played by other providers are possible. In the US integrated health systems hospitals often act as integrators, therefore take on a substantial part of the coordination function [24]. Similarly, in Germany integrated networks for specific chronic disease management are often initiated and coordinated by hospitals [12,33]. More complex forms of the "local coordination" may arise within a relatively short term episode of care when a specialist in charge of the case acts as a coordinator for a further patient movement in health system. However, these examples don't disprove but complicate a systematic role of GP as a coordinator. In most of cases patients return to their general practitioners after specialized care. They need the dynamic supervision of health status and after hospital discharge follow-up treatment that is organized and coordinated by GP. A special role of general practitioners in ensuring continuity of care makes their coordinating role particularly important. Coordination powers may recede but then be restored and even strengthened—for particularly lengthy and complicated care "after the gate".

Continuity of care. According to Haggerty et al. [9], "continuity is the degree to which a series of discrete health care events is experienced as coherent and connected, and is consistent with the patient's medical needs and personal context". Continuity means that interventions are not limited to one episode of care but cover patients' health needs longitudinally. Another meaning of continuity is that it can be assessed by a patient—depending on

the progress in health system from one stage of service delivery to another. Actually, continuity is the major focus of integration: "coordination and teamwork is what providers do for the benefit of continuity" [3]. GPs play the major role in ensuring continuity of care—due to the continued relationship with a patient.

3. Empirical evidence of health system fragmentation/integration in the Russian Federation

3.1. Integration in the Soviet and Russian health systems

The Russian health system has traditionally been built with the view to ensure close interaction between providers. The key element of the Semashko model¹ is teamwork. Outpatient care is provided by mostly state owned multispecialty polyclinics with district physicians and specialists in their staff. They serve mostly the local population, while residents can enroll with any polyclinic and any district physician in its staff. The latter acts as the first contact provider and gatekeeper (refers patients to specialists and hospitals) and traditionally has been seen as responsible for the dynamic supervision of the enrolled patients. A shift to the general practitioner model, common for most Eastern European, in Russia has not happened. The number of general practitioners is only 0.7 per 10,000 residents in 2010 [25] compared to the average of 8.2 for the EU [34]. District physicians remain the major providers of PHC, although their role in coordination of care, as will be seen further, is limited.

The hospital sector also has inherited the design of the Semashko model. It is built as a multilevel system of inpatient care provision (there are rural, central rayon², city, regional and federal hospitals, plus numerous specialty care facilities), with a referral system from one

¹ The Semashko model was the primary structure of the health care system in the USSR, named after its founder, Nikolai Semashko.

² Rayon is an administrative center of several rural areas.

level to another. Hospitals vary substantially in their size and internal structure. There are hospitals which have a polyclinic as a structural unit. But even in this case outpatient and inpatient care are provided mostly by different doctors. The prevailing model is a separation of inpatient care from outpatient one: most of polyclinics are free-standing. The distinction between acute and long term hospitals does not exist in Russia. Nursing homes and similar post-acute institutions (even units) are very rare, but there is a substantial sector of spas [22].

Western scholars of the traditional Soviet health system have identified its many problems (the lack of incentives, distorted structure of care skewed to inpatient care, dominance of administration over management, etc.), but most of them recognized the strong attempts to promote integration—mostly through the administrative instruments [26,5,6]. The fragmentation has occurred mostly due to the three major negative developments which started in the Soviet time and activated in the transition period. First, the excessive specialization of outpatient care in the 70–80s has brought to life a new mode of service delivery with central role of specialists in narrow areas of outpatient service delivery and limited role of district physicians as an integrator. Second, the uniform health system has been split into four sub-systems – federal, regional, community and private – with poor coordination between them (e.g. referrals from rural district to capital city). Third, a transition to mandatory health insurance (started in 1994), although promoted many positive developments, brought a shift from integrated methods of payment (global budget or capitation method) to fee-for-service, which has motivated providers to split service delivery to very detailed services—with much less attention to coordination and continuity of care [28].

3.2. Method and data

A sociological survey of physicians was used as a method for integration evaluation. The survey was developed through a series of discussions with service delivery experts and sociologists. First, list of questions for each attribute of integration was developed (15–20 for each). Second, major groups of medical facilities and respondents were determined. Third, a sample of the survey was developed. Then the data was collected and processed by the Russian center for public opinion research in August 2012 under a contract with the National Research University Higher School of Economics (further-HSE) [11].

The list of questions related to the three attributes of integration is presented in Table 1. The questions on teamwork are focused on the interaction between: (a) district physicians (DP) and specialists in polyclinics, (b) polyclinics and hospital physicians, (c) physicians from curative and diagnostic units of medical facilities. The questions on coordination are designed to evaluate the interaction between providers as well as a coordinating role of district physicians, their ability to control specialty care. The questions on continuity of care are focused on the progress of patients through health system.

This paper presents the summary of findings from a subset of the most important questions. The full list of

questions for the survey is much longer covering the issues of IT use, management of specific chronic diseases, detailed characteristics of continuity of care (58 questions).³ The selected questions are interpreted as the indicators of integration, e.g. frequency of timely transfers of patients from acute to rehabilitative units, incidence of multispecialty groups of provider to manage chronic cases. Most of the questions are similar to those that have been discussed and selected at the recent World Congress on Integrated Care held in Singapore on the 7–9 November 2013 (working session: factors to successful care integration). However, we recognize that the selected list is not exhaustive and can be revised and supplemented.

Most of the questions are formulated in the form of suggested responses ranging from three to seven options. For example, the question “What percentage of elective inpatient cases that you manage have received all necessary diagnostic tests in outpatient settings prior to the admission?” has the scale of 7 response options—80–100% cases, 60–79%, etc., plus the option “don’t know”. The scales for each question are determined by health data experts based on the estimate of respondents’ willingness and capacity to evaluate options quantitatively. Therefore, the scales differ across questions.

Depending on the area of fragmentation/integration, the questions were addressed to physicians working in: (i) outpatient care facilities or units (further—polyclinics physicians), (ii) inpatient care settings (further—hospital physicians), (iii) outpatient and inpatient care settings or units (further—all physicians). The attempt to distinguish between district physicians and specialists in polyclinics has failed in the course of conducting the survey: the managers of polyclinics could not provide the representative list of the two categories of the staff.

In order to compare integration/fragmentation in integrated and free-standing settings, a grouping of facilities was made. Integrated group (“integrated hospital”) includes hospitals which have a polyclinic as their unit. The latter provides comprehensive outpatient care for the enrolled population. The group of free-standing facilities includes territorial polyclinics.

The total sample is 1500 physicians from three Russian regions—Kaluga, Vologda and Tomsk oblasts. The sample is representative of the Russian health system structure in terms of the share of various types of providers. 50% of respondents work in policlinics, 43% – in inpatient care settings, 7% – in emergency medical centers. The regions were chosen based on the assumption that they represent regional health systems—respectively in Central Russia, North regions and Siberia. They have average scores in the Federal MoH rating of regions which measures the degree of reaching the federal targets of performance [19]. To determine their representativeness for the entire health system, the experts who had worked in these regions were questioned. Since the Russian health system is organized according to the uniform norms and requirements, there was no reason to believe that the degree of

³ The full report of the study outcome is much more detailed. It is available in Russian [11].

Table 1

Integration attributes and related questions of the physicians' survey.

| Teamwork | Coordination | Continuity of care |
|--|---|--|
| Is joint development of patients management plans by district physicians and specialists practiced in your polyclinic?, % of polyclinics physicians questioned | What is your estimate of the share of direct visits to specialists by-passing district physicians in the overall number of visits to specialists?, % of polyclinics physicians questioned | How often, according to your estimate, hospital physicians consult polyclinics physicians on managing the case after hospital discharge?, B % of polyclinics physicians questioned |
| Is joint involvement of district physicians and specialists in chronic patients management schools practiced in your polyclinic?, % of polyclinics physicians questioned | How do you estimate district physicians' awareness of a current health status of chronic patients enrolled with them?, % of polyclinics physicians questioned | How often are patients of your hospital transferred to the long-term or rehabilitative inpatient units for the continuation of inpatient care (when it is necessary for a patient)?, % of hospital physicians questioned |
| How often, according to your estimate, polyclinics physicians discuss their clinical activity prior to elective admissions with inpatient physicians, % of all physicians questioned | How often does your polyclinic receive information about hospital admissions of patients enrolled with your polyclinic?, % of polyclinics physicians questioned | How often do you receive the information about results of rehabilitative care of your patients, % of all physicians |
| How often do you contact district physicians and other outpatient physicians when a patient is admitted and in the process of inpatient care?, % of hospital physicians questioned | | What is the way you receive information from hospitals physicians on care provided to the patients enrolled with you?, % of polyclinics physicians questioned |
| How often do polyclinics physicians contact you with the questions about the course of inpatient care of their patients?, % of hospital physicians questioned | | |
| Is consulting physicians by specialists from diagnostic units on the questions of interpretation and the potential of diagnostic tests practiced in your organization?, % of all physicians questioned | | |
| What percentage of elective inpatient cases that you manage has received all necessary diagnostic tests in outpatient settings prior to the admission?, % of hospital doctors questioned | | |

integration/fragmentation differed much from the rest of the country and across the selected regions. The results of the survey were similar for each region (with minor exceptions).

The major limitation of the survey is a limited capacity of physicians to comprehend the problem—mostly because of its novelty and unwillingness to deal with a new problem. A substantial portion of respondents (sometimes higher than 25%) could not answer the questions definitely. This is the limitation of the first attempt to evaluate integration. We expect that a more active integration policy will strengthen the perception of the problem by physicians. Also, the variance of the survey scale can be regarded as the minor limitation of the survey. It does not affect the major findings but makes their interpretation less consistent.

3.3. Results: teamwork

Joint development of patients' management plans by district physicians and specialists of polyclinics. This indicator reflects the capacity of outpatient physicians to work together on particular cases. 58% of polyclinics physicians respond that this form of teamwork either “practiced rarely” or “not practiced”. Only 32% think that it is “often practiced” in their polyclinics. 10% “don't know”.

Developing the lists of patients risk groups by joint efforts of district physicians and specialists (the characteristic that was heavily promoted by the Semashko model) is also rather rare practice. The majority of polyclinics

physicians responds either negatively (42%) or have problems to respond (25%), that is close to the negative answer. Only one third of physicians report positively.

Setting up multispecialty teams for chronic disease management programs implementation (in Russia they are known as “schools of patients” designed for specific chronic cases) is confirmed by 36% of polyclinics physicians. The majority of respondents either doesn't confirm this (44%) or have problems with the response (20%). Contrary to the expectations, the teamwork with chronic cases is practiced on a limited scale.

Joint development of patients' management plans by polyclinics and hospitals physicians. A few questions are addressed to all respondents regarding the frequency of contacts between physicians from outpatient and inpatient facilities on the appropriateness of patients' hospital admissions and the necessary tests for elective admissions. Most of physicians either do not have discussions between each other at all (12%) or have them rarely (44% physicians—in less than 30% cases). Only 27% of all physicians report that they discuss their activities prior to elective admissions in 30–50% cases. Thus the contacts between outpatient and inpatient physicians on planning admissions are not frequent.

The survey also indicates that 41% of hospital physicians questioned never contact outpatient physicians when a patient is admitted and in the process of inpatient care. Another 29% contact rarely (in less than 25% cases). Only 6% do it “often” and “in all cases”. This may be attributed to

the stable perception by hospital physicians of their professional superiority over polyclinics physicians, although direct questions on this point have not been asked.

Similarly, polyclinics physicians are reluctant to contact hospital physicians about the course of inpatient care of their patients—41% “never contact”, 40% contact only in less than 25% cases.

Joint work of physicians from curative and diagnostic units. Only 27% of all physicians report that specialists from diagnostic units “regularly consult” physicians in charge of a case (“curative physicians”) on the questions of interpretation and the potential of diagnostic tests in their organization. The rest reports that such consultations either “practiced rarely” or “not practiced”.

Degree of patients' readiness for the elective admission. This question was addressed to hospital physicians. Around 90% of them respond that patients don't receive all necessary tests prior to admission. They also report that this can be attributed to three major factors (in descending order): (1) the lack of interaction between polyclinics and hospitals, (2) the lack of modern medical diagnostic equipment in polyclinics (most of it in Russia has been traditionally placed in hospitals), (3) the low competence of outpatient physicians.

Thus all indicators demonstrate the low level of interaction between providers of various levels. District physicians and specialists in polyclinics are not much involved in joint development of patient management plans, including multispecialty chronic disease management programs; outpatient physicians don't contact much with hospitals doctors before, in the process and after admission; joint work of curative and diagnostic services providers is in its initial stage; the readiness of patients for admission is very low—mostly as the result of poor teamwork.

3.4. Results: coordination

The frequency of direct patient visits to specialists bypassing their district physician. This question was asked to polyclinics physicians (both district physicians and specialists). From the point of view of 37% respondents, a share of direct visits to specialists in the overall number of these visits is less than 25%. But similar number of physicians (29%) estimates this share higher than 25%. Around one fourth of respondents cannot answer this question. In average, around one third of patients visit specialists directly. This result suggests that the capacity of district physicians to coordinate patients' movement through health system is limited.

The level of polyclinics physicians' awareness of the current health status of chronic patients enrolled with them. It is high or satisfactory from the prospective of respectively 24% and 55% of polyclinics physicians. Thus most of polyclinics physicians evaluate their patients' health status awareness as relatively high.

The level of polyclinics physicians' awareness of the current utilization of health care by their patients. Knowing fairly much about chronic patients' health status, polyclinics physicians are surprisingly poorly informed about hospital admissions of their patients. Only 21% of these physicians estimate that their polyclinic receives

information on all admissions of their patients enrolled, another 13% think that this information is available for more than 50% of admission cases. But more than a half of polyclinics physicians have very limited information.

As to district physicians within polyclinics, only 15% of them receive information on all admissions of the patients enrolled. The rest receives this information occasionally. With the information like this coordinating function of district physicians and their capacity to ensure continuity of care are very limited.

Similar pattern of interaction is between polyclinics and organizations (units) of emergency care. Only 25% of polyclinics' physicians report that information on all ambulance calls always reaches district physicians and 48%—“from time to time”. In child care segment the frequency of this information is higher, and district pediatricians, according to the regulation, are supposed to make a home visit the day after the call. A traditional concern of the Semashko model about children health has partly survived.

The interaction between public state owned polyclinics and private clinics was also explored. Only 10% polyclinics physicians report that they regularly receive data on their patients from private clinic. The majority either doesn't receive it at all (36%) or receives very rarely (24%). Also, in the absolute majority of cases patients see private physicians without referrals of their district physicians. The role of the latter in organization of interaction of public and private providers is limited.

Thus contrary to the claimed advantage of the Semashko model, the coordinating role of district physician is limited. They don't control specialty care, their willingness and capacity to manage patients through health system is inadequate.

3.5. Results: continuity of care

The frequency of consulting polyclinics physicians by hospital doctors on managing patients after hospital admission. The survey indicates that every fifth polyclinic physician does not have any consultations and every fourth has it in less than 10% cases. Only 21% of them have relatively active contacts with hospital physicians (in about 30–50% cases). Thus the follow-up in polyclinics after hospital admissions is practically unsupported by hospital doctors.

The frequency of timely transfers of patients from acute hospitals to long term, rehabilitative or social care facilities. The lack of such facilities in Russia limits the possibility of the rational path of patients after admission. Only 7% of inpatient physicians respond that their patients can be transferred to long-term and rehabilitative inpatient units, 35% report that such transfers rarely happen, 10%—are totally unknown, 20%—less than in 50% cases. Thus most of patients have to stay in the acute care unit with the resulting increase in the length of stay in hospitals.

The frequency of timely feedback from rehabilitative services providers to a referring physician on the results of treatment. Only 10% of outpatient physicians report that always receive information about results of rehabilitative care, another 18%—only in less than half of cases, 25%

don't receive it at all or very rarely, 37%—don't know. Thus around 90% of referring physicians don't have an adequate feedback from rehabilitative facilities.

The feedback is also characterized by the way how information is transferred to a referring physician. In most of cases it is done by phone or in the written form. The modern IT (through the centralized information systems or medical electronic cards) is reported by only 19% of physicians. This does not allow to arrange a smooth movement of a patient through the health system.

Thus the multilevel system of care, as the characteristic of the Semashko model, does not ensure continuity of care. The results of the survey demonstrate the low involvement of hospital doctors in consulting polyclinics physicians on managing patients after discharge; the low frequency of timely transfers of patients from acute to long term and rehabilitative facilities; inadequate feedback from various providers to a referring physician. The movement of patients from one level of provision to another is not smooth.

3.6. Results: integrated vs. free-standing settings

It is assumed that the interaction of physicians in the integrated settings is higher than in free-standing polyclinics—due to additional management instruments and more favorable logistics arrangements. To check this hypothesis, the indicators of integration are compared for integrated hospitals and territorial polyclinics.

Teamwork indicators. In integrated hospitals 57% of polyclinics physicians report that they develop patients' management plans jointly with specialists “rarely” or “don't do it at all”, in territorial polyclinics—59%. The frequency of setting up multispecialty teams for chronic disease management programs is a little higher in integrated hospitals—schools of patients for specific chronic cases are confirmed by 40% of their physicians vs. 32% of physicians of integrated hospitals.

Coordination. Contrary to expectation, polyclinics physicians working in integrated hospitals report even lower frequency of awareness of health status of chronic patients and their utilization of inpatient care than their counterparts in territorial polyclinics. For example, only 30% of physicians of integrated hospitals report that they regularly receive information on hospital admissions of their chronic patients, while in territorial polyclinics—43%.

Continuity of care. The frequency of consulting polyclinics physicians by hospital doctors on managing patients after hospital discharge does not differ much in integrated hospitals and territorial polyclinics—respectively 22 and 20% of physicians report about regular consulting.

Other indicators of teamwork, coordination and continuity of care don't differ. Some of them are even higher for the group of territorial polyclinics [11]. Thus there is no evidence of the advantage of bigger and formally integrated settings. The administrative mergers of inpatient and outpatient care don't demonstrate higher scores of integration indicators relative to free-standing outpatient care settings.

3.7. Factors hindering integration and activities to strengthen it

38% of respondents report that the main factor is the absence or the lack of IT, 25% think that integration is limited by the absence of regulatory patterns of managing patients through the various stages of health system, 22% point to a weak coordination function of district physicians.

A special question was asked about barriers to the coordination function of district physicians. 32% of respondents report an overburden of these physicians with secondary functions, 26%—low economic motivation, 25%—the absence of feedback from other providers. Nearly half of respondents could not answer this question that can be interpreted as inadequate understanding of the problem.

According to the survey, the leading activities to strengthen integration include additional economic motivation (55% of respondents selected this activity among two major ones), establishing the universal data bases (45%), developing guidelines on managing cases (28%), strengthening district physicians coordination function (27%). This pattern of activities sounds logical: coordination function is hard to implement without the first three activities.

4. Health policy implications

The results of the survey give ground for three major generalizations about integration/fragmentation processes. First, the prevailing health organization and finance model in the country per se can not ensure integration. The Semashko model for the Russian Federation is usually seen as highly integrated due to three major organizational characteristics—dominance of polyclinics as the way to teamwork, the central role of district physicians and their coordinating role, multilevel system of service provision based on referrals from one level to another. However, in modern Russia, as it seen from the results of the survey, the level of integration is low in terms of teamwork, coordination and continuity of care. The essence of integration processes is not in the design of health system but in the specific integration activities which should be planned and regulated. Without these activities any health system may become fragmented under the pressure of specialization of services, decentralization of governance and FFS method of payment.

Second, big organizational forms of outpatient care delivery can hardly serve as the panacea for strengthening integration. The case of the Russian Federation does not provide evidence to the well known claim that polyclinics ensure cooperative work of providers. If cooperative work is understood as the joint management of patients by GPs and specialists, outpatient and inpatient physicians, providers of curative and diagnostic services, then the evidence collected in the survey is to the contrary: polyclinics host physicians who don't work cooperatively. Quite a lot is needed to realize the potential of polyclinic to integrate care. The shifts from polyclinic to free-standing physician practices and the way back from solo practices to multi-specialty settings (currently underway in some countries

in transition and Germany) can hardly be interpreted as the way to fragmentation or integration. The vector of this transformation has little to do with the actual processes of integration.

Third, the case of the Russian Federation indicates that big integrated networks of inpatient and outpatient settings don't have higher scores of teamwork, coordination and continuity of care than less integrated. We may suggest that the simple decisions like merging outpatient and inpatient settings and making them bigger may or may not lead to integration. Additional administrative leverage and easier logistics arrangements may facilitate interaction of providers, but they are not enough to make this process really happen. The integration activities go beyond organizational mergers and may be implemented in a "virtual" integration (both contractual and non-contractual) but this suggestion has not been explored in this paper.

The results of the survey provide insights to the major directions to strengthen integration. The first thing to be done is to start evaluating fragmentation/integration in the health system. Regular and uniformly structured physicians' surveys can reveal the tendencies in this area and allow cross-regional comparisons. The suggested framework may serve as the first step for the estimation.

To activate integration, certain rules and regulations are required. They may be developed by various actors of health system. In the US, where private provision and finance dominate, big providers and insurance companies often act in the role of integrators. They establish integrated systems of providers, such as Kaiser Permanente, that operate on the basis of common forms of service delivery, clinical protocols and pathways, information exchange patterns, bundled payment schemes [31,14].

In Europe similar arrangements exist but they are based on the government regulation. For example, in *Germany* integration processes have been initiated by the Federal government. Federal Social Code (SGBV) which came into force in 2004 promoted greater interconnection with the different specialists and sectors (general practitioners, consultants, hospitals), and established the framework for "opening the borders between health sectors", including the integrated programs for specific chronic diseases, outpatient care units in hospitals, close links between medical and social services, multidisciplinary approach to managing complex cases. Also, financial arrangements have been established for the involvement of sickness funds in the implementation of integrated systems (e.g. risk-adjusted capitation for chronic disease management programs funding) [12]. In the *Netherlands* these programs are initiated mostly by local governments and focused on close multidisciplinary specific disease management programs [32].

In *Russia* the government also plays the role of integrator. The federal ministry of health and regional health authorities attempt to ensure close interaction between providers. But the "peak" of this work relates to the 60–70s of the last century when quite a lot of regulation was issued on district physicians' coordination role and continuity of care. Most of this regulation has not been updated and therefore is unknown to the new generations of physicians. Recently, high expectations have been placed with the federal so called "patterns of health care provisions"

which are developed for specific diagnosis and are supposed to determine clear rules of patients movement in the multi-level system of service delivery.⁴ But our analysis indicates that these patterns establish mostly technical and staff requirements for providers and are not focused on integration. Only in 3% of these documents there are recommendations on patients pathways in the health system and only in 37% of them there are requirements on information exchange between providers of various levels. The specific regulation of teamwork on chronic cases management is also not available (HSE, 2012). Not surprisingly, the lack of regulation was reported in the survey as one of the most important reason for the fragmentation of care.

Based on the revealed areas of fragmentation, we suggest the following major directions and mechanisms of integration in the context of the Russian Federation.

Development of information technologies focused on integration. Substantial efforts have been undertaken recently in introducing modern IT in medical facilities. In the framework of the National priority program "Health" and regional programs of health system modernization [16] federal and regional governments have invested much in developing comprehensive information systems, including medical electronic cards which can be a strong instrument of strengthening links between providers. However, the survey indicates that the impact of IT on interaction of providers is weak. Outpatient physicians don't know much about medical care utilization on other stages of service delivery and this data is mostly unavailable for district physicians responsible for the enrolled patients.

Partly this can be attributed to the fact that information systems large-scale development has started only 4–5 years ago, therefore has not touched all providers, especially in rural areas. But the degree of the revealed fragmentation problem suggests that the lack of IT is not the only problem. Patients data base seems to be the necessary but not the adequate condition for the integration. The normative requirements are needed how to use this data for strengthening contacts between providers, as well as for ensuring continuity of care. Information on the current health status and utilization of medical services must reach PHC providers together with clear rules and algorithms of activities how to respond to the data. The new data should be a signal for specific activities, for example, closer contacts between polyclinics and hospitals physicians to deal with patients discharged from hospitals; interactions between hospitals and rehabilitative units; undertaking proactive contacts with patients.

Strengthening PHC providers' coordination function. In most of post Soviet countries this task has been fulfilled through a shift to a GP model, which assigns specific doctors sole responsibility for the dynamic supervision and treatment of the enrolled patients. In *Russia* district physician model has turned out untouched. Moreover, the responsibilities and actual capacity of this doctor to coordinate care have narrowed substantially over the last decades. The coordination function is not even mentioned in the Federal

⁴ See [17,18] for the example of these patterns.

Ministry of Health regulation on district physicians' scope of work [18].

Patients increasingly mistrust district physicians—mostly due to the fact that they operate in a very narrow clinical area and are not allowed to take on specialty cases. Their professional competence is also questioned. According to the national survey conducted by Roszdravnadzor (an agency reporting to the Ministry of Health) in 2009, 63.4% of respondents were unhappy with their district physician, while only 14% were satisfied with their services [27]. The mistrust has undermined the referral system: patients tend to see specialists directly. And what is most important these physicians have lost their sole responsibility for the dynamic supervision of the enrolled patients. It has been replaced by collective responsibility of polyclinic. Taken together, these factors have limited the coordination role of district physicians.

To strengthen this role, substantial inputs are required to introduce and support the GP model on a national scale, as well as to support programs aimed at upgrading the competence of district physicians more emphasis on their coordinating activities. We suggest the minimum set of regulatory requirements in this area: (a) universal enrollment of population to the selected polyclinic and PHC provider, (b) restoring the GPs gatekeeping function, (c) capitation payment, (d) full information on the health status and medical care utilization of patients—mostly through easy access to the data base, (e) expanding capacity for direct information exchange with other providers. A more ambitious requirement is the involvement of polyclinics in planning inpatient care volumes. The experience of Samara oblast in the 90s suggests that this involvement may be a strong factor of strengthening the coordination role and ensuring continuity of care. Polyclinics started to communicate closer with hospitals doctors so that to plan and coordinate outpatient and inpatient care. But this experience has not been evaluated by the Federal Ministry of health and, therefore, has not been rolled out [30].

Economic motivation of integration. In many countries, including Russia, special efforts have been undertaken to find integrated provider payment methods. For the US health system [15] explores four payment methods to encourage more integrated delivery of care: recalibrating FFS, instituting pay-for-performance, creating episode-based payments, and adopting global payments. They argue that integrated payment for episode of care (bundled prospective payment for both outpatient and inpatient care, including repeated admissions) is the most immediately viable approach. In the most successful projects (e.g. Geisinger health system, Prometheus payment model) there is some evidence of decrease in the LOS, frequency of post-admissions, incidence of negative clinical effects in cardio surgery, as well as decrease in potentially avoidable expenses [2,15]. In Europe similar efforts are focused on bundled payment methods in the framework of chronic disease management programs. The group of providers is capitated for the episode-based clinical activity related to the group of patients with specific chronic disease. The method is designed to motivate providers to avoid aggravations of chronic cases and ensure health gain. For example, in the Netherlands there is some evidence of the positive

impact of this method in clinical terms, although the impact on cost remains unclear [32].

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Russia these methods are also being discussed for the implementation. But the actual experience with encouraging integration is based on the method known as “polyclinic as fundholder” (fundholding method). A polyclinic is funded on the entire volume of care provided for the catchment area population and pays for referrals to hospitals and other providers. Fundholding creates incentives for polyclinics to plan all stages of service delivery, cooperate and communicate with hospitals, refer patients to best providers, expand activities to avoid aggravations of chronic cases (therefore reduce hospital admissions and emergency care calls).

Its practical implementation in 10 of 83 regions of Russia over the last 3–4 years has had mixed results. On the one hand, polyclinics as fundholders tend to provide more care to chronic cases, including setting up their own emergency units for home visits, providing more preventive services. There is some evidence that polyclinics became more quality-oriented and responsible for health status of their patients, because they are supposed to pay for specialty care delivered by other providers—with the resulting decrease in admissions and emergency calls. For example, in Perm krai the number of home visits per capita by polyclinics' personnel has doubled over the first 9 months of the new method implementation, while the number of emergency calls by chronic patients has decreased by 3 times. There is a clear tendency of hospital admissions decrease [29]. On the other hand, fundholding has failed to encourage team work, coordination and continuity of care yet. Polyclinics don't control patient flows due to weakening the referral system and low trust of patients in district physicians. Interaction between outpatient and inpatient care providers remains low. Information exchange is in the initial stage. Potential strengths of this payment method are mitigated by inherent drawbacks of the organization of service delivery, particularly the low role of district physicians and poorly regulated interactions between providers of all levels. There are grounds to believe that this method can contribute to integration only together with more substantial activities to restructure service delivery and encourage new culture for joint work.

The relevance of the Russian experience for other health systems is that any service delivery system even originally designed as integrated may be distorted without the focus on avoiding fragmentation. The evaluation of fragmentation/evaluation to substantial instruments of integration is an important area of health policy.

5. Conclusions

Conceptual analysis suggests that teamwork, coordination and continuity of care may be regarded as the most comprehensive attributes of medical service delivery integration. They are affected by the major instruments of integration—joint clinical guidelines, information exchange and integrated methods of payment. The suggested model of integration also includes a set of specific indicators, and structures them for the evaluation of the

degree of fragmentation/integration. They can supplement traditional indicators of health systems performance and may be tested through regular surveys of physicians.

The results of the survey indicate the low level of integration in the Russian Federation. District physicians and specialists in polyclinics are not much involved in joint development of patient management plans, including multispecialty chronic disease management programs; outpatient physicians don't contact much with hospitals doctors before, in the process and after admission; joint work of curative and diagnostic services providers is in its initial stage; the readiness of patients for admission is very low—as the result of poor teamwork. Indicators of district physicians coordinating role show that their control over specialty care is weak; the willingness and capacity to manage patients through health system is inadequate. Continuity of care indicators show the low involvement of hospital doctors in consulting polyclinics physicians on managing patients after discharge; the low frequency of easy transfers of patients from acute care stage to long term and rehabilitative stages; inadequate feedback from various providers to a referring physician.

Empirical data on the Russian Federation health system suggests that the national service delivery model don't ensure integration. The Semashko model is not an equivalent to the integrated model. Big organizational forms of service provision, like polyclinics and integrated hospital-polyclinics, don't have higher scores of integration indicators than smaller ones. Special activities are needed to strengthen integration with the focus on the regular evaluation of integration/fragmentation, regulation of integration activities, enhancing the role of PHC providers, economic incentives.

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