TECHNICAL REPORT:

Report on Care in Family Group Practices in Zhezkazgan Region: Based on Quality Assessment of Medical Services

Authors:
David Kuter
Hilda Kuter
Damelya Nugmonova
Azhar Nugmonova
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I. Executive Summary

In July 2001, a chart review of six clinical conditions in primary care was designed and executed for the purpose of evaluating the results of reorganization of primary care services and postgraduate training of primary care physicians in Zhezkazgan region. Through their participation in the study, local physicians and officials were also introduced to a tool of measurement of clinical quality and the use of evidence-based measurements. In the process of the study much was learned about the regulatory impediments to successful implementation of clinical learning into practice. Several parameters showed favorable results, and each parameter can serve as a baseline for comparison in future studies of Zhezkazgan region and in other regions. This report summarizes some of the extensive results collected, reviews these results and makes some conclusions. Extensive details about this study can be found in the very detailed Russian report on the subject “оценка качества медицинских услуг врачей сев жезказганского региона”. There also is a longer report in English, with more detailed information on the method, and appendixes with collected data.
II. History of ZdravPlus Intervention in Zhezkazgan Region

As one of the earliest health reform sites in the Soviet Union, Zhezkazgan has a history of experimentation and innovation in the health sector. Zhezkazgan health leaders made the restructuring of primary care the prime objective of their plan to improve the quality and efficiency of the healthcare system. Primary care was physically, financially and administratively separated from the narrow-specialist dominated polyclinic system. Between 1995-1997, 89 independent family group practices (FGPs) were established in urban and rural areas throughout the oblast. Sixteen of these were located in the twin cities of Zhezkazgan and Satpaev and the nearby villages of Kengir, Rudnik, and Vecavoy. Some are privately and others government owned, but all receive their primary funding from the government. Ambulatory care pediatricians, internists, and gynecologist/obstetricians, drawn from the catchment area staff of the polyclinics, are the primary physician staff of the new FGPs. Staffing also includes practice business manager, nurses, receptionist and laboratory technicians. These clinics are located in local neighborhoods, some in medical clinic buildings, others in renovated apartments.

Initially, the physicians cared for the population for which they had been originally trained (adults, children, or only women). The long-range goal was to provide training and experience to assist them in becoming family physicians caring for a mixed practice.

Clinical training sponsored by ZdravPlus has been provided to the physicians working in the FGPs of Zhezkazgan, Satpaev and associated villages. These courses varied in length from two days to two months. Topics included: 1) current clinical information related to the specialty in which they were trained; 2) cross training for pediatricians, internists, and gynecologists in the other two disciplines; 3) integration of family planning and treatment of infectious disease into primary care; 4) the concept and use of evidence-based medicine; 5) patient centered comprehensive primary care services; and 6) some on-site mentoring in gynecology by local specialists; and mentoring in general practice by an American family doctor.

Over time many of the physicians have begun providing mixed admissions. Family planning services, care for sexually transmitted diseases and participation in ambulatory treatment of tuberculosis has been integrated into care provided at some of the FGPs. Prenatal care service remains relegated to the Oblast Maternity House, where it was assigned post restructuring in 1997.

There have been many obstacles to the development of fully functioning, clinically current primary care services. Some of these are:

- regulations that enforce clinical practices which have no scientific support in evidence based medicine;
- Sanitary Epidemiological Service (SES) regulations which enforce scientifically unsupported practices;
- an enforced referral pattern which mandates referral for many conditions which could be cared for in the FGPs, and which is necessary to support the inefficient system of financing the secondary healthcare sector;
- record keeping requirements which use up much of the time, resources, and energy of the primary care physicians while many of these statistics and records are of dubious value to quality healthcare;
- diagnostic systems which are not scientifically based and lead to unsupported diagnoses and unnecessary care and expenses.

Both Zhezkazgan and Satpaev have active family practice associations, which provide support for primary care physicians and FGPs as well as serving as a voice in the community and to governmental authorities. ZdravPlus has been instrumental in providing support for these organizations.
ZdravPlus also sponsored the six-month consultative work of David Kuter, an American family physician, and his wife, Hilda Kuter, to work with the primary care physicians of Zhezkazgan region to develop and evaluate their skills as family physicians.

A. Need for Quality Control in the Provision of Health Services

It is important to develop tools and methods for the evaluation of quality of care and outcomes in clinical practice. Continuous quality improvement is a core requirement of excellent primary healthcare services. The value of reorganization of primary care services and of training courses provided can only be verified by measurements of implementation into practice, clinical outcomes achieved, and patient satisfaction. Many traditionally used measurements and statistics provide information of little value in assessment of quality of care. It is important that physicians and health organizations learn to use reliable tools and accurate measurements that actually reflect the quality of care.

B. Assessment of Effects of Training of Family Physicians

What forms and methods of training conducted during the last five years led to improvement of medical practice? Traditional forms of assessing training, such as examinations (oral, practical, and multiple choice tests) are of some value, but must be supplemented by measurements of quality of actual care given and of clinical outcomes in order to assess the value of reorganization and training. This project was designed to measure outcomes in several different clinical topics and thus evaluate the effect of reorganization of primary care and of training courses provided. The study also introduces the tool of self-evaluation to the family physicians and officials participating, with the expectation that they will see its practical value towards their clinical improvement. The study also provides feedback to ZdravPlus, the trainers, and to local officials of the clinical effect of training provided.

III. Methodology

The authors chose topics in common clinical areas of care in adult, women’s, and children’s care for evaluation. Several of the topics had been the subject of continuing education and cross training for some of the physicians. Criteria for measurement were chosen largely from evidence-based literature. Data collection sheets for each topic were designed. Data summary sheets for each topic were prepared. From each community, physicians were selected by the local FGP association senior physician to be data extractors. This was done to give local physicians experience in the methodology and conduct of the study as well as to enhance identification of the study with the local physician community. Data extractors were trained and supervised by the authors. From each FGP, 15 charts were collected from each physician on each topic. Each day’s topic was announced just before chart collection, in order to prevent selection bias by the clinics. At the end of the day, charts for that day were returned to each FGP.

In some topics, modifications were made according to local circumstances discovered. Much was learned in the actual process of the study as well as from the data collected.

Data was entered from the collectors’ worksheets into summary tables for each FGP, each city, and for the study as a whole. That data was summarized and analyzed by the authors. A meeting was held with the senior physicians and health authorities at the completion of the study to give preliminary feedback and later to provide statistical information and interpretation.

IV. Criteria, Results, and Interpretation

A. Hypertension in Adults

This topic was chosen because of its frequency, associated morbidity, and the variance of usual treatment here from internationally accepted standards. Criteria checked included 1) regularity of blood pressure (BP) measurement; 2) presence in the chart of screening studies (urinalysis, EKG, creatinine); 3) selection of medication; and 4) durable prescription of medication.
Charts for 655 patients were reviewed, and the 566 who had seen a physician within the last year were selected for study. Fifteen percent of patients had not seen a physician within a year. Ninety-seven percent of those seen had had their BP (blood pressure) measured at physician visits. 84 percent had a urinalysis, but the rates for EKG (52%) and creatinine (19%) were lower, and varied greatly from clinic to clinic.

Prescribed medications favored by international protocols included: hydrochlorothiazide (15%), atenolol (5%), and ACE inhibitors (40% to 95% from practice to practice). Less desirable diuretics, beta-blockers and calcium channel blockers were used in some patients. Medications of secondary value were used as the only medications in 23 percent of patients and in combination with recommended medications in many others. Dosage was often not indicated on the charts. Seventeen percent received no medication at all (highest practice, 47%). Short acting medications, short courses of treatment, and intermittent treatment are each still commonly practiced.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochlorothiazide</td>
<td>15</td>
</tr>
<tr>
<td>Atenolol</td>
<td>5</td>
</tr>
<tr>
<td>ACE inhibitor</td>
<td>47</td>
</tr>
<tr>
<td>Non EBM medication only</td>
<td>23</td>
</tr>
<tr>
<td>No medication at all</td>
<td>17</td>
</tr>
</tbody>
</table>

In conclusion, the presence of some long acting medications and persistent therapy is a step in the right direction. Meanwhile, there are many obstacles to optimal treatment including: 1) patient attitude and expectation, 2) narrow specialist misinformation; 3) medication cost and non-availability; 4) pernicious advertising of non-optimal regimens; and 5) incomplete education of FGP physicians.

It is clear that these factors still contribute to the less than optimal state of hypertension management. It must also be acknowledged for comparison that less than half of those in the USA with hypertension are using an optimal regimen of treatment.

**B. Asthma in Adults and Children**

This topic was originally intended as an adult topic, but so few charts were found with this diagnosis that the review was extended to children too. Discussion with the data extractors and other physicians made it clear that many cases of asthma are given alternative diagnoses, because of the adverse consequences in the healthcare system of using asthma as a diagnosis and because of lack of understanding of internationally accepted criteria of diagnosis. Conversely, many of the charts reviewed in which a diagnosis of asthma was given would not receive this diagnosis using internationally accepted criteria. Many of the charts reviewed had a diagnosis of asthma given at the hospital or by the narrow specialist according to criteria other than those that are internationally accepted. (Almost every patient seen by David Kuter (DPK) locally in the past two years who had been given a diagnosis of chronic bronchitis would be classified by him using international criteria as bronchial asthma.)

Criteria for review included the use of spirometry and peak flow measurements in diagnosis and management. Effort has been made to teach the use of these tools, but they are not in general use. Usage of oral and inhaled corticosteroids was also measured, for inhaled corticosteroids are the cornerstone of international guidelines of treatment, while oral corticosteroids are useful but have great potential for adverse long-term effects.
Charts for 157 patients were selected. Peak flow meter use was not recorded for any patient in this chart review. Spirometry had been performed in eight percent of charts reviewed.

Inhaled corticosteroids, the basic treatment for persistent asthma, had been used in only 21 percent of patients, and often only for a short course of treatment. Meanwhile, 30 percent of patients (45 percent in Satpaev) were being given regular oral corticosteroids. This figure is vastly higher than the number expected to be actually steroid dependant, if international protocols are followed.

These findings of: 1) diagnosis variance; 2) lack of use of simple diagnostic and management tools; and 3) the low level of international standards of treatment are likely to be due to multiple causes.

- First, it is difficult for the FGP physicians, even after education to use international standards when other standards are forced on them by narrow specialists and the current healthcare system.
- Secondly, there is still ample need for family physicians to be taught international criteria of diagnosis and evidence based treatment protocols.
- Thirdly, programs must be developed to make proper medications available to patients when they are prescribed. Currently, a large amount of the health budget and of patients’ own money is spent on worthless medication, while well-proven medications are not available to the bulk of the public.

C. Diarrhea in Children

Diarrheal disease is very common and many city physicians have had training in international criteria modeled upon the World Health Organization’s (WHO’s) recommendations. Despite the government’s acceptance of WHO-model training, local physicians have been threatened that it will be necessary to close FGPs because of their “poor management” of this and other conditions.

Criteria measured by surveyors included: 1) symptoms and signs to be measured according to WHO criteria; 2) recommendations for oral rehydration solution (ORS); 3) use of antibiotics; and 4) referral for hospitalization.

When charts were collected, only 144 charts were submitted. Of these, 81 were rejected from the study for improper diagnosis, and 15 were rejected from the study as the patient had been directly admitted to the hospital without being seen by the family physician, and a notation of the admission was the only chart record of the diarrheal illness. Thus, only 48 charts were found in which the patient had actually been treated by the family physician for diarrhea. One practice submitted no charts for Children’s Diarrheal Disease (CDD), stating that “any patient they see for diarrheal disease is immediately referred to the hospital as demanded by the SES and the hospital authorities”. From other practices many of the charts indicated physician evaluation with immediate referral to hospital in order to comply with the SES. The doctors say that if they do not refer, they will be fined when the SES comes as a commission to their practice and finds charts of patients with a diagnosis of diarrhea that were not referred. The SES justification is that every case of diarrhea is a potential case of salmonella and must be under their care.

Because of the SES and hospital requirements, which do not follow international standards, there is a great reluctance to give a diagnosis of diarrhea, so primary care physicians often give a diagnosis of "Acute Respiratory Infection (ARI) with intestinal syndrome". In this way the charts are not coded as diarrhea. Why? Because every case in which they give a diagnosis of diarrhea must be referred to the SES, numerous forms filled out, stool cultures taken, and the child almost always ends up in the hospital on infusions. The parents do not want their child hospitalized. The doctors do not agree with this form of treatment and do not want to fill out all the SES forms. So they give this alternative diagnosis and treat with ORS. Thus physicians are not allowed to practice according to their training, and instead resort to giving an alternative diagnosis in order to protect their patients. This makes performance of an accurate assessment of care via chart review subject to great misinterpretation.
One author gives an example from Almaty: When her son was in kindergarten and developed acute diarrheal illness, she took him to the pediatrician. The pediatrician told her that her son had simple diarrhea and would get better on his own. However, the pediatrician said that she would describe the case in the chart as an ARI with intestinal syndrome, so that the mother would not have to take him to the SES, which would lead to hospitalization, inappropriate antibiotics, trouble for the kindergarten from the SES and forms for the doctor to fill out. She followed the doctor’s advice at home and her son was better in a day. This is standard procedure for pediatricians and family physicians.

Indeed, when reviewing charts with acute respiratory infection (ARI) diagnosis, a large number of cases of “ARI with intestinal syndrome” were found. These children did not have ARI. They had CDD, but with this creative coding the doctors have learned to keep their patients from inappropriate hospitalization and treatments.

Several practices state that they have undertaken extensive education of their patient population, particularly mothers of young children, in the management of diarrhea, the signs of worsening illness, and the indications for calling for medical help. With this education they state that most parents take care for their child with diarrhea themselves with good results, and most cases are never seen in the healthcare system. Of those patients seen and not hospitalized, 80 percent were given ORS.

The evaluation for oral intake history and skin turgor was recorded for only ten and eight percent respectively of patients in the charts. Many of the physicians were trained in IMCI criteria. However, when immediate hospitalization is demanded, no matter what the severity of illness, the incentive for accurate evaluation is lost. Twenty five percent of patients not hospitalized were given an antibiotic, demonstrating need for further education and policy change.

Conclusions here include that if there is increasing mortality from children’s diarrheal disease in Zhezkazgan and Satpaev as stated by some officials, perhaps the reasons come from some factor other than the care provided by the FGPs. There is an opportunity here in that officials have stated that the increased mortality from diarrheal disease in the two months to five years age group in Zhezkazgan and Satpaev is a strong reason to close the family practice clinics and revert to the polyclinic system. It would be helpful to do a study looking at cases who were hospitalized in a severe state or who died and look back at the family physician’s record of those cases to see if there is evidence of poor care.

Renewed efforts are needed to change the system requiring forced reporting to the SES and the hospital. The SES should not be involved with mild cases, which are usually self limited and require only supportive care given orally.

**D. Acute Respiratory Infections (ARI) in Children**

Acute respiratory infections are a frequent presentation in primary care medicine. It is important for primary care physicians to distinguish between the few infections that are severe and require referral and the many that can be treated by the primary care physician. Antibiotics are often used to treat such infections and current evidence-based medicine shows that this is inappropriate. Zhezkazgan area physicians have received training courses consistent with WHO methods for identifying and treating respiratory infections. Criteria were chosen for this study to evaluate use of fundamental diagnostic signs of respiratory infection and to determine antibiotic use and referral for hospitalization.

Six hundred and fifty nine charts were selected. The frequency of respiratory rate recorded was 37 percent. This is much higher than anticipated by the authors and reflects the application of training received in acute respiratory infection management. Temperature was recorded in 76 percent of cases. The goal is 100 percent. However many patients are seen with minimal symptoms and looking only slightly ill, so many doctors conclude in the rush of patients to be seen that a temperature measurement is not essential.

Antibiotics were prescribed to 26 percent of children seen with respiratory infections. This is higher than ideal according to evidence-based medicine, but is a striking change in treatment pattern from other sites.
visited, where a majority of patients receive antibiotics. American prescribing patterns are still in the 40-70 percent range in children with respiratory infections. In 28 percent of those who received antibiotics, the parents had already given them before visiting the physician and without the physician’s advice.

The choice of antibiotics was also commendable. The common pattern seen in Kazakhstan is the prescription of courses of antibiotic injections, often gentamicin for courses of seven to fourteen daily injections. In this study the most frequently used antibiotics were trimethoprim/sulfamethoxazole, penicillin, and ampicillin. Gentamicin was only given in two of the 659 charts reviewed. Injectable antibiotics were given to only 28 percent of those given antibiotics, mostly penicillin.

**Figure 1: Choice of Antibiotic**

![Bar chart showing the choice of antibiotics with Penicillin having the highest number of treated patients followed by Ampicillin, Erythromycin, Streptocid, and Gentamicin with the lowest.]

These behaviors show a striking shift from the previous norm to a pattern of diagnostic evaluation and treatment more consistent with WHO guidelines. This is remarkable, as it is accomplished in the face of much pressure and an expectation to prescribe antibiotics from both the patient population and narrow specialists. The authors have heard patients describe their visit to a narrow specialist who tells the patient that the family physician did not prescribe antibiotics because they are not well educated. One of the authors has used the results of this study in a CDC sponsored education program in Wisconsin, to educate physicians and the population about decreasing unnecessary antibiotic use in respiratory infections.

### E. Anemia in Females of Fertile Age

Anemia in females age 15 to 35 was chosen as a topic for evaluation because of its known prevalence in this society and concerns about the adequacy of prevention, detection, and treatment. Criteria for review were: 1) presence of hemoglobin measurement within one year; 2) usage, dosage and duration of use of iron medication; and 3) follow-up hemoglobin measurement after treatment.

Charts of 824 patients were evaluated. In Satpaev it was impossible to get hold of the charts of adolescent females since care of these women has been taken away from the family physicians and is carried out at the polyclinic. 31 percent had not visited the FGP within the one year studied. Of the 570 women who had been seen within the year of study, 66 percent had a hemoglobin measurement recorded in this time period. This high percentage reflects FGP physicians’ concern to detect anemia in this high risk group.

Moderate to severe anemia (hemoglobin <110gm/l) was present in 26 percent of those tested, confirming the rather high frequency of this condition. It was more prevalent from ages 20-35 years than in adolescent women (adolescent data from Zhezkazgan only). This probably reflects the stresses of frequent child bearing in the latter age group.

Of those with moderate to severe anemia, only 45 percent were prescribed iron medication. There was wide variability between clinics. One clinic had a 100 percent treatment rate of moderate to severe
anemia, while in another clinic the rate of treatment was only 17 percent. The medications prescribed were mostly expensive brand name medications. Only two patients received internationally recognized therapeutic doses of ferrous sulfate. In several charts, nutritional advice for patients was recorded. The authors know from conversation with the physicians and from a survey of the pharmacies, that ferrous sulfate is seldom prescribed, as the physicians are more familiar with brand name products, and the pharmacies often do not carry this product. They are often unaware of the difference in price per gram of these products. Patients also have more confidence in brand name products, perhaps as a result of advertising.

The recommended duration of therapy was often not recorded. In those whom it was recorded, it was usually a few days to a few weeks. Duration of therapy for longer than one month was specified in only one patient, whilst 13 patients had therapy for one month. This confirms observations made previously in the clinics that treatment is inadequate in duration. Many physicians told the authors that patients would not take a medication for a long time even if prescribed partly because of the cost and partly because cultural acceptance embraces short courses of treatment.

Several opportunities are evident from the results of this study. Further education of both physicians and the public is needed to teach the use of adequate courses of simple medication, the relationship of tea drinking to reduced absorption of dietary and therapeutic iron, and the ability to increase absorption of dietary and therapeutic iron with concomitant vitamin C in diet or supplements. Family practice physicians could be assisted in developing educational materials for their patients in this regard. The pharmaceutical sector needs review in order to make simple essential products available to the population, and reduce the influence of advertising of lesser products. With such a prevalence of anemia, providing free medication or iron fortification of flour should be considered.

**F. Prenatal Care**

Prenatal care was selected for study to gather information on several parameters of prenatal care. It was also planned to compare the prenatal care given in the FGPs (Satpaev and Rudnik) with prenatal care given by the women’s polyclinic (Zhezkazgan and Kengir). However, Rudnik is now the only FGP giving prenatal care.

Criteria reviewed included: 1) diagnoses of anemia, pyelonephritis, and gestosis (a unique Soviet diagnosis, but with characteristics similar to toxemia of pregnancy); 2) rates of blood pressure and hemoglobin measurement; and 3) a review of the numbers of hospitalizations.

Charts of 714 pregnancies were evaluated. Of these 699 met selection criteria for the study. Measurement of blood pressure was found in 93 percent of charts and hemoglobin in 98 percent.

Anemia was found in 74 percent of pregnant patients. Hemoglobin was below 100gm/l in 40 percent, below 90gm/l in 16 percent, and below 80gm/l in 5 percent of patients. Iron medication was prescribed to only 31 percent of those patients who were anemic. Mostly brand name products were prescribed, and usually for only a short interval of treatment.

Special note must be made of Rudnik practice, the only practice in the study giving prenatal care at the FGP. The rate of anemia was only 38 percent and only one patient of the 24 pregnancies reviewed in their practice had a hemoglobin level below 100gm/l. This is a strikingly lower rate of anemia than in the practices cared for by the polyclinics. It cannot be accounted for by socioeconomic conditions because the Rudnik and Vesevoy patients are among the poorest in the Zhezkazgan region. The probable explanation is the expert and attentive care provided by the FGP physicians compared to the polyclinic physicians.
Breastfeeding education was documented in only 2 of the 699 patients in this study. This is an opportunity to improve the rate of breastfeeding if the prenatal period can be used to provide encouragement towards prolonged breastfeeding after delivery. Family physicians who have a continuing relationship with the family and child after pregnancy may be more motivated to give such education if they had the opportunity to provide prenatal care.

Physicians of the former Soviet countries hospitalize their patients during pregnancy much more than is done in countries that follow evidence-based guidelines of care. The hospitalization rate in this group of patients was 44 per 100 pregnancies overall and 37 per 100 pregnancies in Rudnik practice. This high rate of hospitalization is attributed by the local obstetricians to the high disease rate of the pregnant population, with hospital-based treatments necessary for proper care. Forty patients in the study had two hospitalizations and four patients had three or more hospitalizations. Based on clinical observations, the authors attribute this high hospitalization rate to the use of “Soviet” rather than evidence-based diagnostic and treatment criteria of complications of pregnancy. For example, 10 percent of women were given the diagnosis of gestosis and 18 percent the diagnosis of pyelonephritis. Most of these cases receive these diagnoses if internationally accepted criteria were used to make the diagnosis. Many of the hospitalizations that occurred were for these diagnoses. Most of these women would not receive hospital care if evidence-based methods of care were used.

This study provides some data regarding prenatal care in one city with most of the prenatal care provided by polyclinic physicians. It would be of interest to compare these statistics and pregnancy cost and outcome statistics in practices in which prenatal care is provided by family physicians in FGPs according to evidence-based criteria of care. Hopefully, there will be the opportunity to make that comparison.

V. Summary Conclusions

This study provides some statistical basis for evaluating the current state of practice in FGPs. Hopefully, as more opportunities occur to educate for and practice evidence-based medicine, this study can serve as a baseline.

The process of doing the study revealed much information regarding obstacles to internationally accepted diagnosis and treatment in the clinical areas studied. These findings are in addition to the statistical results. This information will be valuable in planning further efforts at continuous quality improvement.

The study provided an opportunity for the health authority, senior physicians, and the data extractors to be involved in gathering data in a format designed to lead to quality improvement. Hopefully, this participation will leave them interested in future efforts at quality monitoring and improvement efforts.

The study confirmed that there are needs and opportunities for further change in each clinical area in order to improve the quality of the clinical care given. It also pointed to the continued need for regulatory change and change of the structure of financing to make some of these improvements possible.