

MATERNAL AND CHILD HEALTH EQUITY ANALYSIS

STUDY REPORT



**INTERNAL AND CHILD HEALTH EQUITY ANALYSIS
STUDY REPORT**

Center for Health Policies and Studies (PAS Center)
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GLOSSARY

ARI	Acute Respiratory Infection
CEB	Children Ever Born
CEE/CIS	Central and East Europe/ Commonwealth of Independent States
DHS	Demographic Health Survey
ECD	Early Care and Development
EGPRSP	Economic Growth and Poverty Reduction Strategy Paper
FD	Family Doctor
FG	Focus Group
IMCI	Integrated Management of Childhood Infections
IMR	Infant Mortality Rate
LSM	Living Standards Measurement
MCH	Maternal and Child Health
MDGs	Millennium Development Goals
MICS	Multiple Indicator Cluster Survey
MoH	Ministry of Health
MTEF	Medium Term Expenditure Framework
NBS	National Bureau of Statistics
PHC	Primary Health Care
PPP	Purchasing Power Parity
SES	Socio-Economic Status
WB	World Bank
WHO	World Health Organization

EXECUTIVE SUMMARY

The current study was commissioned by UNICEF Moldova to describe and assess the extent of inequalities in maternal and child indicators and other key indicators causally relating to maternal and child health in the Republic of Moldova. This situational analysis focuses on the *differences* in various categories and to confirm whether and if these groups, of the child and woman populations, of the country may suffer disproportionately.

The equity analysis is based on the concept of multi-factorial determinants of health, taking into account that inequalities in health arise from, and are maintained by unequal distribution of welfare, knowledge, lifestyle practices, attainment of employment, access to education, water and sanitation system, food production and social support. The study focuses on describing the state of maternal and child health inequity in Moldova through the analysis of the three types of indicators: high-level outcomes, key intermediate outcomes, and structural outcomes. In doing so, both descriptive and quantitative techniques were applied. This included the collection and description of data available from other related surveys, but also the quantitative techniques (concentration curve, concentration index, significance tests, etc) in order to attempt to quantify of the degree of inequity as it relates to wealth.

The review of poverty data reveals that a large proportion of Moldovans remain poor, with their health outcomes strongly influenced by their lack of incomes or resources. Poverty figures classify the Republic of Moldova as the poorest in Europe, slightly above the forty poorest countries in the world. Poverty is concentrated in rural and small town areas and within self or small enterprise workers. Moldovan children are the most vulnerable group in the country and the entire CEE/CIS region. They also suffer from the effects of their parents' emigration abroad in search of better wages. Little is known of the poverty and health outcomes of some key groups of children and women (those living in the break-away region of Transnistria, children living in institutions and detention centers, Roma people, etc.).

Due to the prioritization of the child health interventions by the Government of Moldova and the assistance offered by the international organizations, mother and child health indicators have improved. Reforms, including the introduction of health insurance and family medicine service, lead to the amelioration of some MCH indicators, such as mortalities, morbidity and immunization coverage. Inequities become evident by place of residence, wealth or education status and some Moldova indices remain far behind the countries of the European region.

Though multiple MCH indicators are collected routinely at the national level, those are of limited relevance to the analysis of equity in health, mainly because they cannot be classified according to the non-health characteristics of service users, such as SES, education or place of residence. The annual surveys by the NBS, although rich in SES data, do not include indicators on health status or use of the MCH services.^[31] The existent information on health is rarely used to monitor or advocate for health equity mainly because of the lack of disaggregation or low quality of data.

The statistical analysis was performed on data from Moldova DHS 2005 and annual NHBS 2006-2008, as these are the only two sources providing combined SES and health indicators. The qualitative analysis was based on a desk review of the evidences on determinants of the MCH, combined with information coming from focus groups with mothers and communication with MCH experts.

The review of the available survey-based data revealed that there are inequities in key maternal and child health outcomes in Moldova, varying from mild to significant levels and indicating that poor children are suffering disproportionately. Despite the fact that there are improvements in child mortality at country level as whole, important inequities in infant mortality rate was registered by residence, region or wealth quintiles. They are as follows: 23 in rural areas, 31 at South zone and 29 per 1,000 live births in the 3rd quintile, while the analysis by concentration curves and index indicates significant inequities disfavoring poor children.

Similarly, the analysis of the coverage of preventive and curative services also reveals inequities. The utilization of antenatal care, micronutrients by pregnant women and medical visits in the case of diarrhea or fever are all favoring children from better-off groups. Interestingly, with immunizations, the inequity is “reverse”, with better-off children being less immunized, possibly following the internationally documented trend in which the vaccination coverage is worse in urban areas and better-off population groups.

With regard to food consumption, well-off children more frequently eat animal-source foods. The 2009 NHBS data show that families with children in the poorest quintile spend 4.5 times less money for food than the richest. At the same time, the poor spend the largest amount of money for food comparing to the rich: 53% of total expenditure comparing to just 31% in richest. The differences in consumption are significant and indicate serious barriers for poor population in ensuring a nutritious diet. Food deprivation data (as a proportion of population whose food dietary energy consumption is below the minimum dietary energy requirement of the 2,500kcal) showed that in 2006 the number of undernourished people remained high in the poorest quintile (25%), urban population, specifically towns (28%) and in three to four member households (24%). This data suggests the need for social aid specifically targeted at families with 4+ members to help them overcome undernourishment and deprivation.

In terms of key underlying determinants of health as pertaining to the health sector (availability, quality and affordability of medical care), large inequities can be observed. According to the MoH data, in one-third of the districts, the family doctors have a catchment population, which exceeds the European standard of 1 per 2,500 populations. For example, these same districts suffer from fewer visits to family doctors (<2 per year comparing to >3 in other districts). Serious shortages of equipment are documented at primary health care facilities, with over 46 areas of essential equipment lacking by 50 and more percent. This data suggests that there are large disparities in the availability of personnel and equipment, which influence quality of health services.

From 2000 the MoH has introduced new protocols of maternal and child care (e.g. on Integrated Management of Childhood Diseases or the 2nd revision of the Perinatal services). Under these protocols, important data on quality of care for children should be obtained, such as the proportion of sick children correctly and timely diagnosed, treated or referred to hospital. During 2008, the MoH instituted monitoring units, such as the IMCI and Perinatal Program monitoring units, which aim at collecting periodic data on the quality of services. As data from the service assessment will become public, their equity analysis should be warranted to provide estimates of the degree of inequity in the quality of MCH services.

In terms of the equity in affording the needed medical care, the recent health insurance has improved access and use of the medical services. However, an important proportion of the population (22%) is still not insured, with 78% of those being unemployed or self-

employed, thus, simply not being capable of affording the cost of the insurance card. It appears that although intended to improve protection from the catastrophic costs of illness of the most disadvantaged population groups (such as rural and low income), the health insurance has not exactly reached them, especially reproductive aged women, of whom, 38% are not currently ensured.

Revealing information on quality of care comes from the focus groups, organized for the purpose of this study, and were conducted in three less advantaged villages and selected based on the deprivation index SADI. The issues of affordability and availability of services appeared to be the two main themes preoccupying mothers. Women, at the study focus groups, repeatedly mentioned that lack of medical personnel and services in the close proximity of their homes and communities is one of the main barriers to their health service access. At the same time, the additional costs for transportation and medications, not covered by the medical insurance, represent the second most frequently cited barrier.

The recurring comment is that the quality of care is particularly inconsistent for pregnant women and children older than one year in rural areas. Since they often need to travel to the district town to get the tests and observation, they feel obliged to directly pay personnel in order to receive better level of care. Particularly dissatisfied are Roma women, who mentioned not only the poor quality of care, but also their lack of resources, poor communal infrastructure in the places of their compact inhabitation (no piped water, less visits to family doctors) and inability to properly feed their children or transport them to health centers. The lack of identification papers and frequent migration, for lack of housing, surfaced as problems in registering the children at birth and ensuring proper antenatal care.

With increasing concern, when asked to rate from 1 to 5 the quality of services offered with the introduction of the health insurance, the majority of women rated those at the lowest mark (1). This information from the focus groups suggests the need for more in-depth, quantitative surveying of mothers and families perceptions on the availability or affordability and actual use of services, which will clearly define the main barriers to care.

In terms of policy response to the health inequity situation, it shall be noted that in Moldova the health equity goal transudes from a range of major, national policy documents, including Health Policy 2007-2021, Health Strategy 2008-2017 and the National Development Strategy 2008-2011. However, the actual paths to the goal are less clearly described or planned. For example, most of the policy or program documents do not stipulate a set of equity indicators nor do they contain the information on milestones and targets or the process to monitor and analyze the results against the initial goals. This situation is worrying in relation to MCH, since there is no national public health program completely addressing MCH. Targeting MCH is important due the high cost return from MCH interventions, but also to specifically monitor resources in the face of the unveiling economic crisis and seriously reduced financial resources.

Since the equity monitoring is not part of the strategic or programming planning for MCH, it is difficult to assess the degree to which certain programs may have improved or worsened the equity status. Generally, the MCH programs in Moldova tended to carry a “universal coverage” character and did not define the most vulnerable groups. In the situation of the widespread poverty in the early period of the current decade, this lack of “targeting” might be justifiable, since improving the health status of the entire population was needed. However, as the current study demonstrates significant inequities are registered in the levels of morbidity, utilization and affordability of care in Moldova.

Given the recent economic slowdown and less financing, an equity-targeted approach is surely warranted. To inform such targeting, recent population data is needed. In the case that inequities are growing, the improved targeting of services and social aid is urgently needed.

The inequity analysis study report is organized as follows: after the brief introduction, Section II discusses the current status of poverty and health in Moldova. Section III describes the methodology used in the analysis, including its conceptual framework and data sources. Section IV analyzes inequities in MCH outcomes at high, intermediate and structural levels. Section V shortly describes current legal and policy responses intended, at least in part, to address and prevent inequities. Section VI presents the conclusions and identifies some recommendations to address the uncovered MCH inequities. In addition to the main report, several annexes have also been prepared that include statistical tables supporting the analysis in Section IV.

I. INTRODUCTION

1.1. Definition

Although definitions of health equity vary, it is commonly accepted that people should access health care based on their needs and pay for such care based on their financial abilities. The term “health inequities” cannot be used interchangeable with the term “health inequalities” because inequity focuses attention on the distribution of resources and other processes, which drive the systematic inequity in health (or in its social determinants) between more and less advantaged social groups.^[1] At the same time, equity is not seen as equality, but as "fair shares" and "fair opportunities" in distribution of resources and provision of services.

The World Health Report 2000 states that the goals of health systems are to improve equity in health and health levels, to ensure fair health financing, and to be responsive to diverse population needs. Over the years, after the Almaty Conference in 1978, equity in health has become a growing concern to policy-makers in both developed and developing countries. The objective of reduced inequity became increasingly apart of different national documents, including Poverty Reduction Strategy Papers in the developing world and the governmental White Papers in the West.

The importance of health equity is revealed in relation to the analysis of the social determinants of health, those being especially sensitive to the analysis of health outcomes of young children and future-to-be mothers. A milestone document of the Final Report of the Commission on Social Determinants of Health, which came out in August 2008^[2], called upon governments to fulfill three major conditions in the pursuit of equity:

1. To improve the conditions of daily life and the circumstances in which people are born, grow, live, work, and age.
2. To tackle the inequitable distribution of power, money, and resources (the structural drivers of those conditions of daily life) globally, nationally, and locally.
3. To measure the problem, evaluate the action, expand the knowledge base, develop a workforce that is trained in the social determinants of health, and raise public awareness about the social determinants of health.

1.2. Importance of health equity monitoring

The logic of health equity monitoring was established within developed countries, such as USA, Canada and New Zealand^[3-6], as a means to support advocacy and action to even out the disparities between groups, but also target the groups most in need. At the current stage, the health equity monitoring of these countries is fully integrated into their routine health monitoring and has achieved significant levels of sophistication and use*. A lighter, but still solid monitoring system, focused particularly on children’s well-being is presented within the Children’s Institute, University of Cape Town site and includes reliable indicators of the children’s access to adequate housing, health-care services, food and water, social security and basic education^[7].

* For a sample of those see <http://www.cdc.gov/nchs/surveys.htm>

In the late 90s, similar initiatives were started in some developing countries with a group of professionals meeting in Chile and proclaiming that “by the year 2015 every country should have an integrated system for monitoring health inequities that informs, monitors and evaluates health and other socio-economic policies”^[8].

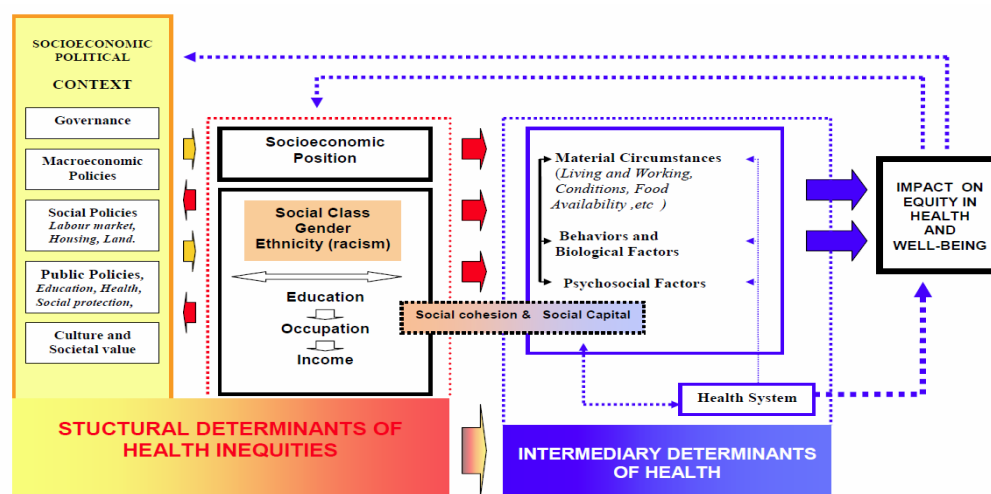
By early 2000, a monitoring initiative, the so-called ‘health equity gauges’, was launched in 14 countries to measure health care inputs, social determinants of health and track gaps in health status among population groups at the national or sub-national levels. The Global Equity Gauge Alliance (GEGA) was established to provide support to the emerging gauges^[9]. Some other regional initiatives appear, such as, Regional Network for Equity in Health in East and Southern Africa (EQUINET)^[10].

1.3. Conceptual framework

To analyze the problem of inequity in maternal and child health, the current study based its rationale on the concept of multi-factorial determinants of health, as enshrined in the classical works of Whitehead and enforced in the works of Kawachi^[11, 12]. Their analyses indicate that inequalities in health arise from, and are maintained by unequal distribution of income, knowledge and lifestyle practices, attainment of employment, access to education, water and sanitation system, agriculture and food production, health care and social support (see Health Equity Analysis Framework Chart in Figure 1, modified from the Final Report of the Commission on Social Determinants of Health).

Earlier, research had clearly demonstrated that inequity of health status was largely determined by the inequality of socio-economic status. The latter being mostly caused by unequal distribution of wealth and of wealth-related factors: the regional or urban/rural residency and the use of social services, including health services. Unlike usual development monitoring, similar to that for the developmental goals or MDGs, which focus on national averages, the equity analysis needs to focus on *inequalities* or differences in the key health outcomes which, otherwise, are generally masked by the national averages. The persistent, and in some cases, increasing inequality in key health outcomes, including maternal and child health, imply that some groups of the population are not equally benefiting from the services or economic progress and should become one of the concerns for policy makers. Given these, the most frequent framework of analysis is presented in Figure 1 below.

Figure 1 Analysis Framework Chart



Based on the above information, the current equity analysis study focuses on describing the state of maternal and child health inequity in Moldova, in terms of impact indicators (mortalities, nutritional status and few selected morbidities), but also attempting to statistically calculate the degree of inequity. The degree of inequity is calculated using techniques described in the Methods and Data Collection section below. This includes few intermediary determinants of child and maternal health, such as the uptake of a few selected family practices and healthcare services. The study also looks into selected structural indicators, as pertaining to the healthcare sector.

Only looking into the healthcare sector limits, the understanding of the inequities in health, since inequities are also determined by education, welfare, access and use of information, markets, land, and infrastructure. However, such an “all-inclusive” exploration was not possible in the frame of the current study not only because it requires delving into a vast range of monitoring systems or surveys, but may be subject to another, subsequent exploration.

In detail, the report focuses on three types of indicators: (1) high-level health and nutrition status outcomes (i.e., maternal and child mortality, morbidity, nutrition status), (2) key intermediate outcomes (or determinants), causally related to high-level indicators: coverage of service (antenatal care, immunizations, curative care), and early care practices, and (3) structural outcomes as pertaining to health sector only (inputs such as physical proximity, distribution of personnel, and perceived affordability of healthcare services).

This study is intended as a working document for policy-makers and managers in Moldova. For this reason, its aim is to use common and understandable terminology and description of techniques, which would be relatively easy to reproduce or understood by health care managers and technical officers. Thus, it may effectively assist the process of planning, allocation, and monitoring of MCH resources in equitable manner.

1.4. Measurements of inequity

The measurement of inequalities in health outcomes is a critical part of the analyses of inequities in a country and is described in detail by the World Bank in a recently published tool^[13]. Such measurements implicitly include population-based SES data by weighted quintiles, calculation of the concentration curves and the concentration index and statistical analysis of the associations between health outcome variables and determinant factors. These are done to identify, along the extent of inequalities in key health outcomes and their dynamics over time, the factors that account for inequality. At the same time, the analysis requires specialized statistical software (ex. STATA or SPSS), and also must be supplemented by population-based estimates of mortalities, coverage with preventive and curative health services, community or health facility-based data and the measurements on the effects of social policies and programs^[14].

Household multi-purpose surveys tend to include proper income measures, but very limited health status or service coverage variables, the most common being self-reported morbidity indicators[†]. Datasets from household surveys are usually kept with the national statistics agencies and are more accessible to researchers. On the other hand, most health surveys do include a wide range of health-related variables and some socioeconomic status indicators

[†] See, for instance, the survey questionnaires for the Living Standards Measurement Study (LSMS) developed by the World Bank

at the household level. However, their datasets are rarely kept with one entity and their accessing procedures are not always straightforward.

With the above in mind, the selection of the indicators to be used for the health inequity analysis in the Republic of Moldova was limited by the fact that very few studies are available, which include health and SES indicators necessary to the inequity analysis using concentration curves. As such, only DHS Moldova 2005 dataset was suitable and available. The Healthcare component of the Household Budget Survey Moldova 2006-2008 had also been identified. However, it does not contain the information on the determining factors to the MCH, such as utilization or family financing of specific MCH services. These limitations precluded a more comprehensive analysis of inequities as required by the Framework presented above. In addition, they do not allow the construction of time trends. Still, the analysis of the existing data allow the construction of some initial baseline sketches based on which inequity analysis could be applied to the data of recent or future exploration, such as the Early Care and Development Study 2009 or the next round of DHS/MICS surveys.

II. POVERTY AND HEALTH IN MOLDOVA

2.1. Socio-economic status

Socio-economic status of the nations is one of the strongest predictors and determining factors of their health status. For this reason, the study of the economic conditions and, particularly of the occurrence of poverty, is of major interest to the monitoring of equity. Different authors mention up to 8 different terms used to describe poverty: (1) income or consumption poverty (most frequently), (2) human (under) development (introduced by UNDP in 90s), (3) social exclusion, (4) vulnerability (introduced and used by EU from 2000), (5) (lack of) capability and functioning (introduced in 80s), (6), ill-being, (7) livelihood un-sustainability, (8) lack of basic needs (introduced by ILO in 70s), and (9) relative deprivation (ODI Poverty Briefing, February 1999). It is also noted that if national poverty reduction strategies define and approach poverty in terms of income or consumption (including, through a minimum basket of food and other goods) those generally suggest focusing on the economic growth to reduce poverty. If poverty is understood as lack of ability to read, communicate, produce, or have a healthy life, then poverty reduction strategies tend to place attention to the human development or social exclusion. Thus, turning the attention far beyond the economic growth to a more multi-factorial approach.

The study of poverty in Moldova from the early 90s had significantly evolved and is largely based on the household-based instrument of the national survey by the NBS. At the same time, the tool and its data are used in different ways and different measures of poverty are produced.

Measures of poverty: Generally, the analyses produced by or for the international, external parties in Moldova use the measures of absolute poverty as based on daily income or consumption. Two dollars a day (or, more accurately, \$2.15, as being more relevant for eastern Europe and central Asian countries, reflecting the higher cost-of-living associated with living in colder climates) is used as a measure of absolute poverty. A higher poverty line (\$4.30 a day) is also used as a proximate vulnerability threshold to identify households who are not suffering absolute material deprivation, but are vulnerable to poverty (World Bank 2005).

The national entities in Moldova, such as Policy Poverty Monitoring Unit of the Ministry of the Economy and Trade, use the measures of “poverty line” defined as 50% share of the “minimum consumption standard” sufficient to ensure consumption of 2,500 kkal/day per person (absolute poverty line- 353.87 MDL and extreme poverty line- 278.52 MDL in 2005)^[15]. The World Bank uses a different food consumption threshold: amount of money needed to ensure 2,100 Kcal per day (extreme poverty threshold), based on a basket of edible goods, while for its normal poverty line it adds non-food goods to the basket, in which consumer durables, housing, and utilities expenses are excluded. We have also identified some four other measures and indicators of poverty status, which are less used or less clearly described. To no surprise, the abundance and diversity of poverty related indicators is challenging while experts warn that their measurements are flawed with some conceptual and measurement problems^[16].

Specifics of the population-based poverty estimate that in Moldova, it is largely based on the explorations among households and, thus, leave out some important other population groups who are not living in the households. This includes street children and women (no exact data or estimations available), children placed into institutional care (estimated at 8,800 in 2008)^[17], children in detention centers. At the same time, children and women

living in the breakaway region of Transnistria, is not part of the population –based studies, nor the NBS survey. Therefore their poverty status is largely unknown, although assumingly worse. If the poverty status of the above-mentioned population groups of Moldovans would be factored-in, the overall national and children/women poverty status might be even worse than the one actually reported.

In 2006, 29% of the Moldovan population lived in absolute poverty[‡], earning \$2.15 PPP/day, classifying it as the poorest country in Europe, just slightly above the forty poorest countries in the world. For comparison, for the same year, the level of absolute poverty in countries which share similar background of former centrally planned economies, such as Croatia or Macedonia, had not exceeded 2%[§] and were fifteen times lower than the figure in Moldova. In the same year, up to 50% of the Moldovan population was estimated to live below the \$4.30 PPP/day[§].

According to the National poverty line grading, during 2002-2005, the share of population living below the national poverty line was 49.5%^{§**}. More recent estimates, from the same sources, do not present figures after 2006. At the same time, the governmental-managed DevInfo database (www.devinfo.md) contains the national poverty line estimates from 2008, which constituted 26%. So, according to the figures of the national poverty line, as estimated by the national entities from 2002 to 2008, the proportion of poor people has reduced by half, from 49% to 26%.

In terms of **poverty dynamics**, the national primary MDG to achieve by 2015 requires the reduction of the proportion of people living below the absolute poverty level from 30% in 2006 to 20% by 2015 (Figure 2). The protracted global and national economic crisis may pose serious threats to the achievement of this goal. In the best case-scenario, the primary MDG target will be achieved by 2015 and its level will be still describing a widespread poverty and a quality of life much below that in the countries of CEE or West CIS regions.

The context of poverty in Moldova is somehow special as its poor people are yet well educated with up to 80% of the lowest SES quintiles (1st and 2nd) having attained secondary and secondary special education (DHS 2005)^[19]. The overall literacy rates exceed 90%. At the same time, the level of employment is rather low. In 2005, half of the men and women of the two lowest quintiles were unemployed in the last 12 months. While of those employed, the majority (for example, 68% of women) indicated being employed at low pay labor (agriculture, domestic service or unskilled manual service) with low employment security and decreased capacity for saving. More recent data on employment by wealth quintiles status has not been found in the public domain.

Poverty concentrates in rural areas: In 2005, 56% of rural areas surveyed households belonged to lowest quintiles comparing to just 7% in urban areas^[19]. The figures coming from the World Bank analysis from 2004 (as based on calculations by the MEC; at \$2 per

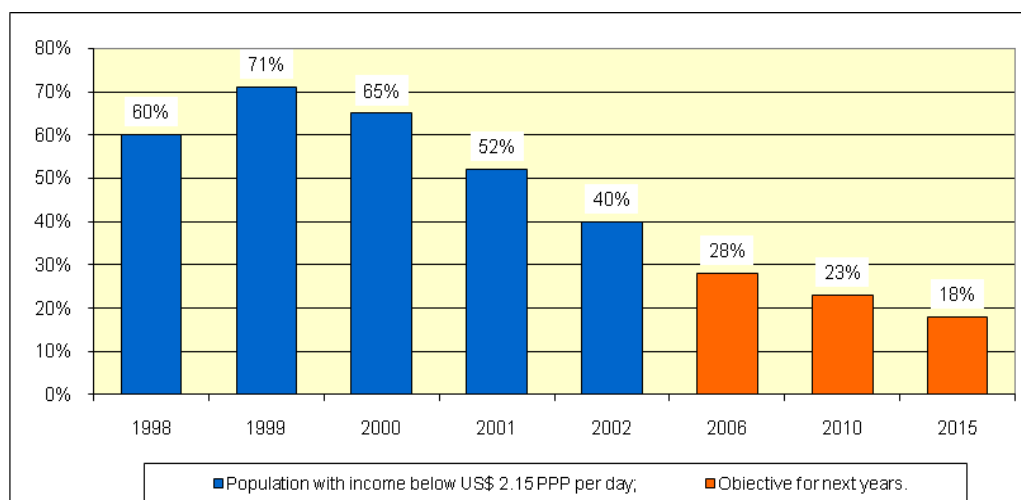
[‡] Population below poverty line, *The World Factbook*, CIA, updated on November 13, 2008. Data for 2006 as most recent

[§] Data refer to the most recent year available during 2000-2007. Human and income poverty: developing countries / Population living below national poverty line, *Human Development Indices: A statistical update 2008*, http://hdr.undp.org/en/media/HDI_2008_EN_Tables.pdf accessed August 20, 2009

^{**} World Development Indicators 2008". World Bank. September, 2008. Accessed at <http://go.worldbank.org/LJW2UB0SI0>.

day PPP/ absolute poverty line), show that in 2005, up to 42% rural and 48% small town populations lived under the absolute poverty line^[20].

Figure 2 Population living on less than USD 2.15 PPP a day^[18]



Emigration and faring better: Throughout its new independence period, Moldovan citizens went through a mass exodus to Russia, Israel and Western countries. By 2005, some 440,000 citizens (approximately 11% of the population) have been estimated to have left, searching for temporary jobs and better futures^{††[21]}. The full accounts and effects of this phenomenon are increasingly studied in Moldova, with the significant remittances claimed to have boosted the economy and ensuring that families of emigrants fare well. Simultaneously, at the time of the emigration, the emigrants' SES is reportedly higher, and thus, permitting them to initiate the costly emigration process. Researches point out the negative effects of emigration on children left behind by their parents (lack of parental care and guidance, risks of trafficking and violence and developmental gaps), but suggest that further qualitative and quantitative research is needed^[22].

According to the IMF in 2005, in Moldova, remittances have become an “effective safety net mechanism”^[23]. However, it might be argued that the remittances further escalated inequities in incomes given that they mainly go to the wealthier part of the population as the bulk of their disposable income that mostly belongs to the highest quintiles. At the same time, large segments of the population continue to live below the absolute poverty threshold. Due to the recent global economic crisis, some of Moldovan migrants may have returned to their homes, while others are sending less money back home to their families. Moldova is situated at the top of the list of the countries receiving remittances as share of their GDP^[24] and the reduction of remittances will have a negative impact on the level of poverty of the general population.

Child poverty is the most disturbing in Moldova. The phenomenon came to the attention of researchers as population-based data and capacities become available in the country. Researchers had estimated that by 2003, in Moldova, over half of all the children under the

†† †† The UNDP HDR 2009 estimates that in 2010 the number of emigrants will be 404,000. However, the authors indicate that the number may not accurately predict the effect of unexpected short-term fluctuations such as the 2009 economic crisis.

age of 17 lived in absolute poverty, with another third judged as highly vulnerable to poverty (Table 1, from Menchini& Redomont, 2009).

Table 1 Absolute and relative child poverty rates

Poverty line	Tajikistan 2003	Moldova 2003	Albania 2002	Russia 2003	Bulgaria 2001
Children below absolute poverty line (US\$2.15 PPP) (%)	70.6	55.6	26.8	16.3	12.8
Vulnerable children (between US\$2.15 and US\$4.30 PPP)(%)	25.0	33.8	51.9	38.5	12.9
Children below 60% median poverty line (%)	16.8	17.1	13.5	20.6	23.0
Median consumption per day (US\$, PPP)	\$1.59	\$1.98	\$2.90	\$3.97	\$5.42
60% median poverty line (US\$,PPP)	\$0.95	\$1.19	\$1.74	\$2.38	\$3.25

More recent estimates on child poverty were not found in the public domain. The Innocenti Social Monitor 2009 presents an extensive analysis of child wellbeing in the CEE region and Moldova. However, its poverty estimates (based on calculations of \$2.15 PPP/day-absolute poverty rate) refers to 2004 as the most recent for Moldova and shows a figure of 55.9%^[25]. At the same time, the rate was calculated for only children below the age of 15 years and is not exactly comparable to the data presented in Table 1.

In a different research, a locally produced Child Poverty in the Republic of Moldova Analysis 2006- 2007 by V. Prohnitchii, states that “poor children amount [for] 27.3%, while 3.2% suffer of extreme poverty, compared to 2.8% of total population” (p.6). The author did not record the definition of the poverty indicator used but, given that the study is based on NBS data, it should be assumed that it is the national poverty line calculated as 50% of the “minimum consumption standard”. If this is correct, a direct comparison or trend construction between the figures from Prohnitchi and Menchini is not possible. At the same time, Prohnitchii brings data from HBS, showing that child poverty rates in 2006-2007 were higher in households with 4 family members and > 3 times higher in households with 5 and more members comparing to households with 2 members. Such gradient of poverty suggests a need for targeted financial or social aid from the birth of the 3rd child on, which would help the households to offset the burden of the child care costs.

In Moldova, it is suggested that the emigration of parents strongly influences the SES of children. It is to be noted that the exact number of children left behind by parents is difficult to obtain and differs among the sources from 10% to 30% of the total population aged 0-17 (UNICEF KAP Study in young people 2005, DHS Moldova 2005, NBS data, CRIC 2006, IOM survey “Migration and Remittances” 2006, UNICEF-UNDP 2006 survey on children of migrants, and others). For the most detailed description of the phenomena and its selected effects on children, the reader may refer to Manaresi’s Thesis work 2006, which attempts to determine quantitatively and qualitatively what the effects are of parental migration on children's health, participation to school, and psychosocial status^[26].

2.2. Health status in Moldova

Given the pre-existing capacities of the healthcare system in the country and the generally strong interest from international donors to health status of the nation, the monitoring of the health status of Moldovans is quite abundant in data and tells a story of continuous struggle. During the independence period, Moldova made significant efforts to reform its primary health care and to turn to the model of family medicine, while introducing, in 2004, the mandatory health insurance and downsizing the excessive hospital sector. The recent figures of the population health status and their trends, however, indicate that the

reforms may not yet succeeded in preventing or controlling the excessive burden of the chronic diseases in adults.

The WHO international database on health^[27] indicates that healthy life expectancy in Moldova does not exceeds 60 years. Among women, the probability of dying between 15 to 60 years of age had stagnated and is 2.4 times higher than in Croatia, while the figure for men had risen by 14% and is 2 times higher than in Croatia (Table 6, Annex 1). The incidence of tuberculosis (TB) within the general population had increased from 49 per 100,000 in 1990 to 131 in 2005, with some decrease to 114 per 100,000 population in 2008^[28]. The TB incidence in children under 15 years of age has increased from 5.4 to 32.2 per 100,000 and remains as high as 25.5 per 100,000 in 2008^[28]. The prevalence of HIV is estimated at 0.4% (0.3-0.7) in general population, but up to 21% in certain risk groups^[29], while approximately 80 pregnant women have been reported as HIV positive during the last two years and the HIV transmission rate from mothers to newborns is 1.7% in 2008^{††}.

The situation may look different in relation to child wellbeing. The infant mortality rate had significantly decreased, from 30 per 1,000 live births to 16 in 2006. Over 90% of all children are immunized against six vaccine-preventable diseases and figures of under-nutrition are relatively low (stunting 8.4%, underweight and wasting <5%)^[19]. The Moldovan Government, as well as massive assistance offered by the multi-lateral organizations, is responsible for these achievements in the prioritization of child health interventions. However, when compared to the better-off countries of Eastern Europe, the indicators of child health in Moldova appear less comforting. The figure of IMR in 2006 was three times higher than that in Croatia. Micro-nutrient deficiencies are rampant, iron deficiency anemia having been registered in 60% of all infants (10-11 months) and 40% of all pregnant women in 2005^[19]. The level of iodine nutrition is particularly low in rural children (median of iodine excretion 70mcg/dL in 2006, Urinary iodine survey draft report). Additionally, one-third of children are estimated to suffer from vitamin D deficiency (Nutrition Survey 1996-1998, MoH).

Even though the decline in child mortality is impressive, it is less discussed whether the decline has been the same for different population groups. Similar questions can be asked about morbidity, nutritional status, utilization and access to healthcare services. Guided by these types of questions and answers and as provided on a continual basis, the policy-makers and program managers should be able to devise appropriate strategies to monitor and avoid inequity in health status of the child and maternal populations in the country. The current study attempts to provide information on the measures and degrees of the MCH inequity and suggest actions to address the situation.

2.3. Current status of health equity monitoring in Moldova

The current development of MCH monitoring in Moldova offers multiple and diverse data on a range of indicators, mainly as recommended in relation to the monitoring of the progress against the MDGs. The well recognized DevInfo technology, which tracks a range of social indicators, was officially offered to Moldova in 2005. The Ministry of Economy and Trade, in charge of the overall EGPRSP coordination, used the DevInfo's standard

^{††} *Buletin informative Situația epidemică în infecția HIV/SIDA. Realizarea programului național și sarcinile pentru anul 2009. 05.03.2009 Nr.10a-7/175*

package to build local capacity. To avoid multiple monitoring systems, it was agreed upon to use DevInfo Moldova as the single tool for monitoring both the MDGs and Economic Growth and Poverty Reduction Strategy Paper. In 2007, an official web page was also launched at www.devinformd.md. The DevInfo database is updated periodically and used by international partners and some governmental offices.

DevInfo periodic data mainly comes from national sources, including the national Household-based Survey, administered by the National Bureau of Statistics of the Republic of Moldova. It is available annually starting from 1997 and covers an extended list of issues. However, it is insufficient to be used as an instrument to reveal the characteristics of the SES of the population, while including too little, if any, information relevant to the equity analysis, such as the utilization of services or their private, household financing. Its main shortcoming, regarding health equity monitoring, is that the survey only asks for a self-assessment of each individual's health and just a few, generalized questions relating to the health expenditures by the households. The responses only allow the rough construct of total expenditure dynamics, while other influential determinants of health status and its inequities, such as payments by type of health services, the actual need and use of most cost-effective services and hospitalizations are not explored.

During 2008, the NBS conducted a specialized Survey on Health (Studiul privind sănătatea populației și accesul populației la serviciile de sănătate în Republica Moldova). The study was implemented as a separate module to the **NHBS Survey**, using a sub-sample of the NBS households. Once again, its data provided no information on intermediate determinants of MCH, such as the use of preventive services or family practices for young children. For a sample of the questions, see Table 2. Groupings, for example, “general treatment”, “administrative visit” or “follow-up” can not be related to MCH services implemented by the MoH with support from international community (immunizations, growth monitoring, antenatal and parental care, injury prevention, care, etc.) and which strongly determine and influence the health status of the children and mothers.

Table 2 Sample: HBS data: Ownership type and reason to seek a doctor, by place of residence and insurance status (%)

	Place of residence		Insurance		Total
	Urban	Rural	Yes	No	
State	91,1	91,2	91,6	87,7	91,2
Private	8,9	7,9	7,8	12,3	8,4
Don't know	-	0,9	0,5	-	0,5
TOTAL	100,0	100,0	100,0	100,0	100,0
Reason:					
common cold/cough	19,4	16,5	18,8	10,7	17,8
fever	5,6	2,2	3,8	3,2	3,7
general treatment	31,4	48,6	39,5	48,6	40,6
Injury	2,0	3,4	2,3	5,7	2,7
administrative visit	7,9	5,1	6,8	3,5	6,4
tooth pain	6,8	6,9	5,9	13,7	6,8
Follow-up to specialist visit	21,6	11,5	16,7	12,2	16,2
Other	5,5	5,9	6,2	2,4	5,7
TOTAL	100,0	100,0	100,0	100,0	100,0

At the same time, a range of **population/household-based, MCH probability sampling surveys** were conducted in Moldova from 1996, which can make-up for the gaps in the HBS or MoH monitoring, especially because such studies correlate, on a population base, the indicators of health status to its determinants, including, SES, place of residence,

parents education or knowledge of practice levels and use of specific services, etc. Among those are:

- The Nutritional Survey of 1998, which was implemented by the Moldovan National Scientific and Practical Center of Preventive Medicine. They extensively looked into nutritional status of children and mothers and their SES. It is not clear with what national or international agency the datasets are.
- The Multiple Indicator Cluster Survey (MICS) of 2000, implemented by the Moldovan National Scientific and Practical Center of Preventive Medicine between July and September 2000. The sample included 10,380 households, and 7,871 women age 15-49. The survey results are representative at the national level, and by urban and rural residence. While exploring issues of illness, immunizations and hygiene the survey had not measured anthropometric status, micronutrient deficiencies or feeding practices. The datasets are with UNICEF headquarters in NY.
- The Moldova Demographic and Health Survey of 2005, implemented by the Moldovan National Scientific and Practical Center for Preventive Medicine Ministry of Health and Social Protection between June and August 2005. The sample included 11,095 households, and 7,440 women age 15-49 and 2,508 men age 15-59. The survey results are representative at the national level, by urban and rural residence, and by 4 regions of the country. The survey also explored anthropometric and anemia status, use of services, fertility and reproductive health patterns. Datasets are available from the National Center of Preventive Medicine.
- The Early Development and Care Surveys of 2003 and 2009 had focused on families with children under the age of seven and were carried out by the BNS or MoH of RM. The surveys use similar, cluster sampling techniques, but explore areas somehow different than those of MICS or DHS by mainly focusing on practices and knowledge about early childcare. The survey of 2009 has no anthropometric or anemia data. At the time of the current study implementation, its datasets from the NBS were not yet in a form suitable for a statistical analysis.

Given that currently no national entity comprehensively works for the on-going monitoring, compiling, cross analyzing and advocating for the purposes of child and maternal health statistics or health equity analysis, the surveys' datasets are with various institutions and their accessing requires fulfillment of different procedures and search for the actual contacts, datasets and record/code books. The authors were given full access to the datasets of DHS Moldova 2005 while at same time, having access to MICS 2000 datasets. They concluded that MICS 2000 was of less value given the age of the data and the interest from national decision-makers for the analysis on more recent data.

Although a wealth of data is collected in Moldova through the **existing health information system**, those are of a rather limited use to the equity analysis. As noted in a recent evaluation by MoH, routine monitoring data are rarely used to monitor or advocate for equity, including, in the resource allocation in health and because it is mainly concentrated on disease burden indicators only while their disaggregating by SES, education or ethnic groups is not available^[30]. Limited financial and human resources to ensure proper design and running of the system is cited as the main reason for the lack of proper functioning. The evaluation rating of the National Health Information System against equity criteria was 0.3 (on the scale of 0 to 3) and was recommended that information-generating capacity to allow collection of data on main health determinants is fortified (Recommendation #10) and training of professional teams to conduct equity- and population-based, representative surveys and surveillance is instituted in the country.

III. METHODS AND SOURCES OF DATA COLLECTION

3.1. General methodology

The methodology of health equity data analysis used in the present study is based on the guide for health inequities analysis, recommended by the World Bank^[13]. The main analytical tools used to measure health inequities in this report are: the population weighted quintiles, combined with the concentration curve, and the concentration index. In order to assess the association between different variables, Chi-square (χ^2) test for independence was used with an accepted level of statistical significance at 5%. The statistical analysis of health inequities in MCH was performed based on Moldova DHS 2005 row data offered by the National Scientific and Practical Center for Preventive Medicine. It is one of the most recent national representative databases, with MCH health care indicators that correspond to the study objectives and are collected in parallel with the construct of the wealth quintiles. Data on the National Budget Surveys for 2006-2008 has been acquired from the NBS, with some indicators analyzed mostly on health insurance coverage since no relevant MCH indicators have been found.

The most common international recognized methodology to characterize inequities in health outcomes is to tabulate the outcomes by population-weighted quintiles. A quintile is 20% (one-fifth) of the units in the study population. It is usually ordered according to some living standards measures (LSM), such as per capita household consumption, income or a wealth index. If the unit includes all individuals in a population, the quintiles are population-weighted, referring to 20% of the total population. All quintiles used in this report are population-weighted quintiles, sorted by wealth index, and are defined on the basis of the total population. The study refers to the poorest 20% of the population as the population in the “poorest” quintile, the next poorest 20% of the population as the population in the “poorer” quintile, and so forth.

The same population-based quintiles are used to analyze any outcome indicator. For example, when looking at how vaccination coverage varies by quintile, the quintiles are defined on the basis of the total population (both sexes and all ages), not on the basis of the population of children in certain age group under analysis.

The concentration curve and calculation of the concentration index provides a means of identification and assessment of the degree of wealth-related inequality in the distribution of health variables. Concentration curves can be used to identify whether socioeconomic inequality in some health sector variable exists and whether it is more pronounced in comparison with another variable or with itself in time. The two key variables underlying the concentration curve are: the health variable (the subject of interest) and a variable capturing living standards, or wealth index in our case. The groups' rankings (which group is poorest, which group is second poorest, and so on), and the percentage of the sample falling into each group (e.g. 20% in each) must be computed.

The concentration curve plots the cumulative percentage of the health variable (y-axis) against the cumulative percentage of the sample. They are ranked by living standards, beginning with the poorest, and ending with the richest (x-axis). If everyone, irrespective of his or her living standards, has exactly the same value of the health variable, the concentration curve will be a 45° line, running from the bottom left-hand corner to the top right-hand corner. This is known as the line of equality. The health variable may take higher or lower values amongst poorer people and the concentration curve will lie above or respectively below the line of equality. The further the curve is above the line of equality, the more concentrated the health variable is amongst the poor. If the variable in question is

more concentrated among the better off, concentration curve will lie below the line of equality.

Unfortunately, the concentration curve does not give a measure of the magnitude of inequality that can be compared conveniently across many time periods or different variables. In this situation the concentration index (CI) can be calculated, directly relating to the concentration curve and quantifying the degree of socioeconomic, relating inequality in a health variable.

The concentration index is defined as twice the area between the concentration curve and the line of equality (the 45⁰ line). So, in the case in which there is no socioeconomic-related inequality, the concentration index is zero. The convention is that the index takes a negative value when the curve lies above the line of equality, indicating disproportionate concentration of the health variable among the poor, and a positive value when it lies below the line of equality. The CI is bounded between -1 and +1 as long as the health variable (or any variable whose cumulative distribution is plotted on the y-axis) does not have negative values^[13].

3.2. Sources of data

We conducted a review of international literature on the MCH health equity and its monitoring in order to decide on the necessary indicators and sources of data. We also included a search for health status indicators and its determinants in Moldova. The health policy and programs documents, as well as the national strategy plans, most recent health sector reviews and evaluations were also accessed and studied to understand whether a computation of the effect of programs on MCH equity could be attempted. In writing the equity analysis study report, the authors draw on their own extensive observations and experience over the last ten years, working in program design, implementation and monitoring of MCH and public health programs in Moldova.

Consultations and advice were secured from colleagues at MoH and related national institutions, including a focus group with healthcare sector stakeholders. To triangulate the findings of the study with perceptions and insight from mothers with young children and health program managers, six focus groups were conducted in three selected districts and their reports are presented as Annex 1 to the current Report.

Given the specific requirements of the equity analysis, the primary analysis and calculations over the MCH inequity levels was only possible while using data from Demographic and Health Survey Moldova 2005. Their datasets were made available through Macro International Inc., Measure DHS^[32] and NCPM. The 2005 DHS from Moldova provides the most recent data on a broad range of infant/child and maternal health outcomes, preventive and curative health services, and nutritional status (i.e., anthropometric data). This combined with the figures of the wealth quintile, became the main source of MCH data analysis in this study. Estimation of trends of inequity over time was not possible due to the lack of recent MCH population-based studies. In comparison to the earlier 2000 MICS or 2002 ECD study, data was impossible to retrieve due to limited access to the datasets and also due to less interest from the MoH stakeholders to the relatively old data. In the case of ECCD Study 2009, the data was in the processing phase and therefore could not have been used.

Due to methodological limitations, the analysis did not include the exploration of health status indicators versus ethnicities. In Moldova, there are an estimated number of 147,000 people of Gagauz (Turkish descendent) and Bulgarian ethnicities (data from Census 2004

and DHS 2005). As of the Roma population, no population-based surveys (such as census, NBS or DHS) present significant numbers of people of Roma ethnicity (26,000 at 2004 Census and UNDP Roma Survey of 2007^[33]). The low numbers make it impossible to obtain any statistically meaningful estimation on the levels of inequity, as those analyses need to be correlated to wealth quintile, concentration curves, and CI.

The UNDP report 2007 looked into SES, health, educational and community indicators for 600 Roma and non-Roma living in near-by households in 81 localities in the country. The report used non-representative and qualitative surveying techniques. The authors stated that they were able to calculate demographic and health indicators and figures, such as the 29 deaths during the first twelve months of live (per 1000 live births). This compares to 17 per 1000 in the non-Roma sub-sample. Also, 11% of Roma children who were under 14 years of age said that had not been vaccinated in comparison with only 3% of the non-Roma children. Based on these figures, the UNDP report concludes “in Moldova (as in other countries of the region) the life expectancy, infant mortality, morbidity, and other major health indicators are substantially worse for Roma than for the majority population”. The UNDP report does not contain the actual questionnaire nor the detailed definition of the health indicators calculated, as in the case of vaccinations, a clarification is needed on which vaccines were asked about (out of the 9 under the national Calendar of vaccination). This is coupled with a lack of representation and the use of some less informative indicators (the less reliable cash income indicator instead of more frequently used wealth/asset index), cause us to read the results of the report with caution.

Nevertheless, the report presents valuable qualitative descriptions of the Roma people’s perceptions in relation to social services and opportunities. Those largely resemble the findings from the focus groups in the current study (see Annex 1). We also looked into the HBS health-related dataset, obtained from NBS, and other relevant reports.

IV. INEQUITIES IN HEALTH OF CHILDREN AND MOTHERS

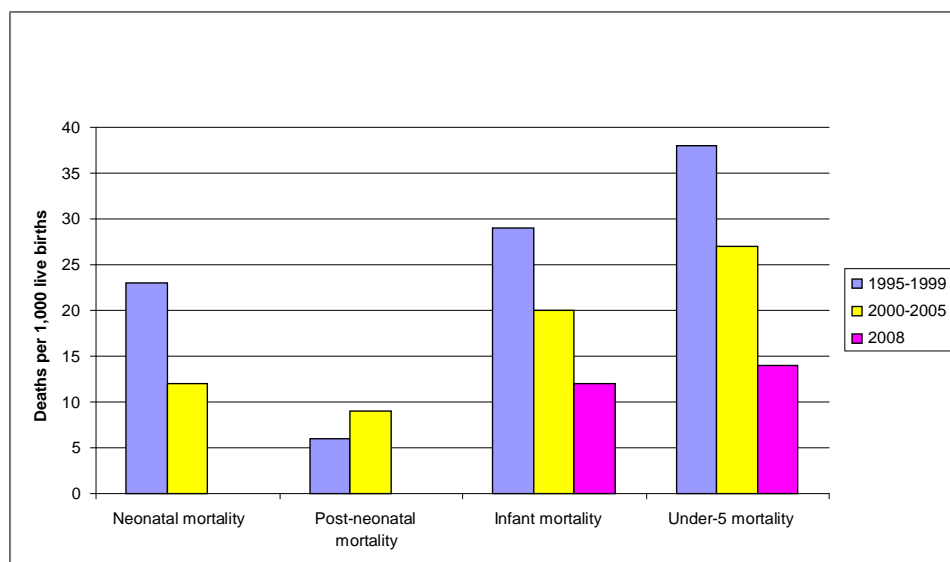
4.1. Inequities in high level outcomes

For the purpose of the current study, the high-level health outcomes include mortality, morbidity and nutritional status of the mothers and children analyzed (*see Analysis Conceptual Framework above*).

Child mortality

Recent demographic health trends have demonstrated significant improvements in the overall population health in Moldova, particularly in relation to declining infant and child mortality, the latter reaching 14 per 1,000 live births in 2008 (Figure 3). Data from both DHS 2005 and administrative reporting are used alongside each other, and the reliability of the latter was confirmed as corresponding to the population-level estimates during the DHS 2005.

Figure 3 Evolution of child mortalities, Moldova 1995-2008^[19, 28]



Important inequalities in mortality rates were registered in 2005 when DHS was conducted. For example, the IMR had shown wide differences from the average national figure of 13 deaths per 1,000: 23 in rural areas, 31 at South zone and 20 in the 1st quintile (Figure 4). The same, in the case of under-five mortality, rural children have higher rates (30 per 1,000) than urban children (20 per 1,000), children from lowest quintile higher (29 per 1,000) than children from highest (17 per 1,000). Children from South region of the country have the highest under-five mortality rates (38 per 1,000) and children from Chisinau have the best chance of survival in their first five years of life.

Although no disaggregated data on IMR is available based on ethnicity strata, the UNDP study 2007 maintains that the IMR in the Roma group is twice as high, comparing to that in non-Roma group (29 vs. 17 per 1,000).

The study's objective in analyzing child mortality was to see how equal the distribution of child mortality among wealth quintiles. For this reason, a concentration curve has been computed (Figure 5). The indicators represented in the figure are the cumulative percentages of the total number of children ever born to interviewed mothers by wealth quintiles, on x-axis; and the cumulative percentage of children that have died at any age by

wealth quintiles, on y-axis. The concentration curve shows a pronounced inequality of child mortality disfavoring poor children.

Figure 4 Infant mortality by place of residence, region and wealth quintiles (2005)^[19]

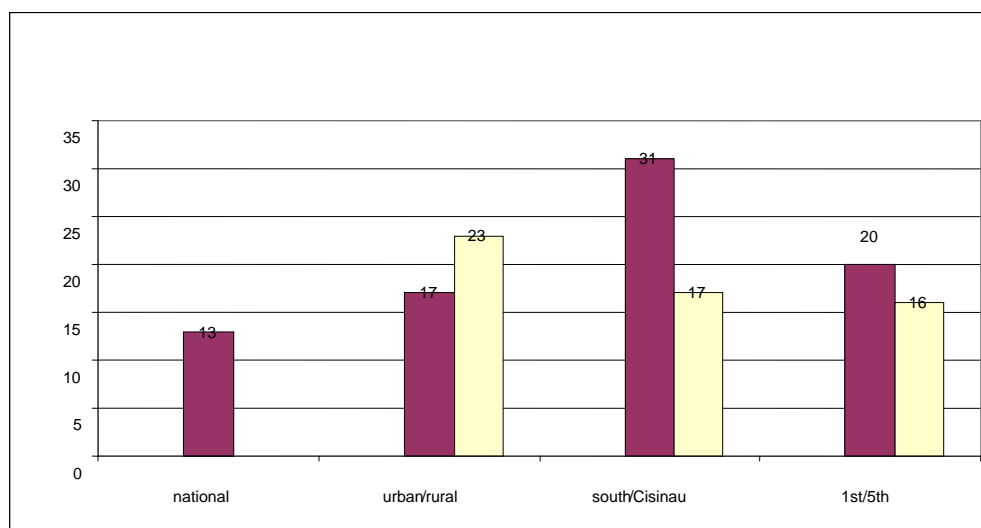
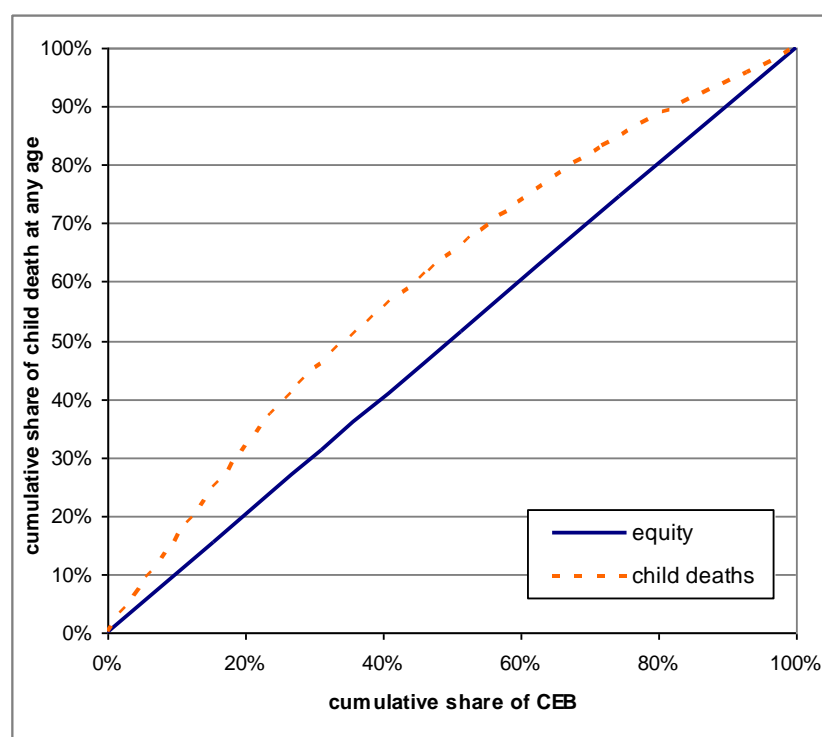


Figure 5 Concentration curve (LSM=wealth index) for children ever born and those who died at any age (2005)



To ascertain the degree of inequity, the concentration index was calculated (CI= -0.1977) giving a mild level of inequity (the maximum value of the index being -1).

Maternal mortality

Maternal mortality is a difficult indicator to analyze because it is a relatively rare event, particularly in Moldova and where the actual maternal death count ranges from 8 cases in 2004 to 15 in 2008. There is no reliable data on which to base early estimates of the degree of inequality in maternal mortality, since none of the household surveys conducted from

the 1990s and beyond collected data on sibling mortality related to pregnancies and childbirth. Yet, the number of maternal deaths is too small to yield reliable estimates even of the distribution of maternal deaths from any cause.

At the same time, the MoH internal analysis gives indications that the majority of the 15 cases in 2008 happened among mothers from “socially vulnerable backgrounds”, from which 7 women were not registered for antenatal care (in 4 cases mothers had been working abroad temporarily and returned to Moldova just in time for delivery). There was no geographic pattern to the deaths. The MoH analysis also indicates that the majority of the deaths (12) were the result of diagnoses, which could have been avoided if the women would have sought timely and adequate medical care^{§§}.

To the authors’ knowledge, Moldova recently introduced a maternal death and near-miss audit. Secondary data is presented in the international literature^[34], but audit reports are not yet in the public domain due to a lack of official procedures on public access established by the MoH.

Nutritional status

Nutrition status is characterized by a set of indicators, including anthropometric measurement data, as well as indicators of micronutrient sufficiency. Three of the most commonly used anthropometric indicators for infants and children are: weight-for-height, height-for-age, and weight-for-age. These indicators can be constructed by comparing variables based on weight, height, age, and gender, with reference data for “healthy” children^[13]. The most commonly used cutoff, to define abnormal anthropometry, is a value of z-score of -2 , that is, two standard deviations below the reference median. The z-score (standard deviation score) is the difference between the value for an individual and the median value of the reference population for the same sex and age (or height), divided by the standard deviation of the reference population.

Height-for-age (H/A) reflects cumulative linear growth. H/A deficits indicate past or chronic inadequacies of nutrition and/or chronic or frequent illness. Extreme cases of low H/A, in which shortness is interpreted as pathological, are referred to as “stunting” (z-score <-2).

Weight-for-age (W/A) reflects body mass relative to age. W/A is in fact a composite measure of height-for-age and weight-for-height, making interpretation difficult. Low W/A relative to a child of the same sex and age in the reference population is referred to as “lightness,” whereas the term “underweight” is commonly used to refer to severe or pathological deficits in W/A (z-score <-2). W/A is commonly used for monitoring growth and to assess changes in the magnitude of malnutrition over time. However, W/A confounds the effects of short- and long-term health and nutrition problems.

Weight-for-height (W/H) measures body weight relative to height and has the advantage of not requiring age data. Normally, W/H is used as an indicator of current nutritional status and can be useful for screening children at risk and for measuring short-term changes in nutritional status. It is important to note that a lack of evidence of wasting in a population does not imply the absence of current nutritional problems, such as low height-for-age^[13].

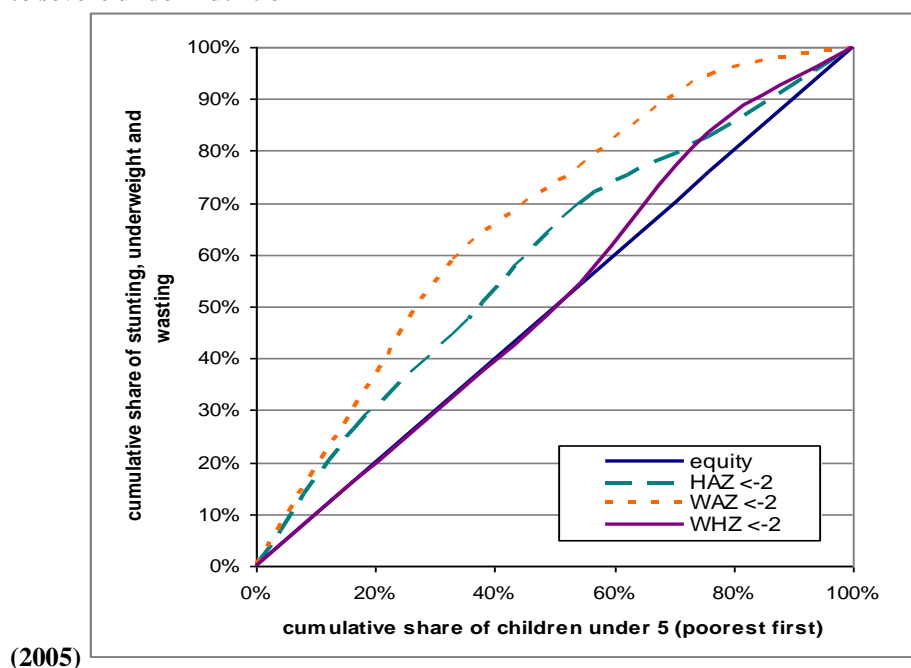
^{§§} Personal communication with the MoH Department of policy analysis. October 2009

Nutritional status and socio-demographic indicators in DHS 2005 have analyzed a total of 1,298 cases of children under 5 years of age. Results are represented in Table 8 (Annex 2). As described above, the cut-off point of -2 standard deviations has been taken into account in order to represent the moderate and severe cases of under nutrition. The proportion of cases with z-score, less than -3, has been found to be very low (less than 1 percent for all three indicators) and was not represented separately. One hundred and ten (8.4%) of the 1,298 children were stunted (z-score <-2). The percentage of children with moderate or severe wasting or underweight was smaller and represents 4.2 and 4.3 percent respectively (z-score <-2).

There is no association between nutritional indicators as an outcome and the age and sex of child ($p > .05$). Stunting and underweight have been found to correlate with the rest of indicators with the exception of the relation between the type of place of residence and stunting ($\chi^2(1) = 2.82$, $p > .05$). The most significant correlation has been found between stunting, underweight and wealth index ($p < .01$). No significant association has been detected for wasting and all socio-demographic variables.

Concentration curves of children with a z-score <-2 for stunting, underweight and wasting indicators by wealth quintiles are represented in the Figure 6 and denote an inequity disfavoring poor children. The height-for-age and weight-for-age indicators show notable degrees of inequity with a CI= -0.3270 for the latter. Meaning that the under-nutrition is mostly concentrated among children from poor families. Weight-for-height curve situates close to the equality line on most of its length, but rises toward higher cumulative percentages. The association between the variable and wealth does not seem to be significant ($\chi^2(4) = 2.92$, $p > .05$), suggesting that factors other than wealth (age, education, place of residence, etc) may have stronger effects on the indicator. Keeping these in mind, we concluded that there was a significant degree of inequity related to the nutritional status of children in 2005 in Moldova. More recent anthropometric data will be needed to ascertain the inequity of the nutrition indicators for children or their trends.

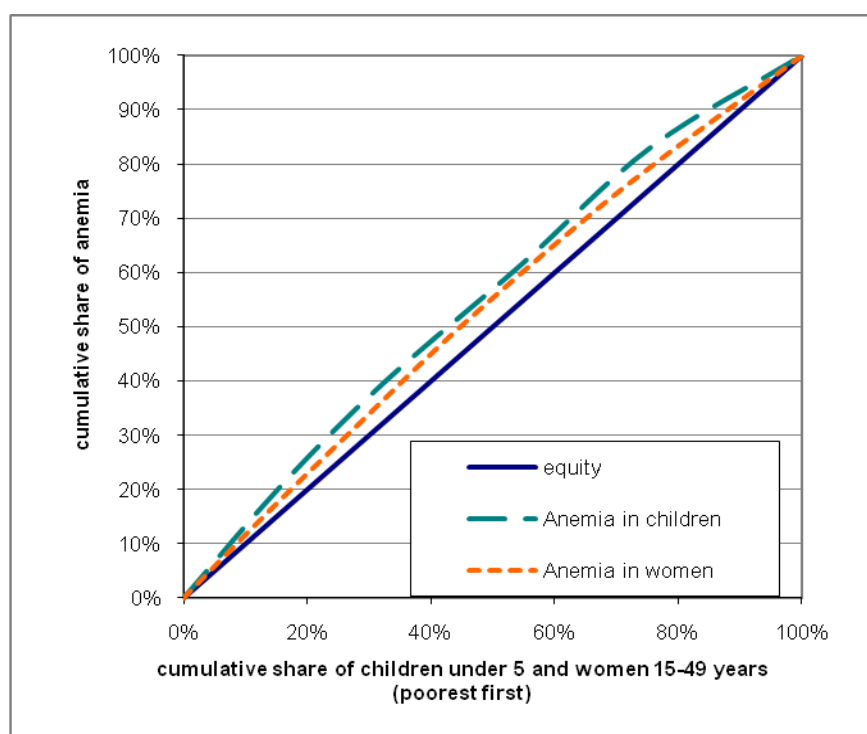
Figure 6. Concentration curves (LSM=wealth index) for children under 5 years of age with moderate to severe under-nutrition



Anemia

The total proportion of women in the age group 15 - 49 years with any type of anemia was 26 percent, 23% in children less than 5 years of age, but climbs as high as 60% in children younger than one year. Anemia in women was associated with all socio-demographic indicators except the level of education ($p > .05$). Anemia in children has been found to be significantly associated with age ($p < .001$), region ($p < .05$), area of residence ($p < .05$), mother's education ($p < .05$) and wealth index by quintiles ($p < .05$). There was no association between anemia and the sex of child ($p > .05$). The concentration curves for anemia in women and children are represented in the Figure 7. Both indicators are concentrated among poor population groups (CI = -0.1086 for children vs. CI = -0.0653 for women) and denote very mild inequities.

Figure 7 Concentration curves (LSM=wealth index) for children under 5 years and women 15-49 years of age with any type of anemia (2005)



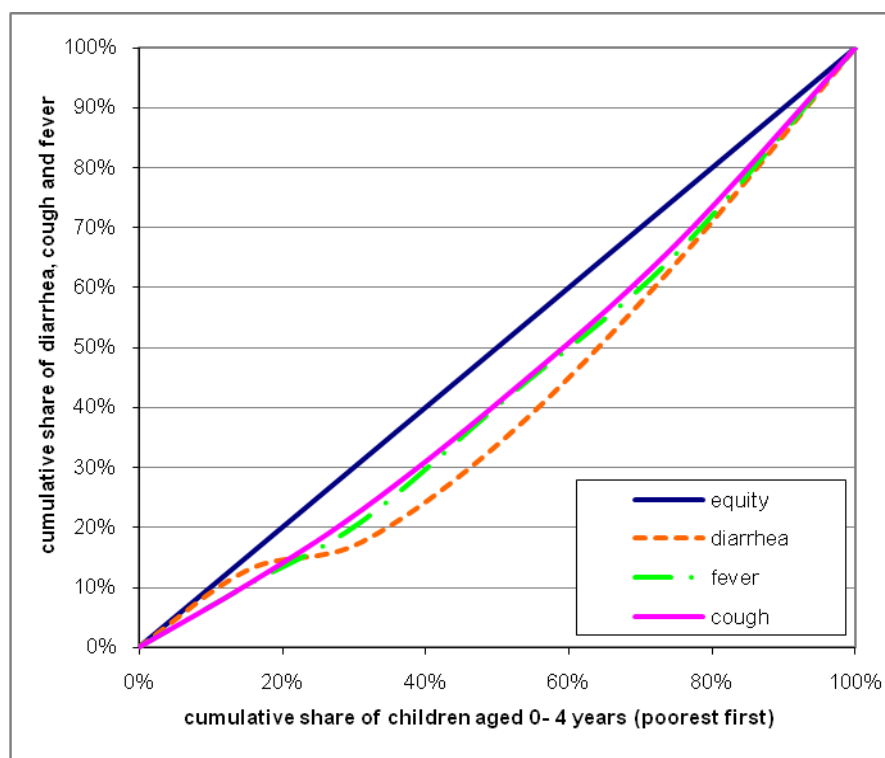
Diarrhea and Acute Respiratory Infection

The study analyzed several indicators of child morbidity from the data collected during the DHS 2005. Mothers were asked if their children had diarrhea, fever or cough during the two weeks preceding the interview. In general, the incidence was low and oscillated around 7% (see table 7 in Annex 2). All three health indicators correlate statistically with the age of the child ($p < .05$), region ($p < .05$ for diarrhea and $p < .001$ for cough and fever), area of residence ($p < .001$ for diarrhea and $p < .05$ for cough and fever), mother's education ($p < .001$) and wealth index ($p < .05$ for all variables). No association was found between morbidity indicators and the sex of the child.

Surprisingly, the incidence of all three indicators increased with the wealth of the family, showing a direct correlation between wealth and the occurrence of diarrhea, cough or fever in children. Concentration curves for diarrhea, cough, and fever in relation to wealth can be seen in Figure 8. Evidence from past international literature shows that women from the poor quintiles may not fully report all cases due to a greater “tolerance for poor child

health” and a lesser emphasis is often placed on cough and diarrhea as a serious disease state among poor mothers.

Figure 8 Concentration curves (LSM=wealth index) for children under 5 years of age with diarrhea, cough or fever during the last 2 weeks (2005)



In conclusion, even though there are some improvements in separate health outcome indicators such as, Republic wide child mortality, important inequalities in mortality rates can be sorted out into different subpopulation according to area of residence, region, or wealth quintiles. There are significant differences in infant mortality rates between the national average and rural areas and the southern part of the country. Also, there is a pronounced increase in child mortality in children from poor families.

Maternal mortality is a difficult indicator to analyze because it is a relatively rare event in Moldova. The number of maternal deaths is too small to yield reliable estimates. At the same time, the majority of cases happen among mothers from “socially vulnerable backgrounds” and are due to causes that would have been avoided if the women could have sought timely and adequate medical care.

There was a moderate degree of inequity related to the nutritional status of children in Moldova. Children from poor economic backgrounds have a decreased weight-for-age. Unexpectedly, there was an increase in morbidity indicators like diarrhea, fever and cough in children under five from higher economic backgrounds. This might be explained by women from the poor quintiles not fully reporting all cases due to a greater tolerance of poor health, including cough and diarrhea, in young children.

4.2. Inequalities in intermediate health determinants

The choice of which MCH interventions to analyze in relation to the determinants of intermediate health level (such as access and utilization of health services) was guided by the recent works in the Lancet and largely focused on most cost-effective interventions to ensure the child and mother wellbeing^[35]. These are presented below as following:

A. Utilization of preventive services

Immunizations

Starting from early 2000, the level of childhood immunizations for children aged 15-26 months in Moldova is high and approaching 95%. Under such coverage rates, the inequities may be assumed low. However, disparities in coverage appear when comparing a specific age group, particularly children under 6 months in accordance to the National Immunization Calendar^[36]. Specifically we analyzed DTP3 and Hepatitis B3, both required by the age of 6 months to ensure the maximum effective immunity. Table 3 shows the repartition of immunization coverage by 6, 12 and after 12 months of age for children ages one to four by socio-demographic characteristics.

Table 3 Percentage of children over 12 months of age who received DTP3 and Hepatitis B3 vaccines by background characteristics (2005)

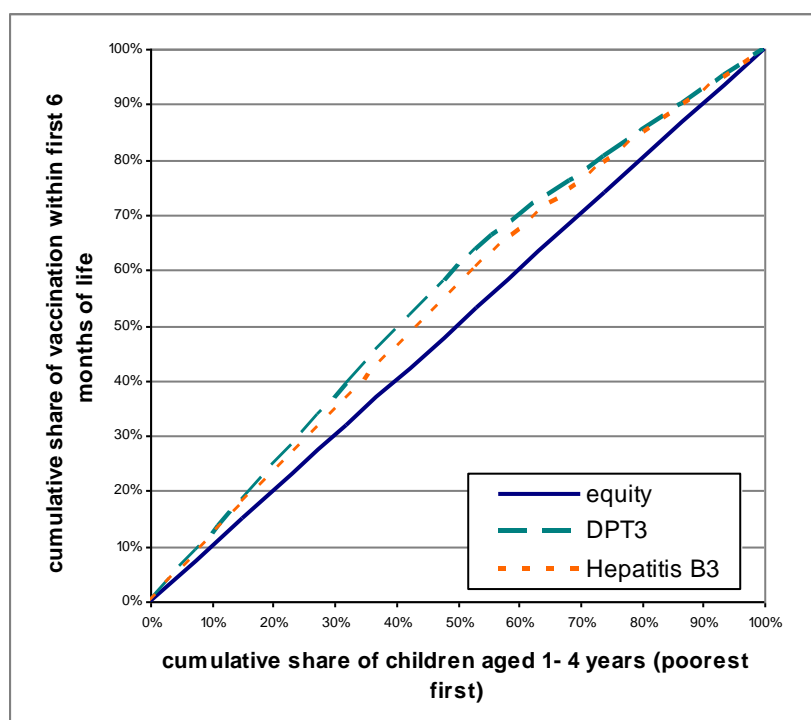
	DTP3 vaccination, %			Hepatitis B3 vaccination, %			Nr of children
	by 6 months	by 12 months	after 12 months	by 6 months	by 12 months	after 12 months	
Sex of child							
Male	36.53	88.61	95.84	46.11	92.04	96.93	553
Female	42.07	90.61	96.28	49.12	93.35	98.04	511
Region							
North	33.99	91.83	97.06	44.44	93.79	97.71	306
Center	53.26	93.48	97.10	58.70	94.57	97.83	276
South	45.12	93.02	97.21	52.09	94.42	98.60	215
Chisinau	25.84	80.15	92.88	35.96	88.01	95.88	267
Residence							
Urban	29.60	85.11	93.93	38.79	90.63	96.51	544
Rural	49.23	94.23	98.27	56.73	94.81	98.46	520
Mother's education							
Primary or No education	*	*	*	*	*	*	11
Secondary	43.81	90.56	95.98	50.62	93.03	97.21	646
Secondary special	32.00	94.29	98.29	42.29	95.43	98.86	175
Higher	32.33	84.05	94.83	44.40	90.95	97.84	232
Wealth quintile							
Poorest	47.83	90.06	97.52	56.52	91.30	98.14	161
Poorer	48.88	93.82	97.19	53.37	94.94	98.88	178
Middle	45.13	94.69	98.23	52.65	93.36	97.35	226
Richer	31.39	87.44	94.17	43.50	93.72	96.41	223
Richest	29.35	84.06	94.20	37.68	90.58	97.10	276
Total	39.19	89.57	96.05	47.56	92.67	97.46	1064

* less than 25 unweighted cases

Generally, there were very low vaccination rates for both vaccines by the age of 6 months (39.2 percent for DPT3 and 47.6 for Hepatitis B3). The rates are more than double by the age of 12 months (92.3 percent for Hepatitis B3 and 89.6 percent for DPT3). Discrepancies are found for girls having better coverage compared to boys, but no significant association was found between the place of residence and the vaccination coverage ($p > .05$). Urban children, and those residing in North and Chisinau have lower coverage than those from South and Center regions ($P < .001$). A negative correlation was found between the mother's level of education and the DPT3/Hepatitis B3 vaccination coverage ($p < .001/p < .05$). This further supports other international literature, which suggests that urban children are less frequently vaccinated due to weaker communal and family ties and a decreased influence of family/relatives to get children vaccinated. Regarding the mother's education level, it is also well documented in international literature that the higher education level of the mother is usually associated with more exposure to unfounded information of the vaccines' side effects and therefore decreases willingness to vaccinate their children.

Concentration curve analysis for children one to four years of age, who received DPT3 and Hepatitis B3 vaccines during the first 6 months of life, shows a negative correlation for both immunizations. The CI equal -0.1146 for DPT3 and -0.0832 for Hepatitis B3 vaccination, showing a rather mild inequity based on increased SES of families.

Figure 9 Concentration curves (LSM=wealth index) for children 12+ months of age who have been vaccinated with DPT3 and Hepatitis B3 vaccines during the first 6 months of life (2005)



Antenatal care

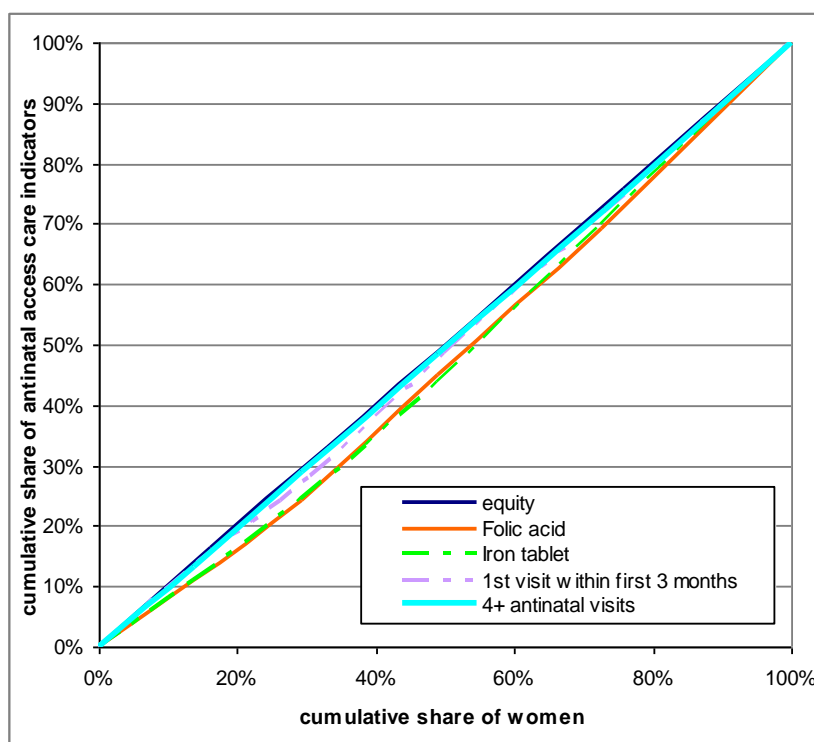
In relation to the number of women with having their first antenatal visit by 12 weeks of pregnancy, the concentration curve shows an increased number of well-off women with early antenatal care, while its degree denotes a rather mild inequity with a CI of 0.0228 (Figure 10).

When looking for disparities among women with four or more antenatal visits per pregnancy, both the concentration curve and the CI show almost no inequity (CI = 0.0087) seen by the rates being very close to the 45° equity line.

Use of micronutrients by pregnant women

The study found some variation in the use of iron and folic acid pills during pregnancy. This is strongly correlated with the area of residence, region and the mother's education level. The concentration curves show a slight increase in use of micronutrients among women of higher SES (Figure 10). However, at the time of the DHS 2005, the uptake of micronutrients by mothers was relatively low (54% for iron and 20% for folic acid) with only 8% taking the pills for 6 and more months as recommended by WHO. Although the 2008 data shows almost 80% of women^{***} taking micronutrients, the newer data cannot be tested against inequity degree as it did not include wealth quintiles and are not population-representative.

Figure 10 Concentration curves (LSM=wealth index) for women (15-59) who had four or more antenatal visits and who received Folic Acid or Iron during their last pregnancy (2005)



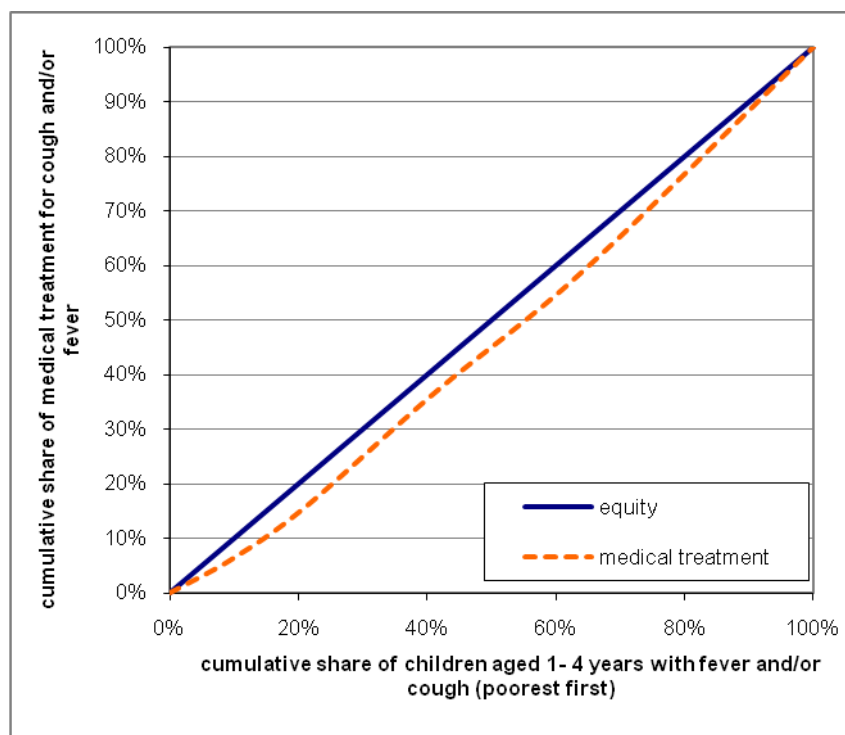
On a general note, the supplementation of pregnant women with iron and folic acid remains of questionable effectiveness given the resources used. A large scale flour fortification initiative would be the most cost-effective solution to the problem of anemia in Moldova. It would introduce a highly equitable and sustainable intervention, given the fact that flour and flour based products are consumed daily and by all population groups in the country^[37].

^{***} Preliminary data from MoH/Center of maternal and child care Evaluation of perinatal services 2008

B. Utilization of curative services

Figure 11 represents the degree of inequity in children's access to medical care in case of cough and/ or fever. The concentration curve for children under five year favors children from wealthier families. At the same time, its CI equals 0.0744 and thus shows a rather mild degree of inequity. Although all children in the country are equally covered by the state with health insurance package, the inequity may occur because of additional out of pocket and transportation costs that have to be paid by the patient when accessing medical services. Thus the degree of inequity in access to health services disfavoring children from lower SES can be a condition of their purchasing power.

Figure 11 Concentration curves (LSM=wealth index) for children under 5 years of age with cough and/or fever during the last 2 weeks taken to medical visit (2005)



C. Food and breast milk consumption

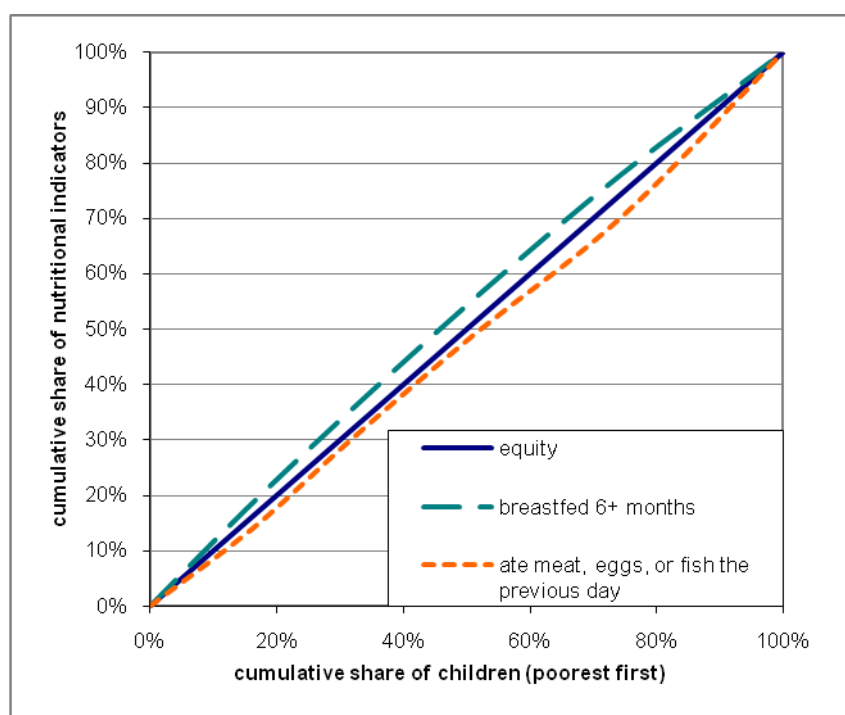
Breastfeeding practices and consumption of animal-based products (meat, fish and eggs) represent an essential practice of the early care of children. The study compared breastfeeding and the consumption of animal based foods in children age 6-59 months against socio-demographic variables. The results are presented in Table 9 (Annex 2) and show that 72.3 percent of children in this age group have been breastfed for a minimum of six months. There was no association between breastfeeding/consumption of animal products and the age of the child, sex, or mother's education level ($p > .05$). At the same time, breastfeeding was found to be highly associated with the region where the child lives ($P = .001$), the area of residence, and the wealth quintile ($p < .001$). Unfortunately, it was not possible to calculate the degree of inequity to the exclusive breastfeeding (EBF) by age of 6 months, since the EBF variable is a composite figure whose calculation was not straightforward.

Based on internationally recommended practices, children greater than 6 months old daily diet should contain animal-based food such as meat, eggs or fish. The data available at DHS 2005 contained information about the children's diet, including on animal-based foods, during the 24 hours prior to the interview. Of all children in the 6-24 month age

group, 75.6 percent received meat, eggs or fish, or a combination of them during the previous day. The indicator strongly correlated with the age of child ($p<.001$), region and area of residence ($p<.05$), mother's education ($p<.001$), and wealth index by quintiles ($p=.001$).

The degree of inequity in relation to this nutritional practice is represented in the concentration curves below (Figure 12). The curve on breastfeeding indicates a negative correlation to increasing wealth (CI= -0.0562), i.e. children from lower wealth quintiles are more frequently breastfed 6 and more months. Conversely, the animal-based food consumption is concentrated among the wealthier groups; however the degree of inequity is moderate with a CI of just 0.0427.

Figure 12 Concentration curves (LSM=wealth index) for children aged 6-59 months who were breastfed at list for 6 months; and children 6 to 24 months who ate meat, eggs or fish during the last 24 hours (2005)



It should be mentioned that food consumption data are collected at National Bureau of Statistics, using household diaries. During 2003, the NBS used the FAO Food Security Statistics Module to derive food security statistics from HBS 2003 and 2006^[31]. The prevalence of food deprivation (undernourishment) was studied as the proportion of the population whose dietary energy consumption is below the minimum dietary energy requirement of the 2,500 kilocalories. According to the study results, the number of undernourished people decreased from 15 percent in 2003 to 11 percent in 2006. However, it remained high in poorest quintile (35%), urban population (28%) and in three to four member households (24%) (Figure 13). These findings suggest possible need for social aid specifically targeted at families with 4+ members to help them overcome undernourishment and deprivation.

The preliminary data from another survey by NBS suggest that differences exist in the expenditures by households for food, particularly in households with children^[38]. The preliminary data suggest that in 2009, families with children in the poorest quintile spent 4.5 times less money on food than the richest quintile. At the same time, the poor spend a

greater proportion of their budget on food compared to the rich: 53% of total expenditure in poorest comparing to just 31% in richest (Table 4).

Figure 13 Prevalence of food deprivation at national and sub-national levels (Moldova 2003 and 2006, FAO/NBS Monitoring food insecurity based on Moldova's HBS 2003 and 2006).

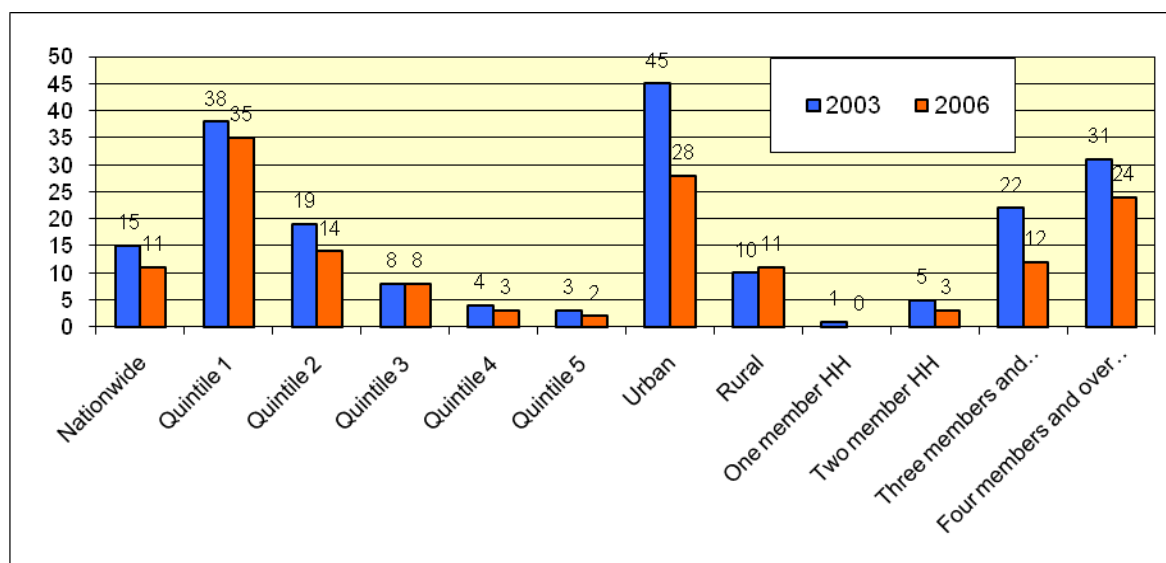


Table 4 Amount and structure of expenses by households with children disaggregated by quintiles, before crisis (mid 2008) and in crisis (mid 2009). Source: NBS

	Quintile 1		Quintile 2		Quintile 3		Quintile 4		Quintile 5	
	Before crisis	In crisis	Before crisis	In crisis	Before crisis	In crisis	Before crisis	In crisis	Before crisis	In crisis
Consumption expenditure per capita, MDL	449	408	712	638	930	892	1,253	1,222	2,152	2,023
Including, %										
Food	55.1	53.5	49.9	49.5	46.6	43.6	42.6	38.3	33.3	31.1

The analysis of inequalities in food consumption of major food groups using concentration curves and CI would be useful, but require a separate exploration different conditions (full access to food consumption module of the Household Based Surveys, the construct of the food deprivation index as based on daily consumption of 2,500 kcal, tailoring of the child food deprivation index, etc). Such an exploration might be subject to a separate, subsequent study including current data and exploring time trends in the indexes of food deprivation.

In conclusion, the Moldova is doing relatively well at implementing a vaccination program on the quantitative level, but inequities in coverage are noted in children under the age of 6 months, as well as delays in vaccinations that do not correspond with the Immunization Calendar. The data do not support some of the qualitative problems in the frame of the National Vaccination Program. In addition the study, found that the children from families of higher SES were less likely to be vaccinated according to the Immunization Calendar.

The women of higher SES more often had their first antenatal visit by 12 weeks of pregnancy, but there was no difference in groups for attending at least 4 or more antenatal

visits to healthcare services per pregnancy. Iron and folic acid supplementation programs in pregnant women are of questionable effectiveness and equitability. There are strong correlations to the area of residence, region, mother's educational level, and wealth to the use of iron and folic acid during pregnancy. The access to medical care in case of ARI (cough and/or fever) is higher among children from richer families. Breastfeeding practice was found to be highly associated with the region where the child lives, the area of residence, and the wealth quintile. Children from lower wealth quintiles are more frequently breastfed 6 and more months. Conversely, the animal-based food consumption is concentrated among the better-off group.

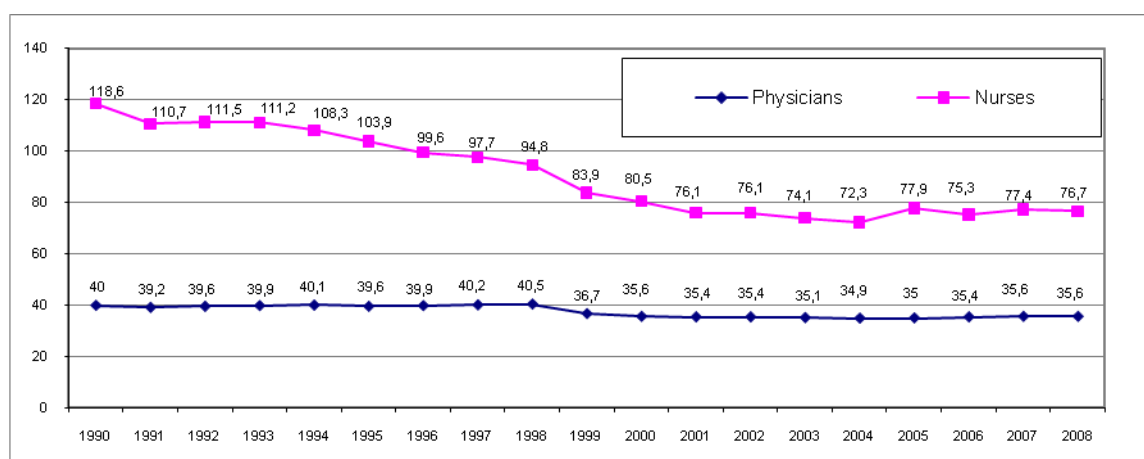
4.3. Inequities in key underlying indicators pertaining to health sector

The analysis of indicators of health in the healthcare sector, such as quality and affordability of services and resources, represents a particularly interesting area of inequity explorations. The issues of affordability and availability of services appear to be the two main issues, which preoccupy the mothers and were documented in the focus group discussions held in the three districts (*for detailed description, see Annex 1*). Women had repeatedly mentioned that the lack of medical personnel and services in close proximity to their houses and communities is one of the main barriers to their access of healthcare. At the same time, the additional costs acquired by the families for transportation and medications not covered by the medical insurance represent the second, most frequently cited barrier.

A. Availability of doctors and services

According to official data^[39], in 2008 there were 12,684 registered medical doctors in Moldova (35.6 per 10000 people) and 27,378 medium level qualified medical personnel (76.7 per 10000 people) (Figure 14).

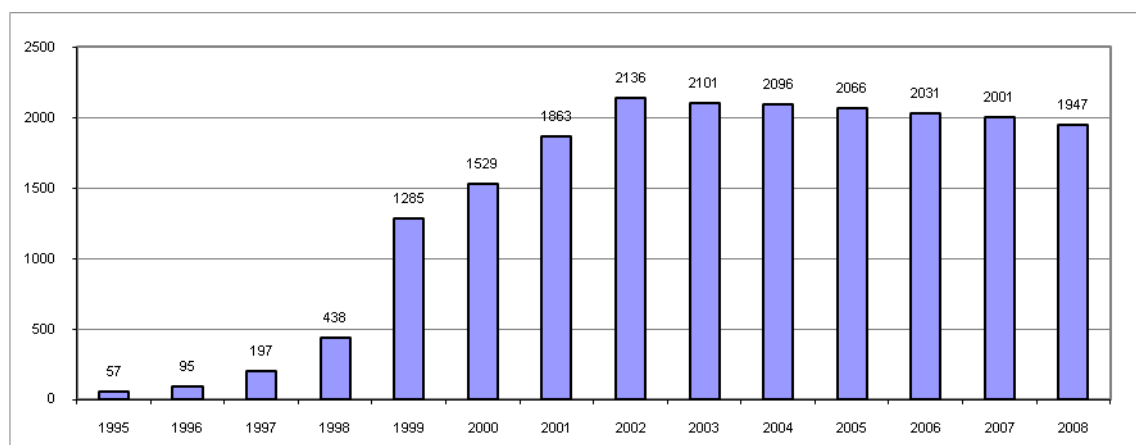
Figure 14 Number of physicians and nurses per 10000 population.



A family doctor (FD) oversees 1500 people, with the exception of rural areas, with a population of 900-1500 people, where only one doctor is appointed. A rural family physician should have three nurses, whereas an urban doctor has only two. In 2002, the highest number of family doctors (2136) was registered, but the number has constantly been decreasing recent years (Figure 15). In 2008, the Ministry for Health registered 1947 family doctors, of whom 1020 were working in urban areas and 927 doctors in rural locations^[40]. Considering the regulatory guidelines of one family doctor for every 1500

people, there is a deficit of 467 family doctors in rural areas and an excess of 36 family doctors in urban areas. There is an overall deficit of 431 family doctors.

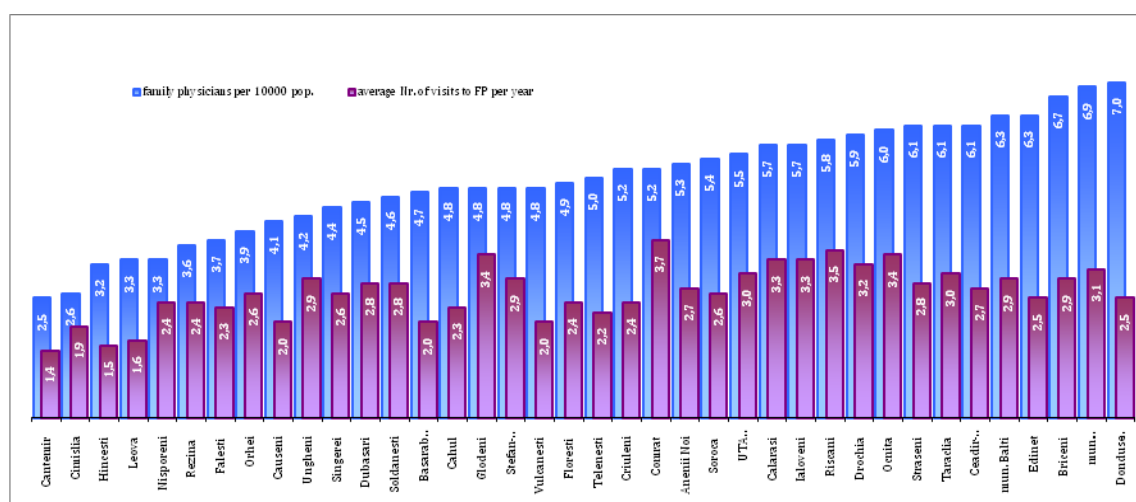
Figure 15 Number of family physicians in Moldova (1995-2008)



According to medical practice in other European countries, a family doctor is able to take care of 2000 people or more, but no more than 2500 persons. In the Republic of Moldova, in the districts of Cimişlia, Cantemir, Rezina, Nisporeni, Leova, Hanceşti, Orhei, Vulcanesti, Falesti, and Ungheni a rural family doctor serves more than 2500 people. This fact has a negative impact on the access and quality of the medical care services. Compounding the problem family doctors and their assistants must also spend significant amounts of time on reporting and administrative tasks.

There appears to be no relationship between the number of family doctors in each district and the total number of patients seen. For example, although there are seven FDs per 10,000 population in Donduseni (highest rate in the country), and patients visit them 2.5 times per year, the number of total visits is roughly the same in Rezina and where the number of family doctors is half. Figure 15 below indicates that an increased number of FDs does not translate into more total visits per year. ^[40] (Figure 16).

Figure 16 Number of family physicians per 10000 population and average Nr. of visits per person during one year by districts 2008



As suggested by healthcare managers (see Focus Group Report in Annex 1), the community, social, and living conditions are the major factors influencing where a family doctor will decide to settle. For these reasons, the number of FDs in the capital city and

northern areas is higher and skews the distribution, availability and quality of medical care, whereas the rural and economically disadvantaged populations in the southern areas and Causeni/Hancesti have a more difficult time attracting doctors.

B. Quality of services

Quality of healthcare, particularly, the quality of family medicine, which provides the most cost effective MCH services (immunizations, growth monitoring& counseling, antenatal and emergency care), is a strong determinant of the MCH status. In order to evaluate it, facility-based census-type data are needed detailing the volume and level of adherence with essential equipment, funds, protocols and technical services (water, electricity, phone, internet, etc).

One of the most comprehensive attempts to measure the quality of the primary healthcare services was undertaken in Moldova during 2007 as part of a World Bank supported survey^[41]. In reference to the availability of essential equipment (including 53 items from the MoH Decree #144/65-A from 12.04.2007), the report presents the cumulative percentage of available items. Although this presentation does not allow us to see inter-district disparities, it indicates that there are serious shortages of equipment with over 46 sections (regions or types of equipment) lacking by more than 50 percent. Given the widespread lack of equipment, the authors concluded that the quality of primary healthcare services greatly suffers and external donor support is required.

Regarding the analysis of distribution and utilization of the evidence-based quality protocols of MCH care, in 2000 the MoH introduced new protocols (e.g. on Integrated Management of Childhood Diseases and the second revision of the Perinatal services). Under these new protocols, important data on quality of care for children should be obtained, such as the proportion of sick children, which are correctly & timely diagnosed, treated or referred to hospital. During 2008, the MoH has also instituted monitoring units such as the IMCI and Perinatal Program monitoring units, which aim at collecting periodic data on the quality of services. As the data from these assessments becomes public, equity analysis will be needed to provide estimates of the degree of inequity in the quality of MCH services.

C. Affordability

The introduction of mandatory health insurance in 2004 had the aim to protect population from catastrophic costs of health care (hospitalizations) and ensure a standard package of services to the entire population of Moldova. It represents a payroll taxation scheme in which the insured and the second party (state or employer) contribute the stated proportions of the cost. At the same time, the costs of care for children under the age of 18 and pregnant and delivering women are fully covered by the state.

Although the insurance coverage has gradually increased, an important proportion of the population is still not insured. From the total number of those uninsured, 78% are those unemployed or self-employed, thus not capable of affording the cost of the insurance policy. Most critically, over one third of all women of reproductive age, 15 to 49 years, are not having medical insurance and thus may face greater financial burden and less protection (Table 5)^[31]. If to take into account that children under 18 are covered by state, the percentage of uninsured women in the age group of 18-49 years increases to 38%.

Table 5. Percentage of women 15-49 years not having health insurance, by wealth index, 2006-2008 Moldova. Data from HBS Moldova

Quintiles	2006	2007	2008
Poorest	44%	49%	47%
Poorer	34%	39%	40%
Middle	34%	35%	31%
Richer	33%	31%	26%
Richest	26%	29%	26%
Total	34%	37%	34%

There is a visible wealth gradient in the insurance status. This suggests the wealth level is one of the critical determinants to the insurance status. The women in our focus group (FG) reports (Annex 1) confirmed this and cited lack of money to buy the insurance card as the main reason for not being insured. At the same time, surprisingly, some women in the FG mentioned not knowing that they are guaranteed free medical care when pregnant or in delivery, which suggest a lack of education on medical services and insurance benefits. Women in rural areas also indicated that transportation costs and out of pocket expenses for hospitalizations are serious barriers to accessing medical care when compared to women in urban areas, who have better care close to their home and are better informed on the volume and type of care needed, and can therefore avoid unjustified payments. Population-based exploration of these contributing factors to MCH would be valuable, but currently are not possible due to lack of data either from MCH population-based surveys of the NHBSs.

Considering the NBS annual surveying, it would be of particular interest for MCH care, to know what share of households' expenditure on health went to out of pocket payment on each area of MCH services, specifically focusing on preventative, such as growth monitoring, supplements and immunization, or clinical, such as, emergency care for pneumonia or diarrhea. However, the current NBS data focus on total health expenditure per household only, with a rough dichotomy for ambulatory and hospital costs and do not allow a service-specific expenditure analysis.

Twenty-nine percent of respondents to HBS 2008 indicated being forced to interrupt or not access medical services because of the lack of money^[42], the figure being 36.4% in rural areas and 20.9% in urban. The higher share in rural areas could be also explained by the fact that the rural population has additional expenses for travel to another village or district center, as there might not a doctor in their community. Forty percent of respondents, who where hospitalized in the 6 months preceding the survey, indicated needing to purchase medications as the medical insurance covers only the essential (often only the cheapest medications), with 37.3% at district hospitals and 48.4% at Republican hospitals. The survey report does not provide disaggregation of out of pocket costs by the socioeconomic status of the respondents and, thus, it is difficult to assess the degree of inequity in those payments.

D. Mothers perceptions of availability, quality and affordability of care

The data and information on quality of care comes from the focus groups organized for the purpose of this study. They were conducted in three less advantaged villages selected on the basis of their deprivation index SADI scores. There were numerous comments

regarding the varied and often poor quality of care for pregnant women and children older than one year in rural areas. Since mothers living in rural areas need to travel to the district town to get care and tests they feel obliged to bribe personnel in order to get faster and a better level of care. Roma women are particularly dissatisfied and mentioned not only the poor quality of care, but also the problem of income and general lack of resources, which often mean that they are not able to properly feed their children or transport them to health centers. Worryingly, when asked to rate the quality of services offered with the introduction of the health insurance, the majority of women rated those at lowest mark. The information gathered from the focus groups suggests a need for more in-depth, quantitative surveying of mothers' perceptions on the availability or affordability of services to clearly define the main barriers to care.

1. Mothers' perception about their children's health and health equity

Mothers' perceptions about the health of their children differ in accordance with their welfare, ethnicity and geographical area. Women from the north were more satisfied with their children's health, than those from the center and from the southern part of the country. This could be explained by a higher level of access to the primary health care services, as well as by a greater level of welfare in the north. People from Bilicenii Noi, Singerei district have a full-time working healthcare center, while the communities of Vulcanesti, Nisporeni district and Cirpesti, Cantemir district have only a family doctors office, where doctors see their patients once a week. The poverty level is less in the northern population than in the population from the Center and the South.

The comparative analysis based on welfare level, revealed women having a lower level of welfare are more satisfied with their children's health than those women having a higher welfare level. It is possible that women from lower SES have lower expectations for their children's health, as well as having less knowledge regarding their children's health condition.

Although the majority of the focus group participants stated that their children sporadically have some health problems, such as a cold, anemia, dermatological problems, etc., they do not see them as severe illnesses, which could seriously affect their children's health. *"As every mother, I consider that my child's health is good. If he got a cold – that's nothing to worry,"* says E. from Cirpesti.

Roma women are less satisfied with their children's health in comparison with women from the Moldovan localities. Over half of the focus group participants, with Roma ethnicity, mentioned that their children's health is unsatisfactory. These children often suffer of anemia, bronchitis, pneumonia, helminthiasis, etc. More than a quarter of participants of the focus groups were not able to estimate their children's health as their children have not been medically examined for at least two years because of reduced access to medical care. Generally, these women have a low level of welfare. The major barriers to accessing medical care are: a lack of these kind of services in their locality, high cost for traveling to the district center, high price of health care services, a long queue to the family doctor, and finally the lack of an insurance package. It is important to note that some of the participants in the focus groups are not well informed about the fact that children are fully covered by health insurance system. *"How could we know whether our child is healthy if at the village medical care office there are no investigation machines and you can not undergo any medical tests? We are sent to Nisporeni, but the queue to the doctor is long and we need money to pay for the travelling. We do not have an insurance policy, so we cannot run any tests for our children. Maybe something hurts him, poor child, but as he cannot say it."* I., Vulcanesti.

When group members were asked about their children's health indicators in comparison with the first year of life, the women stated that the situation had slightly improved. This was determined by the child's natural growth, development, and increased immune system, as well as due to the vitamins prescribed by doctors.

Regarding variations in children's health condition according to the residential area, about two-thirds of the focus groups participants noticed that in general the children from the countryside are perceived as healthier than the urban because they spend much more time outdoors playing, are more exposed to sunlight, their food is more natural and the air is not as polluted. Conversely, Roma women consider that urban children are healthier because they have better living conditions, a wider range of goods and services and better access to medical care services.

Speaking about the factors that have a negative impact on children's health, the majority of focus groups participants agreed that nutrition and the water quality were most important. The research revealed issues regarding nutrition are quite different among women having a lower welfare level versus those with a higher welfare level. Women with a higher welfare level expressed problems with the poor quality of food, insufficient time to cook as they are employed, or poor menus at kindergartens. While, women having a lower welfare level stated that the biggest problem is insufficient financial resources to buy food and lack of knowledge how to feed their children. *"I give to my child less food than it is required for his age, as I have many children, but I don't have money even if I know I should feed him more,"* V. from Bilicenii Noi Village.

Child nutrition among this group depends a lot on the season. One of the mothers noted, *"during the summer it is easier, food is healthier, whereas during the winter there are neither fruits nor vegetables, what shall we do if we are run out of money, how could we buy the food they need?"*

In the case of Roma women, the participants confessed that there are times when they are hardly able to provide their children with a slice of bread and a cup of tea. In such cases, they ask other families for help and borrow flour, bread, beans, or oil. Many Roma women often have little land surrounding their house and do not have a place to plant a garden. *"It is difficult to get food together with the house we have only eight acres of land, we do not have place to plant some potatoes or beans. There are many of us living here; we share the household with our daughter and her children."*

When discussing water quality, all the focus group participants were worried about the water they use for cooking, because in all three localities, wells are the only water source. Additionally, the water quality has been not investigated for a long time. Women from the south and the Roma group are unsatisfied with the limited access to water in their villages. In the village of Cirpesti, many households have to carry water by carts over several kilometers, storing it in aluminium containers. *"We know it is dangerous to keep water in aluminum containers, it even tastes differently. We have nothing to do; the water from our wells is not good for cooking or drinking,"* said V. from the village of Cirpesti. In the Roma locality the situation is even worse, as there is very few wells. *"We all take water from one well, everyone with his own bucket. And what is someone suffers from TB or something else contagious. Whole village takes water from the same well, caring it home in tanks."* I. from Vulcanesti.

The majority of mothers consider that parents are responsible for their children's health. *"If we do not do our best for our child, nobody will, he is the most important thing in our life."* I. from Vulcanesti. Grandparents are considered second to parents, followed by medical doctors.

2. The degree of assurance of mothers and children's rights to health

Mothers consider that access to health is not offered on the basis of their right to it, but through money. *"If you have money, then you have access to your right to health. E. from Bilicenii Noi. "The right to health is insured by our wallet." I. from Cirpesti. "In Nisporeni the right is not observed. Doctors want only money. As soon as they see you are gypsy, they ask for money saying: gypsies have money, so give it. However, it is not right. Maybe some really do have, whereas others have nothing to eat. " C. from Vulcanesti.*

The large majority of focus groups participants feel they have less of a right to health now than three years ago. Only the Roma women mentioned that they have seen no difference, and their access to health did not improve at all. Three years ago the situation was as desperate as it is today.

3. The access and degree of use of primary health care, emergency and hospital services by mothers and children

Mothers have different access to the primary medical care services, usually determined by the type of medical office and variety of medical services in the community, by the medical staff qualifications, and by the quality of services. In the case of larger localities, such as Bilicenii Noi, where there is a full-time health center offering a large range of medical care services, mothers have a wide access to the medical services and are more satisfied with it. *"Our doctor is very good. I have delivered both my children through Caesarean operation and she helped me a lot" -Mrs. L., focus group participant.*

In the smaller communities of Vulcanesti, Nisporeni and Cirpesti, Cantemir, the family doctor sees patients only once a week and there is no clear working schedule, with a limited range of services (blood pressure, vaccination or injections). *"The family doctor comes to the health office only once a week and only when he/she wants. That is why we rarely take advantage of the medical care services at the family doctors' office. Nurses do not work on schedule, and it is hard to find them sometimes. When my child had high temperature, I could not find the nurse either at the medical office, or at home." -Mrs. M. from Vulcanesti. "Nurses open the office only when they want to. They may offer gynecologic services at a low price to spare the patient of traveling to the district center. The price of the services depends on the tests but it is difficult to say whether these tests are run correctly"-Mrs. E. from Cirpesti.*

Women from higher economic backgrounds reported having gynecologic prophylactic visits regularly, while women with a lower welfare and Roma mentioned not having one since their last pregnancy. Most women from a lower economic group see the doctor only when they are pregnant, need an IUD, or have health problems. The primary barrier to accessing gynecological care is a lack of money to travel to the district town and to pay for the services. *"How shall I see the gynecologist if only for entering his office I need at least 50 lei?" -Mrs. I. from Bilicenii Noi.* It should be noted that almost all women in the focus groups were unemployed and do not have health insurance.

Although all the focus groups participants enjoyed the basic set of free medical services during their pregnancy and delivery, women of higher welfare could also consult the dentist and psychologist. After having a bad experience during their last delivery in a public hospital, they could turn to a private clinic, such as "Virginia" Center in Cahul. Majority of women from better off groups chose to give birth in Chisinau, Balti, or Cahul, where the quality of medical care services is higher. The out of pocket price of pregnancy and delivery was about 250€, paid to the doctor.

When asked about the quality of services, more than 80% of the low welfare group was unsatisfied. Traveling to district town, having to wait in long queues, and being forced to

pay to get the doctors' attention added to the dissatisfaction. All women mentioned needing to offer "gifts" (chocolate, candies, cosmetics) or money (up to 2000-3000 MDL). *"Even if insured, I had to pay for every gynecologist's consultation. If I did not want to pay, the doctor sent me to buy some cookies and juice, and only after that I was given my medical record. You know, sometimes I did not have enough money, but I had to buy him what he was asking for, I was ashamed to tell him that the consultation has to be free of charge"* -I. from Cirpești.

"We cannot run tests in the village; I have to travel to Singerei Town to do a blood test, and we are not given the results if we do not pay 10 lei, even if we are pregnant." -L. from Bilicenii Noi. *"We had to buy gloves and speculum for the consultation even if I observed the doctor not using the new speculum I bought for myself."* -V. from Cirpești.

"In my case, the doctor used neither the gloves nor the speculum I bought; he examined me without wearing gloves." -I. from Cirpești.

"I fail to find words to express my feelings. I paid and was treated badly anyway. I do not understand what they wanted. They were yelling, speaking roughly with me, and I stayed in a bad ward. After the delivery they left the bandage in my body." E. from Vulcanesti.

Roma women have less medical care during their pregnancy, but acknowledge that they moved in and out of the locality and often visited the healthcare services just before delivery. Roma women frequently did not have identification papers; making child registration difficult.

The majority of women noted that although the children are vaccinated, the quality of care is poor, doctors do not inform parents of the vaccination requirements, and do not check the child's health status before the vaccination. The majority of poor women, as well as Roma women, are not satisfied with the medical care their children get after they reach their first birthday. *"Doctors pay some attention to children under one year, but as soon as they are one year old they are not paid any attention, as if they do not exist. For example, recently I had to check my child to be admitted to the kindergarten. They did not even look at him. The neurologist asked me to let the child wait in the hall."* -V. from Cirpești.

"The neurologist saw my child when he was one year old, but just looked at the child and prescribed a long list of medicines, without even explaining what for. I bought them, came home and, when I discussed with my mother those prescriptions, I saw that she had been prescribed the same medicines for blood pressure. How could my child be diagnosed with blood pressure without any examination? Then, I did not even administrate those medicines, as I did not see my child having any neurological problems." -E. from Cirpești.

"The dentist surprised me very much. First of all he filled in the child's medical form and only after that asked me whether the child had any teeth." V. from Bilicenii Noi.

Regarding disparities in medical care between rural and urban areas, the focus group's participants felt that medical care is of better quality in cities; there is more information about qualified doctors and medicines, and greater opportunities to buy cheaper drugs. *"A city woman does not pay for the travel, she has all the medical care services next to her, whereas a countryside women has to travel to the district center each month; spends more money, more time, etc."* -V. from Bilicenii Noi. *"I think a city woman is provided with more services: psychologist, family planning, trainings, whereas with the countryside women one is focused only with the tests running and that is all."* -M. from Bilicenii Noi.

The access and use of emergency services

The great majority of focus group participants mentioned that during the last few years, the emergency service has improved substantially and they are satisfied with the free service

and the ambulances come quickly. Nevertheless, the doctors' qualifications are perceived to be low. *"Recently the ambulance came. There were two doctors: one of them fell asleep and the second had to wake up his colleague. They administrated an injection and asked whether I want to go to hospital"* -E. from Bilicenii Noi. A Roma woman mentioned how emergency staff came only when she called several times. *"We call for the emergency, however one may die 10 times until they arrive. They do not trust when we call, asking us not to bother with the phone."* -E. from Vulcanesti.

The access and use of hospital services

The majority of well off women prefer being hospitalized in Cahul, Chisinau, or Balti, where the quality of services is perceived to be better and while paying formal fees for the ward, they also informally pay to doctors directly. Women of lower welfare are usually hospitalized at district hospitals and are very unsatisfied. *"I stayed in the hospital together with my child. Doctors told me he got a cold. Our stay and the poor meals were free of charge, but we had to buy everything else: syrups, pills, drops."* -V. from Cirpesti.

"We are far from being satisfied with the hospital care services. Mothers have to clean the ward, which is not hygienic. Conditions are very bad, there is no hot water, cockroaches and rats, so you do not sleep at night, but take care of your child. If you do not pay the doctors they do not even look at you or speak in such a way that you do not understand what is wrong with your child. If you pay them, they explain everything to you and prescribe a better treatment." -M. from Cirpesti.

4. Compulsory medical insurance and its role in establishing the equity in the healthcare system

The discussions in the focus groups highlighted that the compulsory medical insurance contributes very little to the reduction of inequities in health of mothers and children. Additionally, the majority of participants in the focus group have indicated a very negative view of the compulsory insurance. Most of the women from the group with a higher welfare level have insurance policies, but they seldom use them, because in their opinion the policy covers only few medical services. The medical services covered by the policy are usually not essential in the treatment process. Compensated drugs are usually out of the drugstores stocks; to buy the compensated medical drugs, there is need to travel to several pharmacies and has a prescription with several stamps and signatures. The policy only covers visits to family doctors. If a patient wants to see a specialist, they must queue for several weeks. *"The doctors do not take into account that you are pregnant or with a child, they receive first the citizens who pay and, at the end, those insured. Everything is done in such a way, that you have to pay, just to avoid standing at the door long hours even if you are pregnant."* -E. from Cirpesti.

More than 90% of women from the less wealthy groups are not insured because they are unemployed and can't afford buy it. Roma women expressed great dissatisfaction with the compulsory medical insurance. They did not feel any improvement in the quality of the provided medical services after the introduction of the insurance policy and in fact, on the contrary – a worse service and more bureaucracy.

"It would have been better if the insurance didn't exist. If you tell the doctor that you are insured he doesn't want even to listen to you and tells you, but what should I live from? They ask for money anyway for the majority of medical services." -I. from Cirpesti.

"It happened that I needed an immediate surgery. The doctor asked me, "How do we operate on you: as insured or not insured?" That meant without anesthesia, or if I paid with anesthesia and no pain. Of course, I chose the second option. Now I am asking myself, why is the money taken from our salaries?" -E. from Bilicenii Noi.

“The doctors told me from the start that, if I want to stick to my insurance status they do not guarantee full cure, but, if I want to be treated then I should buy drugs.” -E. from Cirpesti.

In conclusion, equality in the availability, quality and affordability of healthcare services is worrying. Although the insurance coverage has gradually increased, an important proportion of the population is still not insured. From the total number of those uninsured, 78% are those unemployed or self-employed, thus not capable of affording the cost of the insurance policy. Moreover, one third of all women of reproductive age, 15 to 49 years, are not having medical insurance and thus may face greater financial burden and less protection. Government of Moldova is taken measures to increase insurance coverage by making public spending more poverty-focused.

Data show that there are a greater number of family doctors in capital city and northern areas, although there is no clear link between the number of physicians and the total number of patient visits. On the other hand, the insurance with family doctors in some regions and low motivation of the medical staff remain a problem that influence access and quality of health care. Concerning the distribution and utilization of the evidence-based quality protocols for MCH care, Moldova has started to implement Integrated Management of Childhood Diseases and Perinatal care protocols and the further analysis of their application is warranted in each area or type of health facilities.

Qualitative data on the level of satisfaction with the availability and affordability of care for mothers and their children pose serious questions. In the three villages sampled, women seem to encounter problems of extra money for services, lack of clarity and information about health insurance, and little attention to children older than one year of age.

V. CURRENT POLICY RESPONSE

There are three broad policy approaches to reducing health inequities identified in the international literature: 1) improving the health of low SES groups through targeted programs; 2) closing the health gaps between those in the poorest social circumstances and better off groups; and 3) addressing the entire health gradient, that is, the association between socioeconomic position and health across the whole population^[42].

The Commission on Social Determinants in Health indicates that four areas of interventions are available in tackling health inequities, those ranging from reduction of the magnitude of structural determinants, like income and education, through poverty reduction to targeted delivery of healthcare services to those less well-off.

Policy partners must be concerned with an additional set of relevant issues: monitoring the effects of policies and interventions on health equity and its determinants; assembling and disseminating evidence of effective interventions, including inter-sectoral strategies; and advocating for the inclusion of health equity, as a goal, into the formulation and evaluation, not only of health policies, but of all social policies.

In Moldova the health equity goal derives from the National Health Policy 2007-2021 document and other social policy documents. However, the specific course of action to these goals is less clearly defined. For example, most of the policy or program documents do not stipulate a set of equity indicators, milestones and targets. Nor does it define the process of monitoring and analysis of the results against the initial goals.

National policies: As part of the study, major health and development policy documents were analyzed to determine the degree to which they meet the aim and the logic of the health equity. The most important of these, the EGPRSP 2004-2006, as well as its earlier interim document (covering 2001 to 2003), strongly acknowledged the problem of widespread poverty in the country and indicated that inequity reduction is a pre-requisite to sustainable and inclusive economic growth. The documents declare a set of actions ranging from establishment of monitoring systems to social inclusion activities. However, these do not exactly state what the indicators are against which inequity will be measured and in which target groups.

Despite public research accumulated after the EGPRSP voiced concerns over inequities, the subsequent document, the **National Development Strategy 2008-2011**^{††}, seems to place less of an emphasis on reducing poverty and inequity. Its action plan does not contain specific targets to reduce inequalities, including health^[43]. This may indicate a possible disagreement between the existing body of data and the decision-making process. This leads us to believe that there are insufficient resources and skills to understand the concept and importance of using inequity data for advocacy and equitable allocation of resources^[44].

The **Medium Term Expenditure Framework (MTEF) for 2009-2011** was approved by the Moldovan government in 2008. It includes the recommended estimated expenditures that will serve as basis for strategic planning adjustments. In addition to other public

^{††} The NDS 2008-2011 is composed of the Strategy and Action Plans and set out 5 priority sectors to assist poverty reduction and economic growth: i) strengthening democracy based on the rule of law, ii) settlement of the Transnistria conflict, iii) enhancing the competitiveness of the national economy, iv) human resources development, v) regional development.

expenditure programs, the document includes the health system strategic plan for 2009-2011. One of the main focuses of the health system strategic plan is mother, child and youth health (Activity 2.3), with a set of measures oriented to strengthen MCH. As stipulated, the principal purpose of this activity is to improve the MCH in correspondence with the MDGs and improve youth health. The midterm specific objectives include: 1) strengthening MCH services; 2) offering children access to intensive therapy services at the district level; 3) develop medical facility conditions and improve the quality of perinatal services; and 4) extension of youth friendly services and increase access to information, education, and communication of youth. The list of proposed monitoring indicators include the expected rates to be achieved in accordance with MDGs and unfortunately do not contain any means to assess and monitor the inequalities in MCH.

Some authors argue that in Moldova the targeting of social aid is less successful, with a decline in the share of social benefits received by the first quintile, from 57% of total benefits in 2001 to 49% in 2004. There was a slight increase for the middle quintile from 6 to 19%^[47]. The authors also argue that although social assistance in Moldova largely focuses on children, the social benefits system has not improved their welfare and large portions of children remain trapped below the poverty line (see Section II).

Another influential document, the **National Strategy of Statistics 2008–2011** aimed to streamline the national monitoring to the monitoring for MDGs. This does not include objectives on equity monitoring, in general, or health equity monitoring, in particular^[45].

Another document, the **European neighbourhood and partnership Instrument Republic of Moldova Country Strategy Paper 2007-2013**^[46] declares that cooperation in the area of foreign and security policy and the promotion of economic growth and poverty reduction is the base of the EU-Moldova Action. Even if security and economic growth is the document's main focus, it is worrisome that equity is not mentioned and there are no assurances that future economic growth will not further deepen the inequities as previously occurred in Latin America countries.

More recently, the national and donor communities discussed a sector wide approach to health as a way to effectively utilize financial resources. The European Commission approved a Sector Policy Support Programme (SPSP) for the Republic of Moldova. This is a progressive, new way of providing external support to sector programs by the EC. Nevertheless, the SPSP does not mention health equity as one of its main objectives.

The **National Health Policy 2007-2021** takes social solidarity and equity as its basic postulate and through by its implementation the government has committed to the aim of health equity for all. At the same time, the Policy, similar to other programs or policy documents, does not clearly indicate to what degree it wishes to stabilize or improve the inequity and how it will actually measure the inequities in health. Societal and political forces pressure the government to enlarge the package of services guaranteed by the national health insurance. How feasible such an increase will be in the current economic crisis and large public funds deficit remains unclear.

The main health policy documents create a legal and normative framework in which diverse efforts are planned and agreed upon to ensure equal rights to the best available health services and the highest possible standard of health in the country. Notably, the **Strategy for Health Care System Development 2008-2017** mandates the monitoring of inequity indicators such as the proportion of population who do not visit family medicine for lack of funds, or the proportion of rural units where one family doctor has to see a

population exceeding 2,000 with no pharmacy. However, the Healthcare Strategy's first evaluation report for 2008 did not include any baselines or trend analysis for the above mentioned indicators. We may assume that neither the procedures for collecting such information nor those for its analysis are not developed.

National programs: The health of women and children seems to receive significant attention judging from the number and diversity of ministerial decrees and activities directly or indirectly related to the MCH care. However, from the 15 currently active national public health programs presented in the 2008 Moldova Health in Transition Profile (by MoH and WHO Euro), none were solely dedicated to the MCH, except for the National Immunization Program which targeted both children and adults. The previously active Perinatal program does not appear on the list and is not clear if it will receive any dedicated funding. Sadly the MCH program drafted in 2006 was never approved and the child and maternal nutrition program was never formally incorporated into any national program.

The problems of MCH programming are compounded by the lack of specific budget lines or monitoring cost categories, such as capacity-building, promotion or mobilization activities. The situation is changing with increasing publicity and clarity for some of the programs, such as immunizations or HIV, which have clear financial futures and implementation figures. However, with other programs the situation is less clear, in part due to discretionary financing and less delineated funding. At the same time, data from the National Health Insurance Company on revenue and expenditure by type of service or pharmaceutical class are not public record. It would be informative to see how the company utilizes two percent of its funds towards health promotion activities (a part of which would include MCH) as designated by the Law of Health Insurance 1998 and company regulations.

Guided by the policy and regulatory documents, the Government of Moldova has maintained and reformed an extensive network of healthcare facilities and services. The GOM has ensured good coverage rates on some essential MCH care issues (immunizations) as described in the sections above. The statistics for other cost effective preventive services are less well known or reliable (child growth monitoring and counseling, including de-worming or micronutrients such as vitamin D or Iron tablets). Similarly, the situation with data on the coverage of cost effective clinical services, such as IMCI- protocol based hospitalizations is lacking.

A specific example regarding the validity of data can be provided on the child growth monitoring. MoH presents annual statistics in its Yearly Health Statistics Books. There it indicated that in 2008, up to 11% of children who visited health facilities were registered with "malnutrition". This figure seems to be rather high, inferring from population-based DHS data which stated less than 5% of children were malnourished and 8.4% stunted. We may presume difficulty weighing children, as up to half of medical facilities reported not having scales to weigh children in 2007.^[41] The question arises whether the weighing was even done at facilities reporting not having the scales and if so, how the "11%" figure was calculated.

Further review of the national health programs, including the content of the **basic package of services** (Government Decision No. 1387 from 10.12.2007 on Unique Programme of Mandatory Health Insurance) as well as **selected MCH programs** (National immunizations program, Perinatal care program, IMCI program, etc), reveals no particular emphasis on the objectives of health equity assessment such as identifying the most

vulnerable groups to be reached by the programs or analyzing the data with an equity lens (disaggregation by SES, education level, or geographic areas).

It may be concluded that because equity monitoring is not part of the strategic or programming planning for MCH, it is difficult to assess the degree to which certain programs may have improved or worsened the equity status. Generally, the MCH programs in Moldova tended to carry a “universal coverage” character and did not define the most vulnerable groups. In regard to widespread poverty, in the beginning of this decade, the lack of “targeting” might be justifiable since the increase in health status of the entire population was needed. The findings of the current study demonstrate that there are significant inequities in the levels of morbidity, utilization of care and affordability of care in Moldova. Given the recent threats of economic slowdown and decreased financing, a more equity-targeted approach might be needed. To perform such targeting, recent population or facility-based data are needed. In the case that inequities are growing, the improved targeting of services and social aid is warranted.

VI. CONCLUSIONS AND RECOMMENDATIONS

The current study looked into the estimates of degrees of inequity in maternal and child health and nutrition indicators, while attempting to depart from simple descriptive statistics and to quantify the degree of inequity. Overall, large estimates for 2005 were possible because the DHS 2005 data included both SES disaggregated and MCH data, while its datasets were readily available. This limits the possibility of analyzing trends in equity prior to 2005, however it allows the establishment of a baseline upon which further analysis might be completed.

The current study is intended as a working document for policy-makers and health care managers and may effectively assist them in the process of planning, allocation, and monitoring of MCH resources in an equitable manner. As a basis for the analysis the study uses the concept of multi-factorial determinants of health, taking into account that inequalities in health arise from, and are maintained by unequal distribution of welfare, knowledge and lifestyle practices, attainment of employment, access to education, water and sanitation system, food production and social support. The study focuses on describing the state of maternal and child health inequity in Moldova through analysis of three types of indicators: high-level outcomes, key intermediate outcomes, and structural outcomes.

A general overview of poverty in Moldova reveals that between one third and half of the entire population lived in absolute poverty in 2006, while nationally produced data for 2008 suggest that one fifth of the population lives under the national poverty line threshold. These figures classify Moldova as the poorest country in Europe and just slightly above the forty poorest countries in the world. The poverty is concentrated in rural population, where the unemployment rate is higher. The poverty rates are disproportionately higher in households with 4 family members when compared to households with 2 members. Such a degree of poverty suggests the need for targeted financial or social aid from the birth of the 3rd child on and to support households by offsetting the burden of child care costs.

In terms of definitions, **the national and international stakeholders use different definitions of poverty in Moldova and it causes an over abundance of diverse, but related indicators.** The measurements are flawed with conceptual problems, part of the indicators are not clearly described and effectively useless. The poverty in Moldova is analyzed predominantly among households, leaving out important other population groups not living in households: street children and women, institutionalized children, children in detention. The Transnistrian region, is notably absent as it was not part of any nationally representative survey after 2000. If the poverty status of these population groups would be factored-in, the overall national poverty status might be even worse.

Despite widespread poverty, **the mother and child health indicators have improved since independence, mainly due to the prioritization of child health interventions by the government and assistance by international organizations.** The reforms incorporated the introduction of the health insurance model with a focus on primary health care. There is little documentation written about these improvements and an analysis would be highly warranted. Moldova lags far behind countries in the European region in some MCH indicators, such as disabilities and injuries, knowledge level of preventive and safe practices, and some infectious diseases (TB). Some analysis of the stagnation factors has been conducted or is under way with support from UNICEF (e.g. *Assessment of Disability and Injury Care & Services, 2009, Early care and development Study 2009, Evaluation of PMTCT effort 2009*). Their findings and recommendations should be widely used during the decision-making process.

The monitoring of health equity in Moldova is not adequate. Even though multiple MCH indicators are collected at the national level, these are not sufficient to allow the equity analysis. The Health Module of the Annual National Representative Survey, conducted by the NBS, is lacking in information regarding the determinants of health status, such as use or coverage by preventive services, sources to cover catastrophic medical costs or expenditures on the MCH health services. NBS datasets are only partially made public and its published reporting does not routinely contain comparative data for different groups (quintile) of the population.

Although there are improvements in high-level outcomes (e.g. child mortality) at the country level, some important inequalities can be sorted out when comparing different sub-populations by area of residence, region or wealth quintiles. The infant mortality rate has shown vast differences from the national average. It is highest in rural areas and southern parts of the country and lower rates in parts of the capital. There is a pronounced inequity of child mortality, disfavoring poor children.

Maternal mortality is a difficult indicator to analyze due to it being a relatively rare event, and the number of maternal deaths is too low to yield reliable estimates. The majority cases registered in 2008 happened among mothers from “socially vulnerable backgrounds” and were due to causes, which could have been avoided if the women would have sought timely and adequate medical care.

There is a great variation among nutritional and illness statuses of children in Moldova. There is significant inequity among children in the weight-for-age indicator, with a concentration among the poor population. The analysis of morbidity indicators, like diarrhea, fever and cough in children under five, disfavors well-off children. This might be explained by underreporting of disease by women from poor quintiles.

The analysis of **MCH determinants as pertaining to health services** also revealed inequalities across all SES groups. Specifically, **there was a significant deficit within vaccination coverage for children age 0-6 months and delays in vaccination according to the National Immunization Calendar.** Within this group, the children from better off families had fewer vaccinations, which may be attributed to decreased influence from communal or extended family on the decision to vaccinate when compared to rural families where the ties and influences to vaccinate may be stronger.

The number of women attending their first antenatal visit by 12 weeks of pregnancy slightly favors the well-off women, but by the fourth visit the differences level off, indicating little inequity. The inequity in the use of prenatal iron and folic acid pills is evident, favoring richer women, with a strong correlation to the area of residence, region, and woman's education level. The inequity is even higher when analyzing whether women took iron pills for 90 or more days, as prescribed by international guidelines: only 1.4% of women from poorest quintile followed the practice comparing to 19% in the highest quintile. This questions the equitability of the iron/folic acid supplementation program. One alternative is a flour fortification program, which may offer a more equitable and cost-effective solution to the problem of anemia in Moldova.

Children's access to medical care in the case of cough and/or fever is higher among children from richer families. In terms of feeding practices, these children are also better provided with animal-based food. **The number of undernourished people, although decreasing during last few years,** remained high in the poorest quintile, urban population, and in three to four member households. This suggests a need for social aid specifically

targeting families with 4+ members in order to assist them in overcoming undernourishment and deprivation.

In terms of key underlying determinants to MCH, issues surface in availability, quality and affordability of services. The number of doctors per population appears sufficient by European standards, but their distribution by geographical areas, particularly for family doctors, is highly unequal. The number of family doctors within the capital city and northern areas is twice as high compared to rural areas. This skews the distribution, availability and quality of medical care away from the rural and economically disadvantaged populations. There is no clear relationship between the coverage with family physicians and the number of patient visits per year, but there is little evidence to understand the lack of correlation.

The introduction of compulsory health insurance increased the level of protection from the catastrophic costs for health care by making available a standard package of medical services. At the same time, more than **one-third of women of reproductive age are not insured, predominantly in rural areas** and may face greater financial burden with less protection. There is little knowledge among women of the actual medical services and insurance benefits.

The transportation costs and out of pocket payments for hospitalizations are suggested to be serious barriers in accessing medical services by rural women, compared to women in urban areas, who have better care close to home and are better informed on the amount and type of care needed. To investigate and measure the extent of out of pocket payments by women and families with children, particularly in most disadvantaged areas (SADI), further analysis is needed. Supplementary quantitative analysis of the cost-effectiveness of current MCH insurance package and funds allocations to MCH is required to decide whether an extension of the MCH package is warranted.

The goal of health equity is required in the main health and social policy documents. However, the actual sequence of actions in reaching the goal and its indicators is not clearly described. The main health policy documents create the necessary framework to ensure the equal rights to the best available health services. It appears that the health of women and children receives significant political attention. However, as of today, there is no national health program specifically oriented toward MCH and no specific equity objectives are stipulated in relation to MCH and care. It is recommended that capacity for programming and monitoring of the MCH equity is increased with program officers, researches and decision-makers within MoH.

In addition, the majority of the national health programs are not very transparent in terms of their financing. Increased transparency would allow an analysis of the effects of the funds spent on the equity in specific programs. In this respect, an analysis of the expenditures is warranted of the funds used by the National Health Insurance Company by types of services (preventive, primary care/ specialist or hospital) or drugs disaggregated by districts or population age groups. The analysis will reflect the actual degree of equitability of public allocations for child and maternal care services.

Due to the equity appearing not to be part of the strategic or programming planning, it is not possible to assess the degree to which certain programs may have improved or worsened in the MCH equity status. Generally, the MCH or health programs in Moldova tend to carry a “universal coverage” character and therefore do not intend to

define the most vulnerable or primarily target, those most in need, as a cost-effective way to use the seriously limited state or external funds.

With the conclusions being set as above, the following set of recommendations is made:

1. Fortify existing monitoring systems to include monitoring of inequity

- a. Existing population-based surveys (the DHS or MICS type) can provide important data, however these need to be supplemented by improved routine data collected to denote the situation at intermediate determinants, such as use of services and family practices. Therefore, the existing monitoring system needs to be improved (revision of existing indicators and prioritization of collection to those most informative to MCH monitoring) and should be coordinated and mainstreamed among numerous data collection entities.
- b. To conduct the next round of MCH-based surveys (MICS or DHS), in order to provide population-based data on MCH and allow equity analysis and time trends. Probability is high that inequities are rising. Having updated data and a repeated equity analysis similar to the present study will serve as a solid base to advocate on equitable distribution of resources and programming targeting those most vulnerable.
- c. To link analysis of underlying determinants to MCH, such as SES, food insecurity, gender inequity, access to social, education, protection services and infrastructure/housing, which generally are considered to be the strongest factors determining poor health. Combined, such analysis serves as a solid base to fight exclusion and vulnerability of children.

2. Increase the capacity of health researchers, planners and managers to produce, analyze, advocate and utilize equity data and analysis in planning and managing MCH programs. This should build up the capacity to identify vulnerable groups and select evidence-based interventions in order to reduce inequities at MCH programs/interventions.

3. Continue the efforts to address coverage with mandatory health insurance applying pro-poor approaches, as well as reduce out-of-pocket payments.

4. Investigate and measure the provision of MCH services in terms of its effectiveness, particularly looking at:

- a. The extent that out of pocket payments by women and families with children play in accessing healthcare, particularly within the most disadvantaged areas (SADI) and aim to identify the actual degree of protection (or vulnerability).
- b. Analyzing the cost-effectiveness of the current MCH minimum insurance package, to inform what modifications are needed (cancel less effective/cheaper drugs and substitute with more efficient remedies and services) and decide whether extension to most vulnerable groups (women carrying for young children, HIV positive families, etc.) is feasible in the current economic situation.

5. Improve the target of aid programs to focus on the most-at-need (for example, large families) and the creation of support systems, including referrals and connections to non-governmental, community and other sectors. As well as

maintain universal coverage for the most cost-effective interventions, such as growth monitoring and counseling, immunizations, and IMCI-based care for acute illness

6. **Enrich and extend parents' education efforts** in order to promote improvement in child care practices and parents motivation to ensure a child's growth and development by using the opportunities offered by antenatal and pre-school services.
7. **Further advocate for the improvements to the infrastructure of the medical services** (availability of essential medical equipment, water, heating, etc.), which have the potential to seriously increase the quality of service and motivate health workers to assist rural and distant communities.
8. **Target disadvantaged areas (those estimated using the SADI (Small Area Deprivation Index))[48] which suffer a disproportionate large inequity in accessing MCH services.** Roma communities experience increased vulnerabilities in relation to MCH and care. It is recommended that focused health promotion, information about health insurance, social assistance and improved documentation efforts are initiated in communities compactly inhabited by Roma people, in order to increase and improve their access to health services and family practices for child health and care.

REFERENCES

1. Braveman P, Gruskin S. Defining equity in health. (Theory and Methods). Journal of Epidemiology & Community Health. April 1, 2003.
2. CSDH (2008). Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva, World Health Organization.
3. Graham H. Social determinants and their unequal distribution: clarifying policy understandings. The Milkbank Vol 82, n 1, 2004 .pp 101-124. 2004.
4. Graham H. Whitehead 1990. Mackenbach J, Bakker M (eds). 2002. Reducing Inequalities in Health: A European Perspective. 2004.
5. Tajer D. Latin American social medicine: roots, development during the 1990s, and current challenges. Am J Public Health. 2003 Dec;93(12):1989-91. Werner D, Sanders D. 1997. Questioning the solution: the politics of primary health care and child survival. Palo Alto, CA: Healthwrights 2003.
6. Oldenburg B, McGuffog I, Turrell G. Socioeconomic determinants of health in Australia: policy responses and intervention options. Med J Aust. 2000 May 15;172(10):489-92. Ministry of Health of New Zealand. 2000. New Zealand Health Strategy. [http://www.moh.govt.nz/moh.nsf/0/1c468f0b47a6e7024c2568f000707c03/\\$FILE/ATTYVNM3/nzhdisc.pdf](http://www.moh.govt.nz/moh.nsf/0/1c468f0b47a6e7024c2568f000707c03/$FILE/ATTYVNM3/nzhdisc.pdf) 2000.
7. Children's Institute, University of Cape Town. Available at <http://www.childrencount.ci.org.za/content.asp?PageID=1>.
8. Veega J. Disentangling the Pathways to Health Inequities: The Chilean Health Equity Gauge. 2003.
9. McCoy D. Global Equity Gauge Alliance: Reflections on Early Experiences. J. Health Population and Nutrition. 2003 Sep;21(3):273-287.
10. Hastings TB, Bongololo GT, Ng'ombe J, Makwiza I. Country Health Equity Analysis: Malawi. EQUINET. 2006.
11. Graham H. Understanding Health Inequalities. Open University Press: Buckingham. 2001.
12. Woodward A, Kawachi I. Why reduce health inequalities? Journal of Epidemiology and Community Health. 2000.
13. O'Donnell O, Doorslaer Ev, Wagstaff A, Lindelow M. Analyzing Health Equity Using Household Survey Data. A Guide to Techniques and Their Implementation. The World Bank, Washington, D.C. 2008.
14. Knowles J. Health equity in Viet Nam: A situational analysis focused on maternal and child mortality. Background paper prepared for UNICEF Consultancy on "Equity in Access to Quality Healthcare for Women and Children" (April 8-9, Ha Long City, Vietnam). Draft. February 2008.
15. Government of the Republic of Moldova with the assistance of the UN Agencies in Moldova. First National report to the Millenium Development Goals in the Republic of Moldova. June 2005, 57 pages.
16. Cornea A. Poverty, inequality and policy affecting vulnerable groups in Moldova. IWP-2006-05. Innocenti working paper. Unicef. Innocenti research centre.
17. Web page: <http://www.unicef.org/moldova/ro>.
18. Ministry of Economy, PPMU, Progress report on EGPRSP, may 2004.
19. Moldova Demographic and Health Survey 2005. National Scientific and Practical Center for Preventive Medicine. Ministry of Health and Social Protection. ORC Macro. Calverton, Maryland, USA Chisinau, Moldova. 2006.
20. World Bank. Report No. 35618-MD. MOLDOVA: Poverty Update. June 12, 2006.
21. 2009 Human Development Report, Overcoming Barriers: Human Mobility and Development. Available at http://hdr.undp.org/en/media/HDR_2009_EN_Complete.pdf. Accessed October 8th 2009.

22. Cortes R. Remittances and Children's Rights: An Overview of Academic and Policy Literature. UNICEF. 2006.
23. Cuc M. et al. Migration and Remittances in Moldova. 2006. 79 pages.
24. Ratha D, Mohapatra S, Silwal A. Outlook for Remittance Flows 2009-2011: Remittances expected to fall by 7-10 percent in 2009. Migration and Remittances Team Development Prospects Group, World Bank.
25. The Innocenti Social Monitor 2009. UNICEF. P.15-16.
26. Manaresi F. Migration and children left behind in the Republic of Moldova. Thesis paper. 2006. 270 pages.
27. European health for all database (HFA-DB). World Health Organization Regional Office for Europe. [cited on September 14, 2009]; Available at: <http://www.euro.who.int/HFADB>.
28. Sănătatea Publică în Moldova. Ministerul Sănătății. Centrul național de Management în Sănătate. 2009.
29. Scutelnicu O, Soltan V. Macro International (USA) and the World Health Organization (Switzerland). 2009. Moldova Health Impact Evaluation 2008. Calverton, Maryland: Macro.
30. Evaluation of the Health Information System in the Republic of Moldova. MoH RM and Health Metrics Network, 2007, p. 44, 58.
31. Household Budget Survey 2008. National Bureau of Statistics.
32. Web page: <http://www.statcompiler.com/>.
33. UNDP Moldova. Roma in the RM. 2007. 120 pages.
34. Bacci A. et al. The introduction of confidential enquiries into maternal deaths and near-miss case reviews in the WHO European region. Reproductive health matters. November 2007 (vol. 15, issue 30, pages 145-152, doi: 10.1016/s0968-8080(07)30334-0).
35. Adapted from Victora C. et al, Co-coverage of preventive interventions and implications for child-survival strategies: evidence from national survey., Lancet 2005; 366: 1460-66.
36. Government Decision Nr. 523 from May 16, 2006 Regarding the endorsement of the National Immunization Program for 2006-2010.
37. Center for Strategic Studies and Reforms. Moldovan Wheat Market Research. 2004. Available at http://pdc.ceu.hu/archive/00002398/01/0404_Moldovan_Wheat_Market_Research_ENG.pdf.
38. NBS and UNICEF Moldova. Child and family-focused analysis on the impact of financial and economic crisis. Preliminary. 2009.
39. Sănătatea Publică în Moldova. Ministerul Sănătății. Centrul național de Management în Sănătate. 2008.
40. Annual report on health 2008. Ministry of Health.
41. Ciurea D. Dezvoltarea unui Master Plan pentru Infrastructura si Resursele Umane din sistemul de Asistenta Medicala Primara. 2007.
42. Study on Population Health and the Access to Health Care Services. National Bureau of Statistics. 2008.
43. Web page: http://planipolis.iiep.unesco.org/upload/Moldova%20R/Moldova_PRSP_2008-2011.pdf.
44. Web page: <http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=327071>.
45. Strategia de dezvoltare a statisticii naționale pentru perioada 2008 - 2011. web link: http://www.statistica.md/public/files/despre/legi_hotariri/strategia_BNS_2008_2011_md.pdf. accessed on August 2009.
46. European neighbourhood and partnership Instrument Republic of moldova Country strategy paper 2007-2013.
47. Verme P. WB Working papers series. Social Assistance and Poverty Reduction in Moldova, 2001-2004. An Impact Evaluation. June 2008. 32 pag.
48. Baumann P, Malcoci L, Paglietti L. Moldova: co-operation in regional development. Contract number: cntr 06 7282. Moldova Regional Livelihoods Study. 2009. 108 pages.

ANNEXES

Annex 1. Focus groups analysis

The research purpose consisted in the study of the health equity degree of mothers and children from vulnerable families of the Republic of Moldova in order to draw up some practical recommendations to reduce inequality and to increase the access to qualitative health care services. The following aspects have been studied to reach this aim:

1. Mothers' perception about their children's health and health equity
2. The insurance degree of mothers and children's rights to health
3. The access and the degree of usage of primary health care, emergency and hospital services by mothers and children
4. Barriers which lead to the increase and persistence of inequality in mothers and children's health
5. The degree of mothers and children's satisfaction about the accessed health care services
6. Compulsory health insurance and its role in health equity provision
7. Ways to reduce inequality and to increase the access of mothers and children to qualitative health care services

The research subjects were: a) mothers having children under 5 years (from vulnerable families); b) mothers having children under 5 years (from well-off families); c) experts in mothers and child health.

Selection of localities and persons participating in focus group. Six focus groups with mothers having children up to 5 years were carried off with one additional focus group with experts in mother and child health.

Selection of localities. The Selection of localities was performed in two stages. At the first stage, based on the SADI (Small Area *Deprivation Index*) deprivation index, there were selected three districts having the highest deprivation index from the following areas of development: Center, North, and South. Thus, Nisporeni was selected from Center zone (deprivation index -207), Cantemir in south (deprivation index - 257), and Singerei at the North (deprivation index - 270). At the second stage, a rural locality from each of the 3 districts was selected as follows: Bilicenii Noi in Singerei, Cirpesti in Cantemir Vulcanesti, a Roma locality in Nisporeni.

Two focus groups have been organized in each of selected localities. The first round of focus groups were organized with women who are unemployed or self- employed in the agrarian sector and have secondary education only. The second round was organized with women who are employed in the public or commercial sectors and have vocational or university education. A total of 68 persons have participated at the focus groups.

Barriers in mothers and children's health equity insurance and ways of overcoming these barriers in the experts' vision

In order to highlight the barriers in mothers and children's health equity insurance and ways of overcoming them, along with the focus groups consisting of mothers from different regions, another focus group was organized with the participation of 8 experts in public health. As a result of the discussion with the experts we found the following:

- Although, in the field of mother and child health, there were many positive reforms during the last years (pregnant women were taken under supervision within the first 12 months of pregnancy, supervision of children during their first year of life, compensation of drugs to pregnant women and children under the age of 5, training of medical staff, improvement of the maternity wards conditions, etc.), there are still barriers in ensuring the equity in health system for mothers and children, especially to those from families with the low welfare level or from rural areas.
- With reference to mothers with a low welfare level, the barriers in ensuring the equity in health system are related to their precarious financial situation, determined by lack of a permanent job, small salaries, lack of medical insurance policy, high costs for the diagnosis services and medicines, etc.
- In the case of mothers from rural communities the barriers in ensuring equitable access to health services are: a) a reduced access to medical services in the villages, b) low range of services, c) lack of family doctors, d) bad conditions in rural medical institutions, e) pregnant women rarely see the family doctors and the gynecologists (in towns pregnant women go 6 times to the family doctor and 6 times to the gynecologist, making totally 12 visits, whereas in the countryside they only benefit from 6 visits totally), j) limited financial resources to use medical services in other localities (e.g. do not have money to travel), i) deplorable conditions in the rural kindergartens and schools (no central heating, no running water), which have a negative impact over the children's health in rural areas, k) low level of education and information of women at the countryside. Thus, with reference to the quality of medical services in rural areas, one of the experts said that: „*About 500-600 pregnant women come, annually, to Chisinau, register a temporary residence at their relatives and are taken on record by the family doctors and gynecologists to give birth in Chisinau. They stay for another 2-3 weeks after delivery in Chisinau, after which they leave with the child for their villages*”.
- The experts mentioned that there are high discrepancies in health equity on the level of the three geographical areas: North, Center and South. In their view, women living in the South are less favored from the point of view of the access to health services than those in the North and Center, because of the following reasons: a) a small number of doctors in the South (in the North there are 1400 -1500 inhabitants per one physician, while in the South, this proportion is up to 5000-7000), b) the level of living is lower in the South, c) the infrastructure development is weaker (roads, schools, cultural clubs), d) investments in economy are lower.
- With reference to Roma's access to health services, the experts mentioned that, in fact, the inequities that exist with reference to Roma are provoked by their lifestyle, by their level of education background and their attitude towards health. *“They permanently migrate and sometimes are not to be found even for vaccination”*.
- In general, the experts believe that the compulsory medical insurance increased the access of all levels of population to medical services. They have concluded, however, that in the case of mothers with children under the age of five, there is a need to make corrections to the medical insurance schemes favoring mothers and children and affording more resources to the preventative and curative services for children and mothers as the most cost-effective health interventions.

Annex 2. Tables

Table 6 Table: Indicators of child health, 1990- 2006, Moldova

Country	Moldova	Croatia
Healthy life expectancy (HALE) at birth (years) both sexes, 2003	60	67
Adult mortality rate (probability of dying between 15 to 60 years per 1000 population) female, 1990	155	89
Adult mortality rate (probability of dying between 15 to 60 years per 1000 population) female, 2006	151	63
Adult mortality rate (probability of dying between 15 to 60 years per 1000 population) male, 1990	285	223
Adult mortality rate (probability of dying between 15 to 60 years per 1000 population) male, 2006	325	161
Deaths among children under five years of age due to diarrheal diseases (%), 2000	2	0.3
Deaths among children under five years of age due to injuries (%), 2000	13.3	8.5
Deaths among children under five years of age due to pneumonia (%), 2000	15.5	1.3
Infant mortality rate (per 1,000 live births) both sexes, 1990	30	10
Infant mortality rate (per 1,000 live births) both sexes, 2006	16	5
Neonatal mortality rate (per 1,000 live births), 2004	12	5
Maternal mortality ratio (per 100,000 live births), 2005	22	7

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Table 7 Percentage of children under 5 year with diarrhea, fever or cough during 2 weeks preceding the interview by background characteristics (2005)

	Diarrhea	Fever	Cough	Nr of children
Age (months)				
P-value	.003	.028	.001	
<6	9.49	6.96	5.06	158
6-11	14.81	15.43	14.81	162
12-23	11.95	17.20	14.29	343
24-35	7.72	20.37	20.06	324
36-47	5.28	16.49	19.65	285
48-59	4.25	15.44	13.13	259
Sex of child				
P-value	.096	.223	.473	
Male	7.07	14.63	16.39	793
Female	10.16	17.89	14.36	738
Region				
P-value	.033	.000	.000	
North	9.20	15.17	14.02	435
Center	5.54	13.10	12.09	397
South	6.80	12.30	11.65	309
Chisinau	12.34	23.59	23.33	390
Residence				
P-value	.000	.004	.002	
Urban	11.93	19.16	18.43	814
Rural	4.74	12.83	11.99	717
Mother's education				
P-value	.000	.000	.121	
Primary or No education	*	*	*	24
Secondary	6.83	13.02	13.77	937
Secondary special	8.55	18.38	14.96	234
Higher	11.64	22.32	19.64	336
Wealth quintile				
P-value	.001	.001	.009	
Poorest	7.23	11.06	10.64	235
Poorer	2.49	10.79	12.03	241
Middle	7.44	16.50	14.56	309
Richer	10.45	16.38	16.38	354
Richest	12.28	22.19	20.15	392
Total	8.56	16.20	15.41	1531

* less than 25 unweighted cases.

Table 8 Percentage of children under 5 year with abnormal anthropometry by background characteristics (2005)

	Stunting (HAZ <-2)	Underweight (WAZ <-2)	Wasting (WHZ <-2)	Total Nr.
Age (months)				
P-value	.235	.170	.635	
<6	6.78	0.85	2.54	118
6-11	6.99	2.80	5.59	143
12-23	10.74	4.03	4.03	298
24-35	7.25	3.99	4.71	276
36-47	6.30	5.88	5.04	238
48-59	11.11	6.22	3.11	225
Sex of child				
P-value	.965	.106	.591	
Male	8.51	3.43	4.03	670
Female	8.44	5.25	4.46	628
Region				
P-value	.018	.003	.867	
North	6.35	2.38	3.97	378
Center	10.98	6.94	5.20	346
South	11.15	5.95	4.09	269
Chisinau	5.90	2.30	3.61	305
Residence				
P-value	.093	.005	.772	
Urban	7.19	2.75	4.28	654
Rural	9.78	5.90	4.19	644
Mother's education				
P-value	.020	.007	.963	
Primary or No education	*	*	*	20
Secondary	9.87	5.72	4.14	821
Secondary special	7.29	2.08	4.17	192
Higher	4.53	1.89	4.53	265
Wealth quintile				
P-value	.004	.000	.541	
Poorest	13.74	8.06	4.27	211
Poorer	9.13	7.31	4.11	219
Middle	10.22	3.65	4.38	274
Richer	4.98	3.56	5.69	281
Richest	6.07	0.96	2.88	313
Total	8.5	4.3	4.2	1298

* less than 25 unweighted cases.

Table 9 Percentage of children breastfed at list 6 months, and those who consumed meat, eggs or fish during the past 24 hours, by background characteristics (2005)

	Breastfed at least 6 months		Child ate meat, eggs or fish the day before interview	
	%	Total Nr. of children aged 6-59 months	%	Total Nr. of children aged 6-24 months
Age (months)				
P-value	.171		.000	
6-11	79.63	162	60.25	161
12-23	73.20	347	82.30	339
24-35	69.18	331	82.76	29
36-47	72.13	287	-	-
48-59	70.77	260	-	-
Sex				
P-value	.894		.637	
Male	72.16	722	76.47	272
Female	72.48	665	74.71	257
Region				
P-value	.001		.010	
North	71.22	403	74.51	153
Center	79.89	363	67.12	146
South	71.64	275	78.72	94
Chisinau	66.18	346	83.82	136
Residence				
P-value	.000		.004	
Urban	66.30	730	80.56	288
Rural	79.00	657	69.71	241
Mother's education				
P-value	.488		.000	
Primary or No education	*	22	*	8
Secondary	72.71	850	69.67	333
Secondary special	75.12	217	85.92	71
Higher	69.13	298	86.32	117
Wealth quintile				
P-value	.000		.001	
Poorest	83.49	212	65.52	87
Poorer	78.03	223	78.05	82
Middle	74.65	288	73.79	103
Richer	69.81	308	68.85	122
Richest	62.36	356	88.15	135
Total	72.31	1387	75.61	529

* less than 25 unweighted cases.