SUMMARY OF ANALYSIS ON INVESTMENT NEEDS IN HEALTHCARE AND LONG TERM-CARE IN LITHUANIA

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The analysis on investment needs in healthcare and long-term care (thereinafter - LTC) in Lithuania was prepared by UAB ESTEP Vilnius under consulting assignment No. 2019/VA/ESTEP/06 (thereinafter – Assignment) based on agreement No. 14P-16 as of March 18, 2019 regarding consulting services on implementation of EU Cohesion Policy, concluded by The Ministry of Finance of the Republic of Lithuania, UAB Visionary Analytics and UAB ESTEP Vilnius. The above analysis was submitted to the Ministry of Finance in February 2020.

The aim of the Assignment was to prepare an analysis (mapping) of investment needs in healthcare and LTC in Lithuania, which would form the basis for discussions with the representatives of the European Commission (thereinafter – EC) on the EU Structural Funds Investment Programme for 2021-2027.

The objectives of the Assignment were the following:

1. To evaluate demographic trends in Lithuania until 2030 on a national and municipality level and, based on them, evaluate consumption trends of healthcare services by types of services on a municipality and/or district level.
2. Based on the above, to identify shortages or surpluses of human and/or infrastructure and/or financial resources in order to provide for the effectiveness, safety, quality and accessibility of the healthcare services and reach the targets set in The National Progress Plan (thereinafter – NPP).

The tasks of the Assignment in addition included the following:

1. Evaluation of the effect of new healthcare technologies and innovations on the consumption of healthcare services patterns and health workforce.
2. Evaluation of investment needs in infrastructure (healthcare related buildings, medical equipment, vehicles, IT) and effect of new healthcare technologies and innovations on the above needs.
3. Mapping of the areas, in which measures that contribute to population health improvement as well as to increase of effectiveness, safety, quality and accessibility of the healthcare system should be implemented; mapping of necessary state interventions and types of resources to be allocated.
4. In addition, mapping of the investments by the EU Structural Funds in health infrastructure as well as improvement of the quality of healthcare services and accessibility for the 2014-2020 planning period, so that they are informative, clear and correspond to the EU Structural Funds Operational Programme and national strategic documents, such as Health Disparities Reduction Plan, Healthy Ageing Action Plan.

Fifteen expert days were allocated for the Assignment, therefore, the analysis was based on the information provided by the Ministry of Health of the Republic of Lithuania. It is important to note that the analysis did not include preparing missing pieces of information/data, such as: providing forecasts until 2030 on the population demographics by municipality/district, supply and demand of healthcare personnel, consumption of healthcare services on a national and municipality/district level according to service types as well as those services that are directly linked with the worst health indicators of the population, also effect of new healthcare technologies and innovations.

The analysis on the demographic trends and forecasts until 2030 shows that the population of Lithuania will continue to age and decrease. The chapter concludes that the total population of Lithuania will shrink by 8% until 2030 compared to 2018 and will comprise 2 588 222. Based on the available forecast by age-groups on a national level, the number of people in the 15-64 year old (working age) group will decrease by 16% while the 65 + group will grow by 19%. The biggest growth will be seen in the age groups 70-74 (49%) and 85+(25%), the biggest decrease will be seen in the age groups 25-29 and 30-34 (42% and 31%) as well as in the children's group aged until 9 (-13%). Though there is no forecast on a municipality/dictrict level, the inner migration flow analysis shows that people have been moving to cities and abandoning less economically attractive regions and, therefore, cities are likely to retain or increase their population numbers while a population increase in the capital city of Vilnius is likely to continue.

Economic and social context analysis shows that 645 000 people (22.9% of the population) lived below poverty risk level in 2018 (same as in 2017) and the issue was more expressed in rural areas (31%) compared to the five biggest cities (13.8%) and remaining cities (28%), within the age group 65+ (37.7%), in one person households (50.7%) as well as in households with a single parent and dependant children (46.8%), also within jobless households (62.3%). The absolute poverty level represented 11.1% and was down by 2.7% from the 2017 level. The worst indicators were seen in single parent with dependant children households (31.9%), one person households (23.8%) and jobless households (50.8%). Evidence shows that the mortality rate within the age group of 30+ was twice as high among people with the education level lower than secondary as compared to people with higher education.

Though **there is no healthcare services consumption forecast until 2030** (in the analysis it is suggested to perform it) (Chapter 3) and interpretation of the current trends needs a more thorough analysis, based on demographic trends a conclusion can be made that with the growing 65+population group and Lithuania being one of the most quickly ageing countries in the EU, **demand for long-term care (LTC), supportive and palliative care will grow substantially and require more funding**. **Considerable growth should be noted in the share of ambulatory services against in-patient services and the share of economically efficient services (ambulatory specialised, day treatment, ambulatory surgery, emergency, observation and day surgery)**[1] in line with the going-on structural changes in the healthcare system (strengthening of the primary care sector, consolidation of in-patient services). Aside from that, **more focus on prevention programmes will need to be placed**. Other types of healthcare services are considered to demonstrate a moderate growth. Countrywide **a more substantial need for healthcare and LTC services will be seen in bigger cities, especially in Vilnius**, because of inner migration trends. Economic and social context suggests that **poorer health indicators will be observed in lower income, lower education groups and will be more expressed in rural areas and less economically attractive regions compared to urban areas and cities.**

Based on the model 'Healthcare workforce demand forecast[2] (Chapter 4), **there will be a shortage of around 4 000 medical professionals in 2028 compared to 2018.** The biggest shortages will be seen in the following professional categories: **general practice nurses (-7350), internal medicine doctors (-189), paediatricians (-140), psychiatrists (-39), surgeons (-30), ophthalmologists (-41), neurologists (-15)**. The biggest surplus will be seen

[1] Economically effective forms of healthcare services are services provided at hospitals and some polyclinics which are attractive both to patients as they can quickly return to their usual routine as well as to the state due to effective use of The Compulsory Health Insurance Fund resources.
[2] Mokslo ir studijų stebėsenos ir analizės centras (MOSTA), 2019.

within the following categories: dental hygienists (766), odontologists (763), general practitioners (257) and dental assistants (235). Detail information is provided in Annex 1. The model is based on a national level and does not provide for the municipality/district level. It is important to note, however, that the model does not include such important assumptions as consumption of healthcare and LTC services, effect of new healthcare technologies and innovations, territorial dimension, structural changes in the healthcare system (consolidation of in-patient services, new regulations on health staff work conditions, salaries), emigration, immigration, introduction of new professional categories. In the analysis **it is suggested to elaborate the healthcare workforce demand forecast model**. The information of the Ministry of Health shows that currently the biggest demand is seen for general practitioners (thereinafter – GP), internal medicine doctors, cardiologists, neurologists, psychiatrists, anaesthesiologists - intensivists, paediatricians in the major regions of Lithuania (Vilnius, Kaunas, Klaipėda, Šiauliai and Panevėžys). Demand for general practitioners is highest in the largest cities.

Based on the available trends and forecasts in the country demographics, healthcare and LTC consumption patterns, health and LTC workforce, recent and planned investments as well as the National Progress Plan (NPP) **three investment objectives are identified for 2021-2030** (Chapter 5):

1. **To foster health promotion and health strengthening activities and increase the psychological (emotional) resilience of the society.**
2. **To improve the quality and safety of healthcare services.**
3. **To improve the efficiency and accessibility of healthcare services and develop innovative healthcare services.**

Investment directions are then set in the order of importance and required types of resources are indicated based on the following criteria:

- Expected weight of the investment direction in the objective
- Expected impact of EU Structural Funds investments in the 2014-2020 planning period, EEA and Norway Grant Programme, Lithuanian – Swiss Cooperation Programme and other state interventions
- Scope of remaining problems for 2021-2030

Funding from the EU Structural Funds would be combined with the funds from the Compulsory Health Insurance Fund (hereinafter – CHIF), state and municipal budgets as well as international assistance programmes (EEA and Norway Grant Programmes, Lithuanian – Swiss Cooperation Programme).

The following investment principles are set:

- Reduction of health disparities within target teritories and vulnerable groups
- Consolidation of in-patient services at state and district-level hospitals while securing access to these services for the population in the country‘s regions
- Improval of access to quality ambulatory healthcare

The first investment objective (To foster health promotion and health strengthening activities and increase the psychological (emotional) resilience of the society) encompasses the following five investment directions in the order of importance (section 5.1.):

1. Expansion of integrated evidence-based, innovative public health services.
   1.1. Introduction of healthy lifestyle promotion services at public health, healthcare and social care institutions.
   1.2. Integration of person and society oriented mental health services by strengthening cooperation among general practitioner (thereinafter – GP) teams, specialists at mental health centers and public health specialists and providing integrated public health and healthcare services to target groups.
   1.3. Expansion of the scope of evidence-based public health interventions applied, monitoring and analysis.
   1.4. Innovative, including mobile and telemedicine, health promotion services for target groups.
2. Mental health promotion and improval of mental, behavioral disorder and suicide prevention.
3. Strengthening of infectious disease management capacity.
4. Strengthening of professional healthcare capacity.
5. Strengthening of environmental risk evaluation and management capacity.

The above investment directions are formulated based on:

- analysis of remaining challenges (high preventable mortality, high risk of lifestyle and behavioural factors, high rate of total registered tuberculosis cases, insufficient immunisation rates against measles, mumps, and rubella (MMR) and flu in the 65+group and wide regional disparities in the above health indicators, growing resistance to gram-negative bacteria, insufficient accessibility of professional healthcare services, especially for small and micro companies, low laboratory capacity related to chemicals and hazards detection)
- main recommendations of the EU and OECD (to increase the scope and effectiveness of investment into health promotion and strengthening; to boost cooperation among public health bureaus, primary healthcare centers and primary mental health centers; focus on the main health risk factors and target groups, ensure that public health bureaus implement evidence-based interventions)
- identification of investment gaps for 2021-2030 (biggest demand is seen in 'soft' investments like new health technologies, financing of demo models, analytical tools, training, etc. Though the infrastructure of public health bureaus was renovated in the 2007-2013 and 2014-2020 periods, however, it (as well as the primary healthcare centers) will have to be adapted to provision of integrated health promotion activities. Premises and work supplies will be needed for a sep-up of industry/regional professional health competence centers. IT tools, vehicles will be needed to enable telemedicine and target group oriented public health services, laboratory equipment will be needed for chemical and hazard detection.) Detailed in Table 3.

In the analaysis a more detail mapping of investment needs giving the account of the EU Structural Funds investments in the 2014 -2020 planning period is given for every investment direction.

The second investment objective (To improve the quality and safety of healthcare services) encompasses the following four investment directions in the order of importance (section 5.2.):

1. Strengthening of primary healthcare (promotion of patient involvement and health literacy, improvement of team working skills within the expanded GP team, improvement of primary healthcare institution evaluation methodology and internal audit procedures, refinement of the primary healthcare financing model).
2. Improvement of the quality of emergency medical services (adaptation of the infrastructure in line with consolidation of in-patient services, new emergency vehicles including those for response to extreme situations, update and introduction of new diagnostic and treatment protocols).
3. Strengthening of specialised healthcare services:

3.1. Cardiovascular disease prevention including diabetes control (increase of target group participation in the cardiovascular disease prevention programme, improval of programme quality, pilot payment-by-results model).
3.2. Oncological diseases (increase of target group participation in oncological disease prevention programmes, improval of programme quality, introduction of a national ‚green corridor' pathway system, pilot payment-by-results model).
3.3. Integrated acute healthcare services (clusters for myocardial infarction, ischemic stroke, severe traumas, perinatology) - pilot payment-by-results model.
3.4. Urgent healthcare services (remodelling of the operations in line with consolidation of in-patient services, expansion of telemedicine services).
3.5. Strengthening of mental healthcare service (community based mental healthcare models, expansion of the scope of psycological, ambulatory and day treatment, mental healthcare, psychosocial rehabilitation, 'low threshold' services)
3.6. Early childhood rehabilitation (new service provision model)
3.7. Medical genetics (enhancement of oncological and children disease research and treatment capacity, development of personalised medicine)
3.8. Organ donation (development and update of methodology and other documentation, formation of organ donation teams at hospitals, training, education of the public)

4. Creation of a national adverse event management and prevention system.

The above investment directions are formulated based on:

- analysis of remaining challenges (high amenable mortality, mortality following acute myocardial infarction (AMI) and ischemic stroke within 30 days of admission to hospital for AMI and ischemic stroke, lower than OECD average 5-year survival rates for women with breast cancer and cervical cancer, colon cancer, higher than EU average avoidable hospitalisation rate and wide regional disparities of the above health indicators, need to tailor emergency and urgent healthcare service provision model to consolidation of in-patient services, inedequate quality and efficiency of existing cardiovascular and oncological disease prevention programmes, need to continue strengthening acute healthcare services, insufficient and uneven territorial access to early childhood rehabilitation services, prevailing pharmacological treatment of mental health disorders, untapped remote services potential and insufficient integration of ambulatory and in-patient mental healthcare, need to improve oncological and children disease treatment and personalised medicine, lower than EU average number of effective donors)
- main recommendations of the EU and OECD (strenghten primary care and introduce a more person - oriented service model, improve coordination of in-patient and ambulatory mental healthcare services, provide systemic assistance to healthcare institutions on

continous improvement of healthcare quality, expand policy impact evaluation and use of the results of healthcare system evaluation, improve regional access to good quality healthcare and LTC services)

- identification of investment gaps for 2021-2030 (training, new medical equipment, adaptation of premises to the needs to expanded GP teams and services provided[3], new ordinary emergency vehicles and equipment for emergency medical service stations and special vehicles to transport medical supplies in extreme situations, for the clusters; IT infrastructure, updated, new diagnostic and treatment protocols, new healthcare models and technologies, adaptation of existing and creation of new infrastructure related to expansion of day treatment, ambulatory surgery, day surgery services; renovation of in-patient premises for treatment of addiction disorders). Detailed in Table 5.

The third investment objective (To improve the efficiency and accessibility of healthcare services and expand innovative healthcare service) encompasses the following seven investment directions in the order of importance (section 5.3.):

1. Consolidation of in-patient services (approval of the national in-patient care plan, reduction of the scope of in-patient care at regional level hospitals)
2. Development of integrated LTC services (expansion of ambulatory LTC services, integration of LTC healthcare and social services to create community-based services; expansion of in-patient LTC, palliative care and supportive treatment services).
3. Improvement of the accessibility and efficiency in primary healthcare (telemedicine solutions for GP-specialist consultations, establishment of a 24/7 call call center for acute conditions, implementation of chosen polymorbidity related healthcare management models).
4. Health workforce supply-side management (financing of residency studies, bonus payments, creation of a health workforce sharing platform, development of task shifting capacity).
5. Development and implementation of digital health technologies (digital solutions, digitalisation of services, telemedicine, mobile health, analytics and artificial intellect solutions, health data exchange, increase of digital health literacy)
6. Improvement of healthcare access for persons with disability (adaptation of health facilities, expansion of odontology services).
7. Reduction of corruption in the health sector (development of corruption monitoring and evaluation system, health workforce training, education of the public).

The above investment directions are formulated based on:

- analysis of remaining challenges (inefficient hospital network and significant territorial differences in safety and quality of in-patient services, high level of avoidable hospitalisations, low accessibility of out-patient and integrated community based as well as in-patient LTC services. need to expand temedicine services and improve management of polymorbidity cases, country-wide and territorial imbalances in the health workforce supply, low maturity of existing digital health elements, need to adapt the infrastructure to the needs of the disabled in almost half of healthcare institutions, need to expand the scope of odontology services for the disabled, corruption in health remaining the highest among other public sectors)

[3] In 2019 a legal framework for an expanded GP team and provision of related services was adopted. The expanded GP team includes a GP, nurse/obstetrician and/or assistant nurse and/or lifestyle medicine specialist and /or social worker.

- main recommendations of the EU and OECD (consolidate provision of in-patient services, optimise hospital network, develop LTC, especially community-based services, increase efficiency in primary healthcare, address shortages in healthcare personnel including regional imbalances, support reskilling, upskillling and retention of healthcare as well as LTC personnel, secure access to healthcare services for vulnerable groups, develop and implement digital health solutions, more progress needed in combating corruption in health)identification of investment gaps for 2021-2030 (adaptation of the hospital infrastructure to the consolidated in-patient service provision model as well as expansion of ambulatory LTC services, equipment and other supplies for mobile LTC services, old people's home infrastructure, patient monitoring devices, 24/7 call center infrastruture, reskilling, upskillling and retention of medical and LTC staff, equipment of work places at the health workforce sharing center, modernisation and development of the e-health system (digital health, digitalisation of healthcare services, telemedicine, mobile health, analytics and artificial intellect solutions, health data exchange, promotion of digital health literacy), development of IT systems at healthcare institutions to secure compatibility with the e-health, training of health personnel, adaptation of the infrastructure to the needs of the disabled, odontology equipment for mobile teams, modernisation of premises at healthcare institutions providing odontology services under general anaesthesia, IT solutions, training of health personnel and education of the public to combat corruption in health). Detailed in Table 7.

Chapter 6 outlines investment needs in infrastructure by investment objective and investment direction. A conclusion is made that **biggest infrastructure needs relate to objective 2 and 3**, namely, modernisation of facilities, new equipment and IT tools in specialised healthcare, especially in relation to expansion of day treatment, ambulatory surgery and day surgery services, acquisition of ordinary ambulances and special vehicles to transport medical supplies in extreme situations, adaptation of the hospital infrastructure in line with the consolidation of in-patient services, adaptation and creation of new LTC infrastructure, better accessibility of primary healthcare (telemedicine, patient monitoring equipment, infrastructure related to a set-up of a national 24/7 call center for acute conditions), improved access to healthcare services for the disabled as well as development digital health (. Objective 1 encompasses adaptation of premises for promotion of integrated healthy lifestyle and mental health strengthening services at public health bureaus and primary healthcare facilities and for a set-up of industry/regional professional healthcare competence centers. Transport vehicles are needed for mobile health strengthening and infectious disease related services for target groups, laboratory equipment is needed for chemical and hazard detection.

Chapter 7 gives an overview of **investment into the Lithuanian health sector in the 2014 – 2020 planning period.** Throughout the period **a total of 401.9 m Eur** will be invested from the Operational Programme for EU Structural Funds Investments for 2014-2020 (including national contribution) and State Investment Programme (thereinafter – SIP) **out of which 330.6 m Eur (82.2%) in infrastructure** (58.8% and 41.2% respectively). Out of 401.9 m Eur 11% will be ‚soft' investments in disease prevention and increase of the quality of healthcare services, 4% in training of the health workforce and financing of residency studies targeted to reduce territorial healthcare personnel imbalances. Investment maps on the EU Structural Fund investments in healthcare infrastructure, improvement of healthcare quality and accessibility in the 2014-2020 planning period are provided in Annex 7.