

# REPORT

## “PILOT IMPLEMENTATION REPORT”

**Project:** „Improving Healthcare Access through a Personal Health Monitoring System”/eHealth Monitoring/

Funded by the Interreg V-A “Greece-Bulgaria 2014-2020” Cooperation Programme co-funded by the European Regional Development Fund (ERDF) and national funds of the participating countries

**Deliverable:** D4.5.2 Pilot implementation report

**Beneficiary:** Municipality of Kirkovo

**Subcontractor:** “Advanced Business Consulting” Ltd

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<http://www.ehealthmonitoring.eu/>

## D4.5.2 Pilot implementation report

### **I. CONTENT AND AIMS OF THE REPORT**

This report summarizes the work under Art. 1, (4) of Contract № 272 / 01.07.2019, signed between the Municipality of Kirkovo and Advance Business Consulting OOD.

The document is part of the implementation of Work Package 4 "Joint Monitoring System", deliverable D4.5.2 "Pilot implementation report".

### **II. METHODOLOGY**

Various information sources were used to develop this report, including:

- Application form and project budget,
- Existing strategic documents, analyzes and studies covering the territory of Kirkovo municipality, Kardzhali district
- Public statistical information from official sources - National Statistical Institute (NSI), registers of the Ministry of
- Education and Science, Registers of the Regional Health Inspectorate (RHI), Kardzhali Social Assistance Directorate (SSA), Labor Office Directorate (LBD),

The methods for analyzing the information include:

- Descriptive analysis;
- Content analysis;
- Comparative analysis;
- Expert analysis.

### **III. OVERVIEW OF PROJECT "IMPROVING HEALTHCARE ACCESS THROUGH A PERSONAL HEALTH MONITORING SYSTEM"**

Project "Improving Healthcare Access through a Personal Health Monitoring System"/eHealth Monitoring/ is implemented under Grant contract B2.9a.11/31.10.2017 funded by the Interreg V-A "Greece-Bulgaria 2014-2020" Cooperation Programme co-funded by the European Regional Development Fund (ERDF) and national funds of the participating countries.

The project is implemented under Priority axis 4 – "A Socially inclusive cross-border area" investment priority 9a "Investing in health and social infrastructure which contributes to national, regional and local development, reducing inequalities in terms of health status, promoting social inclusion through improved access to social, cultural and recreational".

## D4.5.2 Pilot implementation report

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### *Project objectives*

The main objective of this project is to develop a personal mobile healthcare system on the base of the mobile video supporting device allowing ambulant patients:

- remote monitoring of the patient's state
- patient's continuous self control
- live contact from any place and any time with professional medical staff through modern communication network.

The main objective of the project is to facilitate the access to healthcare services in territories and populations that currently are not sufficiently serviced due to both geographical and mobility reasons (remote areas, elderly people, people with disabilities etc).

The objectives of the project are summarized as follows:

- Implement an improved system based on advanced ICT allowing more efficient treatment and care with added possibilities offered by eHealth
- Create a user friendly system, so the healthcare system will be equitable
- Create a valuable information system enhancing the quality of life for everyone
- Consider models for intelligent remote healthcare monitoring
- Offer VAS over guaranteed medical systems
- Decrease human mortality by reliable easy-to-use and effective intelligent care system
- Enable seamless adaptation between different kind of bio-sensors
- Demonstrate the architecture in a medical environment
- Enable fast and remote healthcare monitoring
- Introduction in the clinical practice of a new e-health approach
- Allow persons to be under constant monitoring of their physical conditions by healthcare professionals
- Reduce geographical/physical boundaries as barriers for individuals seeking the best in Europe healthcare

D4.5.2 Pilot implementation report

*Project partners*

<b>Table 1: Project consortium</b>	
	Centre of caring and solidarity of Komotini municipality Hellenic Republic
	Central Union of Municipalities in Greece, Hellenic Republic
	Democritus University of Thrace - Department of Economics - Special Account for Research, Hellenic Republic
	Municipality of Kirkovo, Republic of Bulgaria
	Association „EURORADAR”, Republic of Bulgaria

*Project activities*

The project activities are summarized in five work packages: (1) Project management and coordination, (2) Communication and dissemination, (3) Policy

D4.5.2 Pilot implementation report

integration, (4) Joint monitoring system, (5) Information, training and awareness raising.

**Table 2: Activities of project "Improving Healthcare Access through a Personal Health Monitoring System"**

<b>Work package 1 „Project management and coordination“</b>	
1.	Preparatory activities
2.	Project management
3.	Project coordination meetings
4.	Audits
<b>Work package 2 "Communication and dissemination"</b>	
1.	Communication and dissemination plan
2.	Project website
3.	Information events (2 transnational и 3 local)
4.	Entries, e-newsletters, internet promotion
<b>Work package 3 „Policy integration“</b>	
1.	Mapping & identification activities - data collection.
2.	Joint Strategy towards sustainable e-health management
3.	Policy Implementation Guidelines for achieving long-term objectives.
<b>Work package 4 „Joint monitoring system“</b>	
1.	Software development
2.	Installation of equipment
3.	Integration, parameterization and testing
4.	Pilot implementation report
<b>Work package 5 „Information, training and awareness raising“</b>	
1.	Training sessions
2.	Information and awareness raising campaign






## D4.5.2 Pilot implementation report

### *Implementation period*

The project implementation period is 38 months 31.10.2017. -30.12.2020

### *Project budget and distribution among the partners*

The project "Improving Healthcare Access through a Personal Health Monitoring System" has a total budget of 599,177.24 euros, of which 509,300.63 euros is funding provided by the European Regional Development Fund, and 89,876.59 euros is funding provided by the national funds of the countries participating in the INTERREG VA Cooperation Program "Greece-Bulgaria" 2014-2020.

<b>Partner</b>	<b>Financial support of ERDF (85%) (€)</b>	<b>National co-financing (15%) (€)</b>	<b>Total budget (€)</b>
	146 196.60	25 799.40	171 996.00
	46 861.80	8 446.20	56 308.00
	147 901.90	26 100.34	174 002.24
	73 453.60	12 962.40	86 416.00
	93 886.75	16 568.25	110 455.00
	<b>509 300.63</b>	<b>89 876.59</b>	<b>599 177.24</b>

## IV. ROLE OF MUNICIPALITY OF KIRKOVO IN THE PROJECT

### *General characteristics and profile of Kirkovo Municipality in the context of the project*

As an administrative-territorial unit that carries out local self-government, the Municipality of Kirkovo is the center of activities for the provision of administrative and social services, integration and ensuring a healthy environment. The municipality is an active participant in the processes of improving the health and well-being of the citizens on the territory of the municipality.

To address the challenges facing municipal health care and the formation of an adequate health policy, the health status of the population, demographic trends and the state of health services are of key importance.

According to data from the National Statistical Institute (NSI), as of December 31, 2019, 22,375 people live in the municipality of Kirkovo, of which 11,054 are men and 11,321 are women.

The current **demographic situation** in the Municipality of Kirkovo is characterized by a continuing decline and aging of the population, increasing birth rate and maintaining a high level of overall mortality, negative natural increase. There is a trend of continuing population aging. It is expressed in a decrease in the relative share of the working age population and an increase in the share of the working age population.

As of 31.12.2019, **the mortality rate in Kirkovo municipality** is 14.25 ‰, placing the municipality in third place in Kardzhali district in the negative statistics, after the municipalities of Ardino and Chernoochene.

Leading causes of mortality continue to be circulatory diseases (65%) and neoplasms (14.2%), followed by symptoms, signs and abnormalities found in clinical and laboratory studies not elsewhere classified (11.33%), diseases of the respiratory system (3.72%), diseases of the digestive system (2.94%) and external causes of morbidity and mortality (2.71%).

The statistical data show that the **main chronic non-communicable diseases** - cardiovascular diseases, malignant neoplasms, chronic respiratory diseases and diabetes **are the cause of over 80% of deaths in the district of Kardzhali.**

#### D4.5.2 Pilot implementation report

There are **no hospitals on the territory of Kirkovo municipality**. There is one medical institution for outpatient care - an independent medical diagnostic laboratory, registered in 2013. The health care is provided by medical institutions for outpatient care, as registered individual practices for primary care in 2018. are 7 in the village of Fotinovo, the village of Kirkovo, the village of Benkovski (2 practices), the village of Chorbadjiisko, D. Kapinovo and the village of Chakalarovo. The individual practices for primary dental care are 15 in the village of Kirkovo (4 practices), the village of Benkovski (3 practices), the village of Chakalarovo, the village of Podkova (2 practices), the village of Tihomir, the village of Chorbadjiysko (2 practices), with Fotinovo and the village of Drangovo.

On the territory of the municipality there are two branches for emergency medical care in the village of Kirkovo and the village of Chorbadjiysko, and to the branch for emergency medical care - Kirkovo two outsourced mobile teams have been opened in the village of Fotinovo and Benkovski. There are 11 health offices open to the schools and kindergartens on the territory of the Municipality, in which 10 nurses and 2 paramedics work.

The **number of medical specialists** on the territory of the municipality **is 35**, of which 9 doctors, 14 dentists, 12 medical specialists (including 10 nurses and 2 paramedics).

**Given the number and age structure of the population, doctors and dentists are insufficient and they are not able to provide effective pre-hospital health care to the population.**

The large distances between small settlements make it difficult for the population to access medical care in remote and inaccessible settlements and neighborhoods. Some of the residents in the villages do not really have access to primary medical care.

The described situation clearly proves the usefulness of the implementation of the project "Improving access to health services through a personal health monitoring system", acronym: eHealth Monitoring.

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#### *Description of the project activities of Kirkovo Municipality*

Within the project, Kirkovo Municipality is responsible for the implementation of the activities presented in Table 5.



<b>Table 5: Municipality of Kirkovo's activities within the project "Improving Healthcare Access through a Personal Health Monitoring System"</b>
<b>Work package 1 „Project management and coordination“</b>
Project management
Project coordination meetings
<b>Work package 2 "Communication and dissemination"</b>
Project website
Information and promotional printed materials (2 brochures, 1 poster, 1 banner)
Information events (2 transnational и 3 local)
Entries, e-newsletters, internet promotion
<b>Work package 3 „Policy integration“</b>
Mapping & identification activities - data collection.
Joint Strategy towards sustainable e-health management
Policy Implementation Guidelines for achieving long-term objectives.
<b>Work package 4 „Joint monitoring system“</b>
Installation of equipment
Pilot implementation report
<b>Work package 5 „Information, training and awareness raising“</b>
Information and awareness raising campaign

*Work Package 1 "Management and Coordination", Activity "Project Management", D.1.5.2*

The activity includes the appointment of a project manager, financial manager and external expertise in order to administer the implementation and reporting of the project. (D1.5.2)

#### D4.5.2 Pilot implementation report

In October 2017 By Order of the Mayor of the Municipality of Kirkovo, a team for organization and management of project activities is appointed consisting of Ms. Stella Dimitrova, project manager and Ms. Snezhana Ivanova, financial manager of the project.

The main responsibilities of the project manager include:

- Responsible for the overall implementation, coordination and accountability of the project.
- Manages the preparation of project assignments, preparation of contracts and coordination of team activities.
- Manages the implementation of the main activities.
- Controls the efficient, appropriate and lawful spending of the project funds, is responsible for the implementation of systematic monitoring and taking timely measures to overcome difficulties and risks in the course of the project.
- Responsible for the communication between the Municipality of Kirkovo and the structures Cooperation Program INTERREG V-A "Greece-Bulgaria" 2014-2020.
- Prepares presentations on the progress of the project implementation by the Municipality of Kirkovo for the coordination meetings on the project;
- Coordinates the processes of technical and financial reporting of the project.
- Responsible for the activities of publicity and visualization of the project.
- Represents the project to stakeholders.
- The main responsibilities of a financial manager include:
  - Accounts and pays expenses to employees, part of the organization and management team, according to the project budget.
  - Accounts and pays costs under contracts for external services, according to the project budget.
  - Prepares and submits financial reports on the progress in the implementation of the activities of the Municipality of Kirkovo
  - Prepares requests for advance, interim and final payment.
  - Controls the financial implementation of external service contracts.
  - Performs other duties related to the financial activities of the project.

#### D4.5.2 Pilot implementation report

Within the Activity "Project Management", result D1.5.2, the Municipality of Kirkovo concludes a contract № 185 / 22.05.2018. with Advanced Business Consulting Ltd. to provide consulting services for project management.

Work Package 1 "Management and Coordination", Activity "Project Management", D.1.5.2

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*Work Package 1 "Management and Coordination", Activity "Project coordination meetings", D.1.5.3*

The project organization and management team participated in four coordination meetings as follows:

- First coordination meeting in Komitini, Greece (January 31, 2018)
- Second coordination meeting in Kirkovo, Bulgaria (March 15, 2019)
- Third coordination meeting in Smolyan, Bulgaria (July 1, 2019)
- Fourth coordination meeting in Komitini, Greece (February 17, 2020)

In addition, pursuant to a concluded Contract № 2 / 18.01.2019. between the Municipality of Kirkovo and Bori EOOD, on March 15, 2019. A second coordination meeting was organized and held in Kirkovo, Bulgaria with the participation of representatives of the partner organizations.

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*Work Package 2 "Communication and Dissemination", Activities "Project Website", D2.5.1 and Information and Promotional Printed Materials (2 brochures, 1 poster, 1 banner), D2.5.2, Entries, e-newsletters, internet promotion D2.5.4*

On 21.11.2018 The Municipality of Kirkovo has published a public procurement for collection of offers by the order of art. 20, para. 3 of the Public Procurement Act with subject "Implementation of activities for organization and conduct of events (D1.5.3, D2.5.3 and D5.5.1), information and publicity activities (D2.5.1, D2.5.2, D2.5.4) under the project "Improving access to health services through a personal health monitoring system" / Improving Healthcare Access through a Personal Health Monitoring System / Acronym: eHealth Monitoring).

The activities for information and publicity 2.5.1, 2.5.2 and D2.5.4 are performed within the framework of Contract №1 / 18.01.2019, concluded between the Municipality of Kirkovo and DMI Development EOOD.

#### D4.5.2 Pilot implementation report

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#### *Work Package 2 "Communication and Dissemination", Activity "Information events (2 transnational u 3 local) D2.5.3*

On 21.11.2018 The Municipality of Kirkovo has published a public procurement for collection of offers by the order of art. 20, para. 3 of the Public Procurement Act with subject "Implementation of activities for organization and conduct of events (D1.5.3, D2.5.3 and D5.5.1), information and publicity activities (D2.5.1, D2.5.2, D2.5.4) under the project "Improving access to health services through a personal health monitoring system" / Improving Healthcare Access through a Personal Health Monitoring System / Acronym: eHealth Monitoring).

Pursuant to a concluded Contract № 2 / 18.01.2019. between the Municipality of Kirkovo and Bori EOOD, on August 16, 2019. An information event of the project was organized and held in Kirkovo, Bulgaria with the participation of 50 people.

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#### *Work Package 3 "Policy integration", Activities Mapping & identification activities - data collection D3.5.1, Joint Strategy towards sustainable e-health management D3.5.2, Policy Implementation Guidelines for achieving long-term objectives D3.5.3*

Within the activities in Work Package 3 "Political Integration", results D3.5.1, D3.5.2 and D3.5.3, Kirkovo Municipality concludes a contract № 272 / 01.07.2019. with Advanced Business Consulting Ltd. to provide services for the preparation of:

- Report Mapping & identification activities - data collection D3.5.1

The report includes an overview of the profile and characteristics of the Municipality of Kirkovo, demographic characteristics, healthcare, identification and mapping of the target group of the project.

- Report Joint Strategy towards sustainable e-health management D3.5.2,

The report includes a review and analysis of the national and European framework in the field of e-health, analysis of the state and degree of achievement of the goals for construction and development of e-health, as well as proposals for promoting the e-health system in Bulgaria.

- Report Policy Implementation Guidelines for achieving long-term objectives D3.5.3

The report includes an analysis of the current state and difficulties in the implementation of e-health, identified good practices in the study area.

#### D4.5.2 Pilot implementation report

The studies were prepared by the external contractor and accepted by the Municipality of Kirkovo.

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#### *Work Package 4 "Joint monitoring system", Activity Installation of equipment D.4.5.1*

The Municipality of Kirkovo organizes and conducts a public procurement with the subject "Delivery and installation of 40 sets for monitoring the health status of patients in the Municipality of Kirkovo, containing biosensors, mobile units for users and mobile units for experts."

As a result of the conducted order, the Municipality of Kirkovo concludes a Contract № 214 / 08.04.2020. with Stone Computers AD. In fulfillment of the contract, 40 sets containing biosensors (3 pcs.), 1 pc. mobile unit for users (User Mobile Units-UMU) and 1 pc. Expert Mobile Units (EMU).

Each set contains:

1. Biosensor apparatus for measuring pulse, saturation and pulse index (PC-60F Fingertip Pulse Oximeter),
2. Biosensor bracelet (GETFIT H10)
3. Biosensor devices for blood pressure (iHealth Track),
4. User Mobile Units (UMU) - Lenovo Tab M7 tablet, P / N ZA 550030,
5. Expert Mobile Units-EMU - Lenovo Tab M7 tablet, P / N ZA 550030.

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#### *Work Package 4 "Joint monitoring system", Activity Pilot implementation report D.4.5.2*

Within the activities in Work Package 4 "Joint Health Monitoring System", result D4.5.2, Kirkovo Municipality concluded a contract № 272 / 01.07.2019. with Advanced Business Consulting Ltd. for the provision of services for the preparation of a "Pilot Implementation Report", D4.5.2.

## V. ACHIEVEMENTS AND CHALLENGES

### *Achievements*

- *Promotion of the project objectives and results*

Through the successful implementation of the activities (Project website, Information and promotional printed materials (2 brochures, 1 poster, 1 banner), Information events (2 transnational and 3 local) Electronic newsletters and dissemination of results on the Internet) within the Work Package 2 "Communication and dissemination of results", and Work package 5 "Awareness raising and training campaign" (Information campaign) Kirkovo Municipality promotes the goals and results of the project "Improving access to health services through a personal health monitoring system". The general public and the target groups were acquainted with the benefits of the implementation of e-health in Bulgaria, as well as with the challenges facing local and central government.

- *Defined the demographic and socio-economic characteristics of the district of Kardzhali and the Municipality of Kirkovo and derived recommendations for sustainable implementation of e-health in Bulgaria*

Through the studies and analyzes prepared within the project, including Mapping & identification activities - data collection D3.5.1, Joint Strategy towards sustainable e-health management D3.5.2, Policy Implementation Guidelines for achieving long-term objectives D3.5.3, part of Work Package 3 "Policy Integration", collected valuable data on the demographic and socio-economic characteristics of the area Kardzhali and Kirkovo Municipality, related to the health status of the population, as well as the available health infrastructure - hospitals, hospitals, individual medical and dental practices, medical research laboratories, government institutions with powers and responsibilities in the field of medical prevention and public protection. and individual health. On the one hand, the studies draw significant conclusions and recommendations that are important for formulating future policies, and on the other hand they formulate strategic proposals for the sustainable implementation of e-health.

- *Established sustainable partner network for exchange of knowledge and achievements in the field of e-health*

For 38 months 5 organizations from the cross-border period of the countries Greece and Bulgaria have been partners to achieve the project objectives. Contacts

#### D4.5.2 Pilot implementation report

and cooperation have been established with local and regional key institutions and stakeholders active in the field of medicine and healthcare. Interest was found for upgrading and expanding the activities and results implemented within the project.

- *Created conditions for sustainable establishment of e-health in the Municipality of Kirkovo through the purchase and delivery of 40 kits for monitoring the health status of patients, containing biosensors, mobile units for users and mobile units for experts*

Within activity 4.5.1 "Installation of equipment", part of Work Package 4 "Joint Monitoring System", 40 kits for monitoring the health status of patients in the Municipality of Kirkovo were purchased. Each kit contains the following components: (1) biosensor, pulse saturation, and pulse index (PC-60F Fingertip Pulse Oximeter), (2) biosensor bracelet (GETFIT H10), (3) biosensor blood pressure monitors (iHealth Track ), (4) mobile unit for users (User Mobile Units-UMU) - tablet Lenovo Tab M7, P / N ZA 550030 and (5) mobile unit for experts (Expert Mobile Units-EMU) - tablet Lenovo Tab M7, P / N ZA 550030. Software programs are installed on the specified equipment, which are necessary for the operation of the equipment and the communication between the individual components in the set.

A selection of 40 persons was made, to be provided for pilot use the delivered kits for monitoring the health status. Individuals are selected on the basis of voluntarily provided data on their health, socio-economic status, manner of communication with a personal physician, the need to monitor chronic diseases and / or specific medical conditions, place of residence, age. 40 people living in different settlements of Kirkovo Municipality were selected, mainly those suffering from socially significant chronic diseases, such as cardiovascular diseases, metabolic and endocrine diseases (diabetes, metabolic syndrome, high blood pressure).

- *Increased capacity of the team of Kirkovo Municipality in the field of e-health*

In the process of the overall implementation of the project "Improving access to health services through a personal health monitoring system" / Health electronic monitoring, the team of Kirkovo Municipality successfully increased its general and specific expert potential as a result of working with Greek partners, taking advantage of from all personal and virtual meetings and discussions to exchange views and know-how. The project products created by the other members of the cross-border partnership have contributed to the successful realization of the set goals for improving public health and quality of life, adapting to changing needs and using existing and new technological opportunities.

## D4.5.2 Pilot implementation report

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### *Challenges*

- *Lack of a planned budget for medical professionals to monitor patients' health indicators*

At the planning stage of the project proposal, the Lead Partner has not planned activities and a corresponding budget for joint activities with medical specialists (GPs and / or specialists in separate medical fields). The effectiveness of the use of equipment for measuring vital signs and communication with medical professionals / GP depends on the good will and willingness of the relevant doctors to participate, as well as on the existing relationships between doctor and patient.

- *Lack of a planned budget for the costs of internet connectivity of the purchased equipment*

At the planning stage of the project proposal, the Lead Partner has not planned an appropriate budget to cover the costs of internet connectivity of the delivered equipment. In view of the project objectives and the characteristics of the main target group, including disadvantaged people, people with limited social and financial opportunities, people living in geographically remote settlements, the lack of project means for internet connectivity burdens patients / citizens financially. which have been provided with telemedicine pilot testing equipment as an alternative way of providing medical care.

- *Protection of patients' personal data*

The General Data Protection Regulation GDPR, adopted at European Union level during the implementation of the project, imposes a strict regime for working with personal data, and information on the health status of patients, data from daily measurements of their vital indicators constitute sensitive personal data, the collection, administration and storage of which has not been considered at the stage of project proposal development.

- *Delay in some of the project activities as a result of the COVID-19 pandemic*

The global pandemic COVID-19 has affected the implementation of the project in several directions. On the one hand, it has led to some delays in the implementation of some project activities due to the introduced restrictions on movement, holding group events and meetings, as well as the imposed measures to maintain social distance and personal hygiene.



#### D4.5.2 Pilot implementation report

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COVID-19 and the imposed measures to prevent the coronavirus proved the value of the concept of telemedicine and the ability to monitor the health of patients remotely, to consult online with their GPs to adapt the ongoing medical therapies to their chronic diseases and / or specific medical conditions without exposing patients to the risk of becoming infected with COVID-19 by visiting medical facilities and GP offices.

## D4.5.2 Pilot implementation report

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### **SOURCES**

Application form of the project "Improving Healthcare Access through a Personal Health Monitoring System"

Justification of budget "Improving Healthcare Access through a Personal Health Monitoring System"

National Center for Public Health and Analysis at the Ministry of Health. Healthcare 2018. 2018. National Statistical Institute.

National Center for Public Health and Analysis at the Ministry of Health. Turbidity for main reasons in the Republic of Bulgaria for 2018.

Municipal Development Plan of the Municipality of Kirkovo 2014-2020

Report of the project "Improving access to health services through a personal health monitoring system", acronym: Electronic health monitoring

Socio-economic survey on the territory of the Kirkovo-Zlatograd LAG, 2017