

SUGGESTIONS ON STRENGTHENING OF NONCOMMUNICABLE DISEASES RISK FACTORS SURVEILLANCE MANAGEMENT IN THE REPUBLIC OF MOLDOVA

ELENA RAEVSCHI¹, ION ABABII², GALINA OBREJA³

^{1,2,3}“Nicolae Testemițanu” State University of Medicine and Pharmacy, Chișinău, Republic of Moldova

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Abstract: Noncommunicable diseases pose the greatest burden on the social and health systems of the countries affecting the sustainable development. Behavioural risk factors are the main responsible for this burden. Applying preventive and control measure governments are committed to fight the epidemics. A comprehensive and reliable surveillance system should be in place to monitor the progress and to provide timely information for an evidence-based decision-making. Suggestions and recommendations for a national risk factors surveillance system are proposed based on international and national experience, national public health system institutional structure and public health policy analysing.

INTRODUCTION

Noncommunicable diseases (NCDs) are responsible for about 80% of all deaths registered in Europe. The burden of NCDs is increasing globally, with the most productive life years being affected.(1) There is an increasing concern about the effects of these diseases not only on health, but also on sustainable development. In line with the noncommunicable diseases prevention and control policy adopted by General Assembly of the United Nations in 2011, World Health Organization (WHO) have been developed the Global Plan on Action on Prevention and Control of Noncommunicable Diseases for 2013-2020.(2) To facilitate the evaluation of actions on implementation of this plan, a monitoring framework was developed. It contains 9 voluntary targets and 25 indicators on health status, risk factors and health system capacity and response.(1)

More than 80% of all deaths registered in the Republic of Moldova are due to NCDs, and most of them occur at working age.(3) Behavioural risk factors are the main factors responsible for this burden. Unhealthy diet, tobacco consumption, alcohol consumption and low level of physical activity are the main four behaviour risk factors for NCDs. These four behaviour risk factors lead to the other four metabolic risk factors, named hypertension, hyperglycaemia, hypercholesterolemia and obesity.

Being aware on the increasing burden, the Government of the Republic of Moldova has committed itself to fight against NCDs, and approved the National Strategy on Prevention and Control of NCDs and its Action Plan.(4,5) Concurrently the NCDs targets to be achieved by 2020 in line with WHO targets and monitoring indicators have been approved. Monitoring progress on achieving the goals of Action Plan and irrespectively of targets involve establishing and functioning of an efficient monitoring and surveillance system.

Monitoring and surveillance are essential for the delivery of the main public health services: health promotion, health protection and disease prevention. Surveillance of human health is the first within the 10 public health operations of the National Public Health Strategy.(6) The comprehensive study and assessment of the health problems with the development of

appropriate prevention and control measures is one of the core function of Public Health Service.(7) The Service is responsible for collection, processing and assessing the data on health determinants, including behavioural ones. Health profile should be developed at local level to guide public health component and intersectoral interventions in the rayon/municipal strategic development.(8)

Several studies on the prevalence of NCDs risk factors have been implemented over the last years as part of the regional or international initiatives. Although the starting point has been set, the progress in establishing an ongoing data collection system for NCDs risk factors is too slow. Excepts for surveys, done periodically according to a standardized international methodology, the other data collection is scarce in a standardised methodology, classification is not done based on the same criteria, and quality of data is rarely verified.(6)

PURPOSE

The purpose of this study was to analyse the international and national experience on NCDs behavioural risk factors surveillance, national public health policies and institutional capacities in order to support the establishment of a national surveillance system.

MATERIALS AND METHODS

The WHO STEPS-approach to NCDs risk factors surveillance and survey results of STEPS survey done in 2013 in the Republic of Moldova, behavioural risk factors surveillance systems and experiences of developed countries, mainly of United States and Italy, as well as the results of pilot study done in Chisinau city in 2016 were analysed.(9,10,11,12) Institutional capacities of the Republic of Moldova's public health system, risk factor surveys experience and public health policies were also analysed.

Based on the analysis done, a proposal for guidelines on the surveillance system for NCDs behavioural risk factors was developed.

RESULTS

The prevalence of NCDs and their risk factors in the

¹Corresponding author: Elena Raevschi, Bd. Dacia, Nr 22/2, Chișinău-2043, Republic of Moldova, E-mail: elena.raevschi@usmf.md, Phone: +37369 233157

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general population should be monitored to efficiently influence the decision-making in public health. It is also important that monitoring system allows for disaggregation by smaller regions within the country, by area of residence, age groups and gender in order to identify disparities.

The WHO STEP-wise approach to noncommunicable disease surveillance (STEPS) is a standardised method of data collection, analysis and dissemination.(9) Repeated transversal populational household based surveys (every 3-5 years) are the base of the surveillance system. Thus, WHO technical support is related to the provision of database at populational level comparable to evaluate the trends of the NCDs risk factors at global level and the development of evidence based policies and strategies.

STEPS is a survey done in 3 consecutive steps: Step 1 is an interview about socio-demographic and behavioural risk factors of the respondents; Step 2 comprises physical measurements (weight, height, blood pressure, heart beat and hip and waist circumferences); and Step 3 comprises the biochemical measurements (blood glucose, blood cholesterol, and triglycerides). This way, STEPS survey comprises both self-evaluation and medical examination.

The first STEPS survey was implemented in the Republic of Moldova in 2013.(10) The aim of the STEPS survey was to evaluate the prevalence of the main behavioural risk factors for NCDs to allow for more efficient planning of policies and activities to prevent and control NCDs. The survey was done on a national representative sample of population with disaggregation of data by gender, age groups and area of residence. STEPS survey was a start point for the national comprehensive surveillance system on NCDs risk factors and for the standardised data collection on main risk factors: tobacco consumption, diet, physical activity, alcohol consumption, and medical examination for overweight and obesity, raised blood pressure, raised blood cholesterol, and raised blood glucose.

Evidence from the STEPS survey was used to substantiate the National Plan on prevention and control of NCDs 2016-2020, including the establishment of national targets, as well as the national programs on NCDs risk factor prevention and control.(5)

The United States Behavioural Risk Factors Surveillance System (BRFSS) is one of the first established and the most long lasting. It was established by the Center for Disease Prevention and Control (CDC) in the mid-80s. The aim was to collect data on real behaviour in order to better support planning, implementation, and evaluation of health promotion and disease prevention programs. BRFSS is a program with an ongoing self-reported data collection on representative samples from all states using land-line or cell phones. Data are collected locally by each state health authority and send to the CDC. The surveillance system is administered and supported by CDC. CDC provides methodological and technical support to all states, including data analysing by producing tables, which are send back to the states for further use.(13)

Based on the United States example, surveillance systems with a functionality tested over time were developed in Great Britain (LAH – Lifestyle and Health, 1991), Canada (RRSS – Rapid Risk Factors Surveillance System, 1999), and Italy (PASSI – Progressi delle Aziende Sanitarie per la Salute in Italia, 2007).(14,15,16)

Italian PASSI is a multifunctional community ongoing surveillance system, coordinated by the National Institute of Health and implemented by local health units and regional health authorities.(17)

Telephone interviews are done monthly on the representative sample of adults aged 18-69 years from all Italian

regions. The collected data provides for the estimation of NCDs risk factors prevalence, information on the adherence to preventive measures and on the access to preventive measures, allowing for the assessment of geographical differences and trends over time. Coded data are collected electronically at the central level. Interviews are made by personnel from local health institutions. The interviews serve both, as an evaluation tool and as a base for establishing the health objectives in the states/regional and national health prevention plans.(17)

The ongoing surveillance of risk factors in the existing above-mentioned systems is provided by the “sufficient” proximity between observations: repeated telephone surveys applying a standardised questionnaire on independent samples essentially based on an integrated and complex automatized informational system.

A pilot study using US BRFSS standards and protocols was implemented in Chişinău municipality in 2016 as part of the research on Management of risk factors in reducing premature cardiovascular mortality in the Republic of Moldova. A land-line telephone survey on randomly selected households was done by the Department of Social Medicine and Health Management of the “Nicolae Testemiţanu” State University of Medicine and Pharmacy.(18) The first adult aged 18-69 years who answered the call was considered eligible for the interview.

A standardised questionnaire has matched 33 questions on demographic variables and the main NCDs behavioural (tobacco consumption, diet, alcohol consumption and physical activity) and metabolic (raised blood pressure and raised blood cholesterol) risk factors. Interviews were done by eight interviewers, 4th year students of the faculty of Medicine No 1. To ensure the control on data quality interviewers were specifically trained. The Department’s main researchers led and monitored continuously the interviews.

The interview included the following issues: brief explanation of the aim and objectives of the survey; obtaining of oral consent to participate in the survey before applying questionnaire; and applying and completing the questionnaire. After completing and final verification of all paper-based questionnaires on the attributed sub-sample, the interviewer has been presented them to the principal investigator together with an integrated electronic database.

Collected data have been processed according to the US BRFSS protocol and a set of standardised performance indicators were calculated. The response rate was 35.6% and the resolution rate was 37.5%, mainly due to non-answering calls (44.4%) or unestablished eligibility in case of answered calls.(18,19)

The public health system of the Republic of Moldova includes the Department of Public Health within the Ministry of Health, Labour and Social Protection (MHLSP), the National Centre of Public Health (NCPH) and 36 municipal and district Centres of Public Health (CPH).(7)

The MHLSP supported by NCPH is responsible for the development of national policy on public health, and for the organisation of the implementation, monitoring and evaluation it. CPHs are responsible for the development, monitoring and evaluation of public health policy at municipal/district level.

During the last decade many public health interventions on prevention and control of NCDs and their risk factors have been approved and are implemented both, nationally and locally. This relates to NCDs and NCDs risk factors prevention and control (tobacco consumption, alcohol consumption, nutrition, physical activity, obesity, and hypertension). Specific objectives to be achieved at a specific point in time are part of each prevention and control programme. The action plan to the National Strategy on prevention and

control of NCDs provides for NCDs midterm targets, that the Government is committed to achieve by the year 2020.(5) The implementation of interventions is monitored and the achievement of the objectives is to be evaluated. Public health institutions, acting nationally and locally, were appointed responsible for the surveillance of public health, including for the NCDs behavioural risk factors and the monitoring and evaluation of the national programs and action plans.

It should be mentioned that health promotion, disease prevention and health protection are the main public health operations in accordance with the National Public Health Strategy 2014-2020.(6) In order to perform these functions, a functional surveillance system for NCDs and their risk factors should be put in place.

A Guide on health profile at municipal/district level was developed and approved by the Ministry of Health.(8) The Guide provides for the local health need assessment, including the behavioural risk factors for NCDs, to guide the local strategic development as well as the local public health policy.

NCPH is the lead institution, appointed responsible for the development and implementation of the surveillance system at the national level; monitoring and evaluation of the national programs and plans; training of personnel from the municipal/district CPHs; and for the provision of methodological support.(5,7,8) Within the NCPH, there is a Department on surveillance of NCDs and their risk factors. Specialised units were also established also within all CPHs. The need for a surveillance system has been discussed for a long time, but it was not yet being established and is not functioning. It should be mentioned that the surveillance system for NCDs risk factors is still a challenge for Moldova's public health system.

There is a registry of population listed on the family physician list at the level of primary health care and the registration within this list is mandatory regardless of medical insurance.(20)

DISCUSSIONS

The frequency of the NCDs risk factors and trends over time are important to direct and to evaluate government policies. Ongoing data collection provides timely information for decision-making, and allows for disintegration of data to identify regional or other disparities and health inequities.

A proper and functional NCDs risk factors surveillance system with an ongoing data collection is an important tool to support the main public health functions. The institutionalisation of the surveillance system and strengthening human capacities within public health institutions is crucial to its sustainability.

Within this context, it should be mentioned that the MHLSP is responsible for the general organisation of the system, providing resources, as well as for evidence based decision-making.

It should be mentioned that alongside with intersectoral interventions decided by the Government to control and reduce the NCD risk factors, MHLSP has been introduced a lot of interventions to be provided at individual level within the primary health care. Concurrently, 3 out of 5 performance indicators are related to the prevention and control of NCDs and their risk factors. Surveys, such as STEPS survey or others carried out periodically, once in 5 years, provide reliable and comprehensive information for public health decision-making. Part of this information especially self-reported can be collected more frequently. As experience from other countries shows, collection of data can be done using telephone calls. Such a method will allow for less financial resources to be spent taking

into account the scarcity of public health financing.

At the same time such a behavioural risk factors data collection will provide MHLSP with the timely information on the effectiveness of both public health interventions, those done at population level and those done at individual level. Local authorities will benefit as well, investing better in health promotion and being aware that the scarce resources are usefully invested.

"Nicolae Testemițanu" State University of Medicine and Pharmacy is responsible to provide the continuing education for health professionals involved in the functioning of surveillance system and consultancy on research and survey methodology.

NCPH is the central institution responsible to provide methodological support to the territorial CPHs and to lead nationally the health promotion and disease prevention activities. For this reason, it is appropriate that NCPH will be in charge to administer and coordinate the whole NCDs surveillance system, including the ongoing self-reported data collection, develop the protocol and survey questionnaire, and train the personnel involved in the surveillance system.

The main objectives of the proposed NCDs behavioural risk factors surveillance system should be: (1) To establish an ongoing surveillance system on behavioural risk factors among adult population aged 18-69 years old to evaluate disease prevention and health promotion interventions; (2) To assist public health professionals to develop and implement the surveillance system, to analyse and report data and to create conditions for updating of health programs based on monitoring results; (3) To implement a methodologically standardised surveillance system that would allow the comparison of data between regions and to trace the trends; (4) To provide evidence for central and local public health authorities about the behavioural risk factors situation and trends in order to direct prevention interventions.

It is proposed that the target population should be adult noninstitutionalised individuals aged 18-69 years old, the same age group as in the STEPS survey. The following NCDs risk factors are to be subject to ongoing self-reported data collection: (1) behavioural – tobacco consumption, diet, alcohol consumption and physical activity; and (2) biological (metabolic) – blood pressure, blood sugar, blood cholesterol, overweight/obesity.

As it was already mentioned, the surveillance system should be integrated into the existing public health system. The NCPH can take the lead role in organising and managing the surveillance system at the national level. Existing territorial centres of public health should be responsible for the implementation of the surveillance system at local level. The ongoing data collection over the year is proposed to be used on the selected sample with the subsamples divided by trimesters and regions.

The sample size should take into consideration the possibility of data disaggregation by region in addition to disaggregation by area of residence, age groups and gender. Taking into account the pilot test response rate (35.6%), an oversampling up to 50% is recommended. The NCPH should take the responsibility to establish the representative sample size(s).

A two-stage sampling plan is suggested with the family physician sector as the primary sampling unit and the household as the secondary sampling unit. The registry of population within the primary health care could be used as the main source for the random sample selection of family physician sectors and of households within the selected sectors. Land-line telephone numbers should be used to select households. The

first adult answering the call is to be considered eligible at the household level to participate in the survey.

The NCPH is to be responsible for the sampling at the first stage and the territorial CPHs for the sampling procedures applied at the second stage.

A unique standardised questionnaire is proposed to be used nationally. The questionnaire contains three types of questions: (1) basic, questions used in every survey; (2) intermittent, questions used in the survey at certain time intervals; and (3) emerging, questions used when emergent problems occur.

Questions should be reasonably concise. Questions are intended to provide information about the respondent's behaviour rather than on other members of the household. The question content should be related to the health status. Demographic, opinion and attitude questions are included only for a deeper understanding of health behaviour issues. The question content should respond to the health challenges of the health system: the main causes of mortality, especially premature, morbidity and disability. Questions should be relevant to national health strategies, policy and national health programs. A model of questionnaire similar to that used in the pilot study, done in Chişinău city in 2016, matching the above-mentioned criteria and validated thereof is proposed.

Questionnaires could be revised and amended annually, taking into consideration above mentioned and new relevant issues.

Telephone interview is proposed to be used for data collection. This should be done according to the unique protocol developed by the NCPH. Territorial CPHs should be responsible to collect and introduce data in an established electronic format and after verification send it to the NCPH.

NCPH should take responsibility for the storage and saving of data, analysis of data by producing tables to be made available to the CSPs to be used at local level. As well, NCPH should develop national annual reports on NCDs risk factors surveillance. Territorial CPHs can do the same at local level, using analysed data received from the NCPH. Dissemination of data should be done through the annual conference and by placing on the NCPH and CPH websites.

Another important issue is the development of the study protocol and its periodic revising, and this should be done nationally, by the NCPH. The standardised questionnaire developed by the NCPH should be applied without any local changing or amendments. One single member of household will be eligible for the survey interview. Eligible individual who initially refused the interview should be contacted additionally, at least once, to offer them opportunity to participate in the survey. All phone calls should be done within the preestablished time limit. The interview should be considered completed if the data have been collected for all variables included in the questionnaire.

As already been mentioned human capacities involved in the surveillance system should be strengthen both, nationally and locally. Thus, selection of the health professional, appropriate training before and continuous training during the implementation of the NCDs risk factors surveillance system is crucial. There is a need for specific training, based on concrete steps and procedures of the surveillance system to be carried out at national and local level. The activities should be monitored and non-conformities analysed, and discussed with aim to improve the system functioning. These will allow for fewer errors in designing the surveillance system, and data collection and analysis.

Quality assurance is an essential aspect of system functioning. Collection of data in accordance with the sound

scientific methodology is important both, for the accuracy of information and for data integrity. Data of the surveys not taking into consideration activities contributing to the continuous improvement of processes are less valid and have a lower credibility.

A series of verifications should be applied to capture the quality problem. First of all, this refers to the continuous monitoring of interviewers. Accuracy of the interviews and internal and external verification of data collection are crucial for the surveillance quality assurance. The main aim is to identify problems in data collection and to use this information to identify areas of improvement. Monitoring results should be documented, discussed with interviewers and used to evaluate performance.

All initial interview refusals should be documented and called repeatedly by the supervisor to offer the possibility to participate in the survey.

Secondly, back verification call is an important tool to measure the integrity of data collection. The activity should be documented to support scientific rigour of the surveillance system and the compliance with protocol.

Interviewer's performance should be analysed and used as monitoring instrument, as well as to improve the data collection technics. A set of performance indicators could be used to make comparison between different interviewers or to track the performance of the same interviewer. Such indicators could be the response rate, efficiency of the study, age and gender distribution of respondents, non-response by item.

Data editing is also an important aspect of quality assurance. The procedure could identify problems in data collection, such improper formulated questions or interviewers that do not observe the protocol. Quarterly editing of data could allow for identification of problems and their prompt solving.

Applying of procedures of internal and external control could reduce potential errors occurring during data collection and processing. Daily and weekly reports on the evaluation of interviewer's performance could be used to identify risks and decide on corrective and preventive actions to improve the process.

External verification could be carried out using the control repeated call for a small randomly selected sample and applying the discrepancy procedure set out in the surveillance protocol.

Lastly, it should be mentioned the importance to assure confidentiality and security of collected data in accordance with national legislation.

CONCLUSIONS

1. NCDs risk factor surveillance system is essential to guide an evidence-based decision-making and to evaluate public health policy efficiency and effectiveness at population and individual levels taking into account regional disparities and health inequities.
2. The proposed NCDs behavioural risk factors self-reported data collection should be part of the larger NCDs surveillance system providing timely information for central and local authorities.
3. NCDs surveillance system could be established within the existing public health service and institutions with a clear definition of the roles and responsibilities at different levels. This should be an integrated system with a leading organizational and methodological role of NCPH.
4. The proposals for a guide will allow public health institutions with an essential instrument to accomplish their legal duties and responsibilities.
5. Strengthening human capacities is crucial to assure a

proper and sustainable surveillance system for NCDs risk factors.

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