



## Gerontology public health management in Croatia

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### Abbreviations:

ACT – activated clothing time  
GA – general anesthesia  
ISAB – intermittent subarachnoidal block  
LA – local anesthetic  
NA – neuroaxial anesthesia  
SS SAB – single-shot subarachnoidal block

### Abstract

*The gerontologic-public health service provided at primary health care level by the Centers of Gerontology of the Public Health Institutes (PHI) in particular Croatian counties, City of Zagreb and Republic of Croatia is based on the established gerontologic-public health parameters of health care needs and functional ability of the elderly in institutional and non-institutional health care. Appropriate preventive gerontologic program of primary prevention for the elderly has also been performed by Gerontology Centers in local community, providing immediate gerontologic non-institutional care for the elderly. A comprehensive approach in health care of the elderly, with family medicine playing the leading role, is ensured by due coordination at the level of primary health care for the elderly as part of the gerontologic-public health service with a catchment population of 30,000 older people. The public health relevance of health management for the elderly at these three levels (superior, intermediary and basic health management) is based on the primary health care for the elderly. The strategic goals is based on the monitoring, studying, evaluation and reporting, with coordination and supervision of the implementation of health care needs of the elderly through monitoring of health care needs.*

### INTRODUCTION

Croatian population according to its demographic structure of aging it has all the characteristics of western countries what classifies it in the fourth group of European countries with very old population according to the UN classification (1–7). According to 2001 census in Croatia the share of people over 65 years of age was 15.62% that would increase in 2011 to 17.7%. Age-sex differentiation from total population in Croatia show that in 2001. was 12.41% males / 18.61% females and in 2011. 14.33% males / 20.84% females over 65 years of age.

Accelerated demographic aging Croatian population reflected implications of an economy, health care, education, social welfare, pension funds and labor, tourism and health tourism especially in the Croatian and for European elderly population. Health care of the elderly cannot be performed, upgraded or evaluated for efficiency and availability unless the respective gerontologic-public health parameters on health care needs and functional ability of the elderly in institutional and non-institutional health care have been established (1–5). These very parameters make the basis of the gerontologic-public health service provided at primary health care level by the Centers of Gerontology at Institutes of Public Health in Croatian counties (Rijeka, Split, Zadar, Pula, City of Zagreb). Appropriate programs of health care measures and procedures in health care including primary, secondary and tertiary prevention for the elderly, could only be

developed based on monitoring and assessment of the health care needs (6–8).

Such an appropriate preventive gerontologic program of primary prevention has also been implemented by Gerontology Centers in local community, by providing immediate gerontologic non-institutional care for the elderly (9–18). The aim is to enable the elderly to stay at home, with the family, as long as possible. In these efforts, coordination with primary health care (PHC) professionals, i.e. selected family physicians providing care for geriatric insurees, is necessary.

### CENTRE OF GERONTOLOGY OF THE PUBLIC HEALTH INSTITUTES AND GERONTOLOGY CENTERS

Based on the follow up, identification, study, evaluation and report as well as planning of projections of future health needs and functional abilities of the elderly of Croatia, counties of Croatia and the city of application, development, promotion and evaluation of implementation of the program of health measures and procedures in health protection of the elderly is possible. It also includes program for primary, secondary and tertiary prevention for the elderly as it can be seen in tabular presentation about all managers of health protection of the elderly that mainly involves an active elderly.

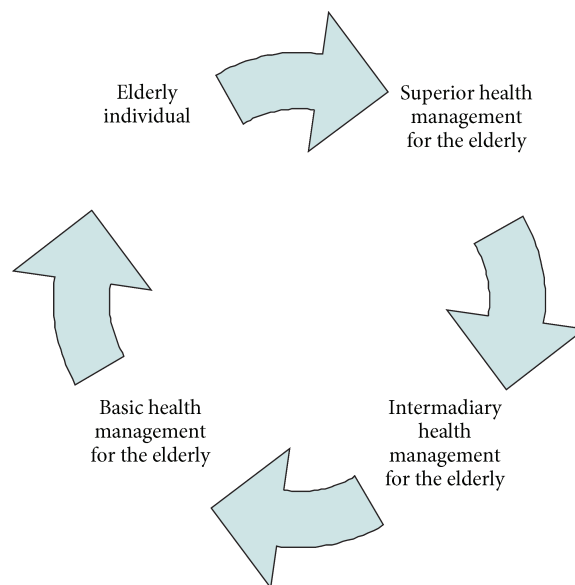
Tasks of gerontologic team on the county level of the Institutes of Public Health in accordance with the Health care law and the Program of statistical research are the following: to follow, establish, study and finally report to the National Center for Gerontology. Those Programs of follow up, study and evaluation of health needs and functional ability of the elderly are carried out by individual gerontologic approach based on professional and methodological instruments – evidence lists of follow up of health needs of individual geriatric patient according to the levels of offered health service by general practice, homes for the aged and disabled people, centers for geriatric care and rehabilitation of the elderly, geriatric institutions and Gerontologic centers in the local communities where elderly live and create.

The standard catchment population *per* one gerontologic-public health team as required for implementation of the legally defined gerontologic-public health service is 30,000 elderly individuals over 65 years of age at the county level. The gerontologic-public health team consists of: one physician specialist in public health/epidemiology/physician specialist in general/family medicine subspecialist in gerontology; one geriatric nurse/work therapist for the elderly; one gerontologic-health care statistician/health care informatician. The basic tasks and duties of the gerontologic-public health team at county (regional) level, i.e. at respective Institutes of Public Health, for the needs of functionally disabled individuals aged ≥65 for institutional and non-institutional health care in the respective catchment area of the county/region and City of Zagreb, and to propose health care measures for the vulnerable elderly population of

the respective county and City of Zagreb. These programs of monitoring, studying and evaluation of health care needs and functional ability of the elderly are performed by individualized gerontologic approach by use of professional-methodological instruments, according to the levels of health care provided, from family medicine, old people’s homes and nursing homes, centers for care and rehabilitation of the elderly, and geriatric institutions, with coordination and supervision by the Reference Center and reporting to the Ministry of Health and Croatian Institute of Health Insurance. Continuing professional education, primarily of family medicine physicians, in the diagnosis, specific aspects of treatment, rehabilitation and prevention of the most common diseases in old age, and in preserving functional abilities of geriatric patients, while encouraging an active role of the elderly in preserving good health status and functional abilities, makes a significant segment of gerontologic education of primary health care physicians and other professionals providing health care for the elderly.

Reference Center for Gerontology, Zagreb Institute of Public Health, performs coordination with intermediary health management for the elderly, provided by the gerontologic-public health teams at regional/county (Rijeka, Pula, Split, Zadar) and City of Zagreb Institutes of Public Health, which perform tactical level of planning for the elderly. The public health relevance of health management for the elderly at these three levels is based on the primary health care for the elderly (Figure 1).

The strategic goals depicted by the superior health management for the elderly, based on the monitoring, studying, evaluation and reporting, with coordination and supervision of the implementation of health care needs of the elderly through MHCN Record Files Nos. 1,



**Figure 1.** Coordination of health management for the elderly  
 Source: Center of Gerontology, Dr A.Štampar Institute of Public Health.

and 4, are translated by intermediary health management – county/regional/ Centers of Gerontology of the Institute of Public Health into focused goals of particular health and public health needs, which are then applied by the basic health management as specific procedures and processes working in the immediate health care for the elderly. Each of the levels of planning in health management is crucial for final success and appropriate meeting the defined needs of the elderly, and none can function properly if is separated, without coordination, feedback, evaluation and supervision of performance with the other two levels.

Significant part of medical gerontology and geriatric medicine education (9–18) is continuing professional education primarily of general practitioners in diagnostics, specific treatment, rehabilitation and prevention of diseases in old age as well as preservation of functional abilities of geriatric patient by stimulating the active relation of an elderly for preserving his/her health. Educational significance of Gerontologic Lecture is in its connection of constant education of primary health care physicians and other experts on specific forms of health care for the elderly together with the development and promotion of this care and rational geriatric health expenditure, the final result of which is satisfaction of the needs of the elderly (19–25) has special significance.

National committee for specialist training of medical doctors Ministry of Health of the Republic of Croatia (February 2013) discussed the proposal specialization in geriatrics. It was pointed out that the National Strategy of Health Care Development (2012–2020.) and National Strategy of Mental Health Care (2011–2016.), actively support development of geriatric medicine. Discussed the possibility of introducing accreditation for the area of geriatrics for specialist of internal medicine, neurology, general/family medicine, public health medicine and epidemiology.

#### **FOUR AREAS OF REGULAR GERONTOLOGICAL ACTIVITIES OF THE CENTAR OF GERONTOLOGY**

Within four areas of regular gerontological activities scientific research the Ministry of Science and Technology conducts project “Register of health needs of the elderly for institutional care” in the area of biomedical sciences. The aim of this Program is to form the Register of health needs of the elderly for institutional care according to counties in Croatia. It will be the basis for adequate solving of the problems in preventive health care of old sick people and their needs for non-institutional care as well as for the elderly in institutions of health and social care at various levels and for: protection and promotion of health and health care and prevention of disease development; protection, promotion and development of functional ability; definition of health criteria for institutional accommodation according to institutions; division of activities among medical, social and socio-medical institutions and their categorization. It include production of adequate staff

standards and health manpower standards conducting specific primary health care in the institutions; application of health measures, health service nomenclature, standards for adequate equipment and space for sick old people; promotion of education and continuous professional education of health personnel in care of health protection; insurance of professional and methodological support in proposing organizational plans and programs of measures for individual aspects of health care of the elderly. Promotion of institutional accommodation according to determined and defined health needs is also included; setting guidelines for health, social and economic policy for health protection of the elderly; programming, planning and production of the Program of health measures and procedures in health protection of the elderly.

Application of the mentioned regular gerontologic activity enables application and evaluation of the Program of health measures and procedures in health care of the elderly with evaluated application of the Program of primary, secondary and tertiary health prevention for the elderly, defined nomenclature, standards and algorithms of health procedures for geriatric patients with adequate network of geriatric health care and rational geriatric health expenditures.

The complex tasks and duties through the four fields of regular gerontologic-public health service and according to CROSTAT, EUROSTAT, and National Strategy of Health Care Development 2012–2020 at quarterly basis include:

1. monitoring, investigating, evaluation, supervision, reporting and planning the projection of health care needs and functional inability of the elderly regarding institutional and non-institutional health care according to counties (regions) of Croatia and in the City of Zagreb, by keeping Register of health care needs and functional inability according to Croatian counties and City of Zagreb, with Subregister of centenarians and Subregister of those patients with Alzheimer’s disease and mental disorders;
2. providing professional-methodological assistance, coordination, supervision, instructions and education for health care providers for the elderly and monitoring of health care needs (MHCN) of geriatric insured (activities of the Centers of Gerontology, geriatric hospitals/ prolonged treatment, geriatric and psychogeriatric departments, day hospital for the elderly, primary health care for the elderly, specific primary health care at old people’s homes and centers for rehabilitation, care, work therapy and assistance to the elderly, day-care centers for the elderly, gerontology housekeepers, gerontological caregivers in local community, Gerontoservice);
3. gerontologic-public health service, coordination and networking of county (regional) Centers of Gerontology at Institutes of Public Health according to gerontologic-public health teams;
4. actively participates and performs scientific-research and publicist gerontological activities.

The inclusion of defined characteristics of the geriatric insured monitoring for primary health care should be noted.

Thus established health characteristics of the above mentioned types of monitoring of health care needs of individual geriatric patient, elderly insured and user of specific primary health care differ in particular monitoring variables according to specificities of health care measures and procedures relative to the level and type of health care provided (26–30). Determination and monitoring of health characteristics of individual geriatric patient according to the level and type of health care provided contains many data. Within the frame of the first field of the gerontologic-public health service that is focused on keeping Register of health care needs and functional inability of the elderly according to Croatian counties and City of Zagreb, with Subregister of Croatian centenarians and Subregister of elderly patients with Alzheimer's disease and mental disorders, the following target Programs of health care measures and procedures in health care for the elderly will be developed:

- based on the identified and analyzed health care needs of the elderly, development and submission of the selected health measures in line with the Program of measures and procedures of health care for the elderly, thereby depicting priority goals of geriatric care, and evaluation of its implementation;
- development of the Program of health care measures and procedures in health care of the elderly;
- development of the Program of basic preventive coverage for the interest age group (50 years) and target age groups (65–74, 75–84 and  $\geq 85$  years) with primary, secondary and tertiary prevention for the elderly;
- development of the orientation list of medical indications for hospital treatment of geriatric patients at B type geriatric hospital;
- active role in proposing measures and actions for integral health care of the elderly in Zagreb and Croatian counties;
- development of standards, criteria, nomenclature, allowances and algorithms in institutional and non-institutional geriatric and primary health care of the elderly;
- active role in programming health care investment plans for arrangement of geriatric institutions and other health care premises intended for health care of the elderly;
- proposing and developing the Program of organizational aspects of health care for the elderly (organization of home treatment, care and rehabilitation of the elderly, residential architecture for the elderly free from barriers, health tourism for the elderly; selection of the Gerontoservice Program including younger retired persons aged 50–60 and the prevalent group of unemployed women aged 50–55) within the frame of the activities of the Gerontologic centers – non-institutional care for the elderly.

In accordance with the Act on Health Care and Program of statistical research, based on CROSTAT and EUROSTAT, the main task and activities specified by the Act on amendments in health care regulate gerontologic-public health service in particular. This includes the activity of the Gerontologic-public health teams at the Institutes of Public Health at the county level and City of Zagreb, which monitor, identify, investigate and report to the National Center of Gerontology, on the needs of the functionally disabled elderly aged  $\geq 65$  for institutional and non-institutional health care in the respective area of monitoring health care needs of the elderly in the county/region. Reference Center will coordinate and supervise implementation of these activities during the year 2007. This will be followed by development of a proposal of health care measures in Croatian counties for the vulnerable rural elderly population to meet their health care needs previously identified. These programs of monitoring, studying and evaluating health care needs and functional abilities of the elderly are performed by individual gerontologic approach using professional methodological instruments – MHCN Record Files 1, 2, 2.2, 3 and 4 on each individual geriatric patient at all levels of health care, from family medicine, old people's homes and nursing homes, centers for care and rehabilitation of the elderly, geriatric institutions (prolonged treatment) through Centers of Gerontology and day-care centers for the elderly.

Within the second field of the gerontologic-public health service, consisting of the professional-methodological assistance, networking, instructions, education, coordination and supervision, the tasks and duties are as follows:

- organization and continuously active Gerontologic public lectures – education in gerontologic health care intended primarily for family physicians and other professionals providing health care for the elderly. A significant section of continuing education in gerontology for primary health care physicians and other professionals providing health care for the elderly is thorough education in the diagnosis, specificities of treatment, rehabilitation and prevention of the most common and leading diseases in the elderly, and in preserving functional abilities of geriatric patients encouraging active role of the elderly in their own health care.

Scientific concepts and state-of-the-art on aging and old age have been continuously and rapidly increasing and supplementing; therefore, gerontology and geriatrics as modern scientific disciplines have acquired high public health significance in Europe and worldwide, according to UEMS and EUMAG. In Croatia, this trend has also been confirmed by the introduction of specialization in internal medicine with subspecialization in geriatrics and specialization in public health with subspecialization in gerontology in the academic year 2013 in line with UEMS, as stated in the respective decision issued by the School of Medicine.

The third area of the gerontologic-public health service refers to the tasks and duties of evaluation and reporting on the implementation of the specifically modified health care measures according to the Program of health care measures and procedures in health care of the elderly and Program of primary, secondary and tertiary prevention for the elderly.

The fourth area of the gerontologic-public health service includes conduction of gerontologic scientific studies and research projects in the field of biomedical sciences, launched by the Ministry of Science and Technology of the Republic of Croatia, i.e. Register of the needs of the elderly for institutional care, bilateral international scientific project agreed upon between Slovenia and Croatia Gerontologic centers – non-institutional care for the elderly in Croatia and Slovenia 2006–2007, and Can-Cro Health System Projects IBRD Loan 4513-0 HR on the quality of life of the elderly aged  $\geq 65$  according to Croatian regions (N=2952):

- studies of functional ability and health status of the elderly in the City of Zagreb and Croatian regions considering mobility and mental independence, occupation, and sex differentiation of the target elderly groups, with special reference to the meno-boom and andro-boom groups of the Croatian population;
- studies of the implementation of the selected gerontologic-preventive measures from the Program of prevention for the elderly, first of all primary prevention (pneumonia vaccination, at geriatric health care institutions for the elderly in particular) considering the structure of mortality from respiratory diseases in the elderly and prevalence of pneumonia as a preventable cause of death, with evaluation of performed activities in 2006, rate of vaccination (N=1320) of elderly users of inpatient clinics at Zagreb, old people's homes, all this using the MHCN Record Files of geriatric insured;
- determination, improvement and development of index for assessment of functional ability of the elderly, and evaluation of its implementation, the main criterion of geriatric institutional treatment of the elderly for assessment of the geriatric “domino effect”;
- studies of unfavorable health behavior, physical, mental and work inactivity in particular, and interaction between the magnitude of loneliness as a major problem in the elderly and their functional ability and health status, and studies of their dependence, along with public health interaction of the elderly within the family and those accommodated at geriatric institutions;
- studies of the effect of the implementation of primary prevention – physical activity on the occurrence of the leading causes of hospitalization in the group of the elderly with circulation diseases in the Croatian population;
- scientific evaluation of the use of favorable Mediterranean diet by the elderly *versus* unfavorable health behavior in the elderly, in order to prevent the high

rates of circulation diseases in the Croatian population morbidity and mortality, and to preserve their functional ability in early old age (65–74 years);

- scientific evaluation of the studies of motivation and anthropometric features of the Croatian centenarians according to Croatian counties (regions) and City of Zagreb (N=1455 aged 95–108); and
- scientific evaluation of the implementation of the CROCAN project from 2003 (N=2952 aged 65) as compared with 2006, through primary health care for the elderly in Croatian counties (regions) and City of Zagreb according to the following characteristics observed: subjective evaluation of health status, quality of life, physical activity, preventive health care measures, satisfaction with the service provided by the chosen family medicine physician, utilization of inpatient and specialist treatment, nutritional status, use of drugs for chronic diseases, vaccination, dietary habits, unfavorable health behavior (cigarette smoking, alcohol consumption), migration issues, and characteristics of the respective household members with assessment of the household material circumstances.

## CONCLUSION

The coordinated approach in the establishment of focused gerontologic-public health goals in health care of the elderly is based on a combined top-down and bottom-up coordinated approach, taking in consideration internal interest groups consisting of individuals, fulfillment of own goals, and external interest target groups including members possessing potential or real power of influencing the implementation of defined actions of the program of health care measures and procedures in health care of the elderly with the program of primary, secondary and tertiary prevention for the elderly.

The basis of ensuring high-quality of the measures of gerontologic-public health care and geriatric appropriate long-term and short-term health care of the elderly has been established by coordination, evaluation and supervision of the gerontologic-public health service, implying objectively determined health care needs of the elderly in Croatian counties and City of Zagreb, in line with the European and Croatian gerontologic doctrine and using gerontologic standards and algorithms.

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