ELDERLY CARE: COPING WITH LONG-TERM LIGHT-CARE CONDITIONS (LTC); DESCRIBING THE HEALTH NEED, DESIGNING THE EQUITY AUDIT AND DISCUSSING THE HEALTH COMMISSIONING

Evangelos Ergen[1]

[1]*The International Faculty of the University of Sheffield, CITY College,*
ergen@city.academic.gr (http://www.ergen.gr)

The essence of solidarity among societal members has been recognised through time as a major contributor for the sustainability of healthcare systems. Nevertheless, recent socio-economic changes have altered this axiom focusing on new models of healthcare, which are based mainly on mutuality and financing rather than solidarity and reciprocity. As a result, recent global policies impose straight interventions to be implemented in regional healthcare systems, orientated to cost-minimisation and restructuring. On the other side, not far from today, Europe will be obliged to confront with a significant change in populations' age synthesis.

This study deals with longevity and ageing and their impact in society throughout coming years. It seems that both factors are expected to jeopardise social cohesion and to test resilience and health welfare across nations. Increasing longevity in combination with falling fertility rates and the forthcoming retirement of baby boom generation create an explosive mix of non-reversible parameters which may push healthcare systems to their limits and affect social prosperity by directing in repetitive recessional effects. Therefore, new challenges appear in the complex adaptive environment of healthcare. Focusing on the emerging age group of 65+, and scrutinising the unique case of Greece, there is a recommendation to test a new service which will be adapted to elderly care needs and demands with the support of University hospitals which will undertake the responsibility to implement a framework for eliminating any health inequalities and cultivating a smart environment to transform elders into a more active ageing group.

Keywords: Ageing, Equity audit, Healthcare need, Longevity, Resilience

1. INTRODUCTION

Healthcare presupposes the existence of solidarity, as one of the pillars, to secure the provision of health benefits to the population. Solidarity applies as a principle and practice to societies that accommodate wealthy and poor, strong and weak, active and non-active, younger and older populations (generations' inter-coverage). On the other hand, diversification and stratification are core characteristics of living entities which could operate as, sources of progress, innovation and prosperity; the challenge is always the successful integration of such powers.

European Commission in its recent demographic report [1] highlights that fertility rates in EU-27 will remain low for the next 30-40 years. In addition, by 2060, the median age of European population will be 48 years (currently in 41). On the other side, life expectancy, as an average for the region is currently close to 80 years. The part of population which belongs to 65+ counts for 17.7% of the European population. This number, based on recent forecasts is expected to reach 25% till 2030 following an increasing path close to 30% till 2060 [2]. Obviously such statistics reveal low replacement rates in the future active workforce. Besides that, the continuous inventions in medicine with the invaluable help of technology, direct to

life prolongation. It is a paradox that humankind is challenged to finance its survival and this is considered a problem, since there is lack of resources.

Evidence based information used in this study is mostly come from EU-27 reports and other key countries outside Europe. Unfortunately in some of these reports data on Greece are missing. Nevertheless, their combination helps to get clear acknowledgment of the real situation. Although the addressed health need refers to Greece, the model presented could be adopted as well, in every region within Europe.

The next section provides the initial motives of this study which were the basis for researching the literature on the specific age-group. Section 2, incorporates the description of the health need, as identified and according to the specialties of the 65+ age group. Moreover, there is an attempt to perform a health need assessment mainly from the patient's perspective. Section 3 covers the designing of the equity audit including certain stages trying to see it from the equity point of view. The study recommends a new service framework which can be used towards 2030 in order to cope with the increasing healthcare needs of elders. The last section refers to commissioning and especially it tries to discuss the challenges for commissioning this new service. Conclusions of the study highlight the significance of integrating different stakeholders under the same target.

1.1 The motives of the study

According to various researchers [3][4][5], the growing numbers of elderly population impose the need of developing new practices for care provision and for financing healthcare systems. In 2006, it was registered that in OECD countries, the 80% of the 65+ people, experienced long term conditions with obligatory regular medication [6]. In the same year, according to the German Federal Statistics Office, the proportionate of elderly population was uneven to their corresponded medical costs, as part of the whole healthcare expenses in Germany *(Figure 1: Ageing population and healthcare costs* [6]).

The 20% of the population used the 47% of the system's resources, which was more than 100 billion euro. OECD countries have already spent a significant part of their GDP in long-term-conditions care (*Table 1: The share of 65+ experiencing long term conditions and receiving residential care. A comparison on OECD countries* [33]).

The *World Health Organisation [7],* although in one of its recent studies identified the impact of economic recession in healthcare provisions, it had clearly stated that before cutting resources it is suggested to look for opportunities in improving efficiency. An example could be what Whitney [8] asserted; the one of the major future trends for healthcare reform is when patients will undertake more responsibility for their own health, treatment and care. Active workforce which currently states in the age range between 50 and 60 is mainly the group which will be part of the ageing booming up to 2030. The year 2020 could be considered as a major timeline in the ageing evolution *(Table 2: Underlying demographic projections. A comparison on OECD countries* [37])

Nevertheless, not to disregard that this population demonstrates characteristics of a technology-friendly group, accustomed to modern practices and tactics.

Regarding Greece, the fertility rate and life expectancy are close to the EU-27 average *(Table 3: Life expectancy and health life years of elderly persons, 2009 (European Union-27)* [2]). Nevertheless, in medium range, the old-age dependency ratio is projected to rise above EU-27 and OECD averages (*Table 4: Evolution of dependency ratios 1960-2030. A comparison on OECD countries* [33] & *Table 5: Projected old-age dependency ratios. Population aged 65+ in relation to the population aged 15-64 (EU-27)* [2]).

Moreover, Greek population is expected to grow slightly until 2050 [9]. Although the country experiences various reforms in its healthcare system, the 65+ group is expected to form an emerging market providing space for innovation and development of technology-aid practices [10]. Very recently, *European Commission [11]* introduced the European Innovation Partnership Programme on Active and Healthy Ageing. This programme adopts actions which are based on three pillars: (a) prevention screening and early diagnosis, (b) care and

cure, (c) active ageing and independent living. Growing old and living autonomously is crucial and interdependent. Holland and Rodie [12] highlight that the ability to remain functionally independent or need minimal assistance is the fundamental characteristic of having quality of life. This is expected to be the next challenge for the elders and the society and this is the primary motive of this study.

2. Identification and description of the health need

A complex adaptive system incorporates different groups which develop a level of connectedness among them. There is difficulty though to keep them in equilibrium, but if succeed in, this is expected to cultivate the ground for further progress and achievements for the system and the society. Governance defines leadership and the politics to follow, in order to ensure that different players of the system will co-operate effectively in alignment to the same purpose.

Therefore, primary concern for governance is to maintain the equilibrium. At this stage, given the statistics, the 65+ group is expected to be a separate force in the society. As a result, it is crucial not to margin them but to apply quickly practices that will embody them.

The link to this concern is the healthcare provision. If the society succeeds in incorporating and converting this human force into a valuable part, this will produce mutual benefits.

2.1 Problem description

The main concern is that elderly people are treated by the Greek healthcare system as an ordinary age-group ignoring their specific needs. This behaviour reflects current mindsets which have not really assessed yet this part of patients. Nevertheless, current practices demonstrate two major implications. The first is that this group does not receive the appropriate healthcare attention and service. The usual outcome is (a) repetitive uses of the system since they are not satisfied, and (b gradual increase in the final cost per capita. The second implication relates to the service gap that derives from the previous implication. There is no special identification and procedures for light care demands of elders. There is no careful reception and fair distribution according to their real needs. Therefore, they use the main system as any other age-group and spend resources which under circumstances lack from other categories. Obviously, since various statistics have demonstrated the increasing number of elders with long term conditions needing long term light care (*Table 6: Projection of publicly financed long-term care share of GDP. A comparison on OECD countries* [37] & *Table 7: Healthcare expenditure for services, administration and the provision of long-term nursing care (EU-27)* [2]), this by itself, constitutes a market with separate characteristics. Sometimes, this market experiences distortions, in terms of real needs and demands. In addition, this emerging market uses an increasing percentage of GDP in terms of their health expenditures (*Figure 2: Healthcare expenditure and care for the elderly (% of GDP) (EU-27)* [2] & *Table 7*).

This study focuses on light healthcare issues and do not penetrate in morbidity or disability among elderly. The group is the one which demonstrates less frail status; therefore it is less costly to restate them in the community. Moreover, the first 10 years of ageing group (age 65-75) is more possible to be active.

Longevity and ageing are social characteristics which can formulate communities that are diversified from other age-groups. Their members demonstrate different behaviours, demands and needs. Trying to embody them in the regular healthcare system was proved so far, costly and ineffective. The example of Germany (mentioned earlier) clearly coincides with a generalised version of a pareto distribution. Similarly to the axiom that a small percentage of people owns a large number of wealth (the 20/80 principle), in the case of healthcare provisions, elder people use disproportionate healthcare resources. Therefore the challenge

is not only their adaptation in the healthcare system but their successful restatement in activities that will benefit them and the society. This remains closer in the creation of a living service experience rather than a simple healthcare service.

2.2 Health need assessment

According to McKinsey & Company [13] out-of-hospital programs for the elderly population with long-term-conditions (LTC) can yield major savings, in the Greek healthcare system. On the other side, within the next 10 years this nascent domestic industry is expected to demonstrate a continuous growth. By achieving healthy and active ageing this will increase the potential labour force with direct impact on health outcomes and costs [14].

Health needs assessment (HNA) is the process of exploring the relation between needs, resources and outcomes [15]*;* in the figure below (Figure 3), it is intended to specify this relation in real terms. The information used is current but the perspective is to identify this relation in the near future as well. The relations presented reveal the weaknesses and the areas for improvement. This model counts mostly public resources but incorporates also the current low-level private services in primary care. The profile of elders is the basis for their health needs and according to their demands there is the use of health resources which result in the health outcomes.

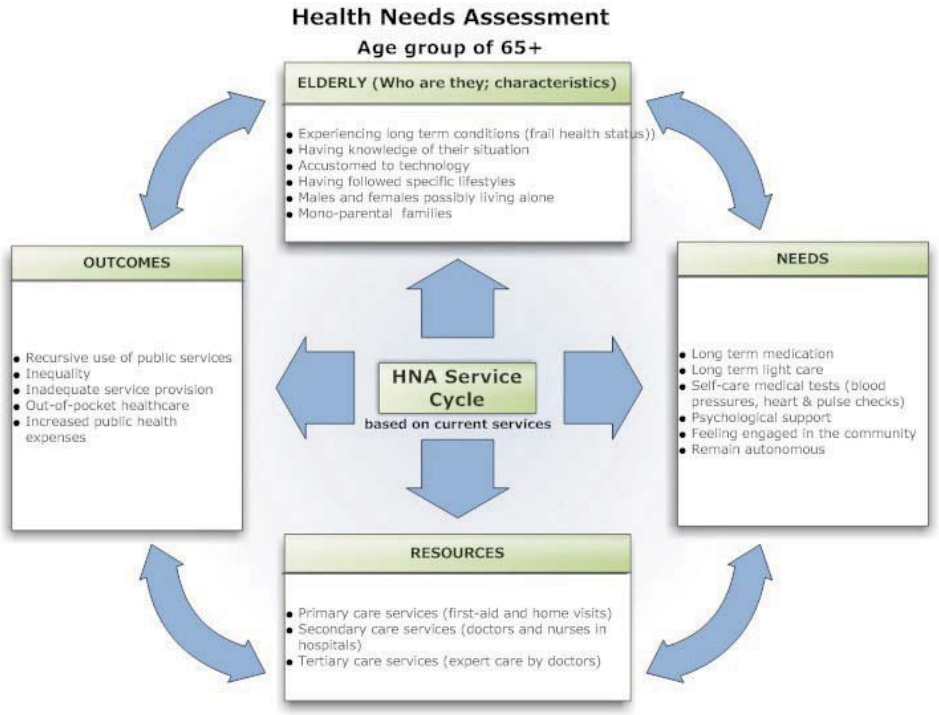

Figure 3 Health Needs Assessment – The 65+ age group.

The relation as presented implies that health outcomes are not equivalent to the patients' profile, needs and resources. Something is going wrong which affects the final service and spends resources with no return benefits. A new resource, or a derivative of a restructured resource, which would monitor better the profile and needs of the elders could probably improve the health outcomes.

3. Designing the equity audit

The main concern of equity audit is to ensure the distributive justice as stemmed from the health service outcomes. The 65+ group is characterised by a number of vulnerabilities mostly related to their loss of autonomy. Long term conditions create gradual devolution of quality of life. Although current social patterns do not provide a healthy framework for coping with the inequalities of elders in the country, this is expected to change. Younger generations, which are accustomed to modern lifestyle patterns and are more technological orientated, will affect the social composition in the coming years. Nevertheless, current trends demonstrate that the distribution of health services in the specific group is unfair. Therefore, the objective is to propose an intervention, which will focus in minimising inequalities trying to use mainly existing resources in a smart way.

3.1 Agree priorities and partners

Health services to elders should be planned according to the following principles:

- to maintain a qualitative provision of health services to ones who need in-house care;
- to integrate and balance care tailored to demand;
- to adopt a more holistic view of their needs and their position in society;
- to identify the significance of the situation on personal basis and provide adequate care service;
- to provide special attention in the group due to its vulnerability;
- to keep them active and prolong their productive contribution to society; (since the age synthesis of global population changes and the tension is the mean to exceed 40 years, it will be a challenge for the prolongation to be accompanied by an active elder workforce);
- to develop ICT solutions to help them stay independent and more active;
- to train them in acquiring self-care knowledge and better manage themselves;
- to create small non-threatening changes in their daily lives;
- to provide a consumption-related experience;

The societal partners in this effort are the government in cooperation primarily with University hospitals, and with pharmaceutical companies, doctors, paramedical staff and local authorities including academia experts (Figure 4). Patients are also a valuable link in the chain of health service.

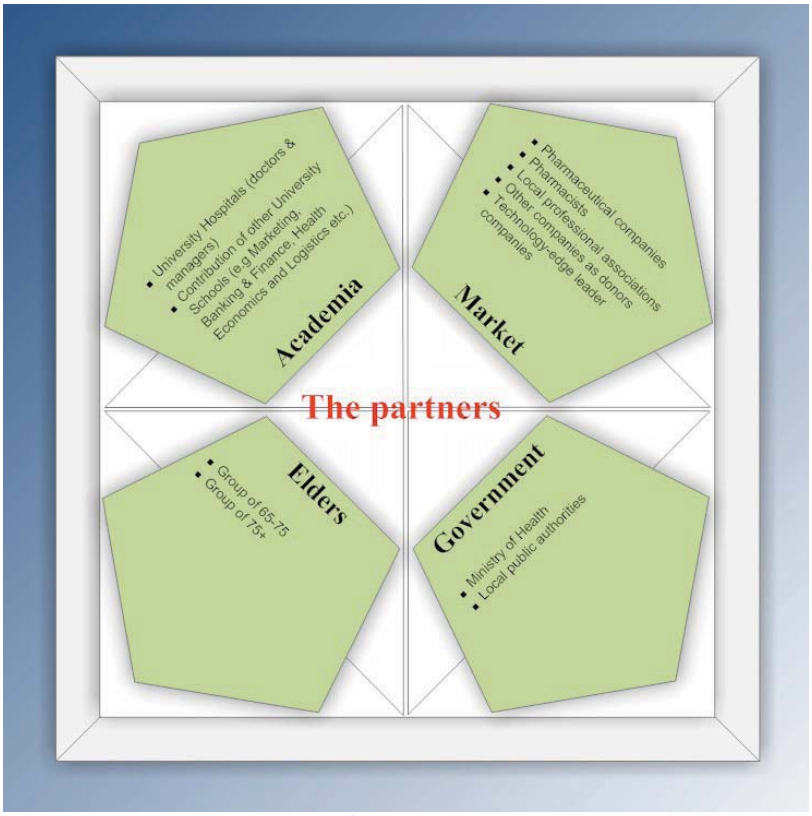

Figure 4 The partners.

3.2 Equity profile

The 65+ group, as discussed earlier, demonstrates vulnerabilities since it tries to cope with a number of difficulties stemmed from long-term conditions, on daily basis. Mediterranean countries still demonstrate a specialty in elderly care which stands through time. There is a significant number of elders who receive light care either from their spouse or from family members (family-based care model). The household status remains a significant parameter affecting their living conditions (*Table 8: Household status of persons aged 65+ (EU-27), 2009* [2]).

Moreover, in contrast to previous years, young people do not leave parental housing early. This, on the one side delays their initiatives to create their own family but, on the other side, guarantees in a sense, the provision of light health care to their parents (medication, simple health care practices, dietary etc.). At this point, it is worth to add that women are the main pillar in the family-based care model in Southern European countries [16]. Also, the recent collapse in the Eastern Bloc generated a big number of immigrants (mainly women) who offered their cheap and flexible nursing services for in-house or even in-hospital healthcare. This practise increased the out-of-pocket expenses for elders, but at least it was an alternative to fill in the public service gap. According to Bonnet et al [17] in coming years, demographic and social changes will increase the continuing burden of family support. In addition, the healthcare sector is expected to experience high pressure of work and shortage of care personnel due to increasing expenditures and financial burdens [18]. The most important consequence of life in this group is their gradual loss of autonomy through longevity.

3.3 Evidence and the possibility of effective regional action

In parallel to the change of age synthesis until 2030, this is expected to be accompanied by the cognitive and perceptual change of people belonging to these age-groups on that

time. Elderly are expected to have higher knowledge acquisition levels as well as be more acute and receptive regarding evolutionary practices. According to Barros et al [19], lifestyle and health attitudes define the health behaviour of people. These two parameters may be or not the causes of health inequalities. Moreover, elders are participants in the system and have equal responsibilities on its effectiveness and progress. The case of not using often the healthcare system may be a target within the desired limits. Using recursively the system deteriorates the quality of the regional human capital and it is an index of non-healthy inhabitants. On the other side, Barros et al [20] concluded that the elders with a greater degree of schooling are significantly more active than those with lower levels and have different mindset towards active ageing. Greece demonstrates both high levels of schooling among medium age people as well as a fairly higher ratio of life expectancy comparing to other European countries.

3.4 The target

Since the country is experiencing major reforms in healthcare sector, it will be a unique opportunity to proactively establish a separate framework for the elderly care, addressing the ones that need primarily light care. As implied earlier, the standardization in treatment might create inequalities. Therefore, the recommendation is to provide a separate additional healthcare service experience to the elders, which will aim to identify their health situation, prioritise their needs and secure that they will receive the necessary treatment according to their status. Elders, who belong to our watch group, will get into a regional health collaborative network which will provide light healthcare in their home environments through the accommodation of information and communication technologies. The intention is to create a smart environment of health provision where all partners will participate and contribute. The aim is to fulfil the priorities as discussed earlier through the use of this network. Actually this recommendation is inspired by the *European Commission's [21]* directive about extending active and independent living through Open and Personalised solutions (European Pillars of Active Ageing and Independent Living).

The practice of collaborative networks and assistive technologies is increasingly adopted especially when this refers to health issues [22][23][24][25][26]. Although this implies the use of tele-care platforms this service is not only this.

Since, it is expensive for the healthcare system to be used repetitively then the creation of regional smart environments in the country could be a solution in monitoring the priorities just described earlier. This could be achieved by reducing the demand for professional nursing and similar services through the use of smart environments. There are already used a number of different digital services in healthcare such as mobile web services, digital health in-house equipment [27].

The new service will operate within University hospitals. The University hospital will accommodate the "Office of Elderly Care" with the following responsibilities:

- to create a patient's registry starting from their data from their hospitals' visits;
- to cooperate with a network of public and private doctors and paramedical staff for exchanging information on elders;
- to define and upgrade the scope of services offered to the elders;
- to critically assess and supervise the services offered through certain feedback from the partners including the patients;
- to establish quality standards;
- to create a performance and appraisal internal system for the cooperative players;
- to keep elders active and productive through digital home programmes;
- to cooperate with a number of medical equipment suppliers;
- to create a mobile network using latest technology in order to keep mobile contact with all patients registered in their database;

- to classify elders according to their needs and living status and monitor them through the mobile network;
- to keep contact with elders' families and close persons (if any);

This service experience will work under the supervision of the government. It could be part of the public healthcare system but operating in a separate manner aiming to bring together the needs and the services. Government will act mainly as an agent. The supervision will be delegated to the University hospitals and to their management. The new framework does not intend to create inequalities of privileged services for the elders. On the contrary, it aims to exploit synergies and economies of scale.

Academia is expected to cope with this project in a professional manner and this could be a great opportunity to link theory with practice. The operation of such offices will be financed from the local authorities budgetary planning, as well as the hospitals and universities annual budgets. It will be a big challenge to attract external funds from companies and donors who will support this effort in exchange of extracting research results that will help the market.

3.5 The service delivery and its resources

Local initiatives in healthcare are helpful and may result as new paradigms for further replication. Given that currently Greece experiences structural reforms, any peripheral actions, in a decentralised and independently operational way is less risky, needs less money and could be implemented more easily providing quick effective results.

In Figure 5 is given the service delivery process which illustrates the flow of operations and the interrelation among participants. There will be a central data based system which will mainly administer and evaluate the data related to the lifestyle and medical needs of patients, who are members of the smart environment. This system will be in continuous interaction with the partners through an open connection (e.g. Community of Practice using cloud computing), using a private social interacting tool for exchanging and sharing information, knowledge and experience. The aim of this community will be to create a knowledge infrastructure for achieving the following targets:

- to help elders improving their lifestyles through nutrition control, physical activity, anti-smoke and anti-alcohol practices;
- to plan regular visits in their environments to ensure reducing of injuries and avoidance of other risks;
- to provide support for maintaining their mental health (mostly coping with depression and the derived disorders (violence-suicide) through social inclusion programs, development of social media for elderly, increased communication and bringing together the social capital of the elderly);
- to increase the in-house use of information and communication technologies (ICT);
- to encourage the idea of self-care;
- to pay special attention to elderly with chronic conditions (e.g. diabetes, cancer, other chronic diseases);
- to apply preventive practices in order to keep their healthy conditions;

A number of tools through the help of the research academia will be employed. Latest technologies such as robotics, near field communication (NFC) and radio frequency identification (RFID) are some of the developments which constitute the assistive technology used for elderly care. Technology at this stage could be used for collecting lifestyle pattern data towards the successful implementation of a health assessment [28]. Moreover, it provides a framework to create positive effects among elders since the benefits are increased. For example companion type robots help elders to cope with loneliness [29] and create a community environment through which they socially interact with others.

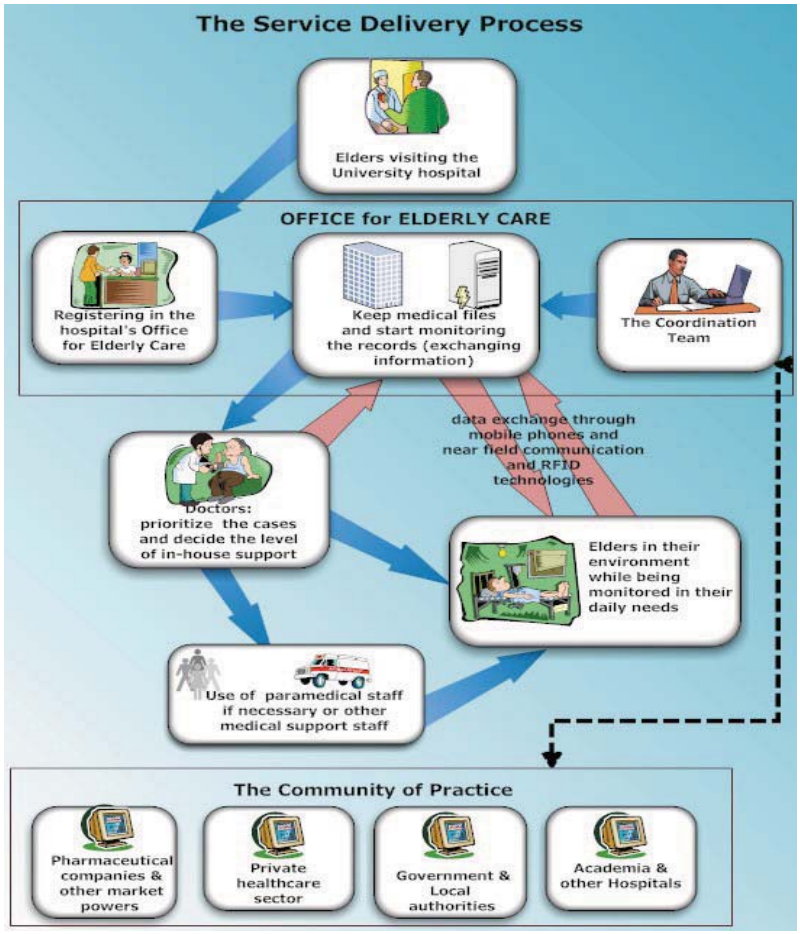

Figure 5 The Service Delivery Process – The Smart Environment.

Public intervention is necessary at this stage in the country, in order to establish this separate framework. As discussed earlier, although the initiative will act locally, the primary concern for establishing this framework is on government's side. Moreover, trying to integrate what above have been highlighted, the effort is suggested to incorporate a certain number of components and practices (Figure 6).

The government is almost certain that has to cope with the components of Economy-Society-HealthCare in terms of providing a secure framework for the specific social group. The 4-indoor-practices are suggested to be the main ground for further endorsement and implementation. The new service intends to be part of this broader framework.

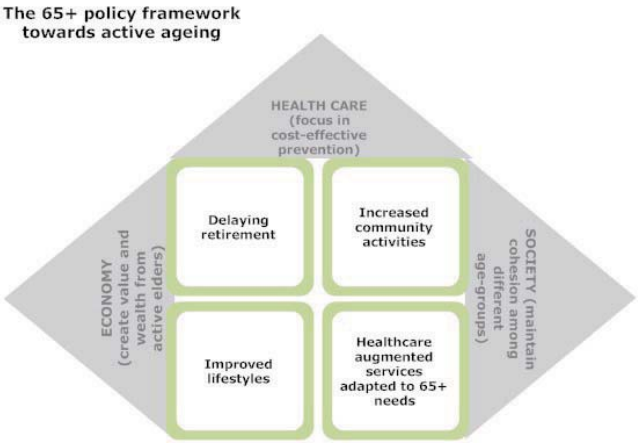

Figure 6 The Policy framework towards active ageing.

The new service needs a combination of existed resources and new investment. To be more precise, there is an attempt to register below the backbone resources required in order for the service to operate. In the next section on commissioning, there are some recommendations on how to fund the operation of this service.

Table 9 The backbone resources.

Resource	
Communities of Practice as a knowledge tool	Office & furniture
Doctors	Software
Paramedics	Ambulance/medical cars
Administrators	Medical equipment (technology orientated)
Managers	Mobile medical devices
Technology experts	Patients
PC Equipment	Family members of patients
Leased lines	

4. Challenges to commissioning the service

Probably the main challenge for the commissioning is to find the capacity and capability to turn competencies of the new service to excellence. But, to do that, first it is necessary to articulate the full range of commissioning activities. Therefore, it is recommended the commissioning to be supervised by the Hospitals' management team. They will be responsible to identify the priorities and elements for commissioning, as well as to have the full responsibility for the implementation and progress of the service.

The management team as commissioners would have to confront with the following additional challenges which are actually inspired from the *NHS World Class Commissioning Competencies Framework [30].*

- **Challenge (1) Communication:** to achieve effective communication among partners and to ensure the consensus in terms of mutual feedback in the operation of the new service.
- **Challenge (2) Process and Knowledge requirements:** to monitor process and knowledge requirements in order for the service to guarantee maximum health outcomes for the community.

- **Challenge (3) Stakeholders' Engagement:** to engage with public and patients in order to keep track of any changes in demands and needs and maintain continuous links with the healthcare base of the service.
- **Challenge (4) Collaboration:** to increase collaboration with medical society and staff in order to scrutiny service design and maintain clinical excellence in the service outcome.
- **Challenge (5) Knowledge Management & HNA:** according to World Class Commissioning Framework Competency 5 [31], the linking ingredients of commissioning are the management of knowledge and the health needs assessment in the right timing. Assessing the needs effectively directs in a successful commissioning framework which protects both patients and other healthcare partners *(Figure 7)*.

Figure 7 World Class Commissioning Framework Competency 5. [31]

- **Challenge (6) Investment plans:** to emphasize on investment plans; this will focus in maintaining the service levels high and the health outcomes excellent. To achieve this, it is recommended to establish an internal office of health economists, who will quantify, costing and measuring the demands. Also they will monitor risks, ratios and budgeting. In addition another primary concern of this office should be to find funds and financing. For example some possible sources of fund for the service could be through:

    1. the savings of social security funds
    2. the out-of-pocket spending
    3. the medical tourism
    4. the stock exchange (see the 65+ group as a high-promising emerging industry and capitalise on their trading assets)
    5. the donations which will be tax-free
- **Challenge (7) Interaction & stimulation of the market:** to increase the interaction with the health market, stimulating attitudes, culture and behaviours, enabling the participants to reveal their weaknesses and demonstrate their strengths. This will

serve as a measure to ensure that standards are met and outcomes are at the desired levels.

- **Challenge (8) Improvements and Innovative practices:** to achieve continuous improvements and use of innovative practices. The use of best practices through collaborative networks may help in adopting new technological tools.
- **Challenge (9) Procurement & Contracting:** to maintain procurement standards and ensure viable contracts. Use of risk is necessary as well as thorough investigation of time and value (timely contracts and service level contracts). Adopt the healthcare logistics mindset. Moreover compliance and accountability are two more concerns.
- **Challenge (10) Adjustment to the broader healthcare system:** to ensure cooperation of the new service with the existed healthcare system and to achieve incorporation of the new entity "Office of Elderly Care" in the broader health provision.

Nevertheless, as Ham [32] highlighted there are various difficulties in healthcare commissioning since healthcare is complicated by itself. Due to their nature health services are complex therefore it is difficult to contract on them.

5. Conclusions

It is a challenge to integrate economy into society. The increased life expectancy, unavoidably meets extending working lives [33][34]. Modern lifestyles and technology could be proved significant allies in the effort of designing an increased quality healthcare experience. Healthy ageing may direct to delayed retirement which in extent will raise the GDP of the country. A raised GDP is related to value and competitiveness which is expected to create wealth. A wealth society can spend more in healthcare since it owns adequate funds for social programmes. On the other hand, through the recommended service there is an attempt to minimise costs by using less the main healthcare system and move this demand to smart environments where elders will continue to receive care through interaction with experts.

Nevertheless, it is questioned if reforms and restructures in times of crisis direct to desired results. The challenge of internal devaluation that societies are trying to cope with, is testing their cohesion and limits of resilience. However, it is true that OECD, World Health Organization and other global organizations reinforce individual health programs within broader policy frameworks; they expect this to bring together different powers and practices in order to provide a certain service mutually benefited for elders and the society [35].

A cohesive society should periodically assess its dependency ratios on ageing as well as the future trends in ageing (*Figure 8: Old-age dependency ratio, Population aged 65+ in relation to the population aged 15-64; Projections 2015-2060, (EU-27)* [2], Figure 9: *Future trends in ageing, (2010 estimates), (European Union-27)* [2] & Figure 10: *Greece, Country's profile on demography and ageing* [1])

Their timely monitoring raises alerts and gives space for any future plans; thus, activate thoughts for new strategies that could be implemented quickly and effectively. Multi-morbidity and mortality as related to longevity and fertility are significant components of a well-balanced society which aims to ensure prosperity for its citizens. On the other hand, the unbalanced synthesis of age-groups in the society encompasses increased heterogeneity of its socioeconomic contexts. The proposed service framework has to fight with four obstacles in the same way that Holland and Rodie [36] identified in their study on perceptions on preventive health services. These are: (a) awareness, (b) social barriers, (c) psychological barriers, and (d) financial barriers.

This study intends to bring forth issues based on evidences and literature. Moreover, it aims to raise queries that exist behind governance principles. Current strategies and tools may be proven inadequate to confront with future challenges. Longevity and ageing are facts that neither could be neglected nor could be confronted as problems for the society through

the narrow lens of financing and cost management. Not far in time from now, mankind would have to face the new age synthesis which is expected to generate new shocks. Each crisis has its own characteristics. The recommended intervention does not aim to provide ready-made solutions rather than trigger new mindsets and infuse practices outside the box.

REFERENCES

1. Eurostat, (2010) *Demography Report 2010: Older, more numerous and diverse Europeans*. Commission Staff Working Document.
2. Eurostat, (2012) *Active Ageing and solidarity between generations: A statistical portrait of the European Union 2012*. Eurostat Statistical Books.
3. Mayhew, Leslie (2000) *Health and Elderly Care: Expenditure in an Ageing World.* International Institute for Applied Systems Analysis, Laxenburg, Austria.
4. Camarinha-Matos, M Luis and Afsarmanesh, Hamideh (2005) Infrastructures for collaborative networks – An application in elderly care. *SAINT'05 Symposium on Applications and the Internet,* IEEE Computer Society Press, p. 94-101.
5. Keck, Wolfgang and Saraceno, Chiara (2009) Balancing elderly care and employment in Germany. *Discussion Paper, Social Science Research Centre Berlin*, No. SP I 2009-401, p. 1-54.
6. McKinsey & Company (2012) Greece 10 Years Ahead: Defining Greece's new growth model and strategy. *Executive Report*, p. 1-72 (available at: http://www.mckinsey.com/locations/athens/GreeceExecutiveSummary_new/pdfs/Executive_summary_English.pdf (accessed on 09 April 2012).
7. World Health Organisation, (2010) Health Systems Financing: the path to universal coverage. *The World Health Report*.
8. Whitney, David (2012) Contemporary Issues in Healthcare Management: Clinical Governance. *The University of Sheffield module material*, MBA in Healthcare Management.
9. Eurostat, (2010) *Demography Report 2010: Older, more numerous and diverse Europeans*. Commission Staff Working Document.
10. McKinsey & Company (2012) Greece 10 Years Ahead: Defining Greece's new growth model and strategy. *Executive Report*, p. 1-72 (available at: http://www.mckinsey.com/locations/athens/GreeceExecutiveSummary_new/pdfs/Executive_summary_English.pdf (accessed on 09 April 2012).
11. European Commission, (2012) Taking forward the Strategic Implementation Plan of the European Innovation Partnership on Active and Healthy Ageing. *Communication from the Commission to the European Parliament and the Council,* COM(2012) 83 final, p. 1-15.
12. Holland, Jonna and Rodie, Amy Risch (2011) Growing old and living alone: perceptions of preventive health services. *Journal of Management & Marketing in Healthcare*, 4(2), p. 113-121.
13. McKinsey & Company (2012) Greece 10 Years Ahead: Defining Greece's new growth model and strategy. *Executive Report*, p. 1-72 (available at: http://www.mckinsey.com/locations/athens/GreeceExecutiveSummary_new/pdfs/Executive_summary_English.pdf (accessed on 09 April 2012).
14. Oxley, Howard (2009) Policies for Healthy Ageing: An Overview. *OECD Health Working Papers No. 42*, DELSA/HEA/WD/HWP(2009)1, p. 1-32.
15. Harris, Janet (2012) Contemporary Issues in Healthcare Management: Health needs assessment and commissioning. *The University of Sheffield module material*, MBA in Healthcare Management.
16. Bettio, Francesca et al (2006) Change in care regimes and female migration: the care drain in the Mediterranean. *Journal of European Social Policy*, 16(3), p. 271-285.
17. Bonnett, Carole et al (2011) Elder care and dependence: no longer just a women's concern? *Journal of Population & Societies*, 483, p. 1-4.
18. Verleye, Katrien and Gemmel, Paul (2011) Innovation in the elderly care sector – at the edge of chaos. *Journal of Management & Marketing in Healthcare*, 4(2), p. 122-128.
19. Barros, Marilisa Berti de Azevedo et al (2011) Social inequalities in health among the elderly. *Cad. Saude Publica,* Rio de Janeiro, 27 Sup 2: S198-S208.
20. Barros, Marilisa Berti de Azevedo et al (2011) Social inequalities in health among the elderly. *Cad. Saude Publica,* Rio de Janeiro, 27 Sup 2: S198-S208.

21. European Commission, (2012) Taking forward the Strategic Implementation Plan of the European Innovation Partnership on Active and Healthy Ageing. *Communication from the Commission to the European Parliament and the Council,* COM(2012) 83 final, p. 1-15.
22. Camarinha-Matos, M Luis and Afsarmanesh, Hamideh (2001) Virtual Communities and Elderly Support. *Advances in Automation, Multimedia and Video Systems, and Modern Computer Science,* p. 279-284.
23. Miskelly, G Frank (2001) Assistive Technology in elderly care. *Journal of Age and Ageing*, British Geriatrics Society, 30, p. 455-458.
24. Hori, Toshio et al (2004) Sensor Network for Supporting Elderly Care Home. IEEE Publications, p. 575-578.
25. Camarinha-Matos, M Luis and Afsarmanesh, Hamideh (2005) Infrastructures for collaborative networks – An application in elderly care. *SAINT'05 Symposium on Applications and the Internet,* IEEE Computer Society Press, p. 94-101.
26. Broekens, Joost et al (2009) Assistive social robots in elderly care: a review. *Journal of Gerontechnology*, 8(2), p. 94-103.
27. Jih, Wang-rong et al (2006) Context-Aware Service Integration for Elderly Care in A Smart Environment. *American Association for Artificial Intelligence*.
28. Miskelly, G Frank (2001) Assistive Technology in elderly care. *Journal of Age and Ageing*, British Geriatrics Society, 30, p. 455-458.
29. Broekens, Joost et al (2009) Assistive social robots in elderly care: a review. *Journal of Gerontechnology*, 8(2), p. 94-103.
30. NHS, (2007) *World Class Commissioning Competencies Framework*. Best Practice Guidance, UK Department of Health, Gateway Reference 8754.
31. Harris, Janet (2012) Contemporary Issues in Healthcare Management: Health needs assessment and commissioning. *The University of Sheffield module material*, MBA in Healthcare Management.
32. Ham, Chris (2011) Health Care Commissioning in the International Context: Lessons from Experience and Evidence. *Report of Health Services Management Centre*, University of Birmingham, http://www.hsmc.bham.ac.uk/news/TowardsCommissioningCompetency.pdf *(accessed on 05 June 2012).*
33. Jacobzone, S. (1999) Ageing and Care for Frail Elderly Persons: An Overview of International Perspectives. *OECD Labour Market and Social Policy Occasional Papers No. 38*, OECD Publishing.
34. Oxley, Howard (2009) Policies for Healthy Ageing: An Overview. *OECD Health Working Papers No. 42*, DELSA/HEA/WD/HWP(2009)1, p. 1-32.
35. Oxley, Howard (2009) Policies for Healthy Ageing: An Overview. *OECD Health Working Papers No. 42*, DELSA/HEA/WD/HWP(2009)1, p. 1-32.
36. Holland, Jonna and Rodie, Amy Risch (2011) Growing old and living alone: perceptions of preventive health services. *Journal of Management & Marketing in Healthcare*, 4(2), p. 113-121.
37. Jacobzone, S. et al (1999) The Health of older persons in OECD countries: Is it improving fast enough to compensate for population ageing?. *OECD Labour Market and Social Policy Occasional Papers No. 37*, OECD Publishing.

(Full tables and figures of the paper could be found at:
http://www.ergen.gr/files/ICEIRD2013_EvangelosErgen_ElderlyCareCopingWithLTC.pdf**)**