

## Policy

# **Special series: Integrated primary health care** **Integrated primary health care in Greece, a missing issue** **in the current health policy agenda: a systematic review**

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## Abstract

**Background:** Over the past years, Greece has undergone several endeavors aimed at modernizing and improving national health care services with a focus on PHC. However, the extent to which integrated primary health care has been achieved is still questioned.

**Purpose:** This paper explores the extent to which integrated primary health care (PHC) is an issue in the current agenda of policy makers in Greece, reporting constraints and opportunities and highlighting the need for a policy perspective in developing integrated PHC in this Southern European country.

**Methods:** A systematic review in PubMed/Medline and SCOPUS, along with a hand search in selected Greek biomedical journals was undertaken to identify key papers, reports, editorials or opinion letters relevant to integrated health care.

**Results:** Our systematic review identified 198 papers and 161 out of them were derived from electronic search. Fifty-three papers in total served the scope of this review and are shortly reported. A key finding is that the long-standing dominance of medical perspectives in Greek health policy has been paving the way towards vertical integration, pushing aside any discussions about horizontal or comprehensive integration of care.

**Conclusion:** Establishment of integrated PHC in Greece is still at its infancy, requiring major restructuring of the current national health system, as well as organizational culture changes. Moving towards a new policy-based model would bring this missing issue on the discussion table, facilitating further development.

## Keywords

**integrated care, continuity, primary health care, policy, Greece**

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## Introduction

Emerging demographic changes, mental health issues affecting individual and community well-being and global pressures of supply and demand present international challenges for any effort to reshape a health system, especially in countries with strained financial and human resources. Primary health care's contribution in promoting health, preventing debilitating disease and reducing disability has positioned it as a key player around the health care reform discussion table. Integration, defined as the actual provision of services one needs at the time they are needed [2], is a key issue of contemporary primary health care. 'Community-based integrated care' is a strategic vision that promotes more joined and consistent action of the health care workforce towards improved performance, thus maximizing population health. In light of this definition, the focus is on multidisciplinary teams, rather than individuals, with partners recognizing, valuing and trusting each others' rationales to meet shared endpoints [3] in the provision of qualitative and comprehensive health care services.

Achieving integrated PHC is an extremely tedious and arduous process, with inherent tension between those who advocate targeted integration of care (vertical) for priority conditions and those who advocate comprehensive integration (horizontal) that builds healthy communities. Both vertical and horizontal integration are needed and without the presence of both, there is fragmentation and discontinuity in health outcomes [2]. International organizations are currently discussing the integration of mental health care services into PHC with a relevant report, developed by WONCA and WHO [4], illustrating the importance and urgency of this endeavor. During the past few months, integration of PHC through the development of super surgeries and polyclinics was on the front page of a daily newspaper in the UK. Similarly in other countries and regions, such as Australia, the USA, Canada, and Northern Europe [5–7], there is clearly the political will and a cross-governmental approach to integrate services, providing a continuum of seamless care to health care consumers.

The case of Greece is an example of a Southern European country still striving to set health care priorities [8], struggling to allocate scarce resources [9], not always in the most cost-effective or quality assuring way [10]. In terms of organization, the Greek health care system is characterized by the co-existence of the National Health System (NHS), a mandatory social insurance (SI) and a voluntary private health insurance system. The NHS provides universal coverage to the Greek population, operating under the principles of equity, equal access and social cohesion. In addition, 97% of

the population is covered by approximately 35 different social insurance funds (comprising the mandatory SI), while 8% of the population maintains complementary voluntary health insurance coverage. Privately purchased health services in Greece are funded, almost equally, by public and private sources. Public expenditure is financed by taxes (direct and indirect) as well as by mandatory health insurance contributions, made by employers and insured persons [11]. Voluntary payments by individuals or employers represent 42% of total health expenditure (2002), making the Greek health care system one of the most 'privatized' among European Union (EU) countries.

Despite attempts to decentralize the governance of NHS with horizontal integration of regional health and welfare services, its main structure and orientation remains vertical, with a top-to-down approach and one central point for decision-making. Primary health care in the public sector is delivered through a dual system, consisting of PHC centers and hospital ambulatory (outpatient) services that belong to the NHS, and 350 primary care units that belong to the largest SI fund (IKA) with 5.5 million beneficiaries. As a result of the high ratio of physicians per 100,000 inhabitants, one of the highest in the EU, combined with one of the lowest ratios of nurses, there is a strong emphasis on curative services, rather than health promotion, disease prevention, rehabilitation and home care services.

Over the past years a few attempts, aimed at modernizing and improving the Greek NHS with a specific reference to PHC, have been initiated but have not been followed-up by subsequent Health Ministers and administrators [12–15]. Issues of integrated PHC have not received prompt attention at a time when in the international arena policy makers and practitioners have been discussing PHC reform [16] and the potential impact on PHC integration of certain barriers related to patients, health care professionals or organization. Recently, the Greek Ministry of Health and Solidarity brought into consultation a legislative framework for the organization and operation of a reformed PHC system. However, integrated PHC remained absent from this proposed legislative health plan. Thus, we decided to systematically review the literature with the aim to identify constraints and opportunities as well as to address priorities towards the development of an integrated PHC policy for Greece.

## Methods

### Study design

A full systematic review, employing both electronic and hand search techniques, was undertaken to investigate

the extent to which integrated PHC is considered to be a key issue in the current research, educational and policy agenda in Greece. The operational definition adopted for integration included “a coherent set of methods and models on the funding, administrative, organizational, service delivery and clinical levels designed to create connectivity, alignment and collaboration within and between the cure and care sectors” [17 p. 3]. For the purposes of this review, integration was regarded to occur at the following four levels [16, 18]:

- *Functional integration* occurring at the macro level of the care system, i.e. through the mainstreaming of financing and regulation of cure, care, prevention, and social services.
- *Organizational integration* occurring at the meso level of systems, i.e. in the form of mergers, contracting or strategic alliances between health and social care institutions.
- *Professional integration* occurring at the meso level, i.e. in the form of mergers (group practices), contracting or strategic alliances between health care professionals.
- *Clinical integration* occurring at the micro level, i.e. by providing continuity, co-operation and coherence in the primary process of care delivery—integration is at the individual level of care.

An advisory group assisted in the development of review questions and procedures as well as in the identification of the specific areas within the topic that would be most useful to scrutinize in-depth. A protocol was set out before the review, providing explicit information on the methods to be employed. The review was undertaken by a multidisciplinary team of researchers with a public health research background (MS, CV, AM, MP).

## Study selection and inclusion criteria

The review was limited to published sources of evidence. Two electronic databases and four Greek scientific journals were explored. A broad range of evidence types was addressed, including various research designs and policy, review as well as original papers, clinical practice experiences, user analytic and opinion evidence with a focus on completed studies and secondary source research. The review included all papers published in English or Greek language between January 1999 and August 2008.

To deal with the heterogeneity of studies, a two-stage review was employed to assess the relevance of findings. At the first stage, a wider group of thematic fields was included to enable mapping and exploration of the whole field of policy related to ‘integrated primary

health care’. At the second stage, this group was narrowed down to a sub-set of studies with a focus on policy implication, according to what extent barriers and facilitators of PHC integration were addressed within the identified papers. We included all papers that contained either a statement of a decision regarding a goal or plan for implementing integrated PHC, or reported on how policy for integrated primary care was made or its influence in policy markets. Publications not addressing these particular areas or solely focusing on clinical topics were excluded from the review. All of the above comprised our study inclusion criteria.

Quality assessment criteria were developed to gain an understanding of the relative strengths and weaknesses of the body of evidence to be taken into account during the process of synthesis. Consensus procedures were employed to define the criteria for quality assessment and checklists were developed to facilitate this task. Among the quality assessment criteria were: a) quality of reporting (adequacy of reporting important aspects of methodology), b) quality of an intervention (whether it has been used appropriately) and c) generalizability (to what extent routine practice or the usual setting was reflected).

## Electronic search

The electronic search was performed during August 2008 by two researchers (CV, MS) in two databases; MEDLINE and SCOPUS from 1999 to August 2008. The search in SCOPUS was limited to the following pre-defined scientific fields, linked with financial, technological and social aspects of integration in PHC:

- Medicine
- Nursing
- Health professions
- Computer science
- Social sciences
- Business and management

Searches were conducted using a set of pre-defined Medical Subject Heading (MeSH) terms, specified by the review advisory group. The terms employed were *{Delivery of Health Care} AND {Integrated} AND {Greece} OR {Primary Health Care} AND {Greece}*. A first decision was made based on titles and, where available, abstracts, which were assessed against the inclusion criteria. For publications that appeared to meet the inclusion criteria, or in cases when a definite decision could not be made based on the title and/or abstract alone, the full paper was obtained for detailed assessment against the inclusion criteria. Reference lists of all included studies were also searched for eligible studies missed by the electronic search. Citation

searching was also conducted selecting a number of key papers, already identified in the review, and then searching for publications that had cited these papers. This approach ensured identification of a cluster of related, and therefore, highly relevant, papers. One reviewer (MS) was responsible for identifying and removing duplicate references for publications that appeared to meet the inclusion criteria.

## Hand search

Since electronic databases are per definition prone to language and geographical biases, an additional hand search was performed in the following four Greek journals, non-indexed in PubMed: *'Iatriki'*, *'Protovathmia Frontida Ygeias'*, *'Nosileftiki'* and *'Koinoniki Ergasia'*. The specific journals were selected as the leading scientific journals in the fields of medicine (generic), primary health care, nursing and social work, respectively. Two researchers (AM, MP) appraised all volumes published during the pre-selected time period. During the first stage, the titles, abstracts and keywords were assessed against the inclusion criteria and then full text was retrieved for publications meeting inclusion criteria. At the second stage, full text was reviewed and evaluated against quality assessment criteria. Any discrepancies in decisions were discussed in depth by the research team and the article was included or excluded, accordingly.

## Data extraction

Standardized data extraction forms were used, designed according to the review objectives, capturing information required for descriptive purposes and for later analyses. Recorded features of the included publications were as follows: first author's name, year of publication, journal's origin (international or Greek), level of integration [18], level of outcome change [19] and study topic. Three researchers (MS, AM, MP) extracted the data and another researcher (CL) independently checked the data extraction forms for accuracy and completeness. Disagreements noted were resolved by consensus among researchers and in certain cases by an additional independent researcher. A record of corrections was kept for future reference.

## Results

### Studies identified

Our electronic search of the literature identified 161 published studies. Upon reviewing all of them, 27 manuscripts from MEDLINE and 26 from SCOPUS papers

were appraised as relevant to the scope of this particular study. When common articles were removed, a total number of 34 articles were selected for further scrutiny. Upon in depth review of these electronically-searched articles, consensus was reached on 26 as meeting all inclusion criteria (Table 1).

Manual search of four national Greek journals resulted in another 37 relevant articles which, upon further scrutiny, were reduced to 27 as meeting all inclusion criteria (Table 2).

Thus, a total of 53 electronic and paper publications were found to be within the scope of our review. A schematic view of the above search strategy and outcomes is illustrated in Figure 1.

Classification of articles by level and type of integration as well as by level of outcome change is presented in Tables 3 and 4, respectively.

The Appendix contains a complete list, alphabetical by author, of the papers reviewed for the present study.

## Main findings

Starting in the year 2000, several editorials, proposals and reports were published with a focus on client satisfaction and improved coordination between outpatient hospital services and PHC [12, 20–23]. Continuity of care through the management of common episodes of care by the same health team over time has remained an unmet need within primary care delivery in Greece [14, 15, 24–26]. Furthermore, the management and processing of information through the use of a common electronic medical record system with a user-friendly interface have often been the objectives of research proposals and pilot projects during the last decade [27–33]. The development of an e-health care network within primary care settings has been linked with the benefits of real time access to clinical information and reliable research materials, data protection as well as community health 'surveillance' [28, 34]. Consequently, the role of technology and telematic systems in the use of clinical information in a country with geographic and bureaucratic barriers has been viewed as a priority. Although it is well-established that educational, training and awareness raising activities are required for adoption and maintenance of electronic health record services [33, 35], implementation of technology alone is not sufficient to cover policy or legislative gaps and other organizational deficiencies [20, 31, 36]. An equally significant issue is the application of scientific models to regulate health care use, eliminating waste, by supporting better utilization and allocation of resources within a national strategic health care plan [22, 37].

**Table 1.** Electronic search literature review results (PUBMED and SCOPUS)

Authors	Publication year	Journal origin	Level of integration (according to Delnoj et al., 2001)	Level of outcome change (according to Grol and Grimshaw, 2003)	Study topic
Chatziarsenis et al.	1999	International	Clinical	Team/Unit	Specific actions should be undertaken at a local level, including implementation of promotional and educational programs, and actions to assess population's perceptions and expectations.
Grammatikou et al.	2000	International	Organizational	Hospital/Health Center	Discusses a pilot technological implementation in progress towards a PHC workflow model.
Lionis et al.	2001	International	Clinical	Individual/ Professional	Reports on the need for better education and training of primary care physicians in Crete regarding early diagnosis and management of Alzheimer's disease.
Lappas	2002	International	Organizational	Hospital/Health Center	How to ensure that the information management process provides a mechanism to measure and manage any health enterprise through the use of e-technology and telemedicine.
Tountas et al.	2002	International	Functional	Hospital/Health Center	Reports on reform priorities including decentralization, improvement of social insurance financing system, development of urban primary care units and changes to hospital management.
Zavras et al.	2002	International	Functional	Hospital/Health Center	Development of a national health care chart, matching available resources to the population health care needs.
Anogjianakis et al.	2003	International	Clinical	Individual/ Professional	Reports on a prison telemedicine pilot project and its potential to improve and streamline the quality of care available to prisoners.
Malamateniou et al.	2003	International	Organizational	Hospital/Health Center	Presents a virtual patient record framework that allows integrating geographically—dispersed medical information.
Souliotis and Lionis	2003	National	Functional	Hospital/Health Center	Proposes certain structural reforms for better functioning of primary care services.
Lionis et al.	2004	International	Functional	Hospital/Health Center	Promoting actions for implementing clinical governance and quality programs in a rural PHC setting in Crete.
Orphanoudakis	2004	International	Organizational	Hospital/Health Center	Discusses challenges encountered in developing a regional health information network in Crete.
Souliotis and Lionis	2005	International	Functional	Hospital/Health Center	A proposal for an integrated PHC system in Greece.
Belos et al.	2005	International	Clinical	Individual/ Professional	Presents gained teaching experiences of practice-based primary care in rural Crete.
Vivilaki et al.	2005	International	Clinical	Individual/ Professional	Describes educational pathways and midwives' role in increasing women's compliance rate in cervical screening programs.
Bellali and Kalafati	2006	International	Professional	Team/Unit	Explores needs and the role of mental health nursing specialty in Greece towards mental health reform.
Maglavera et al.	2006	International	Organizational	Hospital/Health Center	Describes pathways to support a continuous home monitoring service aiming at reduction of hospitalization rates and improvement of healthcare delivery.
Markaki et al.	2006	International	Professional	Individual/ Professional	Educational background of PHC nursing staff has little effect in practice role variations and professional needs.
Mitropoulos et al.	2006	International	Organizational	Hospital/Health Center	Describes the necessity of national strategic planning to ensure better use of available resources through the use of applied scientific approaches for resource allocation.

Table 1 (Continued)

Authors	Publication year	Journal origin	Level of integration (according to Delnoj et al., 2001)	Level of outcome change (according to Grol and Grimshaw, 2003)	Study topic
Panagopoulou et al.	2006	International	Clinical	Individual/Professional	A project illustrating integration of communication, clinical and research skills in medical education.
Pappa and Niakas	2006	International	Organizational	Hospital/Health Center	Describes potential implications towards proper allocation of scarce health resources.
Chronaki et al.	2007	International	Organizational	Team/Unit	Underlines the need for continuous training, incentives, and awareness initiatives to increase the use of electronic health records.
Eustathiou et al.	2007	International	Professional	Team/Unit	Describes the need to employ nurses to assist primary care, home care, day care and palliative care services.
Katechakis et al.	2007	International	Organizational	Hospital/Health Center	Supports implementation of evidence-based medicine through the use of e-health records.
Markaki et al.	2007	International	Clinical	Individual/Professional	Assesses professional development needs of nursing staff in Greek primary care settings.
Pierrakos and Yfantopoulos	2007	National	Organizational	Team/Unit	Reports on patients' dissatisfaction with rural primary care services.
Kastania	2008	International	Organizational	Hospital/Health Center	Explores pathways to build integrated PHC telemedicine services.

Coordinated care in the patient's own environment, through a comprehensive interplay of health and social care providers is regarded as the ideal pathway, safeguarding equity, patients' rights for care, cost-effectiveness and efficiency [38–42]. The need for establishment of efficient referral pathways and services involving community nurses, social workers, psychologists and other health professionals has been underlined [14, 25, 43]. Providing formally instituted incentives for primary care professionals towards life-long training, research capacity development and expertise building has also been emphasized in several publications [35, 44–48]. Service agreements between PHC providers and regional health authorities, establishment and operation of the PHC team and routine evaluation of quality of services based on internationally accepted, culturally adapted tools have all been debated or even piloted by Greek investigators [13, 14, 38, 39, 49].

## Discussion

### Main trends

Despite the numerous papers, reports and editorials published mostly during the last decade, development of integrated PHC, based on this review, still remains a neglected subject in the current health policy agenda in Greece. This is the main finding of our systematic review which, although limited to only two databases

and focused mostly on health care research rather than policy literature, seems to be conclusive. It has been recognized that most of the times, national health planning has not been carried out in the context of evidence-based practice or a comprehensive health needs assessment [23, 24, 34, 42]. Differences across the country between urban and rural primary care provision patterns [43, 50] as well as practice variations between NHS and major national Health Maintenance Organizations [10, 22] or private primary care providers have greatly contributed in the fragmentation and discontinuity of health care services [12, 14, 26, 39].

Although our review identified some papers calling for integration of primary care services [14, 39], including those reporting on attempts towards clinical governance practices [13], and collaborative initiatives with local authorities in establishing community outreach programs [26, 42, 51, 52], Greece still operates under a conventional primary care management perspective. Even the new primary health care act, introducing the concepts of a personal physician and polyclinics in Greece, does not promote integrated PHC measures. Thus, it was not surprising that our review revealed only one study comparing integrated primary care measures vs. conventional primary care management [13]. The study, implemented in Crete in 2004 based on a pioneering health policy initiative, presented some promising outcomes but had no continuity due to withdrawal of governmental and legislative support.

**Table 2.** Hand search literature review results (4 Greek journals)

Authors	Publication year	Journal origin	Level of integration (according to Delnoj et al., 2001)	Level of outcome change (according to Grol and Grimshaw, 2003)	Study topic
Kalokerinou and Lamprou	2000	Nosileftiki	Organizational	Team/Unit	Need for establishment of family nursing—definition, implementation, implications for PHC in Greece.
Kyriopoulos and Lionis	2000	PFY	Clinical	Team/Unit	The role and impact of GPs in high quality PHC—the use of open care networks.
Kyriopoulos et al.	2000	PFY	Functional	Hospital/Health Center	Analysis of shortcomings of Greek NHS and recommendations for restructuring with emphasis on PHC and establishment of open care networks.
Lionis and Merkouris	2001	PFY	Clinical	Team/Unit	Recommendations for the establishment of GP/ Family Medicine in order to increase effectiveness and comprehensiveness of PHC.
Priami	2001	Nosileftiki	Professional	Team/Unit	Community mental health nurse—definition, role, implications for PHC.
Zafiropoulou	2001	Koinoniki Ergasia	Clinical	Individual/Professional	The use of a jigsaw model for inter-professional teamwork within a home care program for cancer sufferers.
Douka	2002	Koinoniki Ergasia	Clinical	Individual/Professional	Weaknesses and problems faced by Greek PHC and the need for introducing family physicians, developing collaboration with community services and promoting inter-professional dialogue and health care teams.
Koutis and Fiolitakis	2002	Iatriki	Organizational	Team/Unit	Development of a social demography database and a database of unmet health/social care needs for a Cretan population. Community as an ideal environment for primary prevention and social care programs.
Kritsotakis	2002	Nosileftiki	Organizational	Hospital/Health Center	The concept of community participation in relation to PHC and its use in models of health promotion.
Kavoura et al.	2003	Nosileftiki	Professional	Hospital/Health Center	Identification of quantitative and qualitative needs for nursing personnel to achieve optimal coverage in PHC.
Thireos et al.	2003	PFY	Clinical	Team/Unit	Cooperation and interrelation of staff in PHC centers in Attika.
Tsirintani and Binioris	2003	Nosileftiki	Professional	Hospital/Health Center	Development of contemporary strategic planning in Greece—nurses' new roles within regional health systems.
Kotzabassaki	2004	Nosileftiki	Professional	Team/Unit	Nursing education in Greece—current developments, future changes, perspectives (orientation in PHC, autonomy in nursing practice, culturally diverse populations, multi-professional teams, research involvement).
Pournaras et al.	2004	Nosileftiki	Clinical	Individual/Professional	Educational needs of student nurses in regards to transcultural care. Greek nursing education lacks cultural sensitivity and exposure.
Pilli et al.	2005	Nosileftiki	Clinical	Team/Unit	Exploration of interdisciplinary collaboration in PHC centers in Greece.
Stilianidis and Zisi	2005	PFY	Clinical	Individual/Professional	A pilot project providing training of PHC practitioners on psychiatry—experiences from a Mobile Unit in NE Cyclades.
Kolovos and Sourtzi	2006	Nosileftiki	Organizational	Hospital/Health Center	Priority setting in planning health care services—allocation based on priorities.
Pierrakos et al.	2006	Nosileftiki	Professional	Hospital/Health Center	Training needs and vocational training of human resources in the health sector.
Sarris et al.	2006	Nosileftiki	Professional	Individual/Professional	Evaluation of training centers within the health sector.

Table 2 (Continued)

Authors	Publication year	Journal origin	Level of integration (according to Delnoj et al., 2001)	Level of outcome change (according to Grol and Grimshaw, 2003)	Study topic
Vivilaki et al.	2006	PFY	Clinical	Individual/Professional	Community postnatal care led and delivered by midwives enhances quality of services offered at a community level.
Lonis and Markaki	2006	PFY	Clinical	Team/Unit	The new role of nurses in PHC mandated by international developments—Greek realities.
Kolovos and Sourtzi	2007	Nosileftiki	Organizational	Team/Unit	Impact of citizen participation in decision-making process, planning, delivery of care is still minimal.
Kounalakis et al.	2007	PFY	Clinical	Individual/Professional	Creation, application, evaluation of an electronic pt. records system suitable for PHC in Greece—experiences from a study in Crete.
Mariolis et al.	2007	PFY	Clinical	Team/Unit	Health needs assessment in special areas—the paradigm of Mani. An extended PHC network is recommended to improve services.
Tsiantou et al.	2007	PFY	Functional	Hospital/Health Center	Description and role of open maintenance networks operating in the UK and Canada. Potential for implementation of such networks in Greece with the contribution of local authorities.
Markaki et al.	2008	PFY	Clinical	Team/Unit	Job description and professional development needs assessment of nursing staff in rural PHC Centers.
Kommatas et al.	2008	PFY	Functional	Hospital/Health Center	Need for modernization of NHS to respond to consumer demands—response from Ministry of Health through a public consultation process to formulate legislation integrating PHC services.

From a theoretical perspective, integrated PHC has been seen as a solution to problems related to planning, funding, operation and effectiveness of the Greek health care system [43]. Particularly, the absence of prevention and health promotion services in the community [48, 53, 54] as well as the shortage of PHC staff and equipment in rural primary care centers [14, 28, 35, 44, 55–57], seem to contribute to the low level of integrated PHC in Greece. The gap observed between theory and practice [23, 24, 50, 57], as revealed from this systematic review, could be attributed to the limited research capacity in PHC and the lack of evidence-based knowledge, impacting on the ability of the Greek NHS to provide a seamless continuum of PHC services.

### Towards policy development of integrated PHC: where does Greece stand?

Based on outcomes of this review, it is clear that contemporary Greece is lagging behind in policy development towards integrated PHC. The bold attempt towards health care reform and integration of regional health and welfare services made by the legisla-

tive act of 2001 has been negated or inactivated by recent legislation. Thus, the PHC policy initiative in the region of Crete was short-lived, without any imitators. The Greek NHS remains conventional, pyramid-based and medically-oriented. Empirical research, implemented by the National School of Public Health and the Department of Social Medicine at the University of Crete, seems to have no impact on health policymakers' intentions towards integrated PHC. In order to move forward, legislators and Ministry of Health and Solidarity administrators need to address new challenges, including poverty, population aging, increasing health care expenditures and limited resources. The rapidly changing pattern of morbidity in Greece, with mental disorders and cardiovascular diseases being the predominant disease entities, signals the urgency for adopting an integrated PHC policy.

A more organized approach in primary care, with easily accessible community health centers (CHC) located in neighborhoods, as suggested by Han van Oosterbos [58], seems to be suitable in the current Greek setting. This approach implies transfer of resources to local authorities, an on-going request in Greece, as well as a suitable legislative framework [24, 26]. The experiences gained in Crete [13] advocate towards this

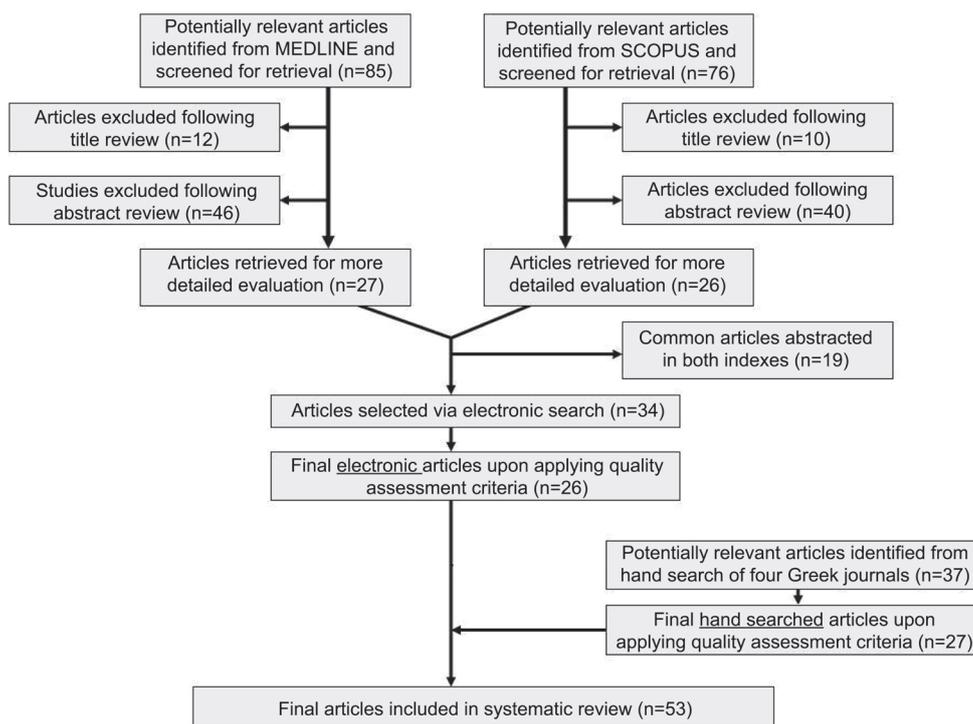


Figure 1. Literature search and strategy outcomes.

Table 3. Classification of articles by level and type of integration (n=53)

Level of integration (according to Delnoj et al., 2001)	Number of studies/literature reviews	Type of integration (vertical vs. horizontal)	Conclusions
Functional	8	Vertical (1) Horizontal (7)	Primary emphasis of interventions at a micro level, followed by interventions at a meso level. A total of 36 studies/reviews on vertical (targeted) integration and 17 on horizontal (comprehensive) integration.
Organizational	16	Vertical (11) Horizontal (5)	
Professional	9	Vertical (6) Horizontal (3)	
Clinical	20	Vertical (18) Horizontal (2)	

Table 4. Classification of articles by level of outcome change (n=53)

Level of outcome change (according to Grol and Grimshaw, 2003)	Number of studies/literature reviews	Type of integration (vertical vs. horizontal)	Conclusions
Hospital/Health Center	22	Vertical (8) Horizontal (14)	Focus of implementation on resources/organization.
Team/Unit	17	Vertical (15) Horizontal (2)	Focus of implementation on social influence and leadership.
Individual/Professional	14	Vertical (12) Horizontal (2)	Focus of implementation on attitudes, motivation, routines and cognition.

direction, with geographical and cultural characteristics of the Greek population favoring the development of CHCs. It has been argued that the introduction of a minimum package of health care services mandated by the Greek government should be introduced in the current political agenda [39]. Changes in the academic

curriculum towards the introduction of interdisciplinary and problem-based undergraduate education are considered essential in establishing an integrated PHC system and promoting effectiveness and efficiency of services offered [53, 55, 56, 59, 60]. Research funds should also be allocated to test the effectiveness of

certain organizational and administrative schemes within Greek settings.

Integrated PHC requires a multidisciplinary team approach, assigning new roles to primary care providers. Development of new roles for all disciplines, and revision of existing job descriptions, is a critical task that should be undertaken at a legislative, policy and administrative level uniformly for all health regions of Greece [15, 25, 45, 48, 50, 53, 57, 61]. Debating which roles should be assigned to PHC teams or individuals in a multidisciplinary primary care setting, and how various initiatives can be integrated within different levels of care, present promising areas for future research [62–65], in line with international experience [66].

The potential leadership role and level of involvement of Greek nurses towards integrated health care has only recently been pursued as a policy topic. Poor research skills and lack of interest and knowledge in evaluating outcomes of care, for the majority of Greek nurses employed in PHC [44, 45, 49, 57, 65], have resulted in lack of evidence concerning nursing's contributions to service organization management, cross-boundary working, management of resources and workforce development. Similarly, social workers have been striving to claim a role within PHC settings, with the discipline of social work being undervalued and unappreciated [67]. In order to move forward, social work should become actively involved in disease prevention programs, early intervention and effective use of scarce resources. Thus, possession of all necessary skills and knowledge, both from undergraduate and postgraduate education as well as continuous

professional development, should become a high priority in the PHC agenda [43].

Greek health policy makers and clinicians are urged to take into consideration the mounting evidence that the literature conveys, as well as the pioneering attempts of introducing clinical governance in PHC settings. New educational curricula for health professionals, both at the undergraduate and graduate level, should be established with the emphasis on multidisciplinary training and collaboration.

## Conclusions

Establishment of integrated PHC in Greece is still at its infancy, requiring major restructuring of the current national health system, as well as organizational culture changes that can be facilitated by the establishment of new educational curricula. Moving towards a new policy-based model would bring this missing issue on the discussion table, with the hope of facilitating further development.

## Reviewers

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## Appendix

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