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Abstract:	The aim of this paper is to help managers in public positions make better sense out of the exponential developments currently surfacing in eldercare. This industry has been blessed and cursed by its rapid development; blessed as there is a plethora of both technological and service type innovations, but cursed because there is so much development that trying to understand, organize, and stay updated with it all becomes nearly impossible. This article will help demystify these innovations, making it easier for public organizations to manage this process. A review of the literature yielded 1,384 relevant hits, 207 articles had substantial relevance, and 67 articles were selected as fitting within the framework of this study. We found that when these 67 articles are reviewed together, in the framework of eldercare, and from the lens of a public-entity, a typology for managing innovation within eldercare emerges. When viewing eldercare in this framework, suddenly managing eldercare innovation becomes simpler as one can understand where existing and new developments fit within the overall system. The core of this typology is contingent on maintaining an appropriate balance between 3 facets; the quality of care, the working environment, and societal efficiency. This balance is extremely important as these three facets are generally inversely proportional to each other. When a problem or opportunity emerges within a municipality, managers can now predetermine the impact that the proposed solution will have on the overall system, and likely make better decisions on what to invest in.

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Demystifying eldercare: Managing and innovating from a public-entity's perspective

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Demystifying eldercare: Managing and innovating from a public-entity's perspective

Abstract

The aim of this paper is to help managers in public positions *make better sense* out of the exponential developments currently surfacing in eldercare. This industry has been blessed and cursed by its rapid development; blessed as there is a plethora of both technological and service type innovations, but cursed because there is so much development that trying to understand, organize, and stay updated with it all becomes nearly impossible. This article will help demystify these innovations, making it easier for public organizations to manage this process. A review of the literature yielded 1,384 relevant hits, 207 articles had substantial relevance, and 67 articles were selected as fitting within the framework of this study. We found that when these 67 articles are reviewed together, in the framework of eldercare, and from the lens of a public-entity, a typology for managing innovation within eldercare emerges. When viewing eldercare in this framework, suddenly managing eldercare innovation becomes simpler as one can understand where existing and new developments fit within the overall system. The core of this typology is contingent on maintaining an appropriate balance between 3 facets; the quality of care, the working environment, and societal efficiency. This balance is extremely important as these three facets are generally inversely proportional to each other. When a problem or opportunity emerges within a municipality, managers can now predetermine the impact that the proposed solution will have on the overall system, and likely make better decisions on what to invest in.

Keywords: Eldercare; geriatrics; innovation; literature review; management; public policy

Background

Nearly every country has or will be facing infrastructural impacts on their health system due to their rapidly aging elder population in the coming decades (1). Those impacts vary dramatically from country to country. They're contingent upon many factors, *inter alia*, varying comprehensiveness of welfare provided, political climate, health standards, and individual expectations. Because these impacts vary so dramatically, the innovations within eldercare vary correspondingly. As a manager, this makes managing innovations extremely difficult. In researching eldercare innovations, it quickly become apparent how many different types of developments there actually are: technological -many different suppliers, app's for smartphones, software-, different programs to improve recruitment of employees, service innovation, different types of public and private strategy, national policies, user-driven innovations, the list goes on and on (2-10). There are so many different innovations that are continually being developed, it becomes overwhelming to try and stay updated on everything. Additionally, research in this field tends to be quite segmented. Hospitals are focusing on patients, medical and nursing schools are focusing on the quality and happiness of newly educated doctors and nurses, and high-tech firms are focusing on the most high-tech products. There is a gap in the literature piecing these segmented areas together. The importance of research on this issue has been further emphasized by the Academy of Management Journal (1).

As a result of this gap, managers' current process of eldercare innovation is the following. We have a problem, we need to maintain the same or better quality of care provided to the elderly, but we need to do it at a lower cost. If the manager call's the local specialty school (for example a geriatrics school), than the school will likely be insistent that geriatricians or improving the working conditions are the answer to this managers problem. If a high-tech firm is called, than the high-tech firm will likely claim to have developed the product that will solve all

their problems. Managers simply put, do not have enough time and resources to be up-to-date with all the current developments, while at the same time maintain current operations.

This article will be filling this gap. I will be examining many research databases, focusing on eldercare and innovation. The most relevant articles will be reviewed and classified based on their impact they have on the overall eldercare system. From this review of the literature, a typology will emerge. This typology will help managers *make sense* out of what is actually going on. This will make managing innovations simpler, and will offer more strategic direction into the decision-making process.

Methods

The literature search was structured to identify research that has been published which emphasizes innovations within eldercare. Given the broad nature of this topic, the literature search was quite wide-ranging and inclusive, including innovations that were both goods and services.

The literature search was subject to a number of limitations in determining the relevance of each article. The search was limited to published articles, on or after January 2000 (in three cases an exception was made due to the impact of the earlier publication), in the English language, and most relevant to key search terms. Articles were excluded if they were too regional (e.g., case studies on particular subsidies for Veteran Care in the US), too hospital based, or focused on a specific treatment to a specific conditions (e.g., Temozolomide and methotrexate for primary central nervous system lymphoma in the elderly). Electronic searches were conducted using the following databases: SCOPUS, ISI Web of Science, PubMed, Cinahl, and Medline. The actual literature search varied based on the particular databases search operators and search options. Notwithstanding, the typical search included (elder* AND innov*) and/or (geriatric*/nurs*/aging/ageing/senior*/assisted living/assisted-living/municipalit*

/administration*). The database search yielded 1,384 relevant hits. Of those articles, 207 were particularly relevant and required a closer examination. After a closer examination, 67 of those articles were included in the review.

After the 67 articles were identified, a typology emerged. In classifying these articles, we implored the predominant purpose test (11). This test is generally used in a legal setting; when two things are so similar that is difficult to determine which body of law applies. This test has been modified to apply to classifying eldercare innovation. This test is appropriate as the essence of it is distinguishing between overlapping variables presented to the test. This test prompts a series of questions: (a) what is the nature of the solution (what is its purpose), (b) what was the reasoning for exploring the solution, (c) what's the intrinsic value to one category, irrespective of the others, and (d) after one year of implementation, who bears the majority of the burden, both time and money, in using the proposed solution.

Results

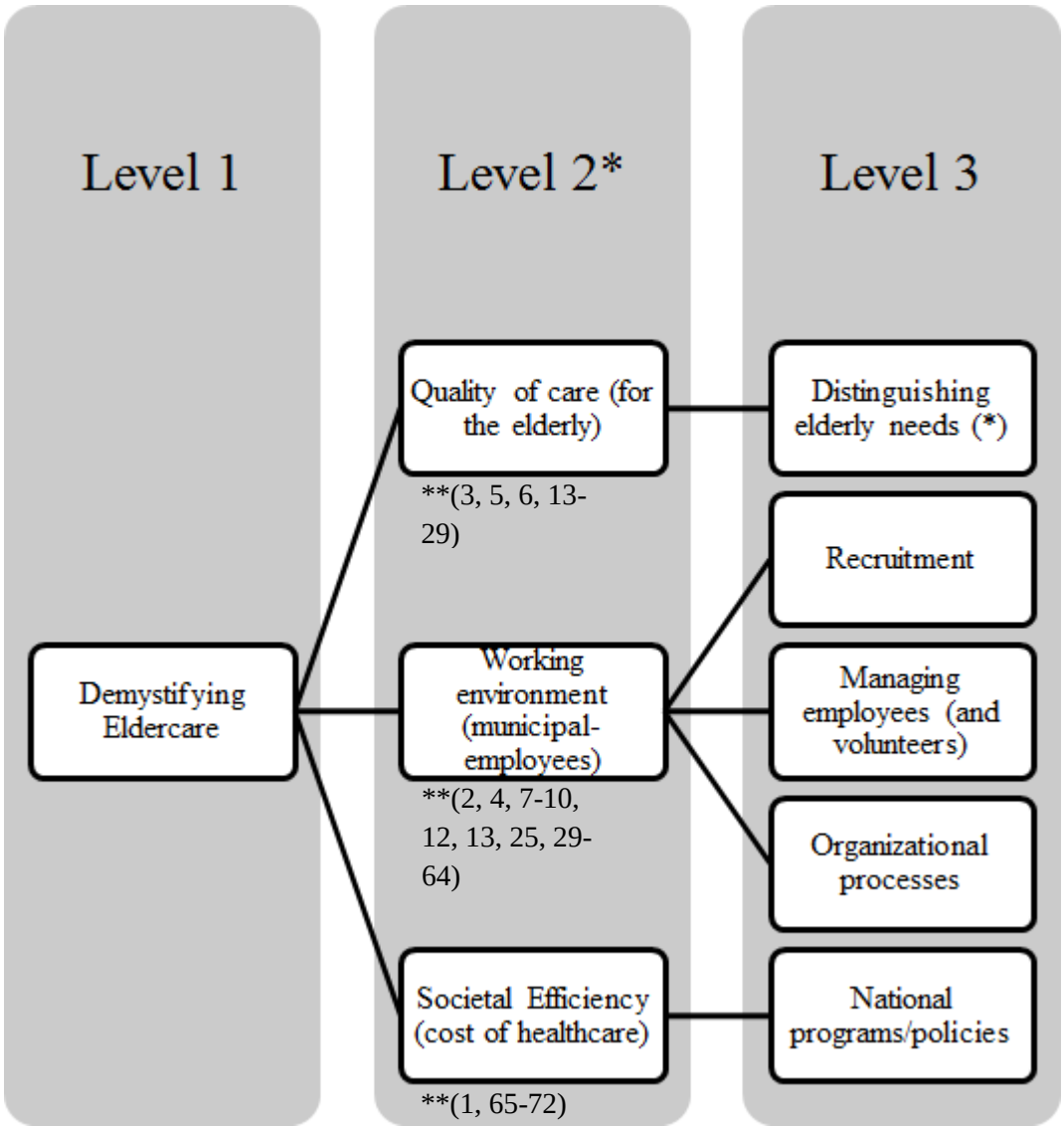
Our findings, shown in Figure 1, illustrate the typology that has been developed based on the articles reviewed. This model will be described in more detail below.

Analysis of Level 1 and 2

Eldercare can essentially be broken down into three main categories; the *quality of care* provided to the elderly, the *working environment* for those servicing the elderly or elder organizations, and *societal efficiency* focusing on providing cost effective healthcare -in Figure 1, see Level 2- (12). Paramount to the success of managing eldercare innovation is the manager's ability to continually evaluate the appropriate balance between these three categories. We found, that Level 2 categories are generally inversely proportional to each other. For example, if societal efficiency is increased -the cost of health care decreases-, than it's most likely that the quality of care or working conditions will decrease. Respectively, if the quality of care or working

environment is improved than there will most likely be a decrease in societal efficiency. Level 3 explains in more detail which subtopics fit within the three main Level 2 topics. These three Levels (1-3) should remain relatively unchanged. They're topics and subtopics that all the innovations we have reviewed fit under, and seemingly do not need further adjustment. We have found this simplification helps in categorizing and managing the eldercare innovation process. Level 3 subtopics will be explained in more detail below.

Figure 1 Demystifying eldercare: Overview



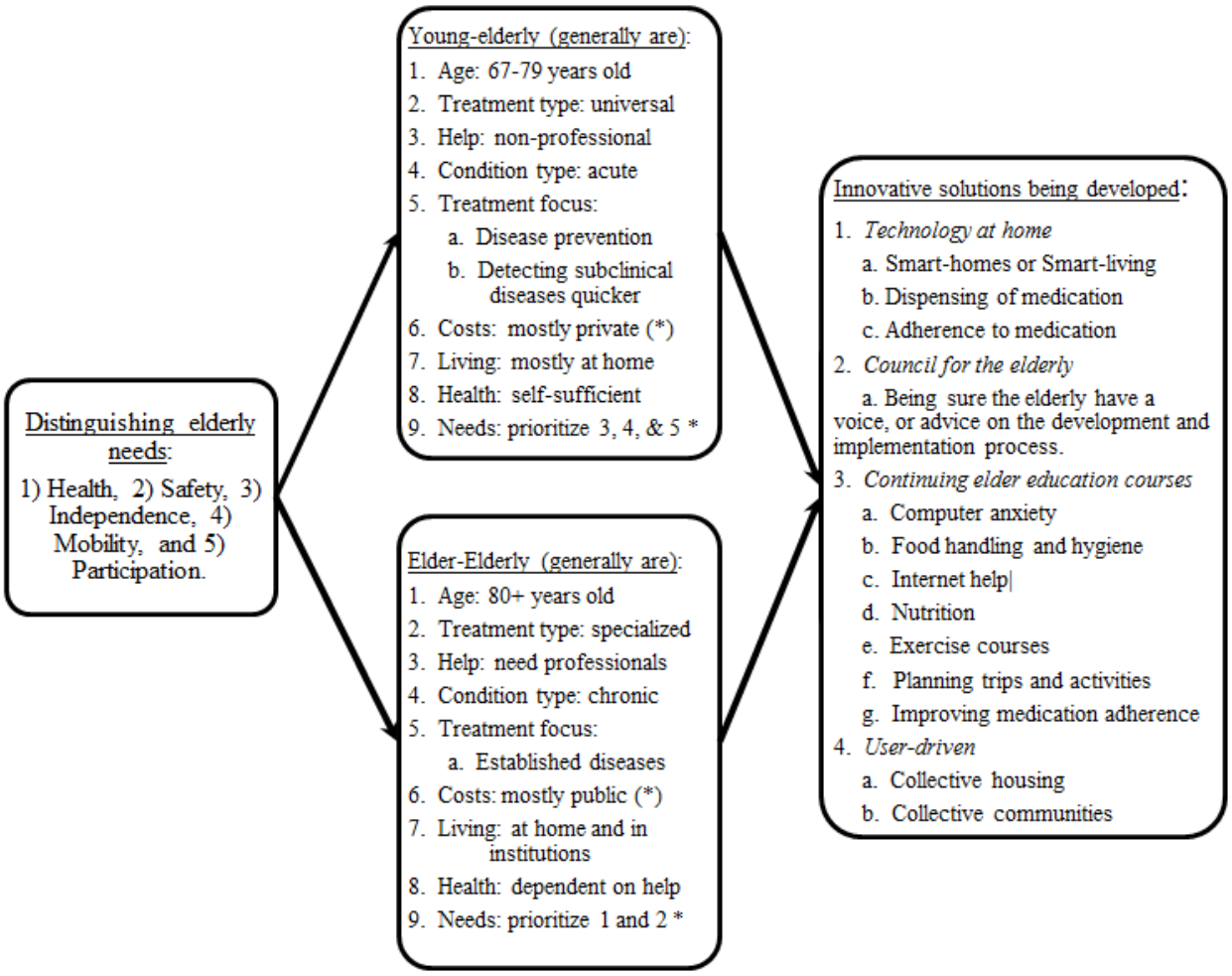
*, must evaluate appropriate balance; (*), priorities vary substantially; **, refer to reference list.

Analysis of Level 3: Distinguishing elderly needs

Although there isn't exactly unanimous agreement about what's most important to the elderly (20, 73). The most encompassing set of needs that we included were developed by the WHO (20). The WHO identified five factors that are especially important to the elderly: health, safety, independence, mobility, and participation (20). However, the importance of these factors is heavily contingent upon the class of elderly that are being targeted or considered. In Figure 2, our results show the importance of distinguishing between these two classes; the young-elderly (aged 67-79) and the elderly (aged 80+). These two classes have completely different needs. The *young-elderly* are generally healthy with approximately 5-10% chance of having dementia, while nearly 40-50% of the *elder-elderly* have some form of dementia and approximately 15% are frail, meaning they require a lot of specialized assistance (74) (3.7% dementia those aged 75-79 years, 12.2% those aged 80 to 84, and 23.9% those aged 85+); (75) (5% dementia those aged 71-79 years and 37.4% those aged 90+). We also found that the majority of services that the young-elderly find important can be fulfilled by non-professionals. For example, assistance getting around, transportations, access to information, social contact, these activities don't necessarily require a geriatrician or even a registered nurse (RN).

However, this is not the case for the elder-elderly; this class needs help from professionals that understand specific treatments to their specific complex conditions. Lastly, Figure 2 illustrates what currently is in the process of being developed and researched. We found that currently, the majority of research focuses on improving the functionality of technology in the home -smart living technology-.

Figure 2 Analysis of Level 3: Distinguishing elderly needs



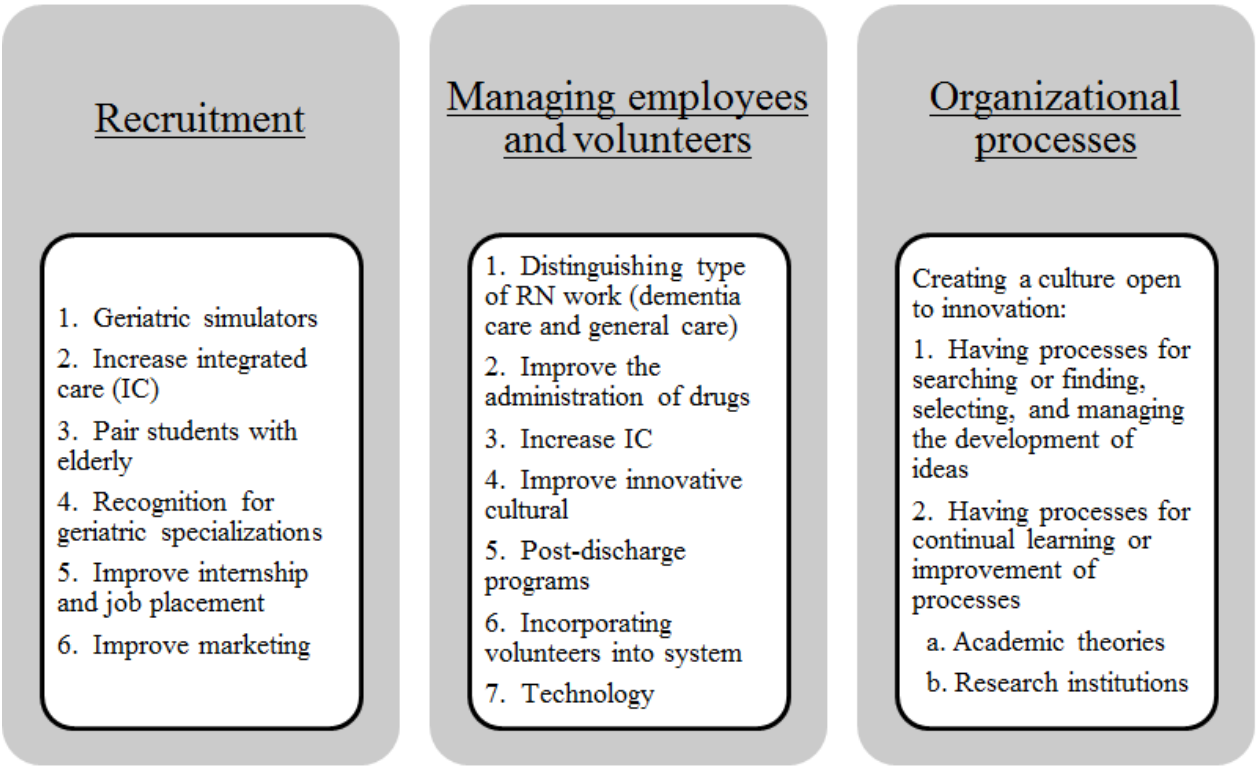
*, must evaluate appropriate balance; (*), priorities vary substantially.

Analysis of Level 3: The working environment

These are innovations that have the organization or municipality at the core of their focus. After reviewing the literature, three main subtopics emerged; recruitment, managing of employees and volunteers, and organizational processes (see references listed in Table 1). Recruitment was especially important. In our review, we found that in some countries, less than 10% of their newly educated nurses were interested in elderly-nursing positions (76). Additionally, in some regions less than 25% of their nursing workforce has a nursing education (61). Our findings show that there is a serious problem with both recruiting young-adults into the

field of nursing and retaining those newly educated in nursing care -rather than hospitals. Notwithstanding, in Figure 3, we have found some successful recruitment initiatives. Additionally, we have found that improving the management of employees was another focus of many innovations. The majority of these studies focused on improving the working environment for nurses; recognizing the different types of demands on RN's given the type of patients they treat, improving team and organizational culture, incorporating volunteers into the service structure, improving the administration of drugs, and utilizing technology where they can (4, 6, 33, 41, 45, 46). Organizational processes are particularly interesting. In our review of the literature, many public-entities have developed organizational projects, usually in the form of some type of integrated care (IC) unit. These are teams that are compiled of a physician, geriatrician, physical therapist, pharmacists, nurse, social worker, and sometimes even a builder (the compositions of nearly every team varies). But nearly all of these innovations are implemented as a project, rather than a process. Thus, there are interesting organizational innovations, but these innovations usually do not transfer into other projects. They will generally start and stop at the commencement and conclusion of these IC projects. We also found that nearly all research comes from academic institutions, nonprofit organizations, or privately funded developments. Very little research, if any, came from organizations or municipalities themselves.

Figure 3 Analysis of Level 3: Working environment

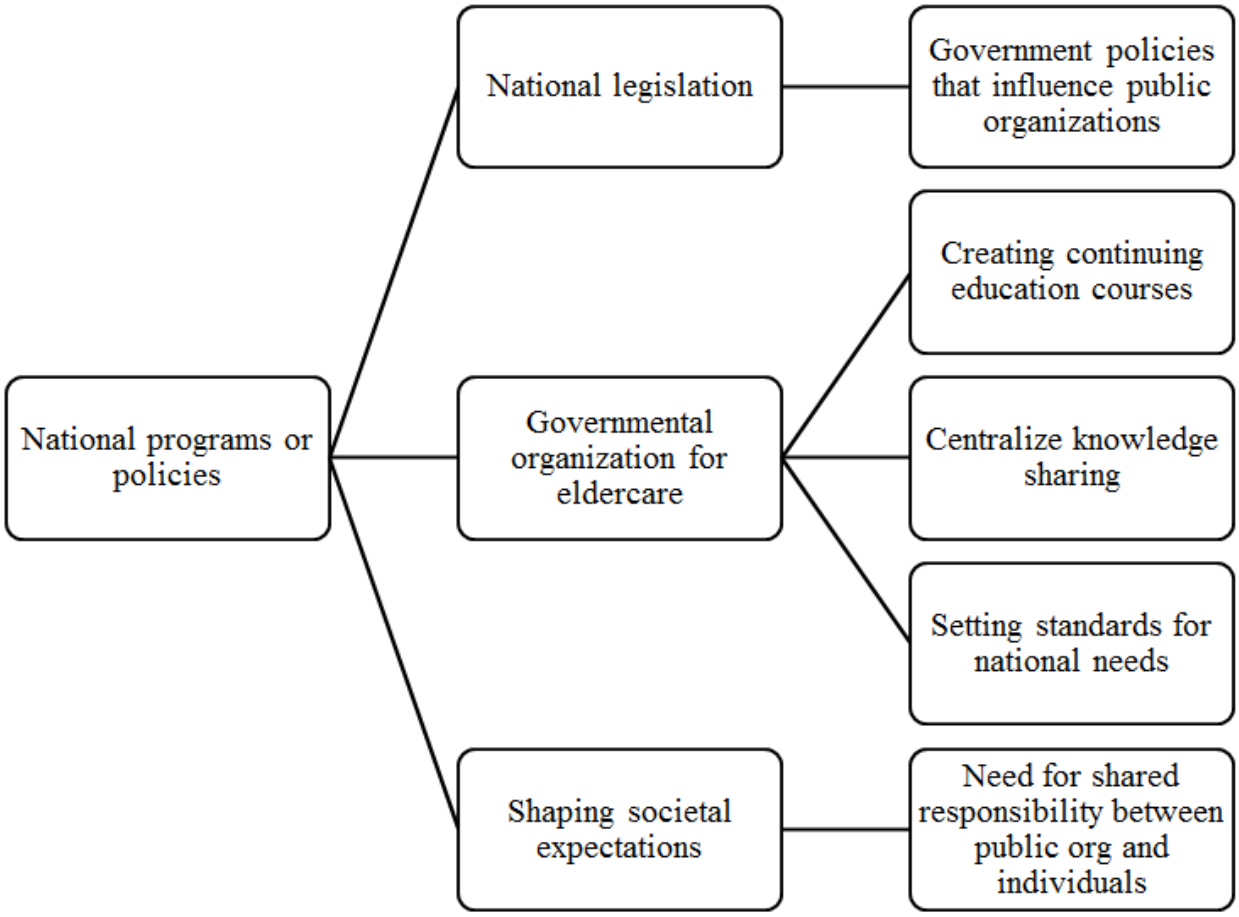


Analysis of Level 3: Societal efficiency

Based on the literature we reviewed, Figure 4 shows where and how national programs and policy impact eldercare innovation. This importance of this category is heavily contingent upon the social welfare structure of a given country. The more comprehensive a countries social welfare, the more this section will impact the innovation process (1, 65, 67, 68, 71, 72, 77-80). Notwithstanding these differences, the main focus here is on the national government and their policies. We have found that nearly every country's national government gets involved with this upcoming social problem to some extent; from implementing eService projects (68), to quite comprehensive legislation that changes the way services are provided (65, 78, 79). Furthermore, we have found through national legislation, each country is essentially shaping their societal (inhabitants) expectations of the services they are to provide. Our last finding is that, for those

countries with comprehensive social welfare programs, there is essentially no central national eldercare organization.

Figure 4 Analysis of Level 3: Societal Efficiency



Discussion

In concluding our review of the literature of innovations in eldercare, our most important finding was clearly the need for balancing Level 2 factors; the quality of care, the working environment, and societal efficiency. The impact that any proposed solution has on these three factors should always be considered. We found this to be especially important considering that the Level 2 factors tend to be indirectly proportional to each other. If a governments policy has affordability or efficiency at the core of their plan, the quality of care or working environment

will most likely pay the price unless these three factors are balanced. The more difficult question lies in defining and measuring the appropriate balance. This is a question this article will not address. It is our view that a quite logical measure for balancing these interests is by measure time and/or money invested into each category (for both the development, implementation, training, and maintenance phases). However, which factors in Level 2 get most attention will vary dramatically on each manager's socio-demographics and what systems currently exists, thus each manager's emphasis will likely be quite different. We recommend meeting with key stakeholders in each of the three categories within Level 2, to define the current status and future direction of each of the 3 factors, and determine how your locality will measure current and future investments so that these categories are *appropriately balanced.*

An additionally important finding was the need for distinguishing between the young-elderly and the elder-elderly. We found that there are a lot of unexplored opportunities in these distinctions. In upcoming years, the majority of the elder population will fit within the young-elderly category. The young-elderly have a completely different set of needs than the elder-elderly; they value socializing, exercising, having access to information, and transportation. The bulk of the young-elderly needs can be performed by non-professionals. Contrarily, the elder-elderly -and their families- tend to value safety and health more. Most of the elder-elderly needs require professional help. However, this distinction creates a dilemma for those managers trying to maintain an appropriate balance between all Level 2 categories. Young-elderly innovations will impact more elderly, it will be cheaper both with respect to time and money as the innovations will be meeting more universal needs. While the elder-elderly innovations will be more costly, more knowledge intensive, and take more time due to its specialized nature -needing to meet each individual's specific needs-. This creates a challenge in maintaining a balance of

innovations for both classes of elderly, as there will likely be a preference for young-elderly developments.

Moreover, given upcoming challenges, we found a serious lack of research in the working environment. There was a surprising lack of innovative initiatives in recruitment and organizational processes. Regarding recruitment, we have two compounding problems; newly educated nurses do not want to become municipal-workers, and municipalities are not obtaining or retaining educated nurses. There are some interesting ideas and research for improving these problematic areas, but those ideas have yet to become widely adopted. It seems research needs to focus on two things; first, attracting newly educated nursing (getting them interested), and second, re-think recruitment strategies to pull more RNs away from hospitals and into municipalities, as current models are not meeting current and upcoming needs. Additionally, there was scarce research on formal processes of innovation within eldercare. It seemed that municipalities talked loosely about innovative culture or processes. Alternatively, there were some innovative projects, for example IC project, but these processes tended to be informal in nature, and results quite random or unexpected.

Lastly, we found it surprising how there is nearly no central governmental agency responsible for eldercare as a whole. This ultimately is hurting local municipalities most severely. As a result, knowledge sharing is virtually impossible –outside of established networks-. This puts an unnecessary strain on municipalities for providing simple or basic programs (e.g., continuing elder education courses), no innovative direction for municipalities that have an opportunity or problem that they know others have faced. In short, we have found a lot of unrealized potential in creating a government agency responsible for advising municipalities. This would create one location that would gather data on innovative eldercare projects, organize and share knowledge with all other municipalities, create continuing elder education courses of

high competence available to everyone, work with suppliers to develop technology or services that impact municipalities on a large scale, provide general advice, brochures, info on leading or cutting edge research in the field, and setting standards for delivering certain services (e.g., standards for volunteer workers or temporary RNs).

Future Implications

This research has many future implications. The goal of this article is to aid managers in managing innovations in eldercare. To determine the usefulness of this typology, an in-depth field study should be conducted. A field study would likely validate the appropriate structure of the typology, and if a longitudinal study was conducted, it would be able to validate the usefulness; municipalities improving their management of eldercare innovations.

Through conducting this research, we identified a number of organizational theories that should be further explored: institutional theory, innovation processes, structural inertia, organizational identity, and disruptive innovation.

Institutional theory emerged after reviewing many innovative developments, and finding out that quite a few managers pursue the same technologies. It could be that to gain credibility or status as an eldercare provider, one has to look like the majority.

Innovation processes emerged, when categorizing the different innovations. Some organizations had more innovative cultures than others, but nearly no organization had a formal process or procedure for managing innovations. Most managers adhered to informal processes of innovation. Given the nature of innovation projects; being large investments –time and money-, often failing, often times have unexpected results, they generally require more time and money than expected, are knowledge intensive, often follow a zig-zag route to final development, and often have unexpected delays. I contend that innovation projects are so different from everyday

projects that managers need to have a separate process for managing innovation projects. Otherwise, innovation projects will always be measured and invested in discriminately.

On its surface structural inertia is seemingly important to innovations in eldercare. Traditional organizational theorists would likely characterize most elder or healthcare providers as being highly structurally inert. However, in our review of the literature it seems that quite a few countries or developments would refute this general view. That even though they should be highly inert, they are making developments similar or faster than the rate of change of their environment.

Organizational identity could play an important role in eldercare innovations. Through our review, we found that how the group or organization viewed themselves impacted there developments. For example, if an organization focuses on technology, they will likely only look at technological developments, even if they see opportunities in services, those services will be overlooked because they view themselves as high-tech developers.

Lastly, disruptive innovation surfaced as a theory that could impact eldercare significantly. Generally speaking, these are innovations that are serving a non-consumer, the development is of lesser quality of what's actually being offered today, but it is more reasonably priced and meets basic functional needs of the new -previously nonexistent- consumer. These innovations more or less turn the existing technology or services on their head, to the extent that the incumbent firms no longer have a competitive edge. Thus, these types of innovations in affect change the whole way the industry previously worked. In the eldercare world there are two such innovations that could completely change the way services are delivered. First, a national comprehensive investment in collective housing or collective neighborhood living. These projects have been implemented on a small-scale with much success. The essence of this housing or community living is promoting community involvement, social interaction and individual

independence. In both of these situations the members -in a house or community- are those involved with everything: from organizing transportation, activities, movies, emergency services, reminding others of appointments. The members collectively volunteer their time to provide all services that they need for one another. Goods or services that cost money are usually paid for privately through their own monthly or yearly membership dues. The second potential disruptive innovation is the integration of smart-living that has been developed by power companies. Some power companies are including the elderly as customers of the future. The power companies have begun to integrate wireless technologies in the home that read the power meter for them, manage lighting, heating, detect fires, inform proper authorities if there is a fire, break in, or emergency situation involving someone's health. These two disruptive innovations could completely change the way services are provided.

Conclusion

There are many opportunities, in the Findings and Discussion section, that managers of eldercare can pursue in attempting to tackle upcoming challenges. It is our goal that this article will provide managers with the knowledge they need to manage their eldercare innovations more easily. In doing so, most importantly, we found that a manager needs to *appropriately balance* Level 2 categories. The appropriate balance will vary dramatically from region to region; based on socio-economic demographics, existing systems in place, how balance is defined and measured.

We also identified a number of future implications that emerged from our research. It is our hope that some of these important questions will be developed and research more thoroughly.

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Author(s)	Country	Journal	Type (W-I-P) Innovation	Purpose of study (focus)	Sample	Methodology	Key Findings	Related articles
Anttila, S. K., et al. (2000)	Finland	Scandinavian Journal of Public Health	Process Innovation	Evaluate cost-effectiveness of a post-discharge program	Elderly who have been discharged from the geriatric hospital to their home. 204 elderly participated, 89% were women.	*Case Study:* The program consisted of merely a follow-up interview/meeting in the elderlies home.	The cost of university hospital care decreased by 52% in the intervention group, and 24% in the control group.	
Behr, R. et al. (2011)	USA	Journal of Architectural Engineering	Technology + building techniques (Smart-home)	To find innovative solutions to housing challenges of an aging population	1 municipality; model home was built for showing by nonprofit org	*Case Study:* Exploring cost-effective building of smart-homes for elderly	A Smart Cottage can be constructed for $150,000 USD (approx. $10,000 USD for tech).	Hung, Y. X., et al. (2010).
Bielaszka-DuVernay, C. (2011)	USA	Health Affairs	Process Innovation	The 'GRACE' model: To provide an integrated care model, targeting low-income seniors.	951 adults aged 65+, with incomes below 200% of federal poverty level.	*Case Study*: The 'Grace' team, led by a geriatrician and including a pharmacist, physical therapist, and many others were monitored for 2 year trial period.	1) 1st year, dramatic improvement in quality of care, but neutral no impact on cost of care. 2) 2nd year, clear cost savings of care, and improvement in quality of care.	de stampa, M., et al. (2013) (relationships within IC);
Bradley, E. H., et al. (2005)	USA	Journal of the American Geriatrics Society	Process innovations	To examine key factors that influence sustainability the diffusion of the Hospital Elder Life Program (HEP)	13 hosptials implementing HELP, 42 hospital staff members conducted 102 interviews.	Staff experiences sustaining the program, including challenges and strategies that they viewed as successful.	Critical factors were identified: 1) presence of clinical leadership, 2) ability and willingness to adapt 3) obtaining long-term funding.	Sandhaus, S., et al. (2010) (to reduce delirium); Steelfisher, G. K., et al. (2011) and (2013); Bradley, E. H., et al. (2005)
Bruce, M., et al. (2002)	USA	American Journal of Psychiatry	Service Innovation	To determine the psychological status of elderly who are receiving geriatric home health services	539 elderly between ages 65-102 were reviewed weekly, over a 2 year period.	*Case study:* participants interviewed in their homes about psychological status.	Geriatric major depression is twice as common in patients receiving home care as in those receiving primary care.	Depla, M., et al. (2005)
Cates, N. (1994)	Denmark	Home Health Care Services Quarterly	Policy + nursing homes	Develop innovative programs to help the elderly stay at home as long as	1 municipality.	*Case Study*: Nursing home converted to sheltered housing to measure self-care	Reduction in fragmentation and duplication of elderly services.	

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				possible.		and autonomy.		
Dackert, I. (2010)	Sweden	Journal of Nursing Management	Service Innovation	To determine the impact that "team climate" has on the well-being of nurses.	The study consisted of 580 employees, 329 of which completed follow up questionnaires.	*Case study:* A questionnaire was used to measure the nursing staffs' perception of their team climate, well-being, and stress reactions.	A better "team climate" providing support for innovation *may* increase well-being and decrease stress among nursing staff.	Heponiemi, T., et al. (2012)
Davis, R. L. et al. (2008)	USA	Journal of Nursing Education	Educational Innovation	To improve students' knowledge about the health needs and nursing care of older adults.	There are 260 students matched with 260 community-dwelling older adults.	Pair each student up with an older adult, they develop a relationship and care for the elderly throughout their nursing studies (1.5 years).	Review show that the program helps students understand critical competencies in caring for the elderly.	Goldenhar, L. M. et al. (2008); Schoenfelder, N. E., et al. (2005) (home-based care program).
de Veer, A. J. et al. (2011)	Netherlands	BMC Medical Informatics and Decision Making	Technological Innovation	To better understand determinants influencing successful introduction of new technologies	National research sample, 685 (67%) registered nurses completed a survey questionnaire.	Survey/questionnaire was completed by registered nurses about their experiences with recently introduced technology.	1) Only 50% experienced intro of new tech; 2) Only 50% of them had a positive experience with it; 3) Attention needs to be given to potential users of new tech that may hinder or promote new tech.	
Depla, M. et al. (2005)	USA	The American Journal of Geriatric Psychiatry	Service Innovation	To determine if the quality of eldercare improves at home for those elderly with mental disorders.	18 supported living programs (with 96 elderly) and 8 psychiatric hospitals (with 78 elderly).	Compared quality of life between those at home and those in a hospital using two different measures.	The at home elderly experienced significantly lower quality of life than the elderly in the hospital.	Bhattacharyya, S., & Benbow, S. M. (2013).
Dimitrova, R. (2013)	Europe	Technology and Health Care	Policy Innovation	The role that eHealth or eGovernment plays in eldercare	No sample, case study implemented.	*Case Study*: a new eHealth Voluntary Network (Directive 2001/24/EU), which all EU member states have joined.	Currently under review, but goal provide the same or better quality of care at lower costs.	Juell-Skielse, G., et al. (2010); Niehaves, B., et al. (2010); Obi, T., et al. (2013); Arduini, D., et

Author(s)	Country	Journal	Type (W-I-P) Innovation	Purpose of study (focus)	Sample	Methodology	Key Findings	Related articles
Eng, C. et al. (1997)	USA	Journal of the American Geriatrics Society	Process Innovation (also see 'GRACE')	The 'PACE' model: a program of all-inclusive care for the elderly	Operational in 11 cities in nine states.	*Case Study*: how integrated elderly care teams impacted unnecessary use of hospital and nursing homes.	Elderly satisfaction, reduction in use of institutional care, and cost savings. But, initial start-up is demanding.	al. (2013) Mui, A.C. (2001); Madden, K. A., et al. (2014) (defining rold of RN);
George, J. et al. (2008)	N/A	Drugs and Aging	Policy	To improve medication-taking for elderly	Literature review, no empirical study.	*Literature Review:* no empirical study.	Need for innovative strategies to enhance medication adherence.	
Grabowski, D. C., et al. (2014)	USA	The Gerontologist	Process Innovation (org culture)	To determine what factors impact the implementation of culture change in nursing homes.	With help of experts; identified 17,031 nursing homes without cultural change, and 291 with cultural change.	Used several databases to identify nursing homes, determine which had changed culture, and identified factors that impacted the cultural changes.	Nursing homes were more likely to implement cultural changes if they're: (1) a non-profit org or faith-based, (2) in a competitive market, (3) have governmental incentives.	Dyck, D., et al. (2013) (successfully implementing change).
Hannou, S. et al. (2014)	France	SpringerPlus	Service Innovation	To develop a preferential list of drugs adapted to the elderly in nursing homes.	Alsace, in France, with 1.8 million inhabitants.	A preliminary list of (338) drugs was made based on daily practices in nursing homes. 2 rounds where 53 experts evaluated the drugs.	252 of 338 drugs made the list of appropriate drugs to elderly in nursing homes.	
Hayakawa, M., et al. (2013)	Japan	Applied Clinical Informatics	Technology + medication	To determine effectiveness of a smartphone-based medication self-management system.	Development based on 116 elderly interviews. Tested 10 elderly, with a total of 133 dose timings.	*Case study*: interviewed elderly to develop app, than tested development on 10 elderly.	8 of 10 elderly reported that the smart-phone reminders were helpful and were satisfied. 7 of 10 elderly said they wanted to continue using the system.	
Johri, M., et al. (2003)	Canada	International Journal of Geriatric Psychiatry	Process Innovation	The importance of integrated eldercare services	OECD countries testing innovative "comprehensively integrated" models	*Literature review* of projects that OECD countries are testing	Comprehensive approaches to program restructuring are	Stoesz, D. (2002); Glover, C., et al. (2007)

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					of care for elderly.		necessary.	
Josefsson, K. et al. (2007)	Sweden	International Journal of Nursing Studies	Understanding nursing behavior?	Compare the working environment for nurses working in dementia care and general care	60 specialty housing units, in one municipality. 213 registered nurses (RNs) responded;	*Questionnaire:* Input: describe work situation, and does this vary from dementia care to general care	1) It's important to decrease RNs' time pressure for both groups; 2) Dementia care demands more knowledge and emotions from RNs.	
Kapborg, I. et al. (1999)	Sweden	Journal of Advanced Nursing	Understanding nursing behavior?	Deeper understanding of the cause of improper drug administration to the elderly	Based on 3-year public health reports and 8 RNs working in nursing homes and home services	*Literature review* and *Semi-structured interview*: to determine why and how this happens.	1) Administering wrong drug is most common error, most frequent when RNs delegate this to subordinates 2) Not all nurses report errors made to the physician in charge immediately on discovery.	
Katz, A. M. et al. (2000)	USA	Social Science and Medicine	Process Innovation	To determine impact of having elderly hold a crucial role in developmental processes	4 elderly were given the role as "Senior Faculty" in a geriatrics residency program.	4 elderly joined doctors and researchers to better identify and solve difficult elderly issues.	The program helped young residence gain a better sense of the elder's experience and what mattered most to them.	Rosemond, C. A., et al. (2012); LeRouge, C., et al. (2013); Grabowski, D. C., et al. (2014) (The Eden Alternative); Krall, E., et al. (2012).
Kerschner, H. et al. (2008)	USA	Gerontology and Geriatrics Education	Process Innovation	To better understand volunteer drivers; how and why they decide to volunteer.	714 volunteer drivers, from 367 communities, representing 40 US states.	Survey of volunteer drivers. Questions used a Likert scale.	1) 63% of volunteers were 65+, and 23% were between the ages of 56-64; 2) 80% of transportation was for medical services; 3) Majority of volunteers	Scharlach, A., et al. (2012) (The "Village" model); Berg-Warman, A., & Brodsky, J. (2006)

Author(s)	Country	Journal	Type (W-I-P) Innovation	Purpose of study (focus)	Sample	Methodology	Key Findings	Related articles
							volunteer "to help others".	
Kulik, C. T., et al. (2014)	USA	Academy of Management Journal	Policy + encourage research	Emphasized the need for management research on the aging population	Global review, emphasis given to USA, UK, and Australia.	*Global review* on aging population and lack of management research in this field	There is a need for management research given upcoming elderly challenges.	
LeCount, J. (2004)	USA	Journal of Gerontological Nursing	Educational Innovation	To try to encourage those nurses interested in gerontology.	16 of 20 RNs responded to satisfaction of gerontology program.	A university created a gerontology specialization program, 2-3 years offered to RNs.	16 of 20 (80%) RNs would recommend this program to other RNs, indicating their level of satisfaction.	
Lowenstein, A. (2005)	Isreal	The Gerontologist	Educational Innovation	To develop a Master's of Gerontology program.	2 new distinctive master's programs; University of Haifa and Ben-Gurion University.	Two-tracks to program; thesis track requires 36 credit hours and a research thesis (ca 3 year program), while nonthesis track has 48 credit hours (ca 2 years).	The recognition of this need by the Council of Higher Education (allowing master's program) has significantly affected the attitudes and learning experiences of the students.	
Malanowski, R. Ö. et al. (2008)	Europe	JRC Scientific and Technical Reports	Technological Innovations	To explore the role of information and communication technology (ICT) for ageing elderly.	No case study, more of an exploration of the literature	N/A.	Elderly have 5 specific higher level needs (based on WHO research): Health, safety, independence, mobility, and participation.	Obi, T., et al. (2013); HelpAge International (2013)
Marklinder, I. et al. (2013)	Sweden	British Food Journal	Need continued education for elderly	Identifying knowledge gaps in food handling and hygiene among the elderly	1 municipality; a questionnaire for 251 elderly, and 123 interviews were conducted	Questionnaire and Interviews, to determine the elderly's level of knowledge	The study suggests a lack of knowledge in food handling and hygiene of the elderly.	
Melkas, H. (2013)	Finland	Work: A Journal of Prevention, Assessment and Rehabilitation	Tech + smart-home pilot project	Find ways in which technology can be used to improve elderly-care services	4 housing service units, with over 60 assistive devices	Questionnaire and Interviews of customers and RNs to better understand experiences and processes	Need long-term patience to introduce technology to produce positive impacts on	

Author(s)	Country	Journal	Type (W-I-P) Innovation	Purpose of study (focus)	Sample	Methodology	Key Findings	Related articles
							productivity.	
Meyer, H. (2011)	USA	Health Affairs	Service Innovation	To improve care for hospitalized elderly patients.	15 hospitals, 155 clinics, and 1600 employed physicians in eastern Wisconsin.	Team meets daily for 30 minutes per day, 5 days a week. The team develops recommendations, which the physicians will respond to.	1) e-Geriatrician, makes geriatricians available through teleconferencing to consult with hospitals lacking competence. 2) No reported cost-saving yet.	
Pugh, M. J. V. et al. (2008)	USA	Medical Care	Policy + improving elderly prescriptions	Examine association between geriatric care and potentially inappropriate medication for the elderly (PIM)	Veterans over 65 years, who received health care in the VA system. From 124 facilities, comprising 850,154 individuals.	Developed criteria based on prior studies to identify PIPE, logistical regression was used to test relationships.	Patients receiving geriatric care were less likely to have PIPE exposure.	
Rocha, A. et al. (2013)	Europe	International Journal of Medical Informatics	Technological Innovation (smart-living)	Develop a comprehensive smart-living system for the elderly to live at home as long as they would like.	Case study review of a developed system, no testing of the system was discussed in this review.	*A literature review* on smart-living systems, comparing existing systems to the recently developed CAALYX system.	CAALYX can have a clear impact in increasing elder autonomy, by allowing elderly to be monitored and cared for regardless of where they are.	
Ryu, M. H. et al. (2009)	South Korea	Computers in Human Behavior	Technological Innovation	To determine factors that impact computer anxiety.	290 of 2000 elder Koreans responded.	*Questionnaire*: containing 41 questions. Data was analyzed using PLS and SPSS.	1) The elderlies perceived "ease, benefit, and enjoyment" had a significant impact on their acceptance of technology. 2) While their existing values, needs, and lifestyle had no significant impact.	
Schoenberg, N.E. et al. (2009)	USA	Journal of Health Care for the Poor and Underserved	Policy innovation	Raise awareness and need for innovation to manage multiple morbidities (MM).	41 elderly, with MM, low income, aged 55+, able to engaged in at last one interview.	Semi-structured interview in the elderlies home, lasting between 90-120 minutes.	Increased understanding and technological developments are needed to improve	

Author(s)	Country	Journal	Type (W-I-P) Innovation	Purpose of study (focus)	Sample	Methodology	Key Findings	Related articles
							quality of care for those with MM.	
Shay, K. et al. (2008)	USA	Journal of the American Geriatrics Society	Policy + encourage research	Raising awareness of aging population challenges	The Department of Veterans Affairs (VA) Office of Geriatrics and Extended Care.	No empirical study, merely *literature review* of upcoming challenges facing the VA.	Need for new strategy given: Increasing aging population among veterans, more younger veterans, more with dementia; serious undersupply of care-givers.	Kurekt, S., & Rachwal, T. (2011).
Shekelle, P. G. et al. (2005)	USA	Health Affairs	Innovation in treatments	Literature review of innovative treatments for the elderly	3 expert panels; ranging from six leading geriatricians to technical experts.	These experts were used to identify likelihood, impact, and cost implications for 34 innovations.	1) Very clean typology of problematic areas 2) Many innovations have potential to greatly affect cost and outcomes of elderly care.	
Smith, S. et al. (2013)	USA	Geriatric Nursing	Educational Innovation	Improving the eldercare experience amongst nursing students	36 of 48 nursing students agreed to participate.	Nursing students participate in a simulation experience, followed by debriefing of experience.	The geriatric simulation experience can prepare students for what to expect in home care.	
Soini, H., et al. (2004)	Finland	European Journal of Clinical Nutrition	Service Innovation	Whether Mini-Nutritional Assessement (MNA) is a useful tool for measuring the elderlies, living at home, nutrition levels.	178 of 272 eligible elderly aged 75-94 participated, comprising 3 rural municipalities.	Structured interview; about MNA questions, info about diet and eating problems, and other info about living conditions.	That MNA is a useful tool for identifying elderly, receiving home-care, who are at risk for malnutrition.	Kraft, M., et al. (2012); Paquet, C., et al. (2003);
Steultjens, E. M. J. et al. (2004)	International	Age and Ageing	Service Innovation	To determine if occupational therapy (OT) benefits are as beneficial in elderly's homes as they're in institutions	No sample. 17 studies were included, 10 of which were randomized clinical reviews.	Literature review.	OT interventions for the elderly's homes/community dwellings results in positive outcomes.	

Author(s)	Country	Journal	Type (W-I-P) Innovation	Purpose of study (focus)	Sample	Methodology	Key Findings	Related articles
Tracy, C. S., et al. (2013)	Canada	Canadian Family Physician	Process Innovation	Integrated elderly care to community-dwelling seniors with multiple chronic conditions	Pilot-tested in 1 family practice unit and modeled at 3 other cites	Introduce integrated model "IMPACT". See IMPACT clinic protocol for method.	Currently being tested.	Pho, A. T., et al. (2012); Kyriacou, C., et al. (2011); Panek, P., et al. (2008)
Tse, M. M. Y., et al. (2013)	China	Pain Management Nursing	Service Innovation	To determine the extent that pain impacts the elderly's happiness	10 nursing homes were approached, 535 elderly were invited to participate from 2009-2011.	Demographic info and info about pain was collected. This was measured against measures of happieness.	1) Location of pain was mainly in the knees, back, and shoulders. 2) Pain affected both psychological health (including happiness, life satisfaction and depression) and physical health. 3) Pain management is a high priority.	
Watson, R. (2011)	Europe	British Medical Journal	Strategic Policy	To determine EU's strategy for combatting the increasing elder population	No sample.	No methodology, merely a review of policy.	The EU's 3 main focus areas are (1) prevention, (2) care and cure, and (3) independent living.	Kurek, S., et al. (2011) (Employment rate and retirement age)
Weinberger, B. et al. (2012)	N/A(International, 2013; Malanowski, Özcivelek, & Cabrera, 2008)	Clinical Microbiology and Infection	Policy or research??	To raise awareness of potential benefits for the elderly by using vaccines.	No sample.	*No empirical study*, introducing topic.	Elderly have more vulnerable immune systems, and vaccination is the most efficient strategy to prevent infectious diseases.	