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Applying a European Key Component Framework to Compare and Contrast Cross-Country Case Studies in Health and Wellness of a Population

Pascal Briot[1,2*], Pierre-Henri Bréchat[2], Lucy A Savitz[3], Alice Teil[4] and Didier Tabuteau[t]

[1]*Chargé de Mission, Division Médicale et Qualité des soins, Hôpitaux Universitaires de Genève, Switzerland; Fellow Institute for Healthcare Leadership, Intermountain Healthcare, Salt Lake City, Utah, USA*

[2]*Department of Health Policy of the Sorbonne University Paris-Cité: Researcher at the French Cochrane Centre of the Hospital Hotel-Dieu of the APHP, France*

[3]*Delivery System Science AVP, Institute for Healthcare Leadership, Intermountain Healthcare; Research Professor, Clinical Epidemiology & Director of Patient Centered Research Methods Core, University of Utah, Salt Lake City, Utah, USA*

[4]*Maître de conférences, Aix-Marseille Université, CERGAM EA 4225, Institut de Management Public et Gouvernance Territoriale (IMPGT), University Aix-Marseille, Aix en Provence, France*

[5]*Responsible of the Health Chair at Sciences Po, co-director of the Law and Health Institute - Inserm UMR S 1145 - University Paris 5 (Paris Descartes), Paris, France*

Abstract

Introduction: American healthcare delivery systems and accountable care organizations are increasingly implementing population health management programs at the organizational level. Most European countries, including France, have already adopted programs that link social welfare, public health, and healthcare delivery. This study aim at exploring the applicability of the French model to health systems in the United States in order to promote population health.

Methods: A cross-case comparison between France multi-level organizational care networks and a U.S.-based integrated delivery system (Intermountain Healthcare in Salt Lake City, Utah) focuses on selected conditions and specific population health interventions.

Results: The French healthcare delivery system responds to the needs of its population via a top-down, bottom-up integration with its public health and welfare systems. Intermountain Healthcare relies on an ambulatory-hospital centrist system driven by standardized clinical protocols and outcomes measurement.

Conclusions: If the United States is to improve the quality of its healthcare delivery systems, it must go beyond its current focus on the viability of its ambulatory-hospital centrist care delivery system. It would benefit also to coordinate and integrate with governmental and other health agencies taking into consideration all the factors affecting the health of its local populations.

Keywords: Public health; Population health; Health priority setting; Health programs; Successful health program interventions; Intermountain Healthcare; French national health programs

Introduction

Healthcare systems are highly dependent on their economic and regulatory contexts. In Western Europe and the United States, high levels of government debt and unfunded financial obligations have increased the pressure on healthcare delivery systems to become as efficient as possible while meeting the health priorities of the populations they serve. In Europe, privatization of some publicly funded healthcare delivery systems threatens the democratic and societal principles upon which they were founded [1]. Conversely, in the United States, as reforms move toward risk-based payment under accountable care organization (ACO) models, population health and management are becoming more important [2,3]. Regardless of the historical, societal, and economic constructs under which healthcare systems evolved and now operate they are challenged today by the increasing demands for integrated health services and the rising costs of health care associated with rapid advances in technology and an aging population. Population health is affected by a wide range of factors across society and within communities. Improving population health is not just the responsibility of the care delivery system, the health and social care services and their health professionals working in silo. It requires better holistic coordinated efforts across every sector of the health continuum, more effective use of public and private resource, and more integrated and coherent cooperative actions between the public, communities and the health systems The emphasis must be on health promotion and disease prevention as well as on clinical interventions where disease management, prevention services, and public health and social services are integrated with the goal of improving population health while considering a broader array of determinants than is typical in healthcare delivery or public health alone [4,5]. Proposals for reform must insist on quality integrated and holistic service as well as adequate coverage that meet the population's expectations [6].

European countries have a longer history than the United States of funding and implementing national and regional integration and coordination of care delivery, public health, and social programs [7]. France in particular has implemented such programs at the regional level since 1991. In the United Sates Intermountain Healthcare (IH)

***Corresponding author:** Pascal Briot, Chargé de Mission, Division Médicale et Qualité des soins, Hôpitaux Universitaires de Genève, Switzerland; Fellow Institute for Healthcare Leadership, Intermountain Healthcare, Salt Lake City, Utah, USA, E-mail: pcbriot@gmail.com

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has been held up nationally as a model care delivery system developing more recently into a health system [8,9]. In embracing a population health management perspective, France and IH (together with other U.S. delivery systems) are moving outside organizational walls to partner with regional and local social welfare agencies, and with public health and other community-based organizations to achieve better health for their population with greater accountability and financial stability.

This study aims at finding key factors for successful implementation and evaluation of population health management programs in the United States using a cross-case comparison of selected interventions in France and at IH.

Methods

Comparative case studies allow for in depth examination over time of contextual conditions when the boundaries between a phenomenon and its context are not easily distinguished. Since it is was not feasible to undertake and experimental design to analyze the similarities, differences and patterns as to why particular programs or policies between the two systems work or fail to work, we choose a comparative case study method covering two system with the goal to produce more generalizable knowledge. Clearly identified by Creswell [10] as one of five traditional qualitative research methods, the case study, according to Yin [11], answers how and why questions, accommodates situations in which the researcher has minimal control over events, and allows for a focus on phenomena occurring in real-life contexts. While the literature on the subject as applied to health care research points to the application of mixing traditional qualitative methods with mixed data driven methods [12], comparative data between the two systems were difficult to obtain. Because of this limitation, we relied on fieldwork visits of the two systems, observations and interviews with key experts within both systems and the detailed analysis of published and unpublished documentation to compare French and IH programs.

Situation in France

In contrast to the decentralized, market-based traditions of the United States, France has a long history of centralism and federalism. Since the late 1950s, its coordination of individual and public healthcare through organization of its hospital system has involved significant state intervention. On the other hand, France's ambulatory care delivery system *(Medecine de Ville*) remains without organizational state planning policy. In 1991, the Schémas Régionaux d'Organisation *Sanitaire* (SROS) created a framework for regional organization and coordination between the healthcare system and the public health and social services systems whereby the 26 regions of France were given the power to manage national interventions at the local level, organizing and coordinating healthcare and health systems as well as setting priorities[13-15]. Between 1993 and 2004, forty National and Regional Health Programs *(Programme National de Santé - PNS and Programme Régional de Santé - PRS)* were implemented covering a broad range of public health issues. Forty percent were related to a disease or condition, 17.5% to health determinants, 12.5% to target subpopulations (including both socio-economic disadvantaged groups and the elderly or the prisoners), and the remainder to other issues such as health education, palliative care, or violence.

Situation at intermountain healthcare (Salt Lake City, Utah, United States)

Intermountain Healthcare (IH) is a non-profit, community-based delivery system with 22 hospitals, 185 ambulatory clinics, a medical group, home health services, and its own health plan with 677,000 members. IH is known nationally and internationally for expertise in quality improvement, performance excellence and cost control [8,16,17], and its patient-centered care and health delivery system reaches the entire population IH serves. With over 50 percent market share, IH often embraces a public health perspective in care design and delivery planning.

The cornerstones of IH's organizational structure are clinical and service line programs that focus the efforts of physicians, nurses, pharmacists, administrators, and other caregivers on processes within the organization based on W. Edwards Demings' process management theory. These programs develop evidence-based protocols centered on patient needs that are continuously updated with new clinical knowledge [18]. They rely on both a sophisticated IT-based information system and an administrative structure with a robust clinical information system to effect positive change and continuously improve quality of care. Changes are driven by annual detailed clinical and financial goal setting and improvement targets. Outcomes are measured in accordance with these set goals regarding medical care, patient population health and resources spent.

Since 1998, IH has implemented nine clinical programs across the continuum of care: Behavioral Health, Cardiovascular, Intensive Medicine, Women and Newborns, Oncology, Surgical Services, Intensive Pediatrics, Patient Safety and Primary Care. Imaging, Labs and Supply Chain were organized as clinical service programs in the early 2000s. In 2012, IH expanded its care delivery clinical programs upstream with an emphasis on health promotion and wellness.

Results

Case Study 1: French national and regional health programs

Lacking robust national and regional measurement systems, the impact of the PNS and PRS on health outcomes was not well measured during the implementation period. Law No. 2004-806 (August 2004) relative to public health policy included 100 objectives and goals (grouped into major themes), but only 88 of them had indicators and measures. In 2009, only about half of the objectives and goals had been at least partially met. Further, in the absence of indicators or measurement, the impact of the PNS and PRS was difficult to measure [19,20].

A correspondence factor analysis (CFA) was performed to determine partial correlations between each of the 44 qualitative variables examined for the successful implementation of PNS programs in France during this period [21-23]. When considering the impact of program interventions, it was critical to compare and contrast them based on their level and the following three exemplar interventions were selected for the present comparison:

At the macro level, national follow-up of the implementation of regional programs for access to prevention and care was instituted in all 26 regions of France, and consisted of regional and local actions to increase access to prevention, care and continuity of care for all, especially the disenfranchised. In particular, this program defined actions against diseases aggravated by precariousness and exclusion, including chronic diseases, addictions, behavioral disorders and nutritional imbalances. It required creating an interface between care delivery, the public health and the social welfare systems. It also relied on understanding the socio-economic determinants of the poor and providing them with appropriate support.

At the meso level, the national prevention strategy for suicide was

implemented in eleven regions of France and consisted of regional and local efforts to increase access to prevention, care and continuity of care for all individuals, including prisoners. This program was designed to help reduce access to weapons and other sources of personal injury. A formal evaluation found that the rate of suicide decreased in France between 1996 and 1999. A significant difference was observed between regions that implemented the suicide prevention program and those that did not [24].

At the micro level, the action strategy against alcohol implemented in thirteen regions of France consisted of regional and local programs to increase access to prevention, education, care and continuity of care for all, but especially teenagers and young adults. It was designed to better engage primary care physicians in the prevention and treatment of alcoholism and to improve access to social services for at-risk populations.

Case Study 2: The Intermountain healthcare experience

For the purpose of this cross-case comparison, the following three IH initiatives are studied in comparison with the French PNS:

At the macro level, IH's Shared Accountability Organization (SAO) is the model for an accountable care organization (ACO) based on three key strategies: 1) redesigning care through continuing to develop and consistently use standards based on proven methods to avoid under-treatment, over-treatment, and medical errors and to deliver the right care, in the right setting, at the right time, by the right providers; 2) engaging patients in their health and care choices; and 3) aligning financial incentives for every stakeholder to reward hospitals and doctors for providing the right care rather than just more care.

At the meso level, Mental Health Integration (MHI), part of IH's primary care clinical program, is an evidence team-based model aimed at improving family-centered care and quality health outcomes. MHI seeks to 1) improve the detection, monitoring, stratification, and management of depression and other mental health and medical conditions; 2) to reinforce ongoing relationships with patients and their families by employing team-oriented health professionals who promote adherence to and self-management of treatment; and 3) to match and adjust treatment and management interventions in response to increasing complexity of treatment and/or inadequate patient response [25,26].

At the micro level, IH's LiVe Well program, begun in 2012, includes Health Promotion and Wellness (HPW), nutrition and Weight to Health programs, Sports Performance and Exercise, and geriatric wellness care. LiVe Well corresponds to the extension of the IH clinical program concept and MHI into the arena of population health management and works closely with the state of Utah, and with local businesses and schools. In addition, individual patients can use Shared Decision-Making, streamlined patient education, and enhanced digital and mobile communication to improve their overall health.

Table 1 compares and contrasts the selected interventions implemented in France and at IH using as a framework the six Institute of Medicine (IOM) aims from "Crossing the Quality Chasm" and the recommended actions of the U.S. Preventive Services Task Force (USPSTF) Healthy People 2020. Table 2 presents a cross-case comparison of identified themes.

Discussion

Both the French and IH systems are intended to improve population health via broad and far-reaching programs, and both respond to institutional, social and financial constraints. However, the two systems differ in many important respects, particularly in their approaches to care, in patient populations they target and in the degree to which they integrate public and social services with care delivery.

French PNS programs were initiated by a top-down centralized political authority with the following goals: 1) to move away from a hospital-centrist system, 2) to improve the health and quality of care for the patient population, especially the poorest, most precariously positioned and disenfranchised individuals, and 3) to control healthcare costs while insuring equal access. These goals are very similar to IH's SAO initiative and other programs designed to deliver 1) an efficient hospital experience, 2) the best care for the patients served and 3) affordable and sustainable costs [18]. While these goals (Table 1) are in alignment with IOM's six aims for improvement for "A New Health System for the 21st Century," the French programs focus more on equal access, equity and patient-centered care while IH programs emphasize patient safety, effectiveness and efficiency.

Both systems depend on hierarchical organization. French healthcare programs are characterized by strong top-down political leadership, the excellent conciliatory skills of regional directors to generate good will, and a spirit of solidarity and coordination between existing local health and social organizational agencies (Table 2). IH programs function somewhat independently of political or civic leadership, but a hospital-centered top-down approach has been important in providing resources for implementation and expansion of services. As noted in Table 1, French programs focus mostly on the physical and social environment while IH uses its SAO model.

Both systems seek to be successful in controlling costs. In France, public hospital expenses in 2012 represented 35.3% of all medical care. With its health plan SelectHealth, IH strives to achieve by 2016 an average annual premium rate increase to commercial large-employer clients of the Consumer Price Index (CPI) plus one percent [18]. The two systems serve all applicable geographical areas (all 26 French regions and all six geographical regions in the IH area). Given their centralized structure, French programs use the healthcare delivery, public health and social services systems [27], while IH's programs are delivery-centrist and driven to increase effective and efficient care for its hospitals and ambulatory clinics (Tables 1 and 2).

Overall, both the French and IH systems are accountable to the populations they serve. The programs share a top-down and bottom-up approach in determining their priorities. However, the French PNS focuses on equal access and equity, with special emphasis on the most disadvantaged individuals. IH's programs, on the other hand, tend to focus more on payer populations.

Responsiveness to patient needs is addressed differently in the two systems. With the backing of strong public health and social welfare systems, French programs respond to the needs of the population on broader health and social environmental issues. Lacking this governmental coordination, IH receives via clinical programs a strong commitment from its medical providers to improve key clinical care processes. IH is beginning to partner across organizational systems, but these efforts remain fragmented.

Collaboration across the entire spectrum of care, health and social services is identified as critical by both sets of programs. However, huge barriers exist, and actively engaging and involving their respective populations are challenges for both systems. France uses a participatory democratic approach where its citizens voice their needs and concerns

French PNS vs IH programs	IOM-Crossing the Quality Chasm – Six Aims for Improvement	Healthy People 2020 Framework
French program for prevention and care vs. Intermountain SAO	The SAO emphasizes patient safety in the hospital, effectiveness, efficiency of care, and more patient-centeredness and equity. The French program emphasizes equal access to care and patient-centeredness. It also emphasizes a system-minded health system which coordinates services across all the social determinants of health.	The SAO focuses primarily on the care services system while the French program focuses mostly on the physical and social environment. While IH is starting to reach out to the public health and social services system with its SAO model, the French program was from the beginning implemented across all the social determinants of health.
French Program for suicide prevention vs Intermountain MHI	MHI emphasizes patient- centeredness, timeliness, effectiveness and efficiency of care. The French program also emphasizes these dimensions of care plus prevention, equity and the social environment. In addition, it reaches to some of the most vulnerable sub-groups such as the prison population.	MHI focuses primarily on the health services system with some limited coordination with the social environment. The French program focuses primarily on the physical and social environments and coordinates with the health services environment.
French program against alcohol vs. IH's LiVe Well	LiVe Well emphasizes patient-centeredness, equity and effectiveness. The French program also emphasizes the same dimensions of care while involving the education and social systems in a more global approach to prevention.	LiVe Well reaches out to the physical and social environment while remaining heavily focused on the care delivery system. The French program focuses mostly on the physical and social environment while coordinating with the health services environment and health care delivery system.

Table 1: French PNS vs. IH Interventions at Selected Impact Levels.

Level of implementation	Similarities between the French and IH programs	Differences between the French and IH programs
Macro Level	Top-down leadership puts in place the necessary organizations and funding to achieve results. Patients and their support systems are engaged primarily at the micro level.	For IH, the organizational model remains the care delivery system while for the French the focus is the public health and social services environment. IH's clinical programs have a measurement and management system to measure the impact of their top-down initiatives. Measurement is not as thoroughly developed and used in the French system. While IH conducts systematic evaluation of the implementation of its clinical programs, the only PNS program systematically evaluated is suicide prevention.
Meso Level	More or less successful engagement of all the stakeholders is involved in the process from care delivery to social services. Roles and partnerships among stakeholders are not always clear, however, and coordination of stakeholders can be difficult at times. For IH, coordination occurs mostly between clinical specialties (i.e. mental health specialists integrate with primary care clinicians). For the French PNS, partnerships are established between professional lobbies such as clinicians and welfare specialists. Measurement and evaluation with a return of this information to the key stakeholders is important in both programs.	For IH, the stakeholders remain mostly within the care delivery system while the French are more able to engage their public and social services, and their patient population. Role and partnership engagement also focuses either on clinical providers (IH) or on social welfare organizations and the patient population as a whole (France). The French program reaches everyone and focuses on the most disenfranchised individuals (such as prisoners or the poor) while IH focuses on such subgroups of its payers' population as its most expensive patients.
Micro Level	There is some degree of customization of the services offered to different populations (the underprivileged for France and ethnic populations for IH). Bottom-up actions either from a clinical or population base address the true needs of the population. Customization of the service to regional available resources is adaptable and flexible.	The French focus on underserved populations while IH is more concerned with ethnicity. French programs address clinical, health and social needs of the population from the bottom-up while IH actions are determined by clinicians. The French PNS reaches across the care delivery system and the health and social systems while IH programs remain mostly within the care delivery process.
Cross-cutting	A mix of top-down, bottom-up actions responds to the population as a whole as well as to subsets of the population.	The top-down/bottom-up mix is primarily care-focused at IH with a strong clinical measurement system. In France, it involves care delivery, public health and social services systems with a measurement system focused on health determinant outcomes.

Table 2: Results of Cross-Case Comparison.

to regional organizational leaders through the Health Regional Conference *(Conference Régionale de Santé* – CRS). Similarly, Utahans treated within the IH system have their concerns addressed via IH clinical infrastructure. The latter remains much more clinically-driven but is slowly becoming more responsive to patient health concerns through a Patient Engagement Guidance Council and Patient Advisory Board. MHI, for example, works with counselors at National Alliance for Mental Illness (NAMI), includes mental health specialists within primary care practices, and involves patients and their families in a coordinated treatment and wellness plan with their clinical team, NAMI counselor and/or support network [25, 26]. IH has also begun to include qualitative surveys in its evaluation, and LiVe Well works with state and local government agencies.

The drivers and incentives for the French PNS and IH system also differ. Given the demographic, economic, social, and cultural distinctiveness of the 26 French regions, PNS became more closely attuned to the needs and value demanded by the local population in a shared bottom-up health and social democratic process via "démocratie

sanitaire [28]" and CRS [29] that encourage dialog between local populations, health professionals, administrators, social services institutions, and regional managers.

In contrast with this three-dimensional approach to coordinating and integrating services, IH programs such as its SAO model follow a more one-dimensional top-down, delivery-centrist strategy (utilizing IH's clinical programs such as MHI) while coordinating with Utah public health and social services systems via LiVe Well. IH relies more heavily on the managerial infrastructure and process management knowhow of its clinical programs and less on the co-construction of its system between the local population and Utah public health and social services agencies. IH's SelectHealth works to develop population-based payment arrangements that incentivize better health management of at-risk populations. IH programs benefit from its robust measurement system to monitor clinical programs and measure their impact on quality outcomes and total cost of care for its at-risk population.

The strength of the IH system is derived from its desire to improve clinical efficiency and effectiveness while improving the quality of care delivered. French programs lack this ability to systematically measure their objectives (with the exception of the suicide prevention program) and, therefore, do not rely on a robust measurement feedback loop as a driver for change. However, while French programs may not reach the efficiency and effectiveness of IH clinical programs, they respond well to the expressed concerns of all their citizens including their most vulnerable groups. MHI is one of only a few IH programs addressing sub-population needs through a community health clinic-based program and in partnership with the Utah Department of Health and NAMI centers. Through cooperation with many organizations, both sets of programs strive to be patient-centered. The French PNS, however, is more responsive than IH to the needs of vulnerable community members.

Overall three critical success factors emerge for the successful implementation of population health programs:

1. At the macro level, a strong political will puts in place and supports appropriate infrastructure and funding.

2. At the meso level, complete implication and accountability of all stakeholders clearly defines their roles, and partnerships between national and local organizations engage and respond to the needs of the local population.

3. At the micro level, creation of a favorable environment for local and regional cooperation between all relevant agencies and organizations (including the care delivery system) recognizes and adapts to regional economic, cultural, and societal needs and demands, especially those of underserved subpopulations.

We can therefore infer that if these factors were to guide the implementation of integrated population health policies the United States could have one of the healthiest populations in the world, but we currently spend more than other *Organization for Economic Co-operation and Development* (OECD) countries and achieve less [30,31]. U.S. per capita healthcare spending is more than twice the average of any other industrialized nation. Total U.S. expenditure on health at purchasing power per capita in 2011 was $8,508 compared to $4,118 in France, representing 17.7% of the U.S. GDP and 11.6% of the French [32]. Yet, we rank 24th out of 30 such nations in terms of life expectancy [33]. Only three percent of our healthcare service spending focuses on prevention and public health, but 75 percent of our healthcare costs are related to preventable conditions [34]. In contrast, most European countries have a long history of public health program implementation and funding based on priorities set at the national or regional level [35,36].

Our cross-case comparison between three national programs in France and three institutional statewide programs at IH offers possible improvements for both systems. While France benefits from its centralized healthcare system, the U.S. starts from a core business model to initiate new payment reform opportunities such as ACOs. The French and IH models are derived from opposite ends of the health system continuum, but their intended goals are very much aligned. While French programs are structured according to recommendations of the Healthy People 2020 Framework and while the competitive business environment in which IH operates prevents it from being as responsive to the disenfranchised as it might otherwise be, our cross-case comparison of IH and especially LiVe Well clearly demonstrates the need for U.S. care delivery systems to follow the French lead and partner with local and state agencies and other community based organizations (COBs) [37,38]. French programs, on the other hand, could benefit from implementation of protocols to measure their effectiveness.

This study has applications; in particular, for healthcare planning in the United States today [39] as the medical profession moves toward population health management and reforms emphasize risk-based payment. Focusing solely on traditional care delivery will not achieve the necessary gains in health nor will it sufficiently control costs, as reported by the National Research Council and IOM [39]. Indeed, care delivery systems must take a broader approach that encompasses non-medical health determinants. Broad-based, cross-sector coordination involving social welfare and public health must be constructed, as demonstrated by the Oregon Coordinated Care Organization (CCO) [40]. French implementation of PNS points to some key factors for success in coordinating cross sector services in the U.S. Even in the absence of centralization and global budgeting, U.S. healthcare delivery systems, like those in France, can successfully pursue cost-effective population health by reaching out to and coordinating with regional and local governments and CBOs [41]. This may require regulatory relief and/or financial subsidization.

While, as we noted earlier, no good comparative quantitative information was available for this study, existing qualitative data can inform the design, implementation, and evaluation of collaborative health programs. Models such as the Reach Effectiveness Adoption Implementation Maintenance (RE-AIM) framework [42] and the assessment of organizational and cultural contexts [43] could further help explain how to best implement and evaluate our findings. Good feasibility studies such as the Project Leonardo [44] are necessary to evaluate the impact and effectiveness of the implementation of population health and care management model. This is a necessary and important task given the investment in time, money and culture change the implementation of these programs require. Both approaches taken together offer a holistic view for evaluating such programs and will require developing a measurement system and indicators that go well beyond today's standard clinical indicators typically tracked in healthcare delivery. By integrating evaluation planning into program design, we can maximize our ability to "know what works" and monitor the impact of allocated scarce resources. Emphasizing population needs as well as instituting strong performance measurements in a holistic and coordinated approach between all stakeholders would maximize the value of health spending getting the right health and care in the

right setting, to the right person, at the right time to achieve maximum efficiency, cost effectiveness, and optimal population health.

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