

FIVE-STEP MODEL FOR CREATING A VIRTUOUS MEDICAL AND FINANCING SYSTEM TO ENHANCE THE HEALTH AND WELLBEING OF FUTURE GENERATIONS

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Why this white paper?

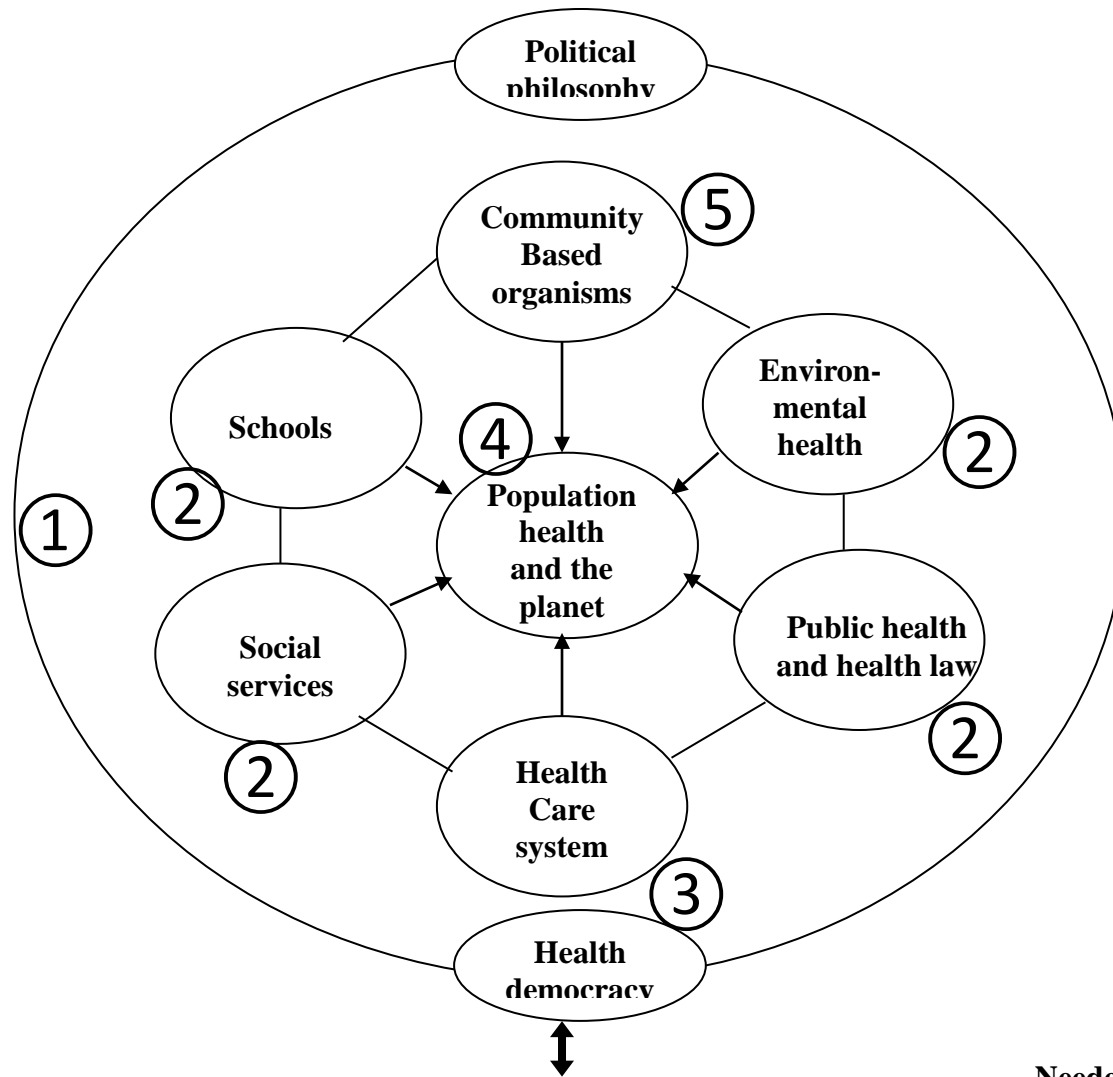
Cross-country comparisons of selected health outcomes, government investments, and public-private medical care enterprise reveal important patterns in how social services, public health, and medical care fit within a holistic health ecology. For example, we know that the U.S. disproportionately invests in medical treatment vs. social welfare and public health spending as compared to other OECD countries [BradleyTaylor].

The purpose of this white paper is to describe a five-step model of a virtuous medical and financing system aimed at enhancing the health and wellbeing of future generations. We can argue about the exact numbers. But, McGinnis et al. [McGinnis] noted that on a population level approximately 30 percent of health is determined by genetic predisposition; 15 percent by social circumstances, 5 percent by environmental exposures, 40 percent by behavioral patterns, and only 10 percent by accessibility to quality medical care. The five-step model to guide policy, financing, and practice emerging from discussions in comparing government and private investment in health between Intermountain Healthcare (the U.S.) and France appears below.

1. Aligning governance structure, policies, and financial models to create the necessary efficiencies to operate the transformation and sustainability of the population health production system;
2. Integrating the disparate and fragmented current “microsystems” along the continuum of wellness through sick care of the population focused on the individual and their collaborative support systems.
3. Leveraging information technology in measuring the quality of population health outcomes and performance measurements to support transparency and accountability for population health and integration of systems redesign and innovation.
4. Enabling health professionals, social/public health agencies, and individuals to become collaborative in managing the health and wellness of the population at the local, regional, and national levels.

5. Implementation, measurement and evaluation of system redesign and transformation using foremost local innovation and collaborative learning as well as translational and comparative research to generate, evaluate and deploy rapidly evidence-based proven practice. With mounting, and sufficient evidence generated at the local and regional levels, such proven, collaborative practices could be expanded to scale at the national and/or international level.

The inter-relationship of the five steps is depicted in the following diagram. Recognition of the inter-relatedness of these sub-systems at the micro-, meso-, and macro-levels to achieve a holistic health ecology will vary and be adapted across countries. However, the potential to align policy and financing direction and support informed resource allocation decisions holds promise.



Triple Aim

- Better health
- Better care
- Lower cost

Value

- Create "Equilibrium" For future generations

Needed

- Regulatory relief
- Cross sector coordination
- Payment reform
- Policy change

Objective of the white paper

The objective of this white paper is to attempt to construct for Intermountain Healthcare and the French health and insurance system a framework for pursuing comparative research on the integration of the healthcare delivery system to the health and insurance systems. As the shift to population health and value-based care continues to increase in the United States and in France, we anticipate that innovative approaches taken from across the world will become more needed than ever to achieve optimal outcomes that are politically acceptable, sustainable, and offering the best value for money. As such, the French integrated health and care delivery system based on strong health laws and policies may offer Intermountain Healthcare and the state of Utah a model to reflect upon. Conversely, the high quality, efficiency, and cost controlled care delivered by Intermountain Healthcare within its network of hospitals and ambulatory clinics provides a highly successful model to emulate in France. Working together, it is our hope that we could share experience and knowledge to further improve our respective systems towards a long term virtuous model for continued quality, efficiency and sustainability while guaranteeing the populations that we serve equity and access to the best health and care for everyone.

Introduction

Every developed country in the world is challenged by the increasing demands for health services and the rising costs of healthcare associated with rapid advances in technology, valued appropriate care, and aging populations. These challenges cannot be met without going beyond the integration of care with just public health and the implementation of the Triple Aim: better health for the population, better care for individuals and lower per capita cost to meet the objectives¹ of the United Nations (which include France and the United States of America as member

¹ The definition of health adopted is that of Paragraph 11 of General Comment No. 14 (2000) on the right to the highest attainable standard of health - Article 12 of the International Covenant on Economic, Social and Cultural Rights - Elaborated by the United Nations Committee on Economic, Social and Cultural Rights, which states that the right to health is interpreted as a "global right, which includes not only the provision of appropriate health care in a timely manner, but also to the key determinants of health, such as access to clean and safe water and adequate sanitation; access to adequate food, nutrition and housing; safe work and living environments; and access to health education and information including on sexual and reproductive health matters. Another important aspect is the participation of the population in the making all health decisions at the community, national and international levels ". In addition Paragraph 19 on equal access to health care and health services states that investments should focus

states) General Comment No. 14 (Twenty-second session, 2000) for the right of each individual to the highest attainable standard of health [UN]. In the United States of America, even though health is not included in the Constitution, since the New Deal and the creation of the Welfare State, the government has implemented several programs to help people in difficulty (Medicare and Medicaid). In France, the Preamble to the Constitution (27 October 1946) states that the nation "guarantees to all [...] the protection of health".

Population health is affected by a wide range of influences across society. Improving population health is not just the responsibility of care delivery, health and social care services [Figure 1] and their health professionals, individuals and their health insurance. It requires better coordinated efforts across every sector of society, more effective use of public and private resource, and more integrated and coherent policies along sustainable co-operative actions for the health and wellbeing of our citizens, their children and grand-children [Leppo Ollila].

The healthcare delivery and insurance systems of France and Utah are constructed historically and philosophically on different economic, political, cultural, and societal frameworks: relying on a government controlled system in France with its citizenry valuing health as a societal right versus the United States relying on a free market-based system with its citizenry valuing health as an individual goods. While these differences are fundamental, described in table 1, overall health and cost statistics between France and Utah are comparable [BréchatSauvons142]. In this paper, we first briefly review the analysis of a prior study conducted by the authors as to why the two systems achieve comparable results. Second we suggest five reasons for this similarity. Third, based on these reasons, we recommend a model to best design a health and insurance system to insure the health and economic wellbeing of our children and grandchildren.

on health preventive actions likely to benefit a large proportion of the population rather than on costly curative services which are too often accessible to only a wealthy fringe of the population.

Background

Over the past 50 years while health needs of populations have increased due to ageing of populations, the growing prevalence of preventable chronic diseases [**UnSidney**], and the intensive use of expensive technologies, the costs of healthcare spending has risen by more than 800% or nearly 5 times more than the Gross Domestic Product (GDP) and 50 times more than wages [**Bradford**]. Moreover, countries today must deal with higher expectations of citizens while controlling fraud (as high as 30% for health insurance [**Berwick2012**]). They must also - resolve persistent inequities in access coupled with complex health conditions among different groups when inequalities rise to the point of challenging the cohesive fabric of their societies [**BréchatDoctDroit**]. Reducing health inequalities is vital for the economy and social well-being of society. As industrialized countries consider rising their pensionable age as far as 67 in 2022 - 2029 (Austria, Denmark, France, Germany, Spain, The Netherlands, France) [**European commission**] and The United States has already done so for people born after 1960 [**CRS**], it is vital to maintain and improve a healthy population capable of working productively along with flattening the social gradient². In addition, the current political and financial instability of nations, combined with risk of massive worldwide displacement of populations³, and local community disintegration, puts health systems and health insurance under more and more tension.

A basic message has emerged: investments and transformation in health (encompassing the care delivery, public health and social service systems) including health insurance systems should be addressed in terms of the interaction between the health system, the economy, and the

² There is a social gradient in health that runs from top to bottom of the socioeconomic spectrum. This is a global phenomenon, seen in low, middle and high income countries. The social gradient in health means that health inequities affect everyone. **Available at www.who.int/social_determinants/thecommission/finalreport** [consulted November 24, 2015].

³ According to the fourth evaluation report from the group of experts inter-government on the evolution of the climate – **Groupe d'experts Intergouvernemental sur l'Évolution du Climat (GIEC)-, the climate change could create the displacement of up to 250 million refugees by 2050. Available at www.ipcc.ch** [consulted June 2, 2014].

social fabric of society [**BréchatBatifoulier**]. Just as income, investment and employment are a function of the performance of a society's economic system, healthcare delivery, social stability and growth affect outcomes of mortality, morbidity, and disability.

Healthcare services (the care delivery system) have been estimated to contribute to only one tenth of the improvements we could make in life expectancy. Aside from genetics and social influences, behavior accounts to approximately 40%. Many of the biggest future threats to health in some countries, such as diabetes and obesity, are related to public health [**Bunker**]. This strains governments to consider producing more healthcare services for the population. However, since resources are typically limited, populations and existing healthcare delivery systems must learn to work together more effectively and efficiently [**Emanuel**].

After the demographic transition of the early eighteenth century and the epidemiological transition of the early twentieth century, the organization and financing of health systems and health insurance is indeed the third major global transition [**RodinFerranti**]. Over the past 10 years, France and the United States have introduced major healthcare reforms to address this last transition within their countries: the Patient Protection and Affordable Care Act [**ACA**] in the United States and the National and Regional Health Programs (PNS and PRS) [**Briot**]. These reforms highlight that while operating within different fundamental frameworks (as described above) the two countries are pushing health and insurance systems closer toward each other. The US is moving in the direction of universal and efficient healthcare coverage while France is injecting privatization and some efficiency within its national health system and health insurance system.

More specifically as we described in our paper “Applying a European Key Component Framework to Compare and Contrast Cross-Country Case Studies in Health and Wellness of a Population” [**Briot**] 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, but without efficient mechanisms as health inequalities increase. In Utah, Intermountain Healthcare on the other hand relies on an ambulatory-hospital centrist system driven by standardized clinical protocols and outcomes measurement which is moving to integrate with the social and welfare structures of the State of Utah. While the French system has a

longer history of successful integration between its care delivery, public health, social and welfare programs than Intermountain Healthcare at the national or state level, both systems have realized the importance to foster this integration at the regional level. Expanding on Donald Berwick's "Chain of Effect in Improving Healthcare" [Berwick2016], the strategy of integration must be for each four nested systems (Patient and community, Care delivery microsystem, Organization and Environmental contexts)⁴ to work in collaboration and not in separate, independent ways of each other. The French and Intermountain Healthcare systems seem to aim for this better alignment among the respective components of their regional structures.

As these major initiatives are taking place, the healthcare and insurance systems of these two systems are partnering to compare and learn from each other. As Dr. Brent James states in *The Journal of Modern Healthcare*, October 11, 2014, "US-European partnerships improve care on both sides of the Atlantic." In return, a French delegation of senior health officials and journalists spent a week in January 2016 touring Intermountain Healthcare to learn "to prepare because we are facing the same problems" [Chen].

Indeed, our respective systems are faced with similar i) shifts in population demographics and social characteristics; ii) right balance between containing costs, maintaining access, improving quality, insuring a healthy and productive workforce, and a growing economy; and iii) how to transform a fragmented healthcare and health insurance delivery model constructed historically around a strong bias towards acute versus chronic illness and preventive service delivery.

⁴ While Berwick defined the "Patient and community" as the main recipients of the production of the chain to meet the experiences wanted by and for the people served such as for example the Triple Aim. We would expand his definition of the "Care delivery microsystem" to correspond to the production that attempt to meet those needs; the "Organization" as the way this production is managed to best meet those needs; and the "Environment" as the financing, governing and regulatory context in which the production is managed to insure that those needs are met.

To achieve these goals we propose the following five steps (**summarized in figure 1**), which we envision have the most realistic chance of success first at the local regional level before being expanded to a larger more national level:

1. Aligning governance structure, policies and financial models to create the necessary efficiencies to finance the transformation and sustainability of the production system;
2. Integrating the disparate and fragmented current delivery “Microsystems” along the continuum of wellness and care of the population focused on the individual and their collaborative support systems.
3. Leveraging information technology in measuring the quality of population health outcomes and performance measurements to support transparency and accountability for the care delivery and integration of the systems redesign.
4. Enabling health professionals and consumers to become collaborative in managing the health and wellness of the individual and the population at the sub-regional, regional and eventually at the national level.
5. Implementation, measurement and evaluation of system redesign and transformation using foremost local innovation and collaborative learning as well as translational and comparative research to generate, evaluate and deploy rapidly evidence-based proven best practice. Once proven at the local regional level these collaborative could be expanded at the national and international level.

Step 1

1a. The first step is the role of the state such as the government of the state of Utah in the case of Intermountain Healthcare and the French government (at the national and regional level) in the case of France to engage with its citizenry, the consumers, the health professionals and the politics via participative collaboration to define the boundaries of what is defined as good health for all;, and public health governance, policy and law to sustain the survival and growth of its society and economy.

For example the Utah Health Innovation Plan for “better health, better health care and lower costs for all Utahns” initiated in 2011 recommends six guiding principal for a healthy population and an efficient delivery system [Bell]. France recommends in its 2010 Five year strategic plan

that « Redefining the collective ambition, [...] reforming in depth the institutions and [...] taking on the transformations of the regulatory mechanisms [...] can only be [achieved] through an informed and lively debate [among all], a debate that meets the requirements of a modern democracy » [**Tabuteau**]. This requires taking into account 1) the health needs of the population considering all the determinants of health which can be involved; 2) the national (country or state), regional and sub-regional differences in needs, requirements and specificities of the population; but also 3) the availability of service available to the population across the entire continuum of care tailored to the needs of the population's determinants of health [**BrechatBatifoulierJeunet**]. The government and the free market must create a greater coordination between the public health, environmental health, social services, schools, housing, urbanism, welfare systems and the care delivery and financing systems for value health. Optimum care and health can only be obtained when the true needs of the population are met. The focus must be to redirect existing resource across currently siloed sectors to allow for innovation to improve the quality and safety of the care provided and to reduce costs. This creates clinical efficiencies across the continuum of care - from prevention, outpatient and inpatient care, medico-social and social services, to network of health services and social services - as well as of services and actions offered for other determinants of health [**WoolfBraveman**].

1b. The financing and payment alignment needed to support and sustain the transformation indicated above:

Starting at the regional level health budgets as well as the basket of healthcare services covered by health insurance must be established based on true health needs of the population and responding to all the determinant of health. The amount of this budget can be based on a controlled percentage of growth in health spending and has no impact on other budgets (education, research, etc.), or on future generations and the environment. This is what Intermountain Healthcare should be able to achieve for its commercially insured large groups with its guaranties of annual premium increases of no more than CPI + 1%. In France, this budget should be funded through an equal taxation system that weighs equally on the sick and the healthy so as to eliminate the unfairness of the current system while protecting the national health insurance system from world economic uncertainties. Accountable regional budgets which reflect true demographic, geographic, economic and health needs and resources of its population should be established while the State or health delivery system permits financial equalization across economically

richer and poorer regions. As such, the health insurance strategic objectives become: 1) to operate in an integrated manner in the case of Intermountain Healthcare or government, in the case of the French National Health Insurance (CNAMTS), 2) to make clinical and organizational efficiency of the health delivery system through the creation of payment mechanisms which reward value as opposed to quantity of care. This supports a more sustainable financial model in the redistribution of the savings to health professionals and the delivery system, and to incentivized the insured to become accountable for their health and their consumption of health care resources [BréchatBriot]. The financing becomes aligned on the lower costs of production achieved by the providers and facilities using evidence-based best care protocols not to mention consolidation and standardization of capital, equipment and supplies which are negotiated with third-party vendors based on the best quality /cost ratio [Maciosek, Woolf].

Step 2

Integrating the disparate and fragmented current delivery “Microsystems” and insurance system along the continuum of wellness and care of the population focused on the individual and their collaborative support systems.

In contrast to the decentralized, free market traditions of the United States, France has a long history of centralization. As a result, the development and coordination of its public health and care delivery system has been based over the past fifty years on priorities set at the regional and national levels and is well integrated today (achieved by the numerous published documents for the modernization of our health system by 2016). Intermountain Healthcare on the other hand, has been in the process of constructing this development and integration starting from a hospital-centrist system which integrated first with the primary care sector (Medecine de Ville) twenty years ago. For several years, Intermountain Healthcare has focused on the integration of services with their hospitals, insurance plan and providers. In 2015, the institution changed its mission statement to “Helping people live the healthiest lives possible” and is moving into the integration of preventive, health and wellness services. While both systems are converging to create a fully integrated system of health along the continuum of prevention and wellness, they are coming to it from opposite ends of the spectrum. There are mix results with respect to how successful this integration has been

in France via the evaluation of the PNS and PRS [Briot]. It is too early to know what the results will be for Intermountain Healthcare as its population health management initiative has just begun.

However, today France's health and health insurance system must save 10 billion euros (11.2 billion dollars) between 2014 and 2017 to comply with the adjustment path recommended by the Council of the European Union to bring its national deficit back below 3% of GDP [Report].

On the other hand Intermountain Healthcare has been able to cut about \$688 millions from its net operating income between 2011 and 2016 equivalent to 13% of its total cost of operation [James].

Collaboration across the entire spectrum of care, health and social services is very different between the two systems. France uses a participatory democratic approach where its citizens are starting to voice their needs and concerns to regional organizational leaders through the Health Regional Conference (*Conférence Régionale de Santé – CRS*). Similarly, Utahans treated within the Intermountain Healthcare system have their concerns addressed via IH clinical infrastructure. The latter is more clinically-driven but is also starting to become more responsive to patient concerns through a Patient Engagement Guidance Council and Patient Advisory Board. Given the demographic, economic, social, and cultural distinctiveness of 18 French regional territories, it is the responsibility of their Agence Régionale de Santé (ARS) to stay closely attuned to the needs and expectations by their local population in a shared bottom-up health and social democratic process. This process encourages dialog between local populations, health professionals, administrators, social services institutions, and regional managers.

Comparing and contrasting how the shift from integrating care to population health is taking place between France and Intermountain Healthcare reveals a number of similarities [BriotBrechat] that can be best described across three broad levels: macro, meso and micro.

At a macro level the integration must go beyond primary users of healthcare services such as with the Comprehensive Care Clinic of Intermountain Healthcare and reach people's health across the whole population as well as targeting specific interventions on the most deprived groups (such as the poor and elderly). It is essential that collaboration among individuals, community leaders, community-based organizations, healthcare systems, business/industry and government drive a community-valued approach to the development of prevention and wellness,

including balanced efforts in education, research, healthcare delivery, and public health. For example The Utah Chronic Disease Prevention and Health Promotion State Plan [**UtahPlan**] has a set of goals and objectives to align statewide partner activities in five functional areas: i) environment to promote health (including activities in people's homes, in communities, at schools, and at worksites); ii) healthcare systems (activities within the healthcare system at large and with individual physicians); iii) community-clinical linkages (activities that link the health care system and individual physicians with resources in the community); iv) health communication (activities that promote healthful living); and v) data and evaluation (data-driven activities that support and evaluate the implementation of the plan). As seen with the Utah plan the necessary features needed to support this integration are i) population-level data to understand need across the population, to track health outcomes, and to establish budgets to align financial incentives with improving population health; ii) community involvement in managing the health of the local population and designing local services which meet their needs.

At the meso level IH as well as the French ARS have developed different strategies for different segments of the populations they serve depending on people's needs and level of health risk. By grouping people with similar needs and tailoring services and interventions accordingly recognizes that to be successful, requires a different set of approaches and involvement from different system partners. In particular this requires i) population segmentation and risk stratification to identify the needs of different groups within the population; ii) targeted strategies for improving the health of different population segments; iii) developing sub-integrated systems with relevant organizations, services and stakeholders for focus on different aspects of population health.

In France the Regional Health Agencies (Agence Régionale de Santé: ARS) have a health planning tool that strikes a balance between the health needs of the population on a given sub-regional health territory and a homogeneous continuum of offers and actions related to health security, prevention, outpatient and inpatient care and medico-social and social services which have an impact on the determinants of health. It is an important lever for building a healthcare system that produces health and wellness. It is however waiting the development and implementation of tools such as regional budget financing and the systematic use of clinical information system for the tracking and monitoring of clinical data

which could help with the construction of an Atlas documenting clinical practice variations across our sub-regions and regions (step 3) [**LopezBréchat**].

Such tools are important to be able to evaluate the transformational impact of these strategies to improve population health. For example the evaluation of the Oregon of the Coordinated Care Organizations (CCOs) revealed that market share, forces and complexity in Oregon dictates in great part the strategies that were adopted by the CCOs to achieve their goals. It also shows successful population health and fiscal control improvement with the combination of the state exerting successful fiscal and governance pressure along with a strong sense of the community for its responsibilities toward the underserved [**BayleyLucy**].

These approaches demonstrate that the health territory must evolve towards a "public health territory" in order to better take into account the determinants of health within the meaning of General Comment No. 14 (2000) of the United Nations as well as the temporal, spatial, geographical, historical, and environmental specification of their sub-regions and regions. The public health territory is an area socially constructed by interdisciplinary work, as well as by consultation between the State, the health and health insurance systems, the local and regional authorities, the elected representatives, the health professionals, the representatives of user associations and the citizens. The public health territory promotes the coherence of actions and funding, as well as the efficiency of partnerships. This favors the necessary adaptations and synergies between all the services which are necessary for the life and the health of the population in the territory of public health. Three types of public health territories are possible: by specific geographical areas, by administrative divisions; by a geographical division which corresponds to a set number of inhabitants [**BréchatSauvons**]. Within each of these types of territories it would become necessary to understand the health characteristics of the population using for example "Area Deprivation Index (ADI)" which can measure the socioeconomic status of the individual such as the one developed at Intermountain Healthcare [**Knighton**]. But also using the type of model we have developed in France that can assess the level of social disability of the individual within his/her territory of health as determined by the health facility. Combined with the ADI this measurement model could then be used to propose a territorialized public health policy to appropriately allocate resources by class of social handicap and needs within every territories of health.

At the micro level, the French intervention tend to focus more on social services such as housing support, education programs, exercise program and other lifestyle support while Intermountain Healthcare relies more on traditional health and care services like care planning and individual case management for people with complex health and care needs. Both point to the importance of i) integrated health records to coordinate people's care ii) scaled-up primary care systems such as the Medical Home model that supports both chronic disease management and coordinates value-based referral care with other services and resources, iii) working closely across organizations and systems to offer a wide range of interventions to improve people's health and with individuals to understand the outcomes and services that matter to them, as well as supporting and empowering the individuals to manage their own health.

Step 3

Leveraging information technology in measuring the quality of population health outcomes and performance measurements to support transparency and accountability for the care delivery and integration of the systems redesign

Health Information Technology (HIT) enables health care systems to improve safety and coordination of chronic and acute care across numerous medical care providers, to facilitate faster and more precise measurement of performance, to improve disease prevention and to enable consumers to take a more active and well informed role of their own health care.

Intermountain Healthcare has demonstrated that HIT has a positive effect on the quality, operational efficiency and sustainability of a health care system ranging from its hospitals to its primary and secondary care physician practices. For example, its new iCentra project elaborated in partnership with Cerner, integrates the electronic health record, practice management, and revenue cycle into a common platform that optimizes patient care management and promotes health and wellness.

Similarly France has tried since 2004 but up unsuccessfully up to now to implement its own Patient Health Record (Dossier Medical Personnel – DMP) with limited patient clinical outcomes for evidence based protocols and with no real cost information. However, the fact that the project

was initially the domain of the IT world, with no consultation with the end-user, it has resulted in a lack of enthusiasm from healthcare professionals who, according to the Minister of Health, are not taking the program on board. The burden of work to update the DMP falls on the general practitioner (GP) – the person least likely to profit from the system. Since no remuneration is received for the task, the DMP remains a hidden cost for the GP with little obvious utility. This is in sharp contrast with the Meaningful Use requirement now in rigor in the United States and in Utah. In addition, the Utah Health Innovation Plan requires health providers to increase the use of HIT to support timely and accurate information for value-based delivery and payment reform. To achieve this, clinical data and population based outcomes must be used to change clinical practice through the development of information systems that reliably collect and analyze population data across the entire continuum of healthcare. This information, coupled with an accurate cost accounting system, allows designing delivery of care processes of maximum value. This reduces waste that exists in a health system and generates continuously new scientific and operational knowledge.

The engagement of the providers rely on the use of scientific evidence (evidence-based medicine) and the knowledge and experience of the front line clinicians (taking into account the characteristics of the populations for which they care and implementation of best practice guidelines). This is best achieved if the management of the disease and prevention is promoted through the development of computer systems that incorporate clinical best practice recommendations and management protocols and information tools. The health professionals are thus continuously generating and documenting in these systems the new knowledge that emerges from their front line work and continuously generating better practice guidelines tailored to the needs of the population for which they care. Progressively, this process of continuously generating rapidly new clinical knowledge that can be shared and utilized by health professionals via shared-information technology allows best practice recommendations to become mass customized. As this information and knowledge become more accessible, it must be made available to the patients and their caring party so that they too become more involve with the healthcare process. Via the use of share decision making tools, patients and their caring party can have access to the best knowledge of the effect of a given procedure or treatment as well as their risk level. This allows them and their care team to make the most optimum decisions for their well being. To achieve this, the actual health care costs must be made available to the health and health care professional via an accurate activity-based cost accounting system. This allows to link precisely

clinical outcomes with their actual costs. Variations in length of stay, readmission, overall clinical outcomes and cost of hospitalization, etc., are thus systematically measured and communicated to the health professionals to help them take continuous action to reduce their cost and thus reducing waste (which does not add value to the patient) in the system. Patients and their families must be an integral part of the shared clinical decision process and are as much accountable as their clinicians to insure the most appropriate and efficient treatment is prescribed to them. The most efficient care (including medications) based on transparency of this information and these services could then be paid by the insurance companies at a higher rate. This promotes the development of prevention, quality of care and reduces harm to the patient while decreasing overall waste in the system.

Step 4

Enabling health professionals and consumers to become collaborative in managing the health and wellness of the individual and the population at the community, regional and eventually the national level.

If health promotion and disease prevention are mediated through primary care teams (e.g. Medical Home model) and public health, then they both require a body of well-trained health professionals accessible to patients and communities. The accessibility of primary care workers plays a critical role in public health. Patients who see primary care physicians and nurses are more likely to be tested, vaccinated, and counseled, and to receive appropriate management of their chronic conditions. In turn, these patients are less likely to develop infectious or chronic diseases, or find themselves with an advanced prognosis requiring invasive intervention. Patients who use primary care as a gateway into advanced health care services also are likely to receive more appropriate care than those who elect to see specialists at their own discretion. In this way, primary care workers provide a direct link between the public health and patient care systems. Maximizing access to affordable primary care promotes the public's health by reducing risk on an individual level.

At the regional and eventually national level population level, public health professionals monitor health trends, identify disparities, and design community based interventions, among other functions. Modern health challenges place unprecedented demands on these professionals as

infectious diseases cross borders rapidly, bioterrorism threats grow, chronic disease rates continue to rise, and natural and man-made disasters destroy environments and societal infrastructures. The need for health professionals, skilled epidemiologists, biostatisticians, social and behavioral scientists, and environmental health experts working together to reduce health inequalities while working together in multidisciplinary team to find solutions to complex problems and to achieve results has never been as strong and imperative as of today. They also need to increase their leadership by also to have a propensity for pursuing innovation and research, reading scientific articles and to have the listening and negotiation skills to enable them in particular to react positively and constructively to the opposition movements they may encounter **[Kimberly]**.

Moreover, demand for professional training continues to expand as the causes of diseases and effective interventions become increasingly complex and multi-factorial--often entailing interactions among genetics, behavior, and the environment.

It becomes therefore, necessary to ensure that public health becomes integrated into the curriculum of health care provider education. In order to most effectively detect and treat diseases, providers must be able to comprehensively address both the symptoms through medical interventions, and the underlying behavioral or environmental causes.

Step 5

Implementation, measurement and evaluation of system redesign and transformation using foremost local innovation and collaborative learning as well as translational and comparative research to generate, evaluate and deploy rapidly evidence-based proven best practice. Once proven at the local regional level these collaborative could be expanded at the national and international level

The implementation of the first four steps requires the 1) measurement and evaluation of the evolution of the health and health insurance system and its management, 2) transparency of the information at all levels, 3) accountability at all level and 4) a process to insure sustainability for the changes. Step 5 is to measure the gap between what is observed and what was expected for the health and insurance system in response to actions

that were specified and implemented either from the national government such as in France or from the Utah governor's office or IH board of Trustees at the regional and national level to meet the challenges described in the introduction.

We propose that this assessment takes into account the health needs of the population, the user and provider satisfaction first at the regional level and whether the system is adequately meeting their needs and expectations. The results can give rise each year to public debates between the regional leaders, local authorities, health professionals, representatives of associations of users and citizens. All opinions should be considered and discussed and a report should be published every year as a performance dashboard for the entire system may it be at the national level as in the case of France or for the state of Utah as in the case of Intermountain Healthcare but foremost at their respective regional level. Since it should be first and foremost at the regional level that the redesign of the system and its evaluation and measurement will have the most impact. IH already has such "Board Goal" dashboards both at the system level but also at its region level which inform the system of its progress towards accomplishing its yearly objectives. Similar dashboards for the state of Utah or the country of France could be created which would take into consideration not only the outcomes resulting from the care delivery system but also the integrated population based health outcomes from the health and insurance system in their entirety. While France lacks behind IH in that domain, IH is well positioned to show the way on how such a dashboard could eventually be constructed. Similarly, country, state or system's outcomes should be compared across other countries or states or system's outcomes. As this paper presents, IH and France are pushing their systems while coming from opposite ends toward greater integration between care delivery, public health and insurance-reform payments. This is aligned on the value of health for their populations. Collaboration between Intermountain and France as well as other European countries would further help in developing better health and care management practice and insuring the right of each individual to the highest attainable standard of healthcare. It would help our respective systems to achieve the objectives of the Triple Aim (improving the patient experience of care, improving the health of populations, and reducing the per capita cost of health care) as well as those of the ACO (to improve the quality and efficiency of care provided and to demonstrate increased value from health care expenditures).

Conclusion

Behavior, genetics, environment, social networks and public health are important determinants of health status. Research in the United States and in Europe has consistently demonstrated that changing these elements will have a more dramatic effect on health than investing in medical treatment - a comprehensive literature review reveals that these elements account for 91% of health outcomes, whereas healthcare delivery accounts for only 9% [OECD 2016].

Similarly public health is better suited than medical care for population interventions to address the causes and consequences of chronic diseases. For example even the most advanced medical treatment will have only a minimal effect on the obesity epidemic because it involves a multifactorial intersection between behavioral factors and the social determinants of health. Reversing this trend will require policies, education and incentives that improve the physical and social environments [Gostin]. But despite the value of health promotion and disease prevention in improving the public's health, there is limited political and financial support. In the United States less than 5% of health spending is devoted to health promotion and disease prevention [Sensenig] even though “nine preventable conditions are responsible for more than 50% of all deaths in the United States” [Atwood].

This paper advocates that the best solutions to integrate the many components of our health delivery and health insurance system are to be found foremost at the sub-regional level—following the five steps described above. Starting at that level permit for all the parties involved to more effectively collaborate with each other to optimize the management of their limited resources in a constructive partnership with a common goal centered on the local population and its community. In our comparison between the institutional clinical programs from Intermountain Healthcare and the French national and regional programs (PNS and PRS) we noted that while both systems started upon this journey at opposite end of the spectrum between care delivery and public health both systems implemented their model at their regional level to better serve their local communities [Briot]. Elinor Ostrom made the broader point that complex economic systems (and the health and insurance system is certainly one) require multiple layers of institutional responses if that system is to be governed effectively. Gap in governance at any level

undermine the operation of the system as a whole [**Ostrom**]. As described in Figure 1, we believe that for the five steps we outlined above to succeed integration of governance among all the entities must exist. It is possible that at the level of a large nation such as the United States of America or to some extent for France this may be extremely difficult to optimize. But on a smaller level such as for the State of Utah or for some of the 18 regions of France this should be attainable. It was even proposed in France in 2016 to implement some « experimental » ARS [**BréchatSauvons**].

In that spirit and to respond to the world's challenges of today and tomorrow, France, Intermountain Healthcare and the state of Utah could learn from each other and build a better health delivery and insurance system for the rest of the nations [**JamesSavitz**].

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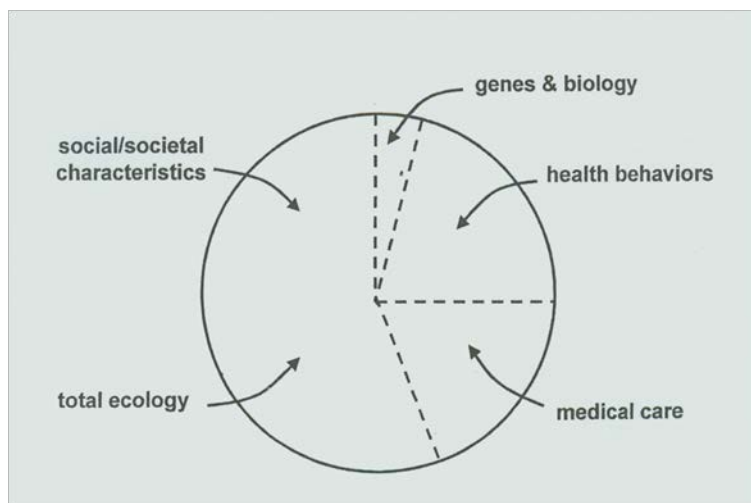
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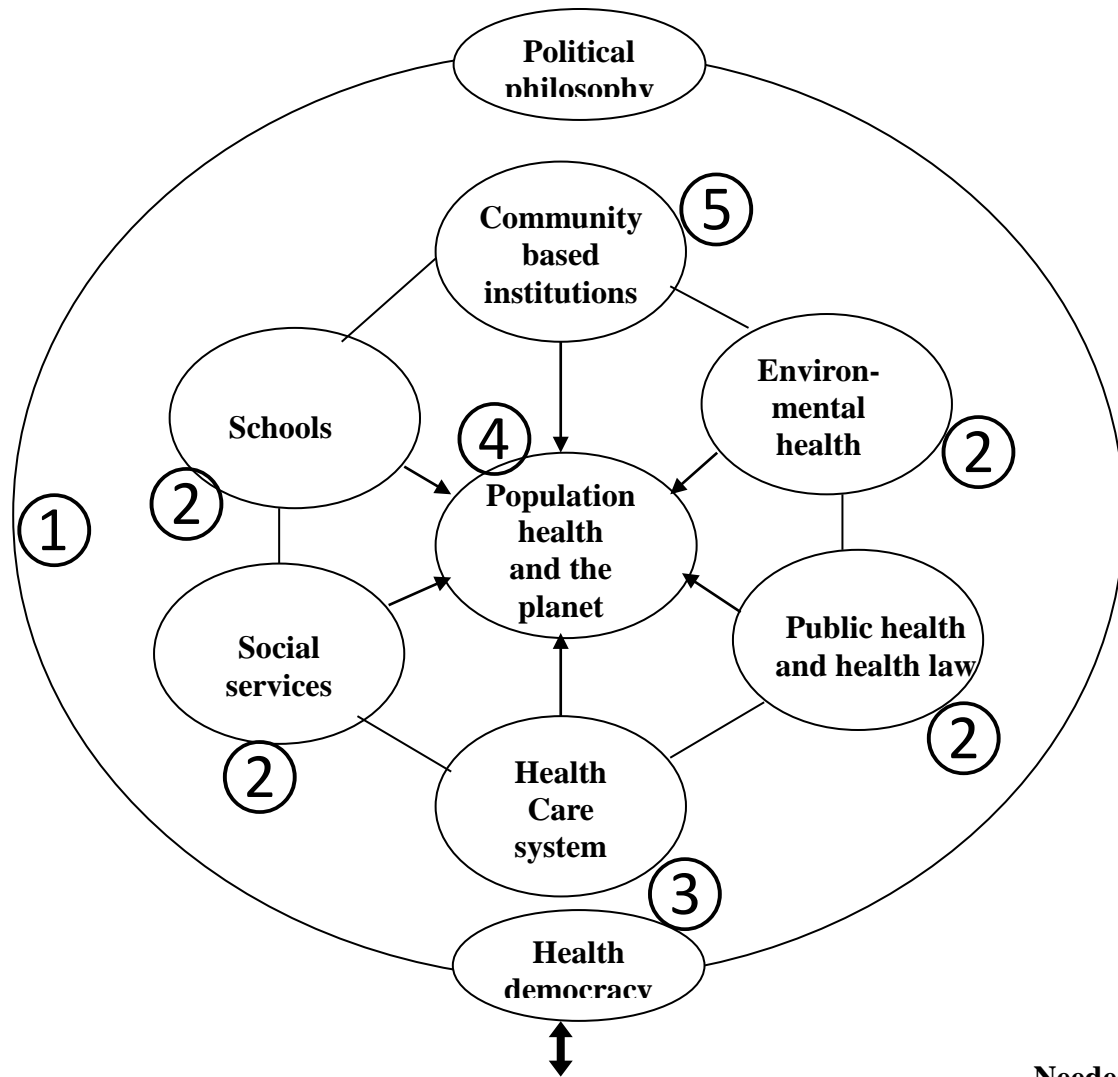
Table 1: Differences between the health systems and health insurance systems in France and the United States – Recommendations for improving the integration of public health and care delivery

Dimensions	France	United States	Recommendations
Regulatory relief	-None	-PPACA creates Preventive Services Task Force charged with evaluating the clinical and cost-effectiveness of preventive services -National Prevention, Promotion, and Public Health Council tasked with making recommendations for a national prevention and health promotion strategy and funding. -These bodies can incorporate the perspectives of both components of the health system into their recommendations by including health care and public health providers in their decision-making processes.	Health care and public health have developed in separate, disjointed structures, resulting in organizational barriers to integration. -The PPACA creates distinct organizational entities to address public health issues and does not provide any explicit linkages with health care actors or any clear mandate to improve integration. -It needs to assess the impact of all policies on health ensuring that the determinants of health are addressed in a more systematic and effective manner to support a health in all policy (HiAP) approach.
Cross sector coordination	Lack of coordination between ministries. -No national health agency but multiple agencies alongside the Ministry of Health. -Lack of coordination between the health system and health insurance. -Lack of coordination between the ambulatory sector and the social sector and with the rest of the continuum of health care. -Failure to support the aging population and the environment.	-The PPACA made significant steps in facilitating access to preventive services. -The PPACA made some progress towards integrating health care and public health, mainly through fostering prevention in the primary care setting but did not take a broad view of prevention preferring to facilitate utilization of existing preventive services. Moreover, it did not address the intersection between health and other policy portfolios.	-HiAP approach requires integration between health and other sectors through cross-disciplinary collaboration and cooperation, shared and compatible data systems, and new organizations, partnerships. -The PPACA needs to make public health the primary goal of the reform and to take a broader view of public health that includes the built environment and the social determinants of health. - The PPACA needs to take a broader view of prevention by addressing health risks in the built environment and health disparities. -It needs a Health Impact Assessment as part of the policy development process for all sectors of government.
Payment reform	-Closed national budget envelop passed by Parliament	- PPACA creates a Prevention and Public Health Fund. It also authorizes funding for	-The creation of separate funding streams for preventive activities fails to consider the

Financing	<ul style="list-style-type: none"> -100% DRG payment to hospitals and becoming ever more complex. -No competition between insurers and no control over using risk selection and making profits. 	<ul style="list-style-type: none"> state-based demonstrations and creates state-level grants for the development and evaluation of Medicaid initiatives promoting behavioral change. -A Creating Healthier Communities grant program will fund health departments implementing community-based preventive initiatives deemed potentially effective by the federal task force. -Accountable Care Organization (ACO) and medical home models are testing global budget, capitation arrangement for chronic disease, and bundle payment for surgical procedures. 	<ul style="list-style-type: none"> importance of integration. - However, the existing framework can be implemented in a way that encourages integration. For example, in allocating funds to federally funded state demonstration projects, the government should give preference to projects that foster health system integration.
Policy change	<ul style="list-style-type: none"> -Regional Health Agency (ARS) with regional health planning. -Privatization of the health care system and health insurance. 		<ul style="list-style-type: none"> Integration must be so ingrained in the health system culture that providers and policymakers intuitively consider the perspectives of both parts of the health system without having to make a conscious effort to do so.
New Workforce		<ul style="list-style-type: none"> -In terms of the supply of public health services, the PPACA's main goal is to increase primary care capacity. -PPACA also creates incentives for medical residents to enter into primary care in underserved areas and funds primary care delivery in mental health centers. - A National Health Care Workforce Commission and National Center for Health Care Workforce Analysis advises Congress on worker supply and demand. 	<ul style="list-style-type: none"> Medical education centered around the biomedical model and a culture that is preoccupied with access to health care services, and patient demand must be changed. -It is becoming essential that medical and public health schools also embrace health system integration.
Information revolution	-	<ul style="list-style-type: none"> -The federal government made a limited investment in modernizing outdated public health information technology, surveillance, and laboratory capacity. -Stimulus legislation authorized incentive 	<ul style="list-style-type: none"> Public health departments must access medical records to track injuries, diseases, and health disparities and to enable a timely response to health hazards. -Missed opportunity was the PPACA failure

		payments in Medicare and Medicaid for providers that exhibited “meaningful use” of electronic health records, which includes valuable public health measures to track diagnoses, smoking, weight trends, and disparities but data was not mandated to be reported to public health agencies.	to authorize state and federal agencies to collect data from electronic health records, and its failure to empower health plans to track benchmarks in health outcomes and preventive care. -Successful integration between health care and public health necessitates interoperability between data systems.
Measurement	-	-Meaningful use of EMR but with limitation noted above.	Need to set of measures to account for the whole health of population. -Start with a Health Impact Assessment which can include a combination of procedures, methods and tools by which a policy, program, or project may be judged as to its cooperation of all sectors of governmental policy. -National or regional Information Boards needed to bring together organizations from across the health, insurance, employers, local government and patient representatives to insure meeting goals of triple aim with comprehensive transparency of performance data, benchmarking between providers, and between systems.
Evaluation Methods of diffusion of innovation	-Creation of an Institute to study and promote best practices. - Plan to engage in joint learning opportunities about best practice strategies between European countries and the US.	-High Value Healthcare Collaboration	Find best approach to rolling out high value innovation. -Accelerate the quicker adoption of cost-effective innovation by creating partnership with the private and public sectors.

Figure 1 : The five-step model to guide policy, financing, and practice transformation



Triple Aim

- Better health
- Better care
- Lower cost

Value

- Create "Equilibrium" For future generations

Needed

- Regulatory relief
- Cross sector coordination
- Payment reform
- Policy change

Figure 1