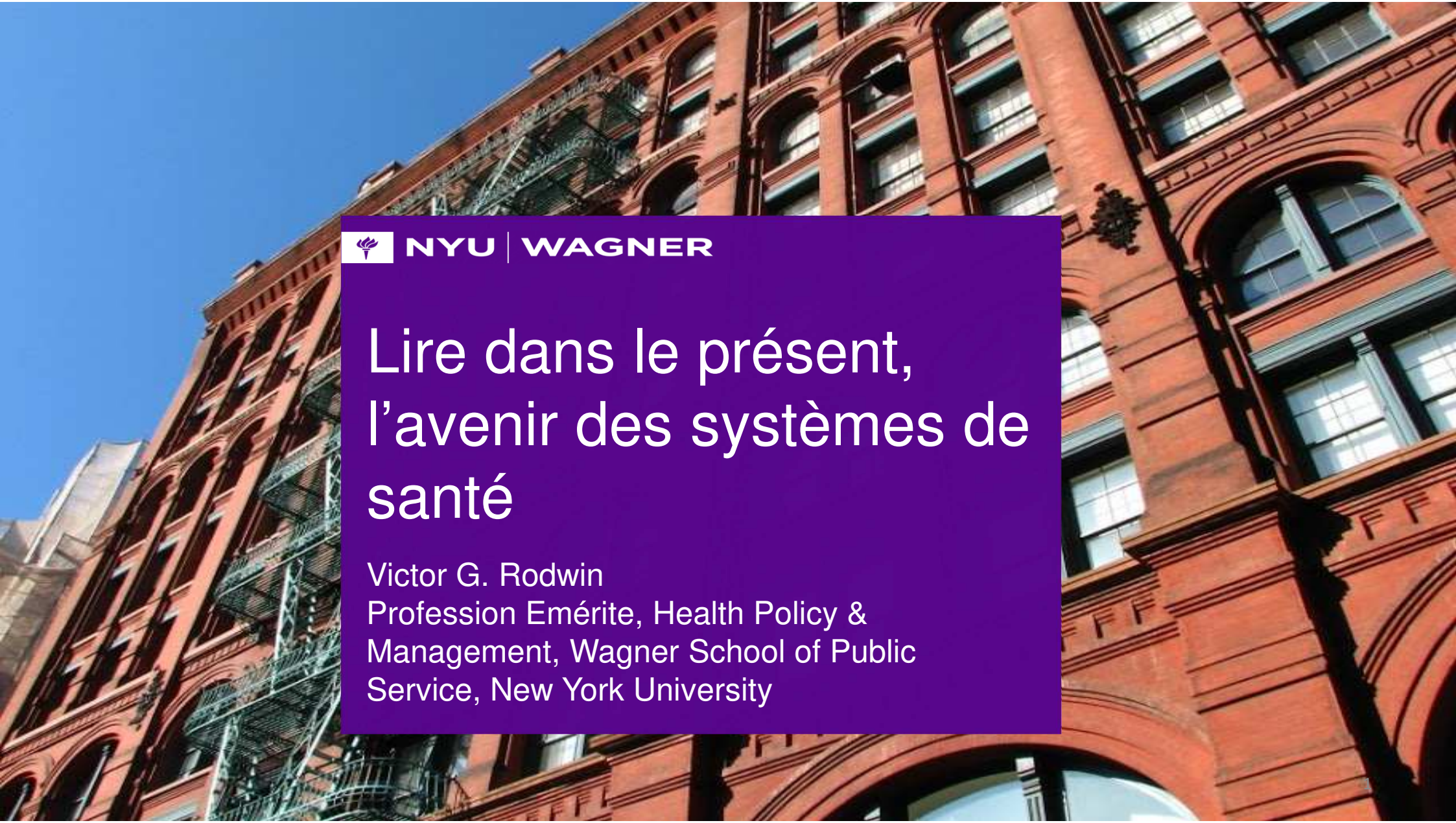


NYU | WAGNER

Lire dans le présent, l'avenir des systèmes de santé

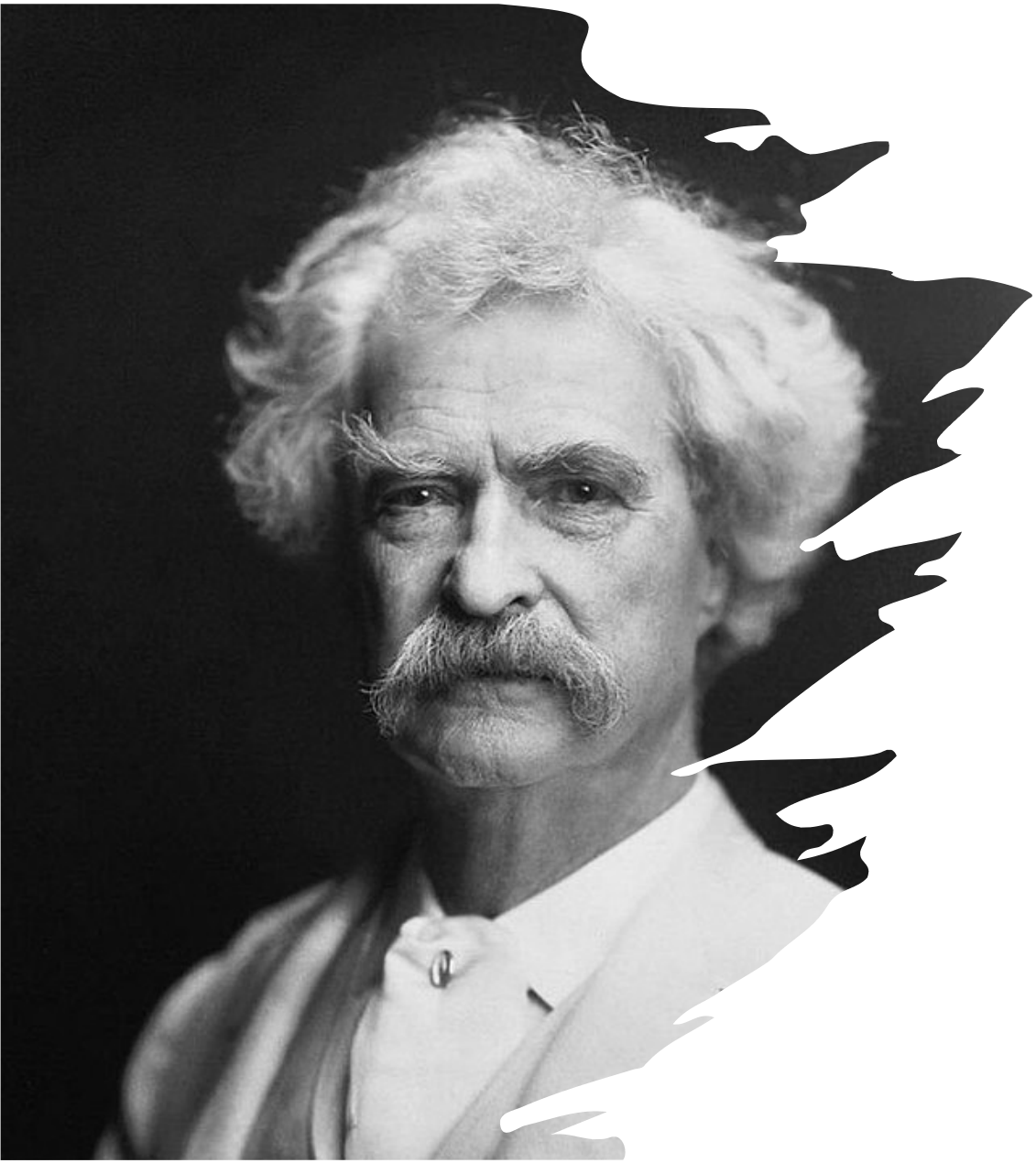
Victor G. Rodwin
Profession Emérite, Health Policy & Management, Wagner School of Public Service, New York University

Health Sector Growth in the U.S.: 1975-2020

Metric	1975*	2020
Number of Healthcare Jobs	4 million	>22 million (14% of all employees; largest economic sector in US economy)#
Healthcare spending per person	$550/year	>$12,000/year
Time allotted for office visits*	60 min. new, 30 min. return	12 min. new, 7 min. return
% of GDP Healthcare	<8	19.7##
Average Hospital daily room charge	~$100	$2,052
Miscellaneous	None of these	Relative value units, EHRs, PBMs, ACOs

*From E. Topol, *Deep Medicine, 2019* #U.S. Bureau of Labor Statistics

##Hartman et al.Health care spending, Health Affairs (41)1 2022.



"Prophesy
is a good line of
business,
but it is
full of risks. ”

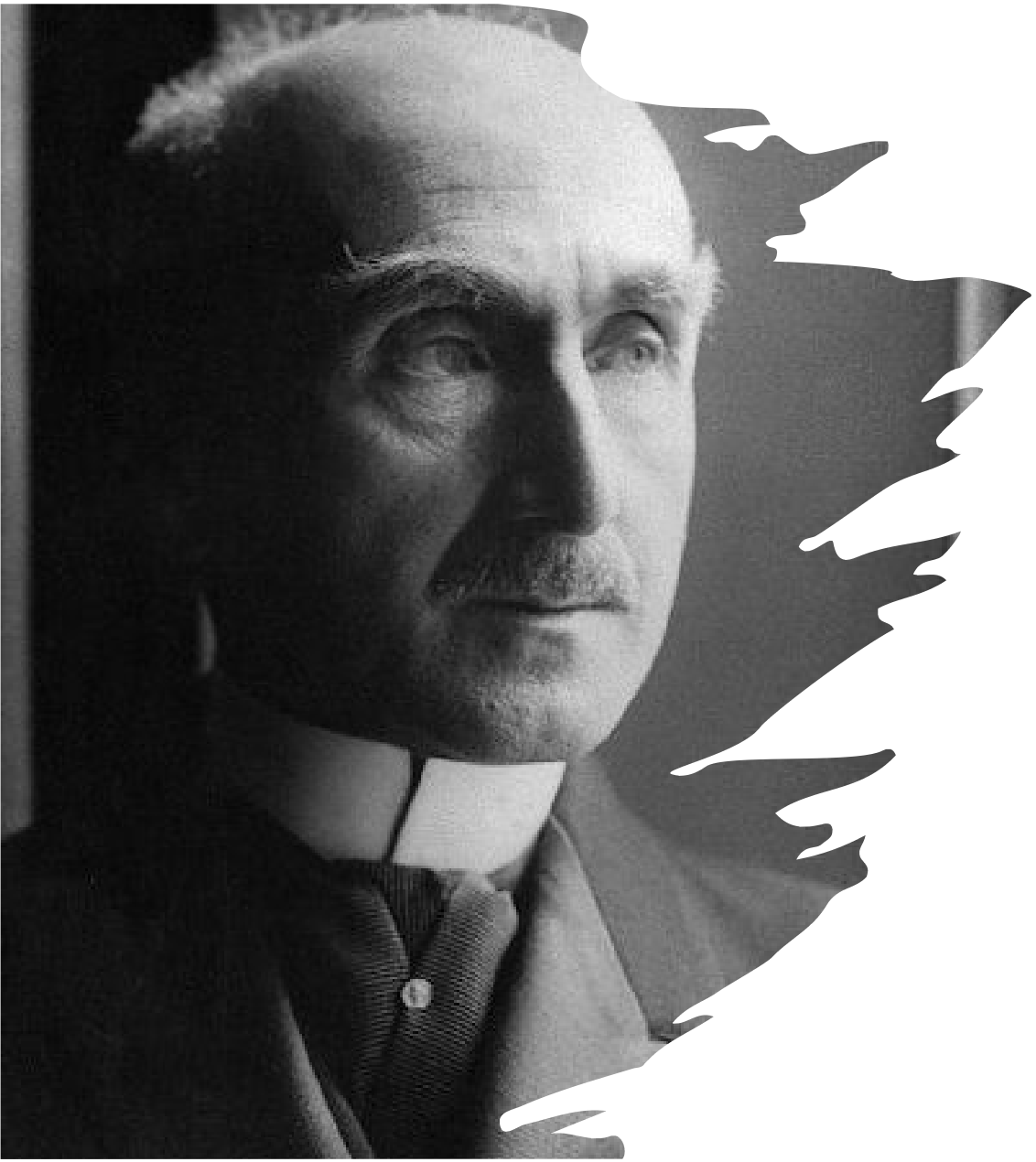
--Mark Twain
in
Following the Equator

“La prévision
est très difficile,
particulièrement
au sujet du futur.”

--Niels Bohr

“Mieux vaut prévoir même sans certitude que ne pas prévoir du tout.”

--Henri Poincaré

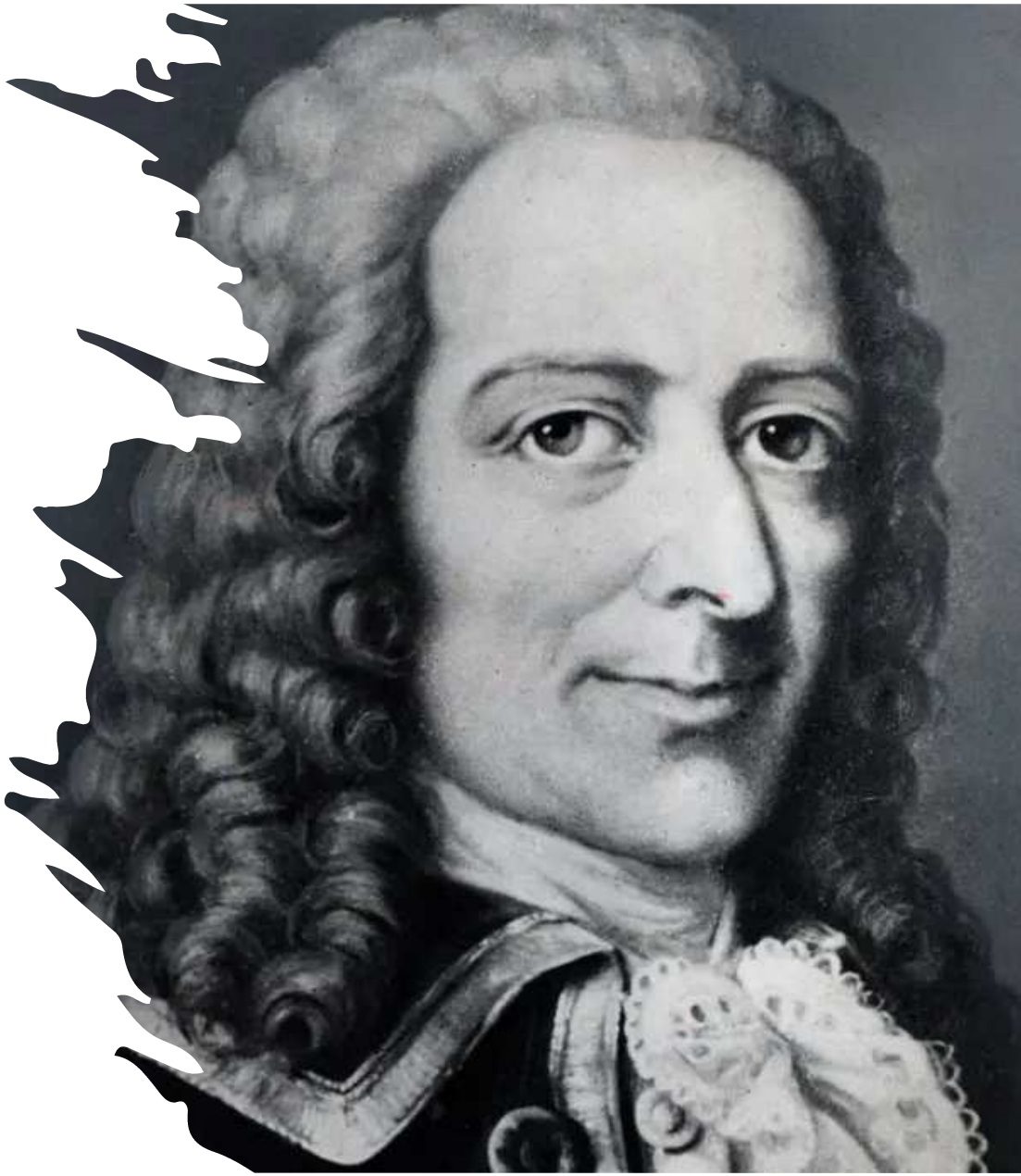


“L’avenir n’est pas ce qui va arriver, mais ce que nous allons faire.”

--Henri Bergson

“Il est dit que le présent
est enceinte du futur.”

--Voltaire



L'AVENIR?

- Evolution depuis les années 1950-60: concurrence entre deux modèles:
  - La santé … Comme une église!
  - La santé ... Comme un garage!
- La démographie, c'est le destin..
- Non, ce sont les nouvelles technologies qui changent le monde..

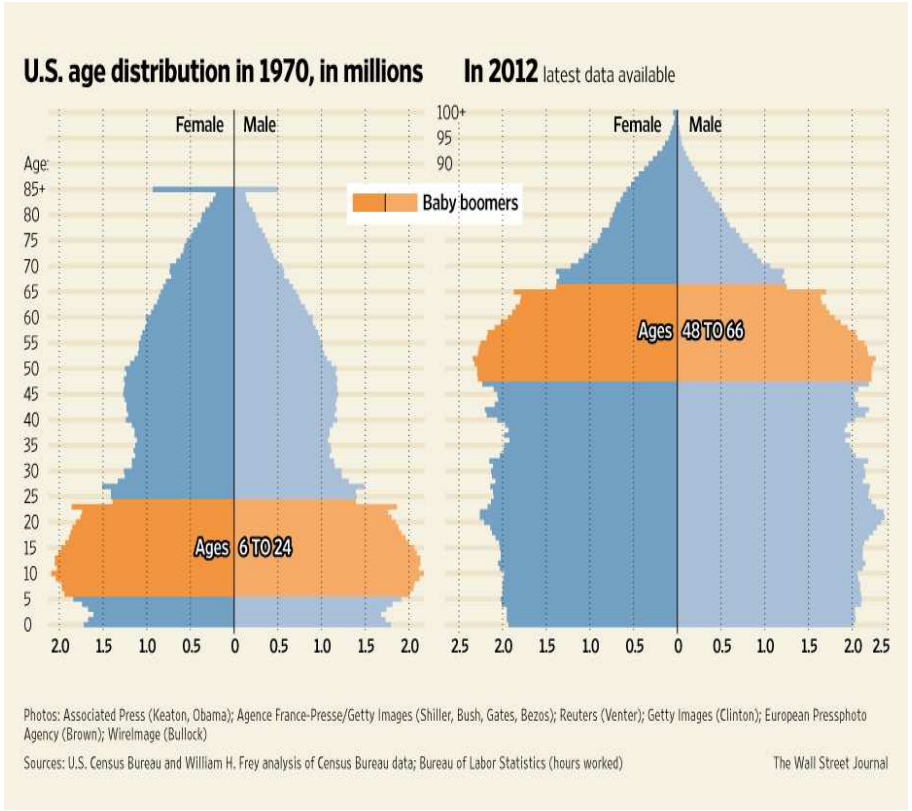
Table 1: The competing models

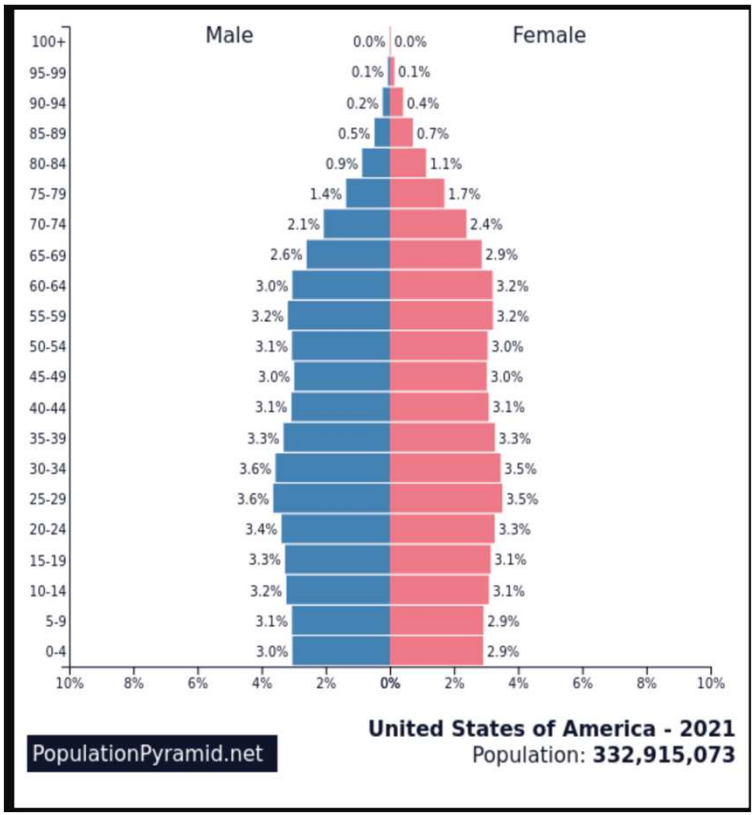
Model I: health care as church	*Model II: health care as garage*
Paternalism	Consumerism
Planning	Responsiveness
Need	Demand
Priorities	Choice
Trust	Contract
Universalistic	Pluralistic
Stability	Adaptability

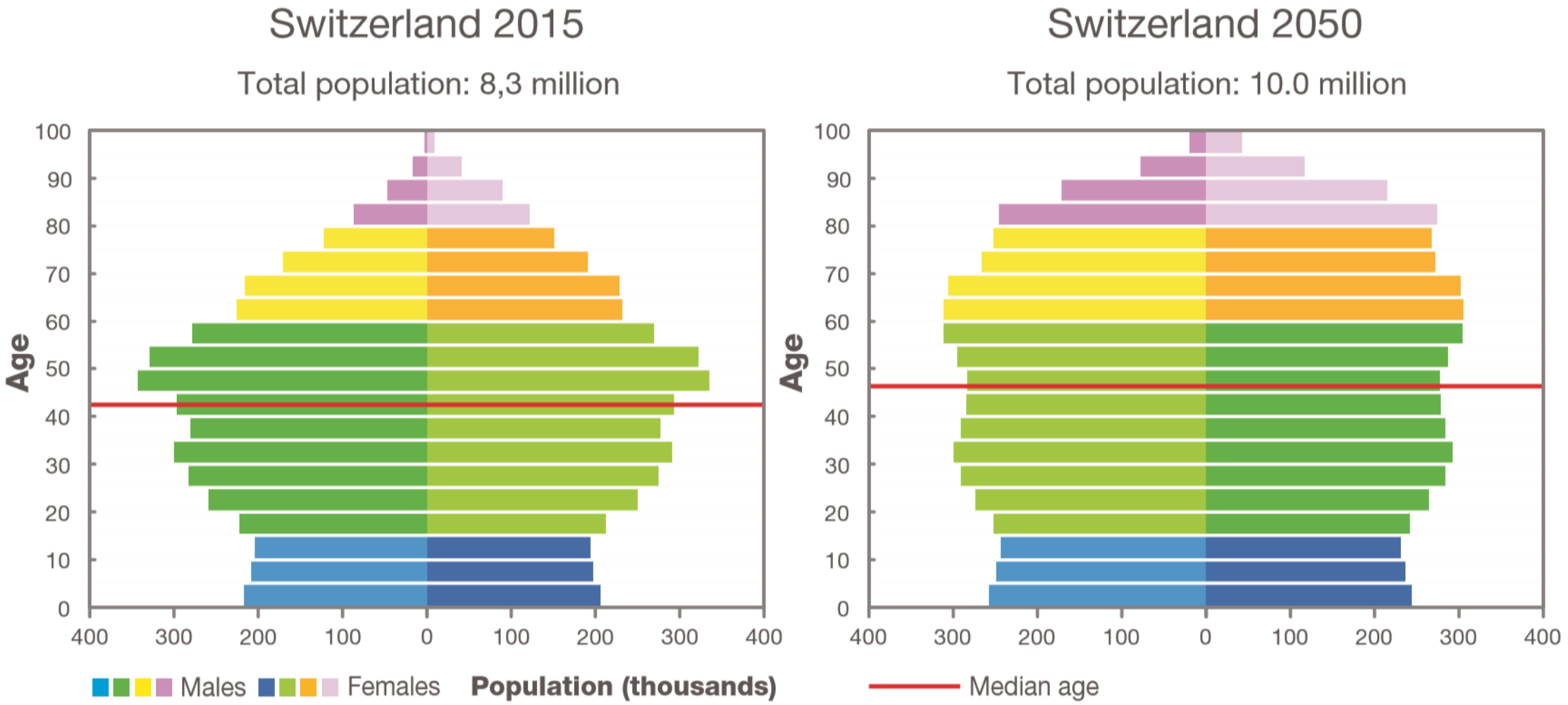
Klein, Rudolf. *The New Politics of the NHS: From Creation to Reinvention*. Oxford: Radcliffe, 2010. 306. Print.

Population Age Distribution Over Time

Source: Wall Street Journal







Policies on Ageing and Health
A selection of innovative models

MULTISECTORAL ACTION FOR A LIFE COURSE APPROACH TO HEALTHY AGEING

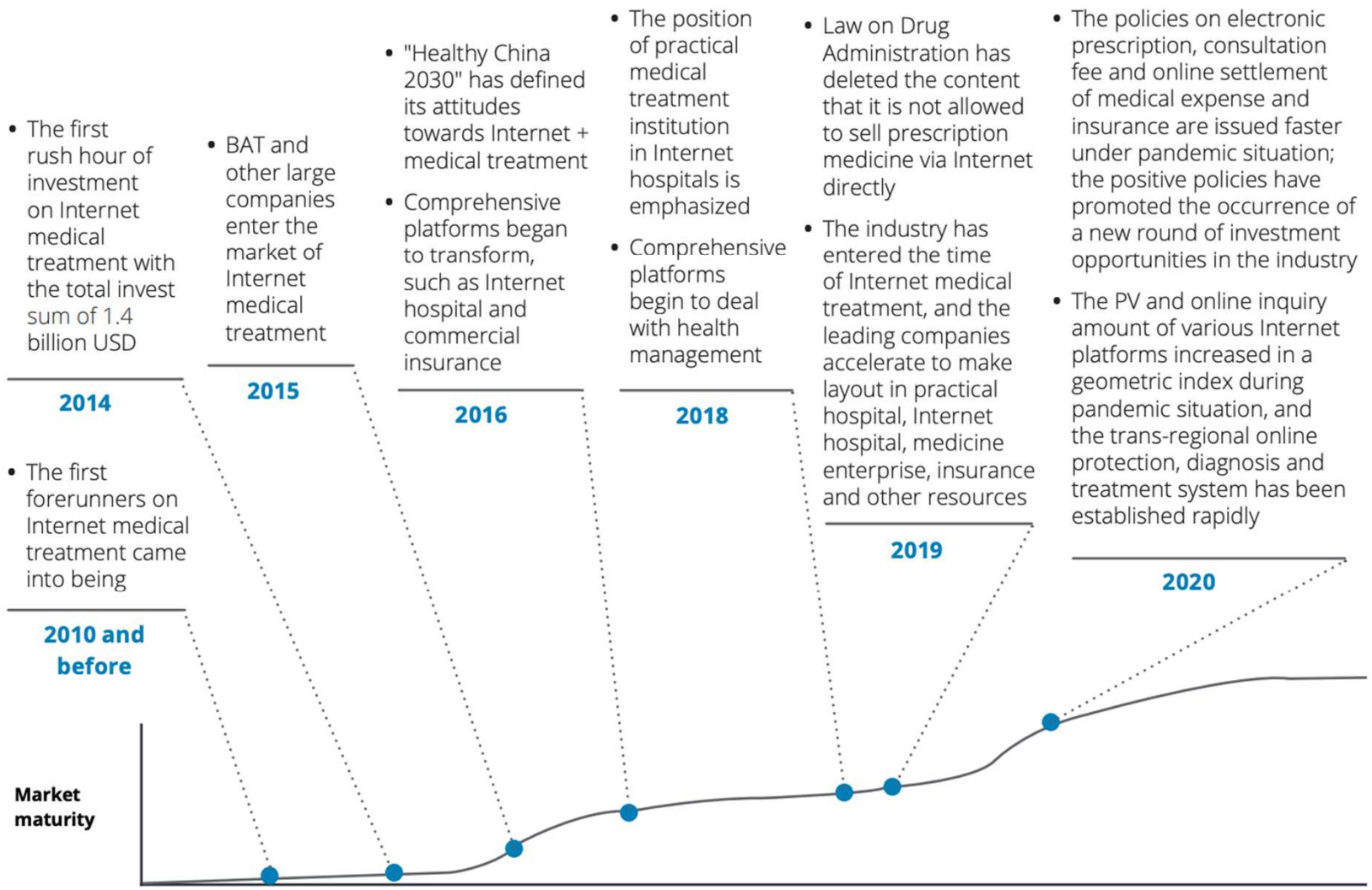
Dr. Mathias Bernhard Bonk

Topol, E. et. al. Digital Medical Tools and Sensors, JAMA, 313(4), 2015

Table. The Digitally Connecting World 2010-2020

	2010	2015[a]	2020[a]
World population, billion	6.8	7.2	7.6
No. connected			
Devices, billion	12.5	25	50
Devices per person	1.8	3.5	6.6
No. of smartphone subscriptions, billion	0.5	3.0	6.1
No. of wireless hotspots, million	3	47	500
No. of transistors, million/chip, nm	16/40	19/16	22/8
No. of sensors	20 Million	10 Billion	1 Trillion
No. of individuals sequenced	<10	400 000	5 Million

Figure 1: The timeline for the development of Internet health care platforms in China



L’Avenir Aujourd’hui!

- Penn Medicine
- H4D: Cabinet medical connecté de proximité
- Ready Care
- ReadyResponders.Youtube

GUY VALLANCIEN

LA MÉDECINE SANS MÉDECIN ?

Le numérique au service du malade

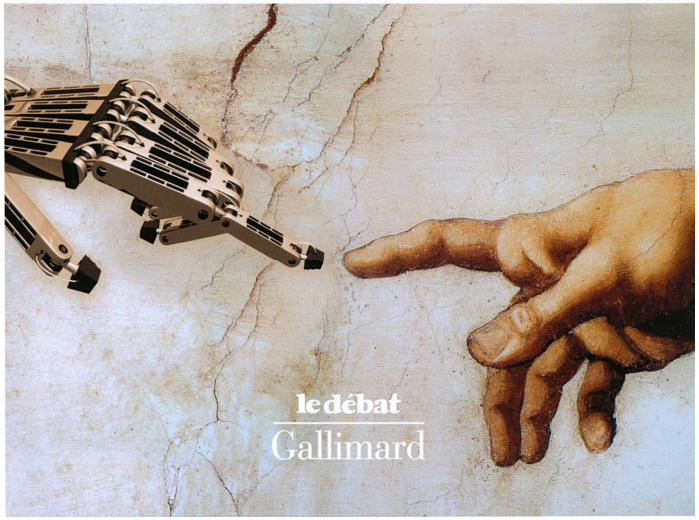
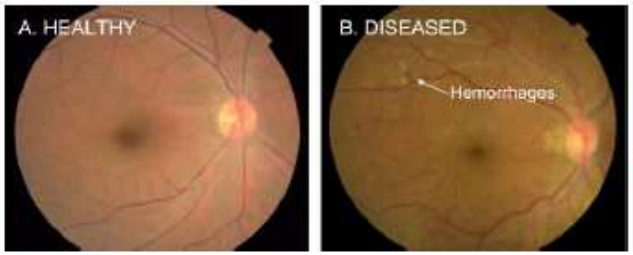


FIGURE 7.1: The disconnecte
doctor and patient. Source:
Adapted from "The Pharos,"
The Pharos of Alpha Omega
Alpha Honor Medical Socie
Summer Edition, 78 (201

ARTIFICIAL INTELLIGENCE (AI) IN HEALTHCARE

AI in Healthcare



This Issue Views 60,969 Citations 2

Original Investigation | Innovations in Health Care Delivery

December 13, 2016

Development and Validation of a Deep Learning Algorithm for Detection of Diabetic Retinopathy in Retinal Fundus Photographs

"If you want a second opinion, I'll ask my computer."

The algorithms of machine learning, which can sift through vast numbers of variables looking for combinations that reliably predict outcomes, will improve prognosis, displace much of the work of radiologists and anatomical pathologists, and improve diagnostic accuracy

Predicting the Future — Big Data, Machine Learning, and Clinical Medicine.
Ziad Obermeyer, M.D., and Ezekiel J. Emanuel, M.D., Ph.D.
N Engl J Med 2016; 375:1216-1219September 29, 2016DOI: 10.1056/NEJMp1606181

Increased Uncertainty

"So will precision medicine usher in an age of diagnostic and prognostic certainty? In fact, the opposite will probably result. The new tools for tailoring treatment will demand a greater tolerance of uncertainty and greater facility for calculating and interpreting probabilities than we have been used to as physicians and patients."

David Hunter, Uncertainty in the Era of Precision Medicine. NEJM, 375;8 August 25, 2016

Future of Clinical Decision Support

- We will have massive data streams resulting from pervasive monitoring and interactions with personal health monitors, the environment, and related public health data…the genome, metabolome, proteome, and microbiome. This implies the very nature of knowledge, and reasoning or decision-making, are changing under our feet…

- Nevertheless, we believe that the power of human reasoning will never be fully supplanted by an algorithm of any kind, nor do we believe the intimate and essential relationship between a doctor and her patient can be replaced by a computer.

- Middleton et al. Clinical Decision Support: a 25 Year Retrospective and a 25 Year Vision. IMIA Yearbook of Medical Informatics 2016

Transforming Primary Care

Patient-centered teams and Care Systems

- Patients receive enhanced access to primary care, well coordinated by a team
- Patients actively engaged (treatment decisions, care at home)
- Teams use decision-support tools, assess performance
- Linked to care continuum – care system; health focus
- Payment support – not just fee for service

2020 Vision
Accessible
Patient Centered
Coordinated Care

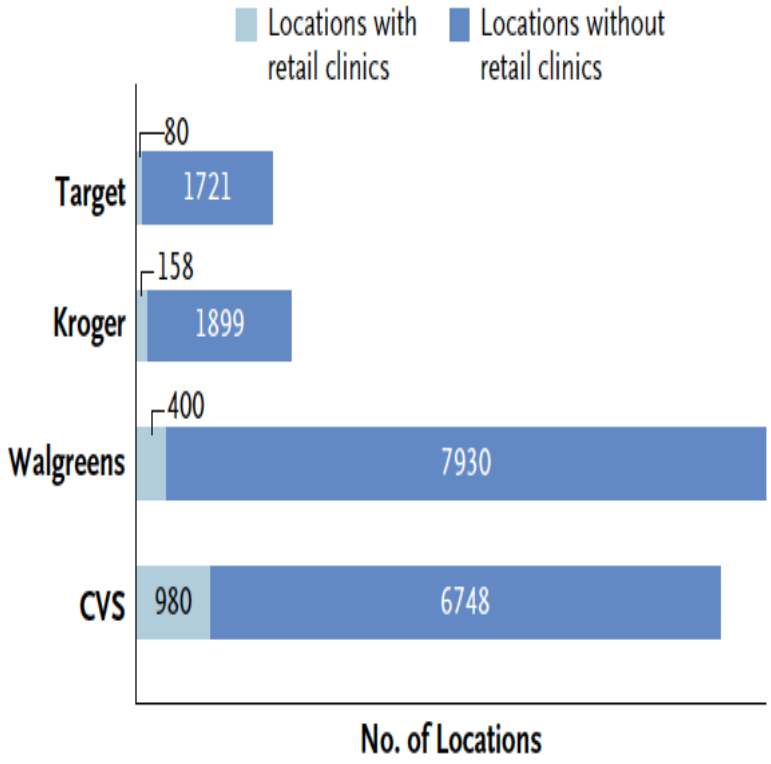
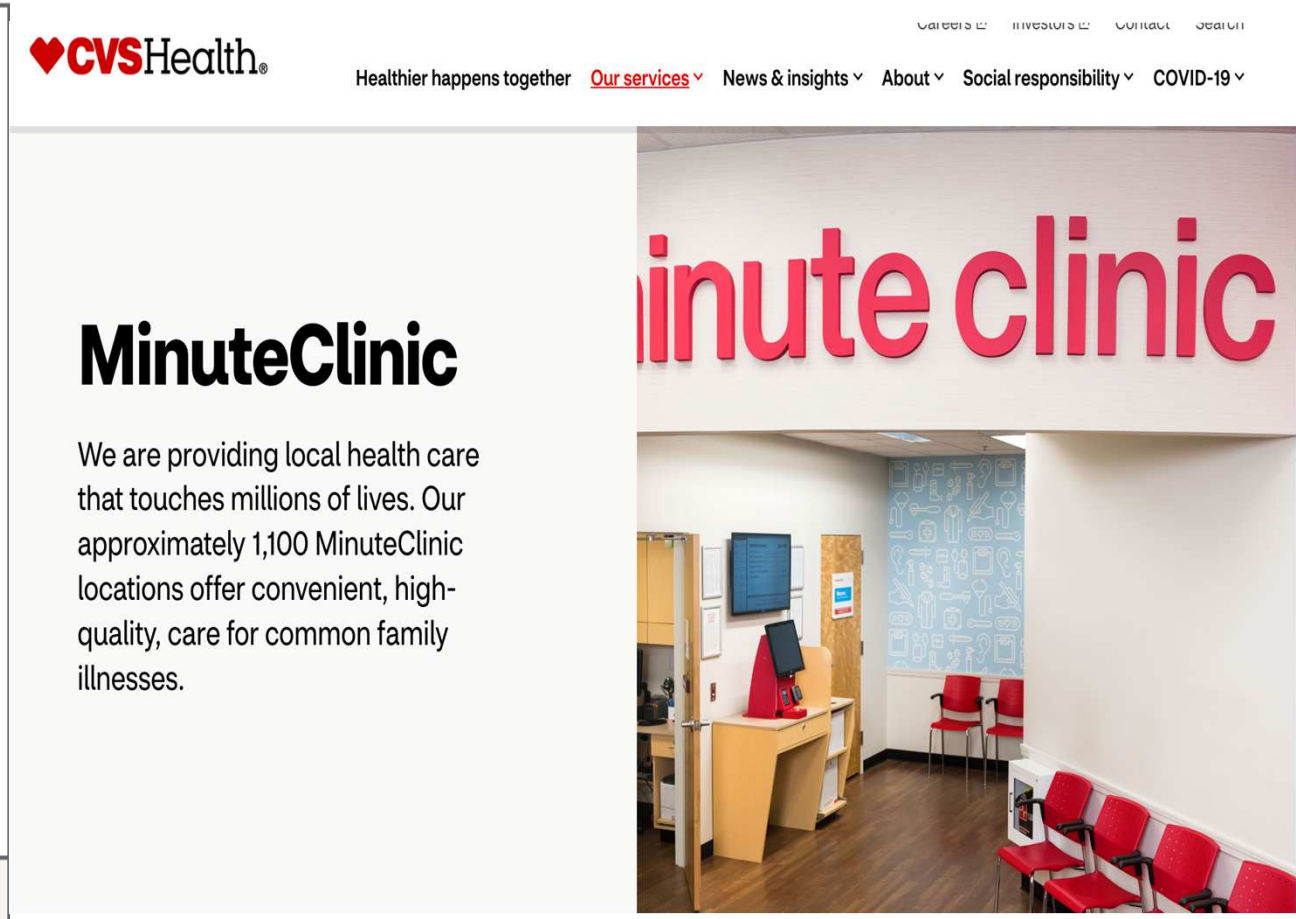


Figure 1. Number of Provider Locations with Retail Clinics and without Retail Clinics.

Data are based on telephone and e-mail interviews conducted in May 2015 with representatives from each retail-clinic operator. Note that there is room within each clinic chain for expansion of services.

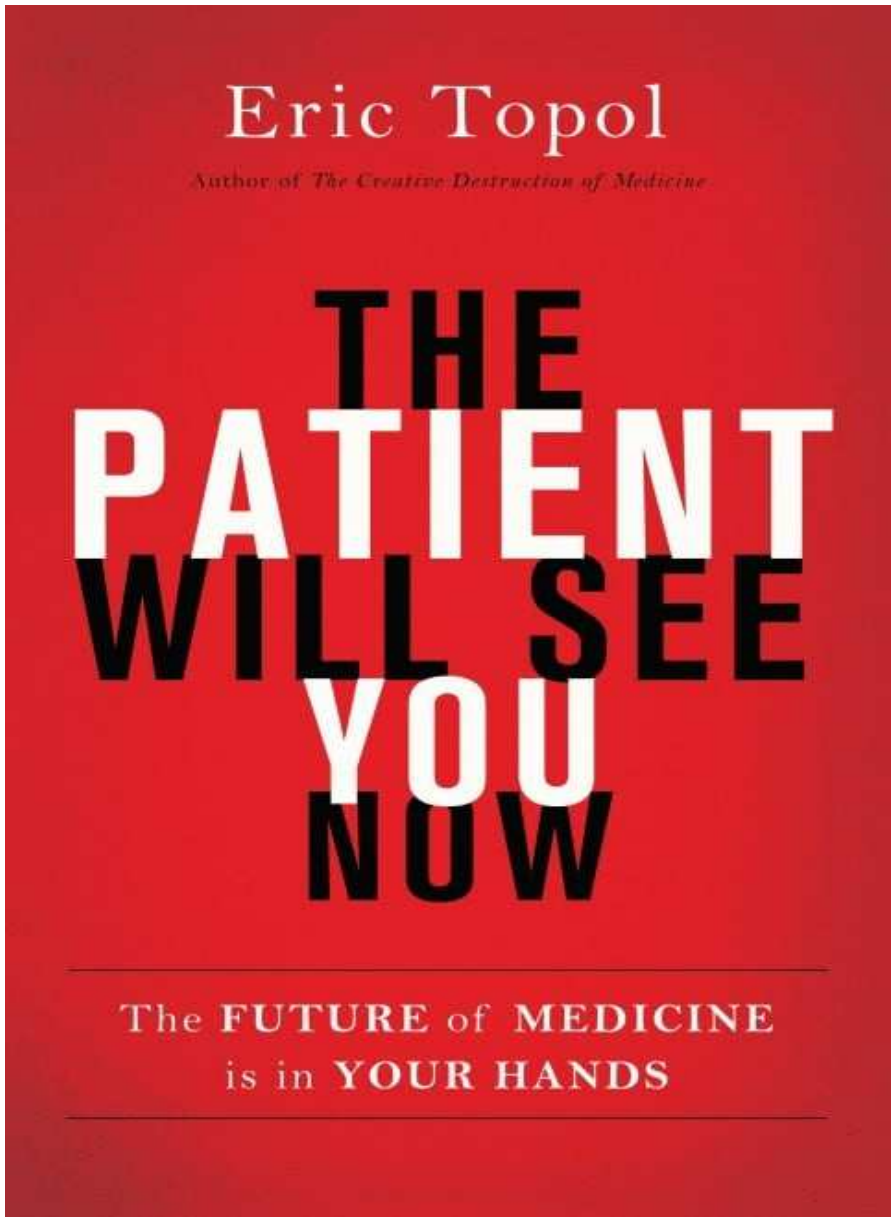


CVS.Clinics

4-Minute Listen

+ PLAYLIST

CVS plans to transform some of its stores into "health hubs," retail locations revamped to include more health care services and products. One of the first is in Spring, Texas, a suburb of Houston.


Eric Topol
Author of The Creative Destruction of Medicine
THE PATIENT WILL SEE YOU NOW
The FUTURE of MEDICINE
is in YOUR HANDS

Tytocare

Current State of the Art for Telehealth

- To fill gaps in care due to provider shortages
- To provide access to care after normal clinic hours
- To reduce patient and family travel times
- To facilitate appointment scheduling
- To refill prescriptions

How it Works

- *Clinician to clinician communication*: e.g. in dermatology, radiology, Emergency room and ICU, surgical peer monitoring...

- *Clinician to patient*: e.g. care for chronic conditions, medication management, wound care, counseling, medication adherence, post-hospital discharge follow-up, mental health services…

- *Patient to mobile health technology*: 1)Key tools: wearable monitors, smartphones, mobile apps, video, E-mail, web portals, games…..2) Service areas: health education, monitoring physical activity, monitoring diet, medication adherence, cognitive fitness…..

Challenges for the Future

- *Improving interoperability across devices and data integration:* As the tools noted above proliferate, clinicians and insurers will seek ways to make them work seamlessly together and supported by data streams integrated in electronic records. AT the present time, most EHR systems are unable to integrate patient generated data from remote self-monitoring devices. Given the explosion of patient generated data clinicians could easily become overwhelmed if these data are not coordinated/integrated…..

- *Increasing patient engagement in the evolving patient-physician-insurer relationship*: Traditional in-person physician-patient relationships, whether in private offices, health centers or hospitals are undergoing a massive transformation as a result of many forces. Meanwhile, wireless monitoring, mobile health apps, social media, smartphone video capabilities, internet chat groups, patient advocacy organizations open up innovative options for extending the traditional doctor-patient one-on-one relationship

The Creative Destruction of MEDICINE

HOW THE **MOBILE REVOLUTION**
WILL CREATE BETTER HEALTH CARE

ERIC TOPOL, M.D.

US Medical Industrial Complex

- > 13,944 hospitals and 6.2 million employees (BLS, 2021)
- >22 million jobs (2021)
- 10 of 20 fastest growing occupations
- Great growth potential: 16% projected growth in healthcare occupations from 2020-30
- Arnold Relman, Rise of MIC, 1981..NEJM
- Elisabeth Rosenthal: *An American Sickness*, *How Health Care Became Big Business*

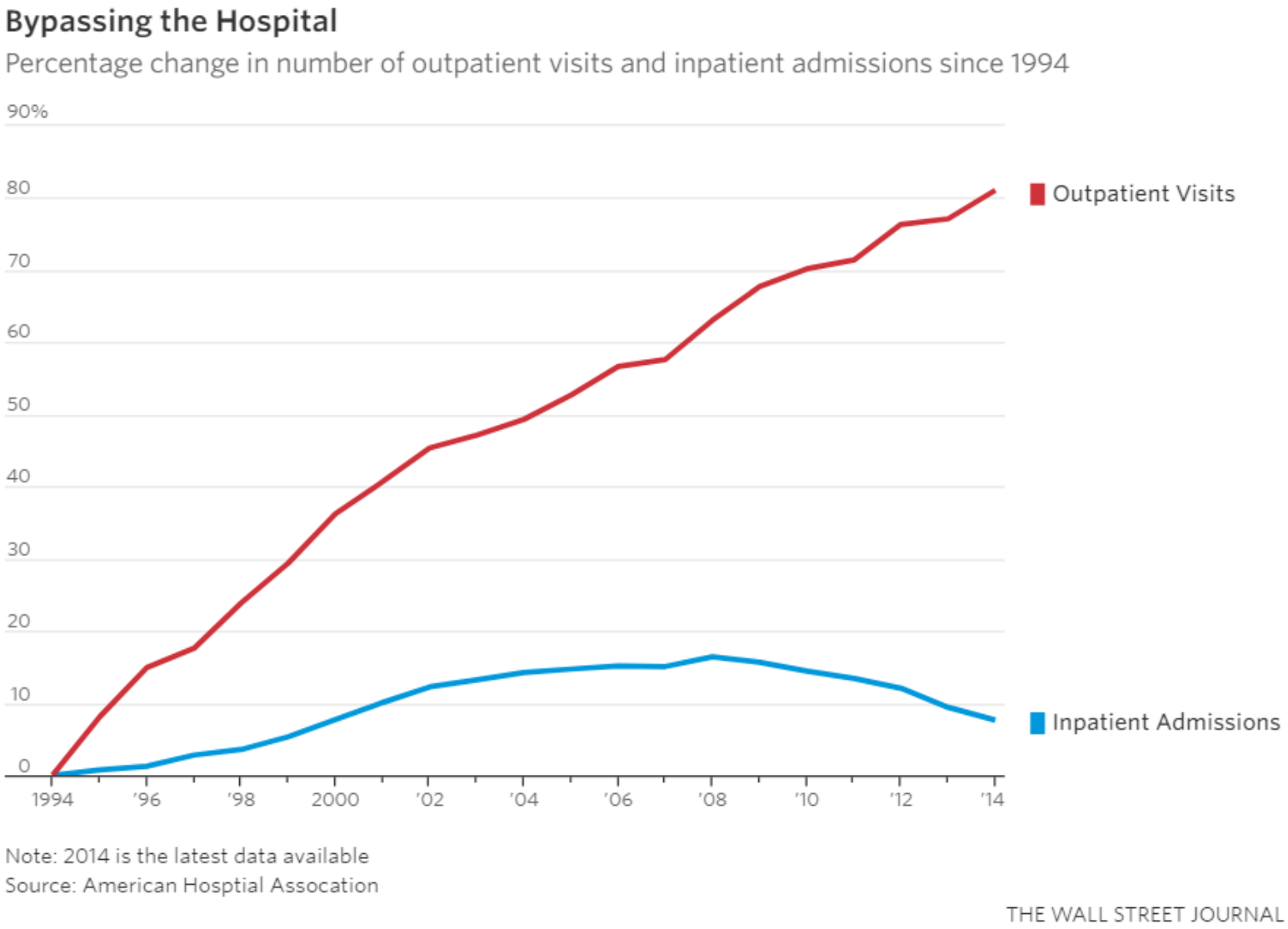
BLS: Current Employment Statistics, Current Population Survey, Job Openings and Labor Turnover Survey

Industry Trends

- > 1 million healthcare Apps,

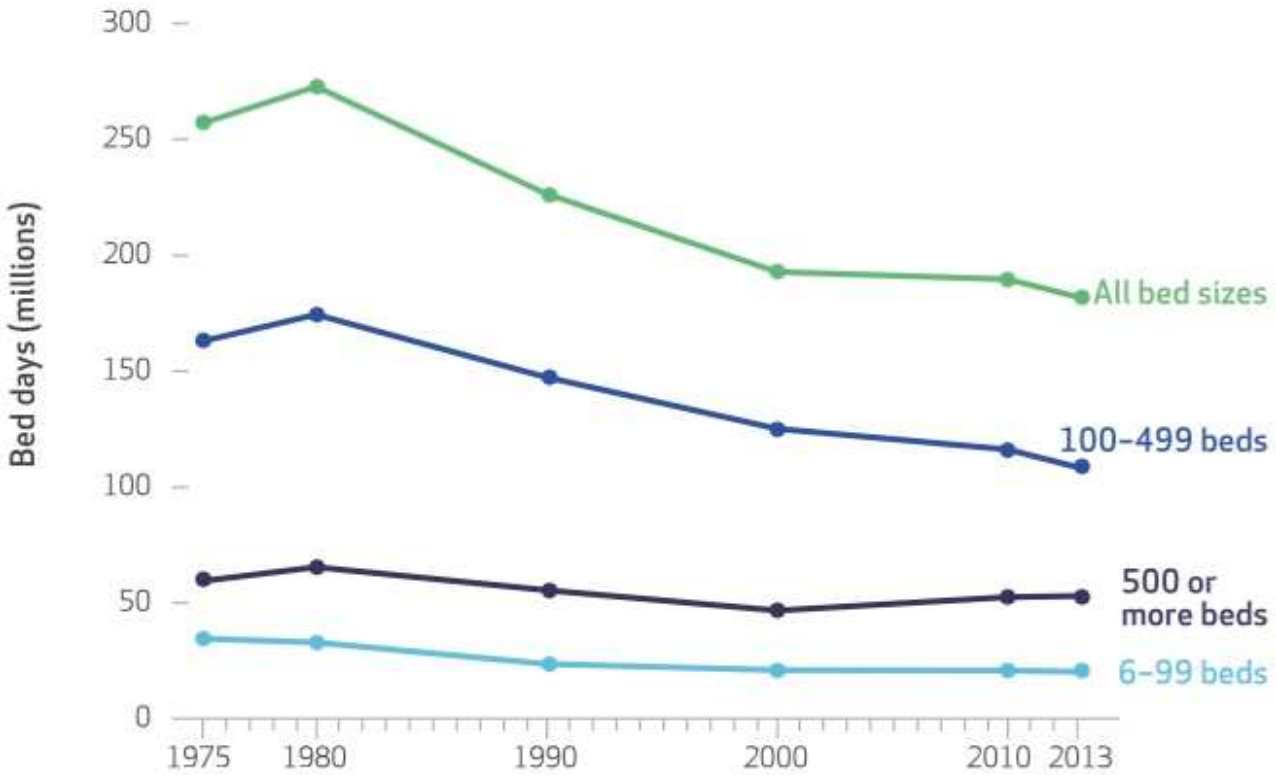
- Telehealth (1.25 million direct-to-consumer (D-to-C) visits in 2015-Teledoc, American Well, Doctors on demand. Survey of large employers indicates that 90% plan to offer telehealth options to employees (Ashwood et al. D-T-C Telehealth.., *HA,* 2017. 12% of visits replaced visits to other providers; 88% represented new utilization.

- Consolidation – horizontal and vertical-Between 2004-9, 337 M&A deals and 880 hospitals merged; between 200-9015, 561 deals and 1,261 hospitals merged;>40% primary care physicians employed by hospitals (2016) and many others « affiliated »..solo practice now around 30%



Evans, Melanie. "Warding Off Decline, Hospitals Invest in Outpatient Clinics." *The Wall Street Journal*, 25 Sept. 2017.

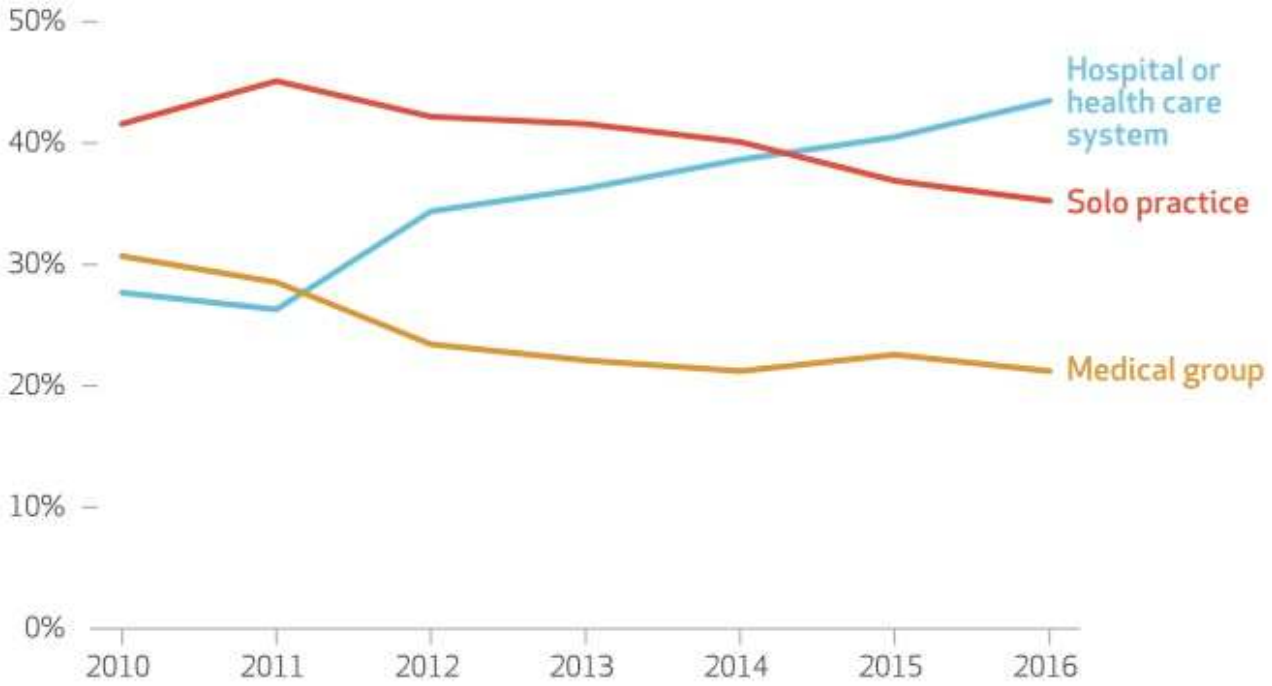
Annual inpatient bed days in community hospitals, by bed size category, selected years 1975–2013



SOURCE Authors' analysis of data from National Center for Health Statistics. Health, United States, 2015, Table 82 (see Note 10 in text).

Source: *Glied SA, Altman SH. Beyond Antitrust: Health Care And Health Insurance Market Trends And The Future Of Competition. Health Aff. 2017;36(9):1572–1577.*

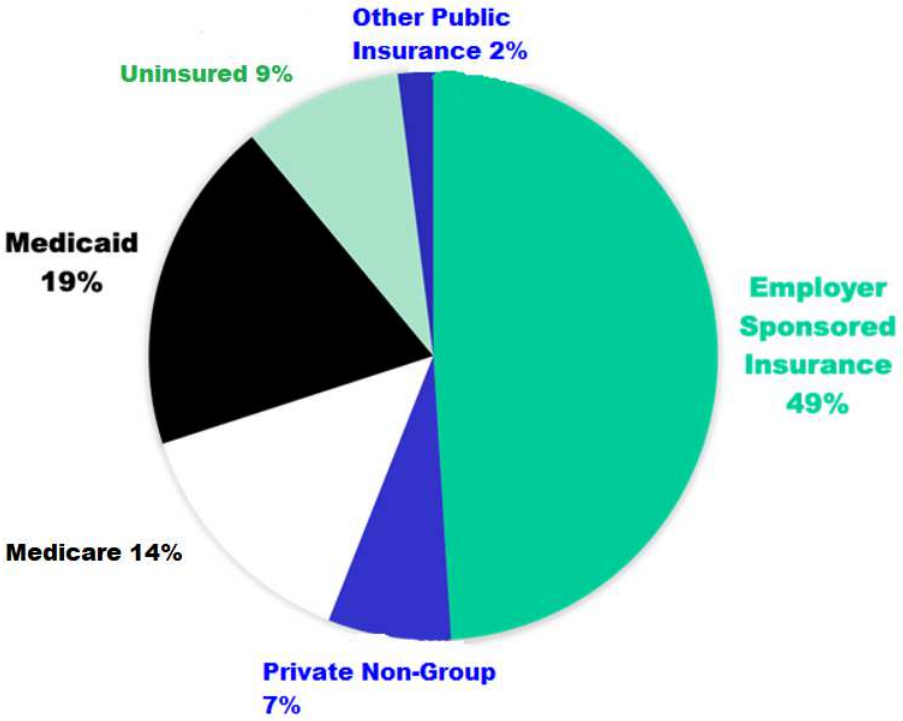
Percentages of primary care physicians working in organizations, by ownership type, 2010–16



SOURCE Author's analysis of data from the SK&A Office Based Physicians Database from IMS Health.
NOTE The percentage of physicians working in an organization owned by a hospital or a health care system increased 57.0 percent, while the percentages in independent solo practice and in a medical group declined 15.1 percent and 30.9 percent, respectively.

Source: *Fulton BD. Health Care Market Concentration Trends In The United States: Evidence And Policy Responses. Health Aff.2017;36(9):1530–1538.*

Health Insurance Coverage in the U.S., 2016

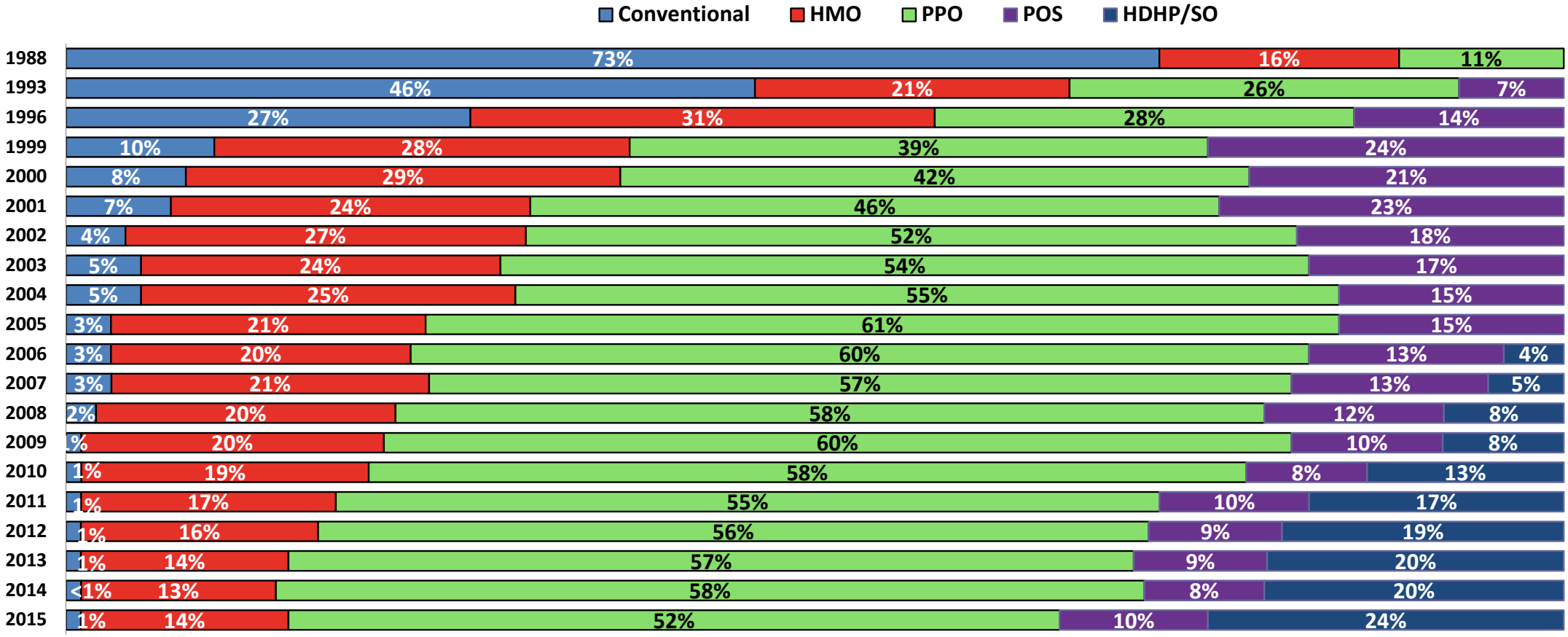


Total = 320.4 million

* *Medicaid* includes those covered by Medicaid, the Children's Health Insurance Program (CHIP), and those who have both Medicaid and another type of coverage, such as dual eligibles who are also covered by Medicare. Numbers may not add to 100 due to rounding.
SOURCE: Kaiser Family Foundation. Estimations based on the Census Bureau's March Current Population Survey (CPS: Annual Social and Economic Supplements), 2014-2017. https://www.kff.org/other/state-indicator/total-population/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D

THE HENRY J. KAISER FAMILY FOUNDATION

Distribution of Health Plan Enrollment for Covered Workers, by Plan Type, 1988-2015



NOTE: Information was not obtained for POS plans in 1988. A portion of the change in plan type enrollment for 2005 is likely attributable to incorporating more recent Census Bureau estimates of the number of state and local government workers and removing federal workers from the weights. See the Survey Design and Methods section from the 2005 Kaiser/HRET Survey of Employer-Sponsored Health Benefits for additional information.SOURCE: Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 1999-2015; KPMG Survey of Employer-Sponsored Health Benefits, 1993, 1996; The Health Insurance Association of America (HIAA), 1988.

Tableau 2.1 Catégorisation des initiatives (n=155)

Catégories proposées	Description & éléments utilisés pour décider de l'attribution d'une initiative à une catégorie
« Centres de santé »	Initiatives regroupant, sous une même gouvernance, plusieurs structures et niveaux de prestations de soins: premier recours (médecin ou autre) et/ou soins ambulatoires spécialisés (médecin ou autre) et/ou Stationnaire aigu et/ou Soins de transition et/ou Soins de longue durée, ... Cette catégorie n'inclut pas les structures spécialisées en psychiatrie (voir ci-dessous).
« Réseaux de médecins »	Réseaux de médecins généralistes et spécialistes, qui, notamment, développent/utilisent des guidelines et organisent des cercles de qualité.
« Santé mentale & psychiatrie »	Initiatives ciblant la psychiatrie (globalement ou pathologie spécifique) et/ou la santé mentale de manière plus générale (addiction, dépendances, démences, etc.). Cette catégorisation l'emporte sur les « Centres de santé » et sur les initiatives qui, en plus, mentionnent du *care/case-management*, par ex.
« Groupes cibles spécifiques »	Initiatives ciblant une ou des pathologies somatiques spécifiques et/ou groupes de pathologies somatiques ; initiatives ciblant un ou des groupes de patients spécifiques. Cette catégorie n'inclut pas les groupes présentant des problématiques de santé mentale ou de psychiatrie.
« Médicaments »	Initiatives dont l'objectif principal est la gestion des médicaments et/ou du traitement.
« Transition & coordination »	Initiatives centrées principalement sur des activités de coordination entre structures/niveaux de santé différents, de plaque tournante (*Drehscheibe* en allemand), d'information/redirection dans le système de santé en collaboration avec les acteurs déjà présents dans les situations, de *case/care management* formalisé, ou encore de promotion/valorisation du travail en équipe interprofessionnelle/interinstitutionnelle.

Source: Enquête suisse sur les soins intégrés (2016)

Tableau 1 : **Quatre Modèles d'Architecture Institutionnelle du *Managed Care***

1	Assurance maladie traditionnelle sous contrôle (*managed indemnity*).	contrôle prospectif et continu de l'utilisation des soins.
2	Assurance maladie incitative (*Preferred Provider Organization*, PPO).	incitation pour le malade à se faire soigner au sein d'un réseau de soins avec réduction de leur participation financière.
		incitation pour le médecin à s'assurer une clientèle.
3	Système intégré d'assurance maladie et de production de soins (*Health Maintenance Organization*, HMO).	accès à un réseau de soins soumis à un « gate-keeper » : a). *staff model* b). *group model* c). *Independant Practice Association* (IPA) d). *net work model*, réseau de a+b+c.
		très faible participation financière des patients aux soins fournis par le réseau.
		les soins fournis hors du réseau ne sont pas remboursés par le HMO.
4	*Point of Service plan (POS)* : vers une convergence des modèles 1 et 2.	HMO avec le droit de sortir du réseau en étant couvert par l'assurance maladie traditionnelle, gérée par le POS, dans de moins bonnes conditions.

L'organisation des soins de santé à l'avenir dépendra de :

- **L’adaptation des structures organisationnelles à la prestation de services de santé**
  --Règles
  --Culture médicale/administrative
  --Modèles de MCOs - types HMO, POS, PPO, PSOs
- **La Conception et mise en œuvre d'incitations financières pour les prestataires de soins de santé**
  --Méthodes de remuneration financière
  --Partage des risques
- **L’application des outils de gestion**
  --Contrats sélectifs/ Gestion de la qualité
  --Analyse et transmission d'informations (financières, administratives et médicales)
  --Contrôl du volume des soins/services (utilization management)

Consolidation Will Continue (Accelerate?) Within (Across?) Verticals

AMAZON HEALTH SERVICES

About Us

Amazon Health Services is a Medicare/Medicaid; CHAP certified agency licensed by the state of Texas to provide skilled medical care and rehabilitation treatment to geriatric and pediatric patients in the privacy of their homes. Our ultimate goal is to restore a sense of normalcy in the lives of our patients and their families through delivering compassionate care.

In collaboration with your physician, we provide comprehensive care that is personalized to fit your individual medical and therapeutic needs. Our team is devoted to promoting the health and well-being of our patients with the opportunity to encourage and promote independence. It is because of this pledge, we continually demonstrate our sincere belief in the patient's dignity and worth.

We pride ourselves on being surrounded by highly educated and committed professionals who, through comprehensive assessments, provide compassionate care that ensures our patients achieve the highest quality of life.

Mission Statement

Amazon Health Services mission is to provide professional and paraprofessional services to Adult & Pediatric clients by assisting them in achieving the highest level of potential in their day-to-day nursing & self-care activities.

We are committed to providing high quality, multidisciplinary care by professionals who are driven to enhance our patients' experience and high quality healthcare through compassionate & innovative solutions focused on assisting our patients as they navigate through all stages of their life.

Vision Statement

Amazon Health Services is to be a respected, state-wide home health provider of adult & pediatric services and is to be an innovative employer known to provide their highly trained staff with multiple avenues to deliver the highest quality of care.

Our Core Values

C – Compassion
H – Honesty
R – Relationships
I – Innovation
S – Service Excellence
T – Teamwork

Within-country inequalities in access (Switzerland)

Exhibit 1
Spatial variation in Potentially Avoidable Hospitalisations

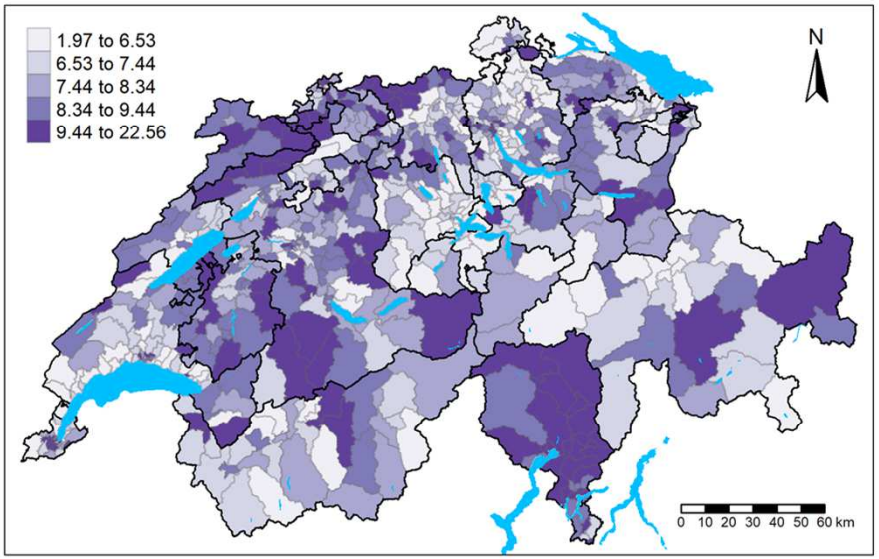
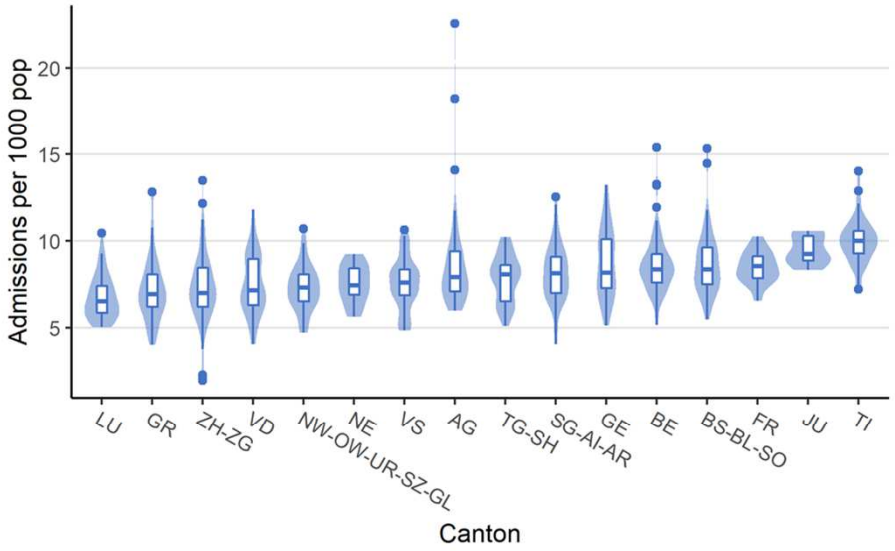
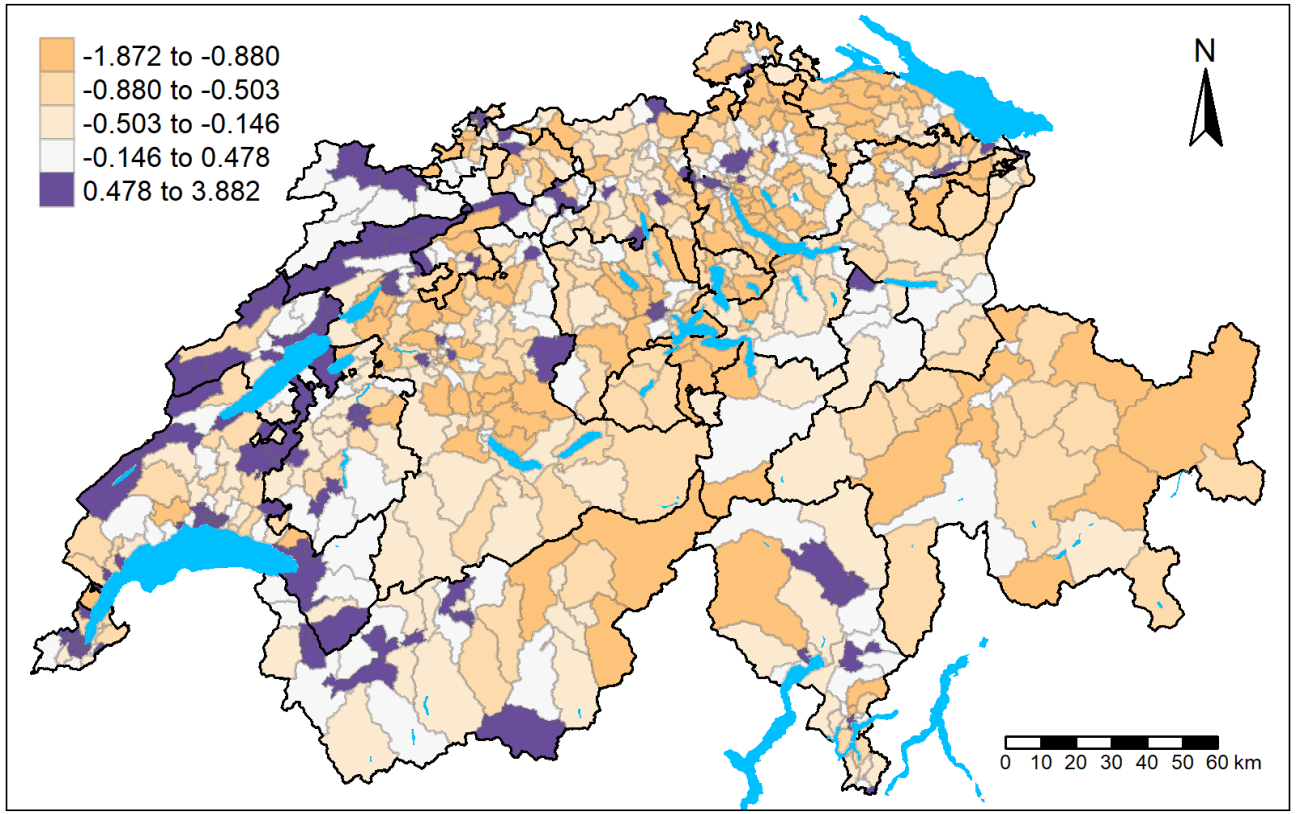


Exhibit 2
Within canton variation in Potentially Avoidable Hospitalisations

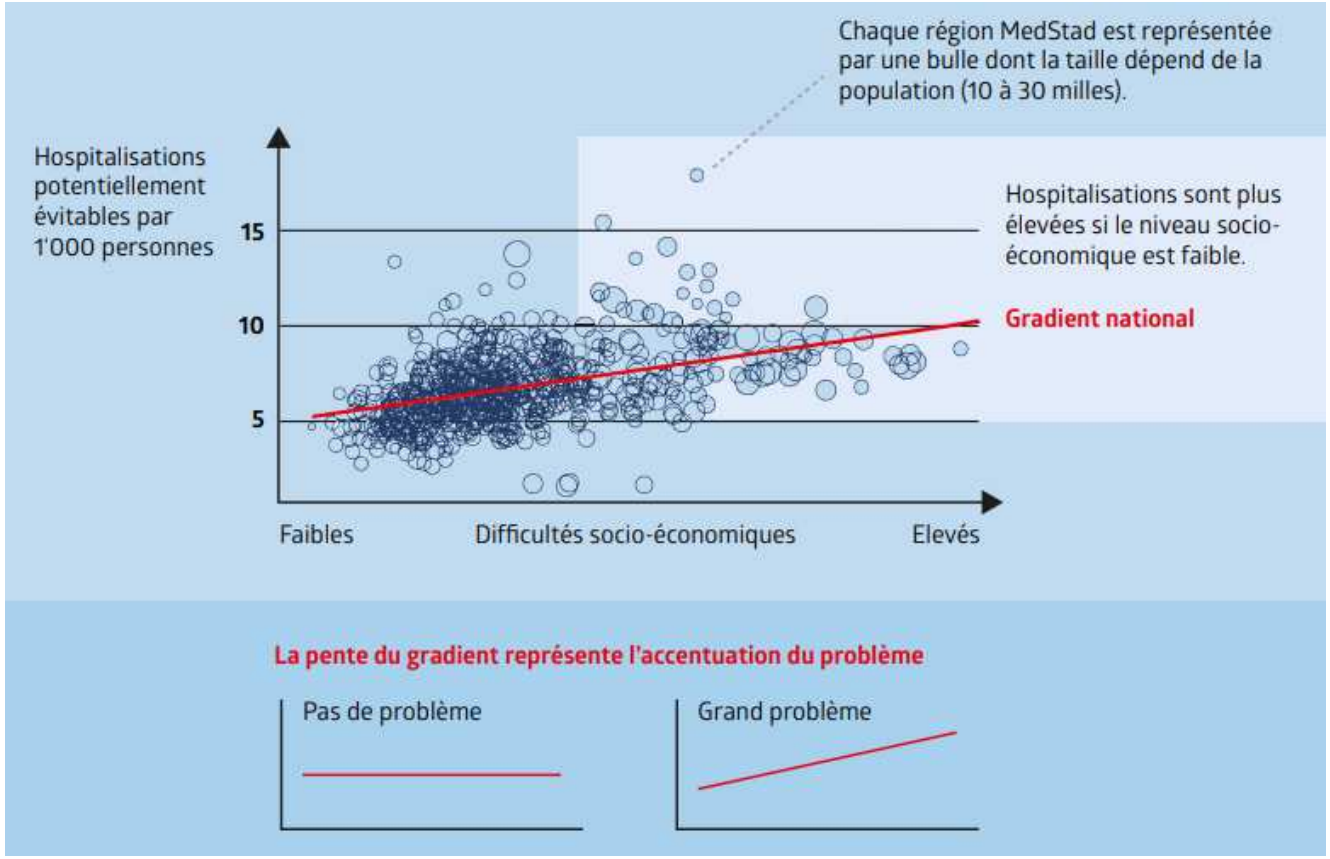


Hospitalisations expressed in rates per 1000 population. Unit of analysis: MedStat regions.

Socioeconomic deprivation index

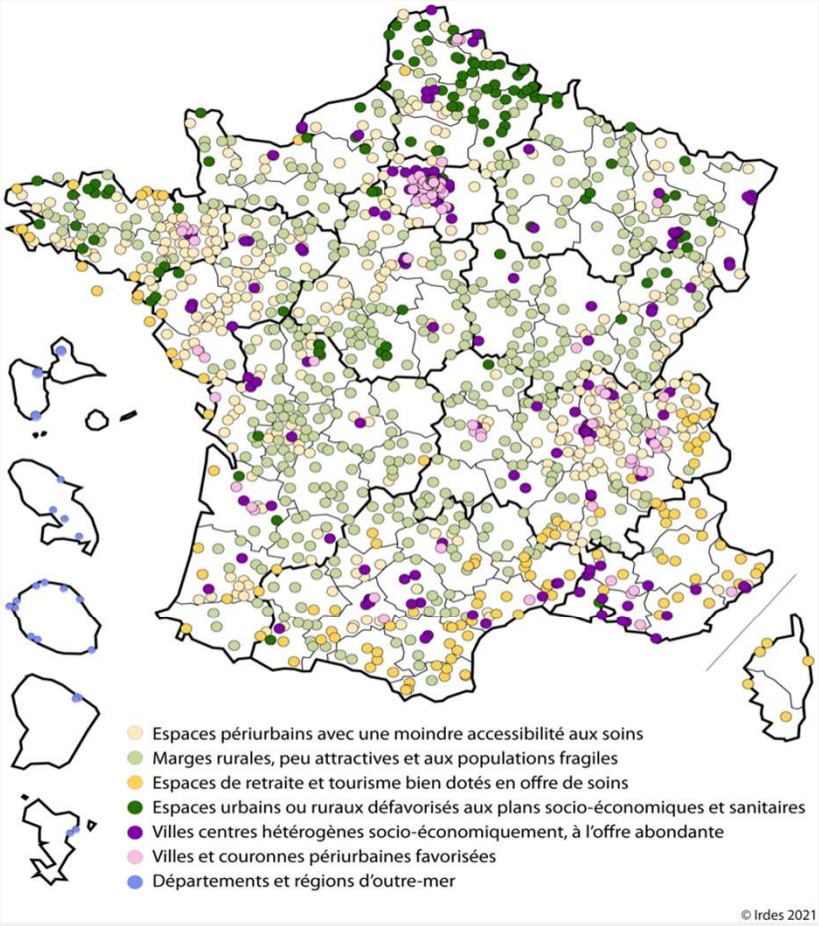


Socioeconomic gradient



- Marked national gradient
- Important role of level of education and density of primary care providers

Implantation des maisons de santé selon type de territoire, France, 2020



* Le territoire de vie correspond au plus petit territoire sur lequel les habitants ont accès aux équipements du quotidien et à l'emploi.

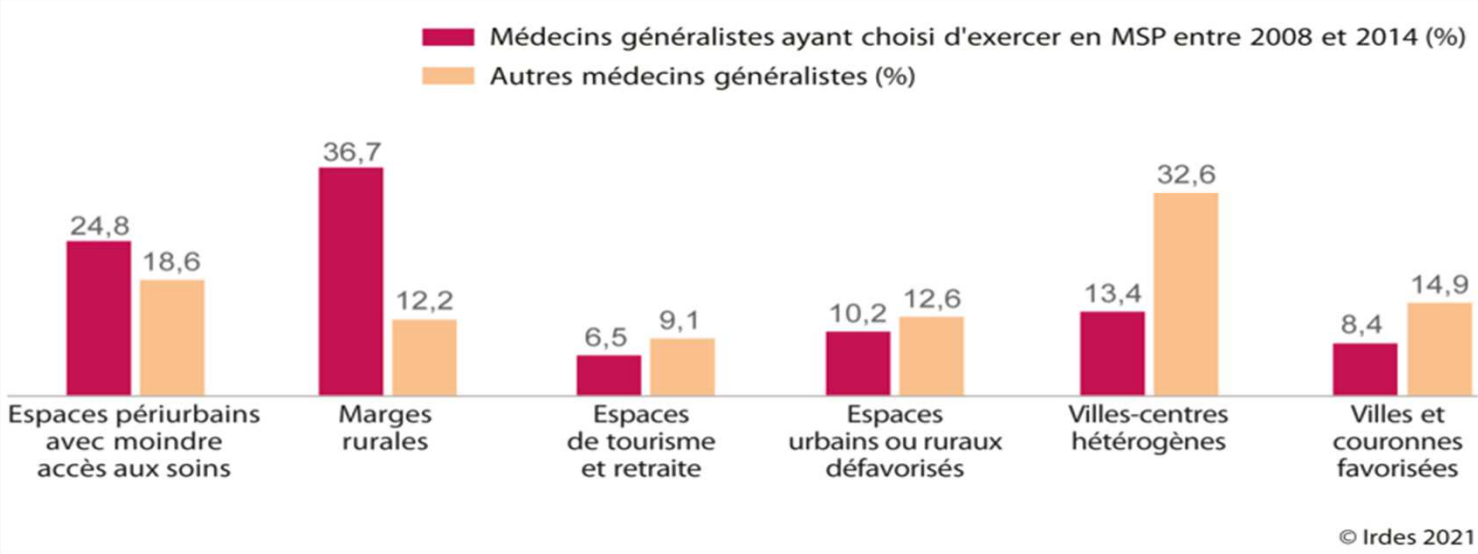
Sources : DGOS, Irdes.

Lecture : Si l'ensemble des régions est équipé en Maisons de santé pluriprofessionnelles (MSP), de fortes disparités existent entre elles et en leur sein. Parmi les régions où le maillage en MSP est le plus dense se trouvent la Bretagne, les Pays de la Loire, les Hauts-de-France, l'Auvergne-Rhône-Alpes. Cette implantation est le fruit de dynamiques régionales et départementales antérieures qui, à une échelle plus fine, renvoient à des territoires pionniers en termes de soutien aux MSP.

Issu du *Questions d'économie de la santé* n° 247 : « Les maisons de santé attirent-elles les jeunes médecins généralistes dans les zones sous-dotées en offre de soins ? » de Chevillard G., Mousquès J. (Irdes).

Répartition des médecins généralistes selon leur lieu d'exercice en 2008 et selon qu'ils ont choisi ou non d'exercer en Maison de santé pluriprofessionnelle (MSP) entre 2008 et 2014

Mai 2021



Lecture : 13,4 % des médecins ayant choisi d'exercer en Maison de santé pluriprofessionnelle (MSP) entre 2008 et 2014 étaient installés dans des villes-centres hétérogènes en 2008, contre 32,6 % pour les autres médecins généralistes.

Champ : Médecins généralistes libéraux, âgés de moins de 65 ans, exerçant en secteur 1 et en France métropolitaine, ayant perçu au moins 1 euro d'honoraires et actifs au 31 décembre de chaque année de l'appariement au cours de la période 2008-2014.

Source : Appariement Cnam-DGFip, exploitation Drees.

Issu du *Questions d'économie de la santé n° 258* « Exercer en maison de santé pluriprofessionnelle a un effet positif sur les revenus des médecins généralistes » de Cassou M., Mousquès J. et Franc C.

Enjeux actuels; Enjeux d'avenir: système de soins, coordination, imputabilité, équité

- Manque d'intégration/coordination: hôpital-ville-prévention; trop de réadmissions et d'hospitalisations évitables
- Identification et prise en charge des personnes souffrant de maladies chroniques
- Performance, transparence, paiement forfaitaire et P4P
- Innovation, évaluation, rationnement
- Sécurité des malades et qualité des soins
- Équité