



European Winter School
of Internal Medicine
Riga, Latvia
5-12 February 2017



Bridging the gap between Inpatient and Outpatient Care



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Bellvitge University Hospital
Vice-Dean, Faculty of Medicine and Health Sciences,
International University of Catalonia
Barcelona, Spain

Maria is a 68 y/o woman who has been under your care for a variety of medical problems during the past 3 years. She has been treated for **hypertension** and non-insulin dependent **diabetes**.

Today she presents in the Emergency Department of your hospital with **shortness of breath** which has been **progressive over the past five days**.

She tells you, however, she experienced **similar episodes** of shortness of breath during **the past two months**. She **fatigues easily** during daily routine activities and has lost "*all my energy to do anything*." She also complains of anorexia.



Last night she awoke suddenly from sleep because *"I couldn't catch my breath"* and developed a dry cough.

The breathing problem improved when she sat on the edge of her bed for an hour. From the last month, she generally sleeps with two pillows, sometimes three. She has not experienced chest pain, leg pain or fainting spells.



Examination reveals that **Maria** appears **depressed**, **unkept** and her shoes are not tied. Her **breathing is labored** and her **lips have a blue colour**.

Vital Signs: Blood Pressure **185/110** mmHg in the right arm; Heart Rate **110**/min (**arrhythmic**); Respiratory Rate 26/min; Temperature 36.5 C.

Examination of the lungs: **dullness** to percussion in both bases, decreased excursion of the diaphragms, inspiratory **crackles** in both lower lung fields.

Examination of the abdomen: The anterior wall is round and soft. The **liver edge is palpable** and tender. The spleen is not palpable.

Examination of the extremities revealed **edema** of both ankles.



ED LABORATORY TEST

CBC:

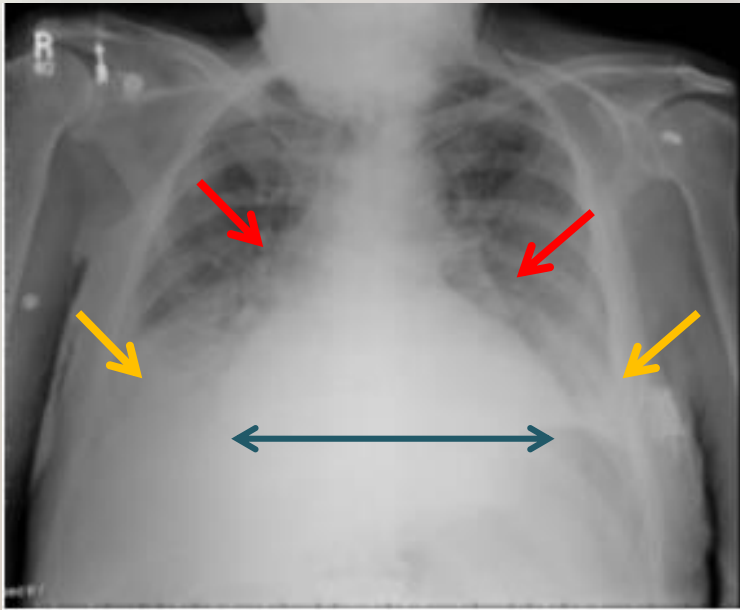
Leukocyte count = 8,400/mm³ with normal differential count, Hemoglobin 12.6g/dL, Hematocrit 40%, Platelet count 290,000/mm³

Chemistries:

Glucose 112mg/dL (non-fasting); Creatinine 1.9 mg/dL; Sodium 132mEq/L, Chloride 93mEq/L, Potassium 4.0mEq/L, **NT-proBNP 5336 pg/ml**

Arterial blood gas test (21%): **pH 7.35, PaO₂ 65, PaCO₂ 53, HCO₃ 23 SatO₂ 86%**





Chest X-ray:

Marked prominence of both pulmonary arteries, bilateral pleural effusion, increased haziness and decreased radiolucency of the lung parenchyma, increased transverse diameter of the heart.

Can you help me with a diagnosis suspicion ?



Anxiety with Hyperventilation
Chronic Bronchitis
Asthma
Pulmonary Emphysema
Diffuse Interstitial Lung Disease
Spontaneous Pneumothorax
Adult respiratory distress syndrome
Acute Pulmonary Embolism

...Congestive Heart Failure !

Heart Failure (HF): A worldwide burden

26 M

HF Patients worldwide

1-2%

**Healthcare expenditure attributed to HF
in Europe and North America**

2-3%

HF accounts for European hospital admissions

74%

HF Patients suffering from at least 1 co-morbidity



www.escardio.org

Heart Failure (HF): A worldwide burden



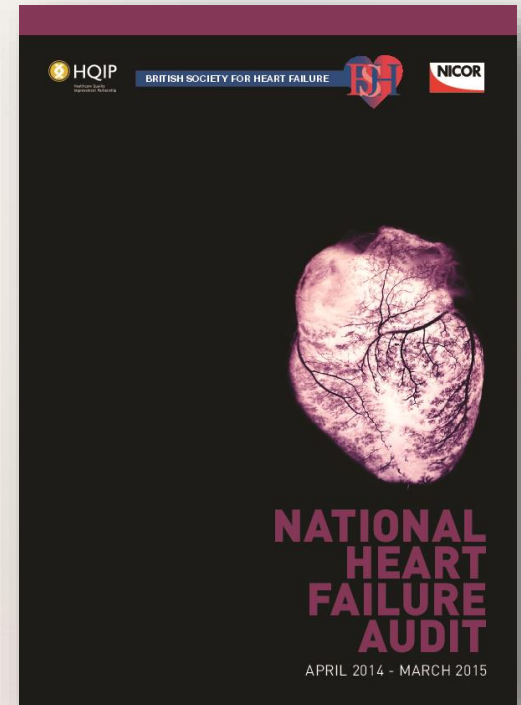
UK

The National Heart Failure Audit 2014-15 highlights:

HF affects around 1 M **individuals** in the UK
Accounts for **5% of all emergency hospital admissions**
Utilizes **2% of all NHS hospital bed days**

HF Quality Outcomes

- **In-hospital mortality** remains high at **11.1%**
- **Mean length of stay** was **13.1 days** on index admission and **13.4 days** on readmission
- **30-day readmissions** account in **19.8%** of HF patients



The Heart Failure's (HF) Paradigm:

“Disease of Recidivism” with a “Steadily Deteriorating Clinical Pattern”

‘Using the emergency department clinical decision unit for acute decompensated heart failure’.

Cardiology Clinics, 2005, vol 23, pp 569–88, viii.

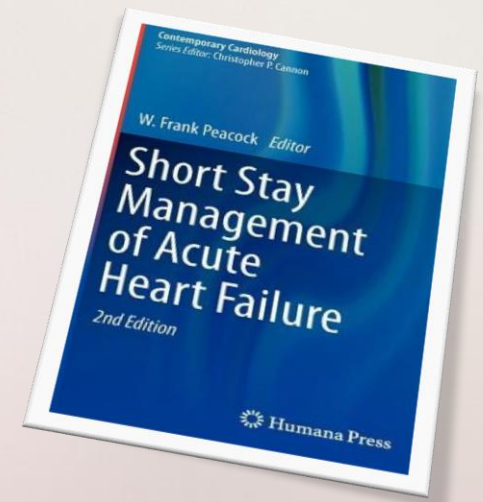
___ Heart failure is a **‘disease of recidivism’**, characterized by exacerbations that result in acute need for emergency or inpatient care

___ Typically, HF patients experience a **‘steadily deteriorating clinical pattern’**

___ The goal of care for HF patients is to **prolong periods of stabilization and prevent periods of exacerbations**; this would result in a better quality of life for the patient and **more efficient use of resources for the healthcare delivery system**



W. Frank Peacock, MD, FACEP
Emergency Medicine
Baylor Medical College,
Houston, TX



After HF diagnosis and initial treatment in the ED, you decide to hospitalize Maria.

However, the hospital is crowded and there is a lack of hospital beds to get upstairs !!



As many other “boarded” emergency patients, Maria will be placed out of boxes during hours/days to receive care in the ED hallways while waiting for a free inpatient bed...

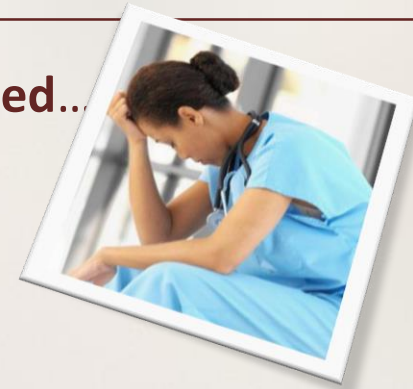
Managing “Inpatient Boarding Phenomenon in the ED” or “Inpatient Access Block” is NOT a subject in Medical Schools or Residency Programs

However, like Maria... How many of you have experienced...

... working in crowded Emergency Departments ?

... working in hospitals that work at or above capacity ?

... waiting or delayed patients, lack of inpatient beds, lack of ICU beds, theater cancellations, or hospital diversions ?



“Inpatient Boarding” in the ED

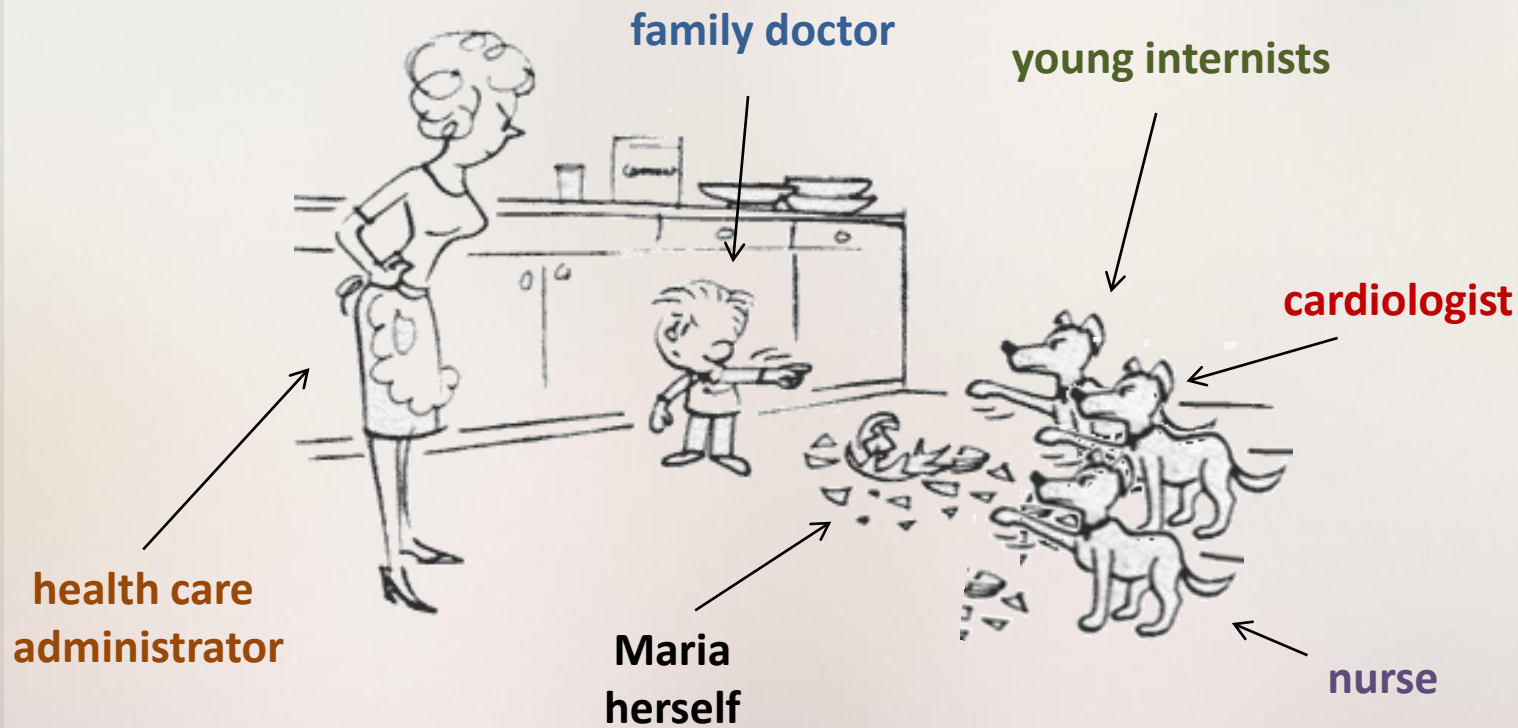


Physicians regard
“**Inpatient Boarding in the ED**” and
“**Inpatient Access Block**” with
enormous **concern and pessimism.**

This phenomenon leads hospitals
to suffer waits, cancellations, and
diversions that **negatively affect**
patient **safety and quality** of care.



Who is to blame for Maria awaiting for a free inpatient bed in ED hallways ?

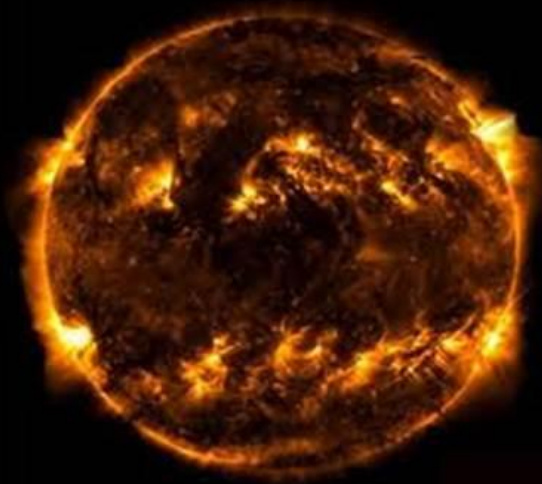


Medicine —like Earth — is constantly changing !



The Earth is Forever Changing

4.6 billion years ago



Today



The Earth is forever changing... and we are on it !



Summer 1917



Summer 2005

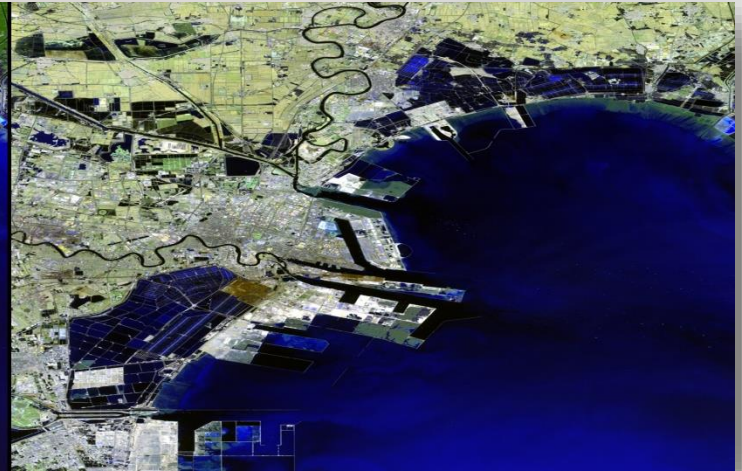


Last century
Pedersen Glacier, Alaska
Climate change

The Earth is forever changing... and we are on it !



July 30, 1992



April 8, 2012



Last two decades
The Binhai New Area, China
Urban growth

The Earth is forever changing... and we are on it !



August 25, 2004

August 19, 2014



Last 10 years
Shrinking lake, central Asia
Drought

The Earth is forever changing... and we are on it !

new changes...
new problems...
new needs...
new challenges...
to face and solve !

- Overpopulation
- Poverty
- Urban growth
- Deforestation
- Pollution
- Climate change
- Pandemics ...
- ...



Medicine

is forever changing... and we are on it !

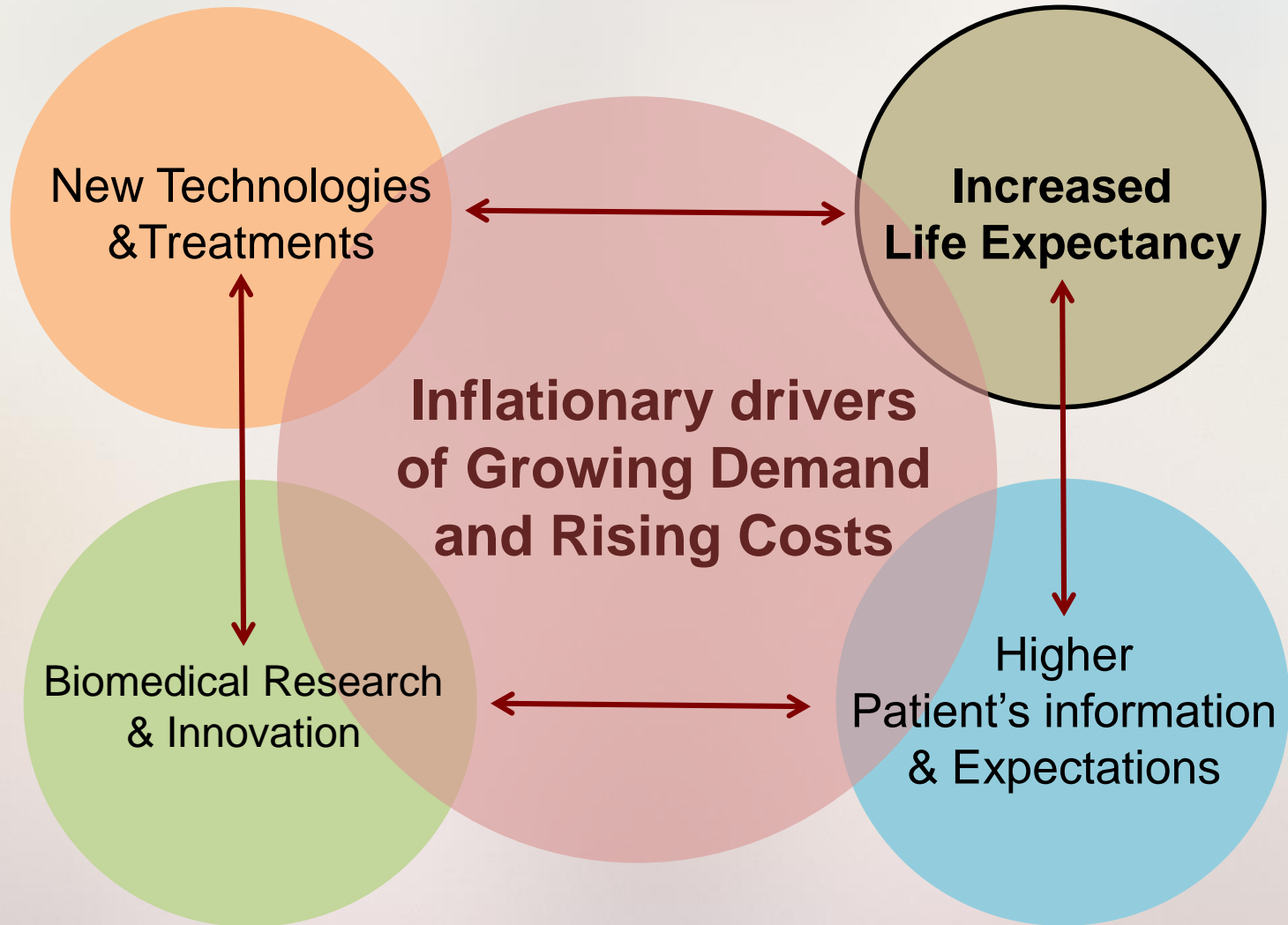
new changes...
new problems...
new needs...
new challenges...
to face and solve !

Aging
Chronicity
Multi-morbidity
Social changes
New diseases
Role of patients
Higher information
More expectations
Growing demand
Rising costs



Medicine

is forever changing... and we are on it !

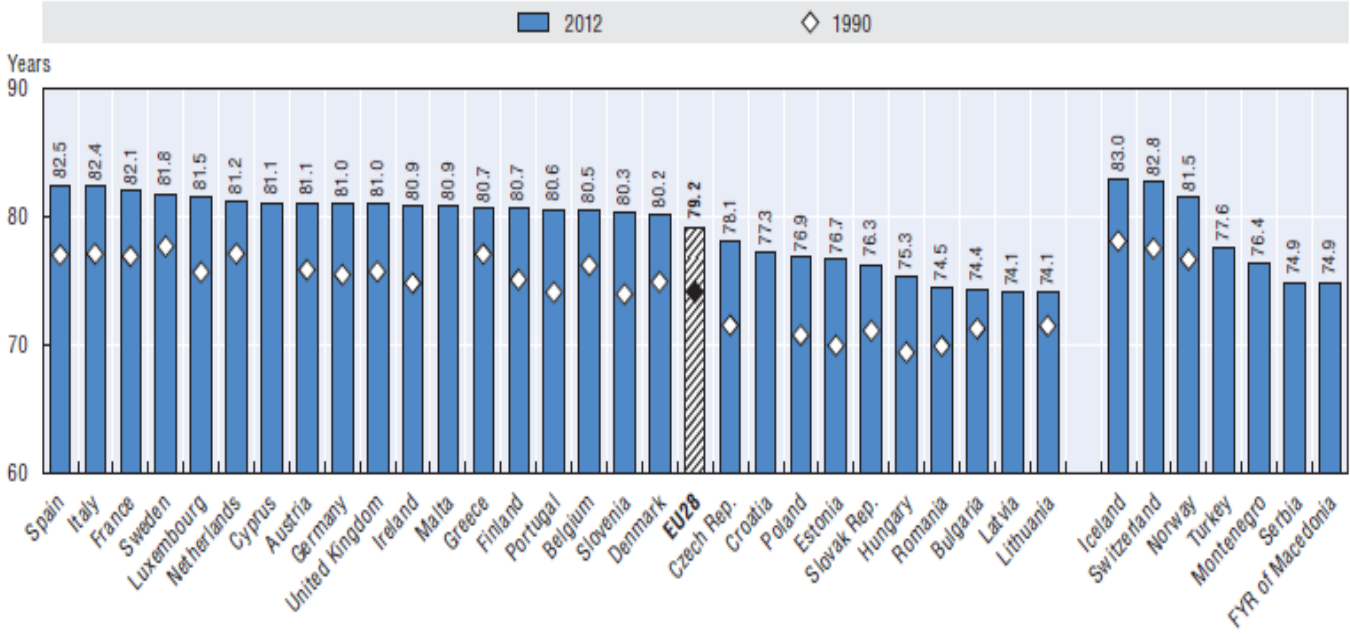


Medicine

is forever changing... and we are on it !



1.1.1. Life expectancy at birth, 1990 and 2012



Source: Eurostat Statistics Database completed with data from OECD Health Statistics 2014, <http://dx.doi.org/10.1787/health-data-en>.

Health care

is forever changing... and we are on it !

Rising Patient Needs and Costs

For years, hospitals responded to increasing demands by adding more beds, more buildings, and more staff



Health care is forever changing... and we are on it !

Rising Patient Needs and Costs

For years, expenditures
to increase
beds,



Limited Financial Resources

However, in the past decade,
the global recession limited
hospital resources, and many
administrators
reduced beds and staff
for balancing
the bottom line



Health care is forever changing... and we are on it !

**Rising Patient
Needs and Costs**

**Limited Financial
Resources**

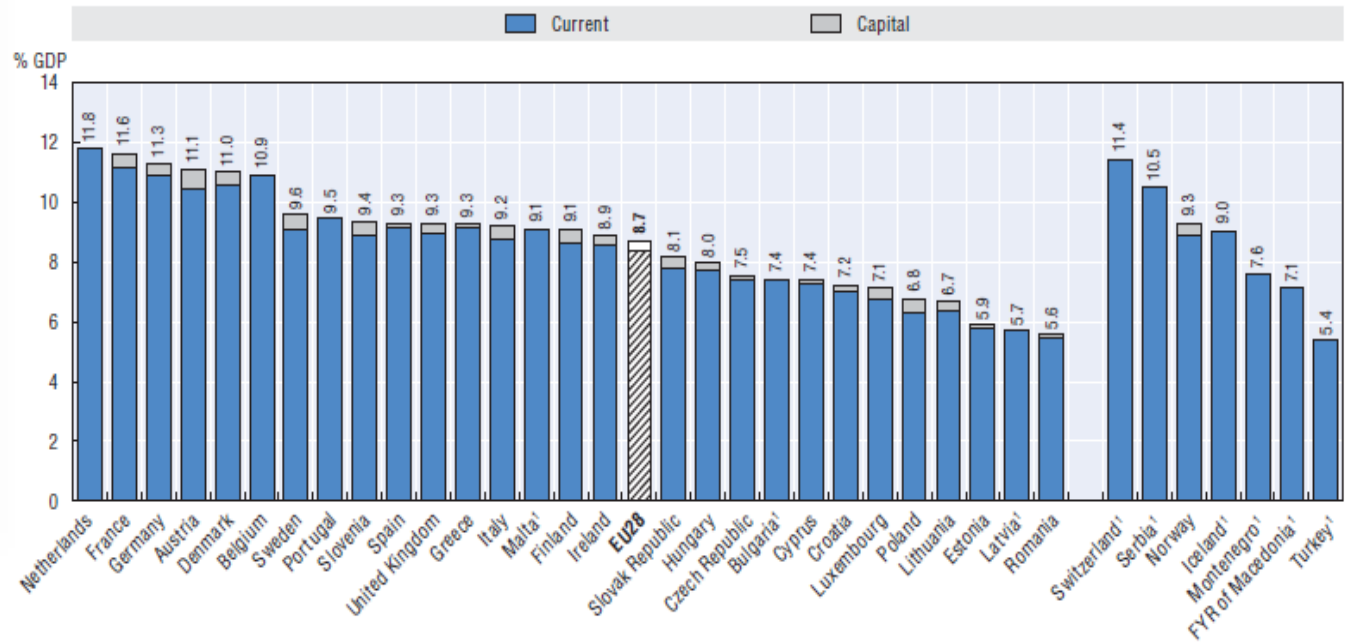


Health care is on a collision course with economic reality

Health care is forever changing... and we are on it !



6.2.1. Health expenditure as a share of GDP, 2012 (or nearest year)



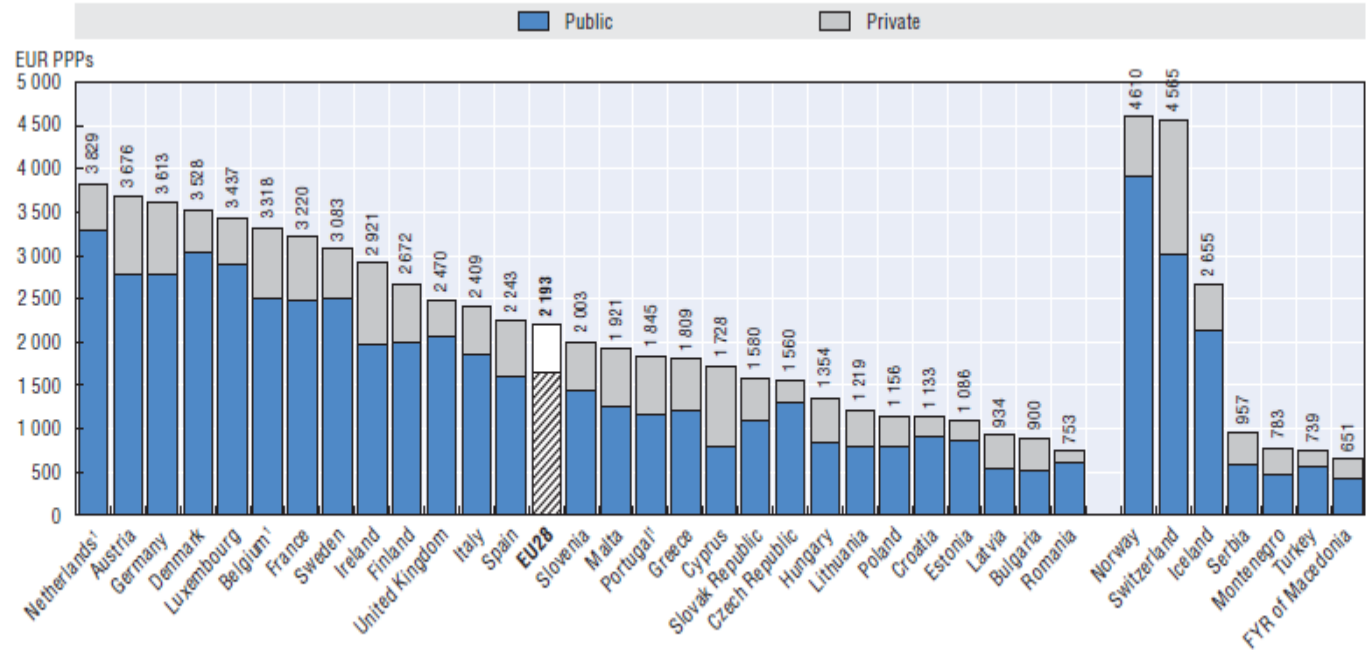
1. Total expenditure only (no breakdown between current and capital spending available).

Source: OECD Health Statistics 2014, <http://dx.doi.org/10.1787/health-data-en>; Eurostat Statistics Database; WHO Global Health Expenditure Database.

Health care is forever changing... and we are on it !



6.1.1. Health expenditure per capita, 2012 (or nearest year)



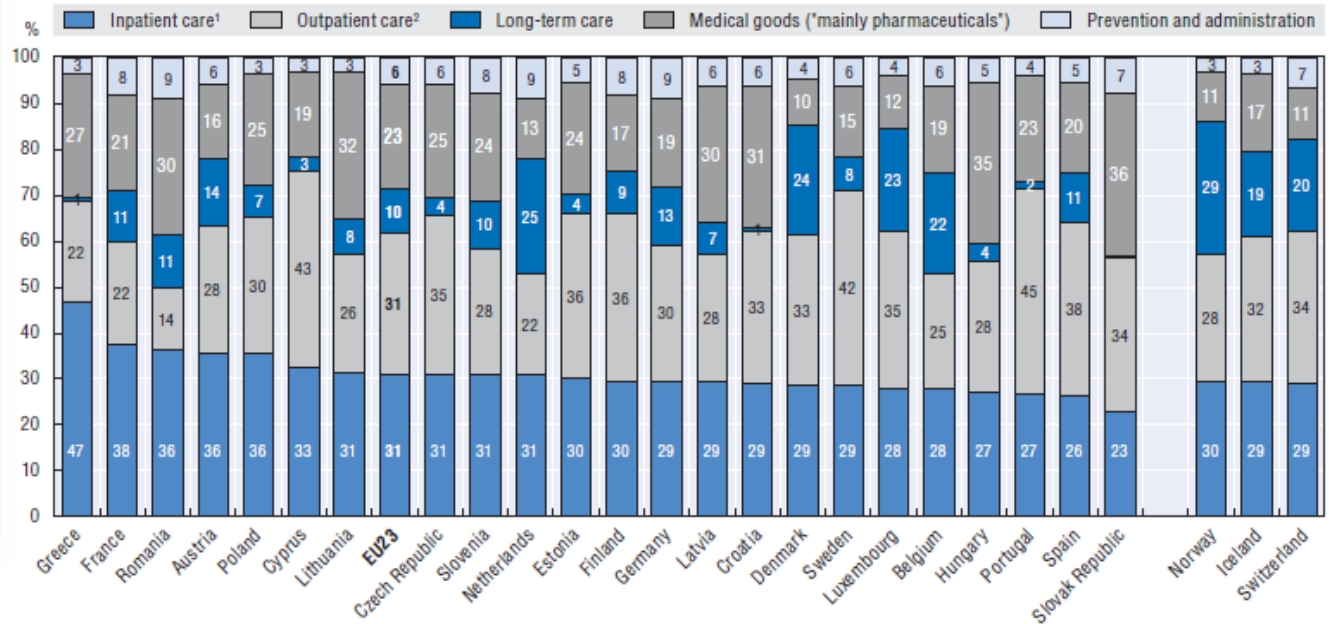
1. Current health expenditure.

Source: OECD Health Statistics 2014, <http://dx.doi.org/10.1787/health-data-en>; Eurostat Statistics Database; WHO Global Health Expenditure Database.

Health care is forever changing... and we are on it !



6.3.1. Current health expenditure by function, 2012 (or nearest year)



Note: Countries are ranked by inpatient care as a share of current health expenditure.

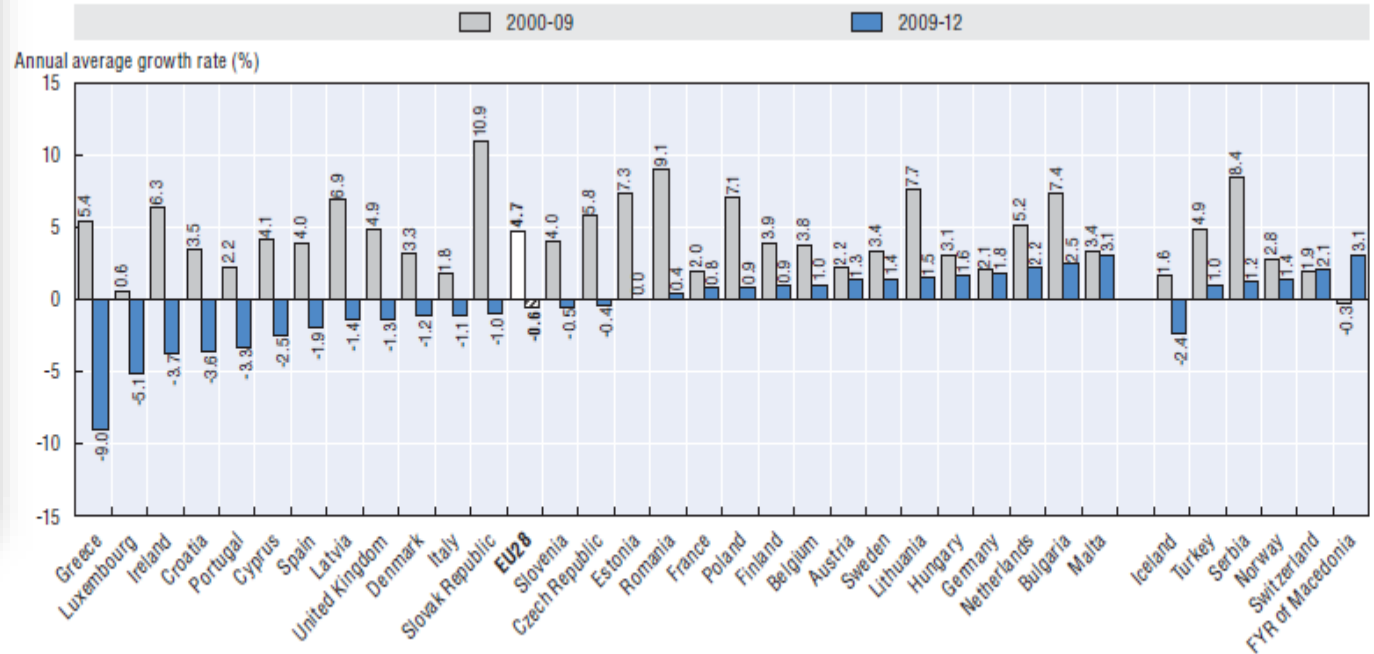
1. Refers to curative-rehabilitative care in inpatient and day care settings.

2. Includes home-care and ancillary services.

Source: OECD Health Statistics 2014, <http://dx.doi.org/10.1787/health-data-en>; Eurostat Statistics Database for non-OECD countries.

Health care is forever changing... and we are on it !

6.1.2. Annual average growth rate in per capita health expenditure, real terms, 2000 to 2012 (or nearest year)



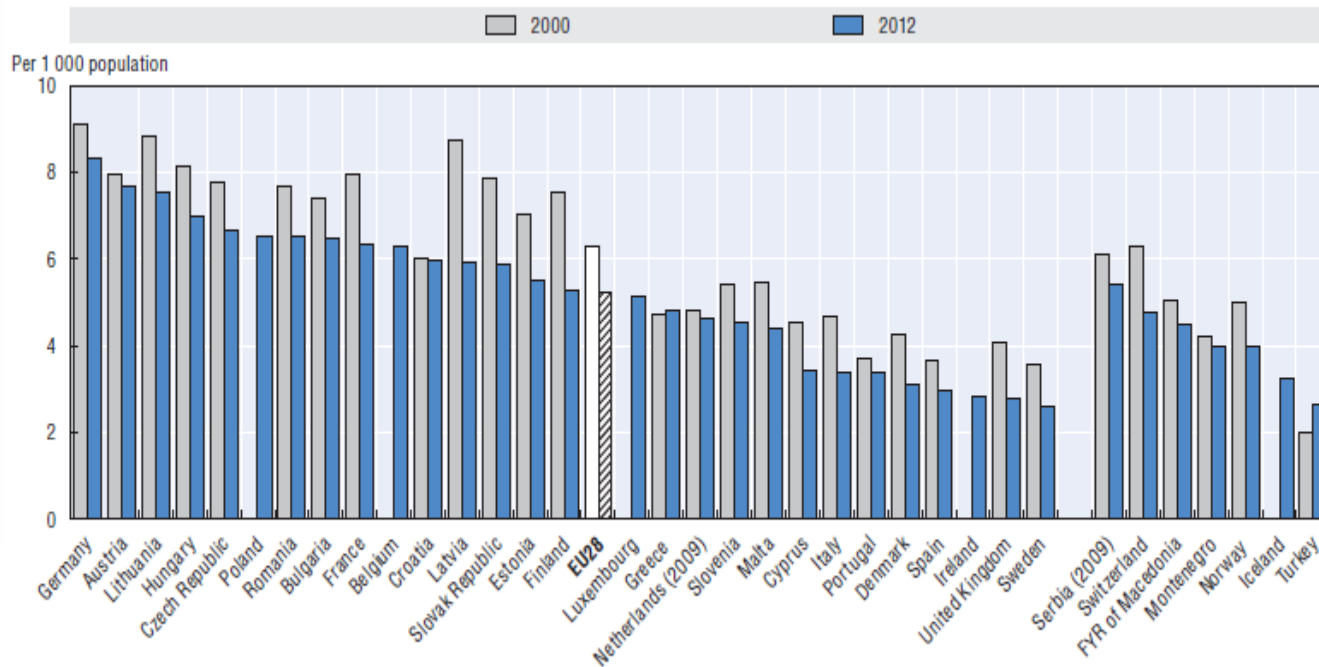
Source: OECD Health Statistics 2014, <http://dx.doi.org/10.1787/health-data-en>; Eurostat Statistics Database; WHO Global Health Expenditure Database.
StatLink <http://dx.doi.org/10.1787/888933155816>



Health care is forever changing... and we are on it !



3.5.1. Hospital beds per 1 000 population, 2000 and 2012 (or nearest year)



Source: OECD Health Statistics 2014, <http://dx.doi.org/10.1787/health-data-en>; Eurostat Statistics Database; WHO Europe Health for All Database.

Hospital Restructuring

Almost all European countries reduced inpatient beds during the last 10 years !
Hospital beds are still the cornerstone of traditional internal medicine, but they are expensive and may be more scarce in the coming years...

traditional



expensive



scarce

Hospital Restructuring

After reducing beds, most hospitals have begun to operate at or above capacity, with a dysfunctional bed “competition” between **emergency** and **scheduled** inpatient admissions.

Physicians face daily with “**boarded patients**” waiting for a free bed in the ED, lack of ICU beds, theatre cancellations, and hospital diversions



Dysfunctional Inpatient Bed Competition

Surgical

Medical



Bed

Dysfunctional Inpatient Bed Competition



INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

“Lack of access to inpatient beds is the **main factor for hospital crowding**”
(US GAO 2003, 2009 and IOM 2006)



In 2006, the **Institute of Medicine** reported that **when hospitals are full**, hospital executives might prefer **scheduled** to **emergency** patients, since emergency admissions tend to be for **medical conditions**, which are considered **less profitable** than is elective surgery

Dysfunctional Inpatient Bed Competition



INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

“Lack of access to inpatient beds is the **main factor for hospital crowding**”
(US GAO 2003, 2009 and IOM 2006)



Hospital executives
not only prefer
scheduled over **emergency** admissions,
but still consider normal to force
Emergency Departments
to absorb the excess of demand
for **medical admissions**
of the entire hospital.

Inpatient Access Block

Scheduled patients



Surgical

Waiting list for elective surgery



Access Block

Emergency patients



Medical



“Inpatient Boarding” in the ED

the "Revolving Door" syndrome

Lack of hospital beds forces physicians to shorten hospital stays

Inpatients



Outpatients

Increasing Hospital Readmissions

After getting “upstairs”, in a conventional hospital ward...

What can we expect for **Maria** in relation to her quality outcomes ?...

- Length of hospital stay...
- Risk for in-hospital mortality...
- or ... Risk for 30-day readmission after hospital discharge... ?



Quality Outcomes in Patients Hospitalized for Heart Failure

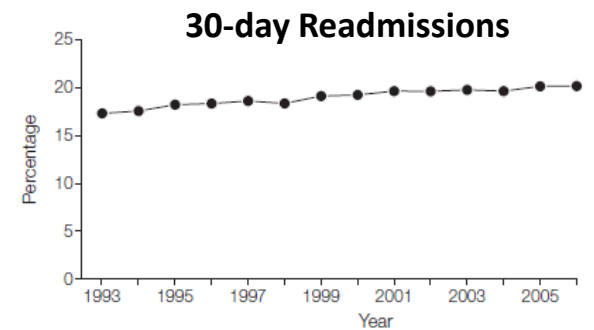
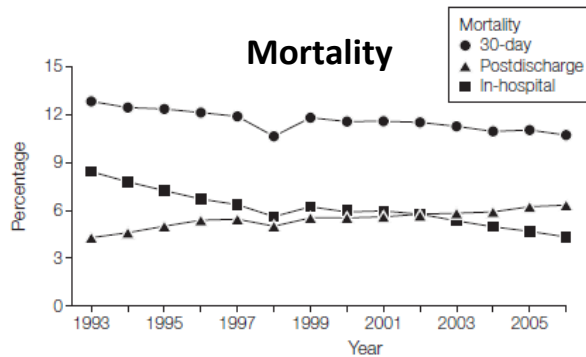
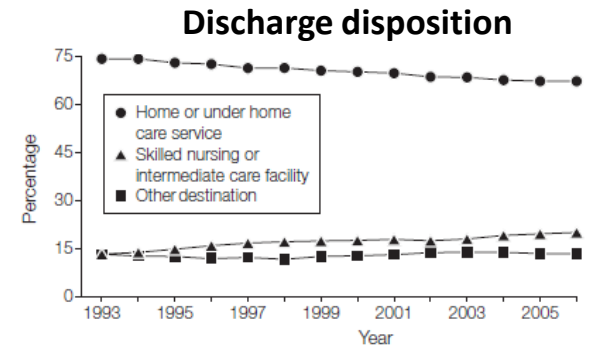
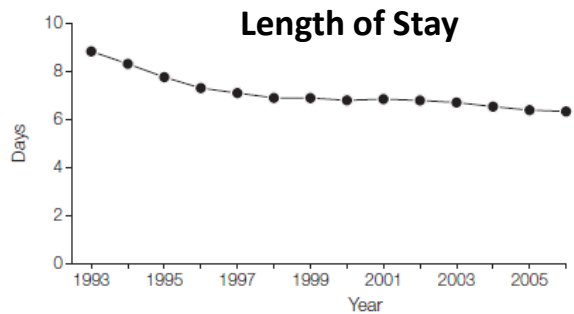
JAMA. 2010;303(21):2141-2147



Trends in Length of Stay and Short-term Outcomes Among Medicare Patients Hospitalized for Heart Failure, 1993-2006



Héctor Bueno, MD, PhD
Cardiologist



Due to small size, error bars (95% confidence intervals) are included within the size of the data markers.

Quality Outcomes in hospitalized patients with HF


Length of stay (in-hospital)

Mortality rates (in-hospital, at 30 days, ...)

Readmissions rates (at 30 days, ...)



Karen E. Joynt, MD, MPH,
Harvard School of Public Health



“Competing Clinical Risks” means that two or more outcomes are linked.

The “denominator” for readmissions only includes patients that survive to discharge, and patients that die after discharge cannot be readmitted



For Heart Failure, readmission rates are negatively correlated with length of stay and mortality rates

CORRESPONDENCE

N ENGL J MED 363;3 NEJM.ORG JULY 15, 2010

Are All Readmissions Bad Readmissions?

Hospitals with low readmissions tend to have high mortality

Hospitals with high readmissions tend to have low mortality

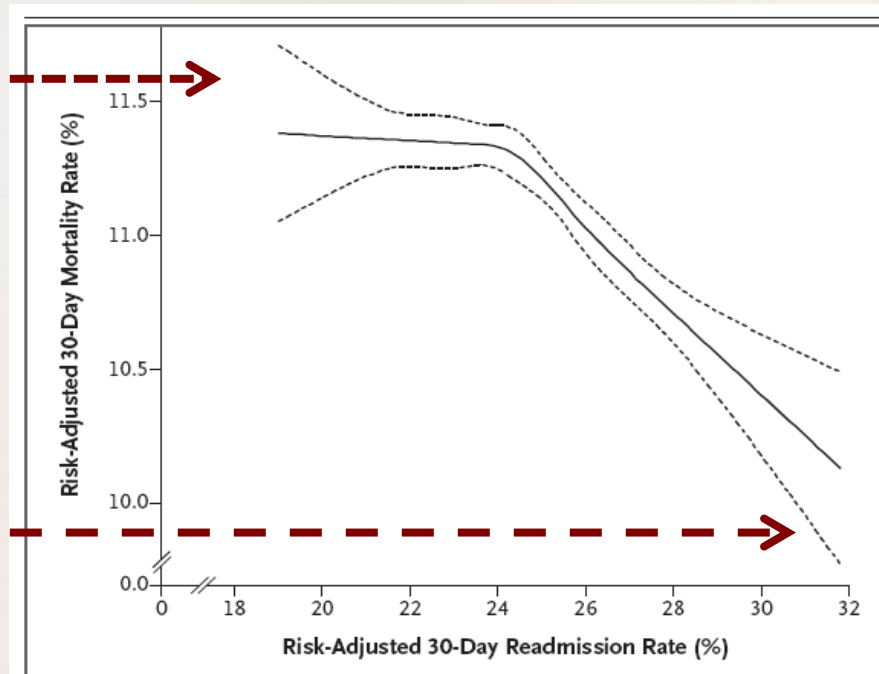
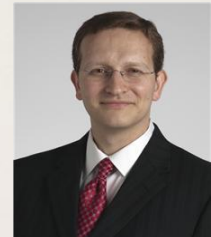


Figure 1. Comparison of Risk-Adjusted Hospital Readmission Rates and Mortality Rates 30 Days after an Index Admission for Heart Failure.

The dashed lines indicate the upper and lower limits of the 95% confidence intervals, and the solid line indicates linear regression. Data are from the Centers for Medicare and Medicaid Services Hospital Compare public reporting database.¹



The NEW ENGLAND
JOURNAL of MEDICINE



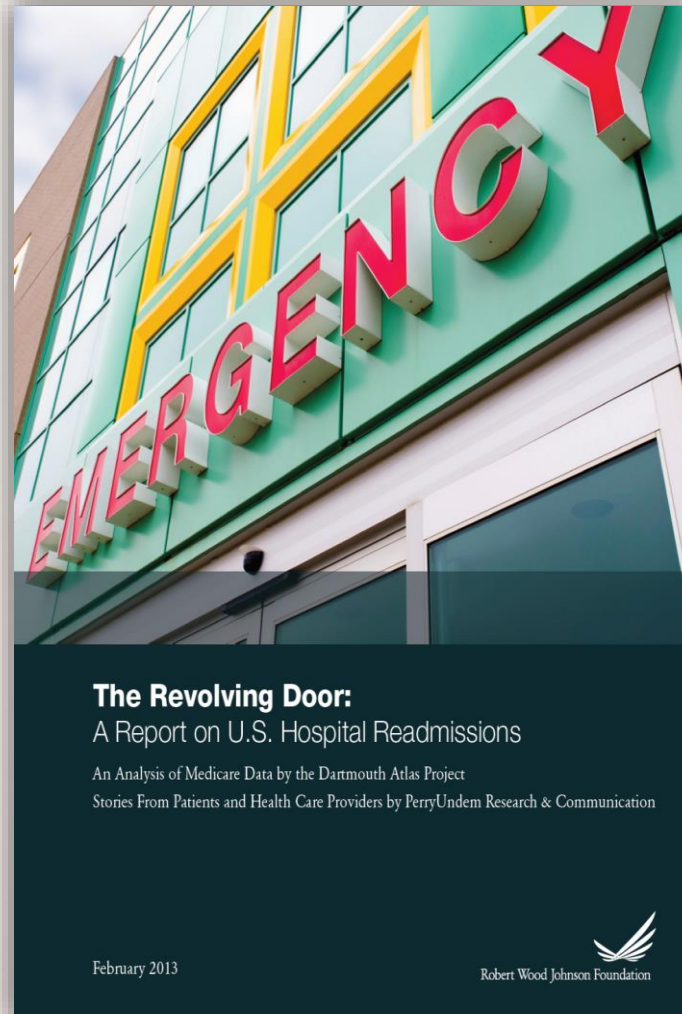
Eiran Z. Gorodeski, M.D., M.P.H.
Randall C. Starling, M.D., M.P.H.
Eugene H. Blackstone, M.D.

Cleveland Clinic
Cleveland, OH
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The Revolving Door: A report on U.S. Hospital Readmissions

People who do not
need to be in the
hospital should not be
there.

The sooner we all own
up to our role, the
sooner we can tackle
this problem together.

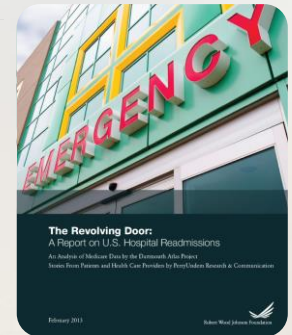
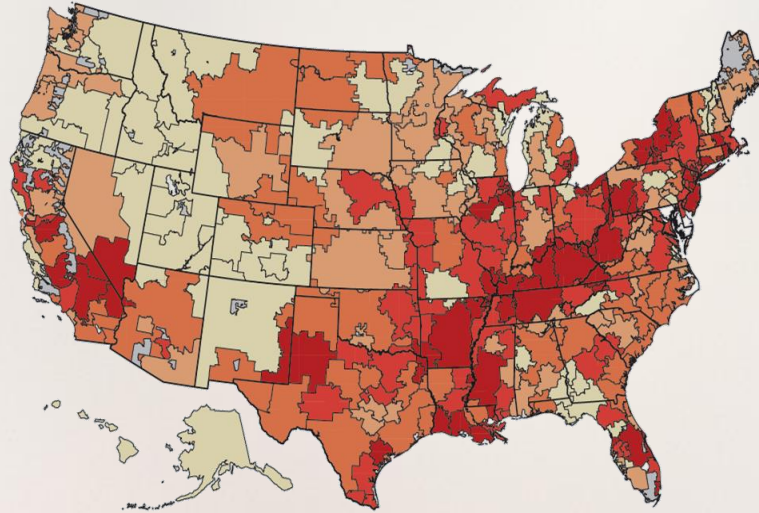


The Revolving Door: A report on U.S. Hospital Readmissions

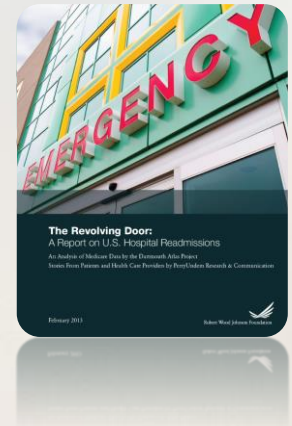
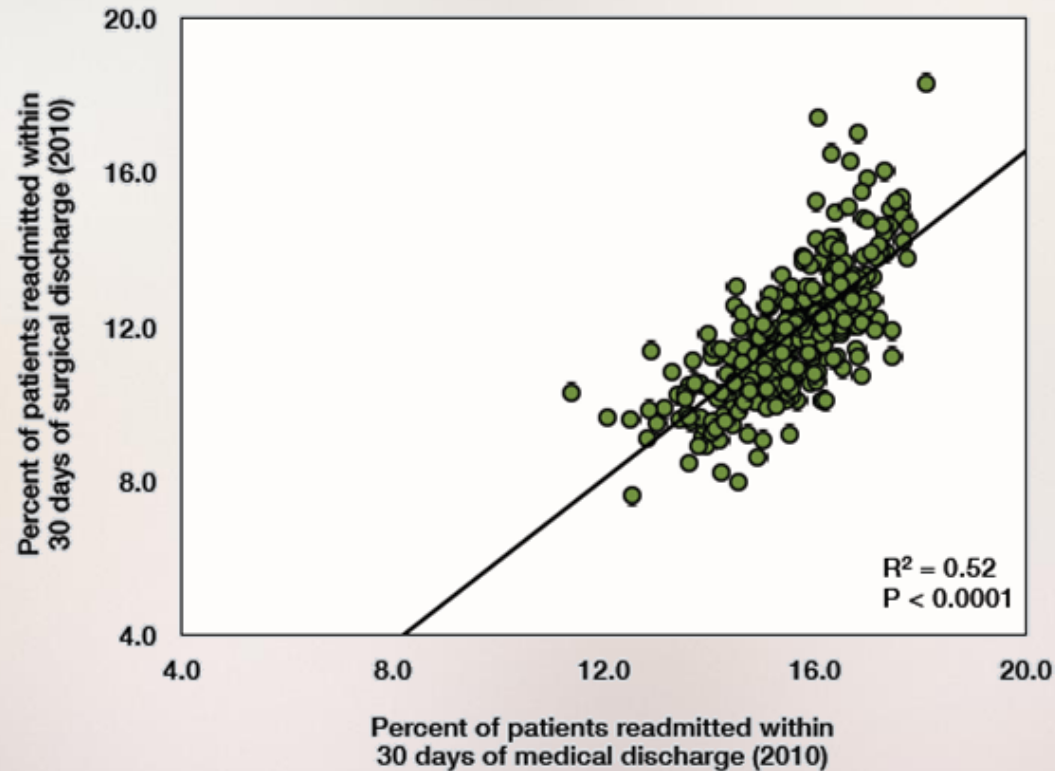
Percent of Patients Readmitted Within 30 Days of Medical Discharge

by Hospital Referral Region (2010)

| | | |
|---|-----------------|------|
| ■ | 16.5 to 18.2 | (60) |
| ■ | 15.9 to < 16.5 | (66) |
| ■ | 15.4 to < 15.9 | (59) |
| ■ | 14.6 to < 15.4 | (61) |
| ■ | 11.3 to < 14.6 | (57) |
| ■ | Data suppressed | (3) |
| ■ | Not populated | |



The relationship between 30-day readmission rates following medical and surgical discharges among hospital referral regions (2010)



Literature Review: “Inpatient Access Block” is a well known phenomenon in many hospitals worldwide...

Several experiences demonstrate that this is **not only** a “**financial resource problem**” since it often reflects a larger failure of “**hospital-wide operational processes**”

Forero R, McCarthy S, Hillman K.
Crit Care. 2011;15(2):216. doi: 10.1186/cc9998.



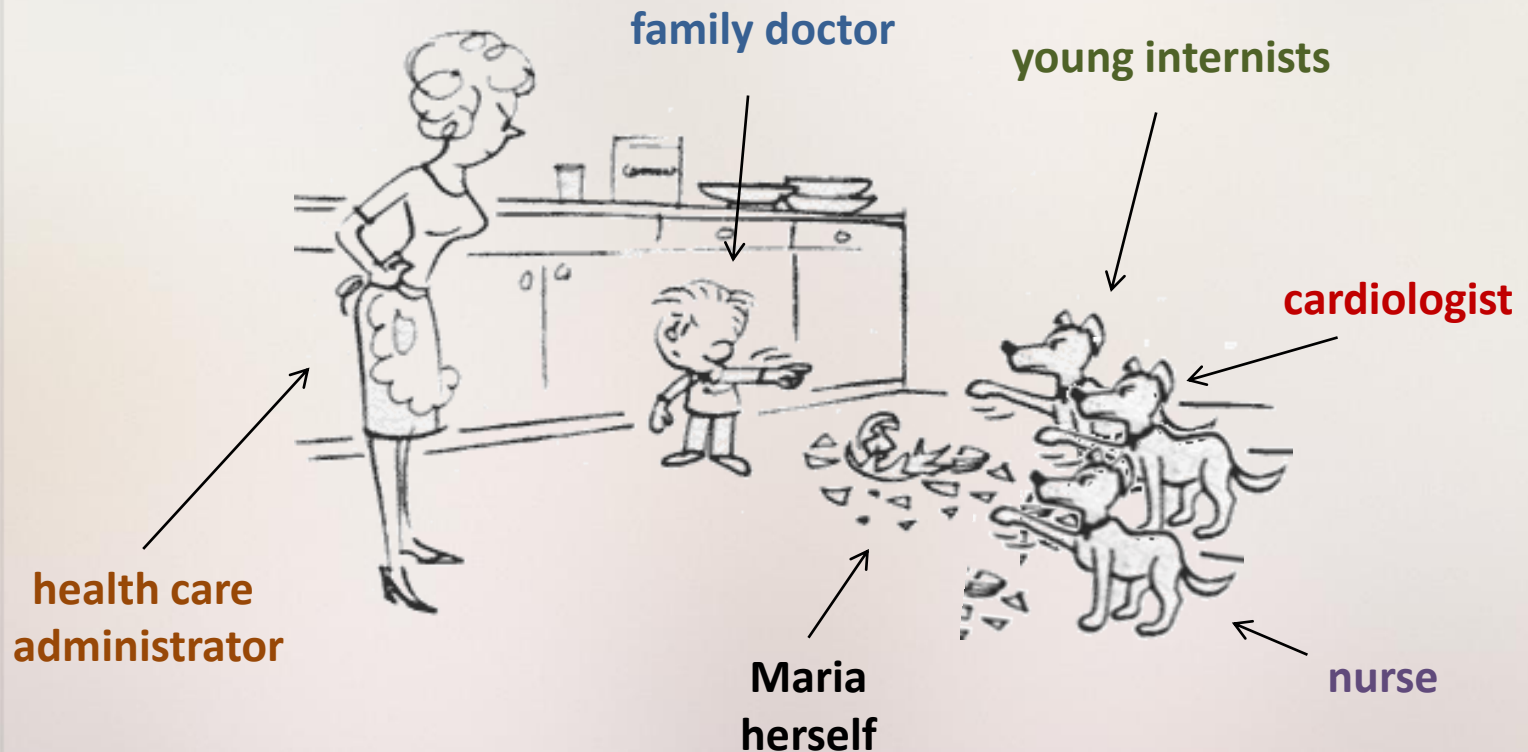
REVIEW

Access block and emergency department overcrowding

Roberto Forero^{1*}, Sally McCarthy², Ken Hillman¹

Case Study: Who is to blame for Maria awaiting in ED hallways ?

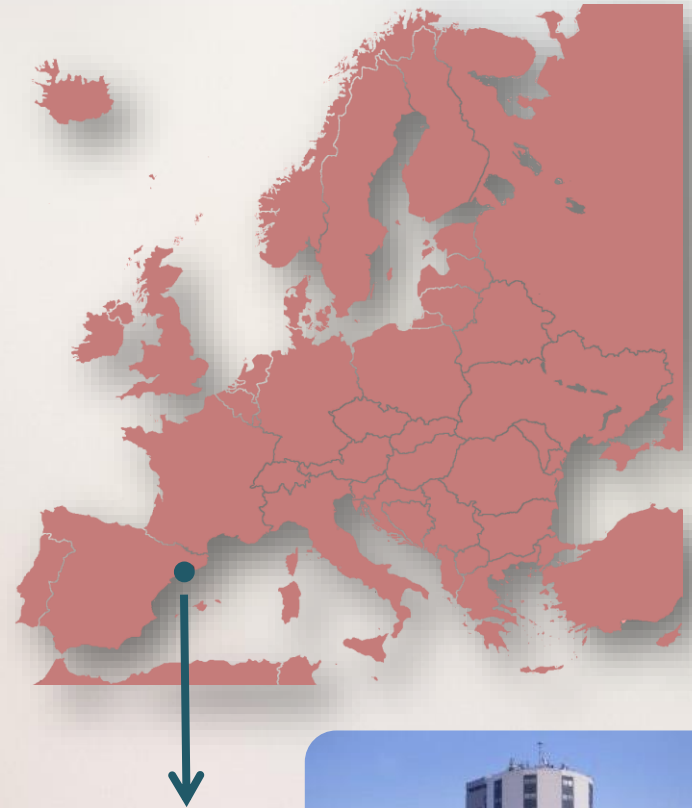
Patients, Clinicians, Executives and Politicians
have to work in collaboration (Clinical Management)



Inpatient Access Block

In the late 90's,
one decade before
the Global Financial Crisis...

... our daily hospital routine was
→ how to face the lack of free
inpatient beds, → how to avoid
cancellations in elective surgery,
and → how to get ED "boarding"
patients upstairs



Barcelona



Inpatient Access Block

monthly number of patients waiting for a free inpatient bed in the ED at 8.00 am



**February
1998**

Addressing the lack of inpatient beds
at Bellvitge University Hospital:

Clinician-Administrator collaborative approach

Our 10-step process



- 1 Something wrong we were doing**
- 2 Literature review
- 3 New approach
- 4 Hospital Board Commitment
- 5 Financial support
- 6 Multidisciplinary taskforce
- 7 Multifaceted intervention
- 8 Communication strategy
- 9 Implementation
- 10 Monitoring & Evaluation

Surgeons

Surgeons

have been more willing than internists to introduce **inpatient care alternatives** in their clinical practice

During the past 30 years, **“Major Ambulatory Surgery”** has grown steadily and has become a totally accepted modality of delivery.



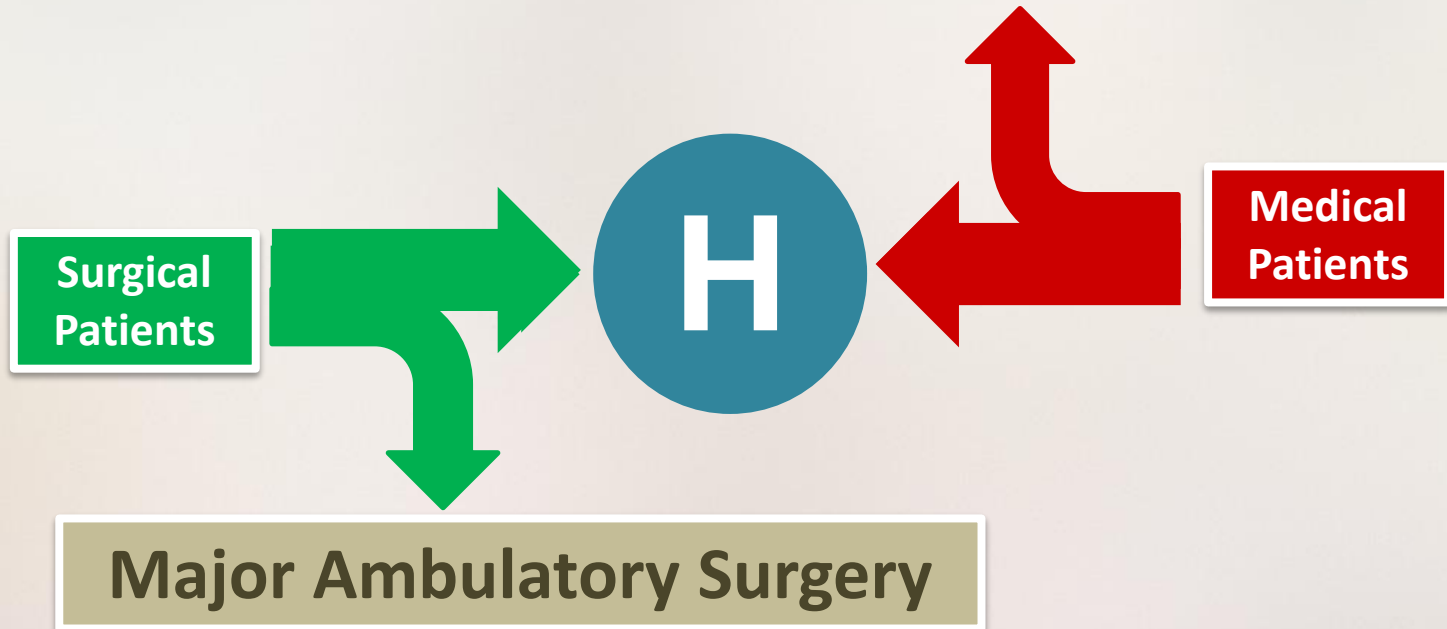
Internists

Internists

should be firmly interested in leading this **change** also in medical patients, and they should consider this an opportunity and not a loss.

Alternatives to Standard Hospitalization

Major Ambulatory Medicine



New Approach



Multidisciplinary Taskforce

Our Aim

- To guarantee free hospital beds for inpatient admission
 - to eliminate the “inpatient boarding” in the ED
 - to increase hospital throughput

Our Strategy

- To Relieve Pressure on Hospital Bed Availability
 - by Reducing Avoidable Inpatient Admissions
 - by Reducing Unnecessary Hospital Stays

Our Action

- To Change our Traditional Clinical Practice
 - by using Alternatives to Standard Hospitalization and “**Major Ambulatory Medicine**”

“Major Ambulatory Medicine”

Corbella X, Salazar A, Pujol R.

Major Ambulatory Medicine. *Eur J Intern Med* (2012),
<http://dx.doi.org/10.1016/j.ejim.2012.09.003>



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 **ELSEVIER**

European Journal of Internal Medicine

journal homepage: www.elsevier.com/locate/ejim

Major ambulatory medicine

Keywords:
Ambulatory care
Patient admission
Hospitalization

For years, as long as payment for health care services covered the costs, hospitals responded to increasing demands by adding more

to patients and reduce costs. While it has not been clear how to define these transition of care units between inpatient and outpatient care for non-surgical patients, our proposal is to unify the sort of these alternatives to traditional hospitalization under the unique denomination of “Major Ambulatory Medicine” (MAM). The idea is to offer a conceptual framework useful for physicians and policymakers, and help further development and evaluation of such initiatives.

When a new wave claims for ‘generalism’ in Europe and in the U.S. [5], internists should be interested in leading this strategic change, especially in large teaching hospitals, and they should consider this an opportunity and not a loss. Hospitalists and accountable care organi-

Major Ambulatory Medicine

Short Stay Units (Acute Care)

Medical/ Surgical

Day Hospitals

Medical/Surgical

Hospitals in the Home

Medical/Surgical

Alternatives to
Standard
Hospitalization

Quick Diagnostic Units

Medical

Multidisciplinary Teams

Medical /Surgical

23-h Surgical Units

Surgical

Case Management Nurses

Medical/Surgical

ED Observation Units

Medical /Surgical

Maria has **Acute Decompensated Heart Failure**, and you decide to hospitalize her

Do you have some kind of “**Alternatives to Standard Hospitalization**” in your hospital such as “*acute care / short stay units, day hospitals, hospital in the home...*” to diagnose and treat Maria?



Your hospital has a wide range of “**Alternatives to Standard Hospitalization**”

Please ...

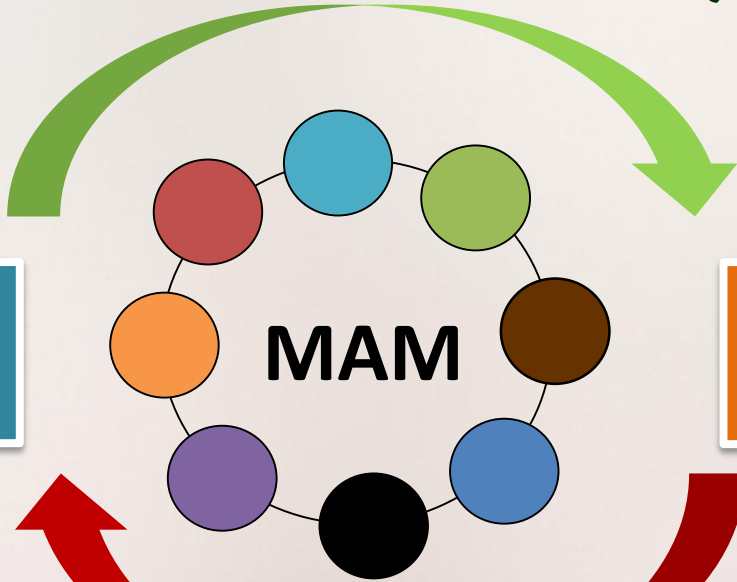
How many of you have specific scheduled rotations included in your Residency Program to learn how these alternatives work ?



Major Ambulatory Medicine

*Reducing Avoidable Admissions
and Unnecessary Hospital Stays*

Inpatients

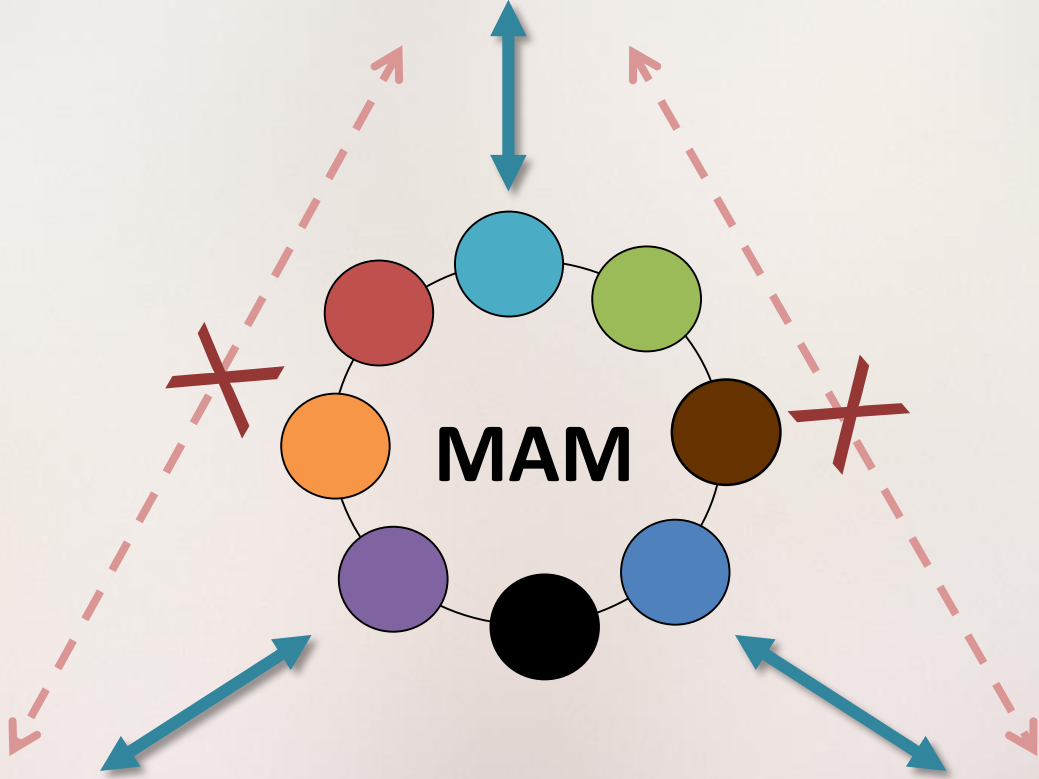


Outpatients

Addressing Hospital Readmissions

bridging Inpatient and Outpatient care

Inpatient Care



Primary Care

Emergency

ORIGINAL ARTICLE

Alternatives to conventional hospitalization for improving lack of access to inpatient beds: A 12-year cross-sectional analysis

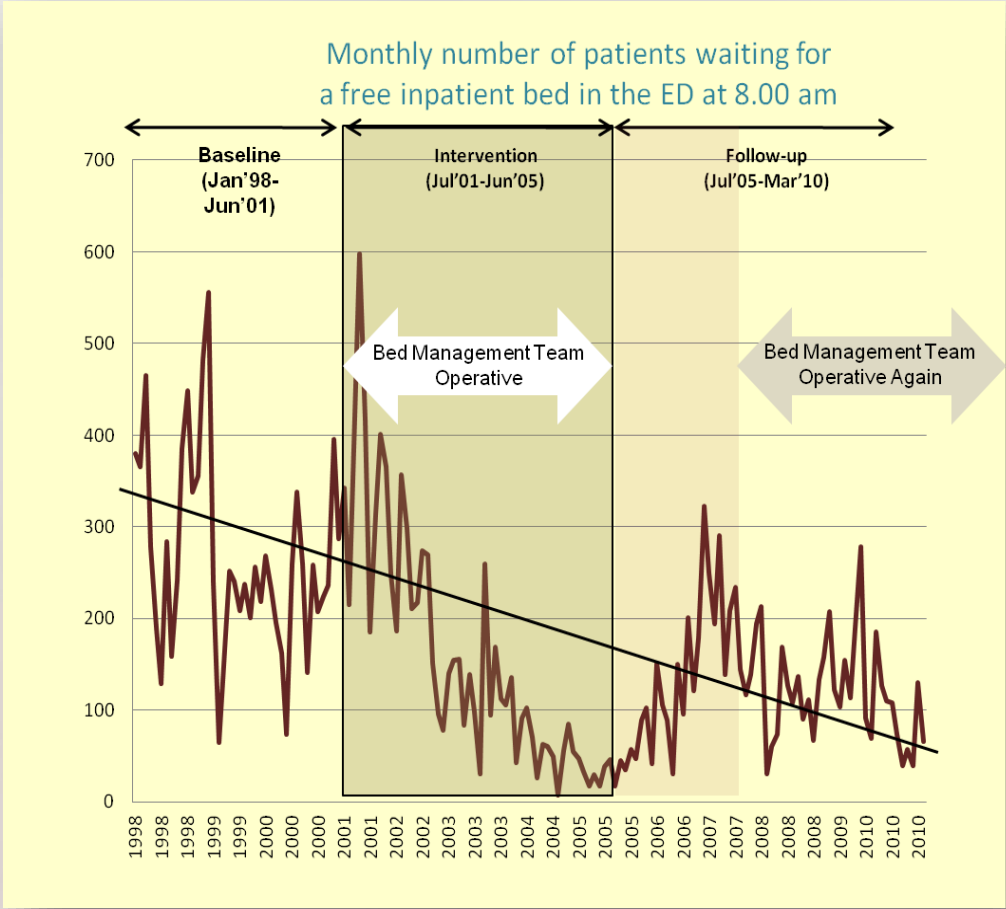
Xavier Corbella, Berta Ortiga, Antoni Juan, Nuria Ortega, Carmen Gomez-Vaquero, Cristina Capdevila, Ignasi Bardes, Gilberto Alonso, Carles Ferre, Maria Soler, Rafael Mañez, Eduardo Jaurrieta, Ramon Pujol, Albert Salazar

Bellvitge University Hospital and Bellvitge Biomedical Research Institute (IDIBELL), University of Barcelona, L'Hospitalet de Llobregat, Catalonia, Spain

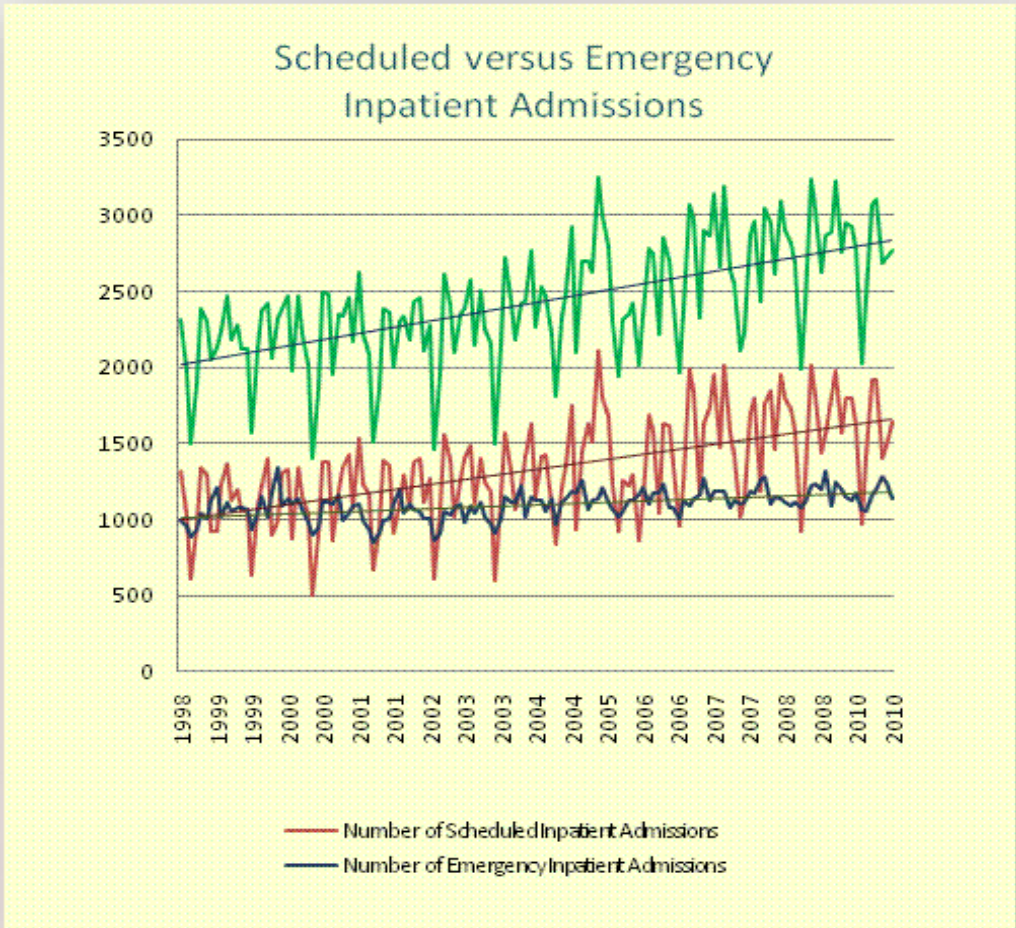
DOI: 10.5430/jha.v2n2p9



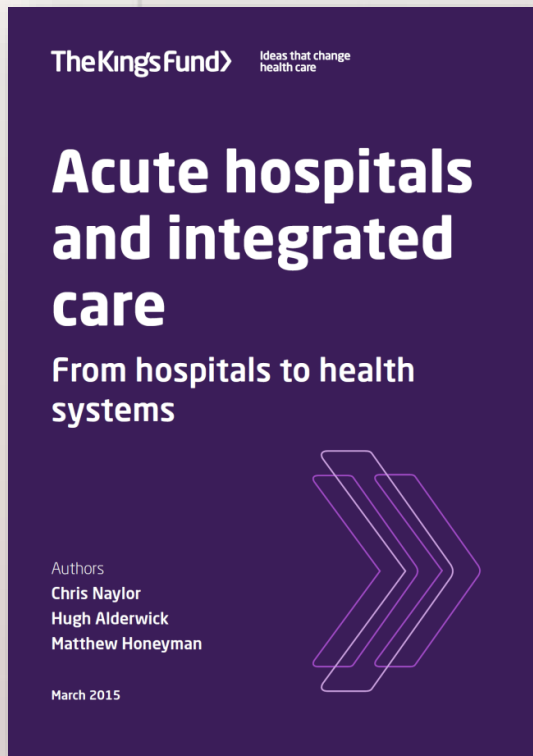
implementing change at Bellvitge Hospital



implementing change at Bellvitge Hospital



Internal Medicine is Changing, and we are on it !: Inpatient, Outpatient, and Primary Care



Inpatient Care

Leadership in the delivery of severely ill admitted patients

- Acute exacerbation of Multi-morbidity & Geriatrics
- Active medical support to Surgical Departments
- Chronically critically patients after ICU admission
- Complex and Rare Diseases

Outpatient Care

Leadership in the use of “Major Ambulatory Medicine”

- Disease Management by Multidisciplinary Teams
- Alternatives to Standard Hospitalization

Primary Care

Leadership in the prevention and continuum care for adult patients with older age, chronic diseases, and co-morbidity

- Primary Care Consultation and Virtual visits
- Integrated Care Pathways, shared Maps and IT platforms

Internal Medicine is Changing, and we are on it !: Integrated Health & Social Care New Approach

Inpatient Care → care severely ill inpatients

Outpatient Care → beyond the “Hospital Beds”

Primary Care → beyond the “Hospital Walls”

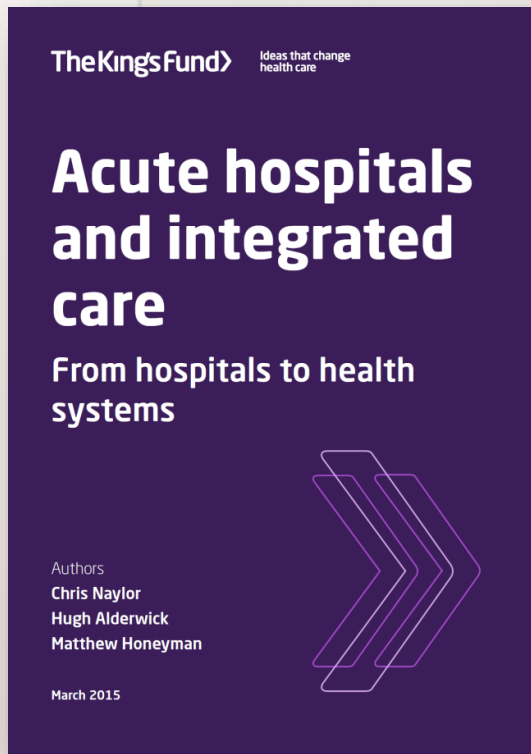
Next step...

Long-Term Care → beyond the “Pills” & “Curative” Care

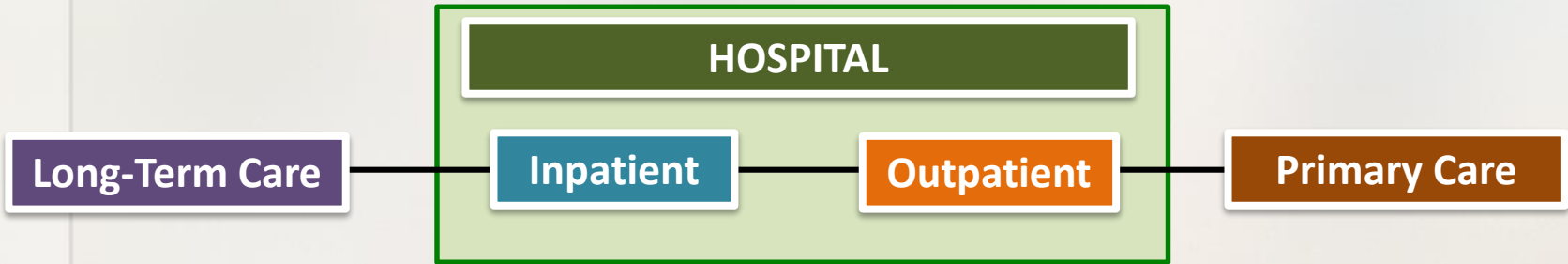
Hestia Chair at UIC Barcelona: **Integrated Health & Social Care**

Multidisciplinary Research Team focusing on

- Oldest Old and Highly Disabled Population
- Advanced and Terminal Chronicity and Co-Morbidity
- Chronic Mental Conditions and Dementia
- High Dependency and Vulnerability
- Complex Health & Social Needs
- Palliative and End of Life Care

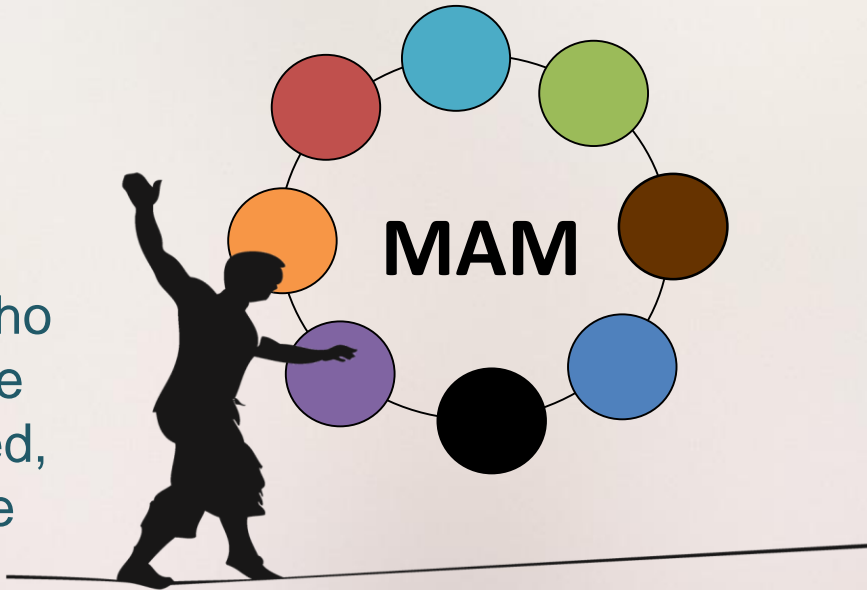


bridging Inpatient and Outpatient care



In

Patients who have to be hospitalized, should be there



Out

Patients who do not have to be hospitalized, should not be there

The Case Study in the coming years...

As a physician in the ED you should not only attend Maria during her acute HF exacerbations...



Maria



The Case Study in the coming years...

But also more important ...

You should decide where to “send” Maria for a better follow-up !



Maria

ED Observation Unit

Short Stay Unit

Quick Diagnostic Unit

Acute Care Medicine

Standard Hospitalization

Hospital in the Home

Telemonitoring

Medical Day Hospital

Primary Care

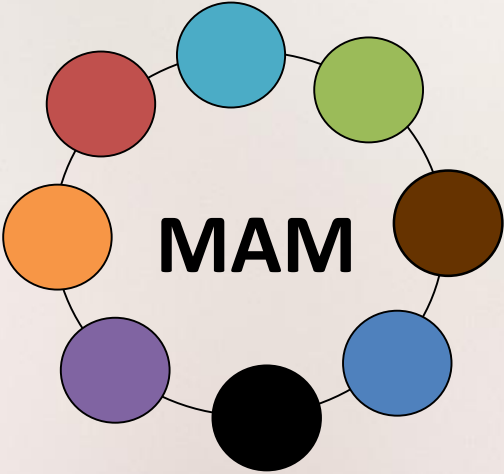
Nursing Home

Long-Term Care

Palliative Care

**A new Hospital Integration Strategy
for Internal Medicine**

Inpatients



Outpatients

to bridge the gap between



**Thank you very much
for your attention**

Bridging the gap between Riga and Barcelona

