ACC Latin America Conference 2018

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THE POWER OF TRANSFORMATION: ACHIEVING HIGH-QUALITY HEART CARE IN A WORLD OF EMERGING ECONOMIES

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No conflict of interest to report

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THE POWER OF TRANSFORMATION:
ACHIEVING HIGH-QUALITY HEART CARE IN A WORLD OF EMERGING ECONOMIES

A) Introduction

* The burden of CVD in Latin America: Epidemiology and economics
* Health care models, current challenges

B) Quality Initiatives, Performance Improvement and Best Practices

* Definitions, justification, methodology
* What, how and when to measure (tips and tools)
* Guidelines / AUC's / Registries
* Implementation of improvement measures
* Patient safety / medical errors
* Public reporting / Patient reported outcomes measures

C) Providers vs. 3rd party payers

* Costs, resources and quality
* Value-based health care vs. Volume-based reimbursement

D) The Latin American horizon

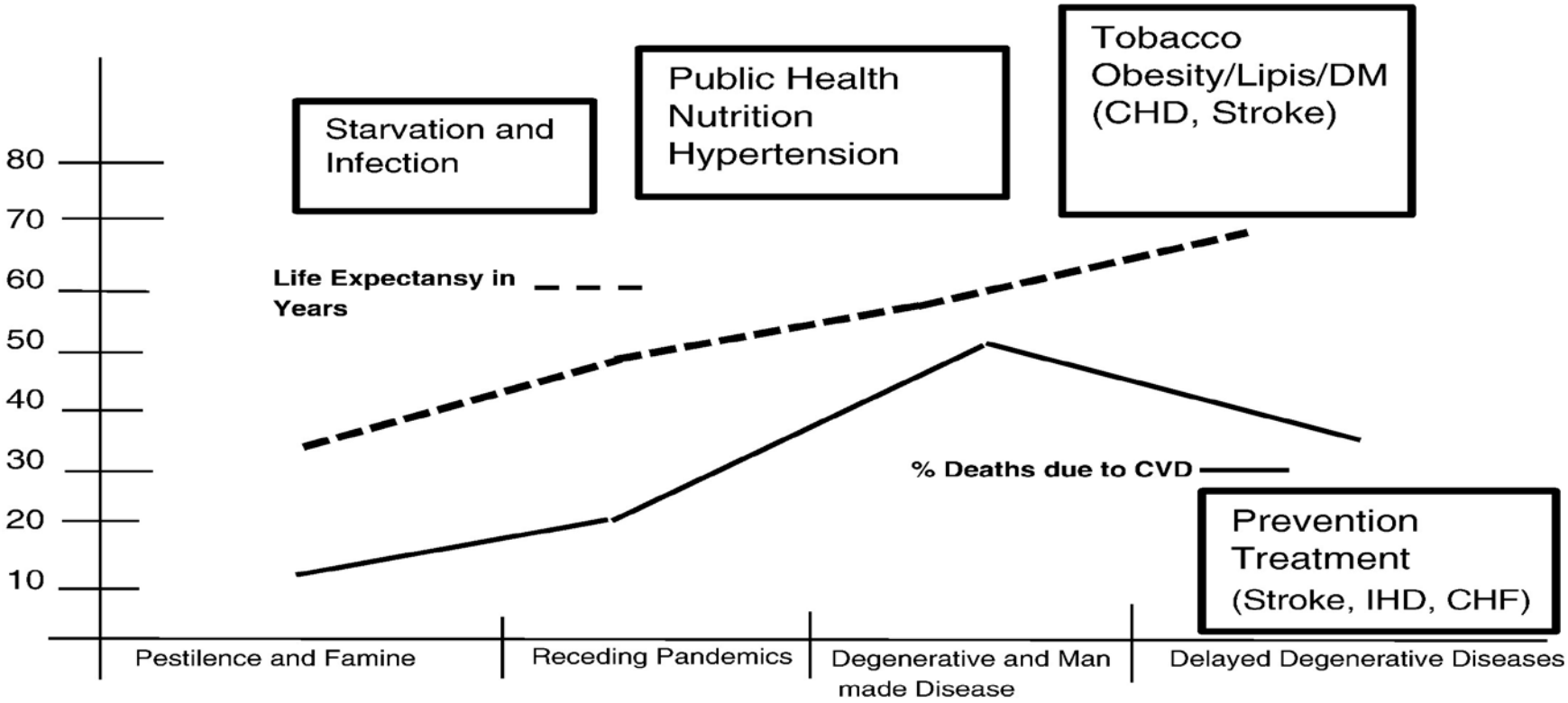
* Ongoing initiatives
* How to start
* The future: Advocacy, research and innovation

Current Health Challenges Facing Latin America

- Access to health services (30% of people do not have it for economical reasons, 21% because of geographical barriers)
- Epidemiologic transition and chronic non-communicable diseases
- Training and distribution of human resources in health
- Inequalities in education, socio-cultural level, income and health
- Systems financed based on illness, not preventive policies

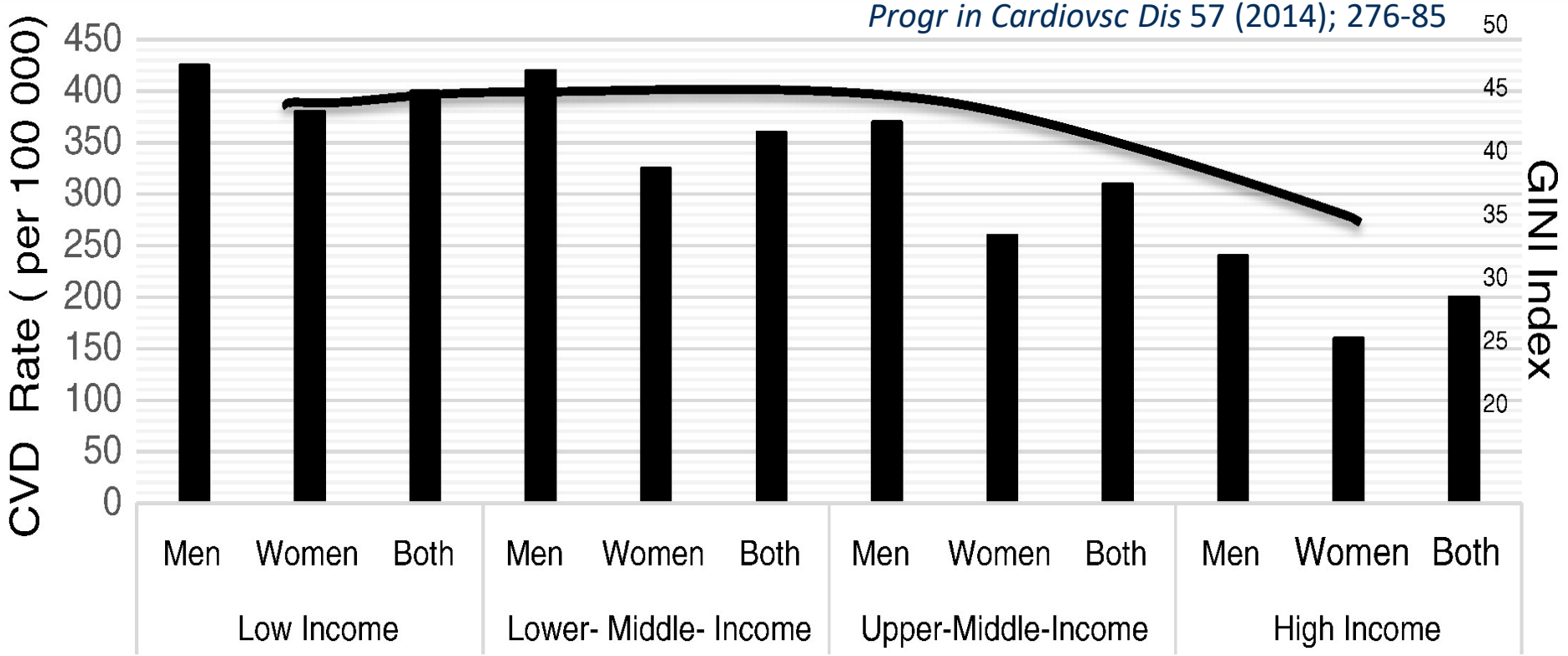
J. García Ramirez, World Economic Forum on Latin America, June 2016

The epidemiological transition *Prog Cardiovasc Dis* 2014; 57 (3) 276-85

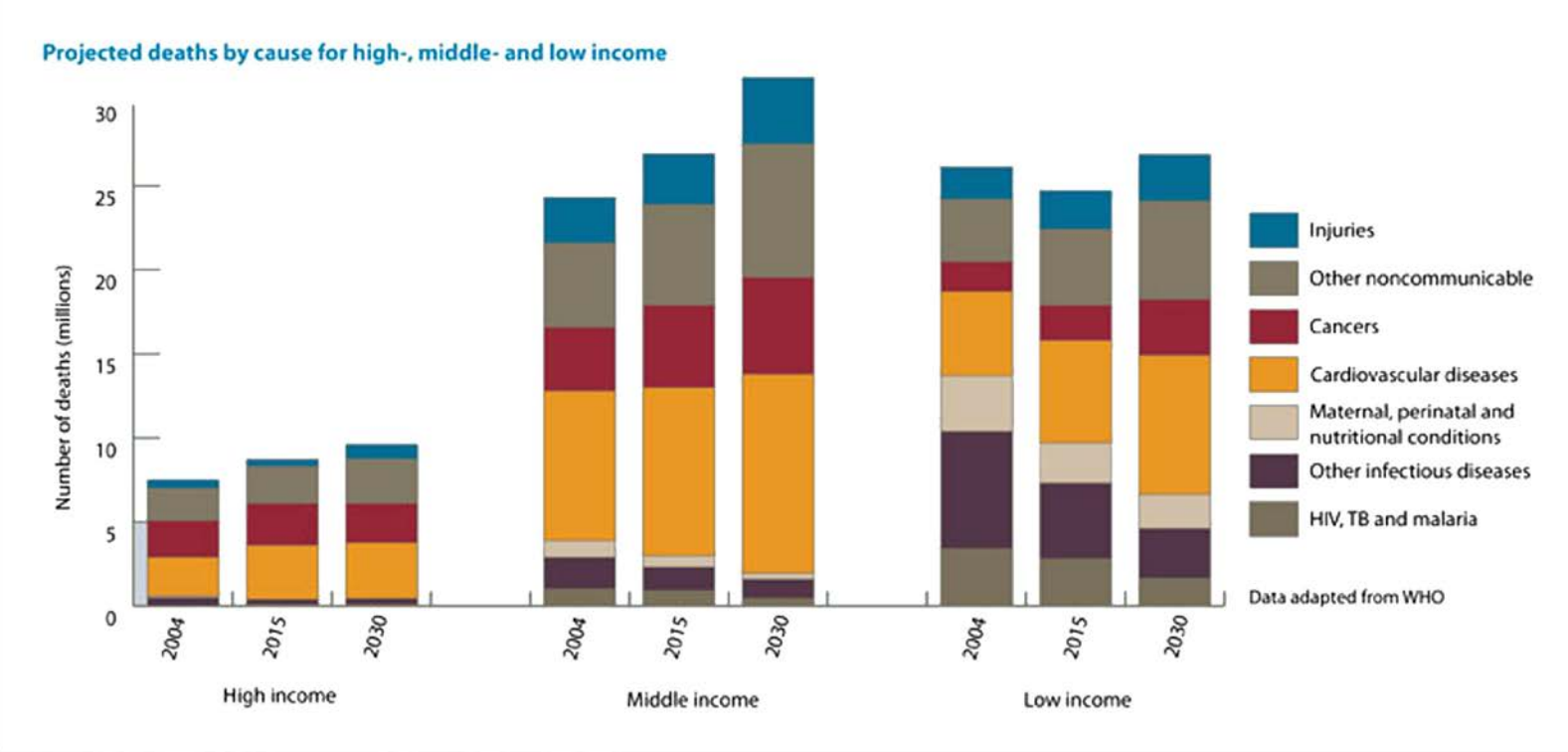


Socioeconomic inequality and CV disease mortality

Progr in Cardiovsc Dis 57 (2014); 276-85



Projected Deaths by Cause vs Country Income



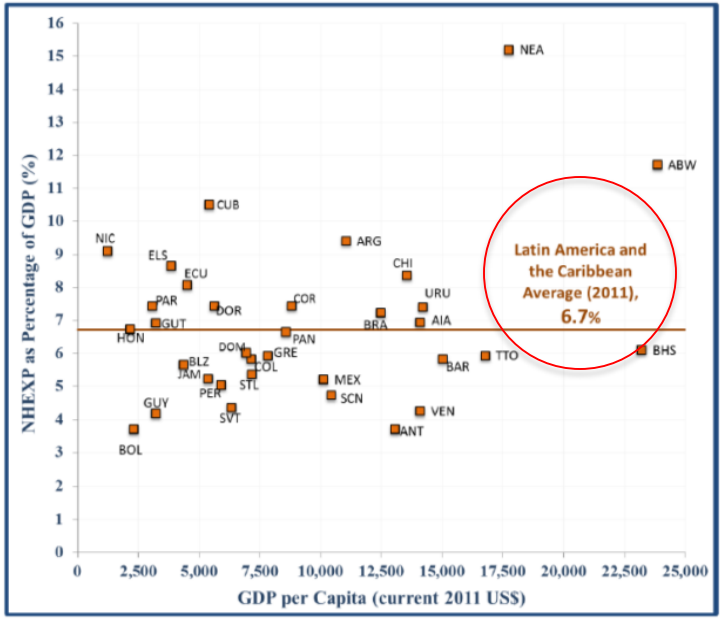
CV Disease in Latin America – prevalence* and costs

WORLD HEART FEDERATION® | World Congress of Cardiology & Cardiovascular Health
4-7 June 2016 | Mexico City, Mexico

Country	Prevalence (% 20+ population)	Financial cost (USDbn)	Health cost (% financial)	Productivity loss (% GDP)
Brazil	32.0%	17.3	5.5%	0.4%
Chile	38.0%	1.4	4.2%	0.2%
Colombia	17.4%	2.4	6.6%	0.3%
Ecuador	14.0%	0.6	2.5%	0.4%
El Salvador	27.3%	0.2	8.5%	0.3%
Mexico	25.6%	6.1	3.6%	0.3%
Panama	29.0%	0.3	3.4%	0.3%
Peru	16.0%	0.9	2.1%	0.4%
Venezuela	33.4%	1.7	2.2%	0.2%

* Includes Heart Attack, Atrial Fib, HTN and Heart Failure

Figure 1. Per capita income and National health Expenditure (NHEXP) as a % of GDP, LAC 2011



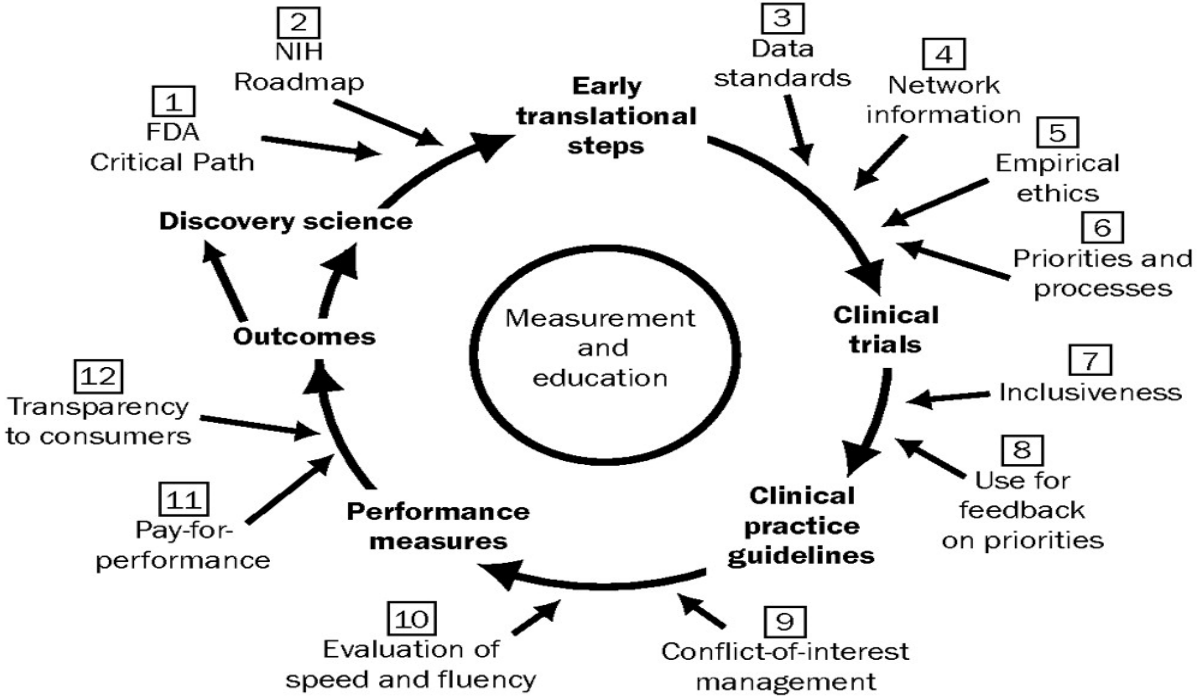
Source: Healthcare expenditure and Financing in Latin America and the Caribbean, Panamerican Health Organization, 2012

- The primary goal of health care is to help people live longer and better
- The degree in which this goal is reached determines health care quality

WHAT IS HIGH QUALITY HEALTH CARE?

"THE DEGREE IN WHICH HEALTH CARE SYSTEMS AND THEIR SERVICES AND TOOLS DIRECTED AT INDIVIDUALS OR POPULATIONS INCREASE THE LIKELIHOOD OF ACHIEVING GOALS THAT ARE CONSISTENT WITH UPDATED PROFESSIONAL KNOWLEDGE"

EXHIBIT 1
The Cycle Of Quality: Twelve Steps



SOURCE: Adapted with permission from R. Califf et al., "Integrating Quality into the Cycle of Therapeutic Development," *Journal of the American College of Cardiology* 40, no. 11 (2002): 1895–1901.

Features of High-Quality Health Care

- Safe

  Avoids harming the patient with what it offers
- Effective

  Provides evidence-based services and avoids using them where there is no proven benefit
- Patient-oriented

  Respects individual values and preferences, allows them to guide clinical decisions

Quality: A Systemic Matter

- Individual decisions don’t go too far, a large-scale approach may get there
- Quality depends on a continuous, organized, scientific process
- This process must evaluate, plan, and measure

What leads to low quality health care?

- Risky medical practices (“my experience”)
- Ineffective or erroneous interventions on the wrong patient
- Delays in access and attention
- Ultra specialized resources in the setting of marginal benefits
- Biased, differentiated attention based on age, gender, race, socioeconomical status…

Is health care quality a justified concern?

- Profound and progressive increment on costs
- Obvious deficiencies in the system
- No correlation between high costs and quality

How is quality evaluated?
Donabedian model

- **Structure**: resources (personnel, equipment, space, training, labs, protocols)
- **Processes**: “do the right thing for the right patient at the right time”
- **Outcomes**: centered on goals reached, morbidity, mortality, quality of life…

Why do we need to measure and improve quality?

1) Health care quality is evidence-based medicine
2) Is linked to learning, recertification and licensing
3) Represents the core of any health care reform initiative
4) Refers to responsibility and accountability
5) Progressively impacts compensation
6) Drives and determines health care system improvements

Instruments to measure quality

1) Clinical evidence
2) Practice Guidelines
3) Performance measures
4) Quality metrics
5) Appropriate Use Criteria

1. Clinical Evidence

- Clinical decisions must be guided by a systematic approach to collection and data analysis
- The hierarchy of evidence is far from absolute
- Evidence by itself will never be enough for clinical decisions

2. Practice Guidelines

- They intend to summarize the body of evidence-based medicine
- Rely and are sustained on/by randomized studies
- In their absence, rely on expert consensus

3. Performance Measures

- Can evaluate processes as absolute, yes or no: ASA in STEMI
- Can measure results globally: mortality, quality of life…
- May or may not be fair given the complexity of populations
- They don’t tell what is being done correctly or incorrectly
- Must combine analysis of structures and processes

4. Quality Metrics

- Represent measures developed by institutions for internal use and self-evaluation
- May lead to more successful and wider impact quality indicators
- Examples: metrics for timing of test results, ER wait, ambulatory office delays, etc.

5. Appropriate Use Criteria

- Focus on risk / benefit of testing or procedures in the outcomes of patients
- Facilitate a rational and efficient use of medical resources
- Fundamental goal: identify overutilization of resources and by so, improve cost effectiveness and patient safety
- Examples: appropriate use of PCI, Cardiac CT, MR, etc.

Quality Indicators in the “real world”

- **The clinicians**

  Often perceive this topic as one belonging to administrators and politicians

- **The public**

  Disposes of access to information on providers and organizations performance

- **The impact**

  With increasing frequency indicators are used to measure professional quality, provide recertification and modify payments

- **The results**

  Indicators are essential in the process of Quality Improvement: <u>without measurements we can not, and will not know how to improve</u>

MEASURING…

- We understand why
- We all share the same vision/goal: patient outcomes
- How to measure remains unclear to many
- The path depends on where the starting point is but mostly, on the proposed goals to be reached
- Regardless, it is a process!

International Consortium for Health Outcomes Measurement
http://www.ichom.org

Measuring… The journey

1) Engage and prepare

- Identify key individuals
- Engage management leadership
- Involve work force
- Set up a true team
- Identify realistic goals
- Map out a plan

2) Data capture modelling

- Define when to
- Choose tools to be used (paper, EMR, charts)
- Select data to collect and store
- Review and update regularly

Measuring… The journey

3) Measure and analyze

- Verify accuracy of data
- Study and risk-adjust data according to goals
- Create meaningful reporting

4) Learn and drive changes

- Learn from your outcomes and identify best practices
- Diagnose opportunities for improvement
- Establish an “outcome culture”

Measuring… Things to remember

- There is no one-size-fits-all solution: it is a unique journey
- The approach may be similar, but challenges may differ
- Must have everyone on board
- Ensure administrative support
- Adjust data acquisition/storage to your resources
- Do not aim for the most complex / sophisticated goals at the onset
- This is an iterative learning process

What is really needed to implement QI initiatives?

- Institutional will
- Medical leadership
- Administrative (staff) support
- Established plan of action (methodology of data collection, protocols to follow)
- Reporting and documenting mechanism
- Corrective structure / Reward?

Quality Measures - examples

Physician Group Practice Demonstration Quality Measures			
Diabetes Mellitus	Congestive Heart Failure	Coronary Artery Disease	Preventive Care
HbAlc Management	Left Ventricular Function Assessment	Antiplatelet Therapy	Blood Pressure Screening
HbAlc Control	Left Ventricular Ejection Fraction Testing	Drug Therapy for Lowering LDL Cholesterol	Blood Pressure Control
Blood Pressure Management	Weight Measurement	Beta-Blocker Therapy –Prior MI	Blood Pressure Control Plan of Care
Lipid Measurement	Blood Pressure Screening	Blood Pressure	Breast Cancer Screening
LDL Cholesterol Level	Patient Education	Lipid Profile	Colorectal Cancer Screening
Urine Protein Testing	Beta-Blocker Therapy	LDL Cholesterol Level	
Eye Exam	Ace Inhibitor Therapy	Ace Inhibitor Therapy	
Foot Exam	Warfarin Therapy for Patients HF		
Influenza Vaccination	Influenza Vaccination		
Pneumonia Vaccination	Pneumonia Vaccination		

QI implementation in LATAM

CEDIMAT
Plaza de la Salud

Centro Cardiovascular Santo Domingo, República Dominicana

- **STEMI management (Primary PCI)**
- Cath / EP Lab complications rates
- Diagnostic cath / PCI / CABG ratios
- Cath tracking of normal coronaries
- Patient satisfaction post-discharge
- Length of stay committee
- BLS/ACLS AHA training
- Code Blue team implementation
- Code Blue team metrics
- **CV surgery STS performance indicators**

STEMI Primary PCI Program

American Heart Association® | Mission: Lifeline®

- Administration engagement (ER and transfer policies; on-call compensation)
- Chest pain protocols
- ER physicians and nurses training (triage and ECG)
- ER physician direct access to the interventionalist
- WhatsApp use for ECG
- On-site cardiology Fellow 24/7
- Weekly case discussions
- Tracking of data by dedicated staff

JACC
JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY

Journal of the American College of Cardiology

Volume 71, Issue 11 Supplement, March 2018
DOI: 10.1016/S0735-1097(18)32653-6

PDF Article

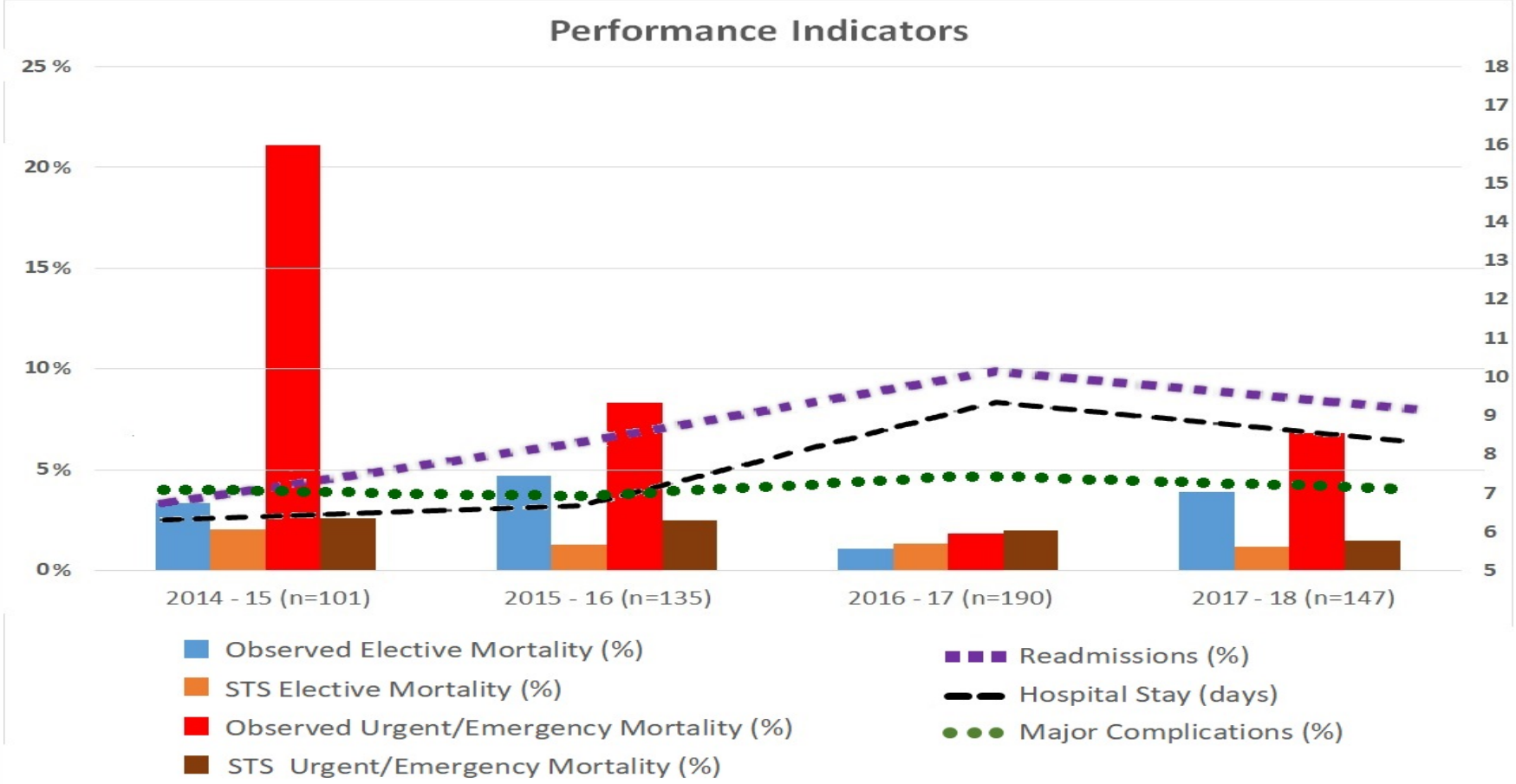
THE FIRST PRIMARY ANGIOPLASTY PROGRAM FOR ST-ELEVATION MYOCARDIAL INFARCTION MANAGEMENT IN THE DOMINICAN REPUBLIC

Samuel Zorrilla, Carlos Garcia, Diogenes Cuevas, Jeffry Beltre and Cesar Herrera

CV Surgery Program
STS performance indicators

The Society of Thoracic Surgeons

- Multidisciplinary weekly case discussions
- Pre-op urological evaluation / nasal swab culture
- A single Cardiologist follows the patient throughout
- Intra-op TEE vs. Swan Ganz
- Fast-track extubation
- Mediastinal chest tubes placement
- Antibiotic steering committee
- ICU procedures by cardiologist approved by surgical team
- Psychologist early involvement
- Protocolized early cardiac rehabilitation
- Early return appointment post discharge


Performance Indicators
25 %
20 %
15 %
10 %
5 %
0 %
18
17
16
15
14
13
12
11
10
9
8
7
6
5
2014 - 15 (n=101)
2015 - 16 (n=135)
2016 - 17 (n=190)
2017 - 18 (n=147)
Observed Elective Mortality (%)
STS Elective Mortality (%)
Observed Urgent/Emergency Mortality (%)
STS Urgent/Emergency Mortality (%)
Readmissions (%)
Hospital Stay (days)
Major Complications (%)

How to start QI Implementation in LATAM

- # 1: Physicians leaders' willingness
- Recognition of the problem
- “Intention to treat”
- Find partners: co-worker, Hospital administration, local authorities and Professional Societies
- Design a realistic plan and strategy
- Educate the team before starting
- Test the plan
- Measure, measure, measure!!!
- Analyze
- Correct / modify
- Implement

Almost finished…

- Public reporting / Patient safety
- Patient-reported Outcomes
- Value-based Health Care

New York City Puts Hospital Error Data Online

By SARAH KERSHAW
SEPTEMBER 7, 2007

The New York City
public health syster
infection and death

The New York Times

Checklist Reduces Deaths in Surgery

MODERN MEDICINE **Published 9:31 AM ET Thu, 22 Feb 2018 Updated 9:39 AM, 28 Feb 2018**

The third-leading cause of death in US most doctors don't want you to know about Medical errors!

- **National cost: $25 billion**
- **2% of hospitalizations**

- A recent Johns Hopkins study claims more than 250,000 people in the U.S. die every year from medical errors. Other reports claim the numbers to be as high as 440,000.
- Medical errors are the third-leading cause of death after heart disease and cancer.
- Advocates are fighting back, pushing for greater legislation for patient safety.

Ray Sipherd, special to CNBC.com

Published 9:31 AM ET Thu, 22 Feb 2018 | Updated 9:39 AM ET Wed, 28 Feb 2018

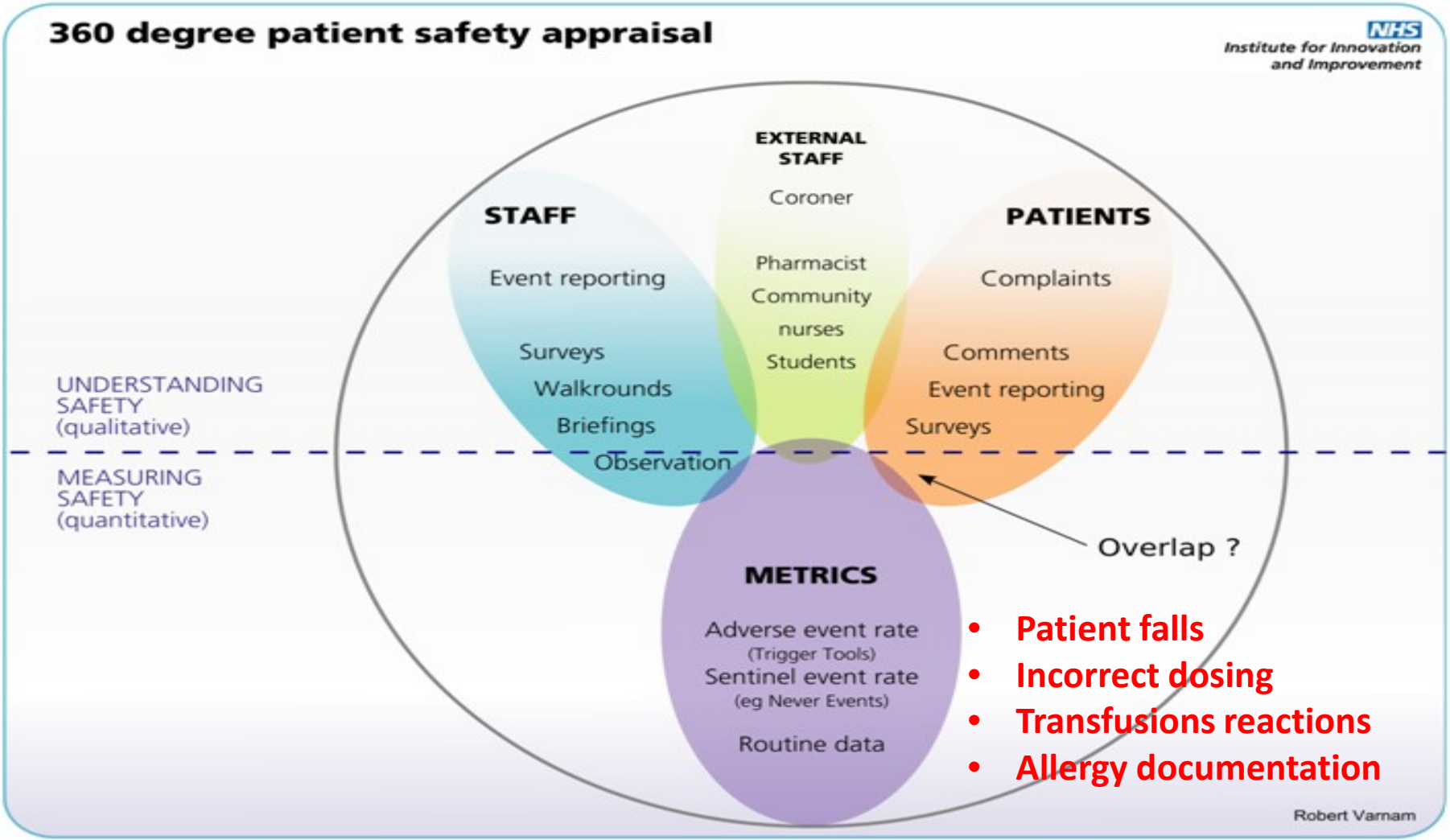
CNBC

Patient safety / Medical errors

- To err is human, to hide errors is a big mistake
- No fault errors:
  - silent disease, atypical presentation
- System-related errors:
  - delayed or missed diagnosis because of imperfections in the system
- Cognitive errors:
  - incomplete data collection
  - improper knowledge
  - inaccurate reasoning
  - incorrect interpretation

360 degree patient safety appraisal

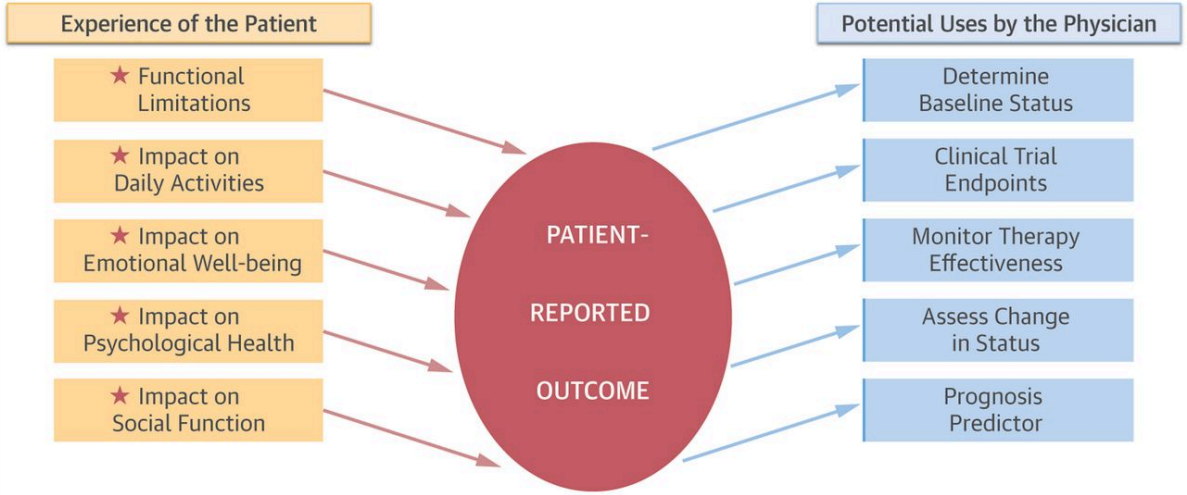
NHS Institute for Innovation and Improvement

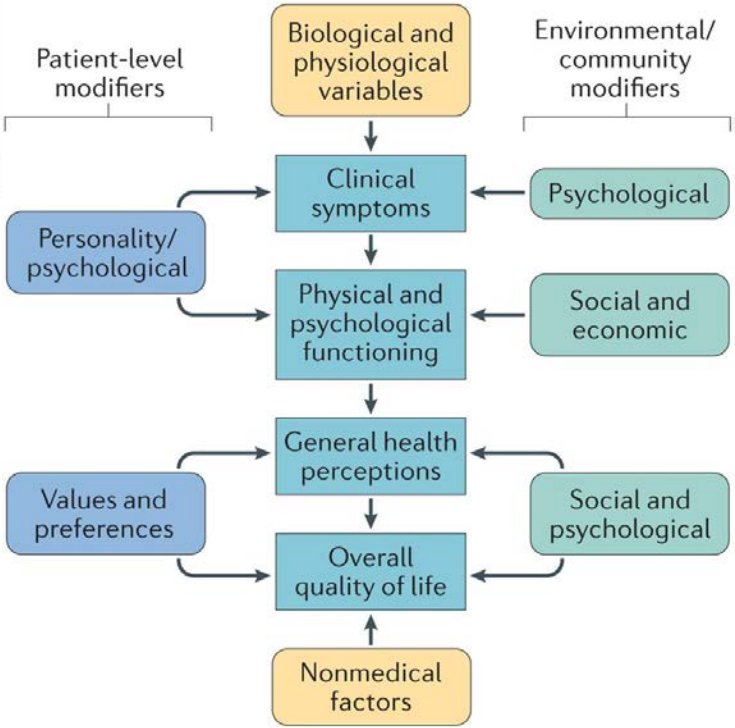


- **Patient falls**
- **Incorrect dosing**
- **Transfusions reactions**
- **Allergy documentation**

Robert Varnam

Patient-reported Outcomes

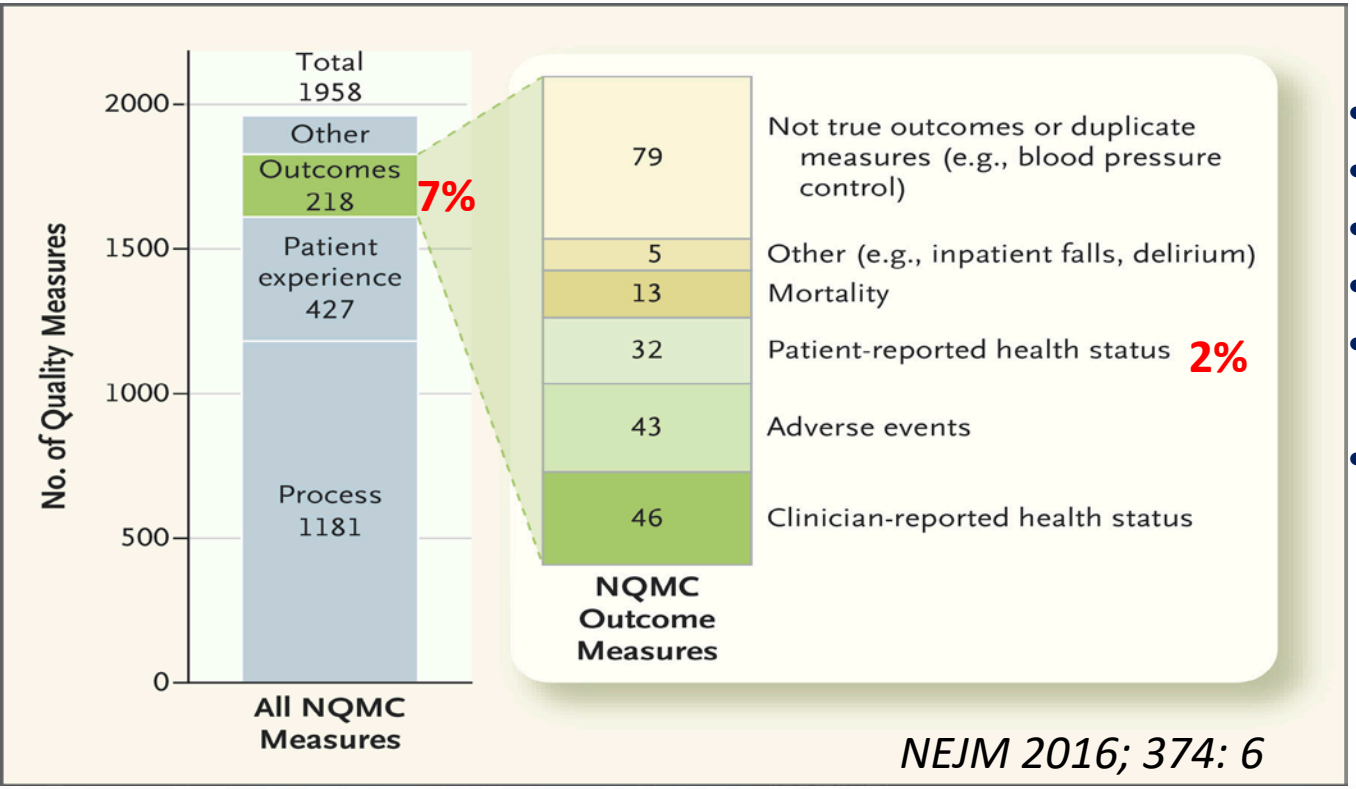




Kelkar, A.A. et al. J Am Coll Cardiol HF. 2016; 4(3):165–75.

Nature Reviews | Cardiology

Remaining Problems with Quality Measures



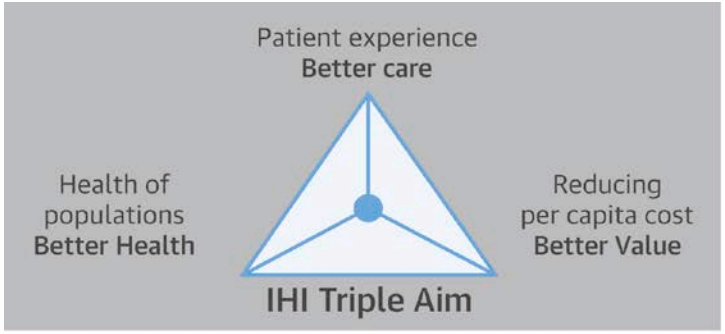
NEJM 2016; 374: 6

- Not widely implemented
- Need standarization
- Restricted to specialties
- Exclude quality of life
- Must measure the whole cycle of patient care
- Quality has been linked to Guidelines, not outcomes

NEED A MULTIDISCIPLINARY, MULTIORGANIZATIONAL APPROACH

What is Value in Health Care?

J Am Coll Cardiol 2017; 70: 904-6



- Clinical outcome measures
- Patient-reported outcome measures (PROMs)
- Patient-reported experience measures (PREMs)

Value

The value Equation

$$\text{Value} = \frac{\text{Outcomes}}{\text{Costs}}$$

- Total costs of the full cycle of care
- Focus on waste reduction

Quality

The Virginia Mason Quality Equation

$$\text{Quality} = \frac{\text{Appropriateness} \times (\text{Outcomes} + \text{Service})}{\text{Waste}}$$

Value-Based Health Care in Latin America

- LATAM faces a transition where CVD constitutes a major health threat
- Current annual costs of 4 CV conditions in the region = US$31 billion
- Fee-for-service payments systems based on volume and prices reward quantity over quality
- Urgent need to reduce health spending and reward provider-based value

Katz, Franken and Makdisse. J Am Coll Cardiol 2017; 70: 904-6

Journal of the American College of Cardiology

Volume 70, Issue 7, 15 August 2017, Pages 904-906

Guest Editors' Page

Value-Based Health Care in Latin America: An Urgent Discussion

Marcelo Katz MD, PhD, Marcelo Franken MD, PhD, Marcia Makdisse MD, PhD, MBA

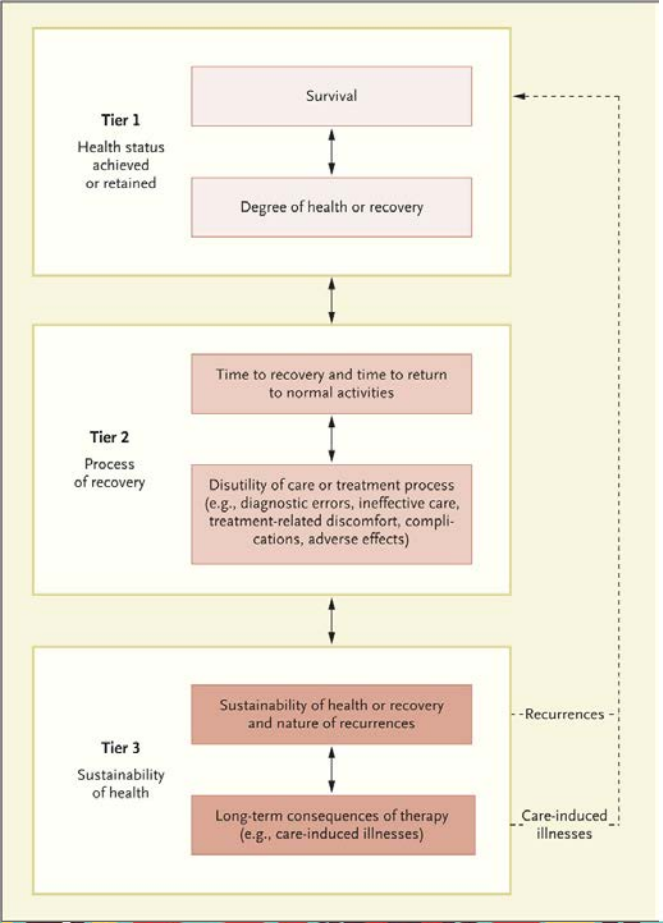
Show more

https://doi.org/10.1016/j.jacc.2017.06.050

CVD in the political agenda

2011 Declaration

"Cardiovascular Disease represents one of the main obstacles to development in the 21st Century"



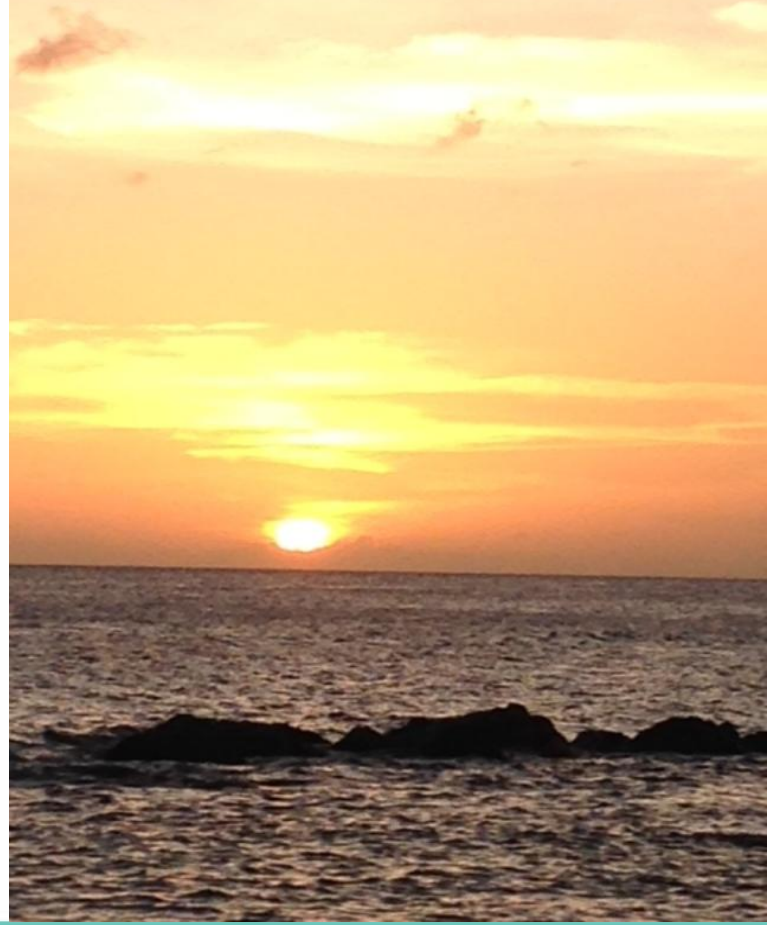
The outcome measure hierarchy

Tier 1. Health status achieved (survival and/or recovery)
Tier 2. Process of recovery (time to recover / how was recovery)
Tier 3. Sustainability of health (recovery long-term)

Porter ME *The New Engl J of Med* 2010; 363: 26

The Power for the Future…

- Advocacy
- Education
- Research
- Innovation



Circulation 2011; 123: 2167-79

AHA POLICY STATEMENT

The American Heart Association's Recommendations for Expanding the Applications of Existing and Future Clinical Registries

A Policy Statement From the American Heart Association

Vincent J. Bufalino, Frederick A. Masoudi, Steven K. Stranne, Katie Horton, Nancy M. Albert, Craig Beam, Robert O. Bonow, Roger L. (Vern) Davenport, Meighan Girgus, Gregg C. Fonarow, Harlan M. Krumholz, Mark W. Legnini, William R. Lewis, Graham Nichol, Eric D. Peterson,

Health Care Services: phenotypes

- Overutilized

  When it may not be necessary or when risk > benefit
- Underutilized

  When a proven beneficial intervention is not used
- Poorly utilized

  Caused by erroneous diagnoses or therapies

A taxonomy of terms

Health A state of complete physical, mental, and social well-being and not merely the absence of infirmity

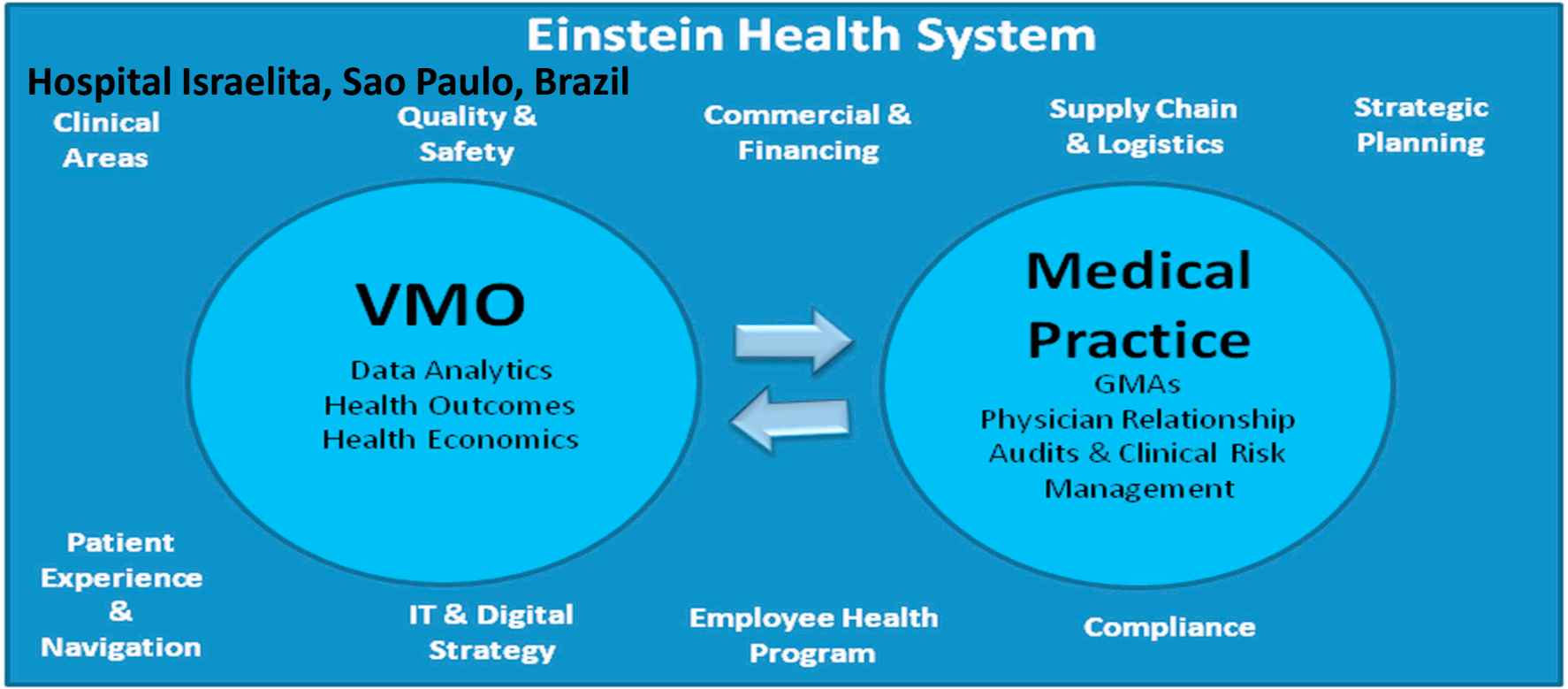
Health status Overlaps with the concept of health; ‘status’ implies a measurement focus, but the concept is not defined more clearly than health

Quality of life A complex, multidimensional concept that includes both positive and negative elements. No consensus on the definition exists. Includes health and many other non-health domains. Often involves the concepts of happiness, subjective well-being, and the meaning given to life

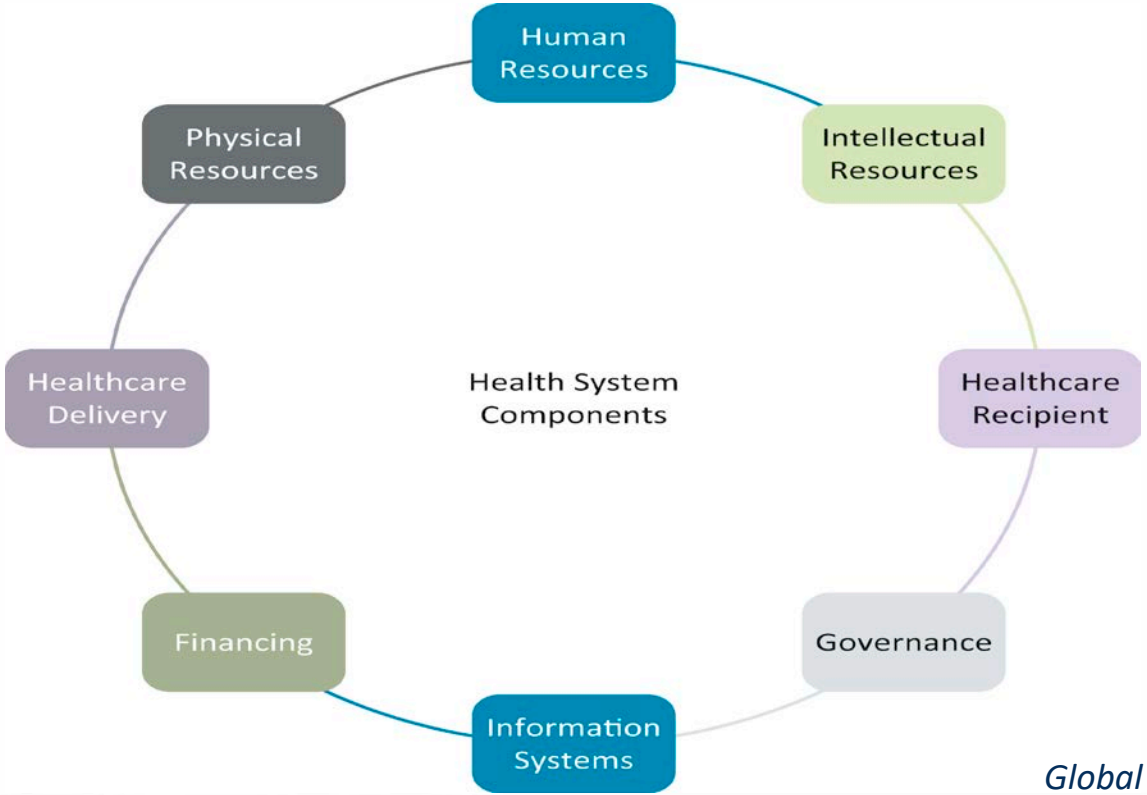
Health-related quality of life Restriction of the quality-of-life concept to domains affected by health; typically using the WHO definition of health or a modification of this definition

Patient-reported outcomes Any report of the status of a patient’s health that comes directly from the patient without interpretation by anyone else

NATURE REVIEWS | CARDIOLOGY VOLUME 13; MAY 2016: 287


Einstein Health System
Hospital Israelita, Sao Paulo, Brazil
Clinical Areas
Quality & Safety
Commercial & Financing
Supply Chain & Logistics
Strategic Planning
VMO
Data Analytics
Health Outcomes
Health Economics
Medical Practice
GMAs
Physician Relationship
Audits & Clinical Risk Management
Patient Experience & Navigation
IT & Digital Strategy
Employee Health Program
Compliance
Suppliers
Payers
Agencies & Regulators
Government
Academia
Other Providers

Requirements to Achieve Secondary Prevention



Global Heart 2018; 13 (2): 83-91

CESCAS
—South American Centre of Excellence in CV Health—

GOALS

- Mobile health intervention to prevent progression of pre-HTN
- Comprehensive approach for HTN prevention and control
- Education to improve physician's effectiveness in detection, treatment and control of hypercholesterolemia

BARRIERS

- Complexity of interventions with multifactorial aspects
- Poor evaluative/critical culture
- Limited human resources
- Lack of leadership and management skills
- Weak health system
- Complex cultural and sociopolitical context
- Local resistance to adopt interventions

CESCAS

Argentina, Guatemala, Peru

A longitudinal study of cardiovascular disease and risk factors in Latin America

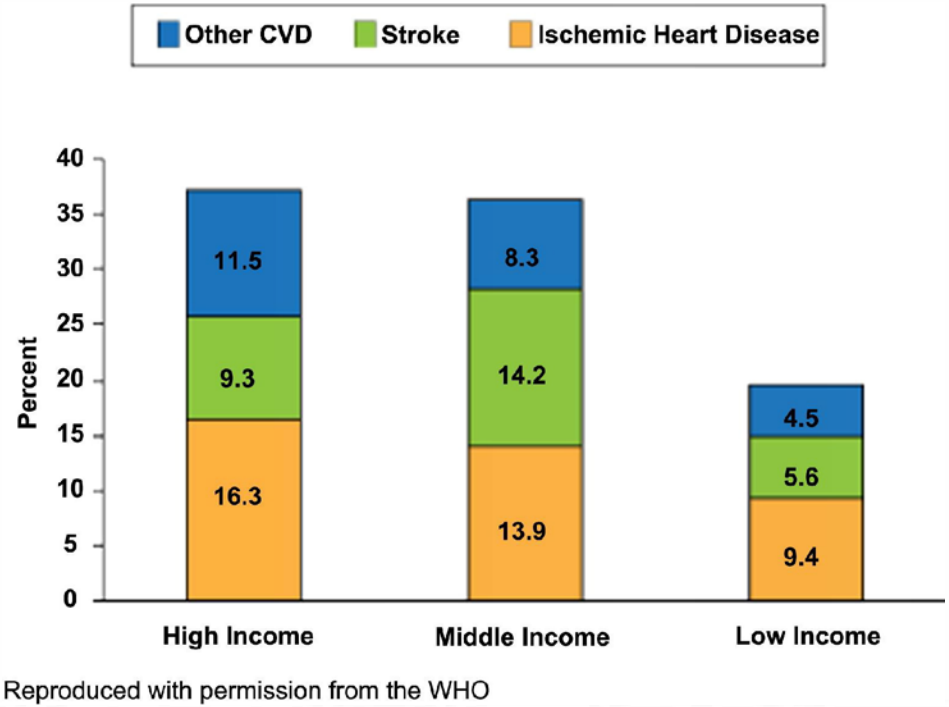
Table 1 Data collection in the CESCAS I study

Type of data	Components	Instrument
General information	Socio-demographic and economic data, and type of health services utilisation	HCHS/SOL*
Claudication	Location, functional class	HCHS/SOL*
History	Cardiovascular, respiratory, hypertension, dyslipidaemia, diabetes, pharmacological and non-pharmacological treatment and cancer	HCHS/SOL*
Alcohol	Level of consumption (daily quantity, frequency, type of alcoholic beverage)	HCHS/SOL*
Physical activity	Type of activity, frequency and intensity, in free time and during work	IPAQ
Spirituality	Importance, religious practice	HCHS/SOL*
Nutrition	Types of foods, quantity and frequency	FFQ
Smoking	Current, former and passive smoker; other types of tobacco use (pipe, cigar)	GATS
Mental health	Depression, traumatic events, anxiety	PHQ-9/HCHS/SOL*
Global health		SF-12
Quality of life		EQ-5D
Physical examination	Blood pressure, weight, height and waist circumference	
Laboratory	Total cholesterol, HDL cholesterol, triglycerides, glucose and creatinine	
ECG	25 mm/s and at 1 mV of amplitude	

*Forms from the Hispanic Community Health Study/Study of Latinos, cross-culturally adapted for use in Argentina, Chile and Uruguay.
FFQ, Food Frequency Questionnaire; GATS, Global Adult Tobacco Survey; IPAQ, International Physical Activity Questionnaire; PHQ-9, Patient Health Questionnaire depression scale.

BMJ Open 2011; 1: e000126.doi: 10

Mortality and Costs in LATAM



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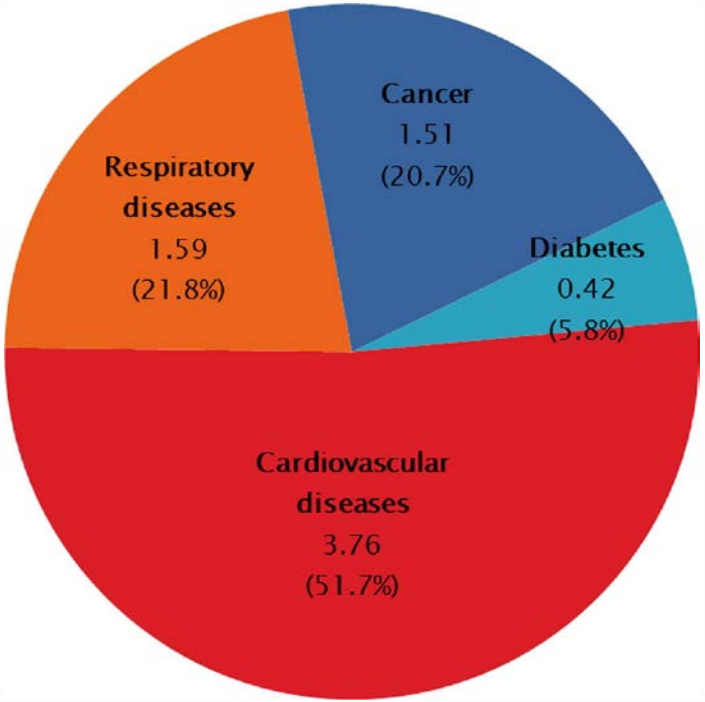
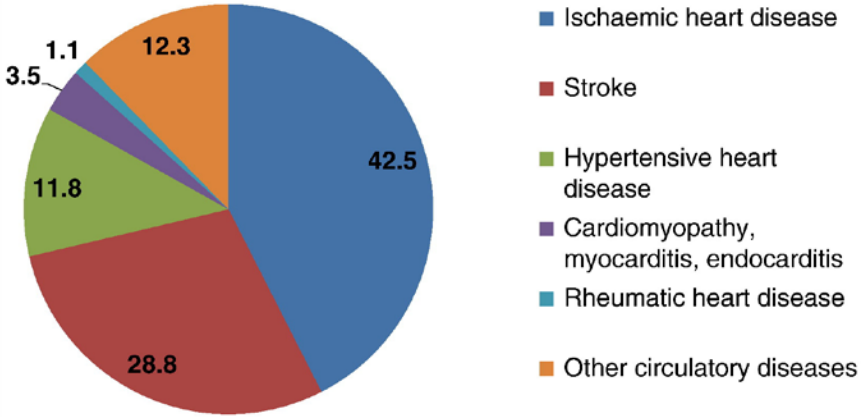


CV Mortality in Latin America

PAHO, Health Analysis and Statistics Unit. Washington DC, 2008

Adjusted mortality rates (100,000 pop) (2003-2005)	Stroke	Ischemic heart diseases
Regional		
The Americas	42.3	81.0
North America	30.7	93.9
Latin America and the Caribbean	54.3	65.5
Subregional		
Latin America	54.1	65.2
Mexico	34.5	66.2
Central American	39.6	59.1
Latin Caribbean	69.1	82.1
Andean Area	44.2	73.1
Brazil	70.9	67.4
Southern Cone	48.6	44.6
English Caribbean	86.0	108.7

CV mortality by illness. 2013



Progr in Cardiovasc Diseases 2014, 57 (3): 262

Risk Factors in Latin America

Table 2. INTERHEART Latin America: Prevalence of risk factors in the control group; odds ratios and population-attributable risks for males and females combined.

Risk factor	Prevalence in controls (%)	Odds ratio (95% CI)	PAR (95% CI)
ApoB/ApoA1 *	42.0	2.3 (1.8–9.4)	40.8 (30.3–52.2)
Tobacco †	48.1	2.3 (2.0–2.7)	38.4 (32.8–44.4)
Diabetes mellitus	9.54	2.6 (2.1–3.2)	12.9 (10.3–16.1)
Arterial hypertension	29.1	2.8 (2.4–3.3)	32.9 (28.7–37.5)
Waist-to-hip ratio	48.6	2.5 (2.0–3.1)	45.8 (35.8–56.2)
Depression	28.9	1.2 (1.0–1.4)	4.7 (1.4–13.9)
Permanent stress ‡	6.8	2.8 (2.1–3.8)	28.1 (18.5–40.3)
Regular exercise	22.0	0.7 (0.6–0.8)	28.0 (17.7–41.3)
Alcohol	19.4	1.1 (0.9–1.3)	–3.2 (– 18–11.7)
Daily consumption of fruit or vegetables	85.0	0.7 (0.6–0.8)	6.9(3.35–10.5)

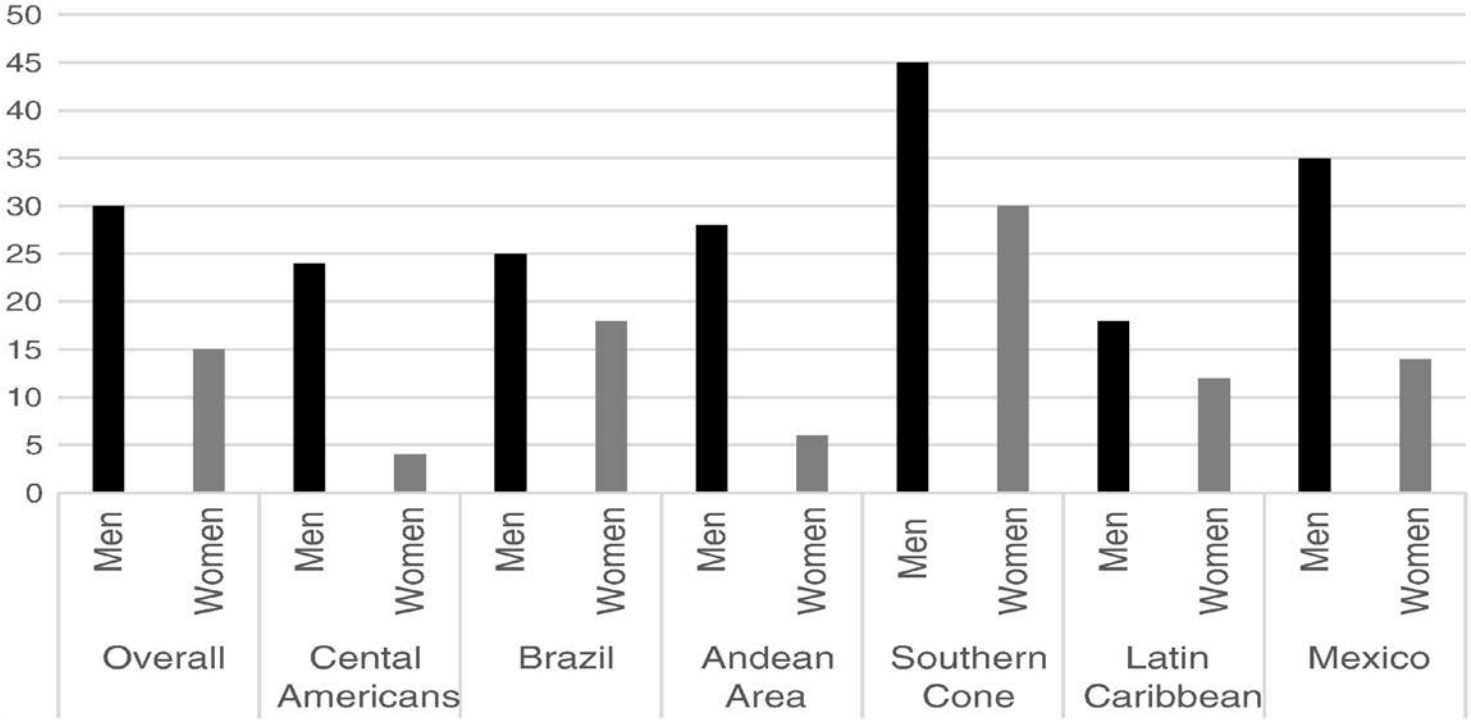
Adapted from ref 16. *N* = 3125. Participating countries: Argentina, Brazil, Colombia, Chile, Guatemala and Mexico.

Population-attributable risk (PAR).

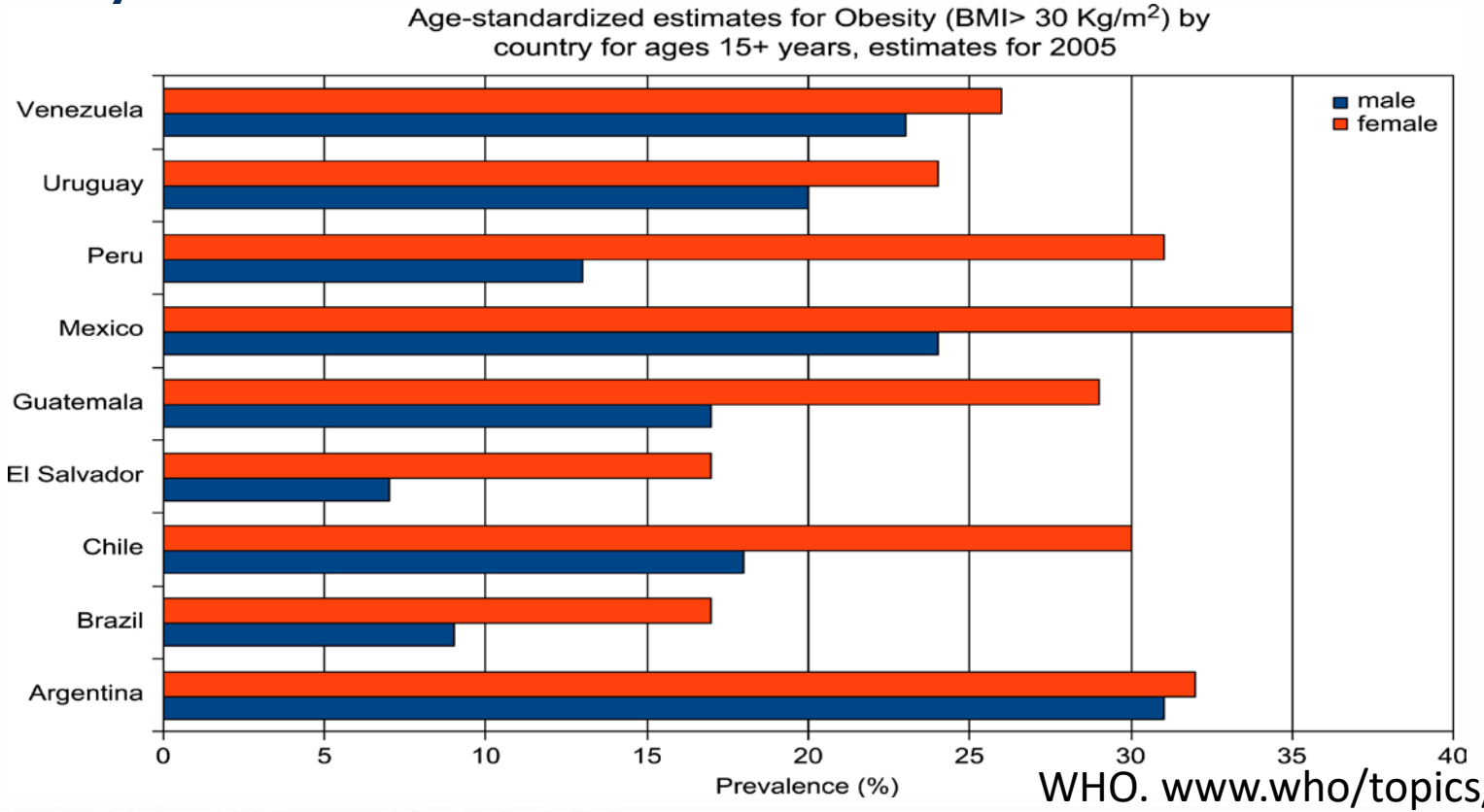
*1st vs. 3rd tertile, † Never vs. active and former smokers, ‡ Never vs. permanent.

Circulation 2007; 115: 1067

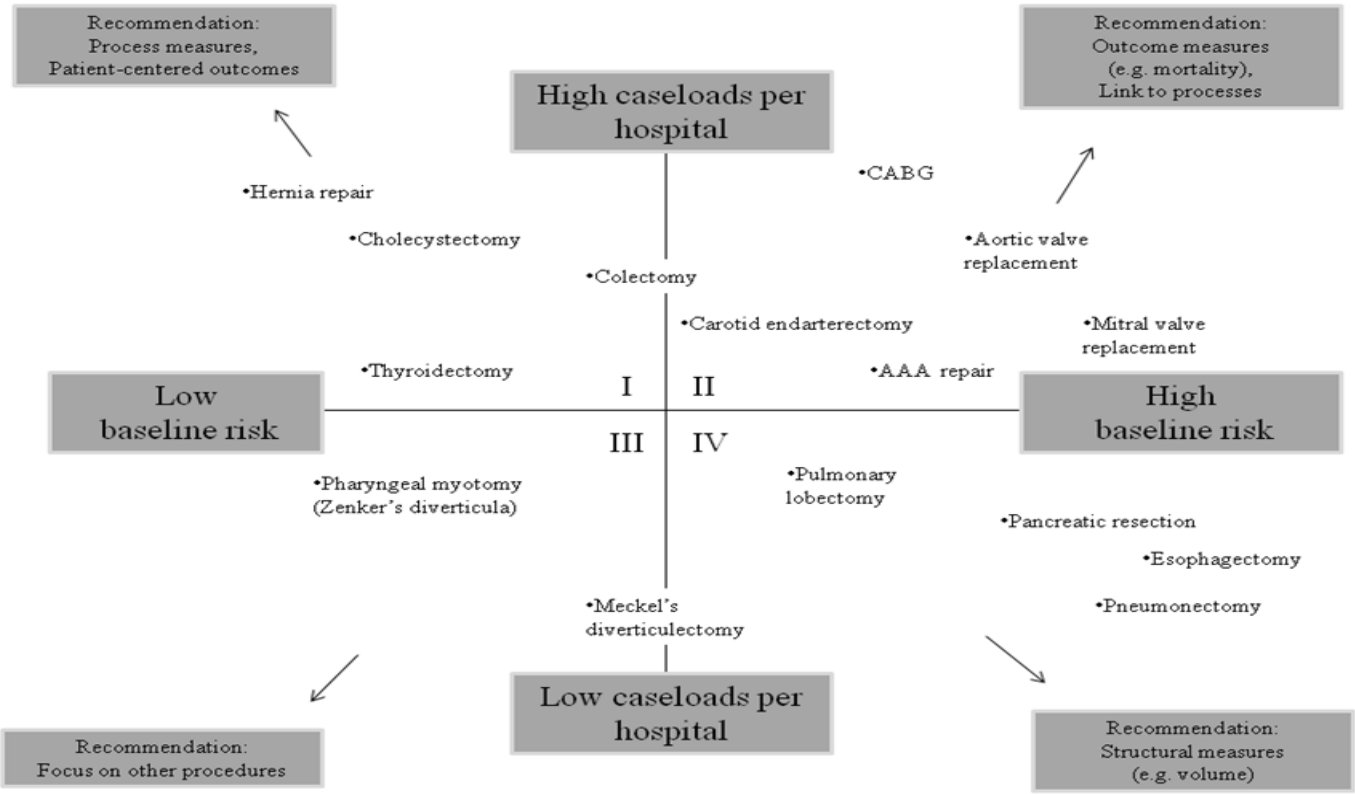
Current Tobacco Use Among Latin American and Caribbean Adults. WHO World Health Statistics 2009.



Obesity Rates in Selected Latin American Countries



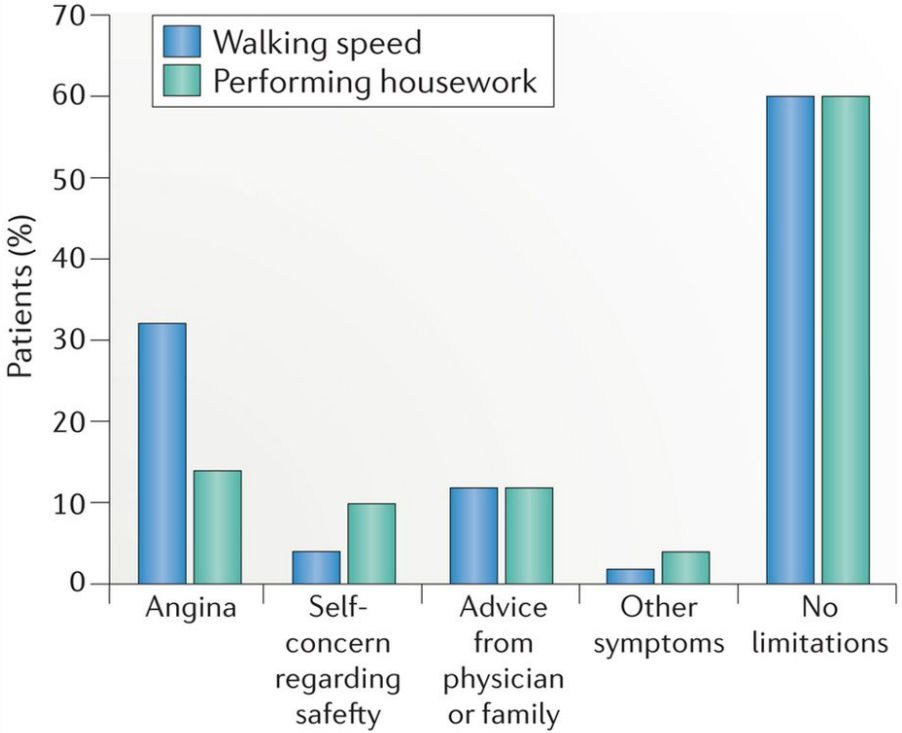
WHO. www.who/topics/obesity.



Recommendations for when to focus on structure, process, or outcomes.

Jhon D. Birkmeyer, Justin B. Dimick, Nancy J.O. Birkmeyer. Journal of the American College of Surgeons, Volume 198, Issue 4, April 2004.

Patient-reported outcomes - example



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A Model of Quality Improvement Implementation

- **Goals**: small, quantifiable, short-term, directed to specific groups
- **Measurements**: able to determine if a specific change leads to improvements in Quality Indicators
- **Choose changes**: the ones that likely will result in measurable improvement
- **Test changes**: improvement-specific change leads to a better QI (see PDSA cycle)