



Lessons from Case Studies in Value-based Healthcare

Bonaire, 26 October 2016



Agenda

- **The Value of Value Based Healthcare**
- **Value Based Healthcare in developing health systems**
- **The Road towards Value Based Healthcare**



What is Value Based Healthcare?

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



Conventional cost controls have failed to rein in healthcare expenditures

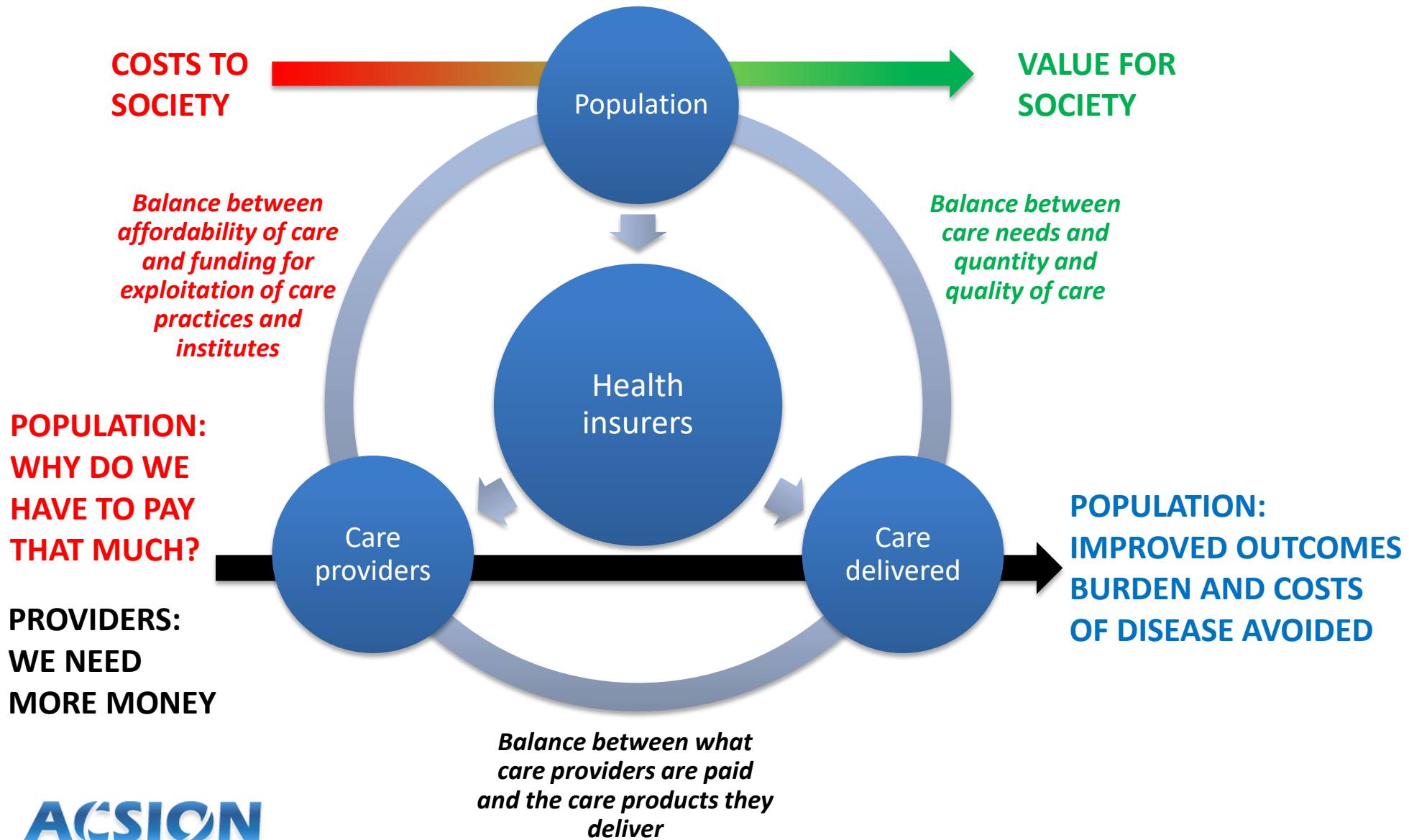
Focus should be on value rather than costs alone

- **Costs keep rising despite constant focus on costs**
 - Demographic factors, lifestyle and technological developments
 - Costs are not caused by costs, but by diseases driving care demand and consumption
- **Remarkably little attention is paid to what society is getting for its investment**
 - What do we expect from our health systems?
 - What are the actual benefits delivered by our health systems?
- **Putting the improvement of health outcomes at the center of health reforms has the benefit of engaging HC providers in a positive approach to health care reform**
- **Making value the centerpiece of changes in the health system has the potential to reorient clinical practice**
 - Providers are not seen as costs, but as investments to achieve the desired outcomes
 - And they do not only strive to deliver the most procedures or to sell the most drugs but rather compete on the basis of who delivers the best value (= best health outcomes)



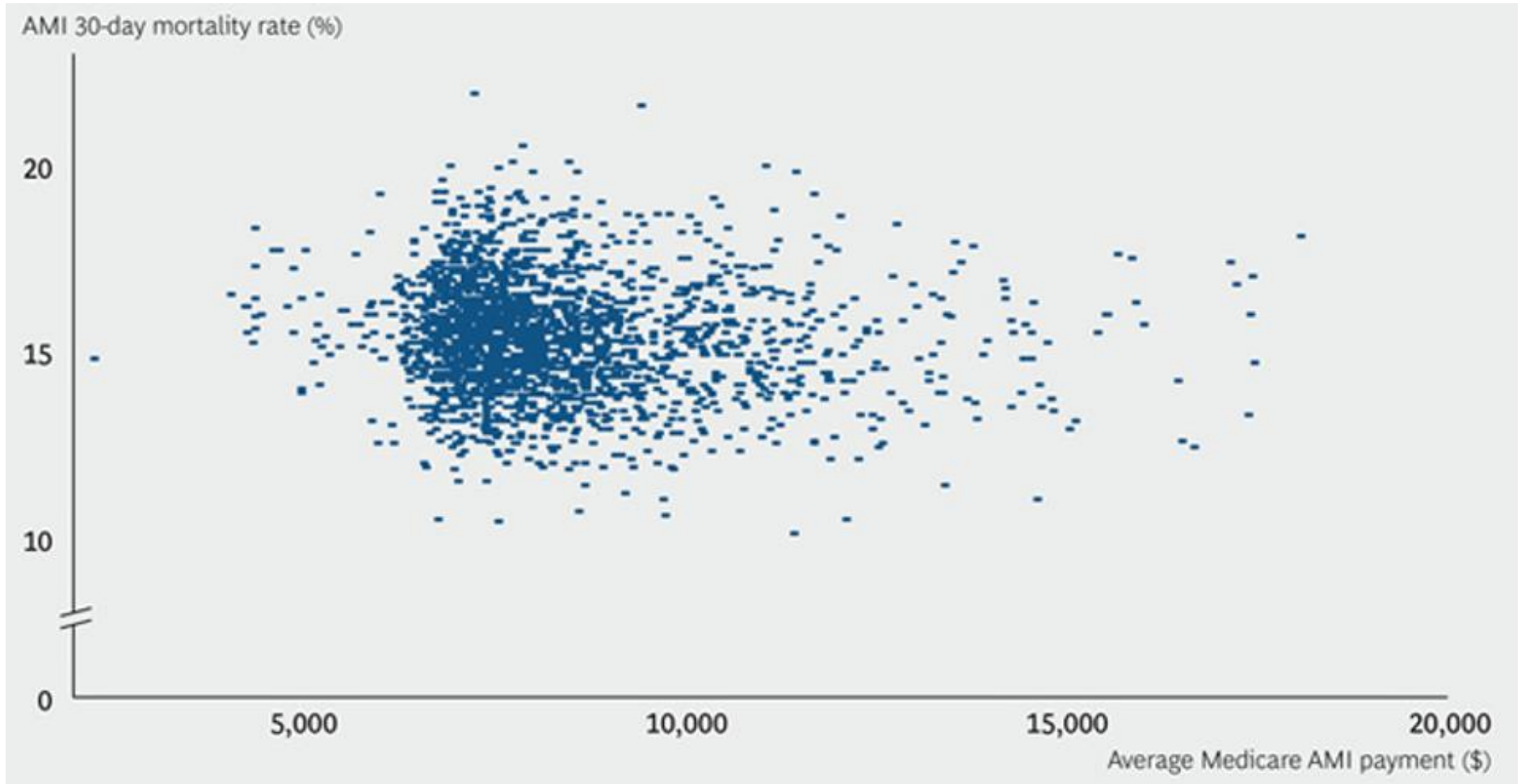
We have to source funds rather than cut costs on healthcare

Budget should be considered an investment rather than cost to society



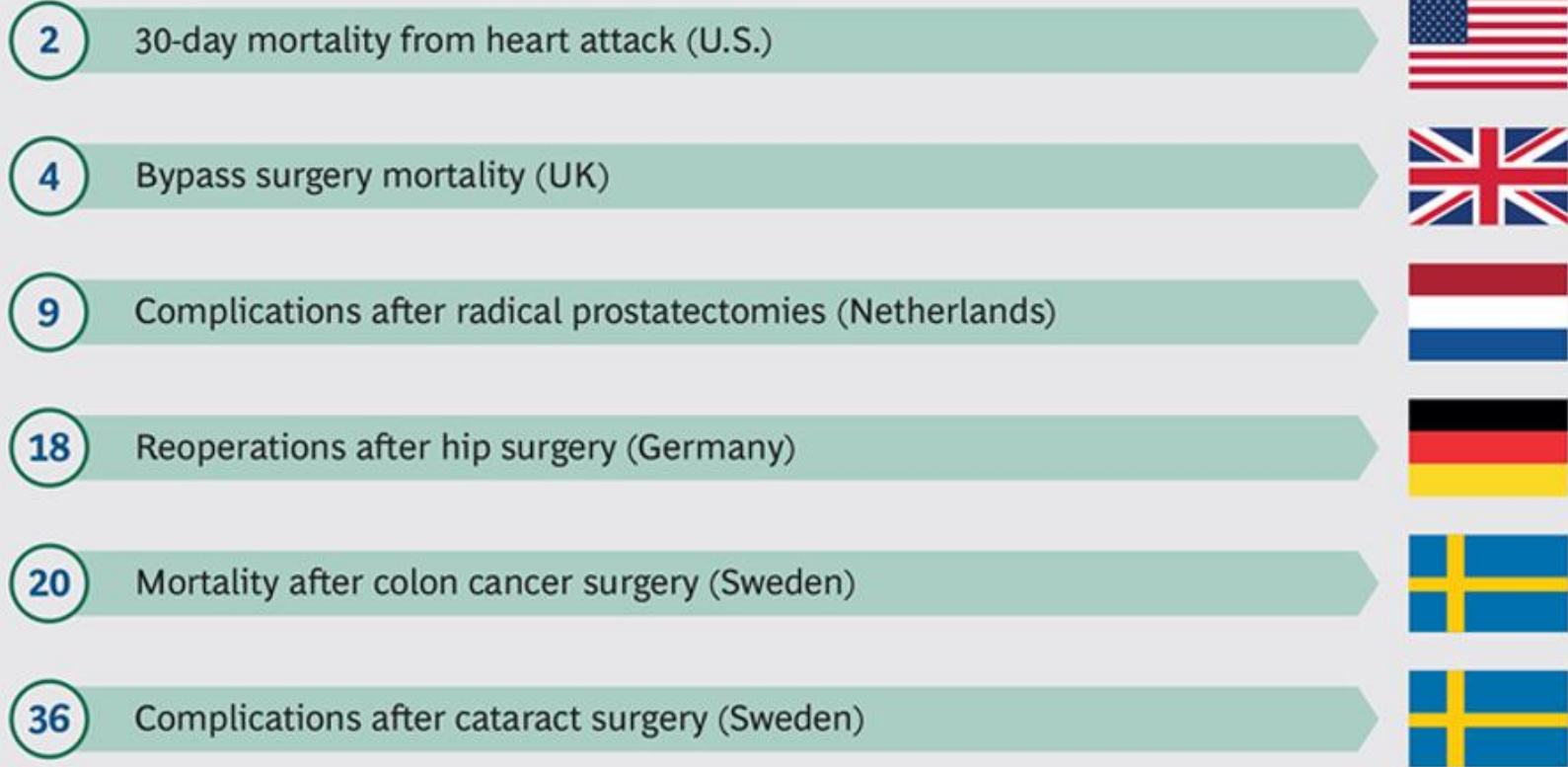
There is little correlation between costs and outcomes for AMI in the US

We have to identify the drivers for optimal outcomes



There is significant variation in outcomes for many conditions

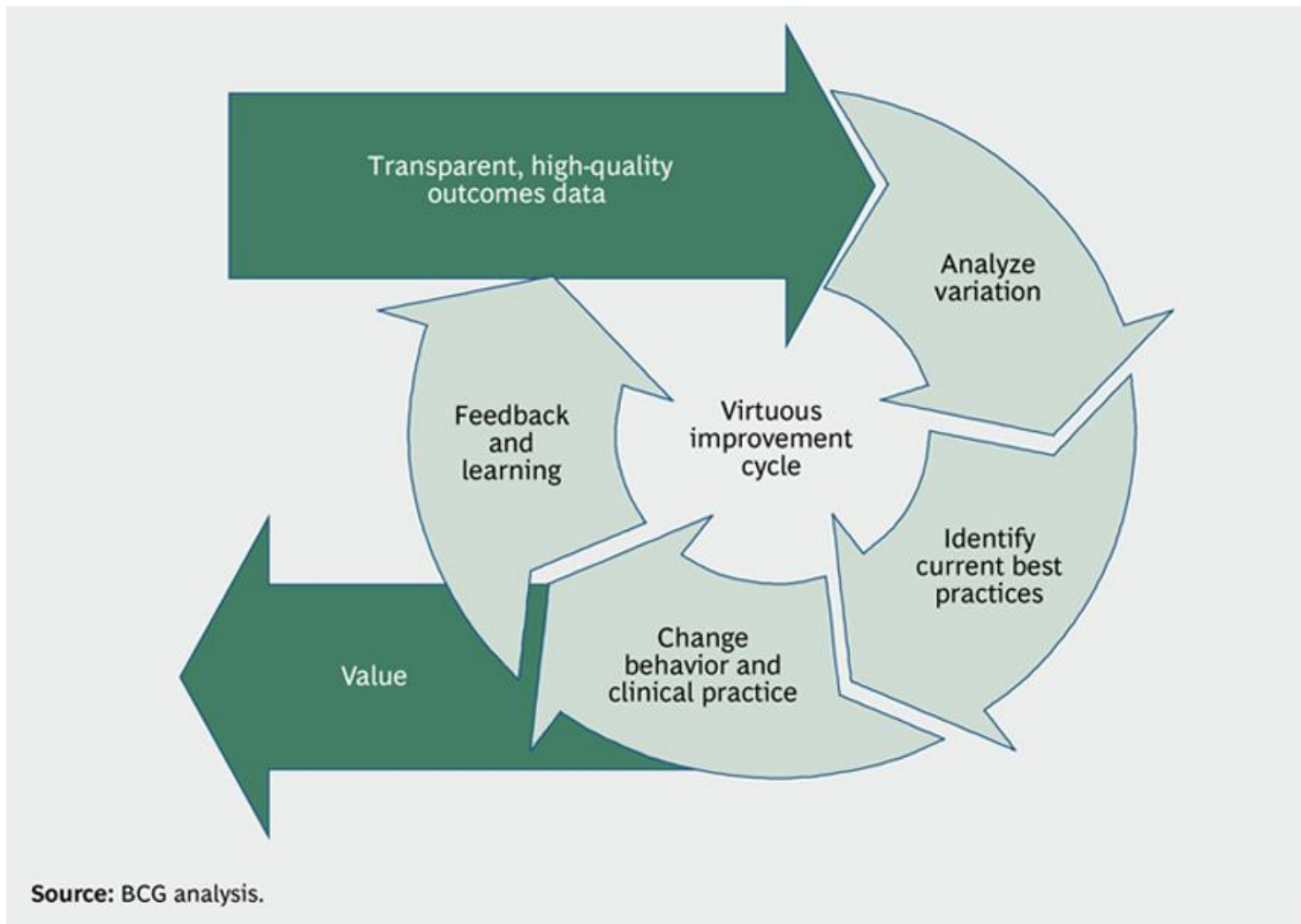
Outcome variation
rate (multiple)



Sources: Medicare Hospital Compare; Myocardial Ischaemia National Audit Project; Inspectie voor de Gezondheidszorg; Gemeinsamer Bundesausschuss; Svenska Kolorektalcancerregistret; Svenska Nationella Kataraktregistret; BCG analysis.



Outcomes transparency will deliver improved health value



Disease registries are the cornerstone for Value Based Healthcare

Definition

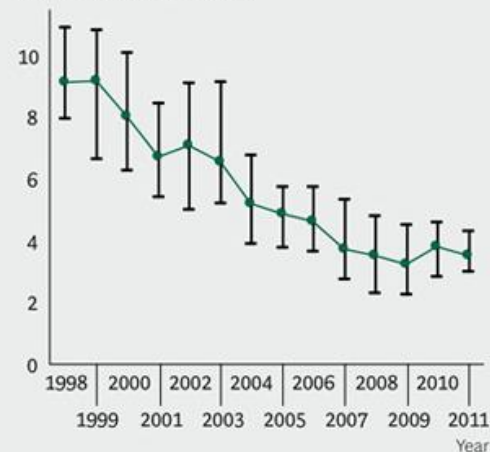
- An **organized system** that uses **observational study methods** to collect uniform data (clinical and other) to **evaluate specified outcomes** for a population defined by a particular disease or condition¹
- It is not only the collection and analysis of data on health outcomes, but **also the culture of improving outcomes** continuously using the registries as a catalyst for this purpose

Sweden has been an international pacesetter since the 1970s

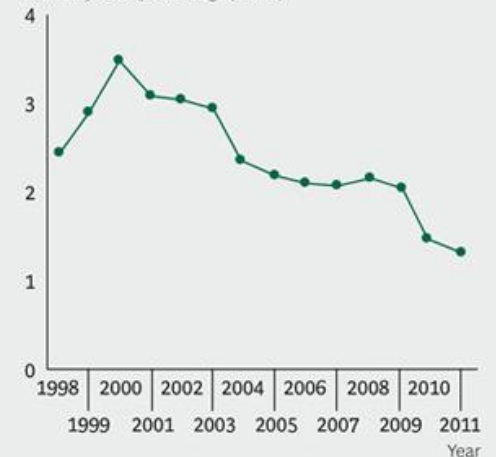
- Nowadays nearly **90 registries** which cover more than 25% of total national health expenditures
- Sweden **invests yearly \$70 million** in disease registries, data analysis resources and IT infrastructure → more than **\$7 billion reduction in direct healthcare costs in 10 years**²

EXHIBIT 4 | Sweden's AMI Registry Has Reduced Variation and Improved Health Outcomes

AMI 30-day mortality rate (%)



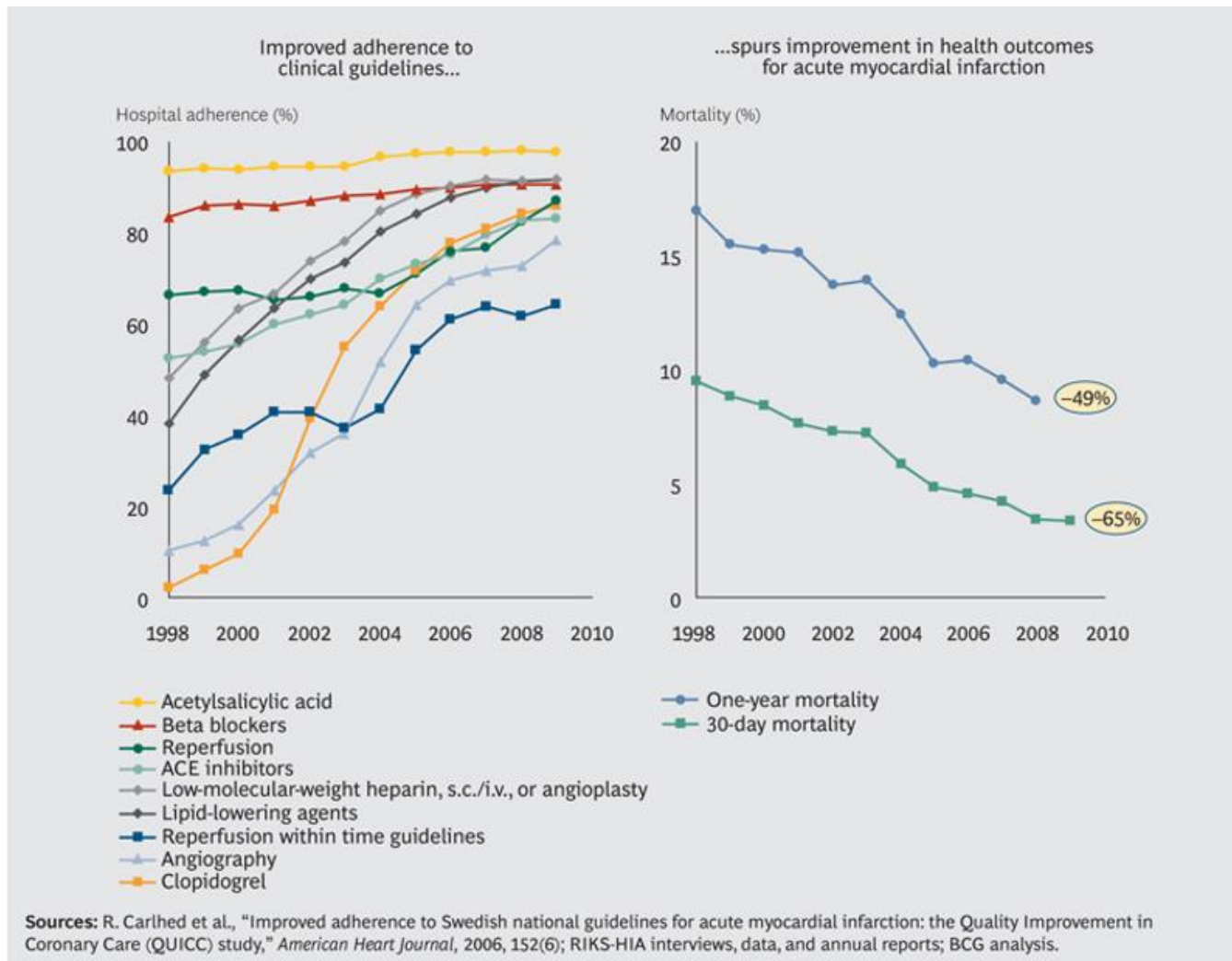
Standard deviation of AMI 30-day mortality rate (percentage points)



— Third quartile
— Median
— First quartile

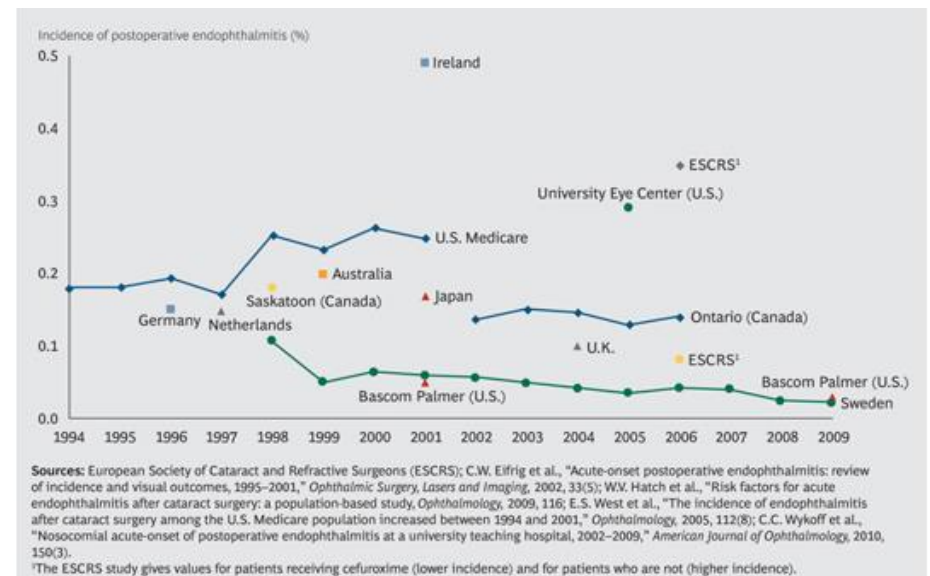
Sources: Register of Information and Knowledge About Swedish Heart Intensive-Care Admissions (RIKS-HIA); BCG analysis.
Note: Starting in 2010, data include only those hospitals with more than 20 AMI patients under the age of 80.

By promoting adherence to clinical guidelines, Sweden's Coronary-Care registry has helped improve outcomes



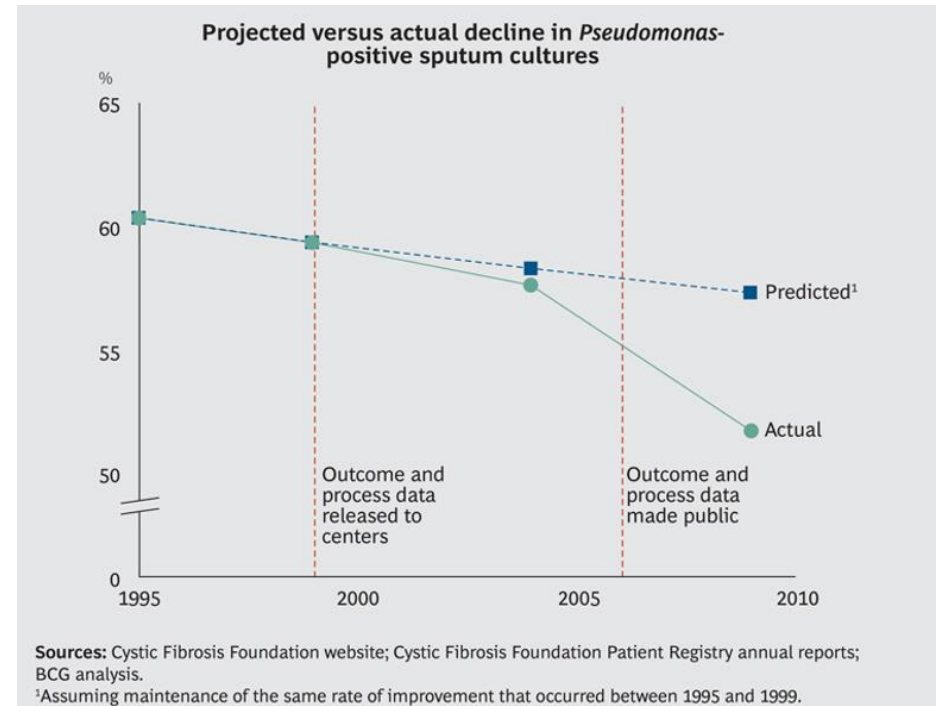
Sweden's National Cataract Register (NCR) helps minimize the incidence of postoperative endophthalmitis

- Established in **1992**
- More than 1 million records representing **95.6%** of all cataract extractions performed in Sweden since 1992
- Owned by **Swedish Ophthalmological Society**
- Endophthalmitis is rare (1-2/1000 operations), but **30-50%** of patients become extremely disabled (**blind**)
- Single hospitals collect too little data. **From 1997** risk factors as well as practices associated with endophthalmitis were identified (antibiotic prophylaxis | thin or compromised lenses) and guidelines adjusted.
- Endophthalmitis declined from **0.11% in 1998 to 0.02% in 2009**
- When applying these results to the US market in the same period, \$25 mln/year was saved in direct HC costs and **\$125 mln/year** in total medical and social costs (remember – this is a very small group of patients)



The US Cystic Fibrosis Registry has accelerated the rate of decline in *Pseudomonas* infection

- Established in **1966**
- Managed by **patient group**
- Collects data from **all 115 certified CF centers** in the US (more than 25,000 patients)
- ***Pseudomonas* infection** is a common complication: opportunistic infection which is one of the most serious and difficult to treat hospital infections
- Between 1995-1999 the decline was modest (60.3% → 59.3%)
- An extrapolation would yield 57.3% in 2009
- However **Benchmarks made public from 2006 lead to an accelerated decline** so that in 2009 the infection rate reached 51.7%
- Treatment costs for *noninfected* CF patients is \$20,000/yr | when infected patients cost \$66,000/yr

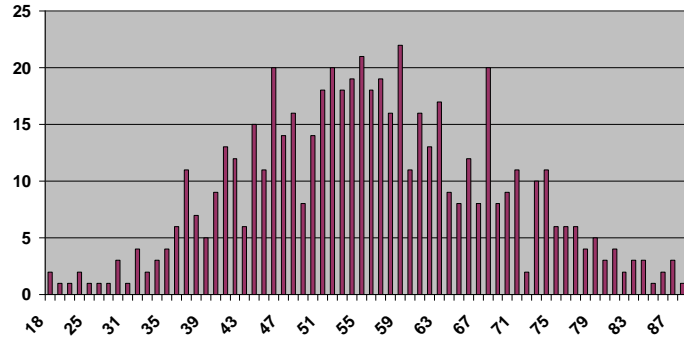


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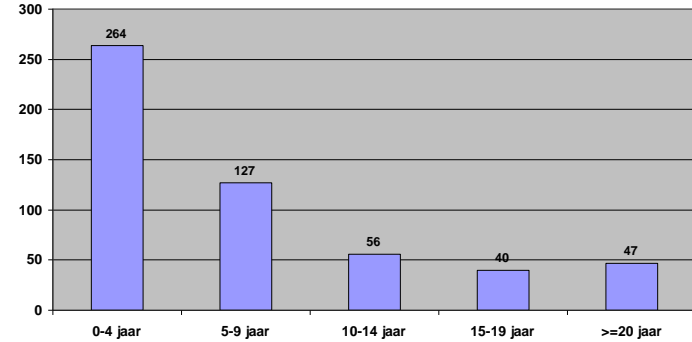
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Importance of optimizing CVRM/DM2 care: urgent!

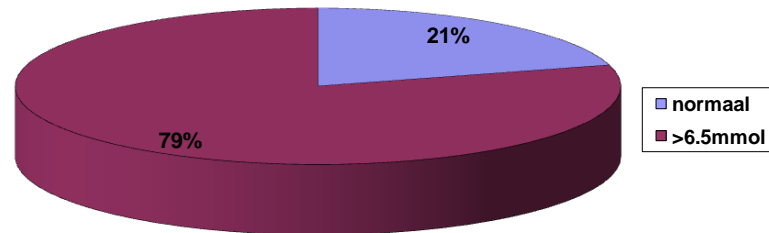
Diabetes population in Suriname:
Peak 20 years younger than elsewhere!



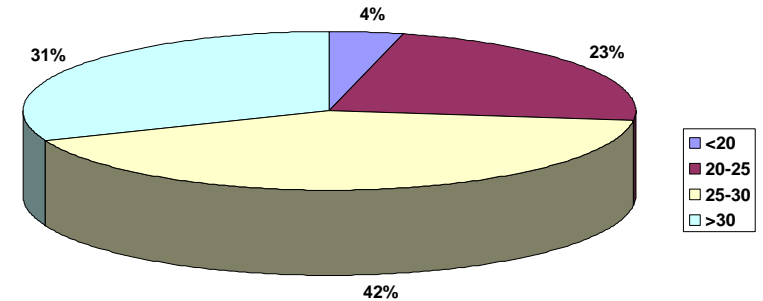
Less than 10% of diabetics survives longer than 20 years!



79% of diabetics is not well regulated!



73% of diabetics has overweight



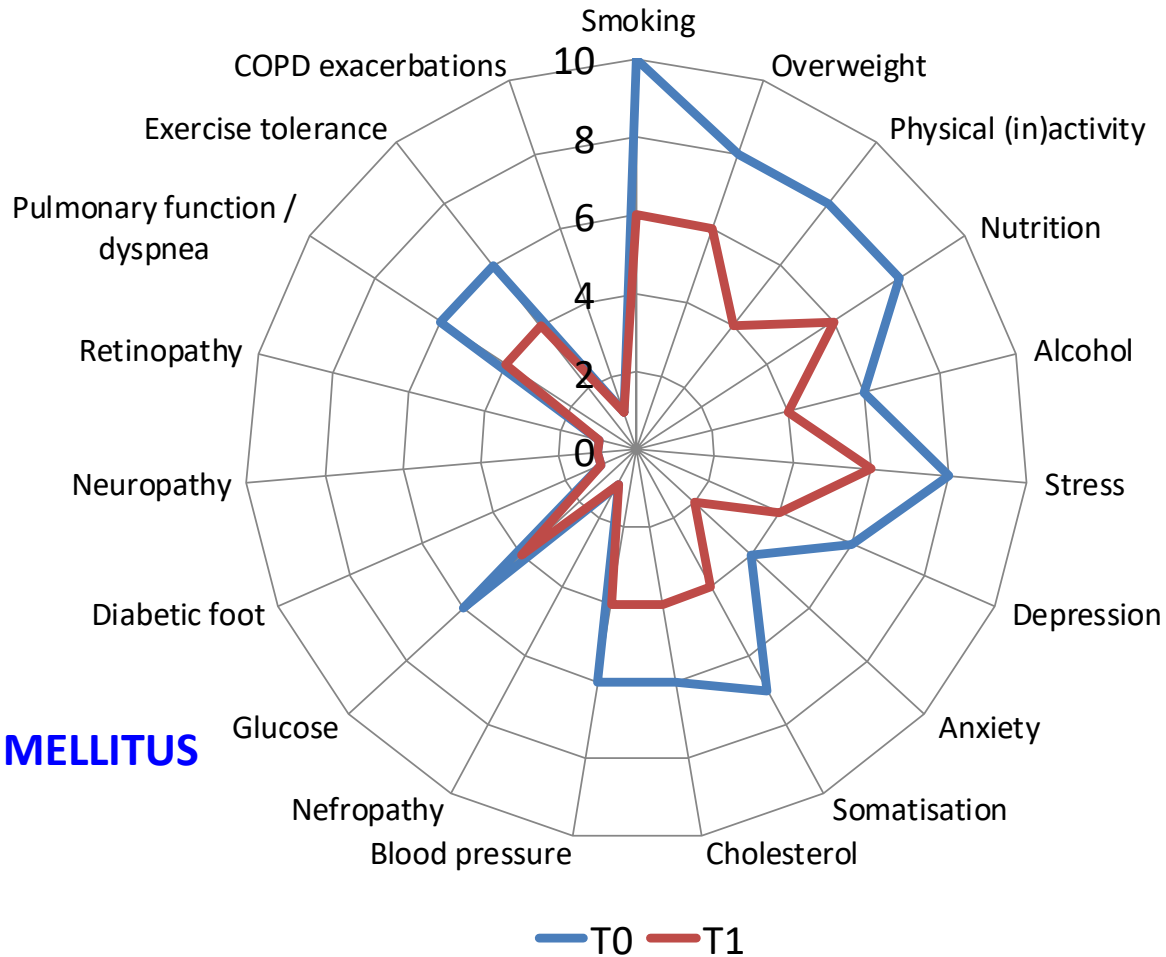
Visualize risk profile

COPD

LIFESTYLE

DIABETES MELLITUS

PSYCHOLOGICAL COMPLAINTS

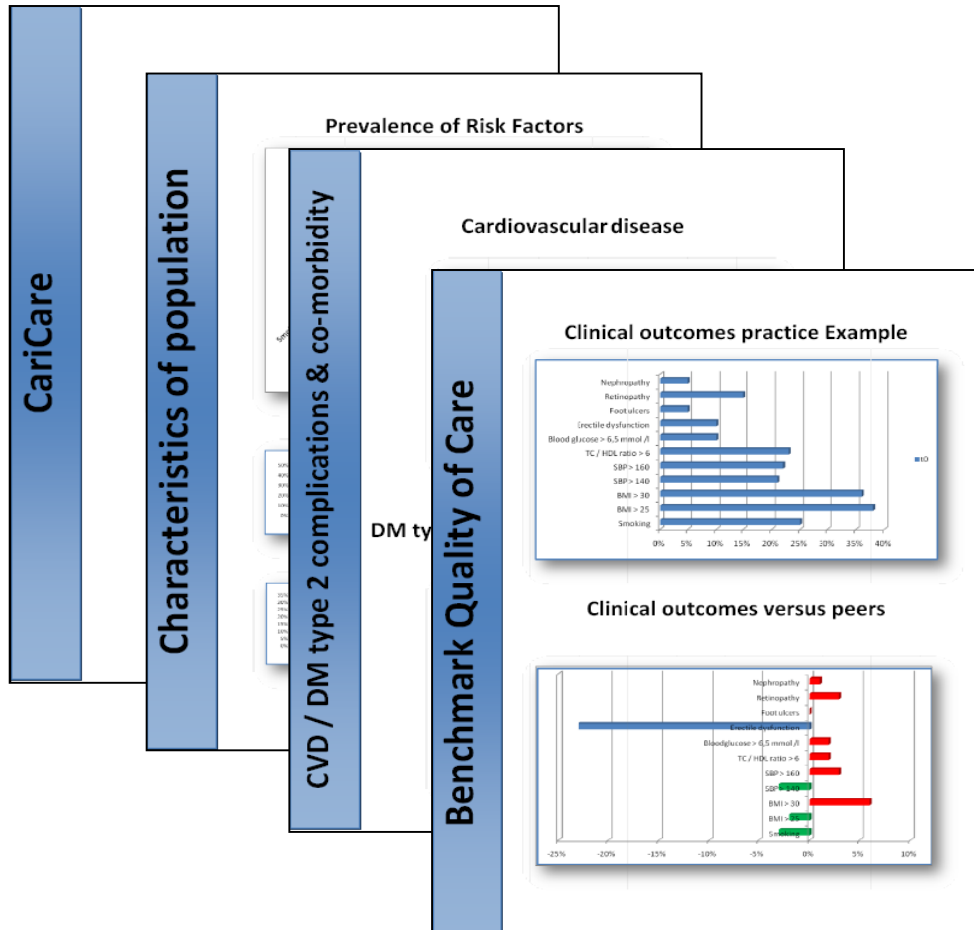


VASCULAR RISK

Make an individual care plan based on assessment

	Health issues	Stepped-care modules				
Unhealthy lifestyle	Smoking	Sc module 1	Sc module 2	Sc module 3	Sc module 4	Disease specific
	Physical activity	Sc module 1	Sc module 2	Sc module 3	Sc module 4	Disease specific
	Alcohol	Sc module 1	Sc module 2	Sc module 3	Sc module 4	Disease specific
	Nutrition	Sc module 1	Sc module 2	Sc module 3	Sc module 4	Disease specific
General wellbeing	Depression	Sc module 1	Sc module 2	Sc module 3	Sc module 4	
	Stress	Sc module 1	Sc module 2	Sc module 3	Sc module 4	
	Participation	Sc module 1	Sc module 2	Sc module 3	Sc module 4	
Cardiovascular risk-management	Obesity	Sc module 1	Sc module 2	Sc module 3	Sc module 4	
	Hypertension	Sc module 1	Sc module 2	Sc module 3	Sc module 4	
	Dyslipidemia	Sc module 1	Sc module 2	Sc module 3	Sc module 4	
	Nephropathy	Sc module 1	Sc module 2	Sc module 3	Sc module 4	
Diabetes mellitus	Glucose	Sc module 1	Sc module 2	Sc module 3	Sc module 4	
	Retinopathy	Sc module 1	Sc module 2	Sc module 3	Sc module 4	
	Neuropathy	Sc module 1	Sc module 2	Sc module 3	Sc module 4	
	Feet	Sc module 1	Sc module 2	Sc module 3	Sc module 4	

Feedback & benchmark every 3 months

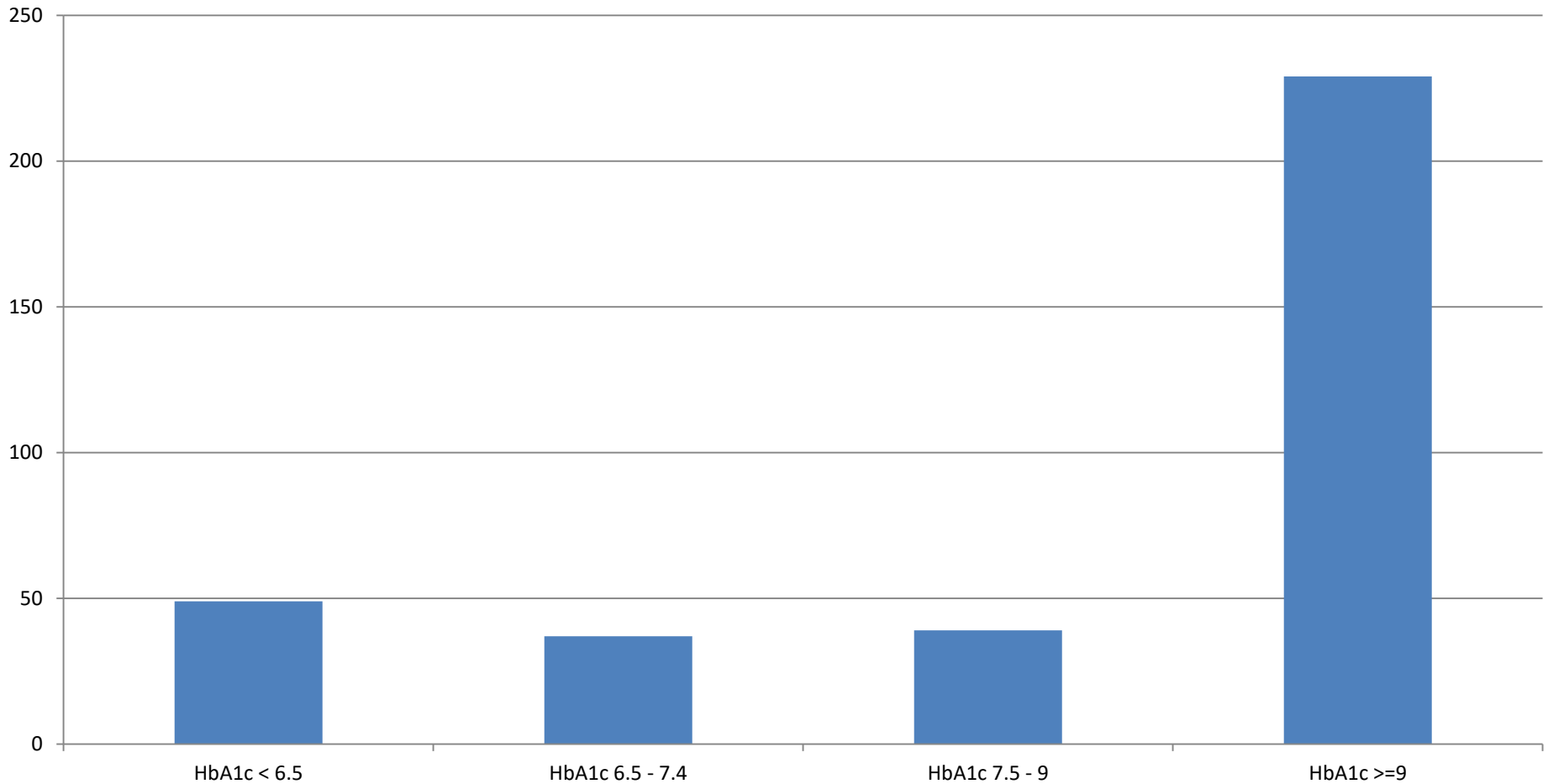


Pilot 2010: Most patients with diabetes are not controlled

Majority of patients have HbA1c ≥ 9

HbA1c in patients with DM2

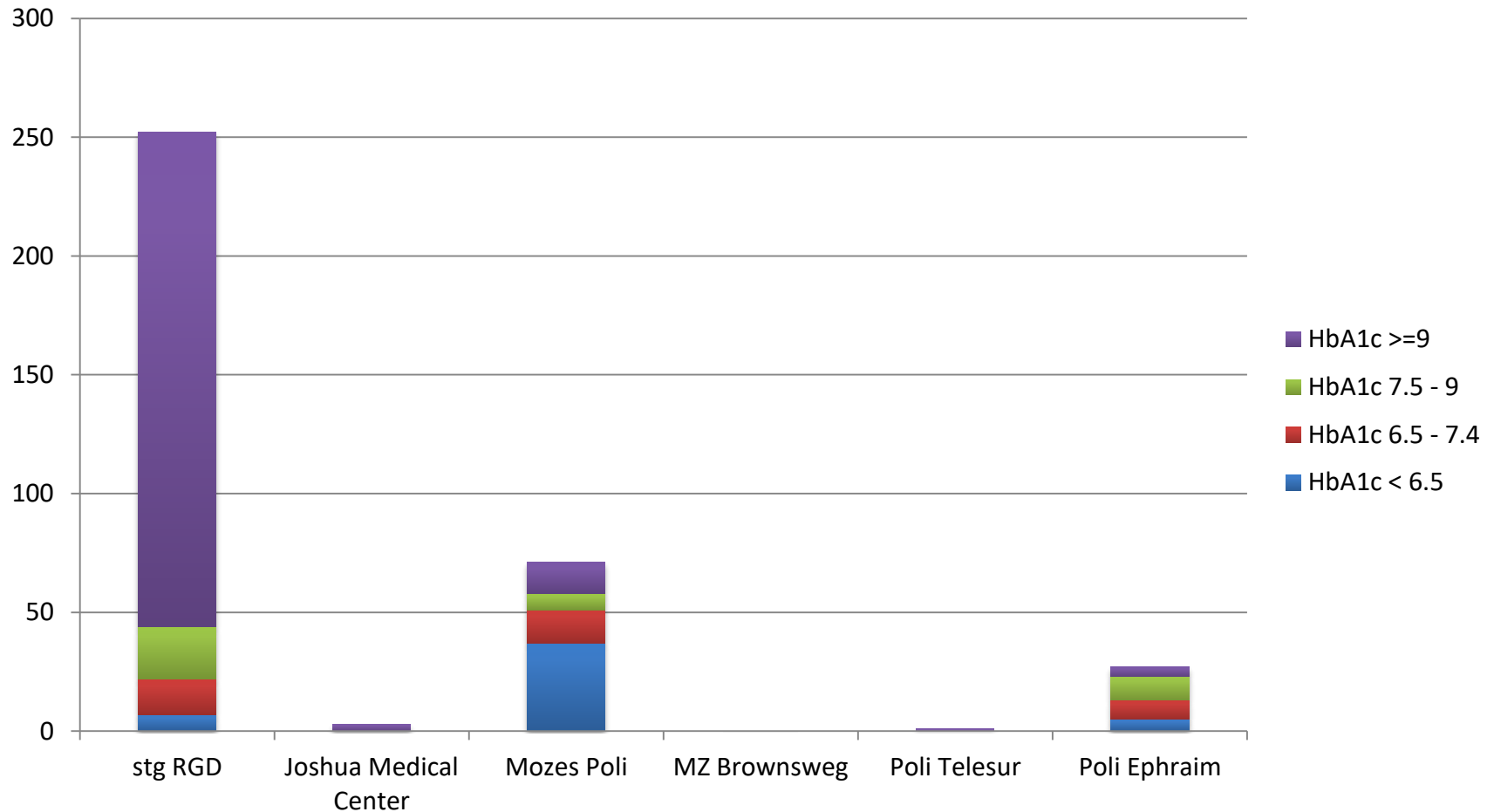
Number of patients



Pilot 2010: HbA1c in different types of practices

Better results in private practices | more knowledge, time and attention

Number of patients

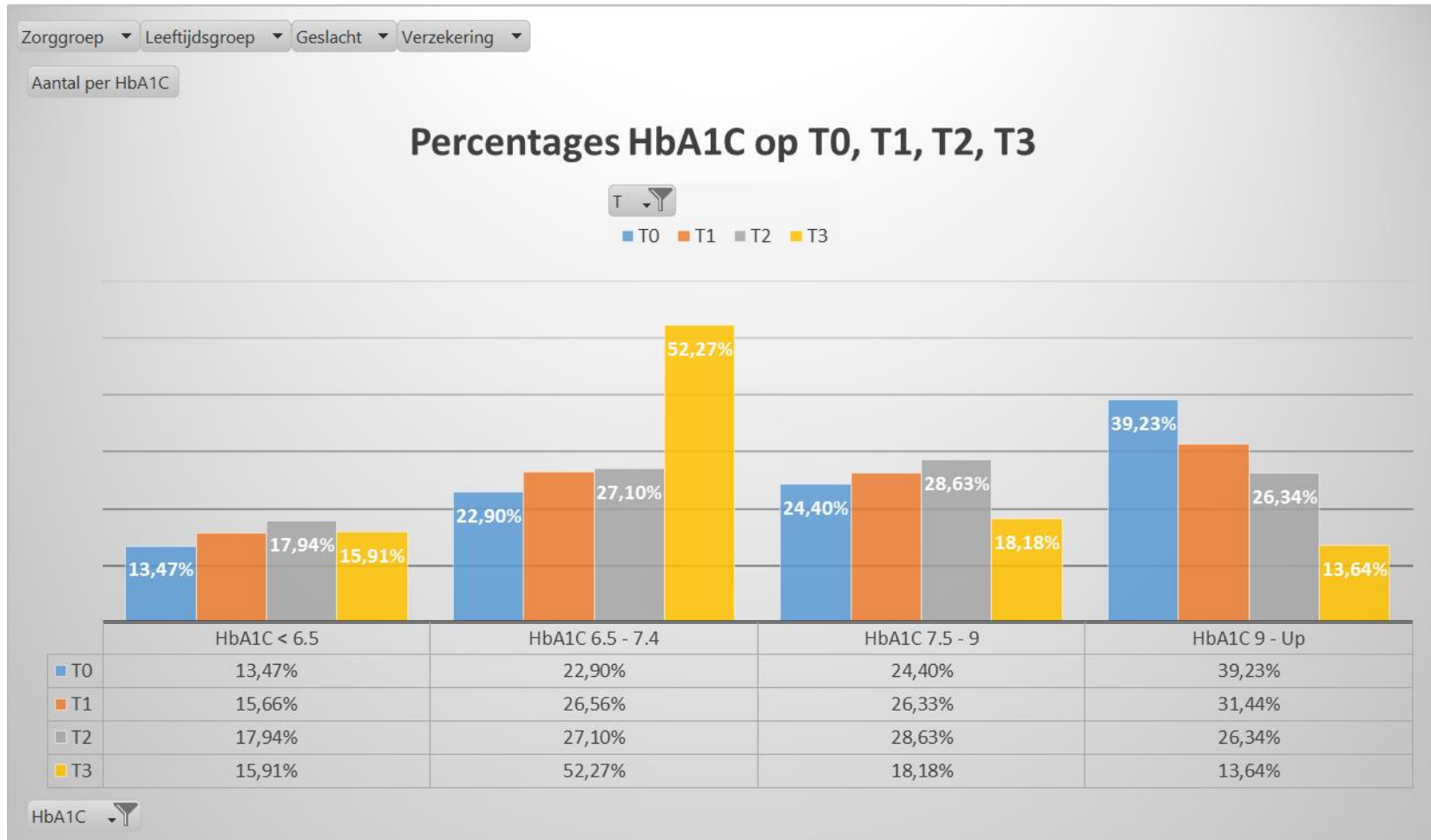


22 February 2013



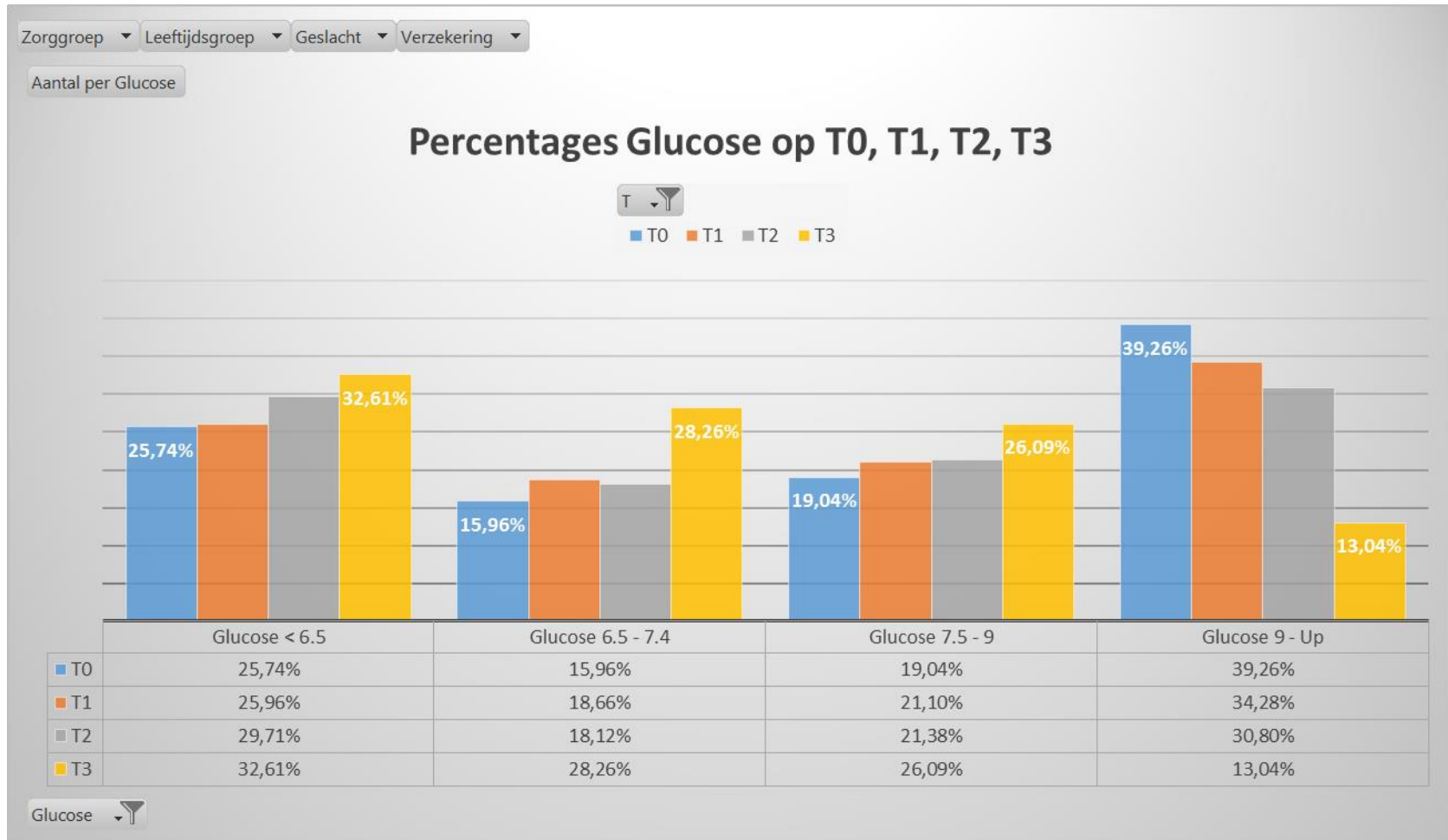
Patients are in better control

After 3 years of glucose monitoring in the OSS



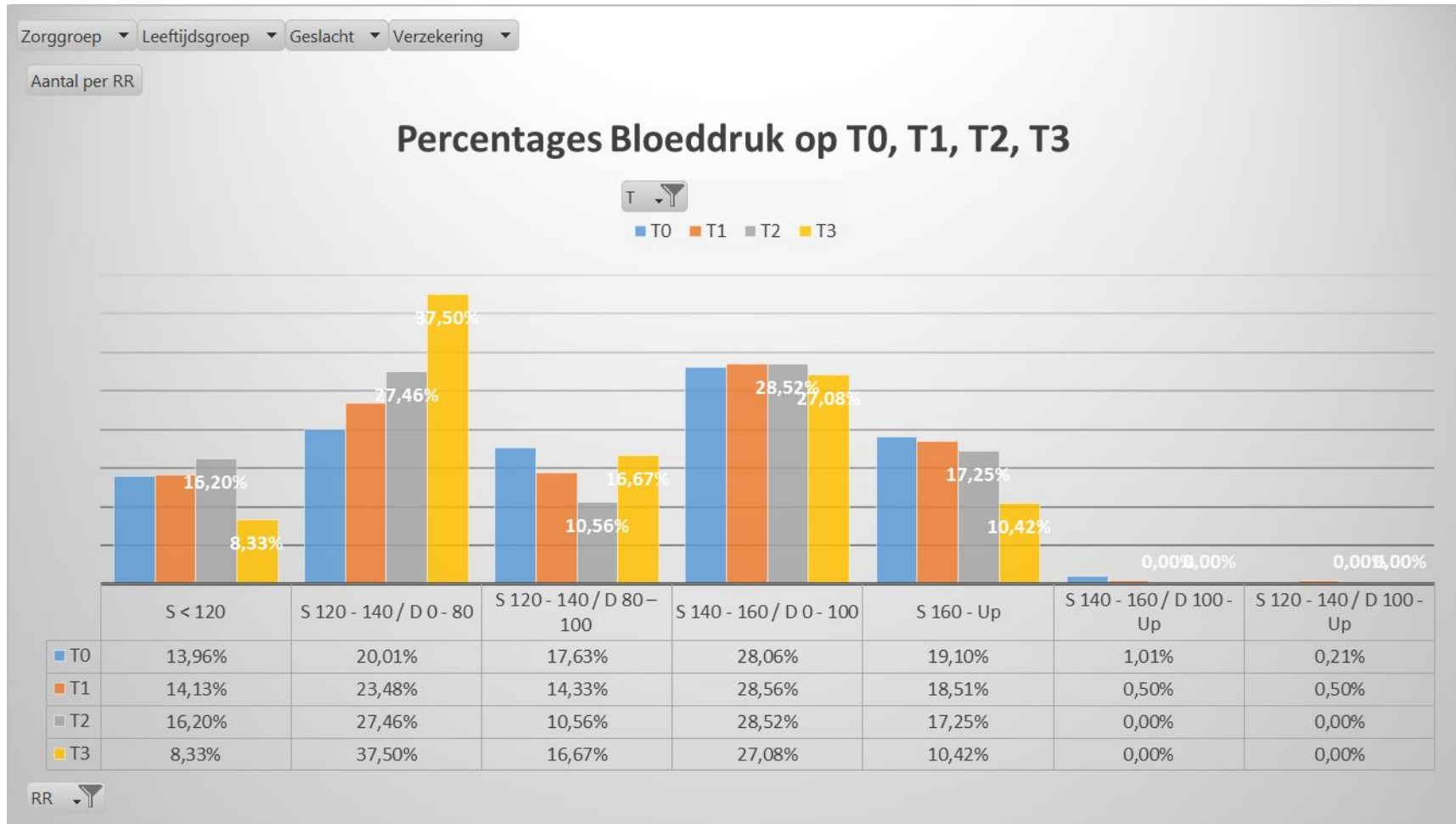
Patients are in better control

After 3 years of glucose monitoring in the OSS



Patients are in better control

After 3 years of blood pressure monitoring in the OSS



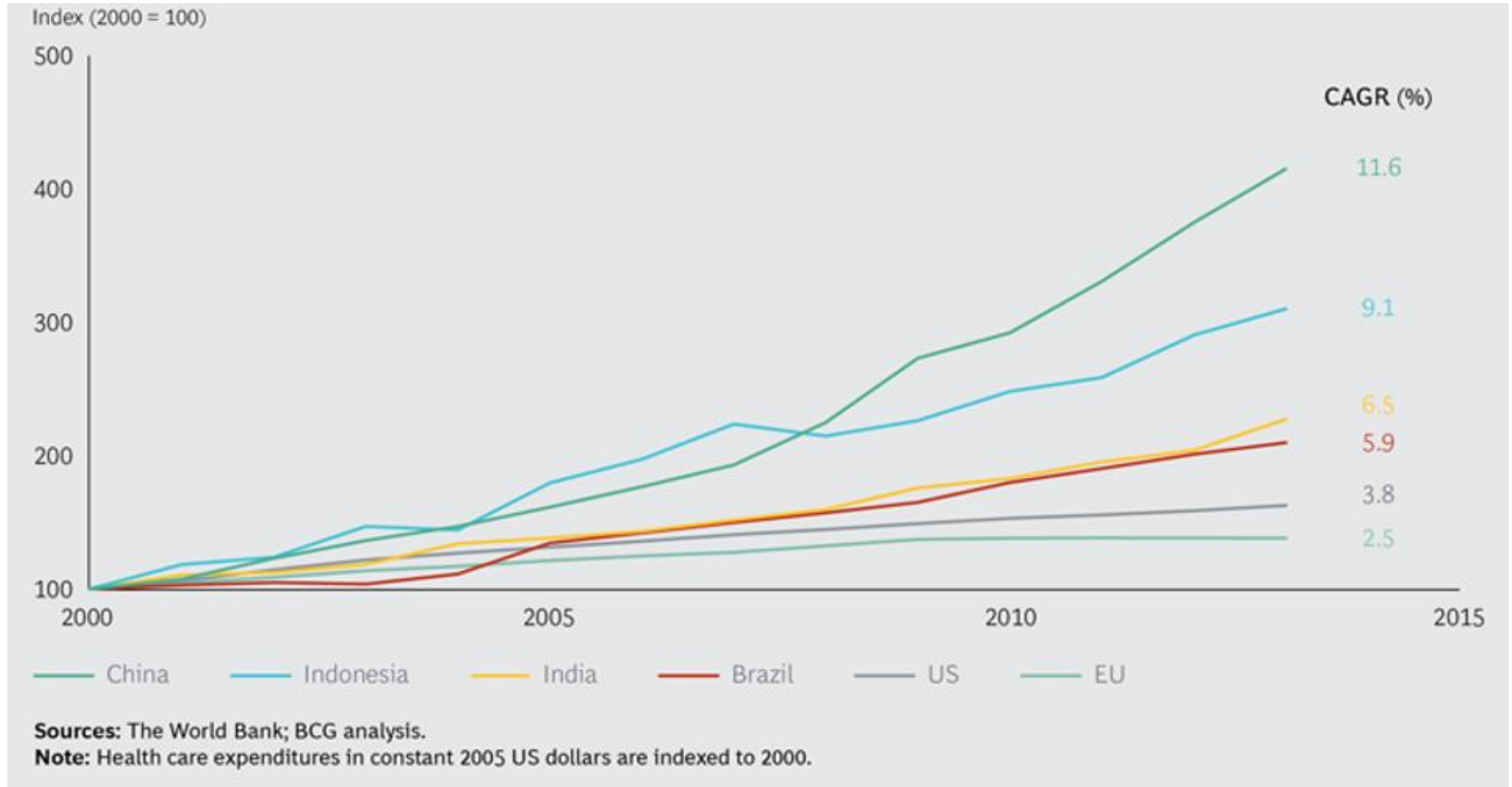
No amputations and no hospitalizations with adequate footcare

- **41 patients with diabetic ulcers were treated in the One Stop Shops in 2015**
- **None of these ulcers lead to an amputation nor did it lead to a hospitalization**
 - In general these patients have hospitalizations of 3 months in average and most of them have amputations
- **Only by avoiding the hospitalizations SRD 1,9 million was saved (2/3 of the subsidy for the OSS)**
 - The total savings in direct and indirect costs are far more
- **Additional savings with renal dialysis, diabetes related admissions and CV events**



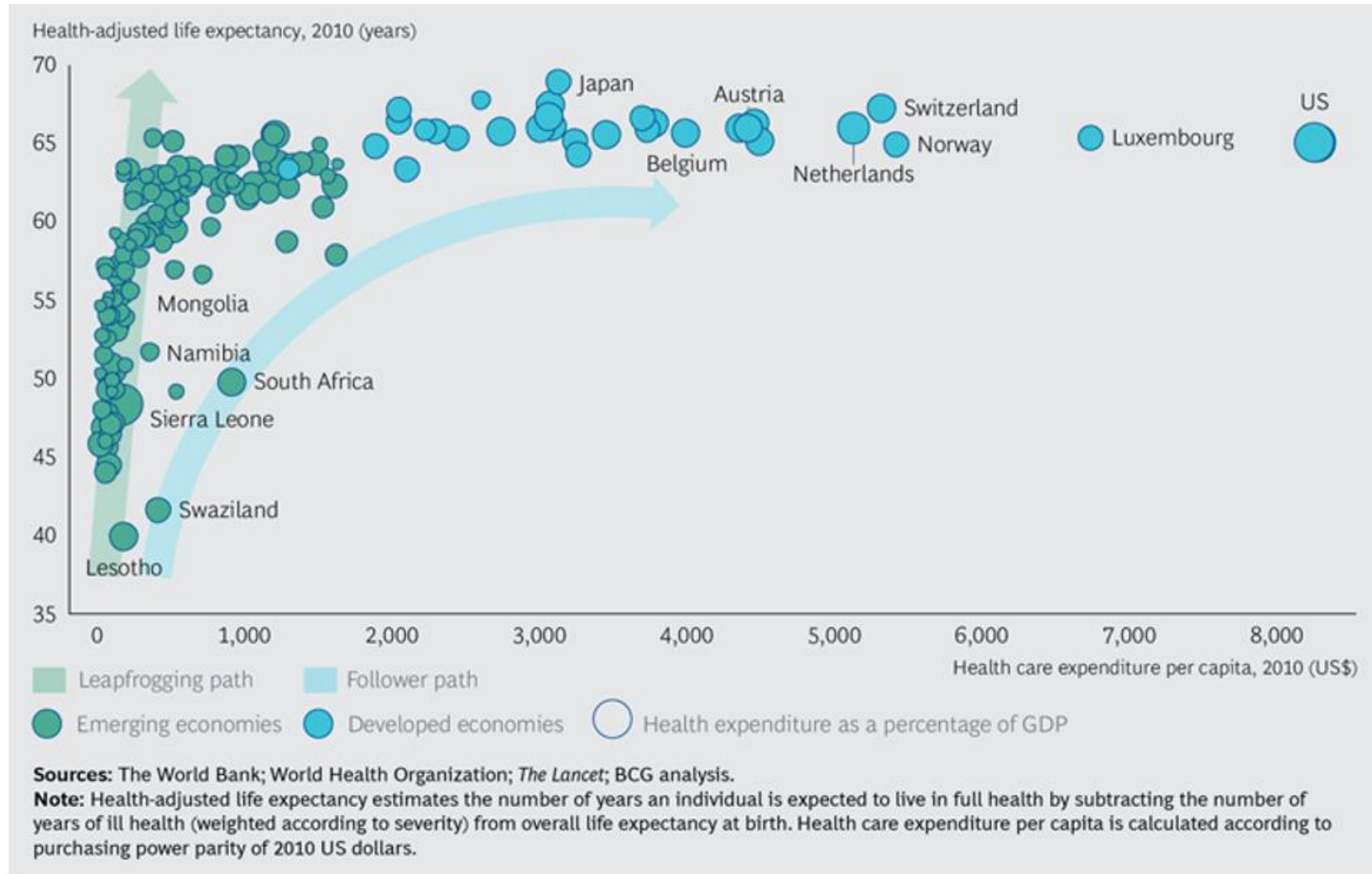
Healthcare spending in emerging markets is growing fast

Developing countries have to take measures to make more possible for less



Opportunity for our region with developing health systems

Leapfrogging with state of the art outcomes at a lower cost



What is leapfrogging?

- Developing economies can use radical innovations to surpass established economies
- Critical innovations: new technologies | new operating models | new behavior patterns
- Examples: mobile financial services in Africa | mHealth



	Aravind	Context
Volume	Surgeries per year ~ 350,000 (2010)	60% for subsidized patients
Productivity	Surgeries per year per surgeon: 2000 (2010)	National Average: 400 (2010)
Price of cataract surgery	Subsidized: 16\$ Full price: up to 1000\$ (2010)	US price: \$3500 (2014)
Revenue and Profit	Revenue: \$20 million Profit: \$7.9 million (2009 – 2010)	Staggering numbers for a non-profit network
Complication Rates	Half the complication rates at UK Hospitals based on National Survey (2001)	



Why can Aravind Eye Institute offer top quality for \$16?

1. Differential Pricing for equitable treatment

- The full price paid by one well-off patient funds the treatment for several poor patients.
- The quality of treatment remains the same to ensure that complication rates match global standards.

2. Lowering fixed costs – infrastructure, equipment and salaries – per patient

- Focused on maximizing the utilization of infrastructure and equipment | increasing productivity of workforce.
 - Nurses to take care of several non-surgical tasks.
 - The use of the just-in-time approach to increase the utilization of its operating rooms.
- High-volume of patients
 - Aravind targets free patients rather than paying patients.
 - Beyond its hospitals, Aravind uses a three-pronged approach – community clinics, tele-medicine centers, eye camps –

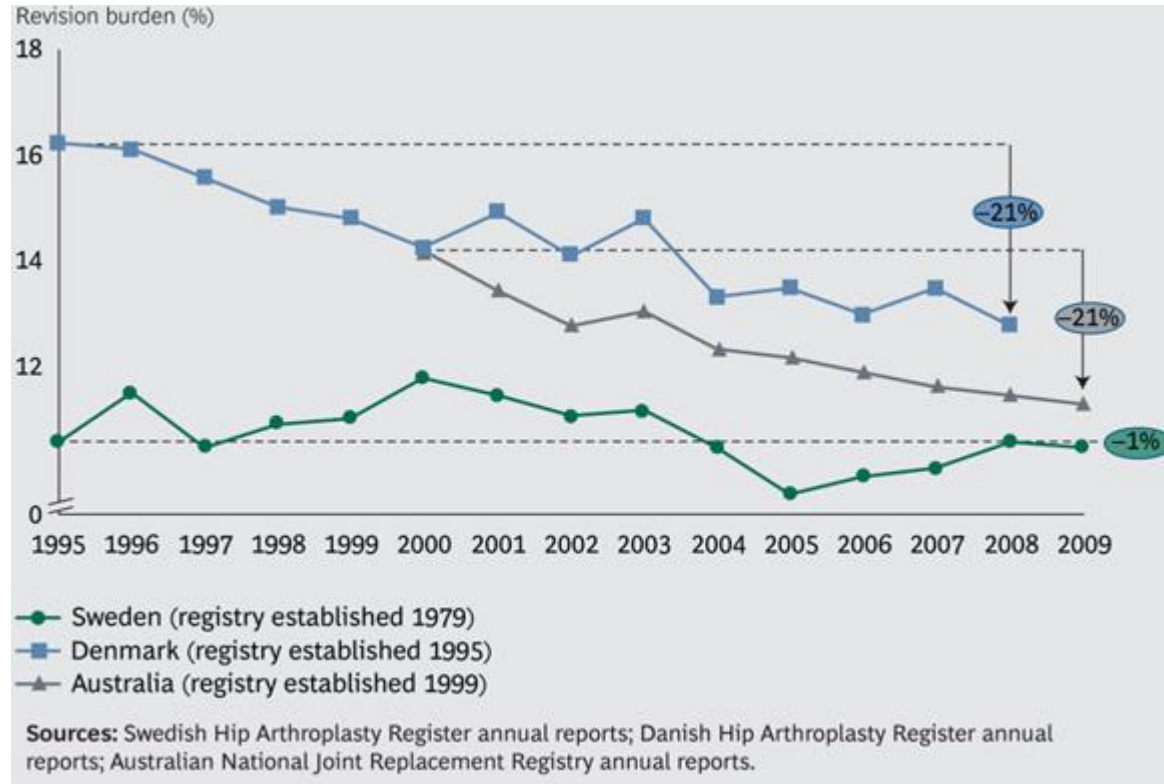
3. Lowering variable costs

- Aravind set up Aurolabs in 1992 to manufacture its own lenses:
 - Designed a manufacturing process that reduces the price of lenses to \$2 versus \$70 before
 - Become a global supplier of intraocular lenses
 - Encouraged other players to produce low-cost, high quality lenses

4. Training and Research

- Training institutes allow Aravind to have a pipeline of well trained doctors and nurses.
- A strong performance monitoring system and a focus on research ensure that these doctors and nurses continue to innovate and excel.

Cross border: Hip replacement strategies have helped Australia and Denmark drive down their revision rates

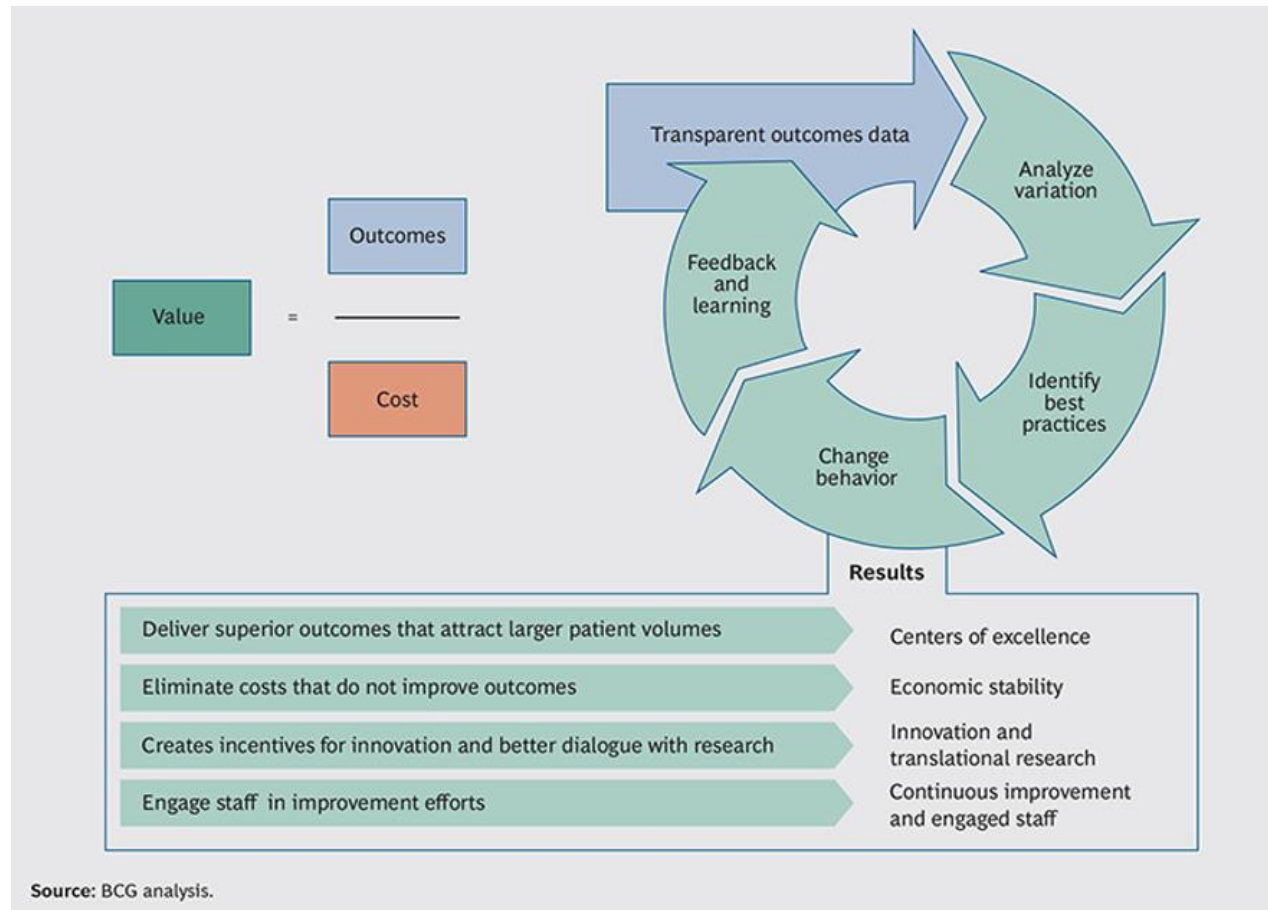


- The drop in revision rates in Sweden in the first decade (7,500 revisions avoided) lead to \$ 14 mln per year avoided costs or 8% of all hip replacement costs
- Denmark (1995) and Australia (1999) created hip replacement registries largely based on the Sweden model
- The revision burden of both countries dropped to near the Swedish level

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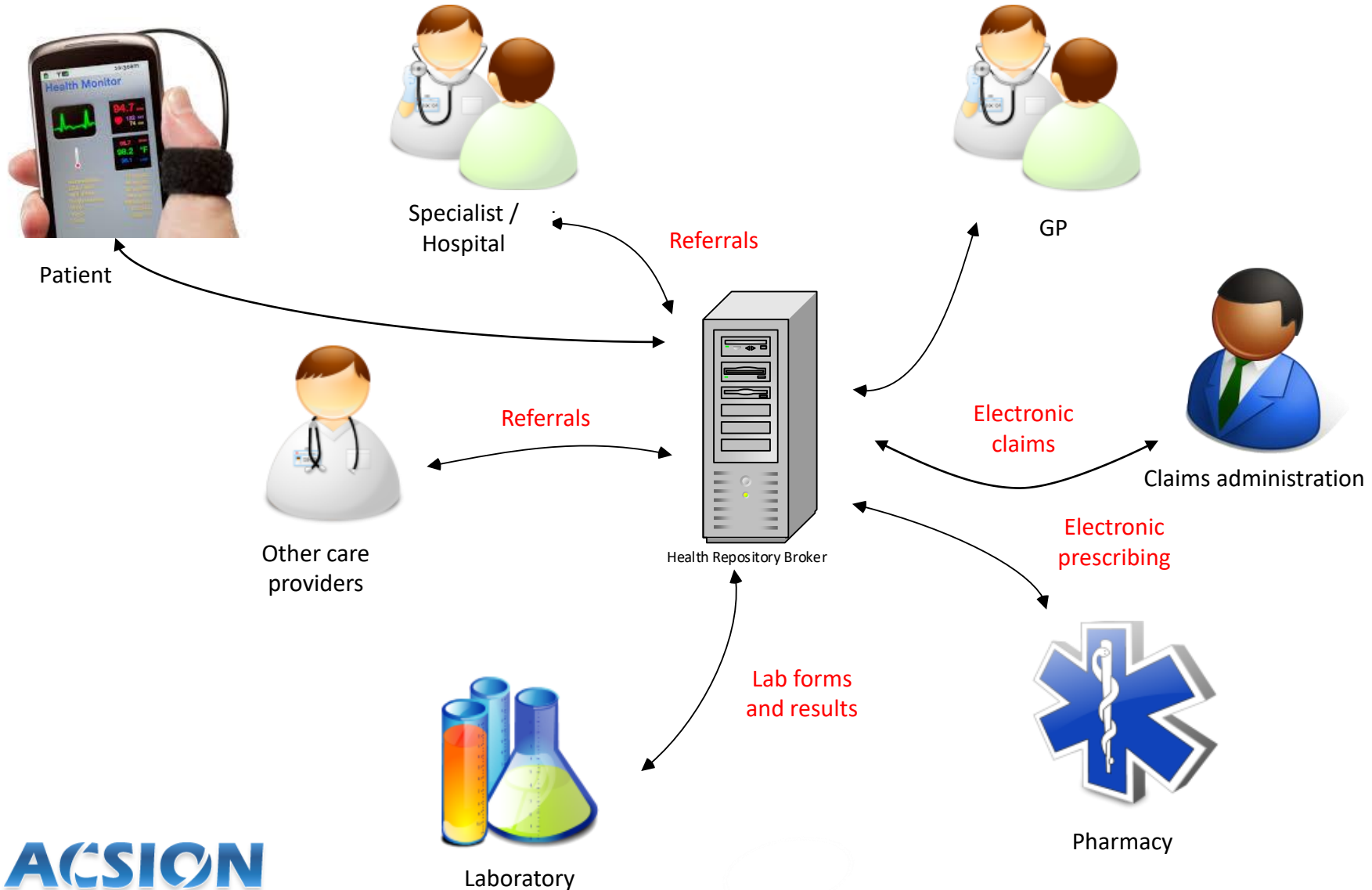
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Systematic measurement of health outcomes is the cornerstone of Value Based Healthcare



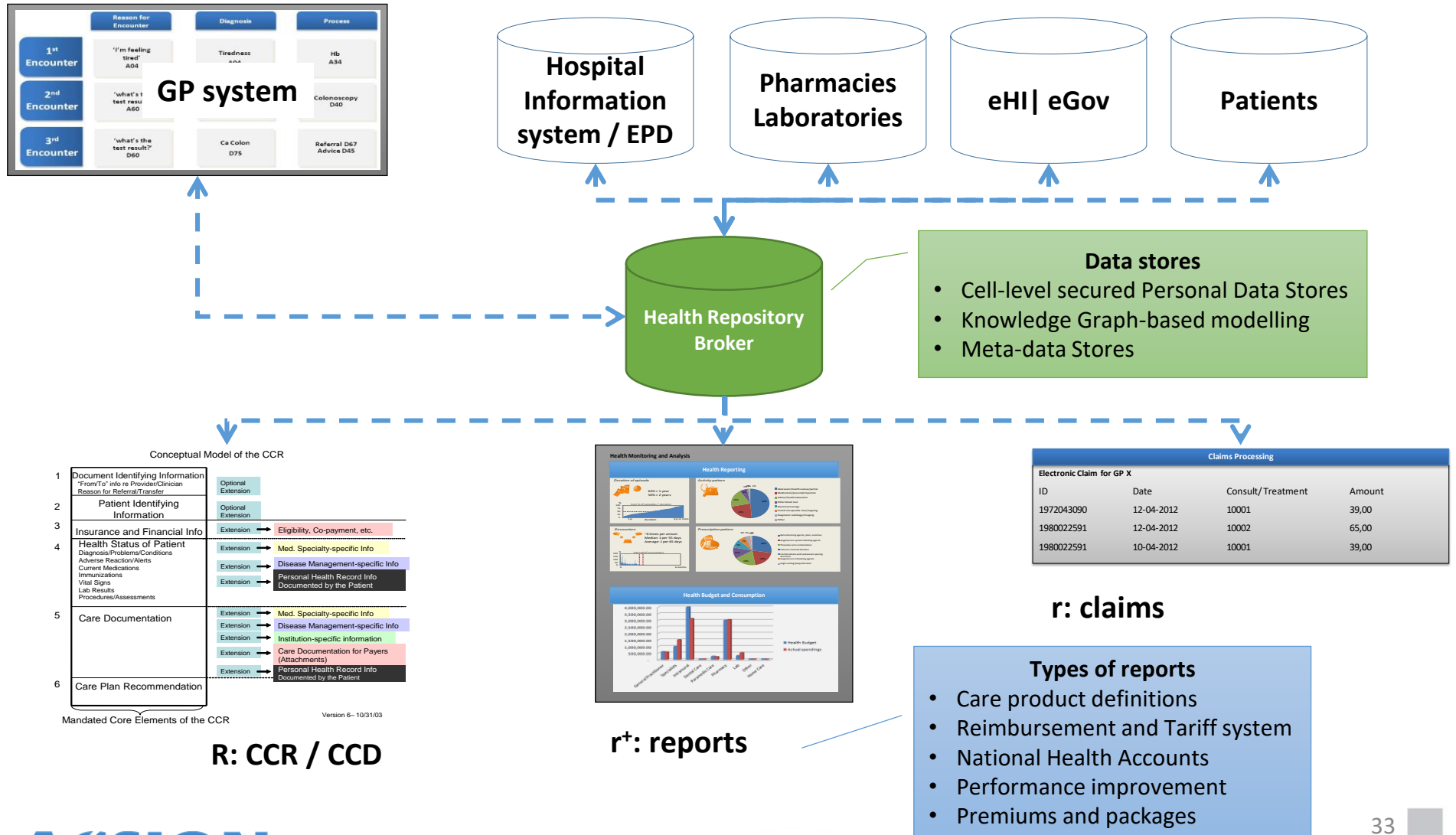
But the change in culture and behavior is the true critical success factor to create value

Support multidisciplinary cooperation and continuity of registration – integral set of requirements



Health Information Management System (HIMS):

Episode registration → same data serves multiple purposes



Principles to jumpstart Value Based Healthcare

- 1. Identify the diagnoses with the biggest room for improvement**
 - Care demand analysis based on episode registration in GP systems
- 2. Determine metrics to assess outcomes and drivers for these outcomes**
 - Existing disease registries
 - ICHOM
- 3. Leverage leapfrogging technology**
 - mHealth applications
- 4. Integrate data collection along the care pathway**
- 5. Create transparency for all stakeholders and ignite a cultural change**
 - Comprehensive, high-quality data (if you can't beat them join them)
 - Internal benchmarks made public in course of time
 - Active engagement with clinical community
 - Cross-Border collaboration
- 6. Implement practice-improvement routines**
 - Free up physician time through task shifting
 - Lower fixed costs per patient | procedure
 - Have regular meetings to analyze outcomes and reasons for variations → disseminate best practices

