

Innovations in the field of diabetes

Dr.Kristien Van Acker, MD, PhD

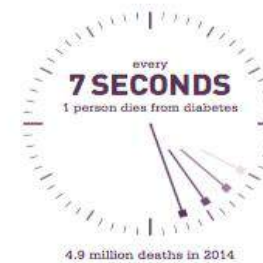
Diabetologist Chimay, Belgium

Chair International Working Group on the Diabetic Foot (IWGDF)

Chair IDF Consultative section Diabetic Foot care

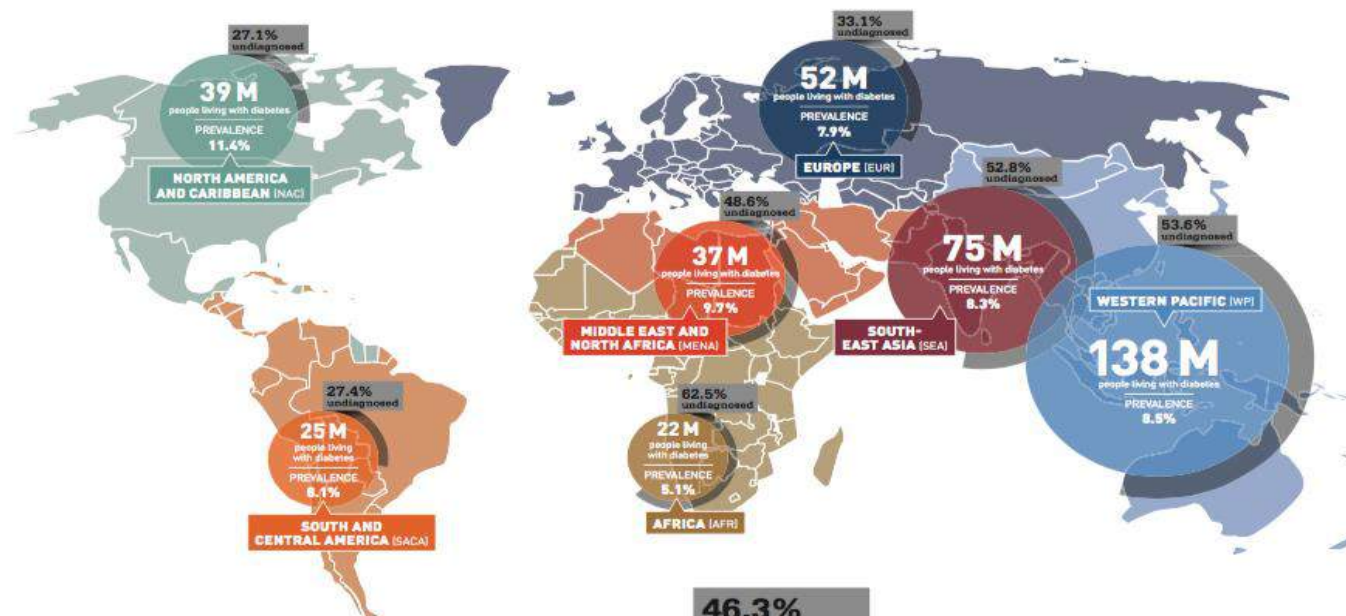
i/12
people with
DIABETES

1 in 2 people
with diabetes
DO NOT KNOW
they have it

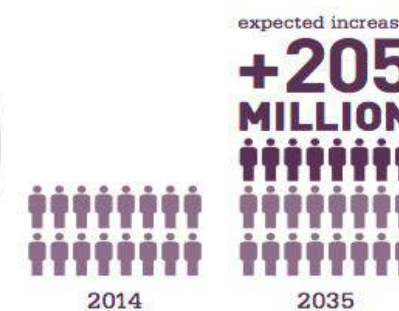
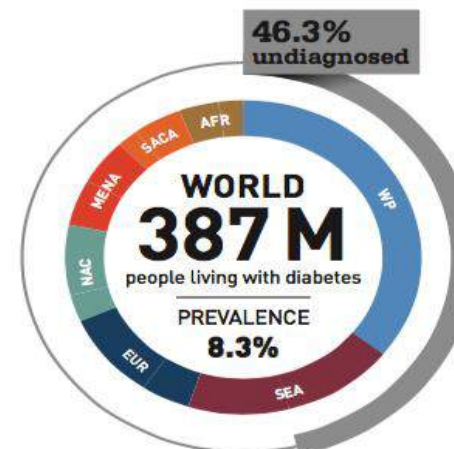


1 healthcare
in 9
IS SPENT ON DIABETES

In 2014 diabetes expenditure
reached US \$612 billion



77%
of people with diabetes
live in low- and middle-
income countries



CORPORATE SPONSORS
IDF would like to express
its thanks to the following
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the IDF Diabetes Atlas:

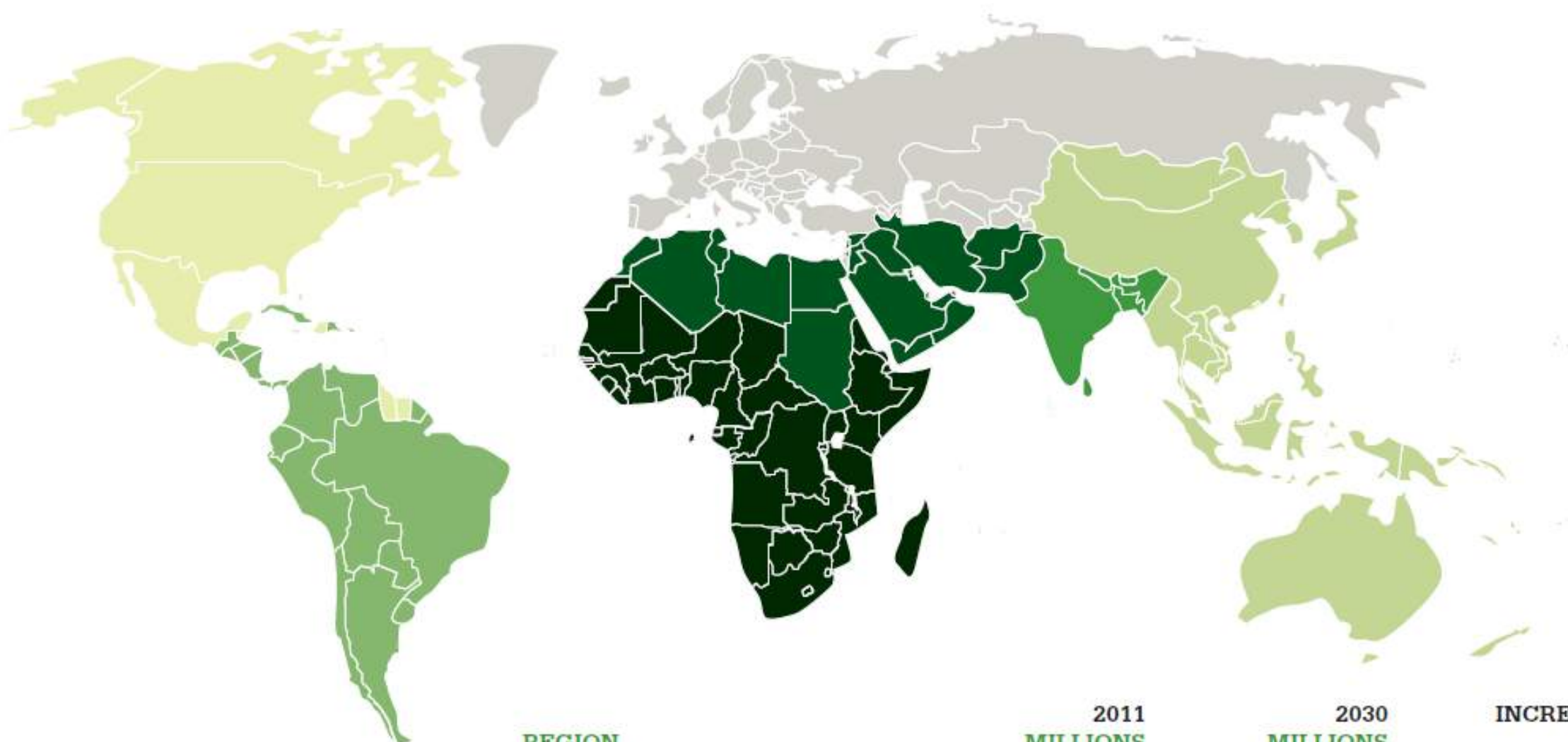


Want more information?
See www.idf.org/diabetesatlas or scan
the QR code for the app available for iPad



Where are we today on the global level?

Map: IDF Regions and global projections of the number of people with diabetes (20-79 years), 2011 and 2030



REGION	2011 MILLIONS	2030 MILLIONS	INCREASE %
● Africa	14.7	28.0	90%
● Middle East and North Africa	32.8	59.7	83%
● South-East Asia	71.4	120.9	69%
● South and Central America	25.1	39.9	59%
● Western Pacific	131.9	187.9	42%
● North America and Caribbean	37.7	51.2	36%
● Europe	52.6	64.0	22%
World	366.2	551.8	51%

Innovation in health care diabetes ?

- Innovation turns the future of health in the present

MEDICINES IN DEVELOPMENT FOR DIABETES

BIOPHARMACEUTICAL RESEARCH
COMPANIES ARE DEVELOPING

180 MEDICINES
TO TREAT
TYPE 1 & TYPE 2 DIABETES



INCLUDING
128 FOR DIABETES



– AND –
52 FOR DIABETES-RELATED
CONDITIONS

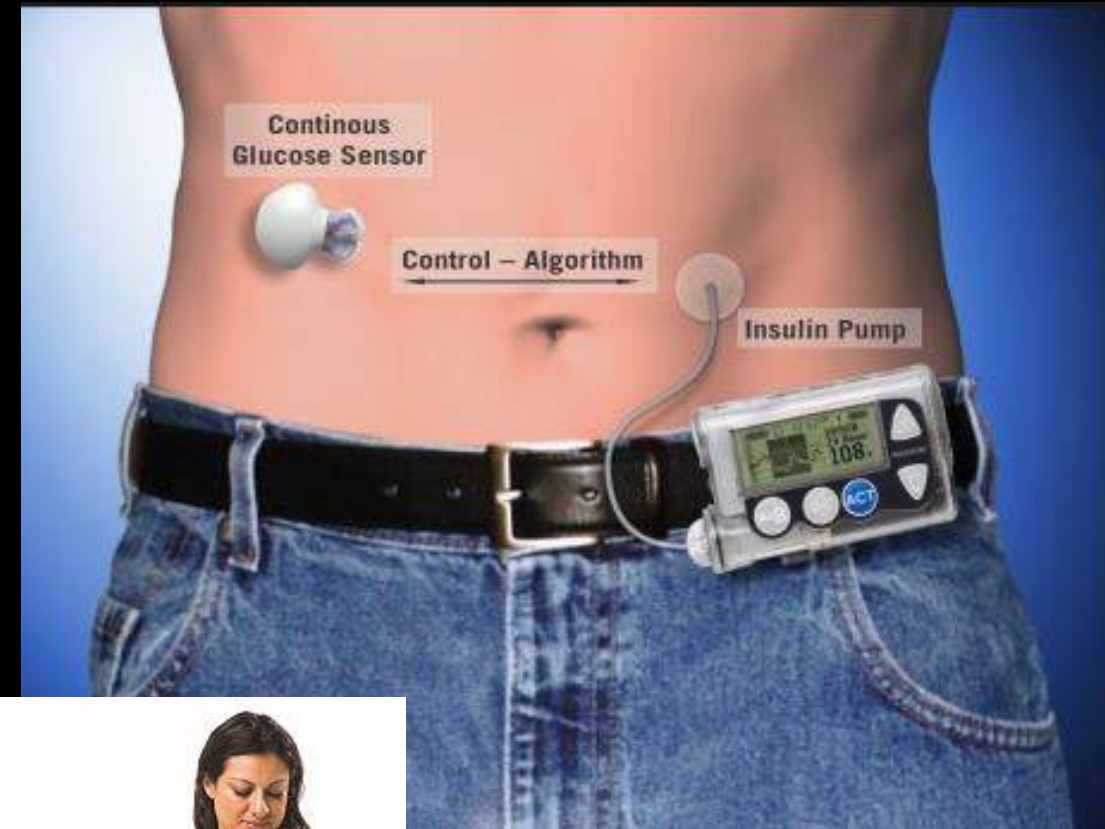


Source: PhRMA, 2014 Medicines in Development for Diabetes

Big changes in diabetes care

?

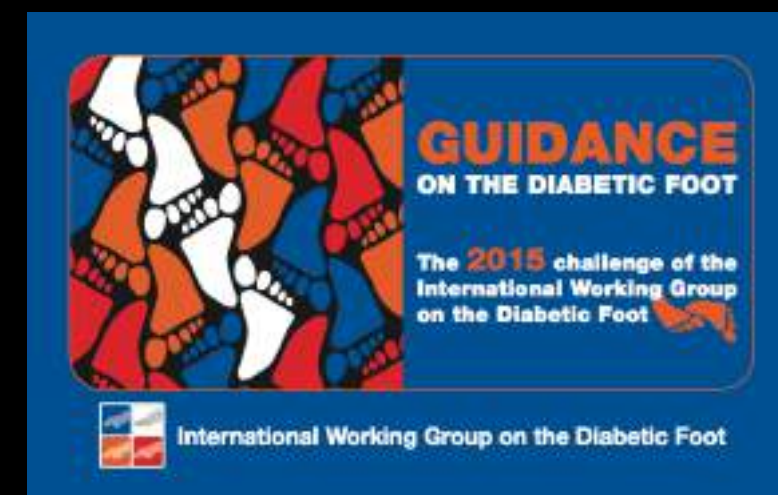
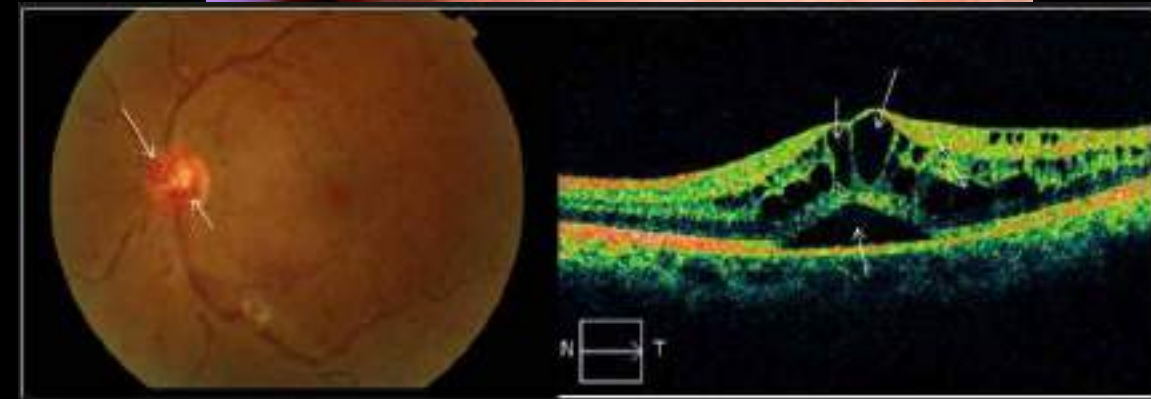
- **Prevention:**
 - Lifestyle changes, no therapies
- **Disease management:**
 - Therapy:
 - New ADO's: DPP4-inh, SLGT2 inh, ...
 - Injections with incretines
 - New and better insuline
 - Pump therapy and ctu. monitoring systems
 - Monitoring
 - without needles
- **End stage phases**



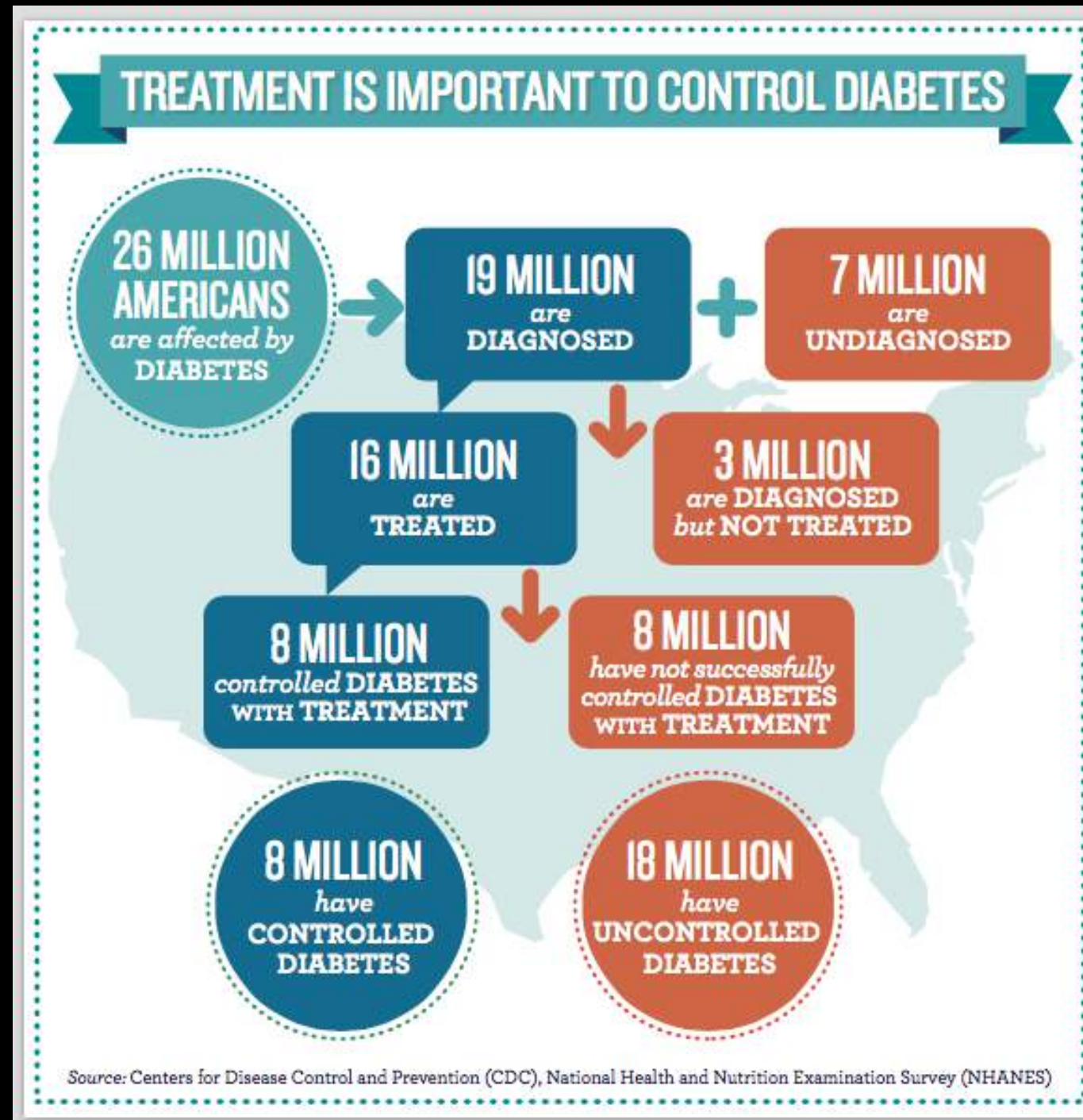
Big changes in diabetes care

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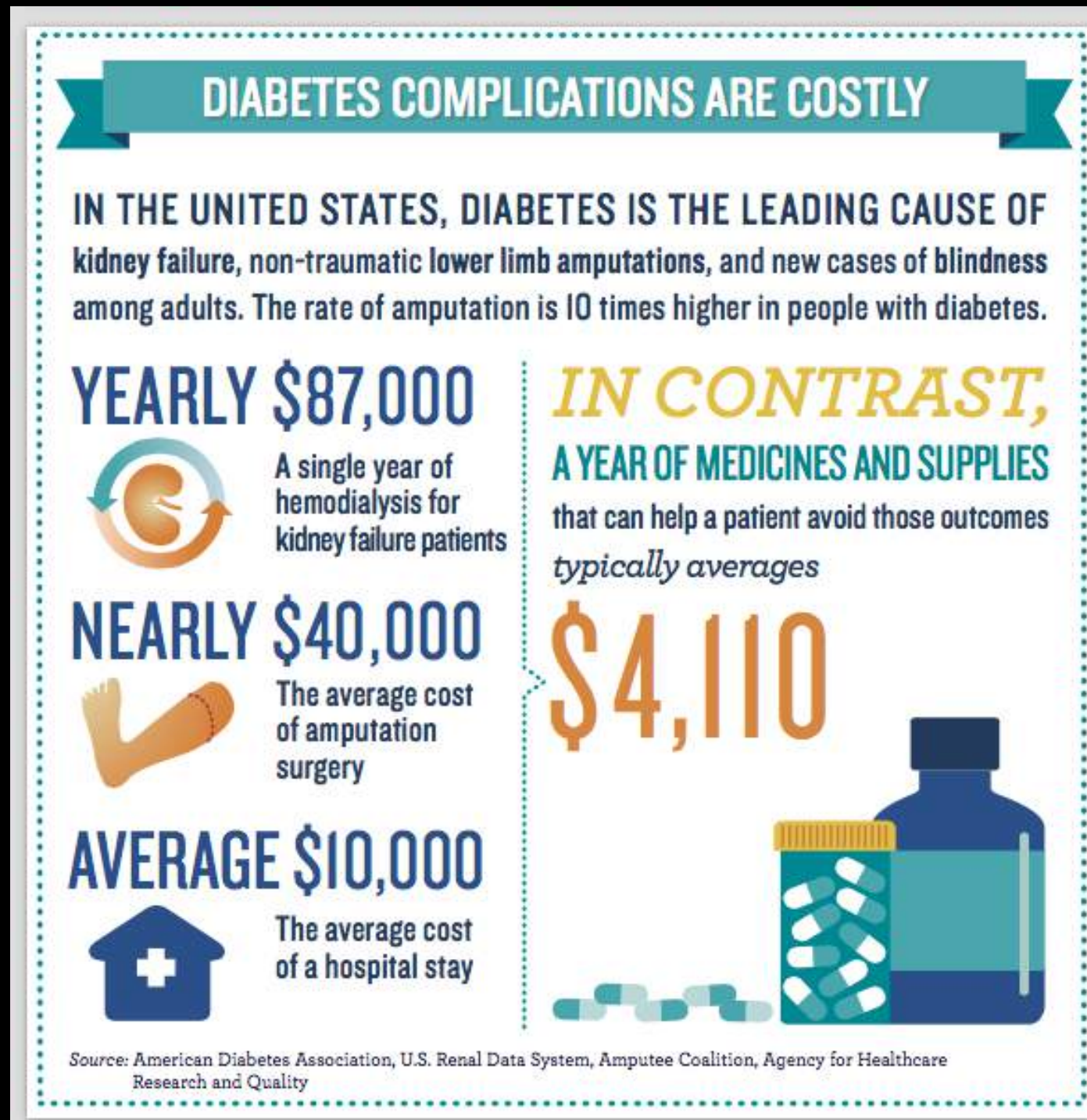
- **Prevention:**
- **Disease management:**
- **End stage phases:**
 - Eye disease:
 - maculopathy: injections
 - Cardiovascular disease:
 - treatment of risk factors, stenting, dilatations, ...
 - Kidney disease:
 - better medication (Sartanes, ACE -inh, better dialysis, ...)
 - Diabetic Foot
 - new consensus and implementation programs



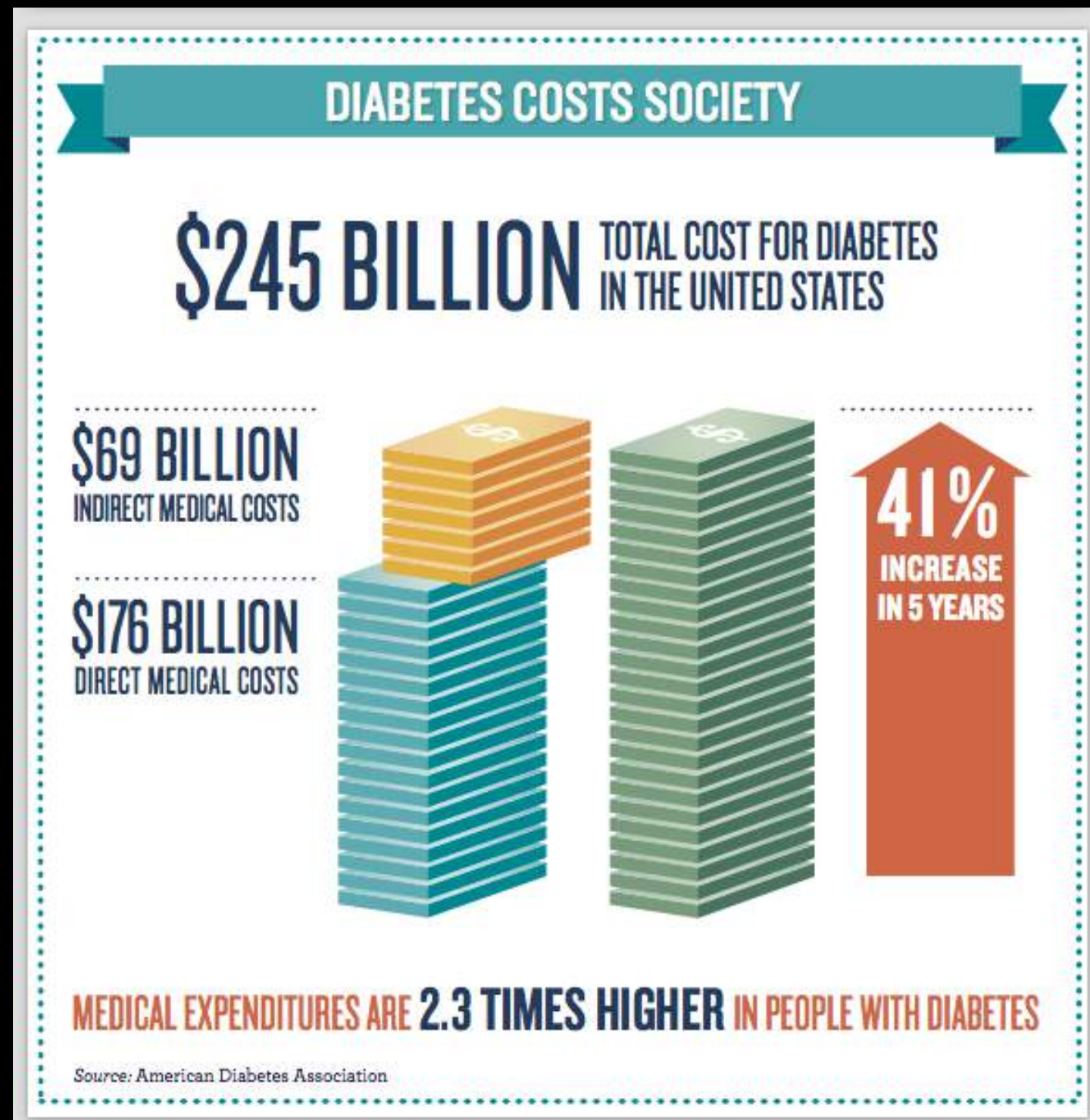
But, do we have better diabetes care?



But, do we have better diabetes care?



Future on Health economical level?



Future on Health economical level?

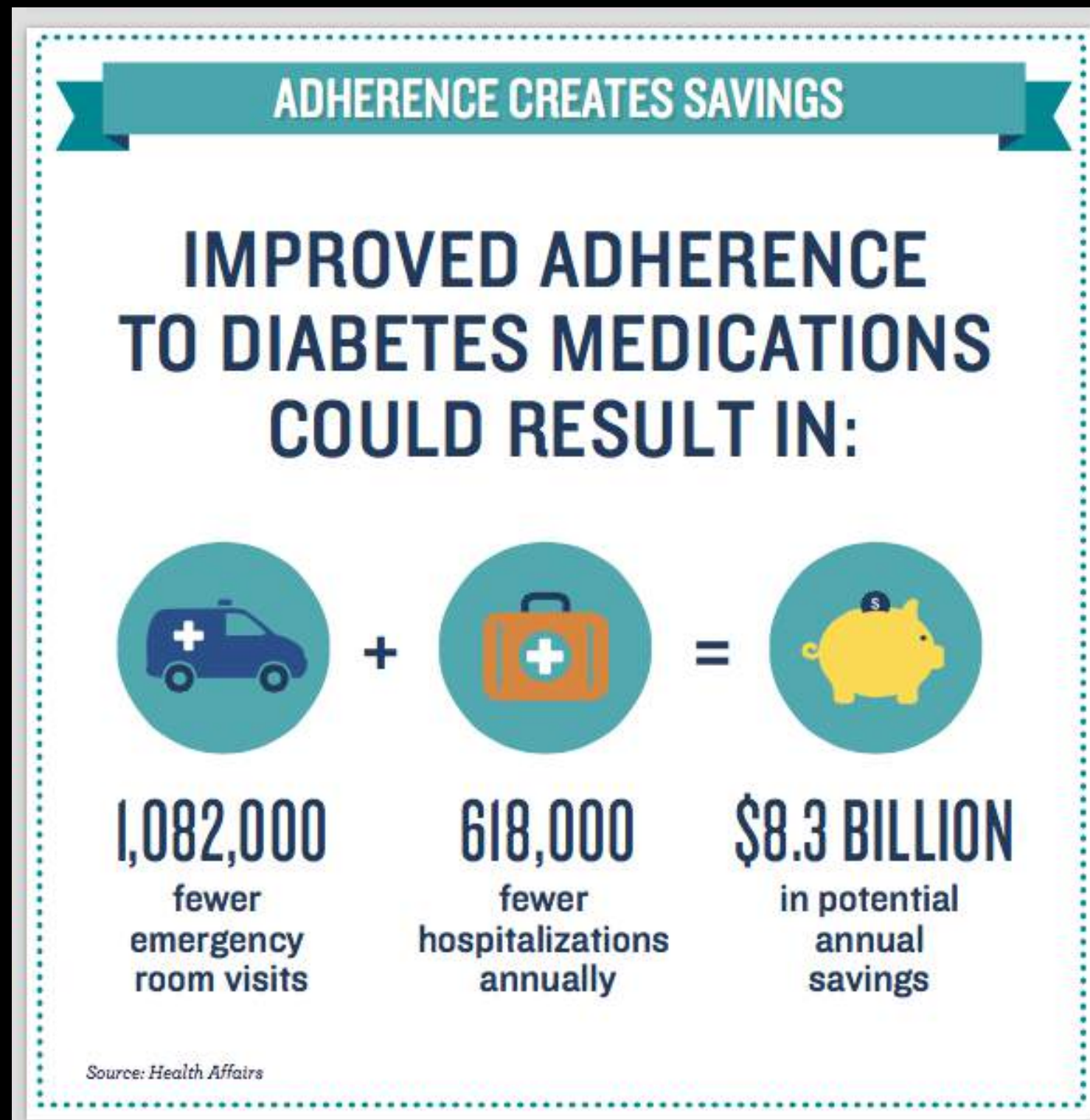


Figure 4.5. Total healthcare expenditures due to diabetes by income group in USD (billions), R=2*

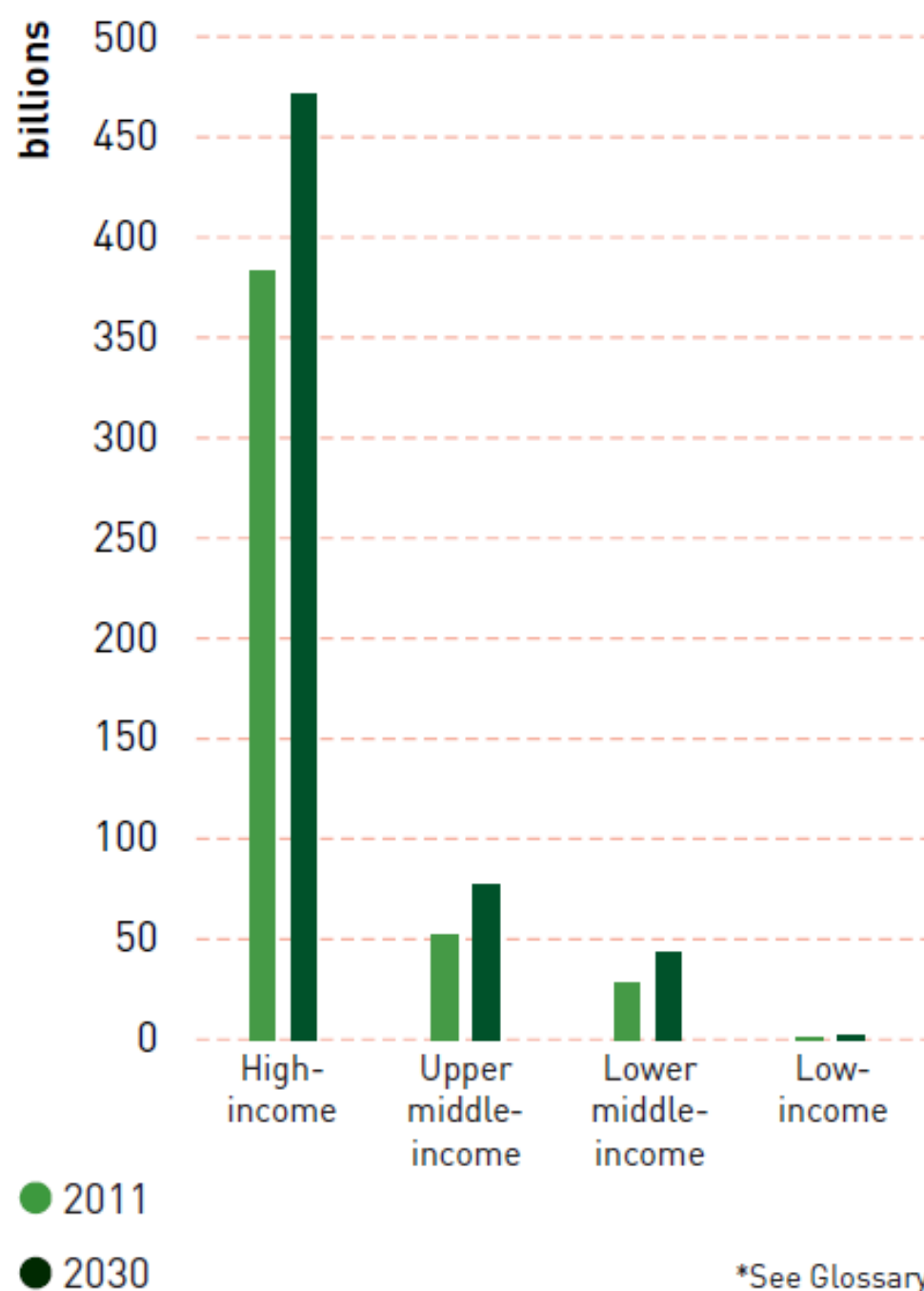


Table 4.1. Mean health expenditures due to diabetes per person with diabetes by income group, R=2*

INCOME GROUP	USD
2011	
High-income	5,103.92
Upper-middle income	760.88
Lower-middle income	142.71
Low-income	45.09
2030	
High-income	5,006.76
Upper-middle income	767.22
Lower-middle income	140.85
Low-income	46.30

*See Glossary

So , what is next?

Failure to address basic risk factors, appropriately manage those affected, **engage patients in self-management, and coordinate care across settings**, will only lead to worse outcomes and higher health care costs.





Human Relations

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Interlocking interactions, the diffusion of innovations in health care

Louise Fitzgerald, Ewan Ferlie, Martin Wood and Chris Hawkins

ABSTRACT

This article aims to provide a reassessment of the processes of diffusion of innovations into organizations, based on new empirical data. The focus of the article is the latter stages of the diffusion process. The article draws on the results of two studies, which examined the diffusion of innovations in health care in the UK. These projects were a matched pair of qualitative studies, using purposeful selections of comparative case studies. The results demonstrate the ambiguous, contested nature of new scientific knowledge. The highly interactive nature of diffusion, with active adopters is illustrated. There is no evidence of a single adoption decision. The science is socially mediated. The features of context and of actors interlock to influence diffusion.

KEYWORDS

context ■ diffusion ■ health care ■ innovation ■ professionals

Models in US, Mexico, India



- **Pro Mujer, in Mexico**, integrates health and financial services for low-income women. For instance, it provides diabetes screenings, education, and other health services at reduced cost to women who attend monthly microloan repayment meetings.
- **ClickMedix, which operates in all three countries**, provides virtual medical consultations to vulnerable and rural patient populations. The electronic platform enables health workers to serve more patients while lowering costs.
- **The YMCA Diabetes Prevention Program in US** uses existing community-based centers to reach patients, coordinating exercise and providing health education, nutritional support, and individual counseling at YMCA sites. It has been expanded through results-based, add-on payments made by UnitedHealthcare and Medicaid. Depending on an individual's attainment of weight-loss goals and class attendance, the program receives \$175 per person per session on average. These payments have allowed the YMCA to offer the program to people who otherwise could not afford it or who are not covered by a participating insurer.

Models in US, Mexico, India



Policy Reforms to Reduce Barriers

The authors identified financial, institutional, and regulatory policy barriers that have hindered the diffusion of these and other successful care innovations:

Financial barriers. Across the three case study examples, financial barriers proved to be most critical. “There was a poor fit between the new models of care and many existing payment policies,” the authors note

Institutional barriers.

Pro Mujer in Mexico is dealing with issues related to health services regulation under the finance ministry, as its diabetes program is operated in conjunction with financial services outside the traditional health system.

In the U.S., the fragmentation of public financing across different agencies, such as CMS for diabetes care and the Centers for Disease Control and Prevention for community initiatives, is a complicating factor.

In India, meanwhile, the state-based nature of regulation and financing “complicates the nationwide adoption of new care models,”

Regulatory barriers. In Mexico, the Pro Mujer program found a lack of clarity about which agency had jurisdiction over the program. In the U.S., differing state laws created challenges related to licensing and practicing medicine across state lines. Regulatory barriers were relatively low in India.



Preventing Chronic Disease through Innovative Primary Care Models

CASALUD

Mexico CASALUD Final

The next step forward in improving the quality of care is to financially support patient-centered outcomes and care coordination."

Enhancing Care Management for Diabetes Patients in Rural Communities

SughaVazhvu Healthcare
Tamil Nadu, India

E health projects



The graphic features the European Commission logo at the top center. Below it, a row of four icons: a pink monitor with a heart rate line, a blue dumbbell, an orange stationary bike, and a green muscular arm. The main title 'eHealth projects' is in large green font, followed by 'Research and Innovation in the field of ICT for Health and Wellbeing: an overview' in smaller green font. Below this is a grid of 12 icons: a green apple, a pink smartwatch, a blue pill, a yellow pill, an orange stopwatch, a green bicycle, a pink heart with a pulse line, a blue pill bottle, a blue smartphone with a pulse line, an orange person running, a green weight with '8kg', and a pink scale. At the bottom, it says 'Last updated: June 2015' and 'Data source: EU Horizon'.

eHealth projects
Research and Innovation
in the field of ICT
for Health and Wellbeing:
an overview

Last updated: June 2015

Data source: EU Horizon

1.7. Projects related to diabetes

AP@home

The main goal of AP@home (www.apathome.eu) is to improve treatment of patients with diabetes at home. The researchers will build and evaluate an artificial pancreas (AP).

Duration: 2010-2014

Commodity12

COMMODITY12 (www.commodity12.eu) will build a platform for continuous monitoring of diabetes. The project will focus on the interaction between diabetes and cardiovascular diseases.

Duration: 2011-2015

EMPOWER

EMPOWER (www.empower-fp7.eu) supports the self-management of diabetes patients through a modular and standards-based Patient Empowerment Framework. It helps sufferers of diabetes with observing daily patterns of living and with managing personalised action plans.

Duration: 2012-2015

METABO

"Controlling Chronic Diseases related to Metabolic Disorders" - METABO focuses on the improvement of diabetes disease management by providing patients and medical doctors with a technological platform to help them handle and analyse all information related to diabetes treatment, integrating it with patients' lifestyle data. More info: www.metabo-eu.org

Duration: 2008-2012

MISSION-T2D

A patient-specific model for the simulation and prediction of metabolic and inflammatory processes in the onset and progress of the Type 2 Diabetes (T2D). A diagnostic tool to estimate the risk of developing T2D and to predict its progression in response to possible therapies. More info: www.isc.rm.cnr.it

Duration: 2013-2016

MOSAIC

Development of mathematical models and algorithms that can enhance the current tools and standards for the diagnosis of T2DM, IGT, IFG and GDM; That can improve the characterization of patients suffering from these metabolic disorders and that can help evaluating the risk of developing T2DM and GDM and their related complications. More info: www.mosaicproject.eu

Duration: 2013-2016

REACTION

The REACTION project (www.reaction-project.eu) have developed an integrated approach to improve long term management of diabetes. Continuous blood glucose monitoring, clinical monitoring and intervention strategies, monitoring and predicting related disease indicators, complemented by education on life style and, ultimately, automated closed-loop delivery of insulin will be automated.

Duration: 2010-2014

Eur projects



Eur projects



 CHRODIS ADDRESSING CHRONIC DISEASES AND HEALTHY AGEING ACROSS THE LIFE CYCLE					ABOUT US OUR WORK OUTCOMES & RESULTS NEWS & EVENTS RESOURCES  				
Horizontal Packages									
01 Coordination									
• Documents And Deliverables									
• Meetings									
02 Communication									
• Tools									
• JA-CHRODIS Presentations									
• Press Releases									
03 Evaluation									
04 Knowledge Platform									
Background									
Activities									
• Delphi Process									
• Knowledge Platform									
Meetings									
Partners									
05 Health Promotion									
Background									
Activities									
• Country Reports									
• Criteria									
• Selection									
• Conferences									
• Transfer									
Meetings									
Partners									
06 Multimorbidity									
Background									
Activities									
• Patients									
• Care Approaches									
• Interventions									
• Implementation									
• Training Programme									
Meetings									
Partners									
07 Type 2 Diabetes									
Background									
Activities									
• High Risk									
• Prevention Of Complications									
• Health Promotion									
• Training									
• National Plans									
Meetings									
Partners									

Figure 2: Chronic Care Package annual components

HYPERTENSION PACKAGE	DIABETES GOLD PACKAGE	DIABETES SILVER PACKAGE
12 clinic visits (1/ month)	11 clinic visits	9 clinic visits
1 year of medications	5 home visits	1 year of medications
Regular BP checks	1 year of medications	9 point of care blood glucose testing
1 blood glucose check-up at enrollment	15 point of care, blood glucose and BP tests	Clinician and health worker always available by phone
Clinician and health worker always available by phone	2 tests for HBA1C	Continuous patient education
Ongoing patient education	1 annual health exam	
	1 eye and heart specialist check-up and consult	
	Clinician and health worker always available by phone	
	Ongoing patient education	
INR 1200/year (20 USD)	INR 2,400/year (40 USD)	INR 1,200/year (20 USD)

Figure 1: Subscription package flow chart

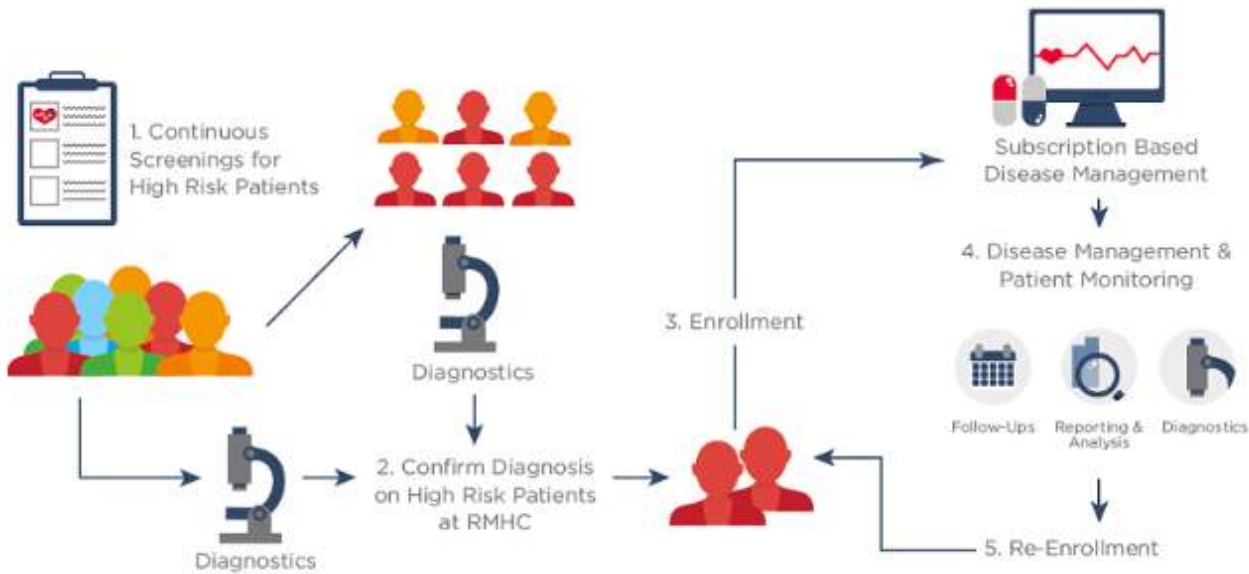


Figure 3: Chronic Care Package pricing model

Package Type	Price (INR) / Year
Diabetes only – SILVER	1,200 (20 USD)
Diabetes only – GOLD	2,400 (40 USD)
Hypertension only	1,200 (20 USD)
Hyperlipidemia only	2,000 (33 USD)
Diabetes SILVER + Hypertension	1,600 (27 USD)
Diabetes GOLD +Hypertension	2,800 (47 USD)
Diabetes SILVER+ Hyperlipidemia	2300 (38 USD)
Diabetes GOLD + Hyperlipidemia	3500 (58 USD)
Hypertension+ Hyperlipidemia	2300 (38 USD)

Do we have a future?

[2006 United Nations Resolution 61/225 on Diabetes](#), and the [2011 United Nations High-Level Summit on NCDs](#),



International
Diabetes
Federation



unite for diabetes

DIABETES PRIORITIES

IDF's advocacy is driven by the ambition to improve the lives of people with diabetes and those at risk. Whether working at the global or local level, our advocacy is underpinned by following three major issues as outlined in our [Global Diabetes Plan \(2011-2021\)](#).

Improve health outcomes for people with diabetes

IDF estimates that over 100 million people with diabetes lack access to the treatment and care they need. Universal access to essential medicines and technologies is a critical priority of IDF and we are advocating for it at the highest level. In addition, IDF will develop a 'model of care' to outline the essential treatment and care governments should prioritize people with diabetes, and IDF is working to make self-management education available to all people with diabetes.

Prevent Type 2 Diabetes

Preventing future cases of diabetes is vital if countries are to avoid or reduce the costs and impact of the growing burden of diabetes. IDF is working to see health included in all policies, make healthy nutrition available for all, and promote physical activity.

Stop discrimination against people with diabetes

At the core of IDF's advocacy work is the pursuit of social justice and health equity for people with diabetes and those at risk. Diabetes is strongly linked to social and economic disadvantage, and people with diabetes face health inequity, [discrimination](#) and stigma.

PARLIAMENTARIANS FOR DIABETES GLOBAL NETWORK



Parliamentarians
for Diabetes
Global Network
A programme of the
International Diabetes Federation



The **Parliamentarians for Diabetes Global Network (PDGN)** is a major advocacy programme of the International Diabetes Federation.

It was established in December 2013 at the World Diabetes Congress in Melbourne, Australia. Parliamentary representatives from 55 countries met at a special forum for diabetes political champions.

The Parliamentarians agreed to establish the Network on a permanent basis to be led by a team of three officers:

- **Adrian Sanders MP (UK)**, President
- **Honor Dr. Simon Busuttil MP, (Malta)**, Vice-President
- **Dr. Rachael Nyamai MP (Kenya)**, Vice-President

They will be supported by the **Hon Judi Moylan (Australia)** as Global Coordinator.

The UN Resolution on Diabetes:

- Recognises diabetes as 'a chronic, debilitating and costly disease associated with severe complications, which poses severe risks for families, Member States and the entire world'.
- States that diabetes poses serious challenges for the achievement of the Millennium Development Goals.
- Designates World Diabetes Day – the 14 November – as an official United Nations Day, to be observed every year beginning in 2007.
- Encourages governments to develop national policies for diabetes prevention, treatment and care.



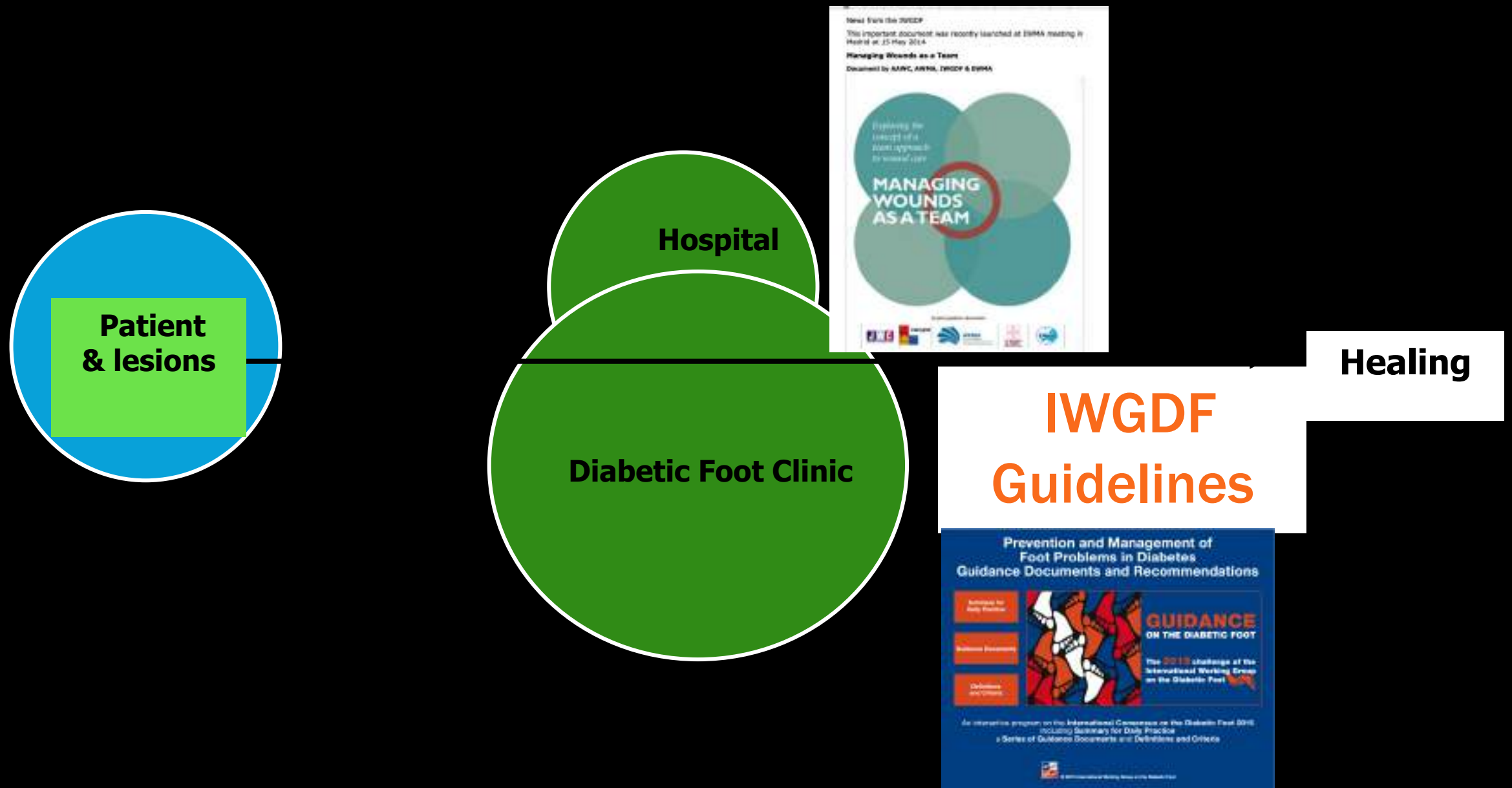
example of our implementation programs on the diabetic
Foot



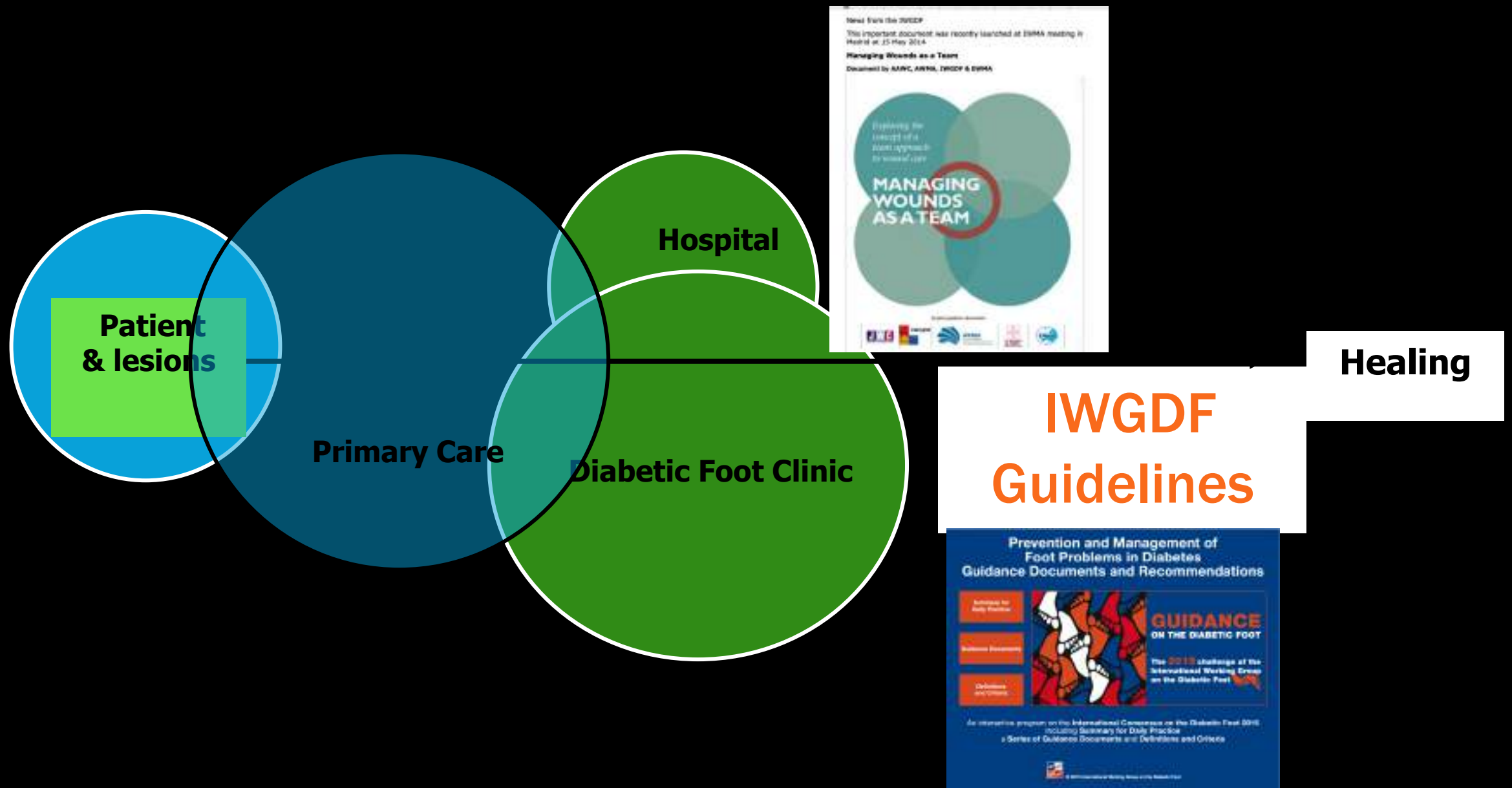
“pathway of guideline implementation”



Intervention programs/Implementaion guidelines on different levels

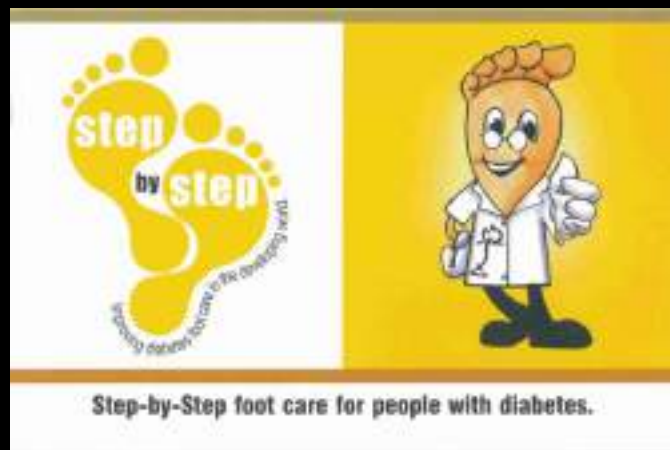


Intervention programs/Implementaion guidelines on different levels



Activities of IWGDF/IDF

- Implementation programs
 - from Step By Step to TtFT courses

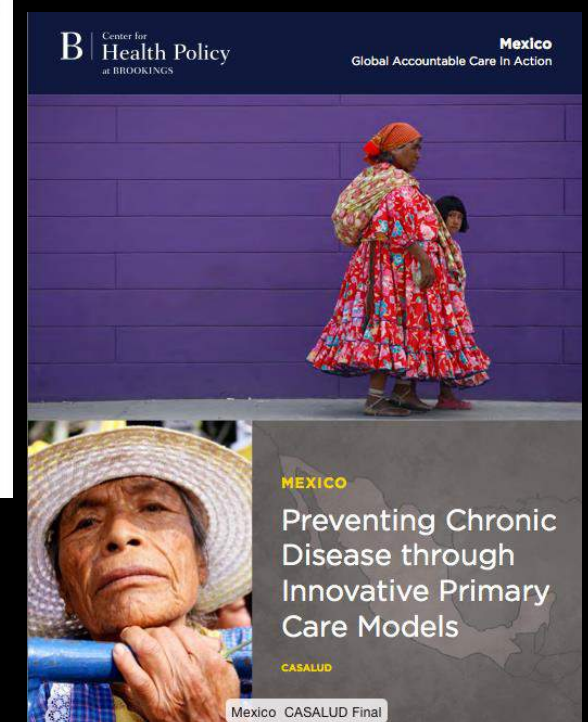
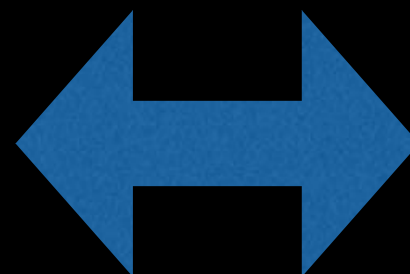


- Diabetic Foot Care assistant programs



The Bottom Line

“Disruptive innovation” in diabetes care is essential in the fight against this costly global disease, but financial and other policy barriers must be overcome if the most promising programs are to reach those populations most likely to benefit.



Be creative...





**„ A journey of a thousand miles
begins with **one** step „**

Lao Tzu, China, 6th century

