HEARTS IN AMERICA

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HQIN

Health Quality Innovation Network

Diabetes, Hypertension, and Chronic Disease Paradigm

October 5, 2022

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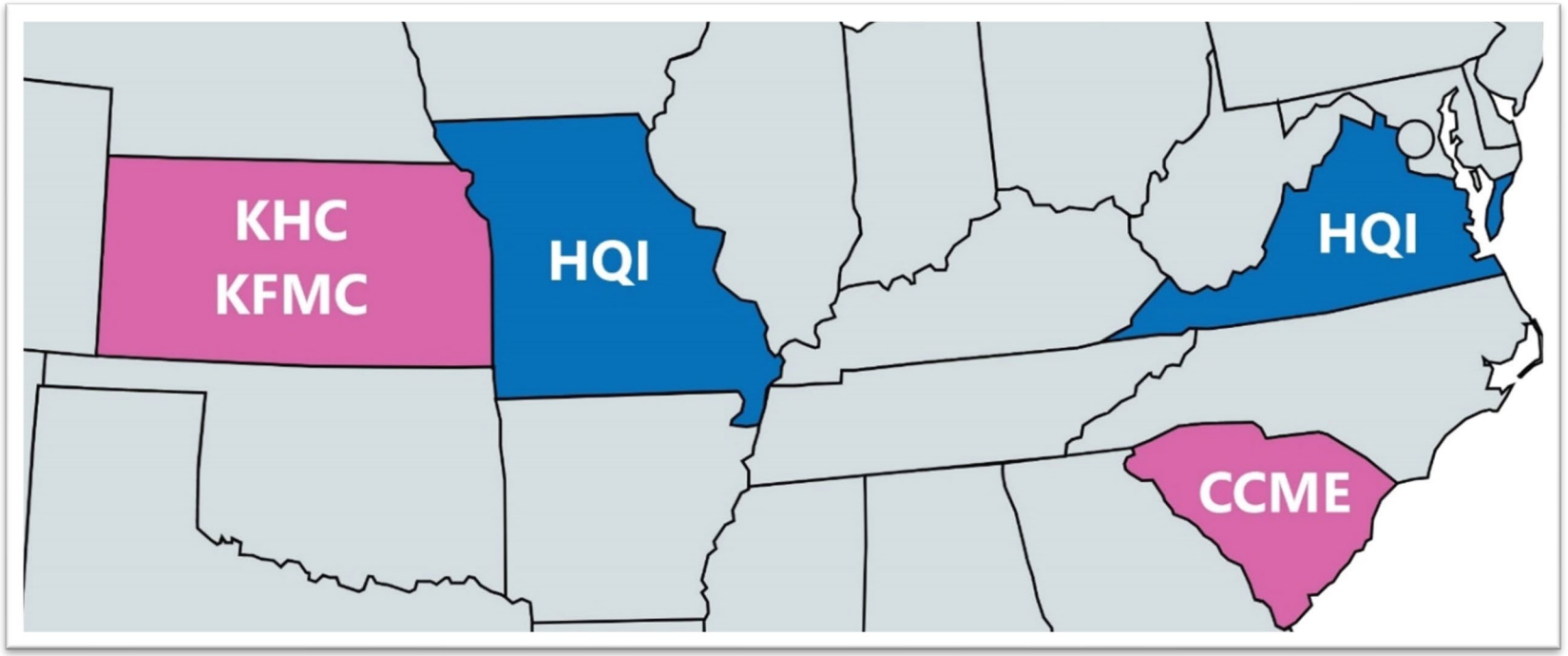

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COLLABORATIVE

This **HEARTS Lunch and Learn** series is part of a new initiative HQIN is bring to our communities and parties, **HEARTS in America (HEARTS).**

This series delivered by HEARTS SMEs introduces the pillars of HEARTS Technical Package while beginning the conversation about HEARTS in America. If you would like to speak to a HEARTS Advisor, learn more about the initiative, and discuss possibilities for your organization, please connect with your HQIN Quality Improvement Advisor to begin the next steps.

Accreditation Statement

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Southern Medical Association designates this Live activity for a maximum of .75 *AMA PRA Category 1 Credit*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Non-physician Attendees
All non-physicians will receive a certificate of participation.

Disclosures

Disclosure Information

Southern Medical Association (SMA) requires instructors, planners, managers, and all other individuals who are in a position to control the content of this activity to disclose all conflicts of interest (COI) with ineligible entities within the last 24 months of the development of this activity. All identified COIs have been thoroughly vetted and mitigated prior to the activity. SMA is committed to providing its learners with high quality activities and related materials that promote improvements or quality in healthcare and not a specific proprietary business interest of a commercial interest.

Invited Faculty:

David Flood, MD, MSc
No Financial Relationships Were Declared

Logistics – Zoom Meeting

To ask a question during the presentation, please use **Chat**.

Raise your hand if you want to verbally ask a question.

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Diabetes, Hypertension, and Chronic Disease Paradigm

David FLood, MD, MSc
Assistant Professor
University of Michigan

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David Flood, MD, Msc

David Flood is a general internist and health services researcher at the University of Michigan, where he is an Assistant Professor of Medicine. He holds secondary appointments in Guatemala at the Institute of Nutrition of Central America and Panama and Maya Health Alliance. His primary interest is using implementation research to improve the adoption of evidence-based interventions for the management of cardiometabolic diseases. He has NHLBI/NIH funding to implement the HEARTS Technical Package in public clinics Guatemala.

Purpose & Learning Objectives

1. Explore the significance and impact of hypertension on CVD, DM, and chronic kidney disease

1. Discuss the correlation and potentiation of co-morbid chronic conditions

2. Explore the impacts of controlling hypertension on diabetes and CKD

1. There is a large implementation gap in hypertension and diabetes care in resource-limited settings.
2. HEARTS is a state-of-the-art tool to help us address this gap.
3. High-quality hypertension care is a pillar of high-quality diabetes care.

BMJ Case Reports

Treatment of end-stage renal disease with continuous ambulatory peritoneal dialysis in rural Guatemala

Jillian Moore,[1,2] Pablo Garcia,[2,3] Peter Rohloff,[2,4] David Flood[2,5]

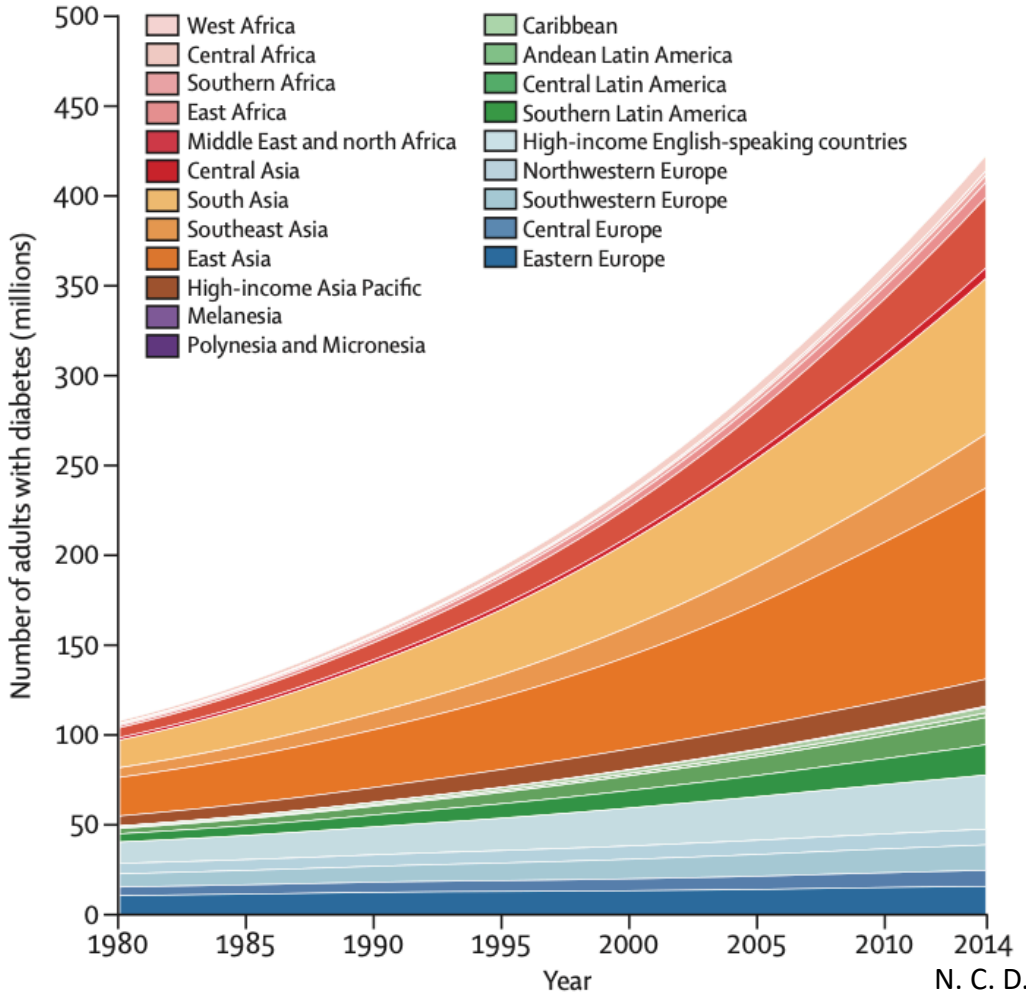
SUMMARY

A 42-year-old indigenous Maya man presented to a non-profit clinic in rural Guatemala with signs, symptoms and laboratory values consistent with uncontrolled diabetes. Despite appropriate treatment, approximately 18 months after presentation, he was found to have irreversible end-stage renal disease (ESRD) of uncertain aetiology. He was referred to the national public nephrology clinic and subsequently initiated home-based continuous ambulatory peritoneal dialysis. With primary care provided by the non-profit clinic, his clinical status improved on dialysis, but socioeconomic and psychological challenges persisted for the patient and his family. This case shows how care for people with ESRD in low- and middle-income countries requires scaling up renal replacement therapy and ensuring access to primary care, mental healthcare and social work services.

Approximately 18 months after his initial presentation, the patient reported persistent difficulty gaining weight, as well as interval development of severe nausea and anorexia. An evaluation for failure to thrive was initiated at a higher-level laboratory in the regional capital. Results were notable for a serum creatinine of 7.57 mg/dL (glomerular filtration rate 8.5 mL/min/1.732) and blood urea nitrogen of 68.0 mg/dL (normal range 6.0–21 mg/dL), which were confirmed on repeat. Serum potassium, liver function tests, C reactive protein, thyrotropin, HIV, viral hepatitis antibodies, antinuclear antibodies, serum protein electrophoresis and urinalysis (with the exception of the presence of glycosuria) were normal. Haemoglobin was 7.3 mg/dL (normal range 12–16 mg/dL) with normal mean corpuscular volume. A renal ultrasound showed bilateral atrophic kidneys with increased echogenicity, two small non-obstructive echogenic foci


Community-University Health Care Center
NO SMOKING
THE UNIVERSITY OF MINNESOTA BANS GUNS ON THESE PREMISES

Number of adults with diabetes is increasing exponentially



N. C. D. Risk Factor Collaboration. Lancet 2016;387:1513-30.

HEARTS

Technical package for cardiovascular disease management in primary health care

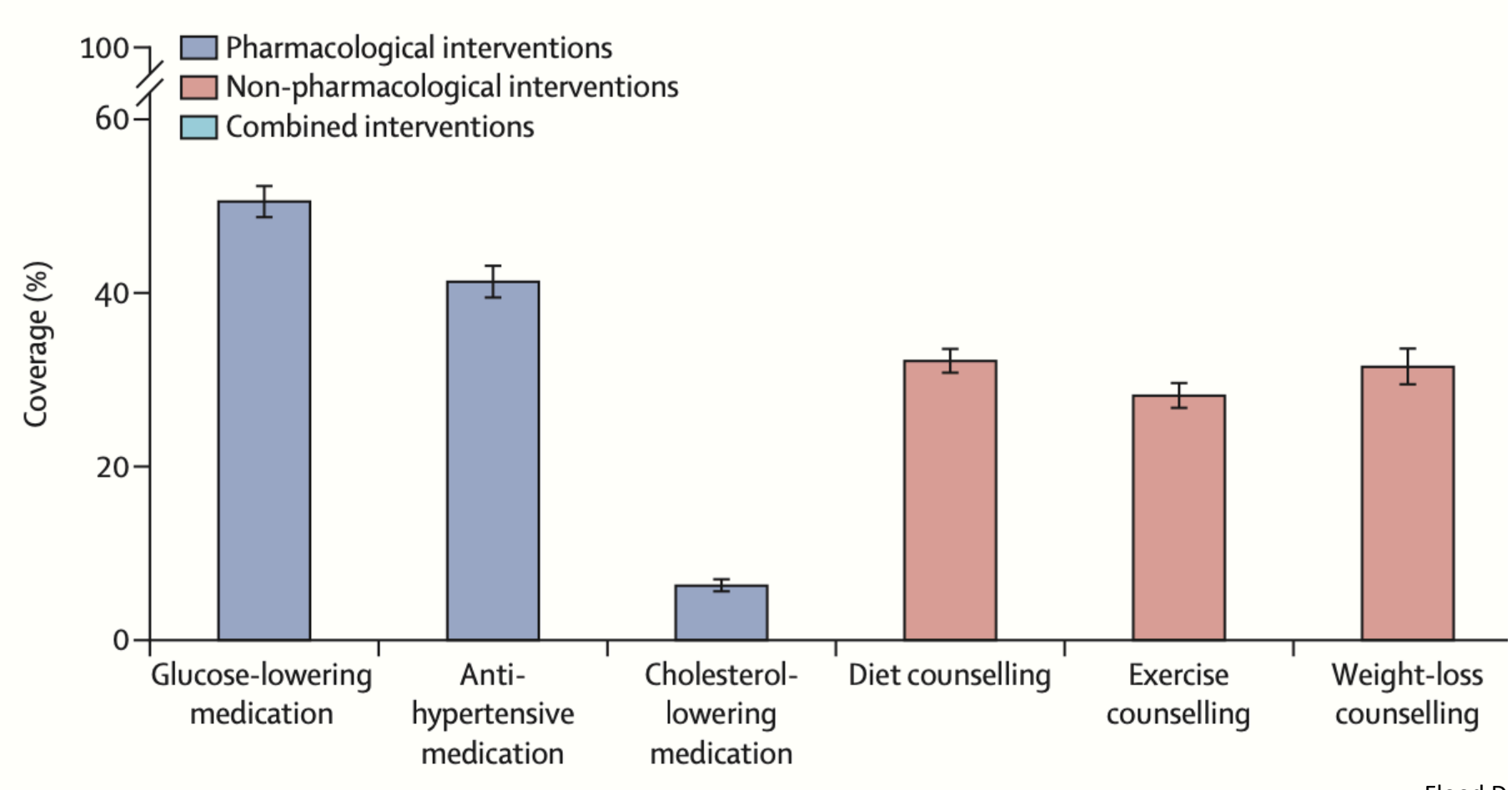
HEARTS

IN THE AMERICAS

HEARTS-D

Diagnosis and Management of Type 2 Diabetes

Met need for diabetes treatment in 55 low- and middle-income countries



Flood D, et al. Lancet Healthy Longev 2021;2:e340-e51.

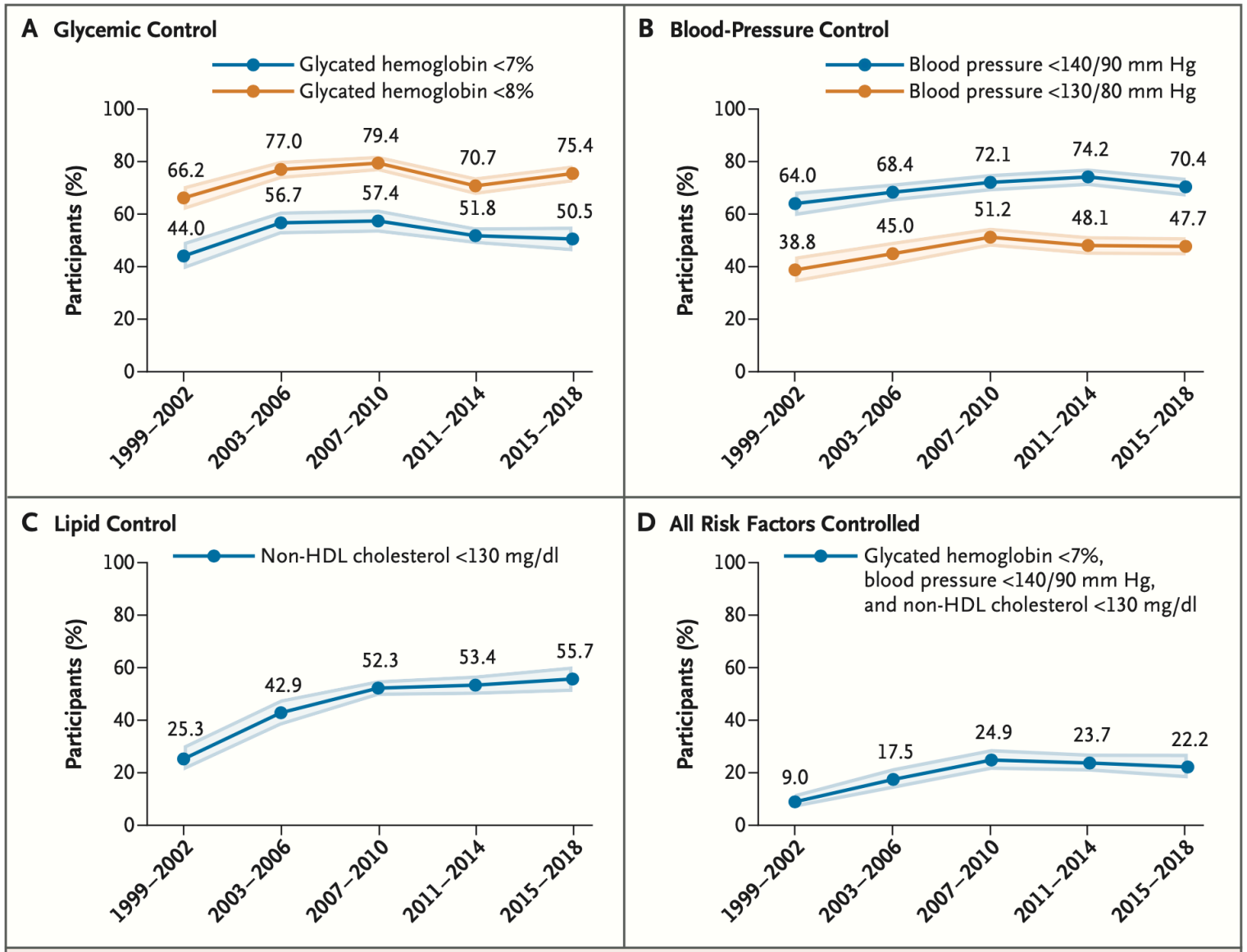


Figure 1. Prevalence of Glycemic, Blood-Pressure, and Lipid Control among Adult NHANES Participants with Diagnosed Diabetes, 1999–2002 to 2015–2018.

Shaded areas indicate 95% confidence intervals. To convert the value for non–high-density lipoprotein (non-HDL) cholesterol to millimoles per liter, multiply by 0.02586. NHANES denotes the National Health and Nutrition Examination Survey.

Fang M, et al. N Engl J Med 2021;384:2219-28.

Estimated effect of increased diagnosis, treatment, and control of diabetes and its associated cardiovascular risk factors among low-income and middle-income countries: a microsimulation model

Sanjay Basu, David Flood, Pascal Geldsetzer, Michaela Theilmann, Maja E Marcus, Cara Ebert, Mary Mayige, Roy Wong-McClure, Farshad Farzadfar, Sahar Saeedi Moghaddam, Kokou Agoudavi, Bolormaa Norov, Corine Houehanou, Glennis Andall-Brereton, Mongal Gurung, Garry Brian, Pascal Bovet, Joao Martins, Rifat Atun, Till Bärnighausen, Sebastian Vollmer, Jen Manne-Goehler, Justine Davies**

Basu S, et al. Lancet Glob Health 2021;9:e1539-e52

Reducing complications from diabetes is likely to require a focus on **scaling up blood pressure and statin medication treatment initiation and blood pressure medication titration** rather than focusing on increasing screening to increase diabetes diagnosis, or glycemic treatment and control among people with diabetes.

Table 1 The epidemiological and interventional relationships of cholesterol, blood pressure and HbA_{1c} with cardiovascular disease

Variable	CHD[a]	Stroke (all)	Cardiovascular disease
Cholesterol (1 mmol/l)			
Epidemiological (%)	−30	−10	
Intervention (%)	−23	−17	
NNT for 5 years	59.2	177.7	44.4
Blood pressure (10/5 mmHg)			
Epidemiological (%)	−25	−36	
Intervention (%)	−22	−41	
NNT for 5 years	61.8	73.7	33.6
Glycaemia (HbA_{1c} 0.9%)			
Epidemiological (%)	−12	−15	
Intervention (%)	−9.7	−4.0	
NNT for 5 years	140.3	767.7	118.5

Yudkin JS, et al. Diabetologia 2010;53:2079-85.

PAN AMERICAN JOURNAL OF PUBLIC HEALTH
100 YEARS

Special report

Integrating hypertension and diabetes management in primary health care settings: HEARTS as a tool

David Flood[1], Elizabeth W. Edwards[2]*, David Giovannini[3], Emily Ridley[3], Andres Rosende[4], William H. Herman[1], Marc G. Jaffe[6] and Donald J. DiPette[2]*

Suggested citation Flood D, Edwards EW, Giovannini D, Ridley E, Rosende A, Herman WH et al. Integrating hypertension and diabetes management in primary health care settings: HEARTS as a tool. Rev Panam Salud Publica. 2022;46:e150. https://doi.org/10.26633/RPSP.2022.150

TABLE 1. Deaths attributable to modifiable risk factors in the Americas

	Leading risks 1990	Percentage of deaths 1990		Leading risks 2019	Percentage of deaths 2019	Total deaths 2019 (thousands)
1	Tobacco	18.8	1	High systolic blood pressure	16.9	1 230
2	High systolic blood pressure	18.0	2	High fasting plasma glucose	14.7	1 064
3	Dietary risks	14.5	3	Tobacco	14.4	1 043
4	High LDL cholesterol	10.9	4	High body-mass index	13.0	940
5	High fasting plasma glucose	10.4	5	Dietary risks	12.6	916
6	High body-mass index	8.9	6	Kidney dysfunction	7.6	550
7	Child and maternal malnutrition	7.9	7	High LDL cholesterol	7.3	528
8	Air pollution	7.0	8	Alcohol use	5.1	370
9	Kidney dysfunction	5.2	9	Air pollution	4.1	298
10	Alcohol use	4.5	10	Non-optimal temperature	3.1	225

Source: Prepared by the authors using estimates from the Global Burden of Disease study (1).
Note: The arrows refer to changes in order ranking for high systolic blood pressure and high fasting plasma glucose from 1990 to 2019.

FIGURE 1. Overlapping risk factors and management of hypertension and diabetes

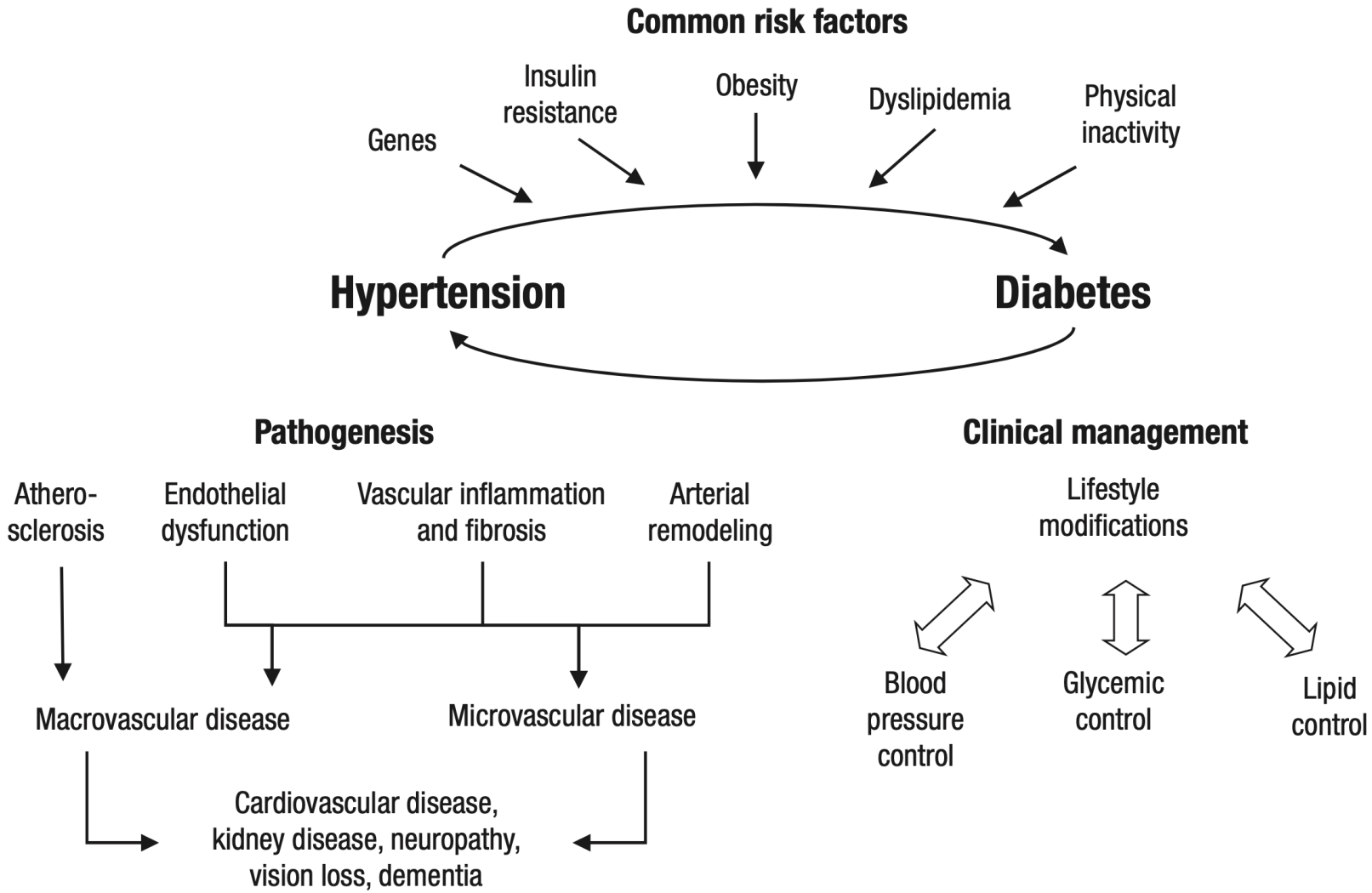


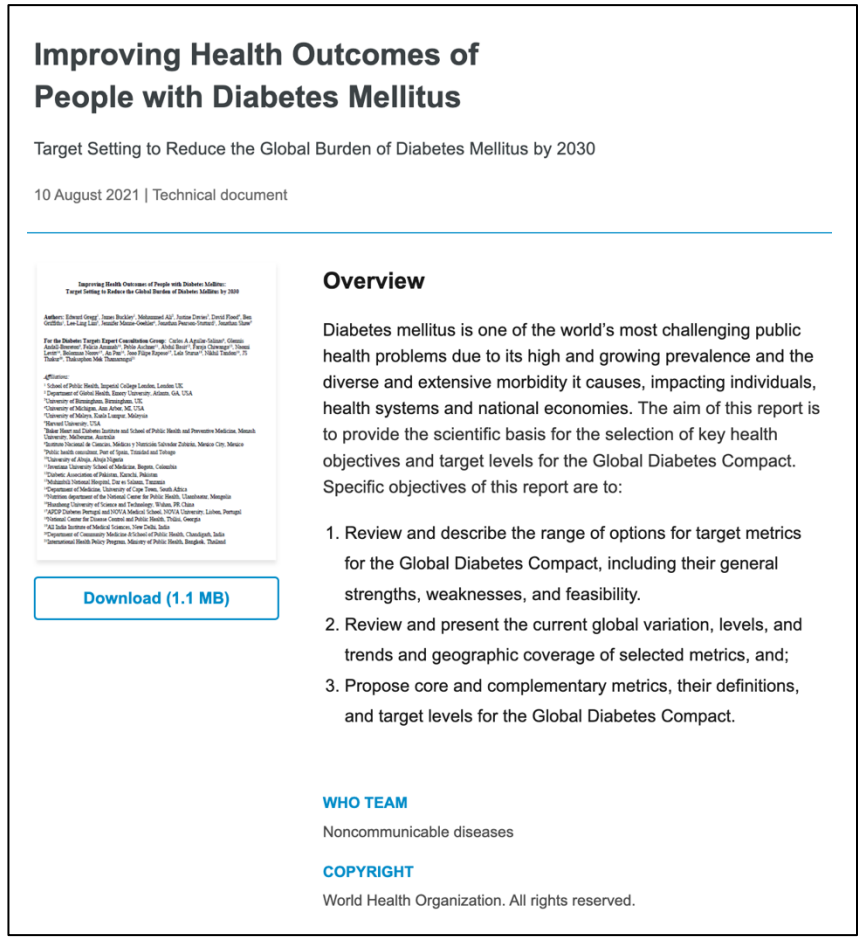
TABLE 2. Components of the HEARTS Technical Package

	Component	Description
	**H**ealthy lifestyle counseling	Counseling on diet, physical activity, disease self-care
	**E**vidence-based protocols	Simplified and standardized drug treatment algorithms
	**A**ccess to essential medicines and technologies	Procurement, distribution, and handling of essential supplies
	**R**isk-based CVD management	Treatment using cardiovascular risk assessment
	**T**eam-based care:	Shifting and sharing tasks among health workers in a team
	**S**ystems for monitoring	Using data to monitor and improve the quality of care

Source: Prepared by the authors based on the information in the HEARTS Technical Package for Cardiovascular Disease Management in Primary Health Care (11).
CVD, cardiovascular disease.

World Health Organization

Improving Health Outcomes of People with Diabetes Mellitus



Improving Health Outcomes of People with Diabetes Mellitus

Target Setting to Reduce the Global Burden of Diabetes Mellitus by 2030

10 August 2021 | Technical document

Download (1.1 MB)

Overview

Diabetes mellitus is one of the world's most challenging public health problems due to its high and growing prevalence and the diverse and extensive morbidity it causes, impacting individuals, health systems and national economies. The aim of this report is to provide the scientific basis for the selection of key health objectives and target levels for the Global Diabetes Compact. Specific objectives of this report are to:

1. Review and describe the range of options for target metrics for the Global Diabetes Compact, including their general strengths, weaknesses, and feasibility.
2. Review and present the current global variation, levels, and trends and geographic coverage of selected metrics, and;
3. Propose core and complementary metrics, their definitions, and target levels for the Global Diabetes Compact.

WHO TEAM

Noncommunicable diseases

Gregg E, et al. Improving health outcomes of people with diabetes mellitus: target setting to reduce the global burden of diabetes mellitus. Geneva: World Health Organization; 2021.

ORIGINAL ARTICLE

Glycemia Reduction in Type 2 Diabetes — Microvascular and Cardiovascular Outcomes

The GRADE Study Research Group*

ABSTRACT

BACKGROUND

Data are lacking on the comparative effectiveness of commonly used glucose-lowering medications, when added to metformin, with respect to microvascular and cardiovascular disease outcomes in persons with type 2 diabetes.

METHODS

We assessed the comparative effectiveness of four commonly used glucose-lowering medications, added to metformin, in achieving and maintaining a glycated hemoglobin level of less than 7.0% in participants with type 2 diabetes. The randomly assigned therapies were insulin glargine U-100 (hereafter, glargine), glimepiride, liraglutide, and sitagliptin. Prespecified secondary outcomes with respect to microvascular and cardiovascular disease included hypertension and dyslipidemia, confirmed moderately or severely increased albuminuria or an estimated glomerular filtration rate of less than 60 ml per minute per 1.73 m^2 of body-surface area, diabetic peripheral neuropathy assessed with the Michigan Neuropathy Screening Instrument, cardiovascular events (major adverse cardiovascular events [MACE], hospitalization for heart failure, or an aggregate outcome of any cardiovascular event), and death. Hazard ratios are presented with 95% confidence limits that are not adjusted for multiple comparisons.

RESULTS

During a mean 5.0 years of follow-up in 5047 participants, there were no material differences among the interventions with respect to the development of hypertension or dyslipidemia or with respect to microvascular outcomes; the mean overall rate (i.e., events per 100 participant-years) of moderately increased albuminuria levels was 2.6, of severely increased albuminuria levels 1.1, of renal impairment 2.9, and of diabetic peripheral neuropathy 16.7. The treatment groups did not differ with respect to MACE (overall rate, 1.0), hospitalization for heart failure (0.4), death from cardiovascular causes (0.3), or all deaths (0.6). There were small differences with respect to rates of any cardiovascular disease, with 1.9, 1.9, 1.4, and 2.0 in the glargine, glimepiride, liraglutide, and sitagliptin groups, respectively. When one treatment was compared with the combined results of the other three treatments, the hazard ratios for any cardiovascular disease were 1.1 (95% confidence interval [CI], 0.9 to 1.3) in the glargine group, 1.1 (95% CI, 0.9 to 1.4) in the glimepiride group, 0.7 (95% CI, 0.6 to 0.9) in the liraglutide group, and 1.2 (95% CI, 1.0 to 1.5) in the sitagliptin group.

CONCLUSIONS

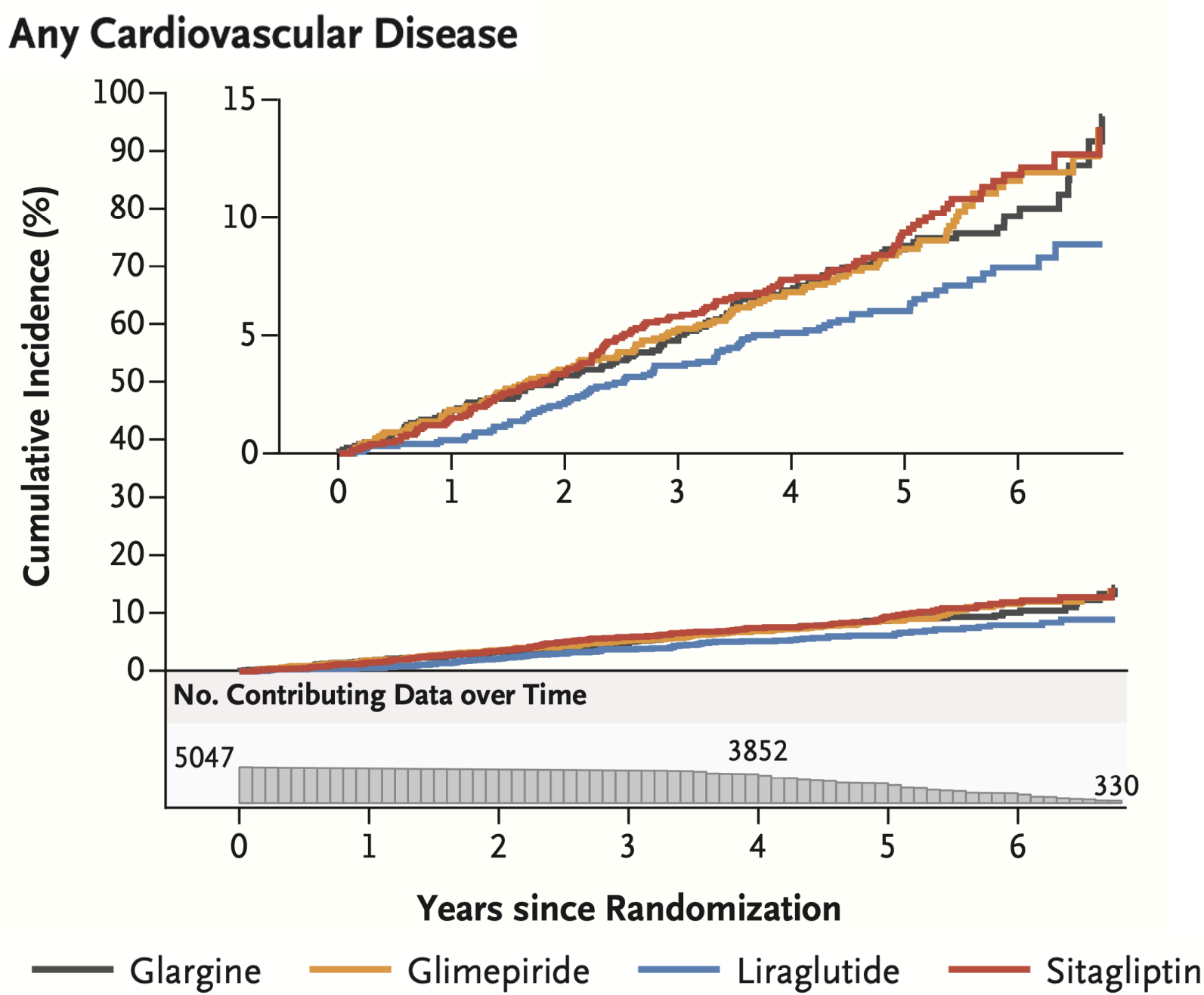
In participants with type 2 diabetes, the incidences of microvascular complications and death were not materially different among the four treatment groups. The findings indicated possible differences among the groups in the incidence of any cardiovascular disease. (Funded by the National Institute of Diabetes and Digestive and Kidney Diseases and others; GRADE ClinicalTrials.gov number, NCT01794143.)

The members of the writing committee (David M. Nathan, M.D., John M. Lachin, Sc.D., Ionut Bebu, Ph.D., Henry B. Burch, M.D., John B. Buse, M.D., Andrea L. Cherrington, M.D., Stephen P. Fortmann, M.D., Jennifer B. Green, M.D., Steven E. Kahn, M.B., Ch.B., M. Sue Kirkman, M.D., Heidi Krause-Steinrauf, M.S., Mary E. Larkin, R.N., Lawrence S. Phillips, M.D., Rodica Pop-Busui, M.D., Ph.D., Michael Steffes, M.D., Margaret Tiktin, D.N.P., Mark Tripputi, Ph.D., Deborah J. Wexler, M.D., and Naji Younes, Ph.D.) assume responsibility for the overall content and integrity of this article.

The affiliations of the members of the writing committee are listed in the Appendix. Dr. Lachin can be contacted at grademail@bsc.gwu.edu or at the George Washington University Biostatistics Center–GRADE Coordinating Center, 6110 Executive Blvd., Ste. 750, Rockville, MD 20852.

*The members of the GRADE Study Research Group are listed in the Supplementary Appendix, available at NEJM.org.

N Engl J Med 2022;387:1075-88.
DOI: 10.1056/NEJMoa2200436


Any Cardiovascular Disease
Cumulative Incidence (%)
100
90
80
70
60
50
40
30
20
10
0
15
10
5
0
0
1
2
3
4
5
6
No. Contributing Data over Time
5047
3852
330
0
1
2
3
4
5
6
Years since Randomization
Glargine
Glimepiride
Liraglutide
Sitagliptin

1. There is a large implementation gap in hypertension and diabetes care in resource-limited settings.
2. HEARTS is a state-of-the-art tool to help us address this gap.
3. High-quality hypertension care is a pillar of high-quality diabetes care.

Questions?

Join us for our next HEARTS in America session:

October 19th

HEARTS in the Americas Alignment and Cohesion with National Best Practices

Dr. Daniel Lackland, MD

CME Process

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- Southern Medical Association (SMA) **will create an online account for you** including your unique login, **using the email address you provided during registration** (your username/ID is your email address).
- Upon receipt of your post-meeting email, click the link provided, and please **make sure that your name and email address appear at the top of the form before completion**.
- **After you complete and submit your evaluation and attendance documentation, your certificate will be emailed to you as a .pdf attachment from customerservice@sma.org within 24 hours.**

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