RULE OF HALVES ANALYSIS

INTRODUCTION MANUAL

Worldwide 415 million people are living with diabetes.[1] Without concerted action this is estimated to rise to 642 million by 2040.[1] Today, more than half of the world's population live in urban areas,[2] including two-thirds of people with diabetes.[1] This makes cities an important focal point for studying and tackling diabetes. However, taking action requires a better understanding of what drives diabetes in urban areas.

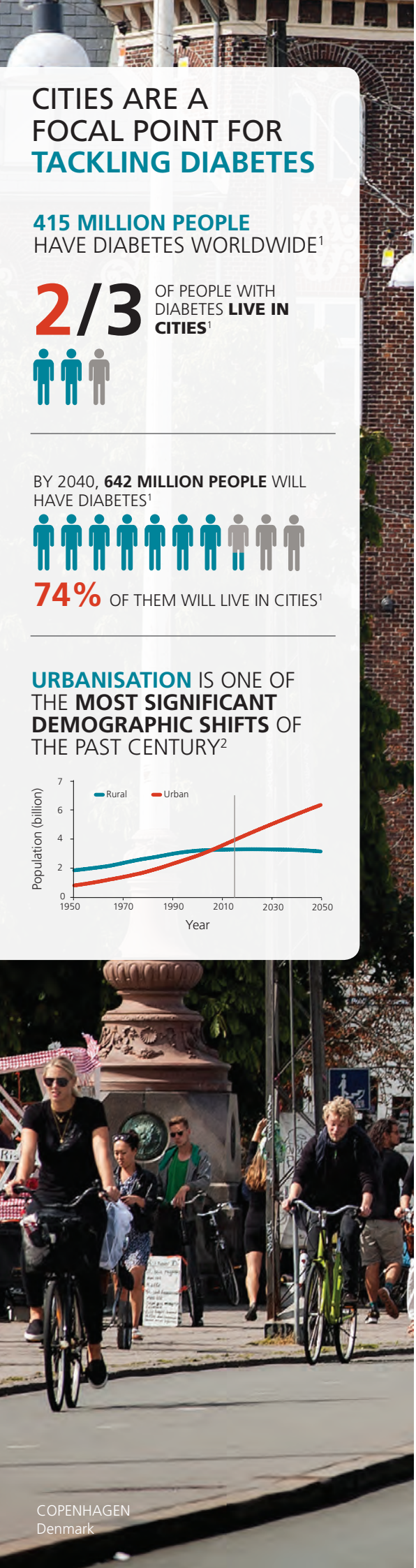
RULE OF HALVES ANALYSIS

The Rule of Halves is a theoretical framework used to describe the burden of diabetes and the unmet clinical needs along the diabetes treatment pathway. The framework dates back to a published paper by Hart in 1992.[3]

The Rule of Halves states that roughly half of all people with type 2 Diabetes are not diagnosed; half of those diagnosed do not receive care; half of those who receive care do not achieve their treatment targets; and half of those who reach their targets do not achieve the desired outcomes.

In an ideal world, the Rule of Halves framework would show only marginal differences between the five pillars, as this would mean that the clinical needs of people with diabetes are being met and that diabetes-related complications were being avoided or delayed.

novo nordisk®
REGION H
Steno Diabetes Center Copenhagen
UCL



CITIES ARE A FOCAL POINT FOR **TACKLING DIABETES**

415 MILLION PEOPLE HAVE DIABETES WORLDWIDE[1]

2/3 OF PEOPLE WITH DIABETES **LIVE IN CITIES**[1]

BY 2040, **642 MILLION PEOPLE** WILL HAVE DIABETES[1]

74% OF THEM WILL LIVE IN CITIES[1]

URBANISATION IS ONE OF THE **MOST SIGNIFICANT DEMOGRAPHIC SHIFTS** OF THE PAST CENTURY[2]

COPENHAGEN
Denmark

PERFORMING
A RULE OF HALVES ANALYSIS

The objective of performing a Rule of Halves is to inform stakeholders of gaps in diabetes care in a chosen city. Therefore, to have a meaningful dialogue with stakeholders, it is important to have populated the Rule of Halves using local data that is representative of the target population. A Rule of Halves calculated following the general rule will carry little weight regarding informing stakeholders of gaps in diabetes care.

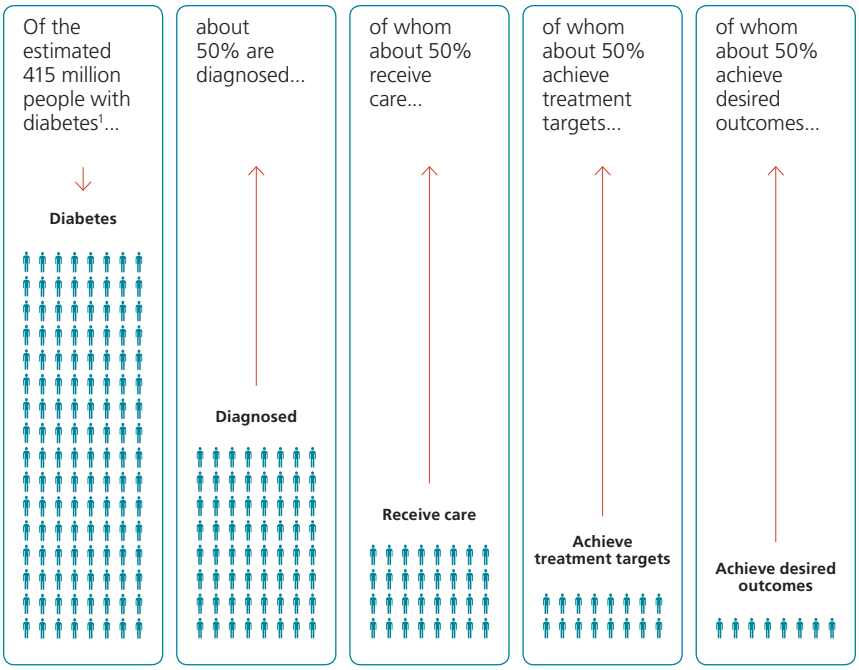
To conduct a Rule of Halves analysis the size of each of the five pillars should be estimated as an absolute number of people. Then the relative proportion of each pillar needs to be calculated in relation to the antecedent pillar. There are several steps involved in conducting a Rule of Halves analysis.

WHY CONDUCT A RULE OF HALVES ANALYSIS?

The Rule of Halves still largely holds true for many chronic diseases[3] and thus serves as a good indicator for mapping the unmet clinical needs in diabetes in a specific population. It analyses the status of diabetes in a population and can indicate along which pillars interventions are likely to have the greatest impact (Figure 1). Thus, a Rule of Halves analysis can serve as a prioritisation tool for decision makers and other stakeholders.

FIGURE 1 THE RULE OF HALVES FRAMEWORK[3]

The Rule of Halves framework illustrates the global diabetes burden and indicates where the largest unmet clinical needs are



ROADMAP
TO PERFORMING A RULE OF HALVES ANALYSIS

1 PHASE ONE
Study planning

DEFINE THE TARGET POPULATION
Define the target population for the analysis

DEFINE THE GEOGRAPHIC SCOPE
Define the geographical area that the analysis will apply to

DETERMINE THE DATA NEEDED TO POPULATE A RULE OF HALVES
Consider how, and from where, data will be collected and if any ethnic approvals are required

2 PHASE TWO
Data collection

COLLECT NEW DATA
Collect new data for any of the data points where existing data is not available

USE EXISTING DATA
Where possible, use the existing data for each of the data points across the Rule of Halves

EVALUATE THE AVAILABILITY OF DATA
A Rule of Halves analysis can be based on existing data, new data (specifically collected for the analysis) or a combination of both

3 PHASE THREE
Data analysis

ANALYSE THE DATA
Analyse the data in preparation to populate the Rule of Halves

POPULATE THE RULE OF HALVES

PILLAR 1	PILLAR 2	PILLAR 3	PILLAR 4	PILLAR 5
How many people have diabetes?	Of all the people with diabetes, what percentage have been diagnosed?	Of all the people with diagnosed diabetes, what percentage receive treatment?	Of all the people with diabetes receiving treatment, what percentage achieve treatment targets?	Of all the people with diabetes achieving treatment targets, what percentage have good health outcomes?

4 PHASE FOUR
Reporting

PUBLISH
Consider publishing the results in a scientific peer-reviewed journal

PRODUCE A REPORT
On completion of the analysis produce a report, which can be used to record and share the findings

REFER TO THE **RULE OF HALVES HOW-TO GUIDE** FOR DETAILED GUIDANCE ON PERFORMING THE ANALYSIS

CITIES
CHANGING DIABETES

Cities Changing Diabetes is a partnership programme to address the urban diabetes challenge. Initiated by Novo Nordisk in 2014, the programme is a response to the dramatic rise of urban diabetes. The programme has been developed in partnership with University College London and Steno Diabetes Center Copenhagen, as well as a range of local partners including the diabetes and public health community, city governments, academic institutions, city experts from a variety of fields and civil society organisations.

The Cities Changing Diabetes programme is a commitment to push for urgent action against diabetes on a global scale. The programme is mapping the extent of the diabetes challenge in cities and working to generate an understanding of the drivers behind this pandemic.

The aim of the programme is to map the challenge, share solutions and drive concrete actions to fight the diabetes challenge in cities around the world.

JOIN THE GLOBAL FIGHT AGAINST URBAN DIABETES

CitiesChangingDiabetes.com
#UrbanDiabetes
@CitiesDiabetes

THREE RESEARCH METHODS

The Cities Changing Diabetes programme consists of three global research methods to map the challenge of diabetes in cities and understand its drivers. Introduction and How-To Guides have been developed for all three methods.

RULE OF HALVES
QUANTITATIVE METHOD

Mapping the extent of the challenge
The Rule of Halves analysis is a quantitative estimation of the diabetes burden in a specific population or community.

DIABETES VULNERABILITY ASSESSMENT
QUALITATIVE METHOD

Unveiling the social factors and cultural determinants
The Diabetes Vulnerability Assessment identifies the social factors and cultural determinants of diabetes among people living with type 2 diabetes.

URBAN DIABETES RISK ASSESSMENT
MIXED METHOD

Prioritising social factors and cultural determinants for intervention
The Urban Diabetes Risk Assessment is a comprehensive data collection and analysis instrument developed to explore priorities, attitudes, and shared points of view about diabetes, health and wellbeing among people living with diabetes.

ALL THREE RESEARCH MANUALS ARE AVAILABLE FOR DOWNLOAD AT
CitiesChangingDiabetes.com

REFERENCES

1. International Diabetes Federation. *IDF Diabetes Atlas. 7th edn.* 2015. **2.** UNDESA. *World Urbanization Prospects, the 2014 Revision, Highlights.* United Nations Department of Economic and Social Affairs. 2014. 978-92-1-151517-6. **3.** Hart JT. Rule of halves: implications of increasing diagnosis and reducing dropout for future workload and prescribing costs in primary care. *Brit J Gen Pract.* 1992;42:116–119.

This document was created for Cities Changing Diabetes and authored by Malene Bagger (Novo Nordisk) and Louise Hesseldal (Novo Nordisk), with contributions from David Napier (University College London) and Anna-Maria Volkmann (University College London).

novo nordisk® REGION H Steno Diabetes Center Copenhagen UCL

May 2017