



VANCOUVER,  
Canada



# URBAN DIABETES PRIORITY ASSESSMENT

## HOW-TO GUIDE



**Steno Diabetes Center  
Copenhagen**



# CITIES ARE A FOCAL POINT FOR TACKLING DIABETES

425 MILLION PEOPLE HAVE DIABETES WORLDWIDE<sup>1</sup>

**2/3** OF PEOPLE WITH DIABETES **LIVE IN CITIES**<sup>1</sup>

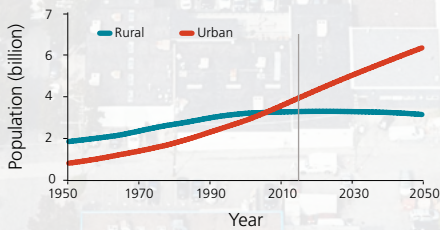


BY 2045, 736 MILLION PEOPLE WILL HAVE DIABETES<sup>2</sup>



**3/4** OF THEM WILL LIVE IN CITIES<sup>1</sup>

**URBANISATION** IS ONE OF THE **MOST SIGNIFICANT DEMOGRAPHIC SHIFTS** OF THE PAST CENTURY<sup>3</sup>





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# INTRODUCTION

THE INCREASE IN DIABETES IS ONE OF TODAY'S MAJOR HEALTH CHALLENGES, A GLOBAL EMERGENCY IN SLOW MOTION.

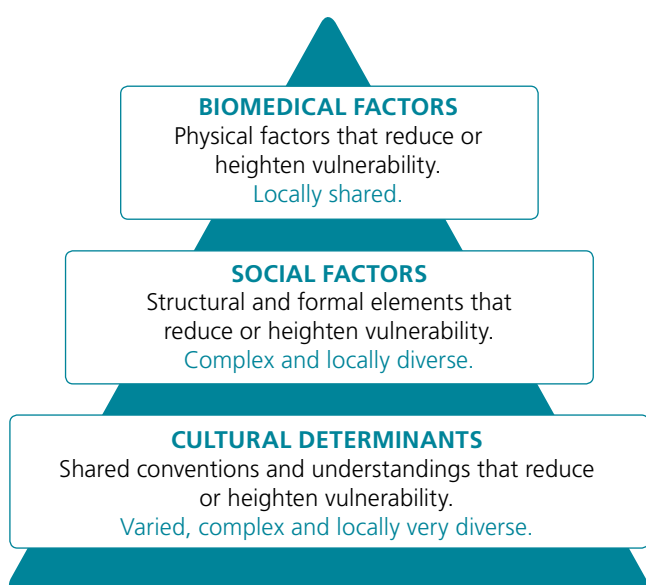
Worldwide, 425 million people are living with diabetes.<sup>1</sup> Without concerted action this is estimated to rise to 736 million by 2045.<sup>2</sup> Today, more than half of the world's population live in urban areas,<sup>3</sup> including two-thirds of people with diabetes.<sup>1</sup> This makes cities an important focal point for studying and tackling diabetes. However, taking action requires a better understanding of what drives diabetes in urban areas.

## DRIVERS OF THE DIABETES PANDEMIC

Although each person starts out with their own genetic health profile, several social factors and cultural determinants come into play in an individual's overall health throughout their life (Figure 1). Together, these factors impact the way people live their lives and their risk for developing type 2 diabetes, as well as influence the outcome of treatment and care of people who already have diabetes.

Increasingly, social factors and cultural determinants are recognised for their relationship with the soaring incidence of type 2 diabetes, as well as the opportunities they present for us to counter it.

FIGURE 1 THE UNDERLYING DRIVERS OF THE DIABETES PANDEMIC<sup>4</sup>



## CITIES CHANGING DIABETES PROGRAMME

Cities Changing Diabetes 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 problem, share solutions and drive concrete actions to fight the diabetes challenge in cities around the world.

## RESEARCH METHODS



### RULE OF HALVES

QUANTITATIVE METHOD FOR 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 FOR UNVEILING THE SOCIAL FACTORS AND CULTURAL DETERMINANTS OF DIABETES

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



### URBAN DIABETES PRIORITY ASSESSMENT

PRIORITISING SOCIAL FACTORS AND CULTURAL DETERMINANTS TO INFORM INTERVENTIONS

The Urban Diabetes Priority Assessment is a comprehensive data collection and analysis instrument developed to explore priorities, attitudes, and shared points of view about diabetes, health, and wellbeing of people living with diabetes.

## INFOBOX 1 A MULTI-PARTNER INITIATIVE

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.

To learn more about the Cities Changing Diabetes programme visit [CitiesChangingDiabetes.com](https://www.citieschangingdiabetes.com)

## THE URBAN DIABETES PRIORITY ASSESSMENT

The Urban Diabetes Priority Assessment is a comprehensive data collection and analysis instrument developed for the Cities Changing Diabetes programme to explore shared priorities, attitudes, and points of view among people with type 2 diabetes.

The Urban Diabetes Priority Assessment draws on the principles of *Q-methodology*, which since its inception in 1935,<sup>5</sup> is increasingly being used by researchers exploring health-related decision-making and behaviours because its results are practice-oriented and can be communicated effectively.<sup>6</sup>

The Urban Diabetes Priority Assessment combines qualitative and quantitative research techniques to explore the impact and relevance of eight social factors and cultural determinants of diabetes among participants from Cities Changing Diabetes partner cities. These eight factors and determinants were identified through the Diabetes

Vulnerability Assessment, which was conducted in five cities participating in the Cities Changing Diabetes programme; Mexico City, Copenhagen, Houston, Tianjin and Shanghai (Info box 2).

### Why perform an Urban Diabetes Priority Assessment?

The Urban Diabetes Priority Assessment enables cities to establish a local research platform to inform future interventions and policies, while at the same time contributing to the global Cities Changing Diabetes research platform for understanding the social-cultural drivers of diabetes. The Urban Diabetes Priority Assessment, therefore, enables cities to prioritise specific local social factors and cultural determinants relevant to diabetes. Through a deeper understanding of how the social factors and cultural determinants of diabetes are played out in cities, specific barriers and opportunities for successful diabetes prevention, care and management can be identified and tailored to specific target groups.

## INFOBOX 2 EIGHT FACTORS AND DETERMINANTS IDENTIFIED THROUGH THE DIABETES VULNERABILITY ASSESSMENT

### SOCIAL FACTORS

-  **FINANCIAL CONSTRAINTS**  
Limited financial resources may become a barrier to access health-promoting resources such as paying for healthy food, healthcare, health insurance, and exercise as well as feeling stressed and hopeless.
-  **TIME CONSTRAINTS**  
Time-consuming family and work obligations and a long commute may become barriers to health-promoting lifestyle choices such as seeking healthcare, exercising, sourcing healthy food as well as feeling stressed and socially isolated.
-  **RESOURCE CONSTRAINTS**  
Low education level, lacking knowledge of existing health resources, and scarcity of healthcare provisions (eg, medicines and healthy foods), and limited possibilities to exercise may be barriers to health-enhancing decision-making and individual actions to improve personal health.
-  **GEOGRAPHIC CONSTRAINTS**  
Unfavourable climate, high pollution and crime levels and lack of infrastructure (eg, basic roads, access to water) may become barriers to health-promoting activities such as walking, outdoor exercises and drivers of isolation and loneliness.

### CULTURAL DETERMINANTS

-  **TRADITIONS AND CONVENTIONS**  
Traditions and conventions have direct consequences on health and wellbeing. Traditional gender roles, unhealthy food traditions, and use of healthcare only in emergency situations may become barriers to effective self-care, healthy eating, and optimal healthcare.
-  **HEALTH AND ILLNESS**  
The way health and illness are understood shape the perception of health and wellbeing. The perception of diabetes as less severe than other social and health issues, the misconception of own health and disease, the mistrust in healthcare providers, and the feeling of stigma may be barriers to optimal care seeking behaviour and lifestyle modification.
-  **SELF AND OTHERS**  
A person's understanding of self, in relation to others, contributes to health and wellbeing. Environments, where large body size is accepted as normal, may create a scenario where slimming is perceived as unnecessary. In contrast, when normal body size is favourable, obesity may become a barrier to activities such as going to the gym.
-  **CHANGE AND TRANSITION**  
Experiencing change and transition may have physical and psychological consequences. Living in rapid growing cities or neighbourhoods that undergo constant changes, and migrating from rural to urban settings are often worrying and stressful and may become barriers to optimal health outcomes. Especially, memories of hunger and resource shortages can create an environment that is obesogenic.



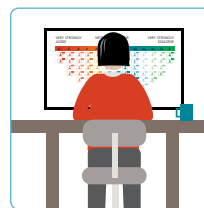
## STEP-BY-STEP GUIDE TO CONDUCTING AN URBAN DIABETES PRIORITY ASSESSMENT

The following section provides guidance on how to implement an Urban Diabetes Priority Assessment. The Assessment consists of two data collection components. The first component is a computer based Q-sort, where participants with type 2 diabetes prioritise a set of 64 statements, which reflect the eight social factors and cultural determinants, according to their personal preference. The second component, conducted through focus groups, facilitates in-depth exploration of the outcome of the Q-sort with selected participants from the Q-sort session.

The Urban Diabetes Priority Assessment assessment is guided by three overall research questions:

- What characterises the participants in terms of their needs and capabilities regarding diabetes, health and wellbeing?
- What are the social factors and cultural determinants that matter most to people with diabetes in a given city?
- How do components of those factors and determinants create specific barriers to and opportunities for successful diabetes prevention; better diabetes care and management, as well as improved wellbeing?

**FIGURE 2** THE TWO DATA COLLECTION COMPONENTS OF THE URBAN DIABETES PRIORITY ASSESSMENT



**A COMPUTER-BASED Q-SORT DRIVES THE ONLINE SURVEY**  
Assess the importance of each social factor and cultural determinant using the Q-sort methodology



**FACE-TO-FACE FOCUS GROUPS**  
Explore the findings from the Q-sort in detail to understand better how social factors and cultural determinants impact behaviour



### NEW INSIGHTS

Findings from the Q-sort and focus group provide into how the social factors and cultural determinants of type 2 diabetes play out in a given city, which can inform interventions and policies within prevention, treatment and management of diabetes

# ROADMAP

## TO PERFORMING AN URBAN DIABETES PRIORITY ASSESSMENT



1

### PHASE ONE Plan the study



#### DEFINE THE FOCUS OF THE LOCAL STUDY

Consider if there are any sub-populations that research should centre around



#### DOWNLOAD AND TEST THE REQUIRED SOFTWARE

Three software packages are required for the Urban Diabetes Priority Assessment



#### DETERMINE THE DETAILS FOR THE DATA COLLECTION

Consider how and where data will be collected



#### ANALYSIS I: ANALYSE THE Q-SORT DATA

Conduct a factor analysis to show similarities between the participants' sorting of the statements

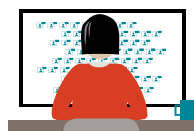
#### DATA COLLECTION I: Q-SORT

There are two main components to the computer-based Q-sort data collection



#### 2<sup>ND</sup> SORTING

Participants are instructed to sort these statements, per their personal preference, into the forced distribution sorting matrix



#### 1<sup>ST</sup> SORTING

Participants are presented with a set of 64 pre-determined statements, which they rank along a continuum of preference

### PHASE TWO Q-Sort data collection and analysis

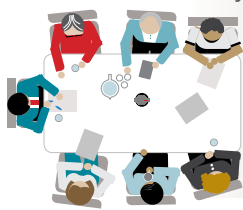
2



#### RECRUIT PARTICIPANTS FOR THE Q-SORT

3

### PHASE THREE Focus group data collection and analysis



#### DATA COLLECTION II: FOCUS GROUP

Planning for the focus group involves a number of elements

Determine the number of participants, finalise an interview protocol and schedule people to lead the focus group

Recruit six to ten participants from the Q-sort phase of the study

The focus group session should be audio- or video-recorded



#### ANALYSIS II: ANALYSE THE FOCUS GROUP DATA

Process the focus group transcripts using Computer-assisted qualitative data analysis software (CAQDAS)

#### ANALYSIS II: ANALYSE THE DATA FROM THE FOCUS GROUP

Interpret the study findings

Analyse the data from the focus group

Analyse the data from the focus group



### PHASE FOUR Final analysis

4

In the final analysis, the results from both the Q-sort and the focus group analyses are synthesised into a set of study findings, which are subsequently interpreted

5

### PHASE FIVE Report the research findings



#### PRODUCE A RESEARCH REPORT

On completion of the Urban Diabetes Priority Assessment data collection and analysis, an internal research report is produced

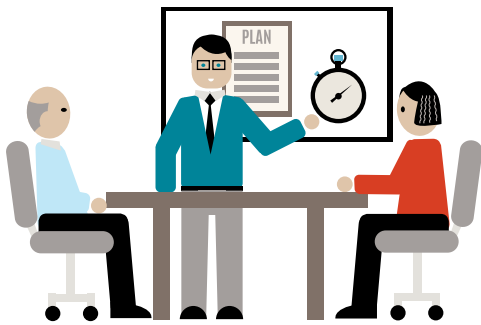


#### PUBLISH

Consider publishing the results in a scientific peer-reviewed journal and presenting the findings at conferences and meetings



# PHASE ONE PLAN THE STUDY



## DEFINE THE FOCUS OF THE LOCAL STUDY

While the global Urban Diabetes Priority Assessment is designed to focus on people with type 2 diabetes, local research interests may centre around specific sub-populations (such as young adults with type 2 diabetes, or those considered vulnerable regarding diabetes management, etc). Recruiting a diverse participant set for the Urban Diabetes Priority Assessment will enable the research team to explore their specific needs, especially within sub-populations.

## DOWNLOAD AND TEST THE SOFTWARE

For the Urban Diabetes Priority Assessment three software packages are needed:

- *Q-sortware* for the Q-sort data collection and management
- *PQmethod* for the Q-sort analysis
- *NVivo* for the focus group analysis

### SOFTWARE FOR Q-SORT DATA COLLECTION AND MANAGEMENT

*Q-sortware*<sup>7</sup> is the recommended software for conducting the Q-sort data collection phase. It is a customisable and user-friendly web-based software tool that allows participants to conduct the Q-sort on a computer or tablet. A Cities Changing Diabetes-specific set-up already exists with statements and instructions pre-loaded and the set-up can be adapted according to local priorities. The software allows for easy management of data and produces a variety of outputs for data analysis. Training and basic instructions can be provided by the software provider. The software is free-of-charge and available for Windows and OS X.

### SOFTWARE FOR Q-SORT ANALYSIS

*PQmethod*<sup>8</sup> is recommended for the statistical analysis of the Cities Changing Diabetes Q-sorts. *PQmethod* is developed for Q-studies and is the most commonly used software. *PQmethod* enables researchers to run factor analysis with *Centroid* or *Principle Component Analysis*. A step-by-step guide for how to run the analysis using *PQmethod* can be accessed at <http://schmolck.userweb.mwn.de/qmethod/pqmanual.htm>. The output is an extensive report with a variety of tables on factor loadings, statement factor scores and discriminating statements for each of the factors as well as consensus statements across factors. The software is free-of-charge and available for Windows and OS X.

### SOFTWARE FOR ANALYSIS OF THE FOCUS GROUP TRANSCRIPTS

*NVivo* software is recommended for analysing focus group transcripts from the focus group sessions. Focus group transcripts are best processed using *Computer-assisted qualitative data analysis software (CAQDAS)*, which helps to archive, organise and code data, and to facilitate analysis. *CAQDAS* enables the researcher to associate codes (or labels) with salient data in a transcript and greatly aids analysis and interpretation.

*NVivo* is a widely used qualitative data analysis computer software package produced by QSR International. It has been designed for qualitative researchers working with very rich text-based and multimedia information, where deep levels of analysis on small or large volumes of data are required. The software is available for purchase on QSR International's website for both Windows and OS X.

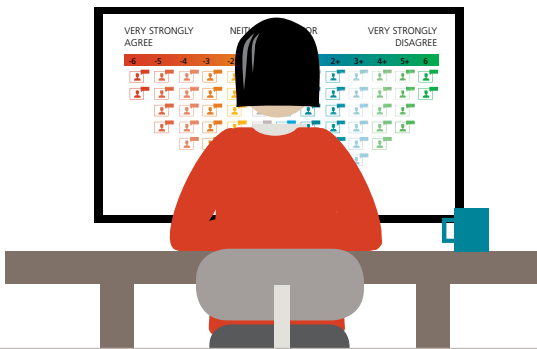
## DETERMINE DETAILS OF THE DATA COLLECTION PROCEDURES

### DATA COLLECTION I: Q-SORT

Participants are expected to conduct the Q-sort at home, using a computer or tablet (eg, iPad). To facilitate this, instructions, along with a hyperlink, need to be distributed to participants. The primary advantage of conducting a computer-based Q-sort versus a paper-based Q-sort is that it requires fewer resources and logistical considerations. Furthermore, if participants complete the Q-sort at home, they have time to independently consider the personal meaning of each statement.







### RECRUIT STUDY PARTICIPANTS FOR THE Q-SORT

#### NUMBER OF PARTICIPANTS

A Q-methodological study involves a limited number of participants. In keeping to a smaller number, an emphasis on quality can be maintained; and pattern and consistency can still be detected mathematically within the data.<sup>9</sup> There must be enough participants to establish the existence of a factor for purposes of comparing one factor with another in a statistically significant fashion.<sup>10</sup> At the same time, the participant number should not exceed the number of statements to safeguard the validity of the factor analysis.<sup>11</sup>

For the Urban Diabetes Priority Assessment, between 50–60 participants are recommended. However, as not all participants will necessarily deliver an analysable Q-sort, it is recommended to aim for 60 participants. Including around 60 participants ensures that the statement number (of 64) is not exceeded and that enough participants can be associated with each of the eight social factors and cultural determinants to allow for meaningful interpretation of the findings.

#### PARTICIPANTS SELECTION AND INCLUSION CRITERIA

It is important to create a high level of diversity in opinion and experience among the group of participants so that differing viewpoints are meaningfully represented across individual Q-sorts. An iterative, stratified purposive sampling approach is therefore applied to ensure a diverse range of sociodemographic backgrounds. Stratified purposive sampling is similar to stratified random sampling. To obtain a stratified purposive sample, the sampling frame is first divided into strata; then a sample is selected from each stratum.<sup>12</sup> For the Urban Diabetes Priority Assessment, the sampling frame is people living with type 2 diabetes in a given city who are 18 or older.

These are the two main selection criteria, and diversification is then ensured through selection from the following strata:

1. Diabetes
  - Recent diagnosis (within the last 12 months)
  - Older diagnosis
  - Self-reported poor management good management
2. Age
  - Age I (18-25)
  - Age group II (26-35)
  - Age group III (36-44)
  - Age group IV (45-55)
  - Age group V (56-65)
  - Age group VI (66-80)
  - Age group VII (80+)
3. Ethnic group
  - Based on local experience and situation, a mix of several of the most study-relevant ethnic groups is ideal
4. Family situation
  - This should include people with and without family responsibilities (eg, mix of people with children, no children, single or married/cohabitating)
5. Residence
  - We strongly encourage sampling across different areas in the respective city
6. Employment
  - Working
  - Not working
  - Seeking work
  - Retired
  - In training/at school, etc.
7. Income level
  - Locally relevant brackets (very low/low/intermediate/high)
8. Insurance and benefits
  - Insured
  - Uninsured
  - Recipient of local benefits (long-term/short-term)
9. Health-related data
  - Number of sick days (never, 3 days, > 3 days)
10. Chronic conditions present/not present
11. Medication needed/not needed
12. Weight/Height ratio (BMI): underweight/normal/overweight/obese

An even selection of participants across the various strata is ideal, but probably not achievable. For example, in a hypothetical group of 60 Urban Diabetes Priority Assessment participants, it would be ideal to have 30 women and 30 men, with a somewhat even spread across the seven age groups (4/4/4/4/4/5/5).

Clearly, this does not reflect the reality of participant recruitment. Selection from within the strata is to be taken as guidance and principally serves to ensure that the sample is as diverse as possible to ensure the likelihood of diverse viewpoints.

### PRE-URBAN DIABETES PRIORITY ASSESSMENT QUESTIONNAIRE

A Pre Urban Diabetes Priority Assessment questionnaire has been developed to support the purposive participant selection process. The questionnaire serves a dual purpose – as a participant selection tool and as a data collection tool – that will inform analysis and aid the characterisation of factors and subgroups.

The Pre Urban Diabetes Priority Assessment Questionnaire (Appendix 5) is an online survey, which is part of the Q-sort software. Overall, the questionnaire seeks to capture standard demographic information relating to:

1. Age, gender, place of birth, ethnicity, family situation
2. Current residential area and related data
3. Employment and level of education
4. Main mode of transport, daily commute, availability of free time
5. Insurance, state or government benefits, income
6. Health-related data (chronic conditions, medication, sick days, height, weight)
7. Diabetes-related data (management, time since diagnosis)

A link to the Pre Urban Diabetes Priority Assessment questionnaire is emailed to potential participants or posted in appropriate online fora. Where and how to circulate the questionnaire depends on the participant population and local circumstances. However, it is recommended that the questionnaire is accessible either on a website to which potential participants are directed or circulated directly via email among the intended participant population. Aim for a cut-off point of + 50% to ensure enough participants are recruited.

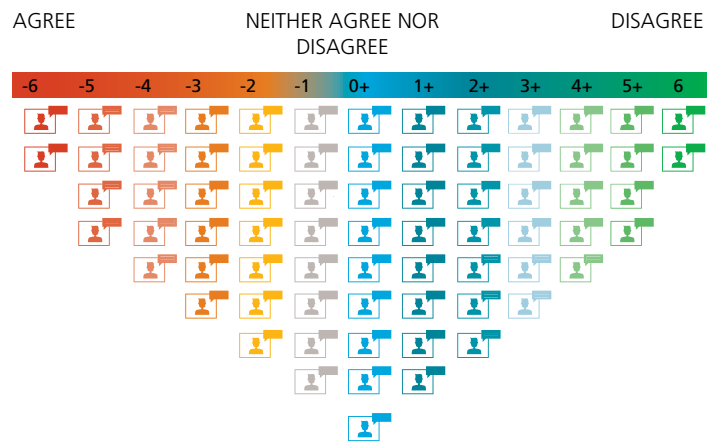


## DATA COLLECTION I: Q-SORT

There are two main components to the Q-sort data collection. First, participants are presented with a set of 64 pre-determined statements reflecting the eight social factors and cultural determinants of type 2 diabetes, which they sort according to their personal preference into three categories: agree, neither agree nor disagree and disagree. Then participants are instructed to refine the initial sorting by placing the statements into a forced distribution sorting matrix (- 6 to + 6) (see Figure 3). A forced distribution

sort allows for prioritisation of specific information while creating an integrated, global ‘picture’ of individually held attitudes and beliefs. The layout of the matrix encourages participants to relate the statements to one another, and to think carefully about which statements should take priority over others.

FIGURE 3 FORCED DISTRIBUTION SORTING MATRIX



### INFOBOX 4 CONDUCTING THE ONLINE Q-SORT WITH Q-SOFTWARE

The below steps describe the process of completing the Q-sort electronically using *Q-sortware*. The software takes participants through each stage of the process and allows for fully customisable instructions throughout the process. Once participants have completed the Q-sort, the research team receives: 1) the sorted statements as a statistically analysable Excel file; 2) a file with all qualitative statements; and 3) additional information such as the amount of time it took for a participant to complete the sort.

1. Once a participant is selected for participation in the study, they will be notified via email and provided with a link to the *Q-sortware* website.
2. Participants log onto the website with their individual access name and password.
3. A welcome screen appears with basic instructions and a video explaining the Q-sort process.
4. The participant performs an initial sort of all the statements into three categories (agree, neither agree nor disagree, very strongly disagree).
5. Once this has happened, the participant moves to the next stage and arranges the pre-sorted statements into the six-column matrix (-6 to +6).
6. Once all statements are sorted, the participant can comment on any statements with open-ended responses and to provide general feedback. This is not a requirement for finishing the Q-sort, but experience has shown that participants frequently provide useful input.
7. It is also possible to ask participants to comment only on the statements that were placed in the extremes of the funnel shape (ie, those statements they agreed or disagreed with most).
8. Once the data collection is complete, a final page is shown with a thank you note and an explanation of the next steps provided.



# ANALYSIS I: ANALYSIS OF THE Q-SORT DATA

The Q-sort data is analysed by conducting a factor analysis which shows similarities between participants' sorting of the statements. The factor analysis is completed by using the statistical software *PQmethod*.

The software will conduct the factor analysis and produce a series of outputs describing the participant Q-sorts, the factors, the factor arrays and the factor correlations. Based on the statistical output, it will be possible to interpret which statements mattered most to participants and identify trends across participants.

The key to a successful Urban Diabetes Priority Assessment lies in thorough factor interpretation and description. Most importantly, factor interpretation is an iterative process that requires the researcher to consider each factor; the respective factor array (factor scores), and the Q-sorts that load onto that factor (ie, the participants that are represented by that factor). If the various statement rankings, participant comments and demographic information are effectively combined, a clear interpretation of each factor should emerge.

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## INFOBOX 5 DATA OUTPUTS FOR FACTOR INTERPRETATION

**Factor interpretation is commonly based on the following data outputs:**

- A table listing the loadings of all participant Q-sorts on all factors. Statistically significant factors are marked with a star (\*).
- A list of eigenvalues and the percentage of the study variance explained by each factor, which is used to evaluate the validity of factor analysis from a statistical point of view. Only factors with an eigenvalue of 1.00 or higher are commonly interpreted. For a detailed discussion, see Watts and Stenner, 2012.<sup>11</sup>
- A table with the factor correlations, which shows the inter-correlations of the various factor arrays.
- The factor arrays (also called item scores or factor scores), which show the collective point of view of a group of participants and are an idealised representative of each factor.

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## PRINCIPLES OF ANALYSIS

The outcome of the Q-sort analysis is the production of a set of factors onto which the participants 'load' (ie, that they are associated with mathematically) on the basis of the statement configurations they have created when engaging in the sorting procedure. In other words, two participants that 'load' onto the same factor will have created very similar statement configurations. Each distinct factor captures a different statement configuration which is shared by (and which is characteristic of) the participants who load onto that factor.

Only factors that fulfil certain statistical criteria (Table 1) and that have at least two statement sorts that load onto them are typically maintained. Importantly, a factor estimate is generated through a procedure of weighted averaging (this occurs automatically with *PQmethod*). In effect, the Q-sorts

of all participants that load significantly onto a given factor are merged to yield a single factor exemplifying Q-sort. This serves as an interpretable 'best-estimate' of the pattern or statement configuration characterising that factor.

## FACTOR INTERPRETATION

Factors are initially compared-and-contrasted by the statements placed at the extreme ends (most disagree/ most agree) of the 'best-estimate' Q-sort (the so-called factor array) produced for each factor in the factor analysis. A very useful approach to the compare-and-contrast phase is to create a table with all factors and the statements at the extremes; this provides an immediate overview of the main results.

However, it is also important to take a holistic view of the items in the factor array. Significant findings can occur in the supposedly 'neutral' area of the factor array configuration. Therefore, it is important to take into consideration the statement rankings in this area to capture the subtleties of the viewpoints being expressed by participants.

The factors are regarded as the participants sub-groups, as each factor represents a set of Q-sorts grouped together based on statistical similarity. A sub-group is characterised by taking into account the shared point of view and demographic characteristics of a group.

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## INFOBOX 6 HYPOTHETICAL FACTOR GROUPING

A hypothetical Factor A may include mostly Q-sorts from female participants who are overweight but not obese, moderately active, with few diabetes complications (note that factor characteristics may not always be very clearly delineated). Qualitative comments collected as part of the Q-sort might include:

- Referring to "It is my fault that I now have diabetes" at [+6, very strongly agree], a comment might be:
  - "Yes, and don't I blame myself for how I messed up my health every day!" or,
  - "True, but it also means I can now make an effort to stay as healthy as I can".
- Referring to "I think that diabetes is inherited" at [-6, very strongly disagree], a comment might be
  - "That's just an excuse – we all are responsible for our own health", or people who say that they are "just lazy."

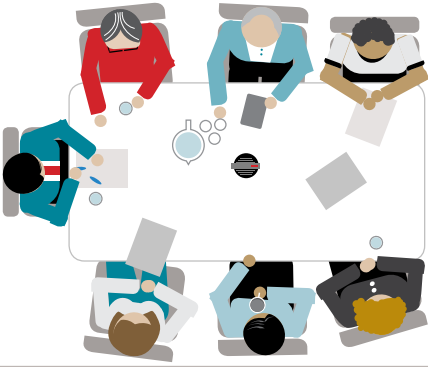
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It is customary to introduce a group description to each factor/subgroup as it helps to identify groups clearly. The labelling of the factor/subgroup should reflect the demographic make-up and priority statements. For example, labels such as Moderately Active Women, Realistic Women, or Women with a Sense of Ownership, and so forth may be used. Importantly, the label should be descriptive, but also serve to differentiate between the different factors or sub-groups. For example, if factor A is the only sub-group with a majority of women, it makes sense to emphasise gender. If the overall group mostly consists of women, then a label emphasising gender is less meaningful.



**TABLE 1** ILLUSTRATIVE EXAMPLE OF ITEM SCORES FOR AN URBAN DIABETES PRIORITY ASSESSMENT

| STATEMENTS  | A  | B  | C  |
|---|----|----|----|
| 1 Diabetes is the least of my worries   | -5 | +4 | +3 |
| 2 I worry about the cost of my diabetes   | -4 | +2 | -3 |
| 3 The way I make decisions about my healthcare is mostly dependent on how much money I have         | +1 | -3 | -4 |
| 4 When it comes to buying food, I think that quantity is more important than quality                | -1 | -5 | -1 |
| 5 Healthy foods are a luxury  | -4 | -4 | -6 |
| 6 Spending money on exercise classes or the gym is something I find difficult to do                 | +1 | +3 | -3 |
| 7 Not having enough time makes people sick  | -1 | +4 | +2 |
| 8 If I had more time I'd exercise regularly   | -3 | -2 | +1 |
| 9 I just don't have the time to buy and cook healthy food   | -6 | +5 | -4 |
| 10 Diabetes support groups may be helpful but I don't have time to participate                      | +5 | -1 | +4 |
| 11 Taking care of others takes up most of my free time  | -2 | -6 | -4 |
| 12 I just don't have the skills to cook healthy meals   | -5 | -1 | -1 |
| 13 For me, it's easy to learn about diabetes  | -1 | +1 | +1 |
| 14 I think that diabetes or health-related support groups are pointless                             | +3 | -1 | 0  |
| 15 Where I live, fresh groceries are hard to get  | +2 | 0  | -5 |
| 16 Living in the city is stressful and harmful to my health and wellbeing                           | 0  | -4 | +1 |
| 17 I'd rather live elsewhere, but I have to live where I do because of work                         | +2 | 0  | -1 |
| 18 I am quite concerned about air pollution   | +6 | -1 | +4 |
| 19 I think that where I live it's not very safe to be out alone                                     | 0  | +1 | -2 |
| 20 The climate where I live makes it really hard for me to want to walk or go somewhere by bicycle  | 0  | -4 | -5 |
| 21 For me, it is important that I can get around by bike or on foot easily                          | -5 | 0  | 0  |
| 22 I like certain foods or dishes especially because they remind me of my childhood                 | 0  | -5 | +1 |
| 23 Cooking for those I love is a way of showing that I care for them                                | -1 | -2 | +6 |
| 24 When my family or my friends and I meet, we eat!   | +1 | +1 | +4 |
| 25 When I am by myself I often eat food that is not very healthy                                    | -3 | +3 | -2 |
| 26 When I eat out together with friends I usually end up eating unhealthy foods                     | -6 | 0  | -2 |
| 27 I often feel lonely  | +1 | -3 | -1 |
| 28 To me, food is about more than just calorie intake   | +3 | -6 | +6 |
| 29 Society puts a lot of pressure on women to be slim   | 0  | 0  | +3 |
| 30 I need my friends and social life to feel happy  | -2 | -1 | 0  |
| 31 Being alone does not mean being lonely   | 0  | +3 | +1 |
| 32 I tend to prioritise the needs of others over my own   | -1 | -1 | +2 |
| 33 Men tend to be less interested in taking care of themselves than women                           | +4 | -2 | +2 |
| 34 I have some health concerns that are more important to me than my diabetes                       | -2 | +1 | +4 |
| 35 With today's medicine, diabetes is not a scary illness anymore                                   | +6 | 0  | -1 |
| 36 Diabetes is a disease of overweight people   | +1 | +2 | -3 |
| 37 It is my fault that I now have diabetes  | -4 | -3 | +5 |
| 38 If I had known what having diabetes is like I would have tried harder to avoid becoming diabetic | -2 | +2 | +5 |
| 39 If I really had to, I could adjust to a healthy lifestyle  | -3 | +1 | +1 |
| 40 I usually do what my doctor tells me to do   | +4 | +5 | -2 |
| 41 I avoid socialising because of my diabetes   | -1 | -4 | 0  |
| 42 I find it helpful to talk with other people about my diabetes                                    | +2 | +4 | -5 |
| 43 The modern world makes us ill  | +3 | +1 | -3 |
| 44 Feeling integrated in a community is important to me   | -2 | -3 | -3 |
| 45 Changes in my neighbourhood worry me   | -3 | -1 | -4 |
| 46 I don't really trust health services or doctors  | 0  | +5 | 0  |
| 47 Everybody just seems to be a bit bigger nowadays   | +4 | +4 | -2 |
| 48 My weight does not matter to me, because I feel like a healthy person                            | +1 | +3 | +2 |
| 49 Overweight people are often lazy   | 0  | +2 | -1 |
| 50 I am too embarrassed to go to the gym because of how I look                                      | 0  | +6 | +3 |
| 51 Compared to others, I take good care of myself   | -4 | +1 | +3 |
| 52 I know who I can trust with my health care   | +2 | -3 | 0  |
| 53 I generally trust the government   | 0  | +2 | 0  |
| 54 'Fitness freaks' have no joy in life   | +5 | +6 | +1 |
| 55 I think that diabetes is inherited   | +1 | 0  | -2 |
| 56 I think that diabetes is a death sentence  | +2 | -2 | 0  |
| 57 Most days, I feel good about my future   | -2 | 0  | +5 |
| 58 At this point in my life, I feel like the choices I make are my own                              | -1 | 0  | +2 |
| 59 I get annoyed or upset with myself if I don't do enough for my health                            | +3 | -2 | -1 |
| 60 If I decide to be overweight or not exercise enough, that should be my choice                    | +3 | 0  | +2 |
| 61 We owe it to society to be fit and healthy   | +2 | -5 | -6 |
| 62 Being unhealthy means you've given up on life  | +5 | +2 | 0  |
| 63 Managing diabetes well is simply a matter of making the right choices                            | +4 | -2 | +3 |
| 64 My church is my rock   | -3 | +3 | 0  |



### DATA COLLECTION II: FOCUS GROUP

The objective of the focus group is to explore further the outcomes of the factor analysis with the participants. Therefore, the set-up of the focus group depends on the outcomes of the analysis and interpretation of the Q-sorts. The number of factors, as well as the number of exemplars in the participant group, will impact the set-up of the focus groups regarding participant numbers, planning and conducting of the session. Furthermore, the analysis of the Q-sorts may yield some unexpected or surprising findings and may require some adjustments concerning the overall study focus and focus group discussion points.

Planning for the focus group involves determining the number of participants, creating a detailed interview protocol and identifying and scheduling people to lead and organise the discussion. It is recommended that someone takes responsibility for ensuring all focus group logistics run smoothly, this includes finding an appropriate location, inviting focus group participants, ensuring the focus group event is well organised, and that recording devices are available.

#### PARTICIPANTS OF A FOCUS GROUP DISCUSSION

The following people play an important role in the execution of the focus group:

- **A designated facilitator** from the research team who leads the focus group session.
- **Two to three research team members**, depending on the size of the focus group, are needed to provide support and take notes. Ideally, one or two people are responsible for making general observations, while a third person provides direct support to the facilitator by following up on questions from the interview guide and providing 'real-life' feedback.
- **Six to ten participants** from the Q-sort phase of the study. Note that the size of the Urban Diabetes Priority Assessment focus group is, to a certain extent, impacted by the number of factors that were

generated by the factor analysis; however, a commonly applied rule of thumb suggests that between six to 10 participants are ideal. The participants recruited must represent the various exemplars identified in the factor analysis.

- **External stakeholders** (optional) from the city could be included to exchange ideas on relevant diabetes interventions and broaden the potential impact of the study.

#### FOCUS GROUP INTERVIEW PROTOCOL AND SCHEDULE

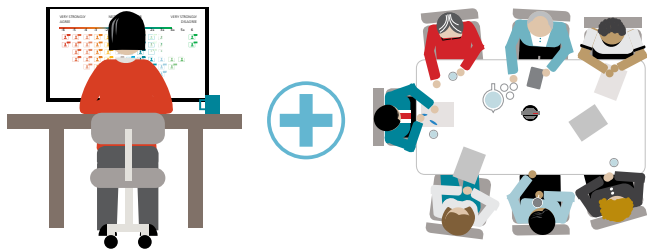
The structure and objectives of the focus group discussions should be pre-defined in the focus group interview protocol. A focus group protocol typically includes an overview of planned activities, a detailed schedule (Appendix 3) and a semi-structured interview guide for relevant parts of the session (Appendix 4). The protocol should be agreed upon with the research team to ensure that all relevant topics are included.

Below is an overview of the discussion sessions, which are typically included in a focus group interview protocol:

1. **DISCUSS THE STATEMENTS FEATURED IN THE Q-SORT**
  - Participants should have commented in writing on the most salient Q-sort statements during the Q-sort data collection phase. These comments may then be anonymised and used as 'discussion starters' in the actual focus group sessions.
  - Participants should discuss how the Q-sort statements affect them and others in their community, how the Q-sort statements make them feel and how they are impacted by the statements on a practical level.
2. **DISCUSS THE RESULTS OF THE FACTOR ANALYSIS, INCLUDING FACTORS AND FACTOR DESCRIPTIONS**
  - This will provide insight into a) whether participants find themselves well represented by the factors and b) whether participants agree or disagree with the preliminary characterisation of the factors.
3. **OPEN DISCUSSION OF PARTICIPANTS' EXPERIENCE LIVING WITH DIABETES IN THE SELECTED CITY**
  - This is an opportunity to understand better the potential barriers to and opportunities for successful diabetes prevention; care and management, as well as improved wellbeing. This discussion should go beyond what was already explored in the Q-sort.







### ASSEMBLE AND INTERPRET ALL RELEVANT DATA

Once factors have been established, and themes from the focus groups identified, the final analysis can take place. In the final analysis, the results from both the Q-sort and the focus group analyses are synthesised into a set of study findings and the subsequent interpretation of those findings.

Final analysis requires that the research team has prepared the following:

- The results from the Q-sort
  - The various factors that have emerged and what characterises them
  - Priorities of various participants as evidenced by the factors
  - Individual Q-sorts that represent each factor
- The results from the focus groups
  - Insights relating directly to the Q-sort (comments and clarifications)
  - Themes that were identified relating to the experience of living with diabetes in the respective partner city
  - If applicable, insights generated in the stakeholder workshop
- Relevant demographic data for all participants

Before initiating the final analysis, it is important that the results from the Q-sort are updated following the completion of the focus groups. The focus group sessions provide participants with an opportunity to comment on the Q-statements, clarify their rationale for ranking the statements and comment on the preliminary results from the factor analysis. Therefore, relevant information may be conveyed during the focus group sessions, which could enhance the quality of the results of the Q-sorts.

For example, participants in the focus groups are invited to comment on the statements at the extreme ends (ie, most agree/most disagree) of the Q-sorts. These comments, especially when integrated as verbatim quotes into the results section, can more clearly illustrate why the statement is ranked where it is and how the statement impacts participants associated with that factor. Furthermore, there may be discrepancies between the results of the factor analysis and the participants' point of view as voiced in the focus group. It is then essential to identify what the sources for this might be and identify strategies to address this, eg, through re-analysis of the data, additional expert consensus meeting, or simply a description of findings.

Once the results of the Q-sort and focus groups are established, the final analysis provides an opportunity to collate all salient data and organise the data around three key points to establish the study findings:

1. Which data contributes to answering the set of research questions:
  - What characterises the participants regarding their needs and capabilities regarding diabetes, health and wellbeing?
  - What are the social factors and cultural determinants that matter most to people with diabetes in the city?
  - How do components of those factors and determinants create specific barriers to, and opportunities for, successful diabetes prevention, better diabetes care and management; as well as improved wellbeing?
2. Which data constitutes new knowledge that has emerged from the study?
3. What is missing from the data, and what new questions may have been generated in the process that could impact future research?



# APPENDIX 1

## GLOSSARY

| Term   | Description   |
|--|---|
| Aetiology  | Aetiology (also: etiology) describes the cause or causes of a disease or abnormal (physical) condition as well as the branch of medical science dealing with the causes and origin of diseases.   |
| Array, factor array                                  | An array is a systematic arrangement of similar objects, usually in rows and columns. A factor array in Q-methodology is a composite (merged average) Q-sort generated by statistical means from participant Q-sorts that have been grouped together and are associated with a specific factor. The factor array may be presented in tabularised form or as a Q-sort. Factor arrays are essential for the interpretation of findings as they summarise the collective point of view, attitude or opinion of a group of participants and are an idealised representative of each factor.   |
| Coding   | Coding is a process by which collected data, in either quantitative form (such as questionnaire results) or qualitative form (such as interview transcripts) are identified, labelled and categorised to facilitate further analysis; it is the central aspect of any <i>data reduction technique</i> . Coding in qualitative research usually follows specific analytical strategies based on underlying theory and is carried out by hand or, more commonly, using <i>computer-assisted qualitative data analysis software</i> (CAQDAS).  |
| Computer-assisted qualitative data analysis software | Computer-assisted qualitative data analysis software (CAQDAS) refers to the application of specifically developed software programs to qualitative data sets. Through CAQDAS, researchers can archive, code, and analyse a great variety of non-numerical data, including but not limited to interview transcripts; other text sources, images, video, and sound.   |
| Correlation analysis                                 | Correlation analysis is a statistical analysis that measures the strengths of association between two variables. In statistics, the value of the correlation coefficient varies between +1 and -1. When the value of the correlation coefficient lies around $\pm 1$ , then it is said to be a perfect degree of association between the two variables. As the correlation coefficient value goes towards 0, the relationship between the two variables will be weaker. There are three types of correlations, or measures of association: Pearson correlation; Kendall rank correlation, and Spearman correlation. In Q-methodology, preferences for one type of correlation over another are largely considered theoretical; though slight preference is given to Spearman due to historical ties and origin of Q-methodology.  |
| Correlation coefficient                              | A correlation coefficient is a number that quantifies some type or degree of correlation and dependence, thus indicating the strength of statistical relationships between two or more variables or observed data values.   |
| Correlation matrix                                   | A correlation matrix is generated through statistical correlation analysis and enables researchers to investigate the dependence between multiple variables at the same time. The correlation matrix is presented as a table containing the <i>correlation coefficients</i> of each variable in relationship to all others in a data set.   |
| Demographics, demographic data                       | Data relating to the statistical study of human populations especially concerning size and density, distribution, and vital statistics, such as age, gender, income level, and so on. In Q-methodology, demographic data is used in the process of participant sampling and for analysis and interpretation of findings.  |
| Diabetes, Type 1                                     | Type 1 diabetes is at times referred to as insulin-dependent diabetes or juvenile-onset diabetes as it commonly occurs and is diagnosed in childhood and adolescence. In type 1 diabetes, an autoimmune response to $\beta$ -cells (the insulin-producing cells of the pancreas) occurs and the cells subsequent destruction leads to an absolute deficiency of insulin and thus to chronic hyperglycaemia (abnormally high blood sugar levels). Around 5% of those with diabetes have type 1 diabetes, although incident rates have been shown to be rising. The <i>aetiology</i> and natural history of type 1 diabetes are still unclear, but genetic elements are said to form approximately 40% of disease susceptibility. Despite significant research efforts, no definite environmental agents responsible for triggering type 1 diabetes have been identified. |

|   |   |
|---|---|
| <b>Diabetes, Type 2</b>   | Type 2 diabetes used to be referred to as adult-onset diabetes or non-insulin dependent diabetes, as many people with the condition are not initially insulin dependent; however, they do eventually require insulin therapy for optimal blood glucose control. Here, hyperglycaemia is classically associated with insulin resistance (where the body ignores its insulin secretions), as well as a loss of $\beta$ -cell function. Type 2 accounts for around 90% of all cases of diabetes. The onset of the disease is generally slow and can occur at any age.  |
| <b>Empirical study, empirical research</b>                        | Empirical research is based on or concerned with direct or indirect observation or experience rather than theory or pure logic.   |
| <b>Ethnographic observation</b>                                   | Ethnographic observation forms part of the <i>empirical research</i> repertoire and relates to the scientific description of individuals; peoples and cultures with their customs, habits, and mutual differences.  |
| <b>Exemplar</b>   | For the Cities Changing Diabetes Urban Diabetes Priority Assessment, we use the term to refer to study participants who produced Q-sorts that are associated with a distinct <i>factor</i> in a <i>statistically significant</i> manner.  |
| <b>Factor, Q-methodology</b>                                      | A factor in Q-methodology is the outcome of a data reduction process through statistical means (the <i>factor analysis</i> ).   |
| <b>Factor Analysis, principal component factor (PCA) analysis</b> | Factor analysis is a statistical technique that is used to reduce a larger quantitative data set to a smaller set of summarising variables. Factor analysis is used to identify relationships between variables as well as study participants. There are two basic approaches to factor analysis: principal component analysis (PCA) and common factor analysis. Principal component analysis is an approach to factor analysis that considers the total variance in the data. Principal component analysis is recommended when the researcher's primary concern is to determine the minimum number of factors that will account for the maximum variance in the data.  |
| <b>Likert-type scale</b>  | Likert-type or frequency scales are designed to measure attitudes or opinions through measuring levels of agreement/disagreement. A Likert-type scale assumes that the strength or intensity of experience is linear, ie, on a continuum from strongly agree to strongly disagree. Respondents are commonly offered a choice of several responses with the neutral point being neither agree nor disagree.  |
| <b>Purposive sampling</b>   | Purposive sampling is a technique used in qualitative research for the identification and selection of information-rich study participants or cases. Purposive sampling involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest. In addition to knowledge and experience, availability and willingness to participate, as well as the ability to communicate experiences and opinions are important. In contrast, probabilistic or random sampling is used to ensure the generalisability of findings by minimising the potential for bias in selection and to control for the potential influence of known and unknown confounders. |
| <b>Q-sort</b>   | The term Q-sort refers to a specific configuration of statements that have been arranged into a <i>sorting matrix</i> by a participant in a Q-study as part of the <i>sorting procedure</i> . The <i>sorting matrix</i> conventionally takes the shape of a quasi-normal distribution. A Q-sort is the basis of statistical factor analysis in Q-methodology and provides a holistic overview of a participant's opinion or point of view.  |
| <b>Q-set, Q-sample</b>  | Q-set, or Q-sample, refers to the set of statements that are arranged by study participants as part of the <i>sorting procedure</i> .   |
| <b>P-set</b>  | P-set refers to the collective group of participants in a Q-study.  |
| <b>R-methodology</b>  | R-methodology refers to regular <i>factor analysis</i> , in which correlations between <i>variables</i> are analysed; it is also called R-technique. In R factor analysis, high correlations occur when participants who score high on variable 1 (eg, age) also score high on variable 2 (eg, physical activity) and participants who score low on variable 1 (eg, age) also score low on variable 2 (eg, physical activity). Factors emerge when there are high correlations within groups of <i>variables</i> .  |

|  |   |
|--|---|
| <b>Q-methodology</b>                               | Q-methodology refers to an inverted form of <i>factor analysis</i> in which the correlations between individuals are analysed. In Q factor analysis, correlations are computed between pairs of respondents instead of pairs of <i>variables</i> . High correlations occur when participant A's pattern of responses on all the <i>variables</i> (ie, the statements) is much like participant B's pattern of responses. Factors emerge when there are high correlations within groups of participants.   |
| <b>Fixed, or forced-choice normal distribution</b> | Fixed, or forced-choice normal distribution describes the nature of the <i>sorting matrix</i> in Q-methodology. The <i>sorting matrix</i> requires participants to arrange statements into a pattern according to personal preference: generally, an 11 or a 13 point scale is provided with possible ranking values ranging from, for example, +5 or +6 ('completely agree'), through 0 (feel neutral') to -5 or -6 ('completely disagree'). Importantly, the <i>sorting matrix</i> also dictates the number of items that can be assigned to each ranking position (for example, two statements can be placed at the +6 and -6 positions, three at +5 and -5, and so on). Hence the term 'forced' distribution; whereas 'normal' refers to the general shape of the sorting matrix (which may also be referred to as bell curve). |
| <b>Salience, salient</b>                           | The term salient refers to anything (person, behaviour, trait, etc) that is prominent, conspicuous, or otherwise noticeable compared with its surroundings. We use it to denote characteristics or information that is pertinent to the research questions and the broader study.   |
| <b>Sorting matrix</b>                              | The sorting matrix is a template in the form of a <i>forced-choice normal distribution</i> into which statements are arranged as part of the <i>statement sorting procedure</i> in a Q-study.   |
| <b>Statement Sorting Procedure</b>                 | The term <i>statement sorting procedure</i> describes the process of sorting and ranking statements according to personal preference as part of a Q-study.  |
| <b>Variable</b>                                    | A statistical <i>variable</i> is any characteristics, number, or quantity that can be measured or counted. A variable may also be called a 'data item'. Conventionally, age; gender, or country of birth, as well as opinion statements and so forth are <i>variables</i> ; whereas participants are the <i>study sample</i> . In Q-methodology, which is an inversion of <i>R-methodology</i> , participants are the <i>variables</i> and the opinion statements to are the study sample.  |
| <b>Variance, statistical</b>                       | The variance in a research study is a numerical value used to indicate how widely participants or variables in a group vary. 100% variance refers to the full range of meaning and variability in a study and is referred to as the study variance. The aim of the <i>factor analysis</i> in a Q-study is to account for as much of the study variance as possible.   |

## APPENDIX 2

### URBAN DIABETES PRIORITY ASSESSMENT STATEMENT SET

#### FINAL STATEMENTS

- 1 Diabetes is the least of my worries
- 2 I worry about the cost of my diabetes
- 3 The way I make decisions about my healthcare is mostly dependent on how much money I have
- 4 When it comes to food, I usually sacrifice quality for quantity
- 5 Healthy foods are a luxury
- 6 Spending money on exercise classes or the gym is something I find difficult to do
- 7 Not having enough time makes people sick
- 8 If I had more time, I'd exercise regularly
- 9 I just don't have the time to buy and cook healthy food
- 10 Diabetes support groups may be helpful, but I don't have time to participate
- 11 Taking care of others takes up most of my free time
- 12 I just don't have the skills to cook healthy meals
- 13 For me, it's easy to learn about diabetes
- 14 I think that diabetes or health-related support groups are pointless
- 15 Where I live, fresh groceries are hard to get
- 16 Living in the city is stressful and harmful to my health and wellbeing
- 17 I'd rather live elsewhere, but I have to live where I do because of work
- 18 I am quite concerned about air pollution
- 19 I think that where I live, it's not very safe to be out alone
- 20 The climate where I live makes it really hard for me to want to walk or go somewhere by bicycle
- 21 For me, it is important that I can get around by bike or on foot easily
- 22 I like certain foods or dishes especially because they remind me of my childhood
- 23 Cooking for those I love is a way of showing that I care for them
- 24 When my family or my friends and I meet, we eat!
- 25 When I am by myself, I often eat food that is not very healthy
- 26 When I eat out together with friends, I usually end up eating unhealthy foods
- 27 I often feel lonely
- 28 To me, food is about more than just calorie intake
- 29 Society puts a lot of pressure on women to be slim
- 30 I need my friends and social life to feel happy
- 31 Being alone does not mean being lonely

- 32 I tend to prioritise the needs of others over my own
- 33 Men tend to be less interested in taking care of themselves than women
- 34 I have some health concerns that are more important to me than my diabetes
- 35 With today's medicine, diabetes is not a scary illness anymore
- 36 Diabetes is a disease of overweight people
- 37 It is my fault that I now have diabetes
- 38 If I had known what having diabetes is like I would have tried harder to avoid becoming diabetic
- 39 If I really had to, I could adjust to a healthy lifestyle
- 40 I usually do what my doctor tells me to do
- 41 I avoid socialising because of my diabetes
- 42 I find it helpful to talk to other people about my diabetes
- 43 The modern world makes us ill
- 44 Feeling integrated with a community is important to me
- 45 Changes in my neighbourhood worry me
- 46 I don't really trust health services or doctors
- 47 Everybody just seems to be a bit bigger nowadays
- 48 My weight does not matter to me because I feel like a healthy person
- 49 Overweight people are often lazy
- 50 I am too embarrassed to go to the gym because of how I look
- 51 Compared to others, I take good care of myself
- 52 I know who I can trust with my healthcare
- 53 I generally trust the government
- 54 'Fitness freaks' have no joy in life
- 55 I think that diabetes is inherited
- 56 I think that diabetes is a death sentence
- 57 Most days, I feel good about my future
- 58 At this point in my life, I feel like the choices I make are my own
- 59 I get annoyed or upset with myself if I don't do enough for my health
- 60 If I decide to be overweight or not exercise enough, that should be my choice
- 61 We owe it to society to be fit and healthy
- 62 Being unhealthy means you've given up on life
- 63 Managing diabetes well is simply a matter of making the right choices
- 64 My church is my rock
-

# APPENDIX 3

## PARTICIPANT FOCUS GROUP: EXAMPLE SCHEDULE

| TIME        | SESSION   | PURPOSE/OUTCOME   |
|-------------|---|---|
| 10.00-11.15 | <b>Introductory session</b> <ul style="list-style-type: none"> <li>Welcome</li> <li>Facilitator and participant introduction</li> <li>Open discussion around Urban Diabetes Priority Assessment procedure, content of statements, insights gained through procedure</li> </ul>                                    | <p>Introduction of topic and presentation of goals for the day; 'ice-breaking'.</p> <p>Re-familiarisation with content of the Urban Diabetes Priority Assessment, opportunity to comment on statements and content in more depth.</p>   |
| 11.15-11.30 | Break   |   |
| 11.30-13.00 | <b>Discussion: D-Q findings</b> <ul style="list-style-type: none"> <li>Presentation of preliminary findings (factors, exemplars, any other)</li> <li>Semi-structured discussion of findings with participants</li> </ul>  | <p>Opportunity to have study participants reflect on preliminary findings; 'validate' factors and exemplars (do they resonate and how?); deepen knowledge of global and local factors and explore how they constitute barriers/opportunities or promoters</p>                                   |
| 13.00-14.00 | Lunch   |   |
| 14.00-14.30 | <b>Discussion: Diabetes in My City</b> <ul style="list-style-type: none"> <li>Semi-structured discussion around lived experiences of participants in Cities Changing Diabetes partner city as relevant to health, wellbeing, and diabetes</li> </ul>  | <p>Turn focus on local specifics and begin set-up for stakeholder workshop</p>  |
| 14.30-14.45 | Break   |   |
| 14.45-15.45 | <b>Participant and stakeholder workshop</b> <ul style="list-style-type: none"> <li>Introduction of stakeholders and participants</li> <li>Guided break-out sessions</li> <li>Group discussion of break-out sessions</li> <li>Clearly stated results (mutual goals, new ideas, relevant concerns, etc).</li> </ul> | <p>Introduce participants to stakeholders (potential long-term views); enable communication between participants and stakeholders as well as direct exchange of viewpoints and ideas; apply collective knowledge to working towards directly applied outcomes (interventions, policy, etc).</p> |
| 15.45-16.00 | <b>Final comments, next steps, thanks</b>   | Wrap-up and summary   |



# APPENDIX 4

## PARTICIPANT FOCUS GROUP: SUGGESTIONS FOR SEMI-STRUCTURED INTERVIEW PROTOCOL

| SESSION  | AREAS TO BE COVERED   | EXAMPLE QUESTIONS/PROMPTS<br>(Not to be considered in any way exhaustive. Should be reformatted for ease-of-use in the Participant Focus Group session and language adapted if needed)   |
|--|---|--|
| <p><b>Introductory Session</b><br/>Open discussion around Urban Diabetes Priority Assessment procedure, content of statements, insights gained through procedure</p> | <p>Principally designed to allow participants to familiarise themselves with others, and to give them an opportunity to discuss what matters to them regarding living with diabetes in a Cities Changing Diabetes city. Specific sample statements may be presented as well as any qualitative comments already made to facilitate discussion as prompts only.</p> <p>Content of statements and nature of Q-sort</p>  | <ul style="list-style-type: none"> <li>• Were there any statements that really spoke to you/that really made you annoyed or sad? Why?</li> <li>• How did you feel about X statement – is it easy to agree with/disagree with? Why?</li> <li>• Were there any statements that you did not understand or that you thought were just a bit silly? Why?</li> <li>• Can you think of any statements that you thought were missing?</li> <li>• The statements were based on interviews that we conducted with people in [Cities Changing Diabetes cities]. In what way do you think might their experience be similar or different to yours? Example?</li> <li>• Were there any statements that made you reflect on yourself/how you are living with diabetes? Which ones?</li> <li>• Did the sorting process make you think/feel differently about yourself and your diabetes – if yes, why?</li> </ul> |
| <p><b>Discussion: Urban Diabetes Priority Assessment findings</b><br/>Semi-structured discussion of findings with participants</p>                                   | <p>This session provides an opportunity to deepen study findings and to gather additional data for factor description and interpretation, as well as to identify any areas of relevance not covered by the statements. Barriers and promoters relevant to health, wellbeing and diabetes are discussed in light of the social factors and determinants, and local areas of specific interest or priority can be explored further. Interview protocol should be used to maintain structure and focus.</p> <p>'Validity' of factors and exemplars</p> | <ul style="list-style-type: none"> <li>• When you think about the groups (factors) that we have identified, do they seem typical/plausible/relevant/well described? Why?</li> <li>• What do you think of the names that we have given the groups?</li> <li>• What do you think of the exemplars that we have described?</li> <li>• Based on what we have presented to you, what would you say most characterises/differentiates the groups regarding their experience of diabetes?</li> <li>• How does that relate to your own experiences?</li> </ul>   |

|  |  |
|--|--|
|  | <p>Relevance</p> <ul style="list-style-type: none"> <li>• In what way do you think do the groups that we identified have different priorities/abilities/needs regarding health, wellbeing, and living with diabetes?</li> <li>• How does this relate to your own experiences?</li> </ul> <hr/> <p>Barriers/promoters</p> <ul style="list-style-type: none"> <li>• How would you say do the different groups face different challenges regarding living with diabetes? What are those challenges; do you share them?</li> <li>• What could be improved in terms of reducing [main stated barriers]?</li> </ul> <hr/> <p>Social factors and cultural determinants</p> <ul style="list-style-type: none"> <li>• Provide overview and brief description of social factors and cultural determinants:</li> <li>• Which of these factors/determinants would you say matter most to the overall group/to each sub-group? Why?</li> <li>• How do you imagine do these factors/determinants impact the lives of the participants? How do they impact yours?</li> <li>• What are the negative/positive aspects of the presence of these factors/determinants in the lives of those with diabetes?</li> </ul>   |
| <p><b>Discussion: Diabetes in My City</b><br/>Brief semi-structured discussion</p> | <p>This session is designed to set the scene for the following workshop as well as open up the floor to gather locally relevant data not covered in Q-sort or previous focus group session around lived experiences of participants in Cities Changing Diabetes partner city as relevant to their health, wellbeing, and diabetes. Interview protocol should be used to maintain structure and focus.</p> <ul style="list-style-type: none"> <li>• Would you say that [city] is a good place to live for someone with diabetes? Why?</li> <li>• Our physical activity level is important when it comes to living with diabetes. In what way does [city] make it easier or harder to be physically active? Do you have any suggestions on how to change that?</li> <li>• Likewise, what we eat is also really important to our health and wellbeing. In what way does where you live influence how and what you eat? What could be improved?</li> <li>• (If applicable) We have already discussed some things that may make living with diabetes in [city] difficult. Can you provide some more examples? How may we concretely address such issues?</li> <li>• If you could tell someone from [the city government/ local healthcare provider/ insurance (ie, any potential stakeholders who attend later session)] about one thing they could do to improve your experience of living with diabetes, what would it be?</li> </ul> |
| <p><b>Stakeholder Workshop</b></p>   | <p>To be developed based on local stakeholder presence and priorities</p>  |

# APPENDIX 5

## GLOBAL PRE URBAN DIABETES PRIORITY ASSESSMENT QUESTIONNAIRE

|                          |   |                              |   |  |                          |                    |  |                 |                 |                  |                     |
|--------------------------|---|------------------------------|---|--|--------------------------|--------------------|--|-----------------|-----------------|------------------|---------------------|
| Age                      | Please state the year of your birth   | [insert number]              |   |  |                          |                    |  |                 |                 |                  |                     |
| Gender                   | Please state your gender  | [male]                       | [female]                                      | [other]                                    |                          |                    |  |                 |                 |                  |                     |
| Ethnic Group             | With which ethnic group do you identify?  | [insert]                     |   |  |                          |                    |  |                 |                 |                  |                     |
| Residence                | Please tell us where you were born:   | [country]                    | [city]  |  |                          |                    |  |                 |                 |                  |                     |
|                          | Please tell us where you live now:  | [city]                       | [zip code]                                    |  |                          |                    |  |                 |                 |                  |                     |
|                          | How long have you lived where are now?  |                              |   |  |                          |                    |  |                 |                 |                  |                     |
|                          | Is the place you live in a:   | [room in a shared apartment] | [apartment]                                   | [house]                                    | [other]                  |                    |  |                 |                 |                  |                     |
|                          | Do you, or your spouse or any other family members, own the place you live in?  | [yes]                        | [no]  |  |                          |                    |  |                 |                 |                  |                     |
| Family and Dependents    | Besides yourself, how many other people currently live in your household?   | [1]                          | [2]   | [3]  | [4]                      | [5]                | [6]  | [7]             | [8+]            |                  |                     |
|                          | Are the people currently living in your household (check all that apply)  | [spouse]                     | [one child under the age of 18]               | [two or more children under the age of 18] | [other family members]   | [other dependants] | [friends or people who share rent and space] |                 |                 |                  |                     |
|                          | Are you or anyone in your household currently receiving any kind of financial assistance from the government, such as [specify local example] | [yes, I do]                  | [yes, me and other member(s) of my household] | [other member(s) of my household]          | [no one in my household] |                    |  |                 |                 |                  |                     |
| Income                   | Last year, what was your household income for the whole year?   | [less than 10,000]           | [10,000-25,000]                               | [26,000-30,000]                            | [31,000-45,000]          | [46,000-60,000]    | [61,000-75,000]                              | [76,000-80,000] | [81,000-95,000] | [96,000-110,000] | [111,000 and above] |
| Education and Employment | What is the highest degree you have earned or level of school you have completed?   | [insert]                     |   |  |                          |                    |  |                 |                 |                  |                     |
|                          | Do you hold a professional qualification?   | [yes, insert]                | [no]  |  |                          |                    |  |                 |                 |                  |                     |

|                                     |  |  |   |  |  |                        |                            |                  |                         |
|-------------------------------------|--|--|---|--|--|------------------------|----------------------------|------------------|-------------------------|
| Are you...                          | [employed for salary]  | [employed on a volunteer/non-salaried basis]                                     | [self-employed]   | [out of work and looking for work]                                 | [retired]  | [a homemaker]          | [a student or in training] | [unable to work] | [other, please specify] |
| Do you...                           | [work fewer than 30 hours a week]  | [work between 30 and 40 hours a week]  | [work between 40 and 50 hours a week]   | [I don't currently work]   |  |                        |                            |                  |                         |
| What best describes your workplace? | [company or business]  | [not-for-profit (religious institution, arts, etc)]                              | [government]  | [education]  | [other]  | [not applicable]       |                            |                  |                         |
| Transportation                      | [I work from home]   | [less than 15 minutes]   | [between 15 and 30 minutes]   | [between 30 and 45 minutes]  | [more than 60 minutes]                               | [not applicable]       |                            |                  |                         |
|                                     | [I work from home]   | [with my own car]  | [with a friend in his/her car]  | [walk]   | [bike]   | [not applicable]       |                            |                  |                         |
|                                     | [walk]   | [bike]   | [public transport]  | [other]  | [not applicable]                                     |                        |                            |                  |                         |
| Insurance                           | [yes]  | [no]   | [in the process of obtaining]   | [other]  |  |                        |                            |                  |                         |
|                                     | [insert]   |  |   |  |  |                        |                            |                  |                         |
|                                     | [insert]   |  |   |  |  |                        |                            |                  |                         |
| Health                              | [no]   | [yes]  |   |  |  |                        |                            |                  |                         |
|                                     | [insert]   |  |   |  |  |                        |                            |                  |                         |
|                                     | [6 months or less]   | [6 months to 1 year]   | [1 year to 2 years]   | [2 years to 5 years]   | [5 years to 10 years]                                | [10 years to 20 years] | [more than 20 years]       |                  |                         |
|                                     | [skin complications, such as bacterial or fungal skin infections, inflammation, itching, etc.] | [eye complications, such as glaucoma, cataracts, problems with the retina, etc.] | [nerve damage (diabetic neuropathy); such as tingling, numbness, weakness in your hands and feet, etc.] | [foot complications, such as numbness, infections, dry skin, etc.] | [kidney complications, such as kidney failure, etc.] | [diabetic coma]        | [high blood pressure]      | [stroke]         |                         |

Please tell us if you had any other diabetes complications not listed above:

[insert]

Thinking back, how many days were you unwell, over the past six months?

[0]

[1-3]

[4-7]

[7 and more]

And finally, please tell us your current weight

[insert]

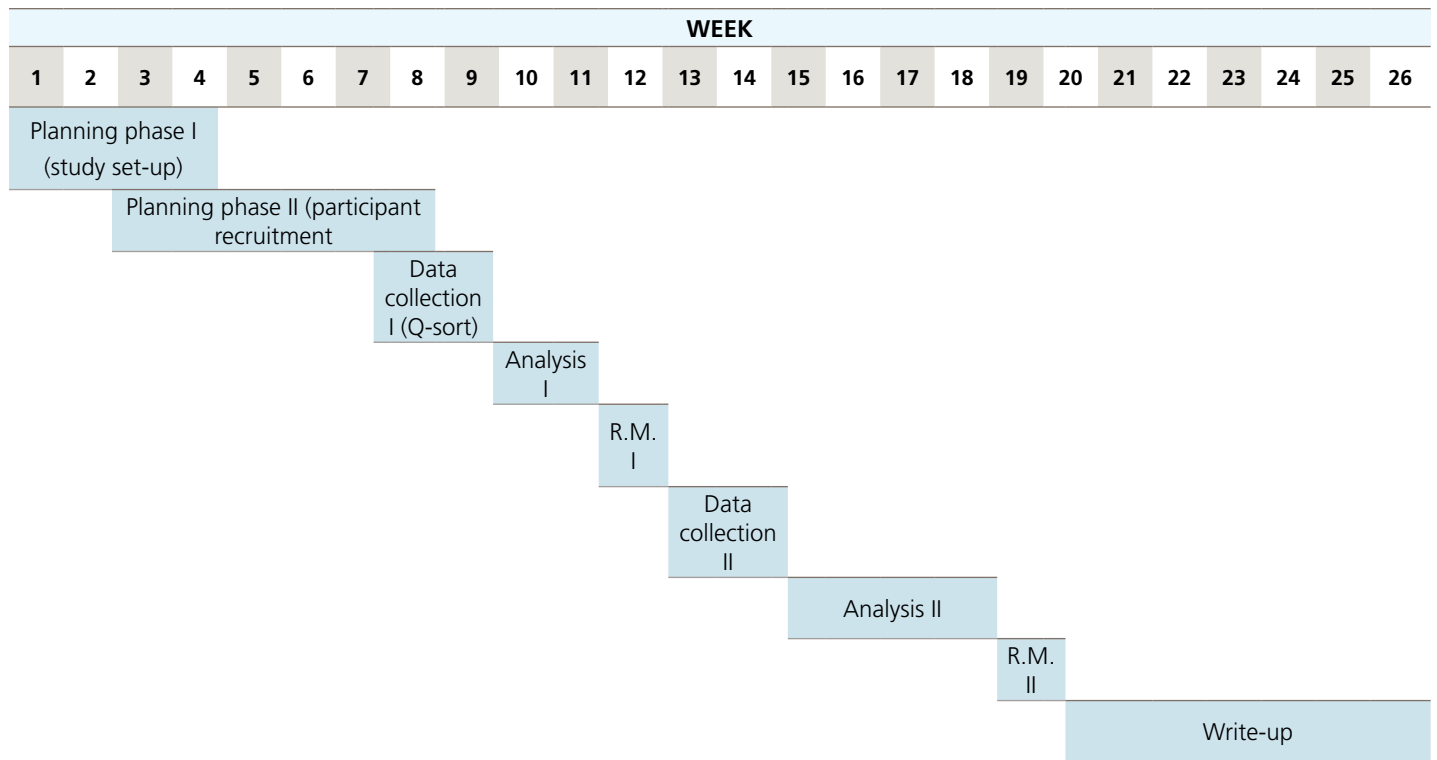
And your height

[insert]

Thank you!

# APPENDIX 6

## EXAMPLE STUDY TIMELINE



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