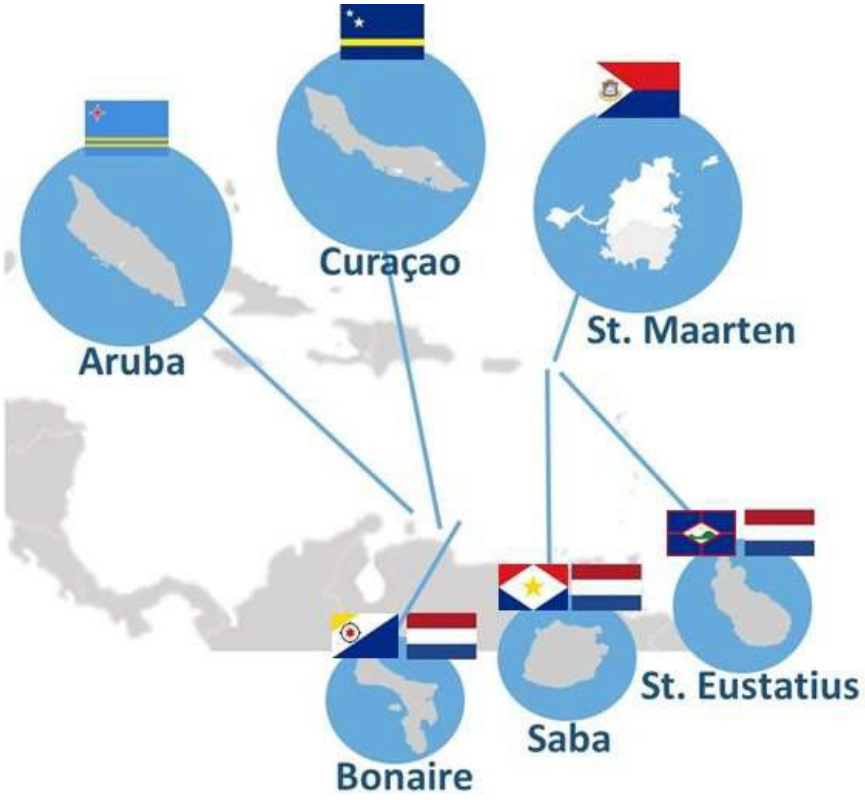
Exploring health research programming in the Caribbean part of the Kingdom of the Netherlands

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Summary

Health research only takes place to a limited extent on the ABCSSS islands,[1] yet it is extremely important for improved health and well-being, socio-economic development, high-quality and affordable healthcare provision and the achievement of the United Nations' Sustainable Development Goals. Given the importance of improving health outcomes on the various islands, the Fundashon Prevenshon, the Athena Institute (VU Amsterdam) and the Expert Center on Prevention Foundation (operating under the name Caribbean Project Office) were asked by ZonMw to conduct a foresight study on the potential value, approach and interpretation of health research programming on the Dutch Caribbean islands. This foresight study focuses on answering the question *whether, and if so in how, ZonMw can contribute to public health on the ABCSSS islands through health research programming?*

To answer this question, an exploratory research process has been designed based on the concept of 'positive health' and the Athena Institute's dialogue model. This involves identifying questions about the health, care and social support of people living on the islands, examining which organisations and institutions on the different islands are well-positioned to answer these questions, and gathering information about barriers and facilitators that may impact health research programming. We focused on the broad field of healthcare and welfare, with input from professionals working in healthcare policy, practice and research on all six islands. Data was collected in four interrelated phases: desk research, interviews, a questionnaire and reflection sessions. The research took place from 15 April to 14 October 2022.

What are the key research and knowledge issues related to health, care and social support for people living on the different ABCSSS islands, and to what extent can these be prioritised?
The research and knowledge needs related to health care and welfare dovetail well with the initial premise of the project group's knowledge agenda on 'positive health'.[2] Our analysis shows that health research should focus not so much on the medical account of disease but more on the social determinants (e.g. poverty and education) and lifestyle aspects that underlie the onset and course of disease. In line with this, priority is given to strengthening primary care (which also has a preventive role). We emphasise that social determinants, lifestyle and strengthening primary care are cross-cutting issues that can help to reduce the relatively high burden of disease among the populations of the different islands and contribute to quality of life.

The specific research themes as prioritised in the questionnaire provide a good basis for operationalising the above into specific knowledge questions. The prioritisation shows that

[1] They include Aruba, Bonaire, Curaçao, Saba, Sint Eustatius and Sint Maarten.
[2] In Machteld Huber's approach, positive health is seen as a person's ability to adapt and take control in the face of life's physical, emotional and social challenges. Positive health has six dimensions: bodily functions, mental functions and perceptions, spiritual/existential dimension, quality of life, social and societal participation and daily functioning. For ZonMw's commitment in this area, see: https://www.zonmw.nl/nl/over-zonmw/positieve-health/.

almost all research directions are considered important. In particular, 'mental health', 'chronic diseases', 'organisation of care' and 'sexual health' are considered important at all phases of the research. In addition, the qualitative analyses in particular show that research should also focus on specific target groups such as young children, youth, migrants and people living in poverty.

The type of research questions prioritised are mainly explanatory questions and questions related to the effectiveness and implementation of interventions. Typical examples include: *What behavioural and environmental factors lead to a high prevalence of obesity and related diseases? What are effective interventions for providing mental healthcare to unregistered migrants in primary care?*

Finally, we would like to emphasise that our analysis of the research themes did not reveal any major differences between the different islands. However, there are obviously island-specific factors that affect social determinants. Research on the Dutch Caribbean islands can therefore be programmed to a certain extent uniformly, as long as the programming and the specific studies are designed in a flexible way that takes these island-specific factors into account.

What are the barriers and facilitators in care programming in relation to the research and knowledge questions collected in the ABCSSS islands?
When it comes to health research programming, several barriers and facilitating factors were identified by the participants in the foresight study. The barriers are related to: (1) limited funding and agenda setting for research; (2) limited capacity of the local research field; (3) poor knowledge infrastructure; (4) complex partnerships; and (5) low community involvement. Concrete barriers there were discussed in detail include: the complicated and bureaucratic processes for grant applications; lack of permanent in-house expertise; lack of up-to-date data; and the fact that geographical, cultural, linguistic and historical differences hinder optimal partnerships.

The facilitating factors that emerged are related to: (1) strengthening the capacity of the research field; (2) strengthening the knowledge infrastructure; (3) promoting collaborations and synergies; (4) integrated and innovative approaches; and (5) promoting community involvement. Concrete facilitating factors that were discussed in detail include: using the knowledge and experience of professionals and organisations on the different islands (local ownership), investing in training opportunities on and for the different islands, investing more in synergy between the BES islands (Bonaire, Sint Eustatius and Saba, which are special municipalities within the Netherlands) and the CAS islands (Curacao, Aruba and Sint Maarten, which are autonomous countries) and paying more attention to implementation through monitoring and evaluation. The findings on the importance of strengthening the knowledge infrastructure therefore correspond with the recommendations of NWO's 2021 report 'Dutch Caribbean Research Platform', which recommends setting up a network organisation with anchor points on all the islands, called DUCARP.

Which academic and knowledge institutions, care and support institutions, social parties, citizen initiatives, and other institutions and individuals are relevant to answering the research and knowledge questions in the ABCSSS islands?
121 organisations were identified, including 3 universities (in Aruba, Curaçao and Sint Maarten), 7 medical schools focused on the US market, 2 Kingdom-wide organisations, 4 research institutes, and 2 knowledge-sharing platforms. These

organisations have been processed into a digital overview, including name, contact details and specialisation. Additions are welcome by email: info@fundashonprevenshon.com.

Conclusions and recommendations

Based on our findings, we conclude that ZonMw can make a significant contribution to the necessary improvement of public health in the ABCSSS islands through targeted health research programming. The respondents we spoke to were also overwhelmingly positive about this. However, ZonMw's current funding policy for health research should be better adapted to the context of the different islands. This research provides some starting points for doing so, by programming around locally prioritised themes and target groups; involving relevant island organisations in health research; devoting attention to context and cross-cutting issues in terms of strengthening primary care, social determinants and prevention, in line with the concept of 'positive health', and making funding available to applicants throughout the Kingdom of the Netherlands. It is essential to significantly strengthen the research infrastructure in this area and to invest in the management of complex partnerships that put the collective interest first. Finally, it is important to take into account the local culture of the area. A concrete example of the latter is that only a minority of the population on the various islands in the Dutch Caribbean uses the Dutch language in everyday life, which means it would make sense to use English when issuing calls for proposals for health research in this area.

1. Rationale

Although health research is very limited in the Dutch Caribbean islands, it is extremely important for achieving significant improvements in health and well-being, socio-economic development, maintaining or building a high-quality and affordable health care model, and achieving the United Nations Sustainable Development Goals in the region. Evidence-informed health policies and interventions can help to improve health outcomes across the islands and reduce the increasingly unfavourable health inequalities within the Kingdom of the Netherlands.[3] ZonMw's experience with projects that specifically focus on implementing existing knowledge shows that many health gains can be achieved with an improved approach to care and social support on the various islands.

However, in their 2021 vision document, two Kingdom-wide organisations, the AMA (Asosiashon Mediko di Antias) and CARAF (Caribbean Research Acquisition Forum) concluded that there is a lack of a robust research infrastructure and research agenda for the islands. There is also limited funding available for health research in the various islands, while organisations from the Caribbean in the Netherlands have very limited or no access to grants and funding from Dutch funding organisations such as ZonMw.[4]

We still lack a proper understanding of the key knowledge issues on the ABCSSS islands, the current state of public health organisation and research in this area, and the barriers that healthcare providers and researchers on the various islands face in obtaining grants and research funding. This is why ZonMw developed an initiative, based on the concept of 'positive health', to commission a foresight study on programming opportunities for health research on the various islands in the Dutch Caribbean. The results of this research will be used to try to improve this understanding.

1.1 Objective and questions

The objective of this foresight study is to explore whether, and if so how, ZonMw can contribute to the public health of the population on the ABCSSS islands through health research programming. These are Aruba, Bonaire, Curaçao, Saba, Sint Eustatius and Sint Maarten.

To answer this general question, we aim to answer the specific research questions below in an exploratory manner:

[3] Soraya Verstraeten. Population Health in the Dutch Caribbean. A comparative study of political context and health policy performance. Dissertation Erasmus University. 2020.

[4] Katherine van Ierland, Kimberly Pietersz, Lenny Marapin and Cherelle Maduro. AMA & CARAF. Health research vision document for the Caribbean islands. 2021.

1. What are the key research and knowledge issues related to health, care and social support for people living on the different ABCSSS islands, and to what extent can these be prioritised?

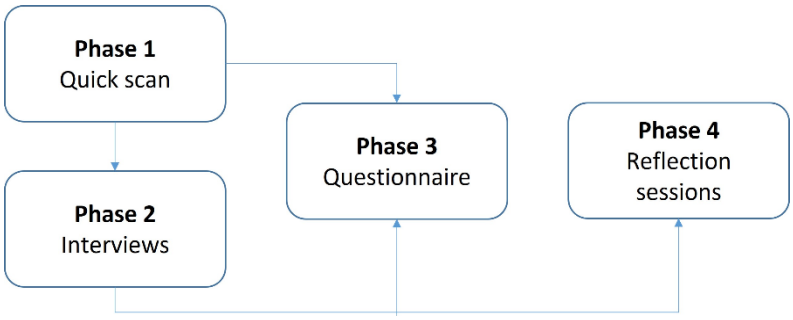
2. What are the barriers and facilitators in programming based on the responses to the research and knowledge questions collected in the region?

3. Which academic and knowledge institutions, care and support organisations, social parties, citizen initiatives, and other institutions and individuals are relevant to answering the research and knowledge questions in the region?

2. Methodology

To answer the research questions, an exploratory research process was designed based on the concept of 'positive health' and the dialogue model of the Athena Institute of VU Amsterdam. The concept of 'positive health' takes a broader approach to health than just (solving) individual health complaints and problems, emphasising people's ability to adapt to and take control of the physical, emotional and social challenges of life. It also clarifies the division of roles between practice, policy and research.[5] The dialogue model was co-developed by the Athena Institute and emphasises the importance of an inclusive approach in agenda-setting processes.[6] The research process of the foresight study consists of applying different research methods in four separate phases: desk research, interviews (qualitative), a questionnaire (quantitative) and finally reflection sessions (qualitative). The results of the first three phases feed into each other (see Figure 1). The study was carried out between 15 April and 14 October 2022.

Figure 1: Project phases and information flow of findings between phases



2.1 Phase 1 – quick scan

The foresight study began with a quick scan, which provided an overview of the health research system on the islands and the themes and questions that are important for health research on the islands.

The health research system, an overview of the people and organisations important for answering the knowledge questions on the different islands, is based on the following sources:
- The overview of applicant organisations at ZonMw;
- The survey of research institutions on the Dutch Caribbean islands compiled by the Rathenau Institute;
- The membership database of the NWO's Pontem website;
- The overview of organisations and institutions on the care maps of Aruba, Curaçao and Sint Maarten;
- The researchers' network.

[5] Ellen van Steekelenburg, Ingrid Kersten and Machteld Huber. 'Positive health' in the Netherlands – Who, what, why and how? Institute for Positive Health and ZonMw. 2016.
[6] Tineke Abma and Jacqueline Broerse. Patient participation as dialogue: setting research agendas. Health Expectations, 2010. 13(2): 160-173.

The survey listed 85 people involved in healthcare policy, practice or research in the Dutch Caribbean islands, representing a total of 74 different organisations on the various islands and in the Netherlands. On the basis of this list, respondents were approached for interviews (see Methodology Phase 2).

To obtain an overview of themes and questions relevant to health research in the Dutch Caribbean islands, (inter)national publications and (grey) literature were collected from the library of the University of Curaçao and the Public Health Institute Curaçao literature review, and Google Scholar was consulted.

The themes and questions derived from the literature review were grouped into domains (main themes), avenues (sub-themes) and research questions. The resulting knowledge table identifies seven domains. The table gives structure to the Phase 2 interviews. Adjustments were made on the basis of feedback from the key informants for the questionnaire in Phase 3 (see description of Methodology Phases 2 and 3).

2.2 Phase 2 – interviews

Phase 2 consists of interviews with several key informants, all working in policy, practice or research related to medical and/or social care on the different islands. The aim of this phase is to sharpen and deepen the knowledge table and to identify barriers and facilitators that can affect the research programme. The aim was to interview 30 key informants. In selecting the respondents to be approached (or, in the case of non-response, their substitutes), a prioritisation was made in the initial survey of the health research system, focusing on representativeness in terms of:
- Location (evenly distributed across the islands)
- Discipline/area of work (practice, policy or research)
- Field of work (health or social care)

The selected key informants received an interview invitation by e-mail. The interviews were based on the knowledge table of domains, avenues and research questions from Phase 1 and lasted approximately one hour, with the researcher using a semi-structured interview protocol (see Annex 3). A total of 23 interviews were carried out on Zoom, falling short of the target of 30. Making interview appointments during the summer holiday period was more difficult than expected. The response on Sint Eustatius in particular lagged behind (see Table 1). On the other hand, a sufficient degree of saturation could be achieved per island so that the final results are representative for the entire Dutch Caribbean region. In addition, our key informants proved to be very knowledgeable, often about several islands at the same time, which led to rich in-depth interviews. An overview of the organisations of the key informants is given in Annex 4.

Table 1. Number of key informants interviewed by island.

Island	Aruba	Bonaire	Curaçao	Saba	Sint Eustatius	Sint Maarten
Number	7	3	7	3	1	2

The interviews were recorded with the consent of the participants, then edited, coded and analysed using the software programme Atlas.ti. For the purpose of the questionnaire, short

summaries of the interviews were prepared, so additions and refinements from the interviews could be incorporated immediately (see Methodology Phase 3).

Summaries of the results were included in an Excel spreadsheet, the analysis of which provided additions and refinements to the knowledge table of themes to be prioritised for health research in the questionnaire to be carried out below (see Methodology Phase 3).

2.3 Phase 3 – questionnaire

For data collection in Phase 3, an online questionnaire was created in the Qualtrics programme to further prioritise research themes for each island.

In addition to background information on the respondent, the questionnaire consists of an overview of research domains and avenues (see Annex 5). This overview was created from the knowledge table from Phase 1, in which the research domains and avenues were rearranged based on the information from the interviews in Phase 2, and missing topics were added. The results can be reduced to eight domains for the knowledge agenda (in the sequence of questions):

1. Chronic diseases (such as diabetes and cardiovascular disease)
2. Infectious diseases (such as HIV/AIDS or COVID-19)
3. Injuries/wounds
4. Sexual health, maternal and child care
5. Mental health
6. Organisation of care
7. Healthy environment (air, water, soil and food)
8. Informal support (from family, friends and the community)

All 85 key stakeholders on the Phase 1 list received an e-mail inviting them to complete the online questionnaire. In some cases, a general e-mail address of the organisation was used. In addition, an invitation with a link to the questionnaire was distributed through the researchers' social media channels, AMA, CARAF and ZonMw. The questionnaire was available in Dutch, English and Papiamentu.

Respondents were asked to rank the domains in order of importance for health research in the Dutch Caribbean islands. A response of 1 indicated the highest priority and 8 the lowest. All rankings were added to calculate an average ranking score. Respondents were then asked to indicate the most important avenues (subtopics) within each domain. Respondents ranked the avenues on a 5-point Likert scale, with 1 representing a very low priority and 5 representing a very high priority.

A total of 322 people opened the questionnaire and 262 responded, of which 180 completed the full list. The respondents came from all ABCSSS islands (see Table 2). As we found no differences in ranking priorities between the 262 incomplete questionnaires and 180 complete questionnaires, only the latter were included in the analyses. Although the 82 incomplete questionnaires contained interesting – though not alarmingly different – results, they were not reliable enough to be included. For example, it was possible for someone to complete an incomplete questionnaire first and then submit a new complete questionnaire (duplicate).

Of the 180 respondents who fully completed the questionnaire, 31 worked in policy, 27 in research and 64 in practice. 58 respondents indicated they did other kinds of work or were still studying or no longer worked in the healthcare sector.

Table 2. Questionnaire respondents by island.

Island	Number of respondents (n=180)
Aruba	56
Bonaire	8
Curaçao	57
Saba	5
Sint Eustatius	5
Sint Maarten	20
Netherlands	26
Representing multiple islands/countries	3

2.4 Phase 4 – reflection sessions

Phase 4 focused on integrating the results of the previous phases through reflection sessions with researchers, policymakers, coordinators and members of civil society. The aim was to discuss the findings of the previous phases and to review the results of Phase 3. To this end, a general reflection session was first held on Zoom, to which all policy officers from the stakeholder overview and representatives of AMA, CARAF and ZonMw were invited. A total of 10 people took part. The policy officers came from the islands of Aruba, Saba and Curaçao. Unfortunately, additional efforts to engage policymakers from Bonaire, Sint Eustatius and Sint Maarten in this phase were not successful.

Subsequently, five local reflection sessions were held in Aruba, Bonaire, Curaçao, Saba (together with Sint Eustatius) and Sint Maarten. With a total of 18 participants, attendance was low, especially in Sint Maarten and Curaçao (see Table 3). Attendance at the meeting in Curaçao was particularly low due to several last minute-cancellations related to COVID-19 and a tropical storm. In order to approach participants, a selection was made from the list of organisations and stakeholders established in Phase 1. Given the limited number of commitments, this was supplemented with professionals from the education, health and social care sectors. Annex 6 contains an overview of the organisations of the participants in the reflection sessions. We can see that the results of Phases 2, 3 and 4 are highly correlated. We used different methods to address the questions, and this methodological triangulation enabled us to achieve greater saturation across the project.

Table 3. Number of participants in reflection sessions per island.

Island	Number of respondents (n=18)
Aruba	7
Bonaire	3
Curaçao	1
Saba (together with Sint Eustatius)	4 (2)
Sint Maarten	1

3. Proposal for a common knowledge agenda for health research in the ABCSSS islands

This chapter responds to research question 1: *What are the key research and knowledge issues related to health, care and social support for people living on the different ABCSSS islands, and to what extent can these be prioritised?* Here, the previous phase partially informed the next; the literature review in Phase 1 informed the interviews in Phase 2, the analysis of the literature review and initial interviews informed the questionnaire in Phase 3, and the questionnaire and all interviews were discussed again in the reflection sessions in Phase 4. The results for each phase are discussed below.

3.1 Results of literature review Phase 1

The literature review (Annex 2) consists of 95 publications. Although the review is not exhaustive, it gives a good picture of the themes and issues related to health, care and social support that are prevalent on the different islands in the Dutch Caribbean, and more generally in the Caribbean region and the Small Island Development States (SIDS) (see Table 4). The publication dates of the included sources range from 1988 to 2022.

Table 4. Literature list by region/area.

Region/area of investigation	Number of sources
Small Island Development States (SIDS)	6
Caribbean region	11
Dutch Caribbean	15
Aruba	6
Curaçao	36
BES islands	9
Bonaire	4
Saba	3
Sint Eustatius	3
Sint Maarten	2
Total	**95**

The themes and questions extracted from the literature review were grouped into domains (main themes), avenues (sub-themes) and research questions. The resulting overview identified seven domains (see Annex 5). This overview gave structure to the interviews and was adjusted for the questionnaire based on feedback from the key informants.

3.2 Results of interviews Phase 2

The starting point for each interview was the knowledge table from Phase 1, which was presented to respondents prior to the interview. Most respondents considered the listed health topics to be comprehensive, although a few had suggestions for a different classification. However, it was understood that the overview was a work in progress and in fact would never be completed. The main

focus of the interviews, as described below, was to discuss additions and elaborations to the knowledge table, to justify them in their own context and to discuss priorities. In particular, respondents indicated that a number of health issues should be prioritised: prevention and lifestyle, social determinants/poverty and the organisation of care.

Lifestyle and prevention are seen across all islands as important issues that can improve health outcomes. Issues mentioned include nutrition, alcohol consumption, physical activity, unsafe sex, clean/healthy living environment and 'health literacy'. For example, improving one's diet can reduce obesity and help prevent related chronic diseases. Respondents felt that lifestyle and prevention research should focus on developing and testing appropriate interventions to reduce the gap between knowledge and its application in practice. 'Appropriate' here refers to interventions that take into account the social determinants of health and the needs of specific groups in society (see also below).

On almost all of the islands, the importance of a cross-cutting approach in research was emphasised, an approach that should do justice to the role of poverty as an underlying problem on all islands. Curaçao and Saba explicitly mentioned the cultural component in health problems and existing health inequalities, and pointed out that the impact of migration – i.e. the relatively high number of first-generation migrants from other countries – on the population of the various islands cannot be underestimated.

The organisation of care was also a frequently mentioned research priority. This mainly involved strengthening preventive care, but also curative, mental health and social care services. Mental health (including addiction, stigma and stress/burnout) was another health issue identified by respondents as important.

Respondents identified some specific target groups for which certain health issues need to be prioritised. For young children, this mainly concerns diet and exercise. For young people, it is also about their lifestyle and their approach to sexuality. Other target groups mentioned are the elderly, undocumented migrants, people with disabilities and people who identify as LGBT+. However, there is relatively little information about these groups, which hinders effective approaches and possible treatment. However, with the possible exception of the elderly, it is questionable whether they can be adequately catered for in the short term, given other more pressing priorities.

3.3 Results of questionnaire Phase 3

3.3.1 Domains

Respondents to the questionnaire were asked to rank the domains in order of perceived importance of the topic for research in the different islands. With an average ranking of 2.60, respondents gave the highest priority to chronic disease. Mental health (3.14) was a clear second, followed by the organisation of care (3.91). Injuries/wounds and informal support scored relatively low, with average rank scores above 6. On the other hand, sexual health, maternal and child care, healthy living environment and infectious diseases all scored between 4.37 and 4.89. We thus see these three domains as the middle group, with injuries/wounds and informal support as the lowest priority issues (see Table 5). Looking at the rankings by island, it is noticeable that all islands generally have similar rankings, although in Aruba mental health has a slightly higher priority than chronic diseases.

Table 5. Ranking results of research domains.

Domains	Average ranking score (1 is high, 8 is low)
Chronic diseases	2.60
Mental health	3.14
Organisation of care	3.91
Sexual health, maternal and child care	4.37
Healthy environment	4.49
Infectious diseases	4.89
Injuries/wounds	6.19
Informal support (from family, friends and community)	6.41

3.3.2 Avenues

Within each domain, respondents were asked to identify the most important avenues (sub-themes). As expected, most avenues were considered a priority, having been selected on the basis of the priorities identified in the interviews in Phase 2. However, in this context, a Likert score of less than 3.5 (for the sake of clarity, it is actually the other way round above) can be considered relatively low. Table 6 shows all priorities stratified by (group of) island(s). The priorities from the total sample are considered below.

In the domain of chronic diseases, in particular, all avenues have a high priority score of above 4 on average, with the highest priority being given to overweight/obesity (4.48) and promoting healthy lifestyles (4.42). These are related avenues, suggesting that research is also needed on risk factors for other chronic diseases. Other priorities were diabetes (4.41), cardiovascular disease (including stroke) (4.35), self-care to prevent complications (4.19), hypertension (4.16) and cancer (4.05).

In the mental health domain, the picture is similar to that of chronic diseases. First, the avenues are relatively important, ranging from 4.31 to 3.79; with the top three being substance use/addiction, prevention/early detection and depression/anxiety. Second, again we see a slightly higher priority for risk factors/prevention than for the specific diseases and their treatment.

Similarly, the avenues within the domain of organisation of health services score relatively high, ranging from 4.37 to 3.97. Strengthening primary care and the training of (future) health workers score the highest, 4.37 and 4.30 respectively, while the availability of advanced/innovative health services (e.g. through e-health and diagnostics for hereditary diseases) scores the lowest, 3.97.

The domain of sexual health, mother and child care also shows a high relative score, with sex education scoring the highest at 4.36, followed by another ‘preventive avenue’ during the first 1,000 days of a child's life. The health environment domain shows a clear difference between the avenues. The first two avenues, the impact of poverty and the availability of healthy food, score very high, at 4.46 and 4.45 respectively. On the other hand, issues such as mosquito control (3.40), clean drinking water (3.59) and adequate housing (3.80) score low. Infectious diseases also receive relatively low scores, with only ‘prevention and early detection’ scoring above 4 (4.26). The

pathways related to COVID-19 and disease prevention through vaccines score low at 3.08 and 3.32, respectively.

Injuries/wounds and informal support score significantly lower than all other domains. Within both domains, *violence* is identified as a very important sub-theme.

Table 6. Results ranking research domains and avenues by island (group).

	Ranking domains (1=high, 8=low); *ranking avenues (1=low, 5=high)*					
Domains and avenues Ranked by average score	Total	Aruba	BES islands[7]	Curaçao	Sint Maarten	Nether-lands
Chronic diseases	**2.49**	**2.71**	**2.80**	**2.43**	**2.48**	**2.03**
Overweight and obesity	*4.47*	*4.59*	*4.52*	*4.33*	*4.29*	*4.68*
Promoting a healthy lifestyle	*4.42*	*4.43*	*4.62*	*4.40*	*4.29*	*4.39*
Diabetes	*4.42*	*4.31*	*4.57*	*4.33*	*4.46*	*4.68*
Cardiovascular diseases	*4.35*	*4.32*	*4.38*	*4.28*	*4.42*	*4.46*
Self-care to prevent complications	*4.15*	*4.25*	*4.33*	*4.14*	*4.08*	*3.96*
High blood pressure	*4.15*	*4.03*	*4.24*	*4.04*	*4.29*	*4.43*
Cancer	*4.02*	*4.19*	*4.29*	*3.82*	*3.96*	*4.07*
Mental health	**3.14**	**2.40**	**3.60**	**3.53**	**2.60**	**3.68**
Substance use and addiction	*4.31*	*4.38*	*4.53*	*4.18*	4.29	*4.43*
Prevention and early diagnosis	*4.28*	*4.37*	*4.35*	*4.23*	4.29	*4.14*
Depression/anxiety	*4.27*	*4.45*	*4.26*	*4.16*	4.24	*4.11*
Taboos and misunderstandings	*4.27*	*4.22*	*4.35*	*4.30*	4.33	*4.25*
Self-care to prevent complications	*4.08*	*4.16*	*4.10*	*4.04*	4.10	*4.08*
Disorders childhood and adolescence	*4.12*	*4.25*	*4.20*	*4.09*	3.81	*3.96*
Patient experience around treatment	*3.93*	*3.98*	*4.20*	*3.76*	4.14	*3.85*
Dementia	*3.89*	*4.03*	*4.20*	*3.83*	3.52	*3.71*
Psychosis	*3.79*	*3.97*	*3.89*	*3.62*	3.81	*3.70*
Organisation of care	**4.06**	**4.18**	**3.95**	**4.13**	**3.76**	**3.68**
Strengthening primary care	*4.37*	*4.35*	*4.50*	*4.32*	*4.42*	*4.39*
Education (future) healthcare providers	*4.30*	*4.21*	*4.35*	*4.34*	*4.20*	*4.39*
Financing of care	*4.19*	*4.09*	*3.90*	*4.26*	*4.40*	*4.21*
Figures on health and care	*4.11*	*4.11*	*4.25*	*4.00*	*4.40*	*4.11*
Availability of advanced/innovative healthcare services	*3.97*	*3.97*	*4.32*	*3.91*	*4.11*	*3.89*
Sexual health, maternal and child care	**4.37**	**4.37**	**4.10**	**4.41**	**4.16**	**4.77**
Sex education	*4.36*	*4.37*	*4.65*	*4.52*	*4.24*	*4.33*
A child's first 1,000 days	*4.16*	*4.11*	*4.50*	*4.05*	*4.23*	*3.93*
Planned parenthood	*4.13*	*4.14*	*4.35*	*4.00*	*4.13*	*4.04*
Healthy pregnancies	*3.99*	*3.89*	*4.35*	*3.90*	*4.01*	*3.93*
Healthy environment	**4.52**	**4.58**	**3.75**	**4.55**	**4.56**	**4.81**
Impact of poverty on health	*4.46*	*4.44*	*4.80*	*4.40*	*4.50*	*4.36*
Availability of healthy food	*4.45*	*4.59*	*4.95*	*4.22*	*4.35*	*4.41*
Pollution (air, sea water, soil)	*4.08*	*3.89*	*4.35*	*4.18*	*4.10*	*3.69*
Adequate housing	*3.80*	*3.58*	*4.40*	*3.81*	*4.10*	*3.62*
Access to clean drinking water	*3.59*	*3.11*	*4.20*	*3.82*	*3.65*	*3.54*
Mosquito control	*3.40*	*3.33*	*3.95*	*3.60*	*3.35*	*3.31*
Infectious diseases	**4.71**	**5.00**	**5.55**	**4.37**	**4.84**	**4.39**
Prevention and early detection	*4.29*	*4.35*	*4.48*	*4.23*	*4.27*	*4.11*
Sexually transmitted diseases	*3.80*	*3.79*	*4.19*	*3.73*	*3.86*	*3.75*
Pandemic preparedness	*3.62*	*3.58*	*3.85*	*3.62*	*3.45*	*3.75*
HIV/AIDS	*3.50*	*3.25*	*3.67*	*3.64*	*3.64*	*3.56*
Diseases caused by mosquitoes	*3.52*	*3.34*	*3.67*	*3.56*	*3.50*	*3.61*
Vaccine-preventable diseases	*3.32*	*3.46*	*3.29*	*3.16*	*3.23*	*3.48*
COVID-19	*3.08*	*3.06*	*3.00*	*3.20*	*2.77*	*3.14*

[7] The BES islands are included together here because (1) the responses were very similar, and (2) the BES islands individually had a lower response rate.

	Ranking domains (1=high, 8=low); *ranking avenues (1=low, 5=high)*					
Domains and avenues Ranked by average score	Total	Aruba	BES islands	Curaçao	Sint Maarten	Nether-lands
Informal support	**6.52**	**6.45**	**5.90**	**6.52**	**6.80**	**6.94**
Violence children, women, LGBT+	*4.34*	*4.35*	*4.50*	*4.34*	*4.35*	*4.15*
Taboo and misunderstandings about vulnerable groups	*4.09*	*4.07*	*4.25*	*4.04*	*4.15*	*4.07*
Supporting people with disabilities	*4.05*	*4.22*	*4.20*	*3.90*	*4.15*	*3.92*
Support from family, friends and neighbours	*3.63*	*3.69*	*3.65*	*3.54*	*3.70*	*3.58*
Support at work	*3.52*	*3.60*	*3.65*	*3.41*	*3.60*	*3.50*
Supporting fellow patients/peers	*3.46*	*3.68*	*3.40*	*3.34*	*3.32*	*3.42*
Injuries/wounds	**6.19**	**6.31**	**6.35**	**6.05**	**6.80**	**5.71**
Violence	*4.13*	*4.12*	*4.24*	*4.03*	*4.14*	*4.26*
Self-harm and suicide	*3.86*	*4.09*	*3.81*	*3.63*	*3.95*	*3.88*
Traffic accidents	*3.76*	*3.79*	*3.65*	*3.96*	*3.00*	*3.85*
Accidents at work	*3.23*	*3.25*	*3.48*	*3.23*	*2.95*	*3.26*
Accidents at home	*3.03*	*2.98*	*3.24*	*3.01*	*2.71*	*3.19*

3.3.3 Interpretation

At the domain level, the quantitative analysis shows a group of high-priority topics: research on chronic disease, mental health and organisation of care. The middle group includes the domains of sexual health and maternal and child care, healthy environment and infectious diseases. Injury/wounds and informal support are the domains with the lowest priority. It should be noted that the rankings are quite consistent between and within the avenues (sub-themes) between the different islands.

Perhaps more interestingly, research on prevention or addressing social determinants of health features strongly in all rankings within the avenues: e.g. overweight/obesity, addiction and substance use, strengthening primary care, sex education, prevention and early detection and violence. In particular, addressing social determinants, and to a lesser extent prevention, can help to improve 'health' across domains, in line with a 'positive health' approach. Therefore, in addition to ranking, priority should be given to cross-cutting issues related to social determinants and preventive care.

3.4 Results of reflection sessions Phase 4

The reflection sessions generally confirmed that previously prioritised domains do indeed need to be prioritised. To some extent, respondents brought nuance to the sessions. For example, mental health – in line with the questionnaire – was highly prioritised, as was, to a lesser extent, the organisation of care, while chronic diseases – in contrast to the questionnaire – were less explicitly addressed, with the exception of Bonaire. It is also interesting to note that, in contrast to earlier phases, sexual health was more prominent during the reflection sessions. The reflection sessions also confirmed the need to focus on specific target groups, in particular: young children, youth, migrants and people living in poverty. In line with the previous phases, the reflection sessions devoted much attention to the social determinants of health. In particular, there was a focus on nutrition, a healthy physical/social living environment, cultural differences and poverty.

In general, the reflection sessions showed that the themes cannot be seen in total isolation from each other, and that it is the interrelationships that are important to include in research (as is also intended by the concept of 'positive health'). The reflection sessions also revealed that from a practical perspective, research questions are mainly explanatory and related to the effectiveness and implementation of interventions such as: 'What is the relationship between culture and parenting, between parenting and obesity, between obesity and school performance?' And 'To what extent are LVB issues addressed in practice, and how do we minimise the impact of shame?'

4. Bottlenecks and opportunities related to health research programming on the different islands

This chapter answers research question 2: *What are the barriers and facilitators in programming based on the responses to the research and knowledge questions collected in the region?* What bottlenecks did the participants in the interviews and reflection sessions identify? In what ways do they think health research programming can be improved? The most discussed barriers are in the following areas: funding, research field capacity, use of knowledge infrastructure, cooperation and community involvement. The most discussed facilitators are strengthening the capacity of the research field, exploring integrated and innovative approaches, working more synergistically and collaboratively, and addressing societal involvement. A complete overview of all the barriers and facilitators for each island can be found in Annex 9.

4.1 Barriers

4.1.1 Funding and agenda setting for research

There are limited financial resources and capacity for optimal health research. Researchers' research priorities and healthcare challenges do not align with the priorities of funding organisations, so it is not always easy to get funding for proposals on the different islands. In addition, the grant application process is perceived as being too bureaucratic for local stakeholders, and local voices are often not represented on the evaluation committees that award grants. Furthermore, the division into autonomous countries (Curaçao, Aruba and Sint Maarten, CAS) and special Dutch municipalities (Bonaire, Sint Eustatius and Saba, BES) has had less favourable consequences for funding: the CAS islands can provide more complex care services and have more research capacity than the BES islands, but it is mainly organisations on the BES islands that are eligible for certain grants from the Netherlands. In addition to Dutch funding agencies, regional organisations such as the Caribbean Public Health Agency (CARPHA) and the Pan American Health Organization (PAHO) are also seen as important partners for research and policy support to local governments in the CAS islands. These organisations can help with co-funding and technical support for research and innovation programmes, but it takes years to qualify for them because it is difficult to organise the required contributions from governments on the different islands. As a result, there are regulatory barriers and conditions to research funding.

> *'You have to understand, the CAS islands are in an incredibly difficult position. They're not part of the EU, so they can't apply for anything there. They can find almost all of the Dutch grants, but they can't apply for them. They're not a developing country, because then suddenly they're considered part of the Kingdom again and too rich. So those three struggle in terms of where to go for funding.'*
>
> *R19, Research, Curacao*

4.1.2 Local research capacity

Organising care-related research is challenging and requires a lot of creativity. All of the islands are confronted with insufficient capacity in terms of human resources and the necessary expertise to carry out research projects optimally and to use the results in practice. Saba and Sint Eustatius are such small islands that there is no room for research and innovation in addition to the existing care activities. Due to limited human resources, the necessary expertise, skills and time to translate research findings and knowledge into practice and policy are lacking. Much expertise is flown in (often on a temporary basis), making it impossible to carry out longer-term projects. The well-known brain drain across the islands makes it difficult to retain skilled staff and thus ensure continuity of research and care. Local researchers often work individually and therefore in a fragmented way,

which hinders the continuity of research projects.

> *'One challenge/barrier is the limited availability of local researchers and know-how. The island is small. People and expertise have to be "flown in" from elsewhere. All kinds of arrangements need to be made for the external researchers.' R26, Policy, St Eustatius*

4.1.3 Inadequate knowledge infrastructure

Respondents on all the islands mentioned that there is far too little recent data available to be able to do evidence-informed work. This is particularly true of prevalence and incidence data on the occurrence of diseases and disorders on the various islands, but also of data needed to manage the accessibility, quality and affordability of care, such as information on medical errors and care expenditure. Organisations that can collect population-level data do not always do so systematically due to lack of capacity. Other surveys are often small-scale and therefore provide little useful data. The importance of responsible data management for research is not widely understood. Moreover, there is no central infrastructure for storing data and sharing knowledge. There is also fragmentation of data management at both universities and research institutes, and little or no opportunity to triangulate data. Furthermore, little is done with government research reports. There is insufficient knowledge or expertise to translate them into practice or policy. Due to the low use of research reports and findings, research results have little or no societal impact.

Currently, the health research system on the different islands is structured on the basis of individual projects. The projects are mostly funded by the governments of the different islands or by Dutch funds and grants, which also largely set the agenda. Follow-up on the impact of the projects is limited, partly because of their short duration, the limited involvement of local stakeholders and the aforementioned challenges of knowledge transfer. On the other hand, the patchwork of individual projects also contributes to maintaining the fragmentation of the research system on and between the different islands, by prioritising funding projects rather than strengthening the overall research infrastructure, which would go a long way to promoting collaboration between practice, policy and research.

> *'I don't see an overview of the reports the government is putting out on its website. I've never heard of them asking the public or us what we would like to see in terms of data research or what we would like to see more of. Surely that would be a worthwhile conversation to have...' R29, Practice, St. Maarten*

4.1.4 Complex collaborations

Across the islands, collaboration is perceived as difficult because parties often act out of individual rather than collective interests. A few respondents mentioned that they had experienced resistance in obtaining funding, carrying out research and/or implementing programmes. As a result, there is often a lack of trust in other professionals and/or organisations, there are few common starting points because professionals work in a fragmented way and not everyone is included in the collaborations in a transparent way

Power relations and rivalries between the parties have a historical background and make collaboration a complex matter. As a result, communication between them is disrupted, 'issues' remain undiscussed and parties do not find common ground. Other factors, such as differences in how care is organised, differences in language and culture, as well as the lingering effects of the colonial past and the remote geographical location of the various islands, make collaboration difficult. Innovation is also often perceived as a threat. In addition, it is difficult for professionals on the different islands to be critical because of perceived power relationships and the small size of the communities on the different islands.

> *'I think this has to do with our long history, from before our time. Let me put it this way. Things happen. For example, people used to work together and then one person would take away the other person's job without telling them. From that point on, that person isolated himself and stopped working together. Then new people come in and a culture is created in which they're afraid. The result is a culture lacking in trust. I have to say that I do see a change, a connection in the new generation. They're open to working together.'*
> *R11, Practice, Curacao*

4.1.5 Low social engagement

Respondents on all of the islands mentioned that there is not really a research culture. Not everyone sees the importance of research and/or is willing to participate. It also seems that there is not always effective and clear communication about research and the (necessary) involvement of the population in it. Finally, it seems that respondents find it difficult to give honest answers (e.g. about income, sexually transmitted diseases) or, on the contrary, are less assertive and do not dare to speak out.

> *'A stumbling block can be that people do not see the importance of participating in research in order to have decent data that can serve as a starting point for developing the policies needed to effectively support the community.'*
> *R3, Policy, Aruba*

4.2 Facilitators

4.2.1 Strengthening research capacity

When it comes to strengthening research capacity, it seems promising and useful to consider the possible role of master's students, social workers, young professionals, (aspiring) PhD students and independent researchers. They can have a positive influence on the ability to carry out research projects and develop new initiatives. This can be done, for example, by creating internships and doctoral studies on the various islands from existing initiatives/projects, provided that funding and supervisory capacity are available. Respondents also mentioned that the small scale of the ABCSSS islands also offers potential benefits. Expertise should be pooled rather than fragmented. In this respect, several respondents pointed out that investments should be made in platforms that aim at cooperation between policy, practice, research and education, not only on the ABCSSS islands, but also within the Kingdom of the Netherlands, in order to address common health problems.

'So, the people of my generation are the first to have the opportunity to go to the Netherlands or the States to study. And now they're slowly coming back to St. Maarten, but they have no influence yet. So I do see opportunities there, because they're also really motivated and have the capacity to change things. But they're not in that position yet. So I think there's quite a large group of people, mainly young professionals, who want to, but can't yet.'
R29, Practice, St. Maarten

4.2.2 Strengthening the knowledge infrastructure

Strengthening the knowledge infrastructure is seen as an important facilitator. This includes investing in data management policy, effective communication about research and the knowledge it generates, and the transfer of knowledge into policy and practice. Examples mentioned include a knowledge base of the various island governments or another central information point so that the wheel is not constantly being reinvented. In addition, a coordinating Dutch-Caribbean knowledge centre for health and care could provide an opportunity to strengthen capacity building and anchor initiatives. By building partnerships on and between the different islands, more can be invested in sharing knowledge and expertise on important common issues such as healthy lifestyles, addiction and chronic diseases. A well-informed population also contributes to greater public engagement in health research. To this end, it is important to share research results through communication that is relevant to the perceptions of all population groups. For optimal knowledge transfer, it is important to consider the role of governments on the different islands in agenda setting, implementation, monitoring and evaluation of health policies. Respondents see promise in linking research to education and policy in a situation- and time-specific way. This will provide support and encouragement to work in a truly evidence-informed way in daily practice, for example by always taking research into account when making policy decisions on the different islands.

'I think it would also be interesting if the islands learned from each other. Why does one island have more obesity than another? What might be the cause of that? Where is alcoholism most prevalent and what might be the reason for that? To know more about these kinds of things.'
R32, Research, Bonaire

4.2.3 Promoting collaborations and synergies

Respondents from all of the islands mentioned that it is important to invest in a common starting point, vision and/or approach to what are essentially a few different public health challenges per island. In particular, investing more in synergies between BES and CAS islands was mentioned, as care organisations and professionals on the different islands are highly interlinked and face the same issues. An example already mentioned is the sharing of capacity needed for data management, effective communication of knowledge and the transfer of research knowledge into policy and practice. It is important to work on mutual trust and to discuss bottlenecks and pain points on an ongoing basis. In the context of 'representation', it is important to include different perspectives in applying for, conducting research and/or implementing care programmes, with representation from all islands involved. Involving the different islands in projects can help to ensure appropriate adaptation to the local context, for example by involving experienced professionals already working in the health sector on each island.

> *'What I always see as an as an opportunity in the islands – and it's not related to research but also to policy development – is their small scale. Sure, it's our Achilles heel, right? The Small Island Developing State… but the small scale and the short lines also offer opportunities because you can build knowledge networks very quickly. You can build collaborative networks that span across entire sectors in no time.'*
> *R13, Research, Curaçao*

4.2.4 Integrated and innovative approaches

Investing in prevention and social determinants such as poverty and care services is seen by respondents not only as promising but also necessary. Integrated approaches that establish links between education, poverty and care seem promising. Investment in early diagnostics was also mentioned. Respondents from Saba and Sint Eustatius, in particular, mentioned investing in innovative working methods such as knowledge workshops and prevention shops.

> *'If you have to name one it wouldn't be breast cancer but diabetes. And obesity of course, but start with these children then. Start with these children and do early diagnosis with the adults.'*
> *R14, Practice, Curaçao*

4.2.5 Promoting community involvement

It is important to continue to work towards more community involvement in care-related research. Research provides opportunities for community discussion of taboo subjects such as mental health problems, sexual behaviour, violence, and drug and alcohol use. Dissemination of research also raises public awareness, provided it is done in an understandable/local language. In addition, actively involving and using the community is a good strategy to increase social participation. Consider initiatives where the community can be mobilised to implement bottom-up innovations, such as outreach programmes for specific target groups.

> *'Research provides opportunities to discuss taboos, such as those on mental health problems, sexual promiscuity, and drug and alcohol abuse.'*
> *R3, Policy/Practice, Aruba*

5. The existing health research system

This chapter answers research question 3: *Which academic and knowledge institutions, care and support organisations, social parties, citizens' initiatives, and other institutions and individuals are relevant to answering the research and knowledge questions in the region?* Insights on this are based on the desk research from Phase 1, supplemented by organisations from the respondents who participated in Phase 3 of the foresight study.

121 organisations were identified, including three universities (in Aruba, Curaçao and Sint Maarten), seven medical schools focused on the US market, two kingdom-wide organisations (Asosiashon Mediko di Antias (AMA) and the Caribbean Research Acquisition Forum (CARAF)) four research institutes (Eastern Caribbean Health Foundation (ECHF), Fundashon Prevenshon, Curaçao Biomedical & Health Research Institute (CBHRI) and the Institute of Public Health Curaçao (VIC)), and two knowledge-sharing platforms (Netherlands-Caribbean Foundation for Clinical Higher Education (NASKHO) and Pontem). Project Bureau Caribbean is a practice-oriented platform in the field of (action) research and training for health and welfare.

The overview is not exhaustive and only mentions larger institutions and organisations. The reason is that potential respondents for the interviews representing smaller organisations, such as citizen initiatives, patient associations and independent researchers, often did not respond to our invitation and do not have a fixed work address, making it unclear to what extent they are active. The different organisations are visually represented in Annex 7 and are available online with name and specialisation.

6. Conclusion

The aim of this foresight study is to find out whether, and if so in what way, ZonMw can contribute to the public health of the population on the ABCSSS islands and to the elimination of existing disadvantages through a specific health knowledge programme.

The research and knowledge needs related to care and well-being fit well with the Dutch concept of 'positive health'. Our analysis shows that health research should focus not so much on the medical aspects of diseases, but primarily on the social determinants (poverty and education) involved in the development and progression of diseases and the prevention of diseases, which is of great importance in this context. In line with this, strengthening primary care (which also has a preventive role) is a priority. We emphasise that social determinants, prevention and strengthening primary care are cross-cutting issues that can make an important contribution to reducing the relatively high burden of disease among ABCSSS islanders and thus to improving their quality of life. The concept of 'positive health' is linked to this, as it takes a broader view of health than just (solving) individual health complaints and problems, and is about strengthening people's ability to cope with the physical, emotional and social challenges of life. Here, practice leads, applied research and care initiatives facilitate, subsequent education is necessary to sustain the improvements made, and policy enables.[8]

The specific research themes as prioritised in the questionnaire provide a good basis for operationalising the above aims into more specific knowledge questions. The prioritisation here showed that almost all research directions were considered important. In particular, mental health, chronic diseases, organisation of care and sexual health were considered important at all stages of the study. These themes largely correspond to the results of the 2021 NWO survey for a scientific knowledge agenda for the ABCSSS islands, in which obesity, chronic diseases and mental health were identified as the most important health issues under the health theme.[9] In addition, the qualitative analyses in particular show that research should also focus on specific target groups such as young children, youth, the elderly, migrants, people living in poverty and those who identify as LGBTQIA+.

With regard to applications for ZonMw-funded health research, a number of barriers and facilitators were identified by the survey participants. The most widely discussed barriers are that less accessible grant opportunities are not available or are less accessible to applicants from the ABCSSS islands due to a mismatch

[8] Ellen van Steekelenburg, Ingrid Kersten and Machteld Huber. 'Positive health' in the Netherlands – Who, what, why and how? Institute for Positive Health and ZonMw. 2016.
[9] Josef Stuefer and Jan Bant. NWO. Personal communication.

of research priorities between the field and potential funders do not coincide, the lack of capacity of researchers and organisations on the various islands or the eligibility requirements of the funding (e.g. due to their location on the CAS islands or the requirement for co-funding by the various island governments). As a result, applications from this region seem less promising from the outset than those from the much larger research and knowledge institutions in the Netherlands, where competition for research funding is already high. However, on the smaller islands of the BES, Bonaire, Saba and Sint Eustatius, where organisations are often eligible to apply for ZonMw funding, there is a lack of application and export capacity, partly due to the relatively high turnover of healthcare providers from the European part of the Kingdom. Although the larger islands have researchers and research institutes with a lot of experience in the Dutch Caribbean context, they are often not eligible to apply for grants.

The opportunities mentioned (which can also be seen as recommendations by the respondents) are to make better use of the knowledge and experience of scientists and care providers, and organisations on the various islands (local ownership), to invest in training opportunities on and for the islands and to strengthen the knowledge infrastructure. They thus dovetail seamlessly with the recommendations of NWO's 2021 'Dutch Caribbean Research Platform' report, which highlights the importance of strengthening the overall knowledge system in the ABCSSS islands by stimulating research, sharing research results and supporting collaborations between (independent) researchers and organisations throughout the Kingdom of the Netherlands. For this purpose, the report recommends the establishment of a network organisation with anchor points on all islands, called DUCARP, with the task of strengthening scientific research on the ABCSSS islands in a coordinated way, both quantitatively and qualitatively.[10]

This foresight study identified 121 organisations in the ABCSSS islands that are important for answering health and health care research questions, including three universities (in Aruba, Curaçao and Sint Maarten), seven medical schools focused on the US market, two Kingdom-wide organisations (AMA and CARAF), four research institutes (ECHF, FP, CBHRI and VIC) and two knowledge exchange platforms (NASKHO and Pontem). The overview only lists larger institutions and organisations, as potential respondents from smaller organisations often did not respond to our invitation and also do not have a fixed work address, making it unclear to what extent they are active. The survey is available online with name, contact details and specialisation via Google Maps, and additions are welcome by email: info@fundashonprevenshon.com.

Based on our findings, we conclude that ZonMw can make a significant contribution to improving public health in the ABCSSS islands through targeted care programmes. The respondents we spoke to were overwhelmingly positive about this intention. To this end, ZonMw's current health research funding policy should be better tailored to the context of the different islands. A number of recommendations are made in the final chapter.

[10] Wiebe E. Bijker and Jorien Wuite. Towards the sustainable strengthening of the knowledge system in the Caribbean part of the Kingdom of the Netherlands. NWO. 2021.

7. Recommendations

This foresight study provides a number of starting points ZonMw's health research programming in the ABCSSS islands. These relate to locally prioritised topics and target groups, strengthening mutual cooperation, communication and the knowledge infrastructure needed to conduct health research, and adapting grant applications to the context of the different islands. In addition, the facilitators identified by respondents in 4.2 can be seen as recommendations for research.

7.1 Positive health, health themes and target groups

It is clear from the foresight study that social determinants, strengthening primary care and prevention are the most important and most promising cross-cutting elements of the necessary approach to the many causes of the various public health problems in the ABCSSS islands. This finding is more or less in line with the Dutch concept of 'positive health', which takes a broader view of health than the limited focus on (solving) individual health problems. The prioritisation of health issues showed that many issues were considered important, especially mental health, chronic diseases, organisation of care and sexual health. It is also important that research focuses on specific target groups, such as young children, youth, the elderly, migrants and people living in poverty. The implementation of evidence-based interventions can help to improve health outcomes on the islands.

7.2 Knowledge infrastructure, communication and collaboration

The limited knowledge infrastructure on the ABCSSS islands, such as the lack of access to (scientific) literature, the absence of policies on data management and research (capacity) development, and the limited academic framework, are bottlenecks that need to be taken into account in health research programming.

Targeted financial and technical support for health research from the Netherlands, and seeking collaboration with Dutch research and knowledge institutions and beyond, as well as with regional organisations such as the Pan American Health Organization (PAHO), the Caribbean Public Health Agency (CARPHA) and the University of the West Indies, can contribute significantly to a solution. However, the small scale that characterises the ABCSSS islands is a significant risk factor that may hinder the successful implementation of health research across the islands. This requires not only the establishment of close collaboration between the various institutions on the different islands and the pooling of their research efforts, but also the strengthening of these institutions themselves.

7.3 Collaboration within the field

It is important that practice, education, research and policy are well aligned. Translational and applied research with good evaluation and appropriate monitoring methods, involving not only the field but also the population, are needed to achieve social and civic impact. The existence of a gap between knowledge and implementation of health research was repeatedly highlighted by different respondents. This was linked to the relatively weak policy and

implementation capacity of government organisations and funded bodies on the various islands. Many respondents indicated that investments should be made to strengthen the cohesion between policy, practice, education and research on and between the different islands. This would also create a thematic link that would enable joint efforts to address the identified health problems, for example through the establishment of joint research platforms. This approach also fits in with the roles of the organisations to operationalise the concept of 'positive health', where practice is leading, applied research and development is facilitating, and subsequent education, necessary to sustain the improvements and policies achieved, is enabling.[11]

7.4 Island contexts

There are no major differences between the ABCSSS islands in terms of prioritised research directions and target groups. However, there are island-specific factors that influence social determinants. Therefore, to some extent, research can be programmed uniformly across the area, as long as the programming and the resulting research are flexible enough to take account of island-specific factors. The research to be carried out will always have to reflect the local context. A concrete example is that only a minority of the population on the ABCSSS islands uses the Dutch language in everyday life, so it makes sense to include the English language in calls for health research. Participatory methods that involve all stakeholders in the research are important to achieve this, while leaving room for exploration and piloting.

[11] Ellen van Steekelenburg, Ingrid Kersten and Machteld Huber. 'Positive health' in the Netherlands – Who, what, why and how? Institute for Positive Health and ZonMw. 2016.

8. Annexes

Annex 1 Abbreviations and definitions

Abbreviations

AMA: Asosiashon Mediko di Antias

BES: the special municipalities of Bonaire, Sint Eustatius and Saba

CARPHA: Caribbean Public Health Agency

CARAF: Caribbean Research Acquisition Forum

CAS: the autonomous countries of Curaçao, Aruba and Sint

Maarten

CBHRI: Curaçao Biomedical & Health Research Institute

ECHF: Eastern Caribbean Health Foundation

FP: Fundashon Prevenshon

NASKHO: Netherlands-Caribbean Foundation for Clinical Higher Education

NWO: Dutch Research Council

PAHO: Pan American Health Organization

SIDS: Small Island Development States

VIC: Institute for Public Health Curaçao

Definitions

Health research system: academic and knowledge institutions, care and support institutions, social parties and other institutions relevant to answering the research and knowledge questions.

Pontem: an online platform for research and researchers with strong ties to the Caribbean.

Annex 2 Literature review phase 1

Auteur(s)	Organization: Affiliation first author	Title	Year
Wildschut	Universiteit van Amsterdam	The Curacao Perinatal mortality survey	1988
Mol	University of Groningen	Doctor on Saba: health care and disease in a Caribbean family practice	1989
	MinGMN	Nota aids beleid (1993-1998): Nederlandse Antillen, Bonaire, Curaçao, Saba, St. Eustatius, St. Maarten	1992
Koopmans et al.	University of Groningen	The Curaçao health study ; phase 1: the pilotstudy	1993
Alberts, T	University of Groningen	The Curaçao health study : methodology and main results	1996
Lourentz et al.	GGD Curacao	HIV en Aids op de Nederlandse Antillen 1985-1996	1998
Eisden et al.	Ministerie GMN Curacao	Reproductive health Netherlands Antilles : status report	1998
Alberts, T	University of Groningen	The professionalized patient : sociocultural determinants of health services utilization	1998
Eimers et al.	GGD Curacao	Mantelzorg en professionele thuiszorg op Curaçao: een inventarisatie van het aanbod en de consumptie	1999
van der Torn	GGD Rotterdam	Health complaints & air pollution from the Isla refinery in Curaçao; with special emphasis to the respons	1999
	GGD Curacao	HIV/SOA en het clandestiene prostitutie circuit op Curaçao: aanbevelingen tot gerichte diagnose, behan	2000
Abdul Hamid	University of Curacao	De paramedische beroepsbeoefenaar in de Nederlandse Antillen: is een wettelijke regeling voor de pa	2000
Richenel Ansano		Cognition, autopoiesis and the skeptic observer: exploring a new approach to the relationship of culture	2001
Warnsinck et al.	University of Curacao	Healthy on Aruba, Bonaire and Curaçao : about the influence of climate, flora and fauna on your health	2002
O.Niel et al.	ISOG	Kon salú Boneiru ta? relato popular	2002
Koot et al.	Departamentu Salu Mental Kòrsou	Curaçao child mental health study : assessment, prevalence, and need for help on behavioral and emoti	2002
Grievink et al.	ISOG	The St. Eustatius health study : how healthy is Statia? : methodology and main results	2002
Grievink et al.	ISOG	The Bonaire health study : methodology and main results	2002
	ISOG	The Saba health study: how healthy is Saba	2002
	Central Bureau of Statistics Curacao	Extended analysis of health and disabilities : fourth population and housing census Netherlands Antilles	2004
Roy Martina	University of Curacao	Second opinion in de praktijk: voor allen die meer willen dan gezondheid: optimaal welzijn	2006
	Department of Public Health, overheid Aruba	ARUBA STEPS Survey	2006
Sharan et al.	All India Institute of Medical Sciences	A Survey of Mental Health Research Priorities in Low- and Middle-Income Countries of Africa, Asia, and	2009
Martis	University of Curacao	Fatum Health NV : het herontwerpen van het schadeverwerkingsproces op Fatum Health NV ter verbete	2009
Soloway et al.	University of Minnesota, USA	Blood pressure and lifestyle on Saba, Netherlands Antilles	2009
Ellings	Federatie Jeugdzorg	Jong (&) moeder. Een inventariserend onderzoek naar de situatie van tienermoeders.	2010
Hermanides et al.	Bloedbank Rode Kruis Curacao	Developing quality indicators for the care of HIV-infected pregnant women in the Dutch Caribbean.	2011
Lizanne Francisca	University of Curacao	Corporate governance in the health care sector on Curaçao : the implementation of corporate governanc	2011
Buunk-Werkhoven et al.	University of Groningen	Determinants and promotion of oral hygiene behaviour in the Caribbean and Nepal	2011
Boersma et al.	General Practice , Curaçao.	Mifepristone followed by home administration of buccal misoprostol for medical abortion up to 70 days	2011
Boersma et al.	General Practice , Curaçao.	Reproductive health care for women in Curaçao : induced abortion and contraception	2011
Richenel Ansano		Guarding Through the Seventh Generation: Trauma, Coloniality and Building the Future	2011
	Caribbean Health Research Council	Health Research Agenda for the Caribbean 2011	2011
Van den Brink et al.	University of Groningen	Attitude toward contraception and abortion among Curaçao women. Ineffective contraception due to li	2011
van Wijk et al	MinGMN	Risk Factors for Domestic Violence in Curacao	2012
Spreeuwers et al.	University of Amsterdam	Registration of work-related diseases, injuries, and complaints in Aruba, Bonaire, and Curaçao	2012
Boersma et al.	General Practice , Curaçao.	Termination of pregnancy in Curaçao: need for improvement of sexual and reproductive healthcare.	2012
Sattoe	University of Curacao	A policy framework for a financially stable health care system in Curaçao	2013
Hermanides et al.	Bloedbank Rode Kruis Curacao	High incidence of intermittent care in HIV-1-infected patients in Curaçao before and after starting cART.	2013
Westerhof et al.	Volksgezondheid Instituut Curacao	Zorgrekeningen 2008-2012	2013
Snoeijs et al.	NIVEL	Evaluatie van de structuur en de zorgverlening van de eerstelijnsgezondheidszorg op Curaçao: een studi	2013
	WHO	WHO-AIMS report on Mental Health System in St. Maarten	2013
Sastre et al.	Florida International University, USA	Improving the Health Status of Caribbean People: Recommendations from the Triangulating on Health E	2014
Koenraad et al.	Caribisch Juristenblad	Vraag en aanbod binnen het Arubaanse forensisch-psychiatrische veld	2014
Boersma et al.	General Practice , Curaçao.	Induced abortion is not associated with a higher likelihood of depression in Curaçao women	2014
Leslie et al.	Eastern Caribbean Public Health Foundation	Dengue serosurvey in Sint Eustatius.	2014
van Wijk et al	MinGMN	The Effectiveness of a Mixed-Mode Survey on Domestic Violence in Curaçao: Response and Data Quality	2015
	Sociaal Cultureel Planbureau	Vijf jaar Caribisch Nederland : gevolgen voor de bevolking	2015
de Wind	University of Curacao	A critical review of the cutback in social health care system in Curaçao, in regards to the "Basisverzekerir	2016
van Wijk et al	MinGMN	Antecedents to the Perpetration of Domestic Violence in Curaçao	2016
	Ministerie van VWS	Beleidsdoorlichting gezondheidszorg, jeugdzorg en publieke gezondheidszorg in Caribisch Nederland	2016
Guariguata et al.	University of the West Indies, Barbados	Systems Science for Caribbean Health: the development and piloting of a model for guiding policy on di	2016
Shankar et al.	Xavier University	Assessment of knowledge and perceptions toward generic medicines among basic science undergradua	2016
	Netherlands Institute for Human Rights	Poverty, social exclusion and human rights	2016
Verstraeten	Volksgezondheid Instituut Curacao	Global School-based Student Health Survey Curaçao 2015	2016
	Ministerie van VWS	Health Study Caribisch Nederland	2017
Richenel Ansano	NAAM	Advances and Challenges in Safeguarding Traditional Medicine in Curaçao	2017
Dijkstra et al.	University of Curacao	General cognitive distortions and body satisfaction: Findings from the Netherlands and Curaçao	2017
Verstraeten et al.	Volksgezondheid Instituut Curacao	De nationale gezondheidsenquête Curaçao - Resultaten, methode en tabellen	2017
Leslie et al.	Eastern Caribbean Public Health Foundation	An analysis of community perceptions of mosquito-borne disease control and prevention in Sint Eustat	2017
Verstraeten	Volksgezondheid Instituut Curacao	Monitor wachttijden medisch specialistische zorg 2017	2017
Kist-van Holthe et al.	VU Medical Center, Amsterdam	Stabilization of the obesity epidemic and increasing thinness in children in Caribbean Bonaire	2018
Peters et al.	University Maastricht	Chikungunya virus outbreak in Sint Maarten: Long-term arthralgia after a 15-month period	2018
Pin et al.	Volksgezondheid Instituut Curacao	Themarapport: Gezondheid, leefstijl en zorggebruik in de "Arme Wijken"	2018
Desiree Hooi	VU Medical Center, Amsterdam	HPV and cervical cancer on Curaçao: towards implementation of an integrated prevention programme	2018
Pulster et al.	Mote Marine Laboratory, USA	Exposure Assessment of Ambient Sulfur Dioxide Downwind of an Oil Refinery in Curaçao	2018
Goodyear-Smith et al.	University of Auckland, New Zealand	Primary Care Research Priorities in Low- and Middle Income Countries	2019
Verstraeten et al.	VIC	Differences in life expectancy between four western countries and their caribbean dependencies, 1980	2019
Verstraeten et al.	VIC	Health Policy Performance in 16 Caribbean States, 2010-2015.	2019
Verberk et al.	RIVM	Third national biobank for population-based seroprevalence studies in the Netherlands, including the C	2019
Lim et al.	Artemis One Health Research Foundation	Zika Virus Outbreak on Curaçao and Bonaire, a Report Based on Laboratory Diagnostics Data	2019
Dijkstra et al.	University of Curacao	Weight-related selves and their relationship with body mass index among young individuals in Curacao	2019
	NWO	Summary of survey Research Agenda	2019
Vos et al.	RIVM NI	Risk of Measles and Diphtheria Introduction and Transmission on Bonaire, Caribbean Netherlands, 2018.	2019
	UNICEF	Situatieanalyse kinderen en jongeren in Caribisch Nederland	2019
	PAHO	Universal Health and the Pandemic – Resilient Health Systems Aruba, Curaçao, Sint Maarten, Bonaire, Si	2020
Vos et al	RIVM NI	High varicella zoster virus susceptibility in Caribbean island populations: Implications for vaccination	2020
Verstraeten et al.	VIC	Population Health in the Dutch Caribbean: A comparative study of political context and health policy pe	2020
	RIVM	Geintegreerde risicoanalyse Caribisch Nederland	2020
	WHO	SIDS policy brief climate change and health	2021
	WHO	SIDS policy brief COVID-19 response	2021
	WHO	SIDS policy brief Health Systems Challenges: Workforce and Medicines	2021
	WHO	SIDS policy brief Noncommunicable Diseases and Mental Health Conditions in SIDS	2021
	WHO	SIDS policy brief Nutrition, food systems and biodiversity	2021
	WHO	SIDS policy brief Universal Health Coverage and Primary Health Care	2021
	CaribResearch	CARIBRESEARCH RESEARCH AGENDA 2022-2026	2021
M.M. Immink	RIVM	Circulation of Bordetella pertussis in the Caribbean Netherlands: a population-based seroepidemiologi	2021
Vaitiare Mulderij-Jansen	University of Groningen	Evaluating and strengthening the health system of Cura?ao to improve its performance for future outbr	2021
van Goudoever et al.	Universiteit Utrecht	The Impact of Health Risk Communication: A Study on the Dengue, Chikungunya, and Zika Epidemics in C	2021
Jayburtt Dijkhoff	Universiteit Utrecht	Kwaliteitsregulering: het recht op kwaliteit van de gezondheidszorg in Aruba	2021
Boerma et al.	NIVEL	De huisartsenzorg op Aruba: gezien vanuit de bevolking, de patiënten en de zorgverleners.	2021
	Rathenau Instituut	Wetenschappelijk onderzoek in het Caribisch deel van het koninkrijk	2022
	Healthy Caribbean Coalition	Empowering communities to create healthier schools	2022
A. M. J. de Droog	Universiteit Utrecht	" Die dag ben ik gestopt met autorijden...": Visueel beperkten in Aruba: Zelfbeschikking, identiteit en respect in h	
Richenel Ansano		African American healing systems and biomedical practice : an argument for moving from a plural system to an int	

Annex 3 Interview protocol Phase 2

Introduction

Can you briefly tell us a little more about who you are, what your background is and how you are involved in the wider health system of <island(s)>?

Research topics

We have asked you to take a look at Annex I – a 'work in progress' overview of the main health domains around which ZonMw can structure its programming. It is not our aim in this interview to complete this overview in its entirety. The various themes naturally include an infinite variety of concrete issues, some of which are shown for illustrative purposes. We are particularly interested to hear our views on this overview.

- How can research contribute to better public health in the Caribbean islands?

- What are the biggest issues that require research? Are these the biggest, most important and all-encompassing issues in terms of identifying the key research and knowledge questions at play on <island> and in the region?

- What are important and relevant sub-themes are missing for you?

- What are your priorities if you had to make choices, and why?

- Where do you see the biggest challenges and barriers in the health system that are relevant to health research programming? Consider research capacity (staff, funding), collaboration (local, regional), use of existing knowledge infrastructure, availability of data, attitudes towards research/use of research.

Reflecting on the local and regional research system

- Where do you see opportunities – e.g. existing initiatives, untapped potential, promising collaborations, synergies – in the health system that are relevant for health research programming?

- Strengths and weaknesses of the research capacity

- Question related to effective policy cycle. Ask respondents to reflect on the health system in terms of the policy cycle

Further:

Do you any have experience with ZonMw-funded projects, and are there any important personal lessons ('aha!' moments) or warnings that come to mind or that you can share?

Annex 4 Overview of organisations surveyed at interviews

Asosiashon Mediko di Antias

Curaçao Biomedical & Health Research Institute

Dr David Ricardo Capriles Clinic

Erasmus University Rotterdam

Foundation for Catholic Education

Aruba (SKOA)

Fundashon Prevenshon

Medicine and Health Service (G&Gz) Curaçao HOH

Aruba Academy

Horacio Oduber Hospital Public

Health Inspection Aruba

Mental Health Caribbean

Ministry of Health, Environment and Nature Curaçao

Parliament of Sint Maarten

Public Health Department Saba

RE-Quest Research & Consultancy

Saba Cares

Social domain Sint Eustatius

Social Workplace Saba

University of Aruba

World Wildlife Fund

White & Yellow Cross Care Foundation Sint Maarten

Annex 5 Domains and avenues questionnaire Phase 3

Domains	Avenues
Chronic diseases (such as diabetes or heart and vascular diseases)	• Diabetes • Cardiovascular diseases (including stroke) • Cancer • High blood pressure
	• Overweight/obesity • Promoting a healthy lifestyle • Self-care to prevent complications
Infectious diseases (such as HIV/AIDS or COVID-19)	• COVID-19 • HIV/AIDS • Diseases caused by mosquitoes (Dengue, Zika, Chikungunya) • Vaccine-preventable diseases (e.g. measles, hepatitis B) • Sexual transmissible diseases (chlamydia, syphilis) • Prevention and early detection • Pandemic preparedness
Injuries/wounds	• Accidents at work • Traffic accidents • Accidents at home • Violence • Self-harm and suicide
Sexual health, maternal and child care	• Sex education • Planned parenthood • Healthy pregnancies • A child's first 1,000 days
Mental health	• Depression/anxiety • Substance use and addiction • Psychosis • Mental disorders starting in childhood and adolescence • Dementia • Taboo and misconceptions about mental health • Prevention and early diagnosis • Patient experience around treatment • Self-care to prevent complications
Domains	**Avenues**

Organisation of care	• Education of (future) caregivers • Availability of modern health services, e.g. through e-health and diagnostics for hereditary diseases. • Financing of care • Strengthen primary care (GP, home care) • Figures on health and care (diseases, mortality, burden of disease, use of care)
Healthy environment (air, water, soil and food)	• Access to clean drinking water • Adequate housing • Mosquito control • Pollution (air, sea water, soil) • Availability of healthy food • Impact of poverty on health
Informal support (from family, friends and the community)	• Support from family, friends and neighbours • Supporting fellow patients/peers • Support at work • Support for people with mental and physical disabilities • Taboo and misunderstandings about vulnerable groups • Violence against e.g. children, women, LGBT+

Annex 6 Overview of organisations surveyed at reflection sessions

General reflection session:
Asosiashon Mediko di Antias (AMA)
CARAF
Ministry of Health, Environment and Nature Curaçao
Ministry of Tourism and Public Health Aruba
Public Entity Saba

Reflection sessions islands:
Public Entity Sint Eustatius
EduGuru Consultancy
Saba Cares
Public Health Department Saba
Turning Point St. Maarten
Biba Contento consultancy for Welfare 60+ Aruba
Instituto Pedagogico Arubano (IPA)
University of Aruba
Health Inspection Aruba
Ministry of Justice and Social Affairs
Aruba
Quality Care Institute Aruba
PSYMIA and AAPO (association of psychologists and (ortho)pedagogues)
Aruba
Curaçao Police Force
Youth and forensic doctor Bonaire
Social Worker Bonaire
Policy Officer Bonaire

Annex 7 Healthcare research system organisations

Kingdom-wide

Organisation	Category
Asosiashon Mediko di Antias (AMA)	Association of (bio)medics
Caribbean Research Acquisition Forum (CARAF)	Research platform
Pontem (NWO)	Research platform

Aruba

Organisation	Category
Doctor Horacio E. Oduber Hospital (HOH)	Medical care
University of Aruba	Higher education
Aureus University School of Medicine	American medical school
Xavier University School of Medicine	American medical school
Insurance Agency for General Medical Expenses	Health insurer
Foundation for the Mentally Disabled Aruba (SVGA)	Disability care
Mental Health Foundation (RESPALDO)	Mental health care
Fundacion Servicio Laboratorio Medico (LabHOH)	Medical laboratory
BOB Aruba Foundation	Preventive care
Laboratorio Medlab	Medical laboratory
IMSAN Dr Rudy Engelbrecht Medical Center	Medical laboratory
Public Health Laboratory Aruba	Medical laboratory
Foundation for Public Health White-Yellow Cross	Home care, mother and child care
Aruba Home Care Foundation	Home care
Hope Foundation	Social care
Aruba General Care for the Elderly Foundation	Elderly care
Centro di Memoria	Mental health care
Fundacion pa Maneho di Adiccion di Aruba (FMAA)	Addiction care
Fundacion di esnan visualmente incapacita (FAVI)	Disability care
Ministry of Tourism and Health	Board
General Practitioners Association Aruba (HAVA)	Association for general practitioners
Department of Public Health (DVG)	Public health
Central Bureau of Statistics	Statistics
Fundacion Anti Droga Aruba	Addiction care

Bonaire

Organisation	Category
Mental Health Caribbean	Mental health care
Fundashon pa Kwido Personan Desabilita Na Boneiru	Disability care
Fundashon Mariadal	Medical care
Care and Welfare group	Social care
Bonaire Laboratory (Bonlab)	Medical laboratory
Primary Care Caribbean	Medical care
Bonaire Public Health Department	Public health
Dutch Caribbean Youth Care	Youth care
Care and Youth Caribbean Netherlands (ZJCN)	Health insurer
Department of Public Health	Public health
Dutch Caribbean Healthcare Hotline	Inspection
Department of Social Support	Social care
Sentro Salu Convent	Elderly care
Fundashon Alzheimer Bonaire	Mental health care
Sports Institute Bonaire (Indebon)	Sports
Federashon Sentro Bario Boneiru Foundation (FESBO)	Social care
Fundashon Pro Hubentut	Youth care

Curaçao

Organisation	Category
Curaçao Project Office	Project and training agency
Curaçao General Practitioners Association	Association of general practitioners
Analytical Diagnostic Centre (ADC)	Medical laboratory
Antillean Adventist Hospital	Medical care
Medical and health service (G&Gz)	Public health
Fundashon Prevenshon	Preventive care/research institute
Curaçao Medical Center (CMC)	Medical care
Dr. David Ricardo Capriles Clinic	Mental health care
Famia Planea	Preventive care
Fundashon Pro Bista	Disability care
Fundashon Verriet	Disability care
Youth Health Care (JGZ)	Youth care
Maternity Clinic Fundashon Duna Lus	mother and child care
LabdeMed	Medical laboratory
Medical Laboratory Services (MLS)	Medical laboratory
Perspektiva i Sosten Integral Skuchami (PSI)	Mental health care
SGR Group	Disability care

Birgen di Rosario Foundation	Elderly care
Brasami Foundation	Addiction clinic
Red Cross Blood Bank Foundation	Blood bank
Bandabou Home Care Foundation	Home care
'Princess Margriet' White Yellow Cross Foundation	Home care, mother and childcare
Ministry of Health, Environment and Nature	Board
University of Curaçao	Higher education
Instituto pa Formashon den Enfermeria (IFE)	Education sector care and welfare
Avalon University School of Medicine	American medical school
Caribbean Medical University	American medical school
St. Martinus University	American medical school
Curaçao Biomedical & Health Research Institute (CBHRI)	Research institute
Public Health Institute Curaçao (VIC)	Research institute
NASKHO Netherlands-Caribbean Foundation for Clinical Higher Education	Platform medics
Banki di Seguro Sosial (SVB)	Health insurer
Public Health Inspectorate	Inspection
Statistics Netherlands	Statistics
Betesda Nursing Homes Foundation	Elderly care
Fundashon Sonrisa	Mental health care
Federation of Antillean Youth Care	Youth care
Federation of Healthcare Institutions Foundation	Healthcare institutions platform
Fundashon Desaroyo Deportivo Korsou	Sports

Sint Maarten

Organisation	Category
University of St. Martin	Higher education
American University of the Caribbean	American medical school
SZV Social & Health Insurances	Health insurer
White and Yellow Cross Foundation	Home care, mother and child care
St. Maarten Medical Center	Medical care
Mental Health Foundation	Mental health care
Turning Point	Addiction care
Department of Collective Prevention Services	Preventive care
Youth Healthcare Department	Youth care
St. Maarten Laboratory Services	Medical laboratory
Ministry of Public Health, Social Development and Labor	Board
Inspectorate Public Health, Social Services & Labor	Inspection
Department of Statistics	Statistics

Department of Public Health	Public health
Department of Statistics	Statistics
Health Care Laboratory Sint Maarten	Medical laboratory
FAVE, St. Maarten Academy	Education
ECHF (Eastern Caribbean Health Foundation)	Research institute
Sint Maarten Medical Association (SMA)	Association of general practitioners
Windward Islands Medical Association (WIMA)	Association of general practitioners

Saba

Organisation	Category
Saba University School of Medicine	American medical school
Saba cares	Elderly care
Dutch Caribbean Youth Care	Youth care
Care and Youth Caribbean Netherlands (ZJCN)	Health insurer
Public Health Department Saba	Public health
Dutch Caribbean Healthcare Hotline	Inspection
Mental Health Caribbean	Mental health care
Saba United Sports Federation	Sports

St. Eustatius

Organisation	Category
Queen Beatrix Medical Center	Medical care
Chapelpiece Recreational Centre	Social care
St. Eustatius Auxiliary Home Foundation	Home care
Dutch Caribbean Youth Care	Youth care
Care and Youth Caribbean Netherlands (ZJCN)	Health insurer
Public Health Department of St. Eustatius	Public health
Dutch Caribbean Healthcare Hotline	Inspection
Social Support staff	Social care
Mental Health Caribbean	Mental health care

Annex 8 Interim justification of costs incurred

The annex shows a comparison of the budgeted and actual costs of the project. This is an interim statement in which:

- Payment and exchange costs incurred between banks in the Netherlands and in Curaçao have not yet been taken into account;
- Not all final material costs are known yet.
- What is already clear, however, is that we will stay within budget.

	Budget	Actual costs
Staff costs		
Caribbean Project Office		12,000
Athena Institute		12,000
RE-Quest Research & Consultancy		1,272
Total staff costs	**25,200**	**25,272**
Material expenses		
Translation NED-PAP	3,500	2,887
Travel and accommodation	7,750	No quote/invoice yet received
Logistics of reflection sessions	10,500	No quote/invoice yet received
Publication of report	1,000	N/A, no planned costs
Administration fee	850	Not yet known
Support costs	1,200	1,200
Total material expenses	**24,800**	**2,887**
Total	**50,000**	**28,159**

Annex 9 Overview of barriers and facilitators of the care system resulting from Phases 2 and 4

Barriers

Barrier	Description	Mentioned in
1. Funding and agenda setting of research	Lack of funding/grant/budget due to budgets being used for priorities other than research.	Aruba, Curaçao, St. Maarten
	Qualification and appreciation of local researchers in the eyes of ZonMW.	Aruba, Curaçao
	Lack of adequate representation of local voices in decision-making on research funding.	Aruba, Curaçao
	Complicated and bureaucratic grant application process is a challenge for local researchers.	Aruba, Bonaire, Curaçao
	Management and organisation of available funds: plenty available, but difficult to manage well, resulting in inadequate budgets/funds in practice.	Aruba, Bonaire
	Researchers have to make choices for dissemination with limited resources: top-ranking journals vs local foundations.	Curaçao
	CAS/BES structure has tricky implications for funding. CAS is not an NL/EU/developing country and therefore has little access to funds.	Curaçao
	Health insurers pay too little attention to prevention.	Aruba
	Hiring researchers is expensive and not always justifiable to the government.	St. Maarten

Barrier	Description	Mentioned in
2. Limited local research capacity	Local government cannot always properly prioritise.	Bonaire, Curaçao
	Gap in effective policy cycle: little knowledge, expertise and time to translate research into practice. Research is not reaching practice.	Bonaire, Curaçao, Saba
	Dutch researchers involved who do not always act in accordance with local culture and customs.	Aruba, Curaçao
	Insufficient human capacity in the field to carry out research projects (data collection and intervention). Difficulty retaining senior staff from previous jobs. Less manpower e.g. volunteers. Little expertise permanently present on the islands, much expertise flown in.	Aruba, Bonaire, Saba,
	Fragmentation of academics into four groups: 1. establishment working at university/institutes; 2. independent researchers; 3. diaspora researchers; 4. visiting scholars. This is disruptive to continuity, but also to who has access to money and collaborations in the first place?	Curaçao
	Brain drain: Maintaining capacity is problematic.	Curaçao
	Ensuring continuity of research is challenging.	Curaçao, Saba
	Organising care is challenging. How can you deal with this creatively?	Bonaire, Saba, St. Eustatius
	No/few research organisations /the university mainly engages in education.	St. Maarten

Barrier	Description	Mentioned in
3. Flawed infrastructure	Few recent, up-to-date data available. Especially mentioned prevalence data. Certain important data are deliberately not kept and shared, e.g. mortality due to wrong intervention, proper protocol was not followed, etc.	Aruba, Bonaire, Curacao, Saba, St. Eustatius, St. Maarten

	Organisations that can collect data often have other priorities, and do not do this systematically. People do realise, however, that data is needed for research, yet it is not prioritised in practice.	Aruba, St. Maarten
	Data is fragmented – not only at universities but also at research institutes.	Curaçao
	Aspects of data access, openness, transparency and privacy. Who has access to important data?	Curaçao
	There is no central knowledge infrastructure for the islands where data can be stored. Need for inter-island knowledge system.	Aruba, Bonaire, Curacao,
	Surveys often small-scale and provide little data.	Bonaire, Curacao,
	Government (deliberately) does nothing with investigation reports. Report disappears in drawer. Or lacks the knowledge/competence to make effective translations to policy. Government promotes and publishes few studies. Little/no societal impact due to low use of reports and results.	Aruba, Bonaire

Barrier	Description	Mentioned in
4. Complex Collaborations	Trust in each other is not always there, this has its own history, there is rivalry among themselves, or parties are not included with equal transparency from the start. This gets in the way of securing support. With like-knows-like, not everything is uttered, and certain things remain too taboo to discuss.	Aruba, Bonaire, Curaçao
	Fragmentation of academics into four groups makes collaboration difficult.	Curaçao
	Power relations: hierarchical and colonial thinking prevents local people from speaking up, asking critical questions, and thus improving the quality of care. For example, doctor-nurse relationships.	Curaçao
	Innovation is often seen as a threat.	Curaçao
	Several conflicting interests of parties who often cannot work it out. Few shared principles. Competition, on the contrary, often leads to fragmentation among themselves.	Curaçao, St. Eustatius, St. Maarten
	Researchers act out of self-interest rather than the collective local interest. BES-CAS division is nonsensical – e.g. GGZ: Bonaire provides ambulatory care but needs Curaçao for clinical scale-up. Saba and St. Eustatius have to divert to St. Maarten for slightly more complex care.	Aruba, Bonaire, Curacao, Saba, St. Eustatius
	All islands have a different language, culture and historical context. This makes a joint approach more difficult. Four countries, three languages. Geographical hurdle. Complex to maintain collaboration between islands.	Bonaire, Curacao, Saba, St. Eustatius
	Regional collaboration with British and French islands also very difficult because of post-colonial structures.	Aruba, Bonaire, Curacao, Saba, St. Eustatius, St. Maarten
	Little coordination among themselves, everyone goes their own way, reinvents the wheel by themselves.	Saba

Barrier	Description	Mentioned in
5. Low Social Engagement	Information about research is often not conveyed in clear effective language that reaches local people in an informative way.	Aruba, Curaçao
	Lack of assertiveness – people (population, patients) are less able to articulate what is going on, do not have dialogue with others, do not readily file a complaint.	Curaçao, St. Eustatius
	No/little incentives for locals to participate in research.	Aruba, Curaçao
	Resistance to NL-funded research.	Aruba, Curaçao
	Respondents sometimes find it difficult to give honest answers, e.g. about income and STDs.	Aruba
	No/little research culture on the islands. Not everyone sees the usefulness and importance of research, resulting in little support.	Aruba, Bonaire, Curaçao, Saba, St. Eustatius, St. Maarten

Facilitators

Facilitator	Description	Mentioned in
1. Strengthening capacity of research field	Further explore and exploit more effectively the research capacity and role of the university, for instance in the further development of knowledge and academic workshops.	Curaçao
	Further explore and exploit more effectively the research capacity and role of independent researchers, but also the many social workers involved.	Bonaire, Curaçao
	Create opportunities to retain highly educated people on island and combat brain drain.	St. Maarten
	Offer young professionals opportunities to contribute to their island. There is a large diaspora in the Netherlands and US.	St. Maarten
	A local scientific core of (aspiring) PhD researchers joining forces and expertise.	Curaçao
	Exploit the small scale of the island, which has drawbacks but also advantages: e.g. the lines are short; that could be (better) exploited	Bonaire
	Being deliberately open to master's students who often have fresh and innovative knowledge and bring strategies.	Curaçao
	More learning and sharing on big common themes like healthy lifestyle, addiction and chronic diseases.	Aruba, Bonaire, Curaçao
	Create more opportunities for PhD research on the islands from existing initiatives/projects. Money is needed for this, as well as supervisory capacity.	Bonaire
	Offer more traineeships.	Bonaire
	A central research centre for the benefit of all islands offers opportunities to embed capacity building.	Aruba

Facilitator	Description	Mentioned in
2. Strengthening knowledge infrastructure	Important to share knowledge so others can build on it and are not forced to reinvent the wheel.	Curaçao, Saba, St. Eustatius
	Establish knowledge database at the ministry.	Curaçao
	Triangulation through different methods helps to achieve deeper and more complete understanding of issues.	Curaçao
	Research that understands the needs of the population provides the opportunity for government to improve healthcare.	Aruba
	A national government prevention programme increases the likelihood that results are actually taken up by policy.	Aruba, Curaçao
	More focus/optimisation on agenda setting and implementation, as that is where things often go wrong currently. Monitoring and evaluation.	Bonaire, Curaçao, Saba, St. Eustatius
	Consciously thinking about how to include the government directly or indirectly in research; the link with education in particular opens many opportunities e.g. anchoring commitment to work with results.	Curaçao, Saba, St. Eustatius

Facilitator	Description	Mentioned in
3. Promoting collaborations and synergies	Take advantage of short lines of communication – small scale allows you to approach people more personally and get them involved more quickly, for example.	Saba
	Explore how informal networks can be used better.	Bonaire, Saba, St. Eustatius
	Use online platforms like Ponton more to share knowledge and build synergies.	Saba
	Involve local parties as a trigger/applicant, but focus on those who emphasise practice, policy and research in projects.	Curaçao

	Investing more in common principles and definitions is an important basis for research. Working in a less fragmented way can benefit efficiency and quality on all islands. Many good lessons to be learned from pandemic.	Aruba, Bonaire, Curaçao, Saba, St. Eustatius, St. Maarten
	Increase investment to strengthen synergy between BES and CAS. The six islands are strongly intertwined.	Bonaire, Curaçao, Saba, St. Eustatius, St. Maarten
	The small scale of the islands means you can set up and maintain networks more easily.	Curaçao
	Providing an overview of how care is organised prevents fragmentation.	Curaçao
	Focus on representation. It is important to continue including different perspectives, and in particular local representation from all islands, who can bring in the local context.	Curaçao
	Make it acceptable to discuss each other as 'threats' and seek alignment	Curaçao
	Themes of poverty and mental health must be seen together.	Aruba
	Strengthen parenting, involve fathers more actively.	Aruba
	Better care inspection: quality assurance.	Aruba
	Strengthening care systems and organisations, in particular informal care and foundations.	Aruba
	Working together on prevention: national campaigns (repeated and low-key) and organise lectures.	Aruba

Facilitator	Description	Mentioned in
4. Integrated and innovative approaches	Allow research and education to converge. Education as a pillar alongside research brings many benefits.	Aruba, Curaçao
	Chance to start health education very early – as early as toddlers.	Curaçao, St. Maarten
	In 'complex adaptive systems', it is futile to wait for the perfect moment. Maintaining continuity of care is more important	Aruba
	Investing in early diagnostics and care is promising for the islands (preventive care).	Curaçao, Saba, St. Eustatius
	Investing in tackling poverty is key.	Bonaire, Curaçao
	Broaden care demand and integral approach to poverty, education and care.	Curaçao, Saba, St. Eustatius, St. Maarten
	Invest more in knowledge workshops where practice, policy and research come together.	Saba
	Open to explore new innovation approaches, e.g. prevention shop/clinic.	St. Eustatius

Facilitator	Description	Mentioned in
5. Promoting social engagement	Research provides opportunities for discussing taboos, such as those on mental health problems, sexual promiscuity, and drug and alcohol abuse.	Aruba, Curaçao,
	Disseminating research in accessible language for local people helps raise awareness, preferably in Papiamentu and English so it is accessible to more people.	Aruba, Curaçao, St. Eustatius
	Leverage 'community life' that can be mobilised to deliver bottom-up low-threshold care and support – promote outreach programmes.	Bonaire, St. Eustatius, St. Maarten