



Final Report

Suriname HiAP Consultancy – Erik Blas

This report briefly summarizes the consultancy taking place from June to October 2015 in Suriname and includes annexes of the most important deliverables. In addition to those included in this report-file, there are two Power Point presentation provided in separate appendices

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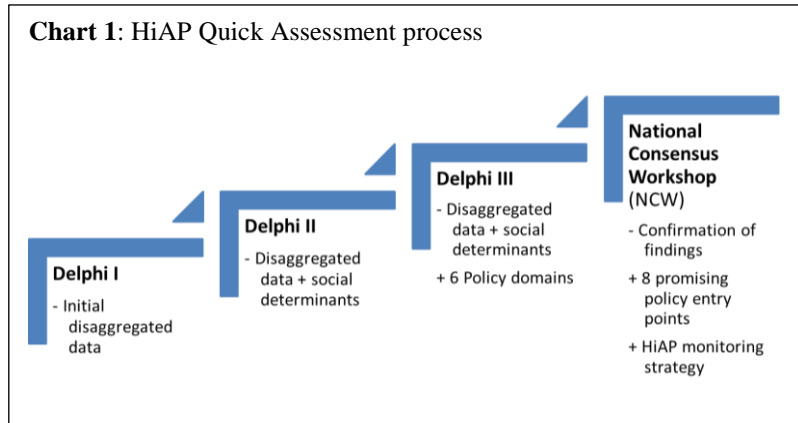
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1 Introduction

Following the world's first Health in All Policies (HiAP) sub-regional training following the WHO manual on HiAP with the overarching goal to effectively implement the Regional Plan of Action on HiAP across the Caribbean, a consultancy was initiated. The purpose of the consultancy was to assist in designing and implementing a quick scan across all ministries in Suriname with the aim to reducing health inequities by identifying social determinants of health and HiAP policy options. The process was dubbed "HiAP Quick Assessment". The terms of reference for the consultancy are attached as annex 1.

2 Process

The consultancy has involved three missions to Suriname (June, August and October, 2015). During the first mission in June 2015, it was realised that data to support the HiAP Quick Assessment, might be available, it would be scattered and there would be considerable gaps in knowledge.



Therefore an iterative and participatory approach to data gathering and analysis was chosen in order to harvest as much of the available information as possible as well as to build consensus around the assessment result. A four-step approach was followed (*Graph 1*) gradually engaging more and more experts and others from Suriname and internationally. The National Consensus Workshop (*held 29. August, 2015*) confirmed and supplemented the Quick Assessment findings and made an official statement to this effect. Further, the workshop made a statement on a rights-based strategy for HiAP monitoring. Subsequently and again through a participatory process, eight promising entry points for policy action as well as the HiAP Monitoring Strategy were developed. These were presented at a conference (21-22 October, 2015) with high-level political participation and commitment. Hereafter, implementation phase was ready for rolling-out.

3 Deliverables

The following was delivered during the consultancy:

- **15 Master sheets** – Reviewing evidence for the 15 largest contributors to the burden of disease in Suriname, the inequities and the social determinants at play (*Annex 2*);
- **Policy domain sheets** – analysing and grouping the identified social determinant and providing the first go on policy options, thus providing working input for the National Consensus Workshop (*Annex 3*);
- **Promising policy entry points** – analysing the output from the National Consensus Workshop and again through a participatory process distilling into eight promising policy entry points in order to form the basis for working groups transforming these into policy action (*Annex 4*);

- **HiAP monitoring Strategy** – based on the second statement of the National Consensus Workshop through a participatory process the HiAP Monitoring Strategy was formulated (*Annex 5*);
- **Four-page brief “Health of the Population – Health of the Country”** – summarizing the process and results in an easy to read format (*Annex 6*).

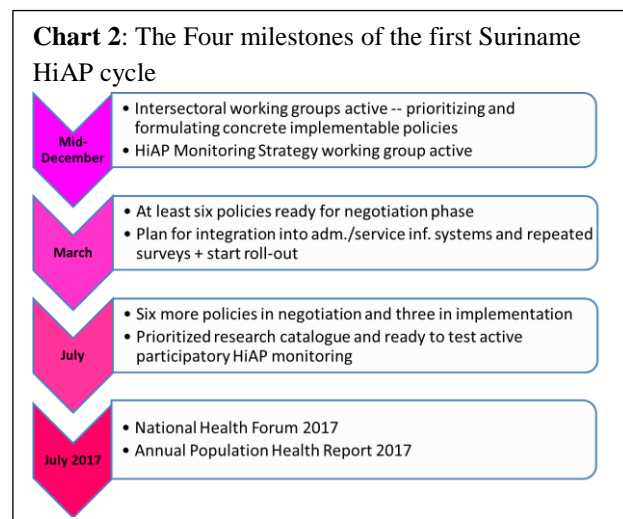
Further two slide presentations were prepared and given: (1) for Conference (21-22 October) and (2) for a meeting with PSs of Ministry of Foreign Affairs and Ministry of Health (appended as separate Power Point files)

Finally advice and input were provided with respect to the next steps, including to:

- Concept document and PAHO budget for 2016-2017;
- Terms of Reference for policy working groups and HiAP Monitoring Strategy Group;
- A generic work plan template elaborating on the milestones shown in chart 2 below.

4 Next steps

It will be important to continue strengthening and supporting national owner- and leadership of the HiAP at technical, political and public levels. It will be critical to deliver concrete policy changes and documented effects – to that effect, the above mentioned working groups will play key roles together with the National Health Forum 2017 and the Annual Population Health Report 2017. The first Suriname HiAP cycle is envisaged to have four milestones as described in chart 2. The second and third milestones (March and July 2016) will involve peer-review of proposals and selection of policy options to take forward. There is a considerable momentum and commitment to the HiAP. However, the momentum can quickly be lost, if the support, guidance and encouragement are not maintained.



It has been agreed that beyond the revised end-date (25. October) that the consultancy will continue providing ad hoc advice on request, including a Skype meeting once per month until the end of 2015. By 1. January, 2016, a new contract will be required as included in the PAHO/SUR work plan for 2016-2017.

Annex 1: Terms of Reference for consultancy

TOR: Reducing Health Inequities in Surinam: Identifying SDH/HiAP policy options – International consultant

Reporting to: WHO representative Surinam, working closely with the Government of Surinam and other key SDH stakeholders:

1. Objectives:

- i. To conduct a quick review of all available data, analysis, project proposals and through discussions with key informants; identify key health equity issues;
- ii. To assess underlying determinants of above health equity issues, which could be subject to public policy interventions
- iii. To identify with the respective sectors and stakeholders priority policies/interventions which could be reasonably implemented by public policy making
- iv. To identify with the respective sectors and the MoFinance rough, tentative public budget implications to be considered in 2016 budget cycle
- v. To propose initial SDH/HiAP policy and outcome indicators for policy monitoring as well as processes to develop/refine them further, which will feed into the regional Marmot Review that is likely to be launched in October, 2016

2. Products:

- i. A report synthesizing both contents and process 1-5 above including key recommendations for Regional Marmot Review that will be launched in October, 2016
- ii. Initial agreements with sectors on possible SDH actions which could be subject to formal inclusion in health and development Plans of the new administration
- iii. Rough public budget implications on the above

3. Time line and budget:

Contract start date 6. June, 2015 and the end-date 30. September

Fixed budget of US\$ 15,000 – 50% payable at signature of contract and 50% payable at completion, i.e. 30. September.

Travel costs, airfares, per diems, visa costs, etc. are outside of the contract but covered according to the standard UN/PAHO rates

4. Consultants basic skills requirements:

- i. Health equity qualitative and quantitative assessment
- ii. SDH/HiAP policy formulation, negotiation, M&E and Costing/budgeting

Note! The contract was subsequently extended to 25. October, 2015 and by US\$2,520 in order to support the International conference (held in Paramaribo 21-22 October) and provide advice to start up the implementation process.

Annex 2: Disease and condition Master sheets for HiAP

Burden of disease

The burden of disease (BoD) is a combined measure of life-years lost due to premature death and years lived with disability due to temporary or permanent ill health or impaired function. The BoD is thus not only an expression of individuals' and families' suffering but also a measure of lost productivity and opportunities for social and economic development for the country. The technical measure for the burden of disease is “*disability adjusted life-years*” (DALY).

For Suriname, the total BoD, i.e., number of DALYs lost per year is **168,200**. The shares contributed by “*Communicable, maternal, neonatal, and nutritional disorders*”, “*Non-communicable diseases*” and “*Injuries*” are **27%**, **58%**, and **15%** respectively. The 15 single largest contributors to the BoD are shown in the table.

The table also shows Suriname's rank among 15 comparator countries¹. It is noticeable that for ten of the 15 largest contributors to BoD, Suriname ranks at or near the bottom among the comparator countries.

Social determinants and inequity in health

The health of a population is largely determined by the conditions under which people are born, grow, live and die. Studies done elsewhere suggest that individual health care only explains about 20% of the level and distribution of population health. The remaining 80% is shaped by a range of social determinants (50%) and individual health behaviours (30%)². However, health behaviours are in turn also shaped by social

determinants. Sustained improvements to the overall level of health and to health equity thus must begin with identifying and addressing the important determinants. Health care services might compensate for some inequities in health. However, they might also further amplify already existing inequities.

| 15 largest contributors to BoD | DALY | Rank |
|---------------------------------|--------|------|
| 1 HIV/AIDS | 14,800 | 13 |
| 2 Stroke | 8,000 | 12 |
| 3 Preterm birth complications | 7,700 | 15 |
| 4 Ischemic heart disease | 7,600 | 6 |
| 5 Self-harm | 5,800 | 15 |
| 6 Major depressive disorder | 5,800 | 8 |
| 7 Road injury | 5,500 | 11 |
| 8 Diabetes | 5,300 | 10 |
| 9 Iron-deficiency anaemia | 5,100 | 14 |
| 10 Low back pain | 4,700 | 6 |
| 11 Neonatal encephalopathy | 4,300 | 15 |
| 12 Congenital anomalies | 4,200 | 14 |
| 13 Lower respiratory infections | 3,800 | 8 |
| 14 Chronic kidney disease | 2,800 | 15 |
| 15 Adverse medical treatment | 2,800 | 14 |

¹ Suriname's burden of disease rank among 15 comparator countries (*15 is worst*): Panama, Iran, Brazil, Serbia, South Africa, Cuba, Montenegro, Jamaica, Macedonia, Saint Vincent and the Grenadines, Dominican Republic, Colombia, Dominica, Belize. In GDB Profile: Suriname 2010

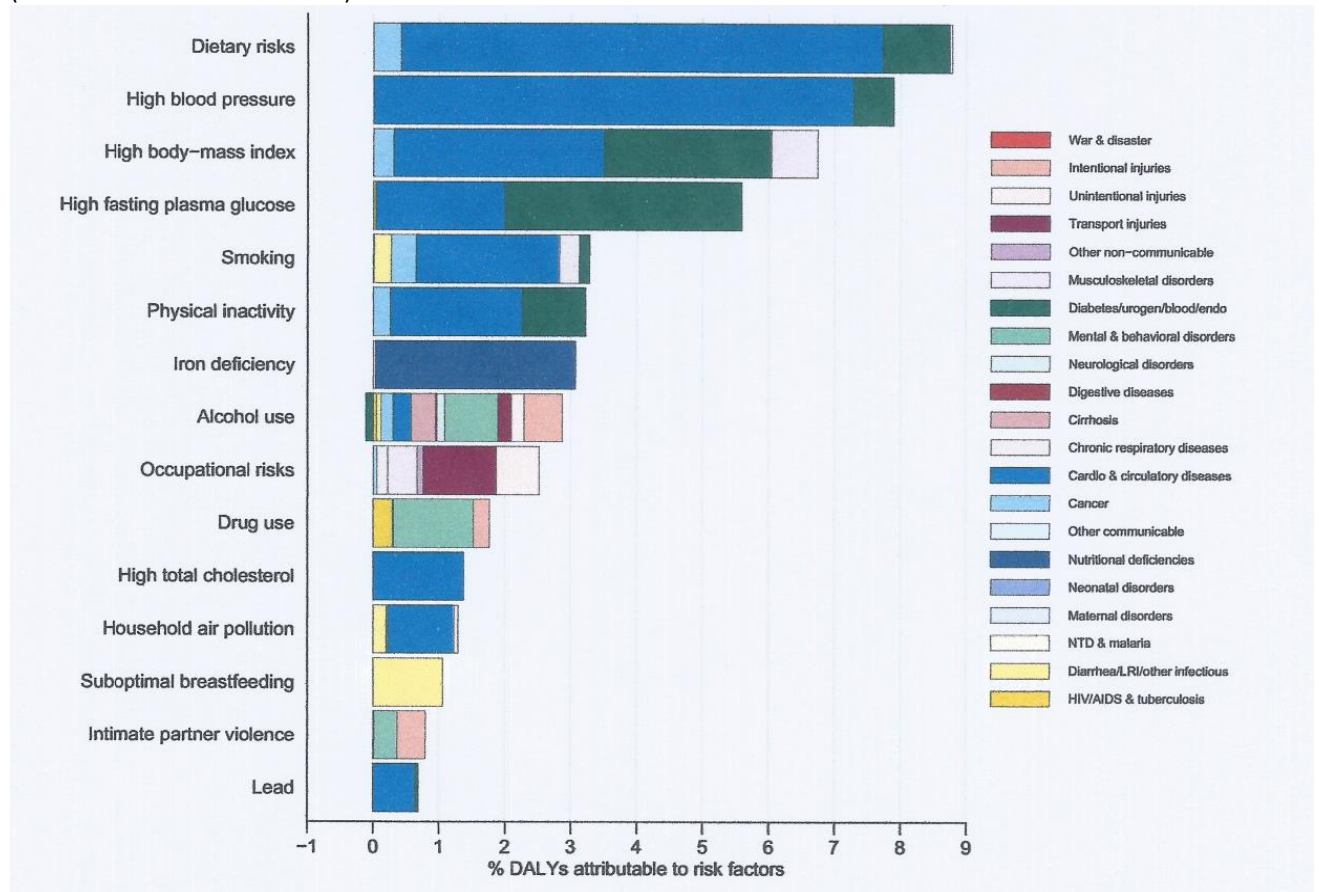
http://www.healthdata.org/sites/default/files/files/country_profiles/GBD/ihme_gbd_country_report_suriname.pdf

² <http://www.countyhealthrankings.org/>.

Risk factors

Overall, the three risk factors that account for the most disease burden in Suriname are dietary risks, high blood pressure, and high body-mass index. The leading factors for children under 5 and adults 15-49 years were suboptimal breastfeeding and occupational risks, respectively, in 2010³

Graph: The top 15 risk factors for Suriname. The coloured portion of each bar represents the specific disease attributable to that risk factor while the bar size represents the percentage of DALYs linked to specific risk factors (source: GBD Profile: Suriname)



The above graph illustrates the close links between the disease burden and social determinants. Addressing the social determinants will influence the risk factors, the level of disease and health, and health equity.

Inequity in health is not only unfair it also represents lost social and economic development opportunities for communities and the society at large. For each of the 15 largest contributors to the BoD in Suriname (table), master sheets have been prepared briefly describing the situation with respect to the burden of disease, risk factors, inequity and an analysis of the social determinants at play shaping the health of the Surinamese people.

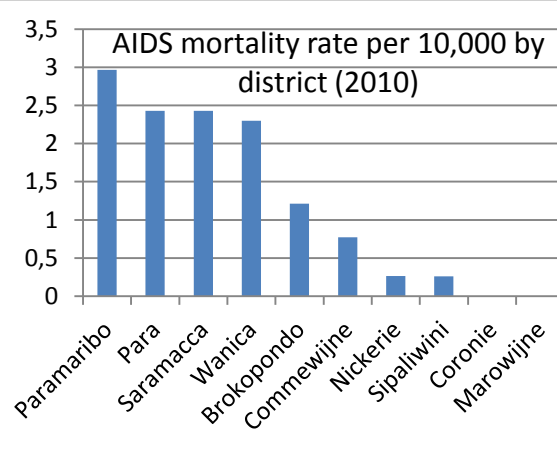
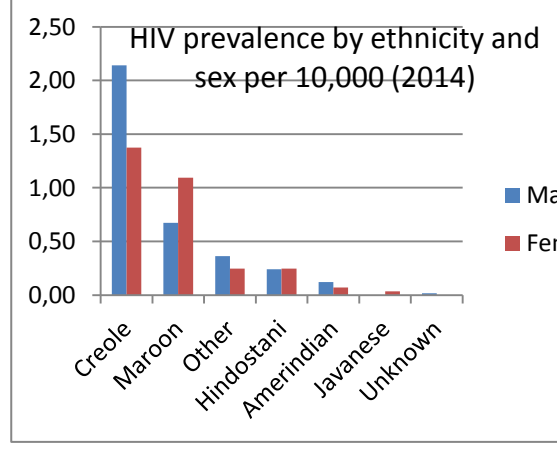
³ In GDB Profile: Suriname 2010

http://www.healthdata.org/sites/default/files/files/country_profiles/GBD/ihme_gbd_country_report_suriname.pdf

1 HIV/AIDS

According to the Global Burden of Disease data 2010, Human Immunodeficiency Virus infection (HIV) and Acquired Immune Deficiency Syndrome (AIDS) represent the largest burden from a single disease in Suriname. While in absolute numbers there may be more people dying from stroke and ischemic heart disease at old age, death and disability due to HIV/AIDS is the main cause of premature death and years lived with disability. AIDS also affects younger population groups, including new-borns – thus the years of life lost are higher than for diseases that kill at a later stage in life. People living with HIV/AIDS require lifelong treatment, and as such the burden and cost to the health system are high. Pregnant women with HIV need treatment to prevent them from infecting their child.

Main risk factors: Unsafe sex, multiple casual sex partners, sexual abuse, co-existence of untreated other sexually transmitted infections (STI), sharing of injecting needles.

| | |
|---|--|
|  <p>AIDS mortality rate per 10,000 by district (2010)</p> | <p>Disease / condition (per 10 000) by wealth quintile</p> <p>Currently, no data is available on HIV in Suriname by wealth quintile. Globally, there is conflicting evidence regarding the connection between wealth and HIV⁴. Generally, evidence suggests that HIV is prevalent across all wealth quintiles⁵.</p> |
|  <p>HIV prevalence by ethnicity and sex per 10,000 (2014)</p> | <p>Risk factor (per 10,000) by ethnicity</p> <p>The quick assessment did not find data on a risk factor for HIV/AIDS. Data should be collected on risk factors such as condom use, sexual networks or multiple partners among the whole (reproductive) population for both men and women.</p> |

Source (district data): Bureau of Health (BOG), *Doodsoorzaken in Suriname 2010-2011* (2012), mortality data

Source (ethnicity and sex data): Ministry of Health, Suriname Epidemiological Profile 2000-2013, mortality data; HIV infections 2014, Academic Hospital Surveillance data

⁴ Fortson, Jane G. "The gradient in sub-Saharan Africa: socioeconomic status and HIV/AIDS." *Demography* 45.2 (2008): 303-322.

⁵ Piot P, Greener R, Russell S (2007) Squaring the Circle: AIDS, Poverty, and Human Development. *PLoS Med* 4(10): e314. doi:10.1371/journal.pmed.0040314

Social determinants analysis: HIV/AIDS

Introduction:

AIDS deaths occurred during 2013 in all but two ethnic groups. However, the AIDS related deaths had a marked concentration in three population groups (Creole, Maroon, and Amerindian), which experienced from 50% to 500% more AIDS deaths or more per 10,000 population compared to the other population groups. Five districts around the capital city (Paramaribo, Para, Saramacca, Wanica, and Brokopondo) saw more than one AIDS death per 10,000 population in 2010. Death from AIDS might be due to further inequities related to access to care, health care seeking and treatment of patients within the health care system. However, it is also likely that there is a considerable underreporting on AIDS death due to stigma. Due to the prevention on mother to child transmission program (PMCTP), which is free of charge and integrated in the primary health care, there is a high success rate of babies born free of HIV.

Society – socio-economic context and position: movement of population groups to urban centres combined with social exclusion

Social, economic and physical environment: particular social norms, including sexual behaviours / practices and gender roles and relations; social stigma and discrimination; poor community settings with alcohol and drugs exposure; male only environments (e.g., prisons and work-camp sites)

Age of first sexual contact, first pregnancy, use of contraceptives, marriage norms, sexual practices and perceptions of health and disease vary across ethnic groups. Most sex workers are active in clubs or in the streets of downtown Paramaribo, and in and around the goldmines in the interior. Sex workers, drug users, and men who have sex with men often live in an atmosphere of illegality, marginalisation, stigma and discrimination. Further studies are needed on the influence of socio-cultural factors (gender, ethnic-cultural, religious, etc.) with regard to sexual behaviour. More women than men are tested: HIV-testing is offered to all pregnant women, while more women than men register at Voluntary Counselling and Testing (VCT) sites. No studies have so far been carried out to gain more insight into such gender differences.

Vulnerability: dysfunctional families; low education; alcohol and drug abuse; co-existence of untreated other sexual transmitted infections (STI); difficult access to STI treatment and HIV/AIDS antiretroviral drug treatment; self-treatment of STIs; lack of access to condoms; sexual abuse.

The use of needles in transmitting HIV is not considered a high risk in Suriname. A survey⁶ of the anti-drug council showed high use of marihuana, solvents and inhalants, but hardly any use of needles.

Adolescents are often left on their own in the city; the age of first sexual contact was very low (as low as 10 years); the number of casual sexual partners ranged from 1-5⁷. Stigmatization and lack of service for stigmatized groups may play a role in HIV infection and prevention of death due to AIDS; lack of access to care and information, low health care seeking; difficult to reach target groups, especially in the remote interior; and a limited dedicated budget for specific prevention programs to reach vulnerable groups complicate roll out of treatment and surveillance.

A study conducted for Women's Way in early 2012⁸ showed high drug use among MSM, transgenders, tranvestites and she-males with 61% having used drugs at some point and 44% still using drugs, only about half of those with more than one sexual partner had consistently used condoms during the past six months, 38% had never visited any service provider for help with sexuality, sexual health or gender identity, 5% reported having had a STI in the past one year, while 10% were not sure.

⁶ National Household Drug Prevalence Survey 2007 conducted by the executive office of the National Anti -Drug Council (UBN) in collaboration with the Inter-American Drug Abuse Control Commission (CICAD)

⁷ Short study by Foundation for Human Development for National AIDS Programme among adolescents, 2008

⁸ Behoeften onderzoek 'Vrouwen die houden van vrouwen', Julia Terborg

Health care system: low acceptability by sex workers, drug users and men who have sex with men (*see above*); discrimination; lack of appropriately trained staff; inadequate or weak health services, including lack of continuum of care (*high loss in follow-up*), low adherence to treatment.

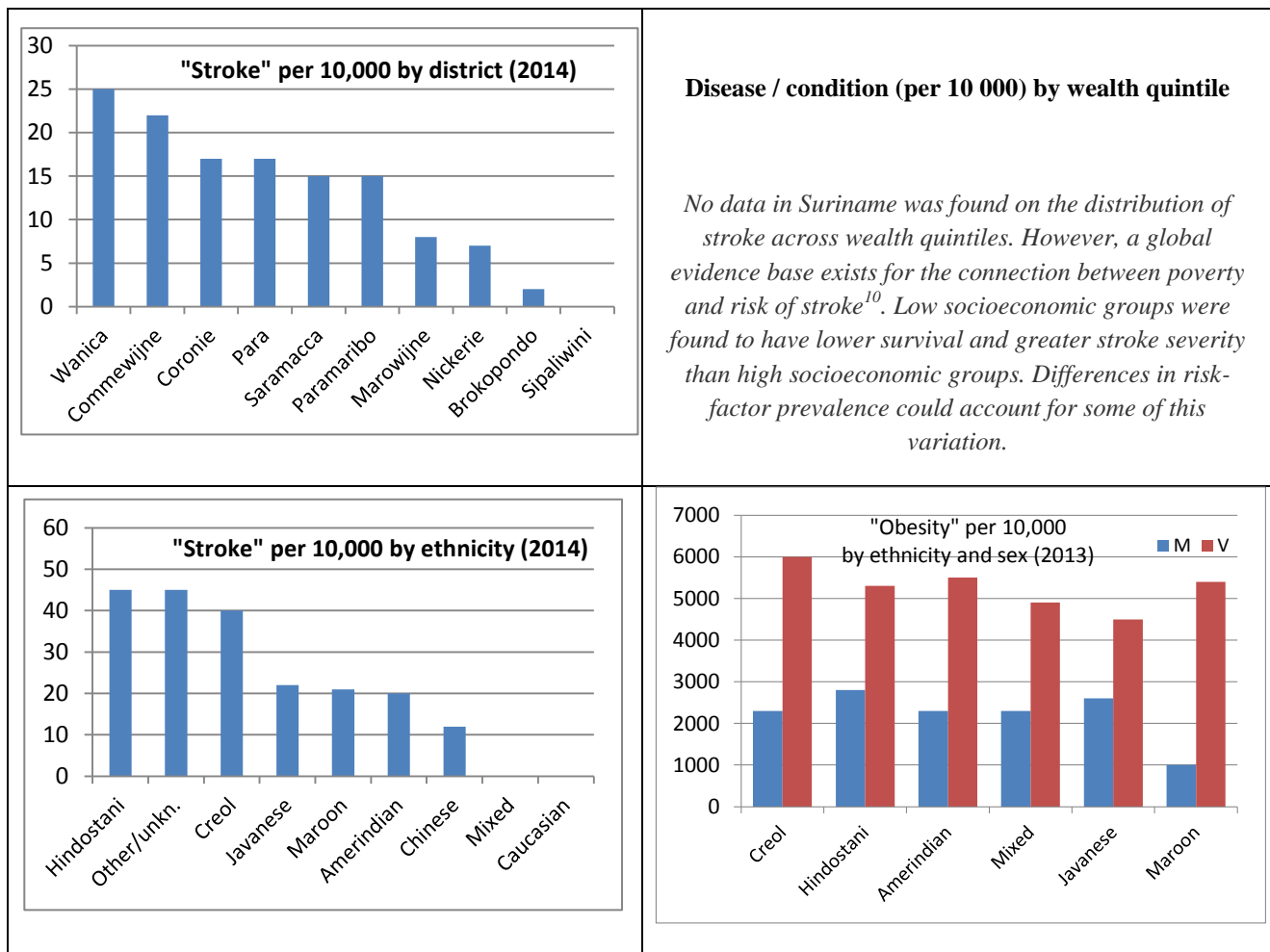
A survey⁹ among men having sex with men (MSM) and transgenders showed that 31.7% had experienced no barriers when using the health services, while 18.8% reported stigmatization and discrimination by health workers and 15.9% a lack of confidentiality by health workers. However, about 37.5% of the persons interviewed had never visited a clinic and preference by far was given to care from their own physician above other forms of health services: for information on sexuality/ gender identity (56.7%); HIV and other STD testing (46.7%); STD treatment (65.7%).

⁹ Needs assessment onder MSM en transgenders in Suriname, Tienieke Sumter & Zaïre van Arkel, for Stichting Lobi, June 2014

2. Stroke

Stroke is also known as *cerebrovascular accident*, *cerebrovascular insult*, or *brain attack*. It occurs when poor blood flow to the brain causes cell death, either due to lack of blood flow (*ischemic stroke*) or due to bleeding (*haemorrhagic stroke*). As a result, part of the brain will not function properly. Signs and symptoms of a stroke include: inability to move or feel one side of the body, problems understanding or speaking, feeling like the world is spinning and loss of vision to one side. Signs and symptoms often appear soon after the stroke has occurred and may be transient or permanent. Long term complications may include pneumonia or loss of bladder control. Prevention includes decreasing risk factors as well as possibly aspirin, statins, surgery to open up the arteries to the brain in those with problematic narrowing, and anticoagulant in those with atrial fibrillation (*abnormal heart beat characterized by rapid and irregular beating*). A stroke often requires emergency care. An ischemic stroke, if detected within three to four hours, may be treatable with medication that can break down the clot. Some haemorrhagic strokes benefit from surgery. Treatment to try recover lost function is called stroke rehabilitation, ideally taking place in a stroke unit.

Main risk factors: high blood pressure, tobacco smoking, diabetes, obesity, high blood cholesterol, unhealthy diet, processed red meat consumption, heavy alcohol consumption, previous transient attacks, and atrial fibrillation.



Source (Stroke): 2014 Academic Hospital Surveillance data, Ministry of Health, Suriname.

Source (Obesity by ethnicity): STEPS 2013 Academic Hospital Surveillance data, Ministry of Health, Suriname.

¹⁰ Cox, Anna M., et al. "Socioeconomic status and stroke." *The Lancet Neurology* 5.2 (2006): 181-188.

Social determinants analysis: Stroke

Introduction: The data presented here suggests that Suriname's districts fall into three categories in terms of burden of disease from stroke: (1) six districts (Wanica, Commewijne, Coronie, Para, Saramacca and Paramaribo all had between 15 and 25 stroke cases per 10,000 population in 2014; (2) three districts, i.e. Marowijne, Nickerie and Brokopondo with less than 10/10,000 stroke deaths in 2014; (3) Sipaliwini stands out from the rest with 0/10,000 reported stroke deaths in 2014. This could well be because cardiovascular patients will go to the city to seek care prior to having a stroke. Hindustanis are most affected, with over 40 cases per 10,000 in 2014 followed closely by Creoles who experienced about 40 cases of stroke per 10,000. Javanese, Maroons and Amerindians are also significantly affected at around 20 cases per 10,000. However, for a large part of the strokes the ethnicity of the patient was not known.

Society – socio-economic context and position: a move from low to middle income country; globalization and popularization of fast food; urbanization; skewed distribution of power and resources.

Social, economic and physical environment: Marketing and availability of food rich in fat, salt and sugar; infrastructure that does not support walking and cycling; social norms and culture that do not encourage healthy diet and physical activity, including walking and cycling; low access to physical activity facilities.

Food supply data indicated increased energy availability per capita over the past four decades (from 2000 kcal in 1961-1963 to ~2700 kcal in 2003-2005)¹¹. The increased energy availability appears to be related to corresponding increases in fat and sugar availability and possibly reflects changing food consumption patterns. The Global School Health Survey 2009¹² indicated a continuous high consumption of sugar, with 81% of children in Suriname consuming carbonated soft drinks one or more times per day.

Vulnerability: Physical inactivity, over-intake foods and drinks rich in fat, salt and sugar, low (including parental) literacy around nutrition, low intake of healthy food rich in micronutrients, diabetes, genetics, family history, job stress, low health care seeking and lack of access to appropriate health care.

The Global School Health Survey 2009¹³ mentions that the majority of children (73%) aged 13-15 years have less than one hour per day of physical activity. The survey data indicated that 26% of these children were either overweight or obese.

According to STEPS survey, the percentage of people with high blood pressure strongly increases according to age. Above 55 years old, 40-50% of the population suffers from hypertension. In this study about half of the cases were diagnosed for the first time. Hypertension is often called a silent killer, because those with hypertension do not notice until they get a fatal heart attack or stroke.

Health care system: lack of preventive care (educational, awareness raising and counselling services); lack of rehabilitative care, equipment and supplies; limited patient interaction.

¹¹ National Action Plan for the Prevention and Control of Noncommunicable Diseases 2012-2016

¹² Idem

¹³ Idem

3. Preterm Birth Complications

Preterm birth complications are the 3rd largest disease-attributable cause of premature death and disability in Suriname. Preterm is defined as babies born alive before 37 weeks of pregnancy are completed. Many preterm babies die and many survivors face a lifetime of disability, including learning disabilities and visual and hearing problems. In almost all countries with reliable data, preterm birth rates are increasing.

Inadequate knowledge on antenatal and pregnancy care and distance to a clinic is also known to increase the risk of inadequate antenatal care uptake, resulting in the inability to deal with preterm birth complications.

Main risk factors: multiple pregnancies; use of alcohol, tobacco or illicit drugs during pregnancy; infections and chronic diseases, such as diabetes and high blood pressure; high as well as low maternal age; nutrition; inadequate antenatal care; induction of labour or caesarean section, whether for medical or non-medical reasons; use of auto-aborting medicine and traditional auto-aborting practices; distance to clinic, changes in obstetric practices (more caesarean sections); genetics, iron deficiency anaemia.

| | |
|--|--|
| Disease / condition (per 10,000) by district | Disease / condition (per 10 000) by wealth quintile |
| Disease condition (per 10,000) by ethnicity and sex | Risk factor (per 10,000) by ethnicity |

Social determinants analysis: Preterm Birth Complications

Introduction

The quick assessment found that no data is currently available on preterm birth complications. More studies are needed to assess the extent of these complications and the burden on the public's health. Service reporting systems as well as repeated national surveys could be considered to include data collection on preterm births and related complications.

Society – socio-economic context and position: Urbanization; social status, economic, social or political inequality

Social, economic and physical environment: social norms, gender roles, cultural beliefs and practices, age of marriage, start of sexual activity, and maternal age; slum formation, crowding; clustering, deprivation;

Vulnerability: hard-to-reach populations; poverty; low access to health care; low health-seeking behaviour; low (parental) literacy, education and knowledge; low access to contraceptives and family planning; early childhood experiences, including abuse; sexual violence; lack of social capital, dysfunctional family or community links; low status of women; migration and work mobility; family size and birth order; neglect of the infant.

The lowest contraceptive prevalence is in Brokopondo (26%) and Sipaliwini (25%)¹⁴. Women's education is strongly associated with contraceptive prevalence: 19% of women with no formal education use contraceptives; 42% of women with primary education; 52% of women with at least secondary education. The total unmet need for contraception is also highest in Brokopondo (33%) and Sipaliwini (34%). Because of stigma, girls with complicated pregnancies often show up (too) late at the clinic. Lack of outreach or early detection programs hampers early response to these cases. In small settlements where everybody knows one another, young people who are sexually active prefer not to use contraceptives rather than their status should be discovered and questions asked.

Health care system: qualification of health staff; inadequate or weak health services; inequitable services; limited patient interaction and low social class.

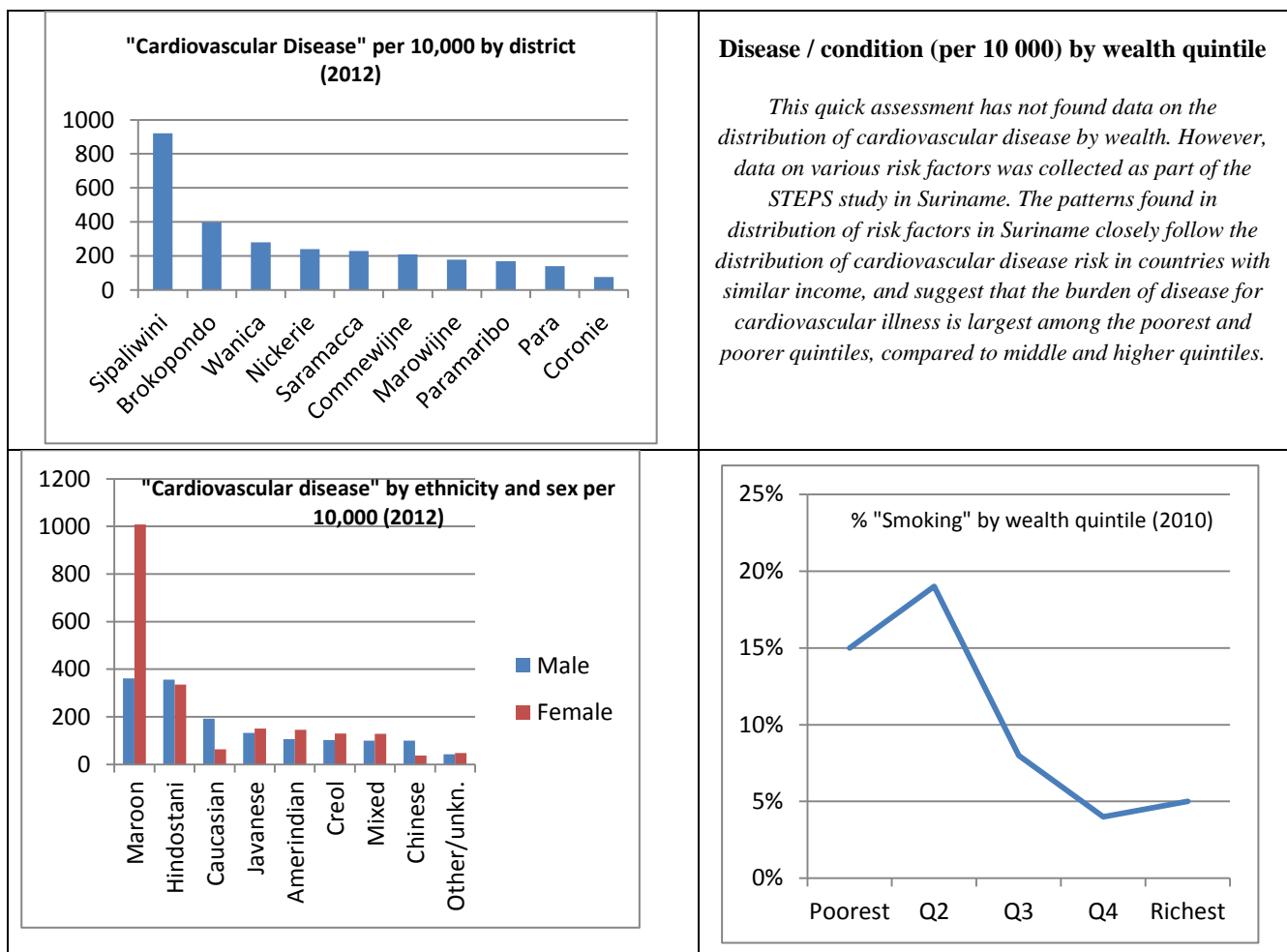
According to MICS (2010), 92% of women delivered their babies in a health facility: 72% in a public facility; 21% in a private facility. Only 4% delivered at home. Women in urban areas (95%) were somewhat more likely to deliver in a health facility than in the rural areas (88%).

¹⁴ Suriname MICS (2010), <http://microdata.worldbank.org/index.php/catalog/1913>

4. Ischemic heart disease

Ischemic heart disease ranks 4th in terms of burden of disease in Suriname and is also known as *coronary artery disease*, *atherosclerotic heart disease*, *atherosclerotic cardiovascular disease*, and *coronary heart disease*. It is a group of diseases that includes: stable angina, unstable angina, myocardial infarction and sudden coronary death and is among the most common type of cardiovascular diseases. A common symptom is chest pain and discomfort which may travel into the shoulder, arm, back, neck, or jaw. Usually symptoms occur with exercise or emotional stress, last less than a few minutes, and gets better with rest. Shortness of breath may also occur and sometimes no symptoms are present. The first sign is occasionally a heart attack and complications include heart failure and irregular heartbeat. Prevention is by eating a healthy diet, regular exercise, maintaining a healthy weight and not smoking. Sometimes medication for diabetes, high cholesterol, or high blood pressure is also used. Treatment involves the same measures as prevention. Additional medications such as aspirin, beta blockers, or nitro-glycerine may be recommended. In severe cases, procedures such as percutaneous coronary intervention or coronary artery bypass surgery may be used.

Risk factors include: high blood pressure, tobacco smoking, diabetes, lack of exercise, obesity, high blood cholesterol, poor diet, excessive alcohol consumption, depression, and family history



Source (CVD data): 2012 Census data, Suriname Bureau of Statistics (2012).

Source (Smoking by wealth quintile): STEPS 2013 Academic Hospital Surveillance data, Ministry of Health, Suriname.

Social determinants analysis: Ischemic Heart Disease

Introduction: There is little specific data on ischemic heart disease in Suriname. However, data currently available suggests that the prevalence of cardiovascular disease (including ischemic heart disease and stroke among others) is considerably higher in Sipaliwini and Brokopondo compared to the other districts. In Sipaliwini district almost 10% and in Brokopondo 4% of the population suffers from cardiovascular disease. For the other districts the prevalence is around 2% or lower. 10% of the female and nearly 4% of the male Maroon population suffers, while within the Hindustani population the prevalence is almost the same among males and females, i.e., close to 4%. Among the other ethnic groups the prevalence is less than 2%. For all these groups, except Caucasians and Chinese, the female prevalence is higher than that of the males. Of note, a large inequity exists in terms of distribution of risk factor hypertension: according to STEPS data (2012) Amerindians and Maroons are most suffering from hypertension, which indicates an unmet need for these populations and might explain high detected prevalence in Sipaliwini and Brokopondo districts, but low count at the facility level (*data not shown*). Academic hospital data, however, suggests that ischemic heart disease happens most in Hindustani population, but this might be because more Hindustanis seek care at the Academic Hospital than Amerindians or Maroons, since the patients of the Medical Mission are serviced by Diakonessenhuis.

Society – socio-economic context and position: a move from low to middle income country; globalization and popularization of fast food; urbanization; skewed distribution of power and resources.

Social, economic and physical environment: social norms about gender roles, preferred food and body shape; marketing and availability of food rich in fat, salt and sugar; lack of infrastructure that supports walking and cycling, social norms and culture that do not encourage healthy diet and physical activity, including walking and cycling; low access to physical activity facilities.

Obesity among women in Suriname is particularly worrying. A quarter of the women in age-group 15-24 years was found to be obese; more than half in the age-group 25-34 years, and in age-group 55-64 years more than three-quarters were obese¹⁵.

Vulnerability: Physical inactivity, over-intake of foods and drinks rich in fat, salt and sugar, low (including parental) literacy around nutrition, low intake of healthy food rich in micronutrients, diabetes, genetics, family history, job stress; low health care seeking; lack of access to appropriate health care, including preventive care and to secondary care by residents in remote districts.

The National Action Plan for the Prevention and Control of Non-communicable Diseases 2012-2016 mentions that the majority of children (73%) aged 13-15 years have physical activity of less than one hour per day. The survey data indicated that 26% of these children were either overweight or obese.

According to the STEPS survey, the percentage of people with high blood pressure strongly increases according to age. Above 55 years old, 40-50% of the population suffers from hypertension. In this study about half of the cases were diagnosed for the first time. Hypertension is often called a silent killer, because those with hypertension do not notice until they get a fatal heart attack or stroke.

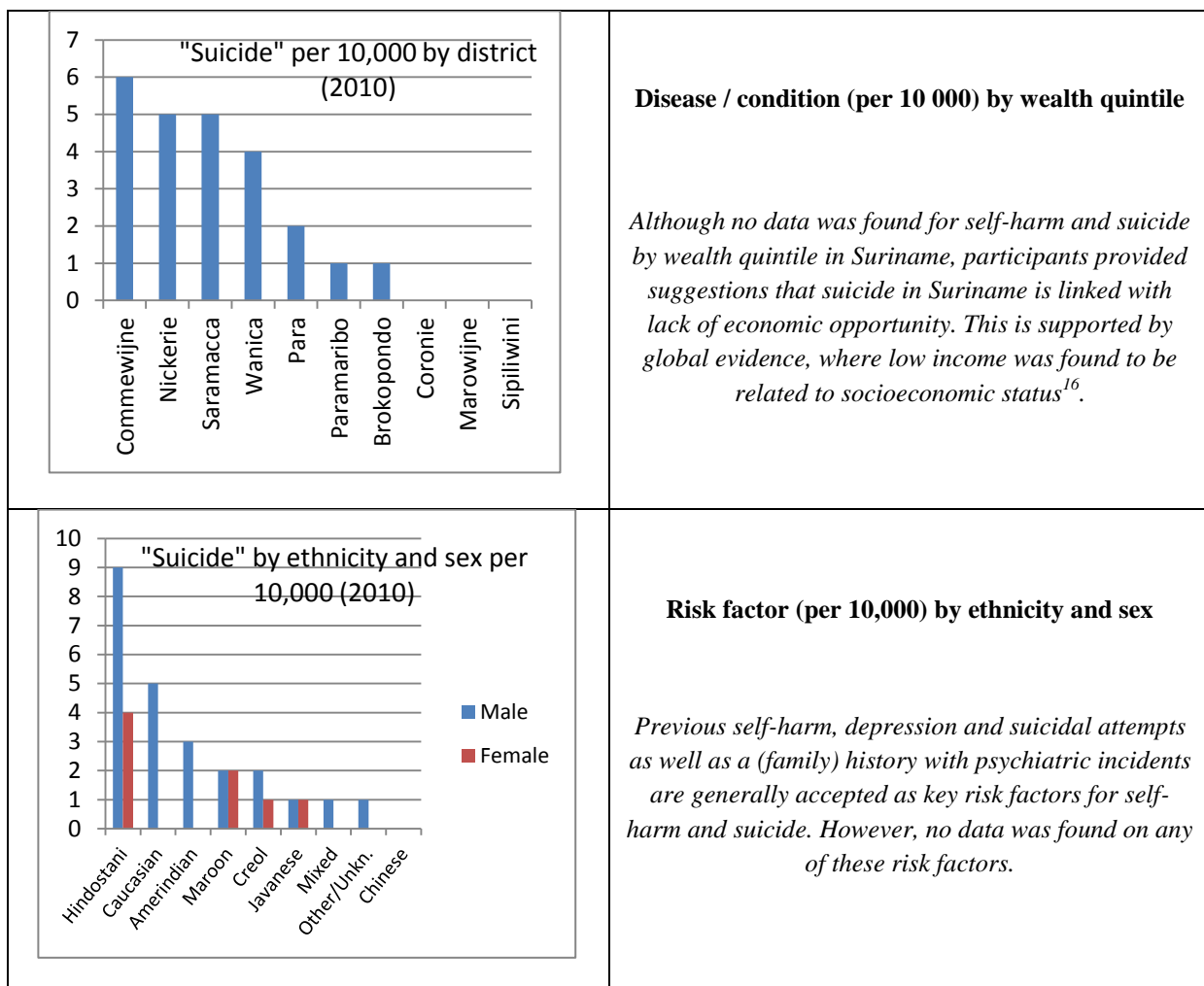
Health care system: lack of appropriately trained primary health care staff as well as of specialists to treat ischemic heart disease, lack of equipment and supplies; limited patient interaction.

¹⁵ Suriname STEPS Study (2013), Ministry of Health, Suriname.

5. Self-Harm (including suicide)

Self-harm represents the 5th largest cause of burden of disease in Suriname. The most common form of self-harm or self-injury is skin-cutting, but self-harm covers a wide range of behaviours including, but not limited to, burning, scratching, banging or hitting body parts, interfering with wound healing, hair-pulling and the ingestion of toxic substances or objects. There is also an increased risk of suicide in individuals who self-harm to the extent that self-harm is found in 40–60% of suicides. However, generalising self-harmers to be suicidal is, in the majority of cases, inaccurate. The motivations for self-harm vary; it may be used to fulfil a number of different functions, e.g.: as a coping mechanism providing temporary relief of intense feelings such as anxiety, depression, stress, emotional numbness or a sense of failure or self-loathing, low self-esteem or perfectionism. Self-harm is often associated with a history of trauma and emotional and sexual abuse. Self-harm is most common in adolescence and young adulthood, usually first appearing between the ages of 12 and 24, however, it can occur at any age.

Main risk factors: depression, low self-esteem or perfectionism, lack of perspective, history of abuse, neglect.



Source: Bureau of Health (BOG), Doodsoorzaken in Suriname 2010-2011 (2012), mortality data

¹⁶ Qin, Ping, Esben Agerbo, and Preben Bo Mortensen. "Suicide risk in relation to socioeconomic, demographic, psychiatric, and familial factors: a national register-based study of all suicides in Denmark, 1981-1997." *American Journal of Psychiatry* 160.4 (2003): 765-772.

Social determinants analysis: Self Harm (*including suicide*)

Introduction

The quick assessment has not found specific data on self-harm beyond those on suicide presented on the recto page. This could suggest under-recognition and the need for improving service awareness and reporting, as well as targeted studies and inclusion in repeated national surveys.

Suicide rates in Commewijne, Nickerie, Saramacca and Wanica are between four and six times higher than in Paramaribo and Brokopondo. Among Hindustani, Caucasian and Amerindians, suicide rates are between three and nine times higher than among Javanese and Mixed population groups. Suicide rates among males are generally higher than among females. One of the factors could be that men have difficulty in expressing and communicating their emotions in a constructive way. This is often also the result of the stereotyped child raising practices, where boys/men are urged to be “strong”.

Society – socio-economic context and position: Distribution of power and resources; rights of individuals; urbanization and social exclusion.

Social, economic and physical environment: social norms and cultural changes, including men experiencing disjuncture between traditional roles and opportunities in contemporary society, macho-expectations, and loss of valued status; lack of job and education opportunities in particular for youth; intergenerational and historical trauma; community settings and infrastructure; availability of pesticides.

Strong social control and closed social structure, and clashes between generations about rigid family rules have been found in Suriname, especially among Hindustani communities¹⁷;

Vulnerability: poverty and unemployment; low education and knowledge; community and family dysfunction; domestic violence; alcohol and substance abuse; low health care seeking and access to appropriate health care; adverse childhood experiences, including sexual abuse; lack of adequate housing

In the study conducted for Women's Way, 53% of the respondents reported having experienced stigma and discrimination, 50% being ostracized by family members, 36% felt loneliness, 63% mental problems in the past year, and 60% having had suicidal thoughts¹⁸

Health care system: Qualification of staff particularly in primary health care services, training for staff in mental health care services is not always appropriate for responding to the complex psycho-social challenges and needs facing those committing self-harm, reporting systems not sensitive to capture cases.

¹⁷ Graafsma, T., et al. "High rates of suicide and attempted suicide using pesticides in Nickerie, Suriname, South America." *Crisis* 27.2 (2006): 77-81.

¹⁸ Behoeften onderzoek 'Vrouwen die houden van vrouwen', Julia Terborg, 2012

6. Major depressive disorder

Major depressive disorder ranks 6th in Suriname's burden of disease profile. This includes the years of life a person loses due to premature death and years lived with disability due to depression, but excludes suicide, which is categorized in the self-harm category. Major depressive disorder or depression is a mood disorder that causes a persistent feeling of sadness and loss of interest. It affects how you feel, think and behave and can lead to a variety of emotional and physical problems. You may have trouble doing normal day-to-day activities, and depression may make you feel as if life isn't worth living. Depression often begins in the teens, 20s or 30s, but it can happen at any age. Depression may require long-term treatment. Most people with depression feel better with medication, psychological counselling or both. Small studies have shown that depression among youth is highly prevalent, with over fifty percent of children, teenagers and even infants diagnosed in small regional studies.

Main risk factors: Exposure to (domestic) violence, lack of (economic) opportunities, jobs and social isolation.

| | |
|---|---|
| <p>Disease / condition (per 10,000) by district</p> <p><i>Currently no data is available on major depressive disorders by district in Suriname.</i></p> | <p>Disease / condition (per 10 000) by wealth quintile</p> <p><i>In a national study (2010) on factors that make children vulnerable, 40% of the children stated that they were unhappy. Factors had to do with the family life situation¹⁹.</i></p> |
| <p>Disease condition (per 10,000) by ethnicity and sex</p> <p><i>Currently no data is available on major depressive disorders by ethnicity and gender in Suriname.</i></p> | <p>Risk factor (per 10,000) by ethnicity and sex</p> <p><i>Alcohol or drug use, lack of (economic) opportunities and mental health issues are known as main risk factors for major depressive disorder. However, no data was found during the quick assessment on any of these risk factors.</i></p> |

¹⁹ IMWO, ICDI and UNICEF, lead author Lilian Ferrier: Vulnerable Children Study. September 2010.

Social determinants analysis: Major Depressive Disorders

Introduction

Although no data was found during this quick assessment on the level and distribution of major depressive disorders, anecdotal evidence from participants in the Delphi round confirms the importance and suggests that some small studies were done around the issue in adults as well as in women and children. More data is needed and research is under way to better capture this significant burden of disease. For example depression among children has also been recognized in Suriname²⁰, caused by feelings of not being loved by parents, abuse and neglect (no sense of belonging and safety), or divorce of parents. Domestic violence, alcohol and drug abuse and psychiatric disorders are other risk factors. The repeated national surveys might also in the future included questions about depression.

Society – socio-economic context and position: globalisation with rapid economic, political, social and cultural changes; demographic transitions, age, and sex; social status, economic, social and political inequality; ethnicity, minority situation, race; social exclusion; urbanization.

Social, economic and physical environment: social norms, including gender roles, cultural beliefs and practices; social stigma and discrimination; food insecurity and hunger; toxins; crime, social conflict, civil unrest, natural disasters, and working environments; lack of housing and overcrowding; built environment;

Vulnerability: hard-to-reach populations; low income and lack of insurance; stressful life events and violence; chronic physical ill-health and disability; age and sex; ethnicity; low health seeking behaviours; low [parental] literacy, low education and knowledge; low mental health literacy; [parental] alcohol and substance abuse; early childhood experiences, including abuse; parental mental health; lack of social capital, dysfunctional family and community links; low status of women; job stress; family size and birth order.

According to the Nationaal beleidsplan structurele aanpak huiselijk geweld 2014 – 2017 and MICS 2012 survey data, domestic violence is becoming an increasingly serious problem in Suriname. The integrated steering group on domestic violence says that there is a shortage of good counselling and supporting services, in particular for children and adolescents who are traumatised by (domestic) violence. However, victims often do not seek help, because they feel they themselves are at fault.

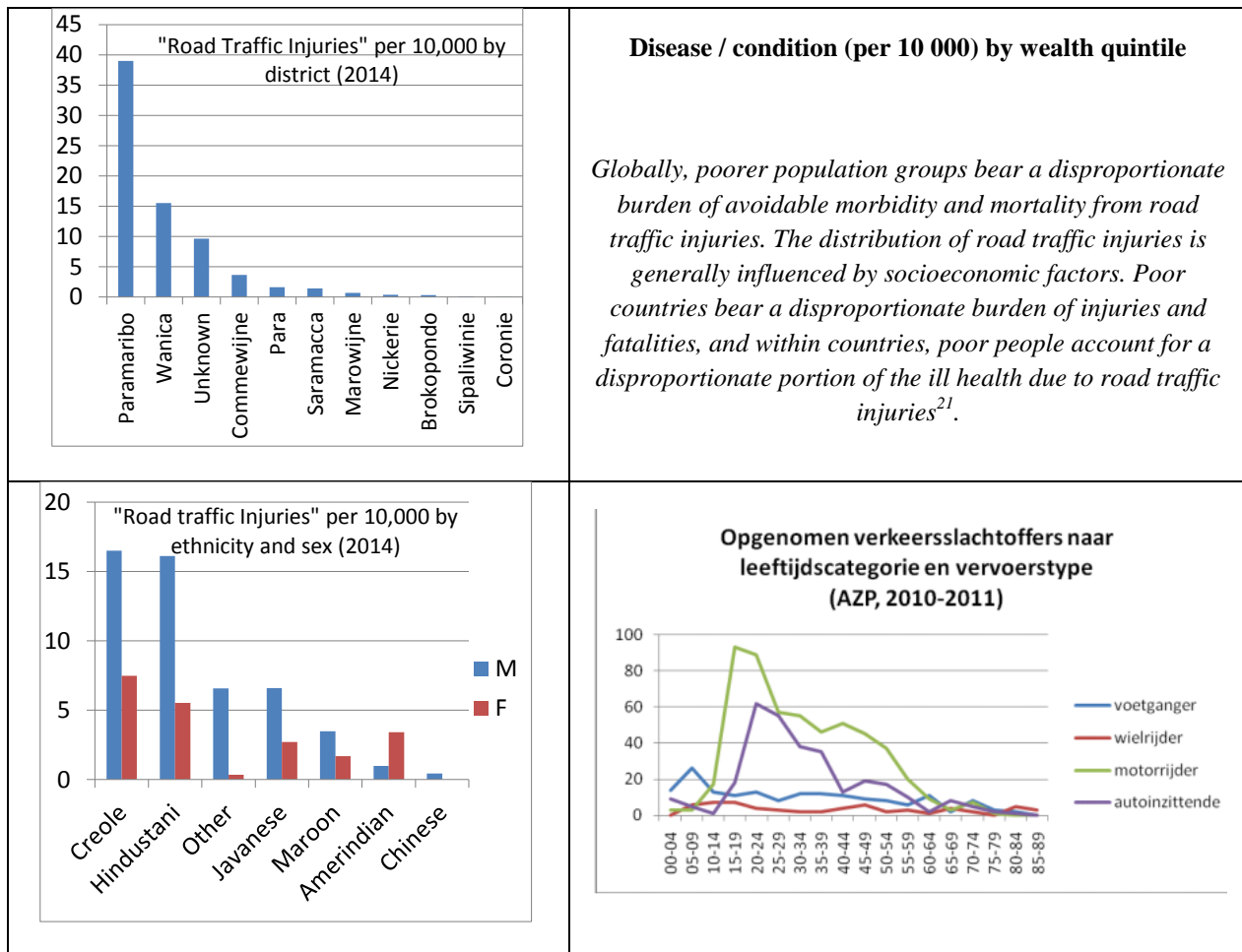
Health care system: quality of mental health service; low qualification of health staff; inadequate or weak health services; poor rapport between service user and provider; discriminatory services; low adherence to treatment; services not decentralized.

²⁰ IMWO, ICDI and UNICEF, lead author Lilian Ferrier: Vulnerable Children Study, September 2010.

7. Road injuries

Road injuries account for the 7th largest burden of disease in Suriname in 2014. They include traffic accidents of moped, motorcycle and car drivers, and also pedestrians and cyclists who get hurt on the road. Children, pedestrians, cyclists and older people are among the most vulnerable of road users. Generally, young males are most susceptible to road traffic injuries.

Main risk factors: Lack of seatbelt use in front and backseat of car; driving without a driver's license; drinking alcohol and driving; non- or improper use of safety helmets; exceeding speed limits; poor condition of sidewalks and roads; parking habits; and age.



Source (Deaths per age): Academic Hospital Data in "Verkeersslachtoffers in het Academisch Ziekenhuis Paramaribo Persoons-, ongevals- en opnamekenmerken van opgenomen verkeersslachtoffers in het AZP (2010-2011)", Lindy Liauw-Kie-Fa (2013), Master's Thesis, Anton de Kom University.

Source (Injuries by district and ethnicity and sex): Academic Hospital Surveillance data, 2014.

²¹ Laflamme, Lucie, and Karin Engström. "Socioeconomic differences in Swedish children and adolescents injured in road traffic incidents: cross sectional study." *Bmj* 324.7334 (2002): 396-397.

Social determinants analysis: Road Injuries

Introduction

Suriname has a high annual rate of road traffic fatalities, in particular young males partaking in traffic on motor bikes and mopeds. Deaths from road injuries in 2006 – 2011 were on average 17.5 per 100,000 inhabitants. 73% of these deaths occurred in age-group 20-59 years; 40% of those were motor cyclists. Of the persons treated in the emergency department of the Academic Hospital in Paramaribo (AZP) after road accidents between 2010 and 2012, on average 48% were on mopeds/motor cycles. Most of the moped/ motor cycle riders were in the age group 15-24 years.²² The most recent surveillance data from the Academic Hospital indicates high incidence of road traffic injuries in 2014 in Suriname. The majority (54%) of these injuries were recorded in Paramaribo. Seventy per cent of those injured in traffic were men. Creole and Hindustani men are most likely to get injured in traffic. About 3.7 times as many men as women were admitted in the Academic Hospital after road injuries. Most of the men were in the age-group 20-24 years, riding mopeds/ motor cycles. This supports the hypothesis that young men show much more risky behaviour in traffic than women.²³

Society – socio-economic context and position: Increased number of vehicles and heavier traffic.

Social, economic and physical environment: social norms, including gender norms, cultural beliefs, practices, attitudes towards alcohol intake and speed driving; slum formation, crowding and road congestion, clustering and deprivation; poorly designed and developed infrastructures, including roads, side-walks, crossings; roads not built for traffic burden and almost no separation of cars and slow traffic (mopeds, bicycles, pedestrians - increased proximity between vehicles, cyclists and pedestrians, etc.); poor living and working environment; availability, safety and use of alcohol: television exposure; unsafe condition of vehicle fleet.

Vulnerability: poverty; low education and knowledge; [parental] alcohol and substance use and abuse; early childhood experiences; lack of social capital, dysfunctional family and community links;

Most traffic accidents take place due to unfamiliarity with the road, high speed, fatigue, possible drugs and alcohol abuse, heavy rush hour traffic, possible reduced visibility²⁴.

Health care system: qualification of health staff; inadequate or weak trauma care services, including adequacy of staffing

A survey in 2012²⁵ showed that in 82% of the cases, it took ambulances about 20 minutes to reach the location of the traffic accidents, which were all within 15 km of the stand of the ambulances.

²² Persoons-, ongevals- en opnamekenmerken van opgenomen verkeersslachtoffers in het AZP (2010-2011)”, Lindy Liauw-Kie-Fa (2013), Master’s Thesis, Anton de Kom University

²³ Idem

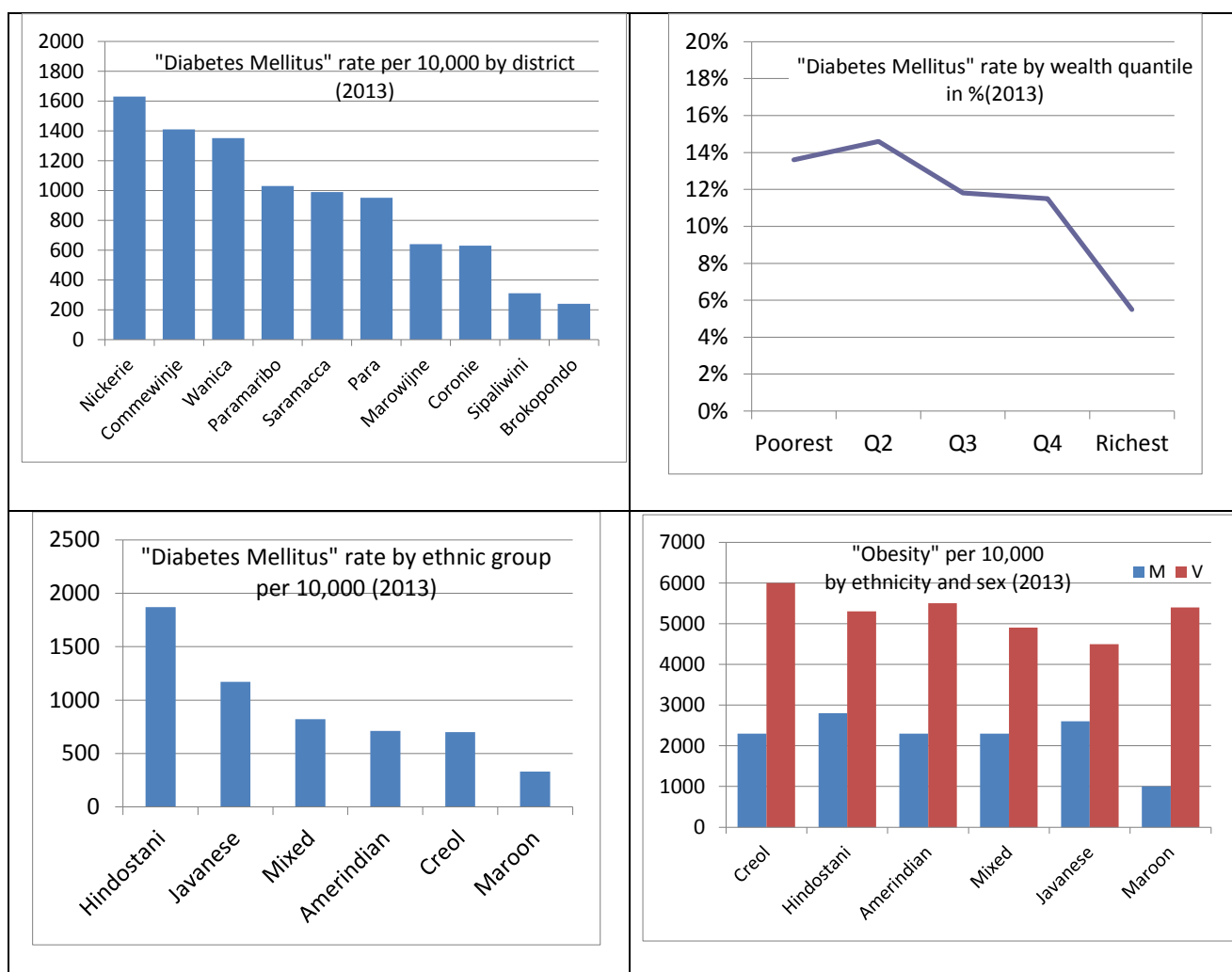
²⁴ Persoons-, ongevals- en opnamekenmerken van opgenomen verkeersslachtoffers in het AZP (2010-2011)”, Lindy Liauw-Kie-Fa (2013), Master’s Thesis, Anton de Kom University

²⁵ Dijksteel CN. The response time of ambulance transportation for traffic accidents in Paramaribo and Wanica. October 2012

8. Diabetes

Diabetes is ranked as the 8th largest burden of disease in Suriname. Diabetes Mellitus (DM) is a group of metabolic diseases in which there are high blood sugar levels over a prolonged period. Symptoms include frequent urination, increased thirst and hunger. If left untreated, diabetes can cause many complications. Serious long-term complications include cardiovascular disease, chronic kidney failure, foot ulcers, and damage to the eyes. There are three main types of diabetes mellitus: Type 1 DM results from failure of the pancreas to produce enough insulin, the cause is unknown; Type 2 DM - the most common - begins with insulin resistance. As the disease progresses a lack of insulin may also develop; and gestational diabetes that occurs when pregnant women without a previous history of diabetes develop a high blood sugar level. With about 11% of the overall population suffering, and increasing according to age up to 20% among people aged 55 and older²⁶.

Main risk factors (type 2 DM): Obesity, unhealthy diet, tobacco smoking, high blood pressure, sedentary lifestyle.



Source (Diabetes per district and per ethnicity and sex): Source: Bureau of Health (BOG), Doodsoorzaken in Suriname 2010-2011 (2012), *mortality data*

Source (Diabetes per wealth quintile): STEPS 2013 Academic Hospital Surveillance data, Ministry of Health, Suriname

²⁶ Suriname STEPS Study (2013), Ministry of Health, Suriname

Social determinants analysis: Diabetes

Introduction: Diabetes is more prevalent in Coronie and Para, followed closely by Saramacca and Nickerie. Further, it is found more often among the Hindustani population group. In addition, Hindustanis have an earlier onset of diabetes; a study on 637 diabetes patients in 12 primary health care centers reported the onset of diabetes for Hindustanis (44 years) compared to Creoles (53 years). The quick assessment has not found data to fully explain the considerable difference in diabetes prevalence between the Hindustani population and all other population groups. Diabetes also increases according to age, up to 20% among people aged 55 and older. Overweight and having high blood pressure are important risk factors for diabetes. In the past 35 years, the percentage of persons who are overweight (*one of the main risk factors for diabetes*) has doubled²⁷; in some population groups even three to four times. As a result, diabetes and complications such as ischemic heart disease and strokes have dramatically become more frequent. The causes for the situation and trends are complex and so are the solutions.

Society – socio-economic context and position: globalization, knowledge about healthier life-styles, transnational food corporations penetrating the market; urbanization; social status, economic, social and political inequality; ethnicity, minority status and race.

Social, economic and physical environment: social norms, including gender norms, cultural beliefs and practices, lifestyles, desirable body size and shape; increased pressures of modern life; slum formation, crowding, clustering, deprivation; poorly developed infrastructures; obesogenic environments, low walkability and high access to processed and fast food; ‘nutritional transition’, promotion and availability of highly processed and energy-dense food (*high in saturated fat, salt and sugar*); food of poor nutritional value; non-regulated markets and outlets; production and preparation of food; marketing and advertisement; mechanization of work; import duties / pricing of insulin and medication.

Vulnerability: hard-to-reach populations, undiagnosed, urban / rural; low health-seeking behaviour; low [parental] literacy, education and knowledge; poverty, poor health insurance coverage; tobacco smoking and excessive alcohol intake; food insecurity, malnutrition and poor nutrition in early life, low birth weight; genetics – family history; physical inactivity; diets high in fat and sugar, obesity; low access to health services (*poor availability and high costs of diagnostics, monitoring and treatment*).

According to the National Action Plan for the Prevention and Control of Noncommunicable Diseases 2012-2016, among the main reasons for visits to a PHC clinic of persons aged 60 years or older diabetes accounted for 13.2% of visits, while hypertension accounted for 26.4% of visits. When observing visits due to co-morbidity, diabetes and hypertension accounted for 12.5%, and a combination of diabetes, hypertension and cardiovascular diseases accounted for 11%. Diabetes and hypertension are the most common reasons for seeking care, and a steady increase in the percentage of registered patients with diabetes, hypertension or a combination of both is evident. Women are twice more likely than men to visit the clinics for diabetes and three times as likely for hypertension or a combination of diabetes and hypertension²⁸.

Health care system: qualification of health staff; inadequate or weak health services; limited patient interaction and low social class; and low adherence to treatment

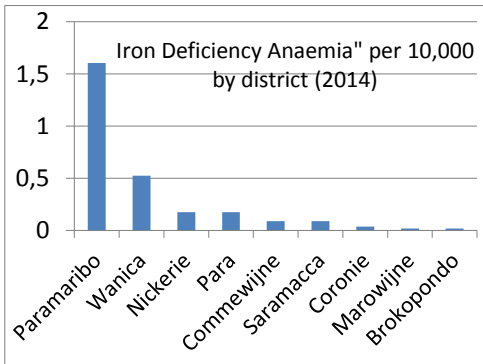
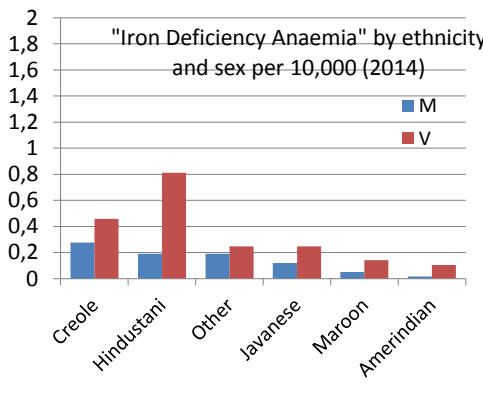
²⁷ Odgen CL. Childhood Obesity in the United States: The Magnitude of the Problem. Powerpoint (accessed June 2013).

²⁸ Analyse en aanbevelingen over de statistische data van de Stichting RGD 2000-2004. Hecora, 2008 cited in National Action Plan for the Prevention and Control of Noncommunicable Diseases 2012-2016, Ministry of Health Suriname.

9. Iron Deficiency Anaemia

In Suriname, iron deficiency anaemia ranks 9th in terms of burden of disease. Iron deficiency anaemia is caused by insufficient dietary intake and absorption of iron, or iron loss from bleeding. Bleeding can be from a range of sources such as the intestinal, uterine or urinary tract. Because women lose blood during menstruation, they in general are at greater risk of iron deficiency anaemia. Infants, especially those who have a low birth weight or were born prematurely or who don't get enough iron from breast milk or formula, and children who do not eat a healthy, varied diet are also at risk. Vegetarians may have risk of iron deficiency anaemia if they do not eat iron-rich foods. In men and women over 50 years old, the most common cause of iron-deficiency anaemia is chronic gastrointestinal bleeding from nonparasitic causes, such as ulcers or gastrointestinal cancer. An important consequence of iron deficiency is a potential increased risk of heavy-metal poisoning in children. Other consequences include: decreased work capacity, impaired neurocognitive / learning function²⁹ in children, prematurity and low birth weight, perinatal mortality, maternal mortality, and child mortality

Main risk factors: For women: teenage pregnancy, lack of access to or funds for health services. For children: helminth infections in early childhood. For both groups: nutrition and feeding practices.

|  <p>Iron Deficiency Anaemia" per 10,000 by district (2014)</p> <table><tr><th>District</th><th>Prevalence (per 10,000)</th></tr><tr><td>Paramaribo</td><td>1.6</td></tr><tr><td>Wanica</td><td>0.5</td></tr><tr><td>Nickerie</td><td>0.2</td></tr><tr><td>Para</td><td>0.2</td></tr><tr><td>Commewijne</td><td>0.1</td></tr><tr><td>Saramacca</td><td>0.1</td></tr><tr><td>Coronie</td><td>0.05</td></tr><tr><td>Marowijne</td><td>0.05</td></tr><tr><td>Brokopondo</td><td>0.05</td></tr></table> | District | Prevalence (per 10,000) | Paramaribo | 1.6 | Wanica | 0.5 | Nickerie | 0.2 | Para | 0.2 | Commewijne | 0.1 | Saramacca | 0.1 | Coronie | 0.05 | Marowijne | 0.05 | Brokopondo | 0.05 | <p>Disease / condition (per 10 000) by wealth quintile</p> <p><i>Although no data is available on iron deficiency anaemia by wealth status in Suriname, international evidence points out that low food security and low wealth status are associated with lower blood iron levels in young children³⁰.</i></p> | |
|--|-------------------------|-------------------------|------------|--------|--------|-----|------------|-----|------|-------|------------|------|-----------|------|---------|--------|-----------|------|------------|------|---|---|
| District | Prevalence (per 10,000) | | | | | | | | | | | | | | | | | | | | | |
| Paramaribo | 1.6 | | | | | | | | | | | | | | | | | | | | | |
| Wanica | 0.5 | | | | | | | | | | | | | | | | | | | | | |
| Nickerie | 0.2 | | | | | | | | | | | | | | | | | | | | | |
| Para | 0.2 | | | | | | | | | | | | | | | | | | | | | |
| Commewijne | 0.1 | | | | | | | | | | | | | | | | | | | | | |
| Saramacca | 0.1 | | | | | | | | | | | | | | | | | | | | | |
| Coronie | 0.05 | | | | | | | | | | | | | | | | | | | | | |
| Marowijne | 0.05 | | | | | | | | | | | | | | | | | | | | | |
| Brokopondo | 0.05 | | | | | | | | | | | | | | | | | | | | | |
|  <p>"Iron Deficiency Anaemia" by ethnicity and sex per 10,000 (2014)</p> <table><tr><th>Ethnicity</th><th>Male (M)</th><th>Female (V)</th></tr><tr><td>Creole</td><td>0.3</td><td>0.5</td></tr><tr><td>Hindustani</td><td>0.2</td><td>0.8</td></tr><tr><td>Other</td><td>0.2</td><td>0.25</td></tr><tr><td>Javanese</td><td>0.15</td><td>0.25</td></tr><tr><td>Maroon</td><td>0.1</td><td>0.15</td></tr><tr><td>Amerindian</td><td>0.15</td><td>0.1</td></tr></table> | Ethnicity | Male (M) | Female (V) | Creole | 0.3 | 0.5 | Hindustani | 0.2 | 0.8 | Other | 0.2 | 0.25 | Javanese | 0.15 | 0.25 | Maroon | 0.1 | 0.15 | Amerindian | 0.15 | 0.1 | <p>Risk factor (per 10,000) by ethnicity and sex</p> <p><i>The quick assessment has not found data on risk factors that can explain the marked differences in prevalence of Iron deficiency anaemia shown in the graph to the left between the population groups</i></p> |
| Ethnicity | Male (M) | Female (V) | | | | | | | | | | | | | | | | | | | | |
| Creole | 0.3 | 0.5 | | | | | | | | | | | | | | | | | | | | |
| Hindustani | 0.2 | 0.8 | | | | | | | | | | | | | | | | | | | | |
| Other | 0.2 | 0.25 | | | | | | | | | | | | | | | | | | | | |
| Javanese | 0.15 | 0.25 | | | | | | | | | | | | | | | | | | | | |
| Maroon | 0.1 | 0.15 | | | | | | | | | | | | | | | | | | | | |
| Amerindian | 0.15 | 0.1 | | | | | | | | | | | | | | | | | | | | |

Source: 2014 Academic Hospital Surveillance data

²⁹ Mental abilities and processes related to knowledge: attention, memory, judgment and evaluation, reasoning and "computation", problem solving and decision making, comprehension and production of language

³⁰ Pasricha, Sant-Rayn, et al. "Determinants of anemia among young children in rural India." *Pediatrics* 126.1 (2010): e140-e149.

Social determinants analysis: Iron Deficiency Anaemia

Introduction

Data from the Academic Hospital for 2014 shows that iron deficiency anaemia is most prevalent in Paramaribo at around 1.6 per 10,000 population. In all other districts prevalence of Iron Deficiency Anaemia is below 1 per 10,000 population. Women are consistently more affected than men, which suggests a combination of menstrual, dietary and pregnancy related factors and determinants at play. Although rates per 10,000 population remain below 1, surveillance data for 2014 shows Hindustani and Creole women are most affected. However, these numbers might grossly underrepresent the real magnitude of the problem as they are hospital based and only few people with iron deficiency anaemia will likely show up or be diagnosed at an academic hospital

Society – socio-economic context and position: Socio-economic status, ethnicity, occupation, education

Social, economic and physical environment: Altitude, climate, natural disasters; urban / rural; community settings availability of: health services, water and electricity supply, sanitation services; agricultural system

Vulnerability: age (*adolescent females not consuming sufficient iron to offset menstrual loss*); poverty, wealth and income; [parental] literacy, education and knowledge; occupation; household hygiene and sanitation; household size; domestic food production; inadequate micronutrient intake; lack of knowledge on good nutrition; protein-energy malnutrition; infections (diarrhoea, malaria, helminths, HIV/AIDS); chronic conditions; genetics; food insecurity; access to health care; insufficient iron intake during breastfeeding; pre-term birth and low birth weight; low health care seeking, including ANC

There is a cultural practice in the use of so called “pemba” or “kaolin”- a traditional “medicine” used by pregnant Maroon women³¹. No studies have been done yet in Suriname, but the calcium in pemba is known to reduce freely available iron for absorption in the stomach. This is a potential cause for exacerbating pregnancy-related anaemia. Among children in Suriname, infections by small parasites called helminths in early childhood are a key cause of iron deficiency anaemia.

Health care system: qualification of health staff; inadequate or weak health services; limited patient interaction and low social class; low adherence to treatment; overdosing of pyremethamine and/or trimethoprim (antifolate antimalarial)

³¹ Lambert, Veronique, et al. "Plasma and urinary aluminum concentrations in severely anemic geophagous pregnant women in the Bas Maroni region of French Guiana: a case-control study." *The American journal of tropical medicine and hygiene* 83.5 (2010): 1100-1105.

10. Low back pain

Low back pain ranks 10th in terms of burden of disease in Suriname in 2014. This includes years of life lost and years lived with disability due to low back injuries. It is estimated that, in all populations, an individual has a very high probability of having low back pain at some period during their life time. Most of the time, resolution and return to work occur within three months' time or less. It is often considered "chronic" when it lasts for seven weeks or more. Chronic low back pain (CLBP) has high social and economic effects and is an important source of demand for health services. Current treatments are inadequate for many patients who fail to achieve adequate relief. Treatment directed exclusively at the physical component may not stimulate the desired therapeutic effects as CLBP often has strong psychological overlay.

Main risk factors: Occupational status, occupational injury, sedentary lifestyle, traffic injuries.

| | |
|---|--|
| <p>Disease / condition (per 10,000) by district</p> <p><i>The quick assessment did not found data on low back pain by district in Suriname</i></p> | <p>Disease / condition (per 10 000) by wealth quintile</p> <p><i>The quick assessment has not found data on low back pain by wealth status in Suriname. However, international evidence points out that socioeconomic factors play an important role in low back pain³².</i></p> |
| <p>Disease condition (per 10,000) by ethnicity and sex</p> <p><i>The quick assessment has not found data on low back pain by ethnicity and sex in Suriname</i></p> | <p>Risk factor (per 10,000) by ethnicity and sex</p> <p><i>No data on risk factors, such as occupational status for Suriname were found or suggested by Delphi participants during this quick assessment.</i></p> |

³² Katz, Jeffrey N. "Lumbar disc disorders and low-back pain: socioeconomic factors and consequences." The Journal of Bone & Joint Surgery 88.suppl 2 (2006): 21-24.

Social determinants analysis: Low Back Pain

Introduction

No substantial data was found on low back pain in the quick assessment. Only a few cases were registered at the Academic Hospital. However, comments from General Practitioners and other medical staff provided in the Delphi rounds of this quick assessment suggest that low back pain is a common problem in Suriname. Some suggest that the majority of low back are work-related, including for agricultural labourers, industrial workers and people working in the healthcare sector. It is also suggested that this relatively high burden of disease in Suriname may also partially be caused by road traffic injuries. More data should be collected and a study regarding the prevalence of low back pain in Suriname would greatly help in assessing this burden of disease. Improved service reporting and inclusion into the repeated national surveys would also help reducing the gap in knowledge about the burden of disease related to low back pain.

Society – socio-economic context and position: social status, economic, social and political inequality; ethnicity, minority status and race.

The emerging middle class in Suriname and the associated increase in mopeds, motorcycles and car driving.

Social, economic and physical environment: adverse working environment, the functions of available equipment, the way work is organized and carried out; lack of separation of small road traffic (bicycles, mopeds, motorcycles) and four wheeled traffic (cars, trucks, buses).

Vulnerability: [parental] literacy, low education and knowledge; low parental [childhood] social position and downward social mobility; physical inactivity, TV and video watching; genetics; smoking; reduced intake of animal protein; daily alcohol consumption; psychological problems, dissatisfaction with work, boredom; long working hours, heavy duties; whole body vibrations and static uncomfortable positions; depression; personal problems related to alcohol abuse, marital problems and financial difficulties.

Low SES members of society are more likely to drive a moped or motorcycle instead of a car and thus be susceptible to accidents; occupational problems for low-income agricultural workers and industrial workers.

As low back pain has a considerable overlap with stress and psychological problems, increased work pressure and economic stress may also contribute to disease stratification.

Health care system: qualification of health staff; inadequate or weak health services, including to provide multidisciplinary treatment; limited patient interaction and low social class; lack of specialists for low back pain and trained nursing personnel, lack of rehabilitation services.

11. Neonatal Encephalopathy

Neonatal encephalopathy is the 11th largest burden of disease in Suriname. This burden of disease represents the years of life lost due to premature death and years lived with disability due to neonatal encephalopathy. Neonatal encephalopathy is a syndrome in new-born babies, where neurological function is disturbed in the earliest days of life in the infant. This manifests itself by difficulty with initiating and maintaining respiration, depression of tone and reflexes, sub-normal level of consciousness and often seizures. Neonatal encephalopathy is considered an important cause of later neurodevelopmental impairment with consequences for general cognitive functioning, educational achievement, neuropsychological functioning and behaviour, including elevated levels of hyperactivity and autism.

Main risk factors: incomplete vaccination coverage of women; low use of ANC services; birth without skilled birth attendants; increased maternal age; mothers are stunted, non-attendance for ANC, multiple births, induction of labour [with oxytocin], reduced concentration of maternal haemoglobin

| | |
|---|---|
| <p>Disease / condition (per 10,000) by district</p> <p><i>The quick assessment has not found data on distribution of prevalence of neonatal encephalopathy by district</i></p> | <p>Disease / condition (per 10 000) by wealth quintile</p> <p><i>The quick assessment has not found data prevalence of neonatal encephalopathy by wealth, education, occupation or any other measure of socio-economic status?</i></p> |
| <p>Disease condition (per 10,000) by ethnicity and sex</p> <p><i>The quick assessment has not found data on the prevalence of neonatal encephalopathy by ethnicity and sex in Suriname</i></p> | <p>Risk factor (per 10,000) by ethnicity and sex</p> <p><i>The quick assessment has yet found data on prevalence of risk factors for neonatal encephalopathy in Suriname by ethnicity or SES?</i></p> |

Social determinants analysis: Neonatal Encephalopathy

Introduction

The quick assessment has not found data regarding Neonatal Encephalopathy. However, Delphi participants have reported that a study is currently under way to assess this burden of disease in Suriname. However, improved service reporting as well as inclusion in the repeated national surveys might be considered.

Society – socio-economic context and position: social status, economic, social and political inequality; ethnicity, minority status and race

Social, economic and physical environment: social norms, including gender roles, cultural beliefs and practices, lifestyles; insurance and residence registration system; poor living environment, including availability of appropriate sources of drinking water;

According to MICS In urban areas, appr. 80% have access to piped water. In the rural districts this is 45%, and in the interior 15%. The population there relies on rainwater collection for drinking purposes

Vulnerability: hard-to-reach population; poverty, unemployment, unskilled manual labour; mother stunted; increasing maternal age; low [parental] literacy, education and knowledge; low status of women; lack of access to ANC and contraceptives; low health seeking behaviour and ANC attendance; maternal deficiency states (iodine, magnesium and anaemia) and infection (e.g., thyroid disease); family history of seizure and neurological disease

The MICS survey (2010) showed that 67% of the women surveyed received antenatal care at least four times. However, 59% of the women in poorest households reported such four or more antenatal visits, compared with more than 70% among the women of the richest households. A similar pattern is found if the education level of the women is taken into account: 52% of the women with no education received antenatal care at least four times, as opposed to more than 70% among women with secondary and higher levels of education. In the interior districts of Sipaliwini and Brokopondo relatively larger numbers of women obtained care from community health workers than in the other districts. A similar observation is evident among the poorest women with no education, who make up relatively larger shares of eligible women in these two districts.

The lowest contraceptive prevalence is in Brokopondo (26%) and Sipaliwini (25%). Women's education is strongly associated with contraceptive prevalence: 19% of women with no formal education uses contraceptives; while 42% of women with primary education; 52% of women with at least secondary education use contraceptives. The total unmet need for contraception is also highest in Brokopondo (33%) and Sipaliwini (34%). Literacy rates of women 15 – 49 years are 96% in urban areas, 80% in rural coastal areas, and 54% in the rural interior.

Health care system: poor obstetric care; qualification of health staff; inadequate or weak health services, including referral for complicated births; discriminatory services; limited patient interaction and low social class.

12. Congenital anomalies

Congenital anomalies represent the 12th largest burden of disease in Suriname. This burden of disease includes years of life lost due to premature death, as well as years lived with disability due to congenital anomalies. Congenital anomalies are also known as birth defects, congenital disorders or congenital malformations. Birth defects vary widely in cause and symptoms. Congenital anomalies can be defined as structural or functional anomalies (e.g. metabolic disorders) that occur during intrauterine life and can be identified prenatally, at birth or later in life.

Main risk factors: Incomplete vaccination coverage of women, toxin exposure (medicine, drugs, environmental toxins, etc.), low use of ANC services, genetic predisposition.

| | |
|---|--|
| <p>Disease / condition (per 10,000) by district</p> <p><i>The quick assessment has not found data prevalence of congenital anomalies by district</i></p> | <p>Disease / condition (per 10 000) by wealth quintile</p> <p><i>The quick assessment has not found data on distribution of prevalence of congenital anomalies by wealth, education, occupation or any other measure of socio-economic status</i></p> |
| <p>Disease condition (per 10,000) by ethnicity and sex</p> <p><i>The quick assessment has not found data on the prevalence of neonatal encephalopathy in Suriname by ethnicity and sex</i></p> | <p>Risk factor (per 10,000) by ethnicity and sex</p> <p><i>The quick assessment has not found data on the prevalence of risk factors for congenital anomalies in Suriname by ethnicity and sex or SES</i></p> |

Social determinants analysis: Congenital Abnormalities

Introduction

This quick assessment has not found any substantial data on the level and distribution of congenital abnormalities. Only two cases were registered in 2014 at the Academic Hospital, but participants in the Delphi rounds of this quick assessment suggest that is a more common problem in Suriname and that in some ethnic groups, e.g., Hindustani, Javanese and Chinese, cases are hidden from the community. More data should be collected to assess this burden of disease. Due to the possible stigma of this condition carefully designed studies would likely be the feasible first approach to getting more insight.

Society – socio-economic context and position: social status, economic, social and political inequality; ethnicity, minority status and race

Social, economic and physical environment: social norms, including gender norms, cultural beliefs and practices, lifestyles; exposure to certain pesticides, chemicals (e.g. mercury), and radiation; unhealthy living and working environments, e.g., near or in waste sites, smelters or mines; lead poisoning (batteries are disposed of carelessly)

Data from a WWF review of mercury contamination in the Guianas³³ shows that there is widespread mercury contamination with mean sediment loads consistently above CCME guidelines in all areas except the northwest of the country. A survey in the villages of Kwakoepron and Pikin Saron found that mean mercury levels were above the EPA reference levels and WHO background levels for both children and adults. The concentration range showed individuals close to harmful levels in women and above the harmful level in the children, who are the most vulnerable to mercury toxicity.

Vulnerability: poverty; low [parental] literacy, education and knowledge; food insecurity and poor diet; both advanced and young maternal age; consanguinity (*parents related by blood*); maternal infections, e.g., syphilis and rubella; maternal nutritional status (*iodine deficiency, folate insufficiency, excessive vitamin A intake, obesity and diabetes mellitus*); tobacco smoking and excessive alcohol use; use of psychoactive drugs; intake of certain medicines; low use of ANC and low vaccination coverage in some sub-populations.

High mercury concentrations found in individuals in some villages in the interior are driven by high fish consumption where there is a preference for predatory fish. In addition, high levels of mercury contamination are likely driven by atmospheric deposition. Research was undertaken to assess the risk in the capital city of Paramaribo. Hair samples were taken from a mixed population of mothers of various ethnicities. Worryingly, 80% of the new-borns had a higher mercury concentration in their hair than their mothers³⁴.

Health care system: qualification of health staff; inadequate or weak health services; limited patient interaction and low social class; and low adherence to preventive treatment

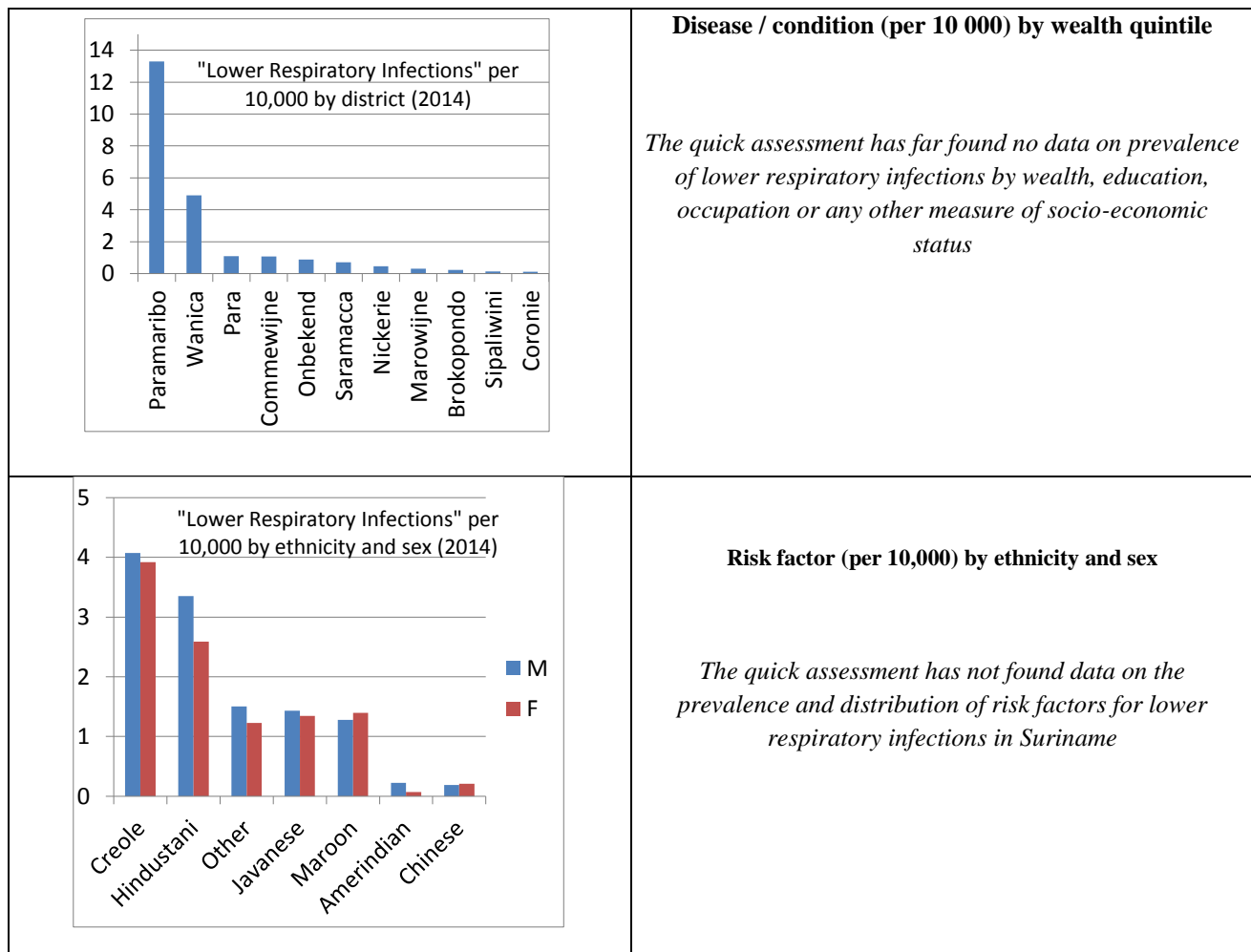
³³ http://assets.panda.org/downloads/mercury_contamination_in_the_guianas__2015.pdf

³⁴ Idem

13. Lower Respiratory Infections

Lower respiratory infections (LRIs) rank 13th in terms of burden of disease in Suriname. There are a number of infections that can affect the lower respiratory tract. The two most common are bronchitis and pneumonia. Influenza affects both the upper and lower respiratory tracts. Bronchitis can be classified as either acute or chronic. Acute bronchitis can be defined as acute bacterial or viral infection of the larger airways in healthy patients with no history of recurrent disease. There are no effective therapies for viral bronchitis. Treatment of acute bronchitis with antibiotics is common but controversial, as their use has only moderate benefit weighted against potential side effects (nausea and vomiting), increased resistance, and cost of treatment in a self-limiting condition. Pneumonia occurs in a variety of situations and treatment must vary according to the situation. It is classified as either community or hospital acquired depending on where the patient contracted the infection. It is life-threatening in the elderly or those who are immunocompromised. The most common treatment is antibiotics and these vary in their adverse effects and their effectiveness. Pneumonia is also the leading cause of death in children less than five years of age. The most common cause of pneumonia is pneumococcal bacteria, *Streptococcus pneumoniae* accounts for 2/3 of bacteremic pneumonias. This is a dangerous type of lung infection with a mortality rate of around 25%.

Risk factors include: severe malnutrition, exposure to smoke from solid cooking fuels, second hand tobacco smoke exposure, incomplete pertussis vaccination coverage, hospital infections.



Sources: Academic Hospital Surveillance data, Ministry of Health, 2014

Social determinants analysis: Lower Respiratory Infections

Introduction

Surveillance data from the Academic Hospital show that in 2014, lower respiratory infections were most prevalent in Paramaribo, where over 13 per 10,000 population were affected. Although considerably less than Paramaribo, Wanica also has an elevated rate of lower respiratory infections at around 5 per 10,000. Very little (1 in 10,000 population or less) lower respiratory infections were registered in all other districts. However, service and in particular hospital based data are likely grossly under-reporting the true burden of LRI and might show the relative distribution more accurately than the true level. Interestingly, this disease distribution overlaps well with the major center of urbanization in Suriname. Ethnic groups seem to fall in three groups in terms of prevalence: Creole and Hindustani populations are most affected at 3-4 cases per 10,000 population. Javanese and Maroons had around 1 case per 10,000 population, and Amerindians and Chinese are least affected – or more grossly under-reported.

Society – socio-economic context and position: social status, economic, social and political inequality; ethnicity, minority status and race

Social, economic and physical environment: social norms, including gender norms, cultural beliefs and practices; slum formation, crowding, clustering, deprivation; poorly developed and poorly maintained infrastructures, including lack of sewerage / latrines and low quality of drinking water; indoor air pollution from solid fuels

Vulnerability: poverty, young maternal age; low maternal literacy, low education, and knowledge; low immunization coverage; low health seeking, including ANC and under 5 services; severe protein-energy malnutrition and micronutrient (*vitamin A and zinc*) deficiency; low breast feeding; first and second-hand smoking; premature birth and low birth weights; comorbidity with HIV, TB, malaria, diarrhoea, pertussis and measles; female sex; [adults] old age and chronic disease (*liver or renal failure*); alcohol abuse; family size; remoteness and lack of financial means; lack of access to health care; lack of access to clean cooking fuels; poor health education and communication around water and sanitation practices.

According to the MICS Survey (2010), higher levels of status with respect to the education of head and wealth status in households are associated with a greater likelihood of having water and soap available or soap anywhere in the dwelling. Mothers' knowledge of the danger signs is an important determinant of care-seeking behaviour. Overall, just 10 percent of women know of the two danger signs of pneumonia – fast and difficult breathing. Such knowledge is relatively more frequent among mothers who had secondary education (12%) than among those with lower levels of education (8% primary education; 8% no education). Rural coastal areas have higher proportions of mothers who know the two danger signs of pneumonia (14%), compared to urban interior (10%) and rural interior (8%). The most commonly identified symptom for taking a child to a health facility is if the child develops a fever (72%). Nonetheless, 12 percent of mothers identified fast breathing and 17 percent of mothers identified difficulty breathing as symptoms for taking children immediately to a health care provider. 63 percent of mothers identified other symptoms not specifically mentioned in the questionnaire, which should inform future data collection activities.

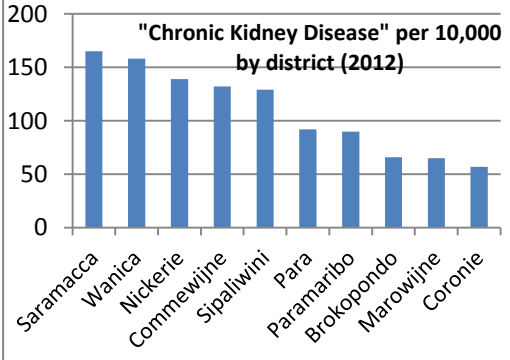
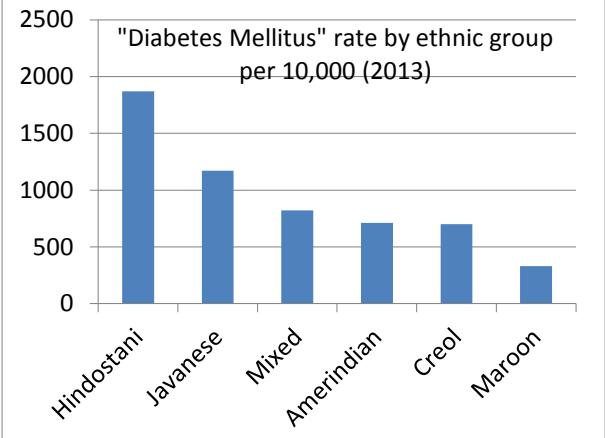
Health care system: qualification of health staff; inadequate or weak health services; poor infection control; discrimination, including gender inequality in quality of care; limited patient interaction and low social class; and low adherence to treatment

Medical practitioners often prescribe antibiotics to babies instead of searching for other factors (in the environment) that can cause bronchitis.

14. Chronic kidney disease

Kidneys play a key role in cleaning the blood. In Suriname, chronic kidney disease, also known as chronic renal disease, represents the 14th largest burden of disease. The data below reflect the burden of disease for chronic kidney afflictions, which include conditions that damage the kidneys and decrease their ability to keep a person healthy. Kidney malfunction eventually leads to build up of waste in the blood and make a person feel sick. Early detection and treatment can often keep chronic kidney disease from getting worse. When kidney disease progresses, it may eventually lead to kidney failure requiring dialysis or a kidney transplant to maintain life.

Main risk factors: Diabetes, high blood pressure, obesity, sedentary lifestyle, high salt intake and overconsumption of alcohol.

| | | |
|--|---|--|
|  <p>"Chronic Kidney Disease" per 10,000 by district (2012)</p> | <p>Disease / condition (per 10 000) by wealth quintile</p> <p><i>Although no data was found in the quick assessment for Suriname on chronic kidney disease by wealth, internationally there is compelling evidence that disadvantaged communities, i.e. those from low resources and racial and minority ethnic communities and/or indigenous and socially disadvantaged backgrounds, suffer from marked increases in the burden of unrecognized and untreated CKD³⁵.</i></p> | |
|  <p>"Diabetes Mellitus" rate by ethnic group per 10,000 (2013)</p> | | |

Source: 2012 Census data, Suriname Bureau of Statistics and STEPS; 2013 Academic Hospital Surveillance data.

³⁵ Garcia-Garcia G and Jha V (on behalf of the World Kidney Day Steering Committee) "Chronic kidney disease (CKD) in disadvantaged populations", *Clin. Kidney J* (2014).

Social determinants analysis: Chronic Kidney disease

Introduction

No comprehensive studies on chronic kidney disease have so far been done in Suriname. There has been one study on dialysis, namely an assessment of the individual and institutional costs of dialysis due to end stage renal failure caused by chronic kidney failure. The number of renal dialysis patients has steadily increased over ten years (in 1997: 33 patients, while in 2008: 240 patients and 20,000 dialyses). More men (60%) than women (40%) are registered patients of renal dialysis, while by far most of the patients fall in the age-group 40 – 60 years (47%).

Five districts: Saramacca, Wanica, Nickerie, Commewijne and Sipaliwini have markedly higher prevalence of chronic kidney disease compared to the other districts. Further, chronic kidney disease is much higher among Hindustani, Maroon, Javanese, and Amerindian compared to other population groups and generally higher among men than women. However, within the Maroon population chronic kidney disease rate is higher among women than men. This pattern is largely similar for the key risk factor diabetes for the city dwelling Hindustani and Javanese populations. Maroon and Amerindian populations are less likely to be included in Academic Hospital diabetes surveillance data; they are primarily serviced by the Medical Mission clinics and Diakonessenhuis.

Society – socio-economic context and position: social status, economic, social and political inequality; ethnicity, minority status and race; marginalization from majority society, discrimination, institutional racism, loss of culture, cultural conflicts.

Social, economic and physical environment: social norms, including gender norms, cultural beliefs and practices, lifestyles; urban / rural; slum formation, overcrowding, poor housing; poorly developed infrastructures and environmental sanitation; obesogenic environments, low walkability; environmental toxin exposure, e.g., agrochemicals - extensive exposure to pesticides might also play a role ; poor hygiene; infectious diseases; use of certain traditional herbal medications

Vulnerability: poverty and lack of insurance; unemployment; low literacy, education and knowledge; poor nutrition, low birth weight and malnutrition; physical inactivity; chronic stress, depression; alcohol, tobacco and substance abuse; low health care seeking; low access to appropriate health care; obesity; co-morbidity: diabetic nephropathy, CVD, high blood pressure; genetic factors,

In Suriname, besides genetic predisposition, high uptake of alcohol and over-eating, especially of salty and fatty foods, may be linked to the high burden of chronic kidney disease.

Health care system: qualification of health staff; inadequate or weak health services; limited patient interaction, mistrust and discrimination; and low adherence to treatment

15. Adverse Medical Treatment

The 15th largest burden of disease in Suriname is due to adverse medical treatment and the country ranks second lowest among the comparator countries. This burden of disease is about the health system (defined broadly) actually doing harm rather than good or not doing anything. Lack of adherence to treatment guidelines, outdated nursing curricula, understaffing and lack of availability of medicines in the health system, and low quality of drugs in private and informal sectors might contribute to this considerable burden of disease. Adverse medical treatment also include harm caused by adverse drug reactions, medical error, bedsores, nosocomial infections, malnutrition, not admitting patients when required and unnecessary medical and surgical procedures.

Usually poor, less educated people, the old and the marginalized get poorer quality services (*if they get any*) compared to the more advantaged groups and run a greater risk of experiencing adverse medical treatment. In many countries transparency and accountability concerning quality and adverse medical treatment are facing challenges of being documented and addressed effectively.

Main risk factors: malpractice, low provider compliance, low patient adherence, self-medication, sale of prescription drugs without prescription, sub-standard drug quality.

| | |
|---|---|
| <p>Disease / condition (per 10,000) by district</p> <p><i>The quick assessment has not found data in Suriname that are currently available on adverse medical treatment by district.</i></p> | <p>Disease / condition (per 10 000) by wealth quintile</p> <p><i>The quick assessment has not found data for Suriname on adverse medical treatment for Suriname by wealth or other SES. Lack of data on adverse medical treatment is a global problem.</i></p> |
| <p>Disease condition (per 10,000) by ethnicity and sex</p> <p><i>No data in Suriname has been found by the quick assessment on adverse medical treatment by ethnicity and gender.</i></p> | <p>Risk factor (per 10,000) by ethnicity and sex</p> <p><i>The quick assessment has not found data on risk factors adverse medical treatment by ethnicity and sess.</i></p> |

Social determinants analysis: Adverse Medical Treatment

Introduction

Adverse medical treatment is about the quality of health services. This includes a complex number of determinants, e.g.: individual health staff patient interaction and procedure; how staff and service providers are paid; how the health service provider system is composed and regulated; level and how resources are allocated; globalization, including in- and outbound migration; etc. Little data and information have been found in the quick assessment on complaints by patients or others on care provided by physicians, nurses, midwives, or pharmacists. However, the problems are acknowledged – though controversial and some small scale studies, including a growing body of master theses have addressed the topic. The institution of a medical disciplinary tribunal has officially existed for over 70 years, and everyone can submit a complaint through the attorney-general. After a long period of inactivity of this institution, new members for this medical tribunal were installed by the President in September 2012.

Society – socio-economic context and position: urbanization; social status, economic, social and political inequality; ethnicity, minority status and race; lack of or weak legislation/regulation; lack of safe, convenient and effective mechanisms for redressing malpractice and poor health service quality; seeking public versus private care, ability to pay for medical experts,

Brazilian migrants are usually illegal small-scale goldminers, while Chinese are predominantly legal migrants who end up working in shops and restaurants. This has caused additional challenges of unknown cultures and languages for the health sector. Added to this, is the recruitment of health workers from Cuba and the Philippines, who might be unable to properly communicate with patients, and who might be less familiar with Surinamese culture.

A study on quality of antimalarial drugs in 2009 showed sub-standard drug quality in the licenced private facilities and the informal sector³⁶.

Social, economic and physical environment: social norms, including gender norms, cultural beliefs and practices; marketing and advertisement; non-regulated markets and outlets for medical services and drug sales; slum formation, crowding, clustering, deprivation; poorly developed infrastructures, including availability of quality health services

In 1980s and 1990s, Suriname faced considerable population displacements, owing to the armed conflict in the interior. The predominantly Maroon people settled in non-completed housing projects and low-income areas in and around Paramaribo, causing slum areas to develop and grow, and creating challenges to both the educational and health systems in the urban coastal area, and especially in Paramaribo. Although no studies have been carried out, it is assumed that large numbers of these persons settled in and around Paramaribo and did not return to their original villages after the conflict ended. In fact, the migration flow from the interior to the coastal urban area seems to have grown.

Vulnerability: low [parental] literacy, low education and knowledge; poverty; low or inadequate health insurance coverage; low health care-seeking and access to health care; clustering of disadvantages, including food insecurity, malnutrition and poor nutrition in early life, tobacco smoking, alcohol and drug abuse, co-existence of multiple health conditions

Change of health behaviour in light of a modernizing society, especially among indigenous and tribal peoples.

³⁶ <http://www.biomedcentral.com/content/pdf/1475-2875-11-203.pdf>

Health care system: qualification of health staff; inadequate or weak health services, including reporting systems, shortage of adequately trained nurses and doctors; lack of provider compliance, including with treatment guidelines; perverse incentives; limited patient-interaction and low social class, including too little time, discrimination; and low adherence to treatment; poor transparency, accountability and lack of participation; increased work pressure of medical staff in public sector.

An assessment of knowledge, attitudes and practices of General Practitioners in Suriname towards the National Diabetes Guideline showed low provider compliance and patient adherence. Further, the same assessment showed that lack of time was more pronounced among the public compared to the private doctors³⁷. Other studies have shown the adverse consequences of understaffing³⁸ and lack of availability of medicines and equipment³⁹ in the health system adding considerably to the burden of disease in Suriname.

³⁷ <http://ub.uvs.edu/site/local/edocuments/Suriname/afstudeer%20scripties,%20thesis%20en%20verslagen/SK%2000158-13%20Barkat%20Mohab%20Ali%20Thesis%201.3.13%5Bherz%5D.pdf>

³⁸ Maltie Sardjoe - <http://www.fhrinstitute.org/mod/data/view.php?d=1&advanced=0&paging=&page=15>

³⁹ Judith Simson - <http://www.fhrinstitute.org/mod/data/view.php?d=1&advanced=0&paging=&page=18>

Annex 3: Policy Domain Sheets

Policy Domain: Social construct

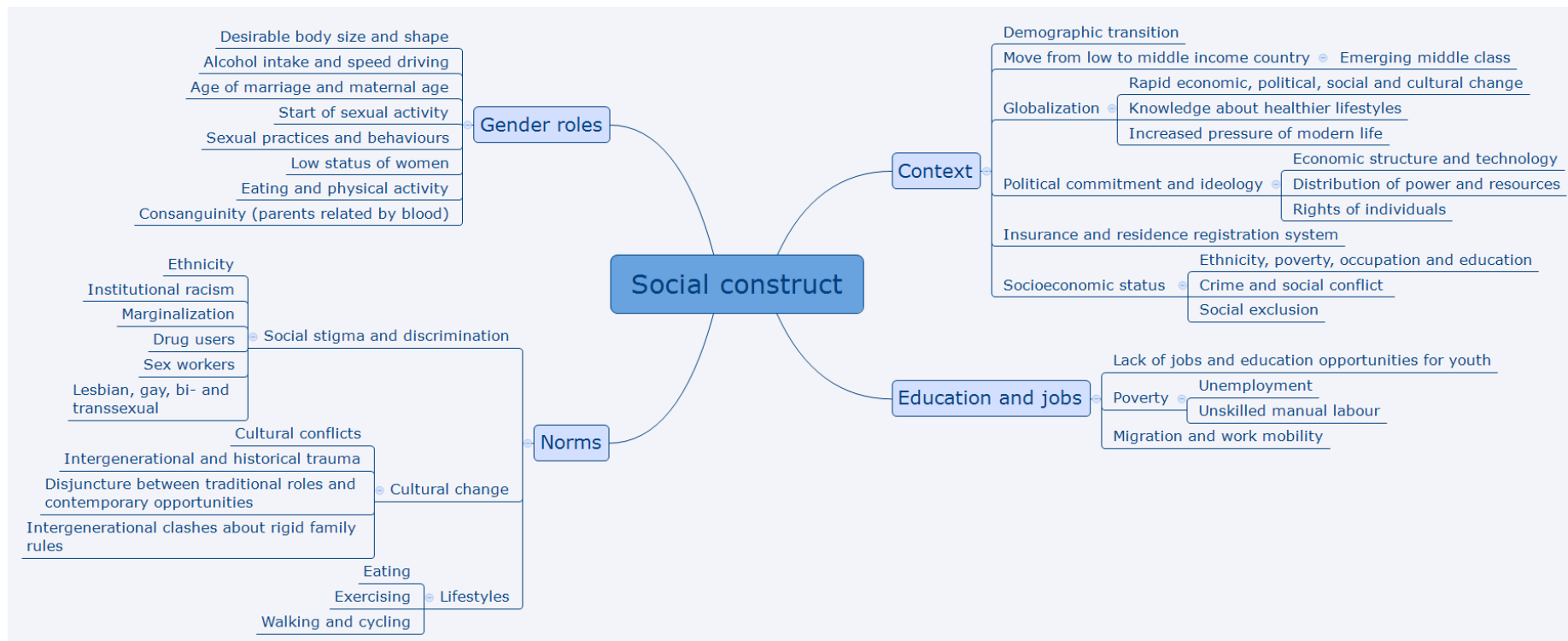
Narrative: The social construct domain, i.e., how the society is organized and functions likely has the greatest impact among the six policy domains for determining the level and distribution of health for any country's populations. The domain is also one where political, ideological, economic and civil society interests meet.

The analysis of the Master sheets revealed a very large number of social [construct or structural] determinants that take part in shaping the level and distribution of health in Suriname across communicable, non-communicable diseases as well as injuries. These can be arranged into four sub-domains: **context, education and jobs, norms, and gender roles** (see graph below).

Appropriate policies that are sensitive to health will greatly help reducing the burden of disease and improve health equity. Absence or non-optimal policies might however hinder action or reduce effectiveness of efforts for improvement.

Who are working in this domain?

- Ministries of Home Affairs (Gender Bureau); Social Affairs; Education; Labour; Regional Development; Finance; Foreign Affairs
- Civil society organizations, women's organizations
- VIDS, VSG
- International Organizations (UNCT)



Current policy situation for the Social construct domain as a whole

A large part of the inequities observed in the 15 Master sheets are caused by social determinants related to the four sub-domains of the Social construct domain (context, education and jobs, norms and gender roles). These were identified in Delphi rounds I and II. While there were a number of suggestions in Delphi III on possible policy and policy implementation gaps with respect to ‘context’, there were few suggestions in the other three sub-domains. This is quite surprising given the large number of determinants in particular in sub-domains ‘norms’ and ‘gender roles’ identified in Delphi rounds I and II (*see graph on page 1 and individual Master sheets*) and given the profound impact that the determinants of this domain has on equity and the health and well-being of the entire population.

The table below captures suggestions from the participants in Delphi round III of where there might be policy gaps and policy implementation gaps for each the four sub-domains. These will be discussed and supplemented during the group discussions in the National Consensus Workshop before proceeding to make recommendations on priority policy options.

Critical gaps by sub-domain

| Policy gaps: <i>Missing policies or insufficiency of current policies</i> | Policy implementation gaps: <i>Where a policy exists - but is not adequately implemented</i> |
|--|--|
| Context: <ul style="list-style-type: none"> • Gaps in policies for “Democratic Consultation” process of government, civil society and private sector: more participatory methods for policy planning, implementation and monitoring on the local, district and national levels. • Gap in policy with respect to effective participation in the design and implementation of crucial (health) policies • Effective policy guidance to modernize effective administrative oversight of government institutions to strengthen transparency and accountability, and reduce corruption. • Introduce a human rights-based approach to development in general and in government and agency (health) policies • Policy for redistribution of resources, based on the principle of sustainability; increase of inclusiveness: most attention to be given to the most vulnerable groups. • Acknowledge Communal Land Rights for indigenous and tribal peoples • and transparent regulations for receiving sports federations and organizations | Context: <ul style="list-style-type: none"> • Absence of a human rights-based approach in government and agency (health) policies and practices • lack of monitoring, compliance and enforcement mechanisms for good governance (in the health sector and overall) • Use of Free Prior and Informed Consent (FPC) in true participative processes with indigenous and tribal peoples |
| Education and jobs: <ul style="list-style-type: none"> • Proper policy on integrated implementation in education, labour, health, culture, and sports | Education and jobs: |
| Norms: <ul style="list-style-type: none"> • Weak policies on racial discrimination and stigmatization | Norms: |
| Gender roles: <ul style="list-style-type: none"> • Need to modernize legislation on sexual and reproductive rights, abortion and homosexuality | Gender roles: |

Policy Domain: Physical structures

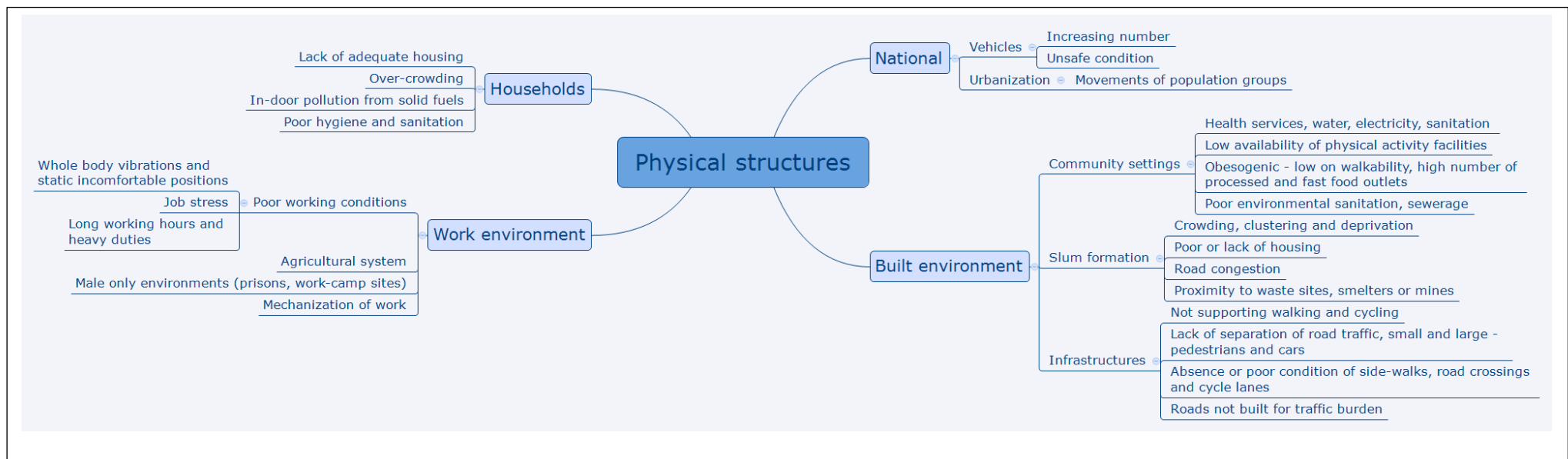
Narrative: The development of the physical structures is important for the social and economic advancement of Suriname. Their development is the target for several of the economic sectors. However, they also have an effect on health.

The analysis of the Master sheets revealed a large number of physical structure determinants at play in shaping the level and distribution of health in the population, in particular for noncommunicable diseases and injuries. These can be arranged into four subdomains: **national, built environment, work environment, and households** (see graph below).

Appropriate policies that are sensitive to health will greatly help reducing the burden of disease and improve health equity, including for non-communicable diseases and injuries. Absence or non-optimal policies might however hinder action or reduce effectiveness of efforts for improvement.

Who are working in this domain?

- Ministries of Regional Development, Labour, Health, Public Works, Physical Planning, Justice and Police
- Police Corps (traffic police)
- Islamic Development Bank
- Interamerican Development Bank



Current policy situation for the Physical structures domain as a whole

The equity and social determinants analyses carried out during Delphi I and II and shown on the 15 Master sheets suggested a large number of diverse determinants at play in the Physical structures domain in particular for the ‘built environment’ and ‘work environment’ sub-domains – but also for ‘national’ and ‘households’ (*see graph on page 1 as well as individual Master sheets*). However, the number and diversity is not reflected in the suggestions from Delphi III, in particular with respect to ‘work environment’ and ‘household’. This is especially surprising given the importance of noncommunicable diseases and road injuries in Suriname.

The table below captures suggestions from the participants in Delphi round III of where there might be policy gaps and policy implementation gaps for each the four sub-domains. These will be discussed and supplemented during the group discussions in the National Consensus Workshop before proceeding to make recommendations on priority policy options.

Critical gaps by sub-domain

| Policy gaps: <i>Missing policies or insufficiency of current policies</i> | Policy implementation gaps: <i>Where a policy exists – but is not adequately implemented</i> |
|--|---|
| National: <ul style="list-style-type: none"> • Legislation: pass the Environmental Law (“Milieuraamwet”); adjust and design relevant laws; coordinated physical planning. • Legislation on physical planning | National: |
| Built environment: <ul style="list-style-type: none"> • Inventory of harmful facilities in and near towns and communities • Inventory of the current situation and state of sports facilities and needs in the communities; • Attune all parts of the institutional and legislative field with regard to physical planning and decisions to be made based on a transparent verification strategy; foster public support in the planning and implementation process of physical planning • Develop a coordination structure for physical planning to synchronize all plans and activities; and build capacity to gather and analyse data and information on physical planning. | Built environment: <ul style="list-style-type: none"> • Although the National NCD plan of action 2012-2016 contains a number of activities to improve the built environment, it is not always clear whether or how these will be supported by policy or legislation towards implementation. • Strengthen capacity and responsibilities of relevant institutions: sufficient competent personnel; intensify green sector education • Reduction in the number of (illegal) mining, logging and other concessions issued without prior knowledge and consent of communities, and thus also the (illegal) use of mercury, pesticides and other chemicals, and a decrease in the immediate destruction of the environment. |
| Work environment: | Work environment: <ul style="list-style-type: none"> • Encourage corporate environmental responsibility |
| Household: | Household: <ul style="list-style-type: none"> • Encourage environmentally responsible behaviour and healthy lifestyle |

Policy Domain: Products

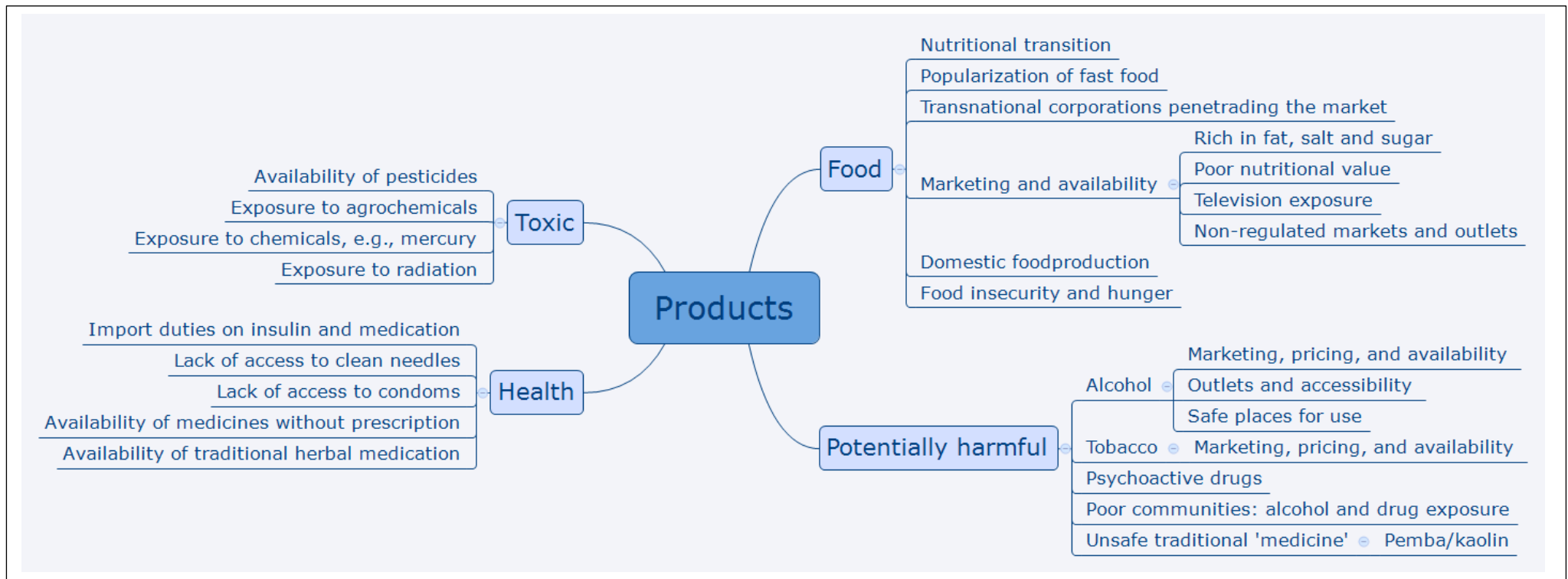
Narrative: The number of products in the contemporary society is enormous and ever increasing. Many of these products have key roles in economic development. However, some also have an adverse effect on health. Availability, marketing and use of products constitute an area of potential tension between economic and public health interests.

The analysis of the Master sheets revealed a large number of product-types that are determinants in shaping the level and distribution of health in Suriname, across communicable, noncommunicable diseases and injuries. These can be arranged into four sub-domains: **food**, **potentially harmful**, **health**, and **toxic** (*see graph below*).

Appropriate policies that are sensitive to health will greatly help reducing the burden of disease and improve health equity. Absence or non-optimal policies might however hinder action or reduce effectiveness of efforts for improvement.

Who are working in this domain?

- Ministries of Trade, , Health, Environment, Agriculture, Public works
- UNICEF, PAHO



Current policy situation for the Products domain as a whole

Across all the noncommunicable diseases, self-harm and road injuries both the level and the inequities in the respective burdens of disease was found related in one way or the other to the Product policy domain and its four sub-domains: food, potentially harmful, health and toxic products. The Delphi round III revealed some – but not many suggestions on how this might related to gaps in current policies and / or policy implementation gaps. The most noticeable discrepancies between the determinants found in the 15 Master sheets (*see graph on page 1 and individual Master sheets*) and the suggested policy and implementation gaps are in the potentially harmful, health and toxic sub-domains. For example, there is no mention of alcohol at all. However, also in the food sub-domain, it is not clear when the intents of the national NCD plan will be translated into public policy and how the policy will eventually be implemented.

The table below captures suggestions from the participants in Delphi round III of where there might be policy gaps and policy implementation gaps for each the four sub-domains. These will be discussed and supplemented during the group discussions in the National Consensus Workshop before proceeding to make recommendations on priority policy options.

Critical gaps by sub-domain

| Policy gaps: <i>Missing policies or insufficiency of current policies</i> | Policy implementation gaps: <i>Where a policy exists – but not adequately implemented</i> |
|--|---|
| Food: <ul style="list-style-type: none"> • Policy gap on regulations (incl. on food), control and enforcement • Policy gap on regulations for the marketing of foods and non-alcoholic beverages to children. Policy that supports locally grown meat and vegetables. • A [comprehensive] Food & Nutrition Security Policy is currently being drafted. | Food: <ul style="list-style-type: none"> • inadequate implementation of control and enforcement of food regulations • National NCD plan of action 2012-16 mentions a number of measures to address gaps such as development of food-based dietary guidelines, standards for salt, trans fats and sugar, food labelling – however, without implementation to date • Implementation of Food & Nutrition Security Policy after it is finalized |
| Potentially harmful: | Potentially harmful: |
| Health: <ul style="list-style-type: none"> • Policy on marketing of [safe] traditional medicines and practices, including through collaboration with and integration in community health clinics. | Health: <ul style="list-style-type: none"> • Lack of Integration of traditional medicine and healers into primary care. |
| Toxic: <ul style="list-style-type: none"> • Policy on mapping of health of indigenous and tribal peoples, in particular with regard to mercury contamination in their living areas (water, air, food) and health implications | Toxic: |

Policy Domain: Health System

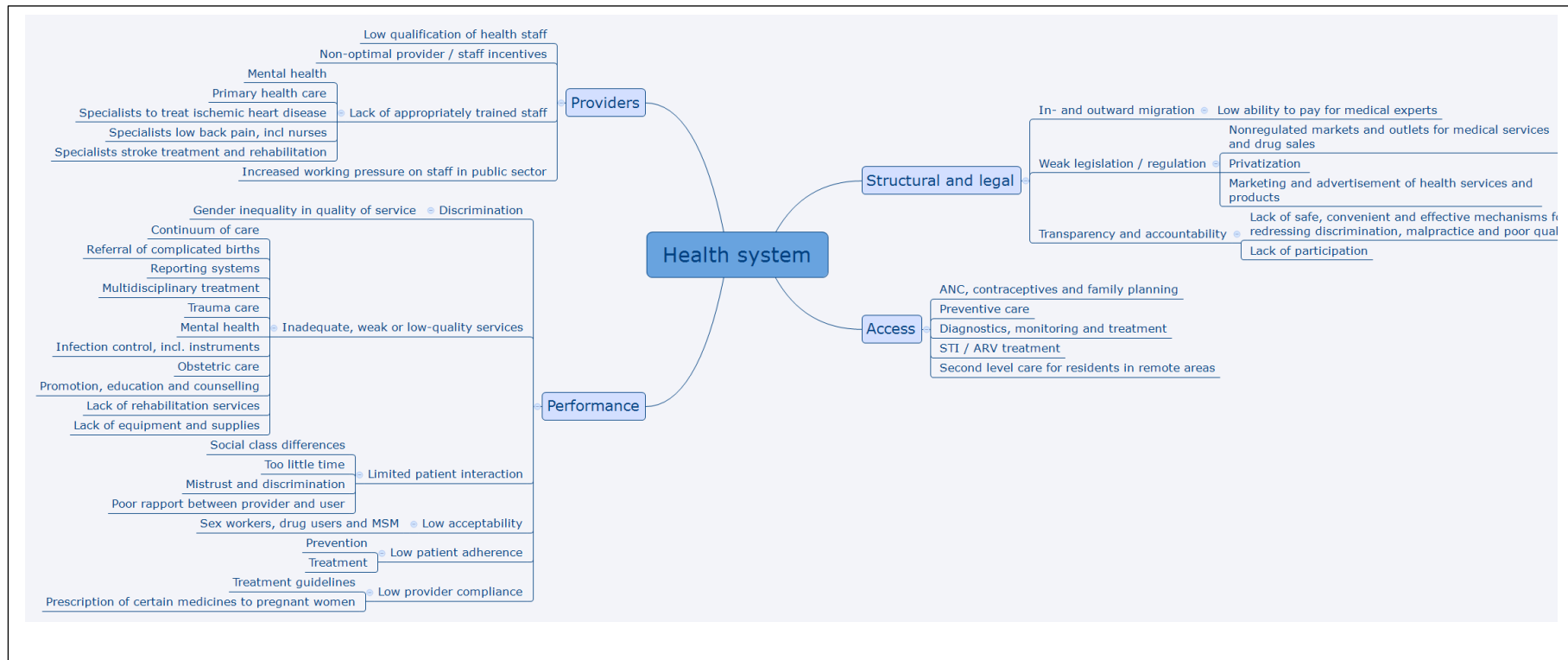
Narrative: The health system is in itself an important determinant for the level and distribution of health in Suriname. The health system might compensate for inequities generated by broader social determinants – or might, conversely amplify and make worse already existing inequities between population groups.

The analysis of the Master sheets revealed a large number of determinants at play in shaping how the health system contributes to the level and distribution of health in the population. These can be arranged into four subdomains: **structural and legal**, **access**, **performance** and **providers** (see the graph below).

Appropriate policies will facilitate and support action of the health system to reduce the burden of disease and improve health equity. Absence or non-optimal policies might however hinder action or reduce effectiveness of efforts for improvement.

Who are working in this domain

- Ministry of Health
- RGD and Medical Mission
- Private clinics
- PAHO
- Pharmacies
- the Surinamese National Drug Company (BGVS)
- Health Insurance Companies



Current policy situation for the health system domain as a whole

The situation that adverse medical treatment is number 15 contributor to the burden of disease in Suriname and that the country ranks at the bottom among the comparator countries. A considerable number of determinants and factors contributing to the level and inequities in most of the diseases and conditions analysed in Delphi rounds I and II related to the health system policy domain (*see Master sheets and graph on page 1*). Thus indicating that the health system has considerable room for improvement. This seems to be well-recognized among the participants in the third Delphi round, who made at large number of suggestion on policy gaps and policy implementation gaps in all four sub-domains: structural and legal, ‘access’, ‘performance’, and ‘providers’ (including staff) (*see table below*). However, despite the many suggestions, there are still noticeable mismatches between the determinants shown in the graph [and in the individual Master sheets] and the suggestions in particular in sub-domains ‘access’, ‘performance’, and ‘providers’

The table below captures suggestions from the participants in Delphi round III of where there might be policy gaps and policy implementation gaps for each the four sub-domains. These will be discussed and supplemented during the group discussions in the National Consensus Workshop before proceeding to make recommendations on priority policy options.

Critical gaps by sub-domain

| Policy gaps: <i>Missing policies or insufficiency of current policies</i> | Policy implementation gaps: <i>Where a policy exists – but is not adequately implemented</i> |
|--|--|
| Structural and legal: <ul style="list-style-type: none"> • Lack of rational policy on prioritizing of scarce resources (e.g. expensive high-end diagnostic and treatment equipment versus no low-cost clinics and health education in the interior). • Weak policy / legislation for patient/ client participation (right to ‘say’) in healthcare institutions • Weak attention to patient rights as part of human rights. • Absence of a National Ombudsman • Legislation : consumers of health services are not sufficiently protected against unprofessional conduct. The Act on Professions in Individual Health Care (dutch: de BIG Wet) should be passed and enforced. | Structural and legal: <ul style="list-style-type: none"> • Health Economics unit is not in operation at the Ministry of Health to strengthen the areas of planning and evaluation of health programs • Presence of a patient / client council as an indicator for functioning of the healthcare institution and compulsory annual report of the patient/ client council. • Weak supervision of establishment policy for general practitioners; strengthen mechanisms for quality assurance;. • Poor protection from reprisal against accusers • Hesitancy to report malpractice cases to the <i>Medical Practitioners Disciplinary Tribunal</i> • Opportunity to integrate the different inspectorates of MoH |
| Access: <ul style="list-style-type: none"> • Weak structure of the system for budgeting, procurement, supply and utilization of pharmaceutical products by the Surinamese National Drug Company (BGVS) making the system less cost-effective. | Access: <ul style="list-style-type: none"> • Availability of and access to prescribed drugs is uncertain. Repeatedly drugs of the national Essential Drug List are unavailable, therefore customers are forced to pay cash for drugs imported by other traders than the National Drug Supply Company. |

| | |
|---|---|
| | <ul style="list-style-type: none"> • Inadequate implementation of comprehensive primary health care, both in the Interior and coastal area • Inadequate information for the general public on how the health system including PHC operates • Referral system for people from the interior is in practice hampered by lack of affordable accommodation for patients and accompanying relatives where treatment facilities are. Access is further made difficult by financial barriers, bureaucratic procedures and language barriers |
| Performance: <ul style="list-style-type: none"> • Formulate quality assurance mechanisms within health institutions and for health professions • Establish performance indicators • Weak structure and poor supervisory capacity of the BOG. Evaluation/ scan of the different inspectorates/ inspection departments required | Performance: <ul style="list-style-type: none"> • Public Health and primary and preventive health care strategies at the community level are ineffective (<i>Chikungunya Epidemic 2014</i>) • Insufficient supervision of Standards and Guidelines for Quality Assurance • Weak administrative and management capacity in the health systems to implement policies and programmes |
| Providers (including staffing): <ul style="list-style-type: none"> • Provider payment mechanisms non-optimal for promoting preventive health care activities at the community level • Curricula of health workers are cure-driven and provide little attention to the functioning of the health system, including to PHC and do not sufficiently reflect the burden of disease in Suriname | Providers (including staffing): <ul style="list-style-type: none"> • Staffing requirements in various health fields are not published by the MOH and incentives and career opportunities in our own country not highlighted. • Capacity strengthening/ training not reflecting in performance of health system and relation to the national health outcomes • Findings of a capacity assessment raise some serious questions about the role and burden of health assistants and physicians as well as regional managers in the MM system. • Community health workers are insufficiently trained to deliver to expectation. |

Policy Domain: Social disadvantage

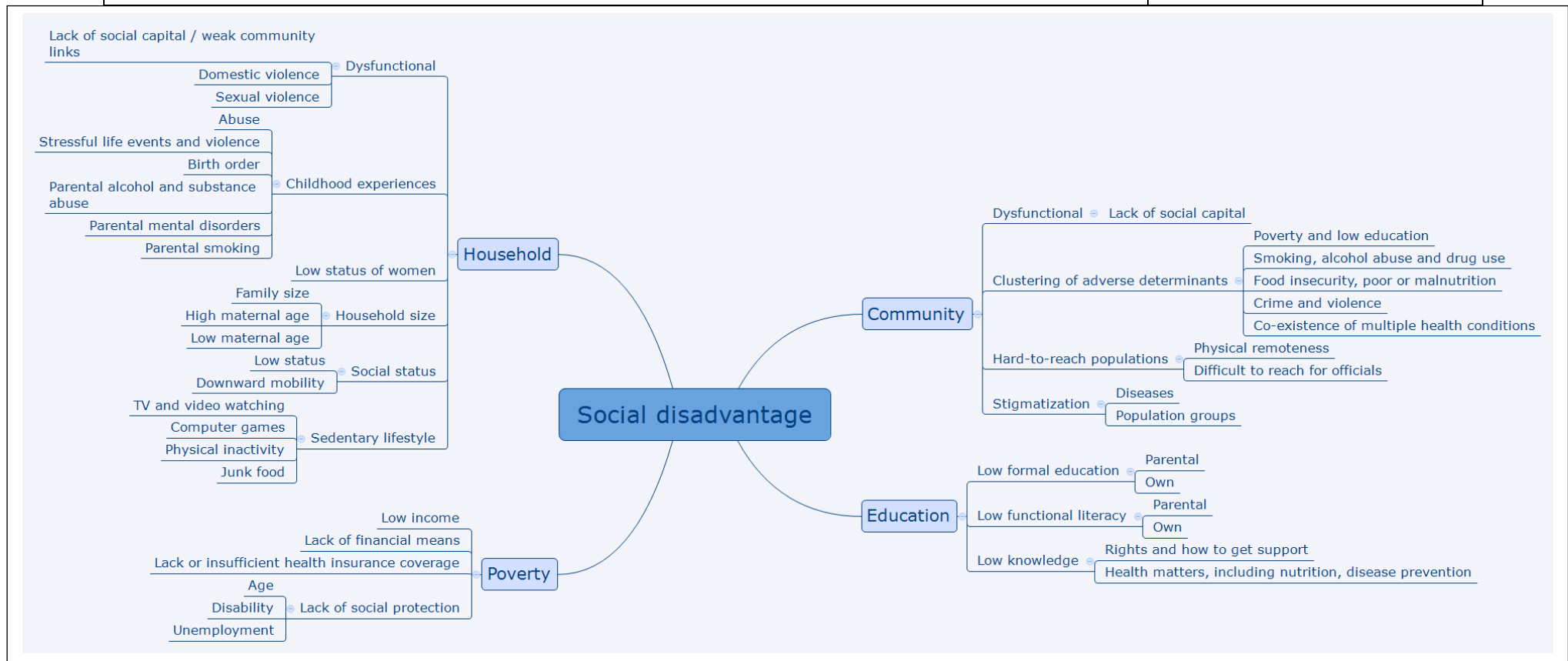
Narrative: The Social disadvantage domain is the quintessence of inequity in terms of social, economic, political and not least health development. The domain has close links to the social construct domain as well as to physical structure, products and the health system domain.

The analysis of the Master sheets revealed a large number of social disadvantage determinants taking part in shaping the level and distribution of health in Suriname across communicable, non-communicable diseases and injuries. These can be arranged into four sub-domains: **community**, **education**, **poverty**, and **household** (see graph below).

Appropriate policies that are sensitive to health will greatly help reducing the burden of disease and improve health equity. Absence or non-optimal policies might however hinder action or reduce effectiveness of efforts for improvement.

Who are working in this domain?

- Ministries of Education, Social Affairs, Regional Development, Justice and Police; Sports and Youth Affairs; Home Affairs (Gender Bureau)
- NGOs: PCOS; Women Rights Centre; St. Stop, Foundation for Human Development
- VIDS, VSG



Current policy situation for the Social disadvantage domain as a whole

There is a considerable body of evidence on social disadvantage in Suriname at ‘community’ and ‘household’ level as well as related to ‘education’ and ‘poverty’. The findings of Delphi I and II also show a strong link between social disadvantage and inequity in health as illustrated by the 15 Master sheets for the different health conditions. However, the suggestions in Delphi III on how these social disadvantages might be results of missing policies, insufficiency of current policies, or inadequate implementation of existing policies was rather sparse. This in particular given the large number of determinants at play as shown in the graph on page 1. For poverty, there were no suggestions at all.

The table below captures suggestions from the participants in Delphi round III of where there might be policy gaps and policy implementation gaps for each the four sub-domains. These will be discussed and supplemented during the group discussions in the National Consensus Workshop before proceeding to make recommendations on priority policy options.

Critical gaps by sub-domain

| Policy gaps: <i>Missing policies or insufficiency of current policies</i> | Policy implementation gaps: <i>Where a policy exists – but is not adequately implemented</i> |
|---|---|
| Community: <ul style="list-style-type: none"> • Policy on village development plans, which integrate health and well-being, are based on own development perspectives of indigenous and tribal peoples, and use their traditional knowledge for their own sustainable development. • Efficient monitoring of all activities taking place in and near [indigenous] communities (which will be carried out with prior consent and involvement of the relevant communities). • Decentralize sports federations and organizations | Community: |
| Education: <ul style="list-style-type: none"> • Lack of policy on education / opportunity gap for out of school youth (“hangjongeren”). • Policy gap on awareness and education on sanitation and safe drinking water, good nutrition, good traditional practices, use of chemicals (mercury, pesticides) • Every school should have at least one physical education teacher; sports and awareness activities during after-school hours. | Education: <ul style="list-style-type: none"> • Vocational training facilities, creation of economic opportunities. • Educate and train with regard to, and encourage environmentally responsible behaviour. |
| Poverty: <ul style="list-style-type: none"> • Fair access to financial support to increase sports participation for youth who have less financial | Poverty: |

| | |
|--|-------------------|
| means | |
| Household: <ul style="list-style-type: none"> • Policy on multidisciplinary action on gender related violence; domestic violence and sexual abuse of children. | Household: |

Policy Domain: Health conditions

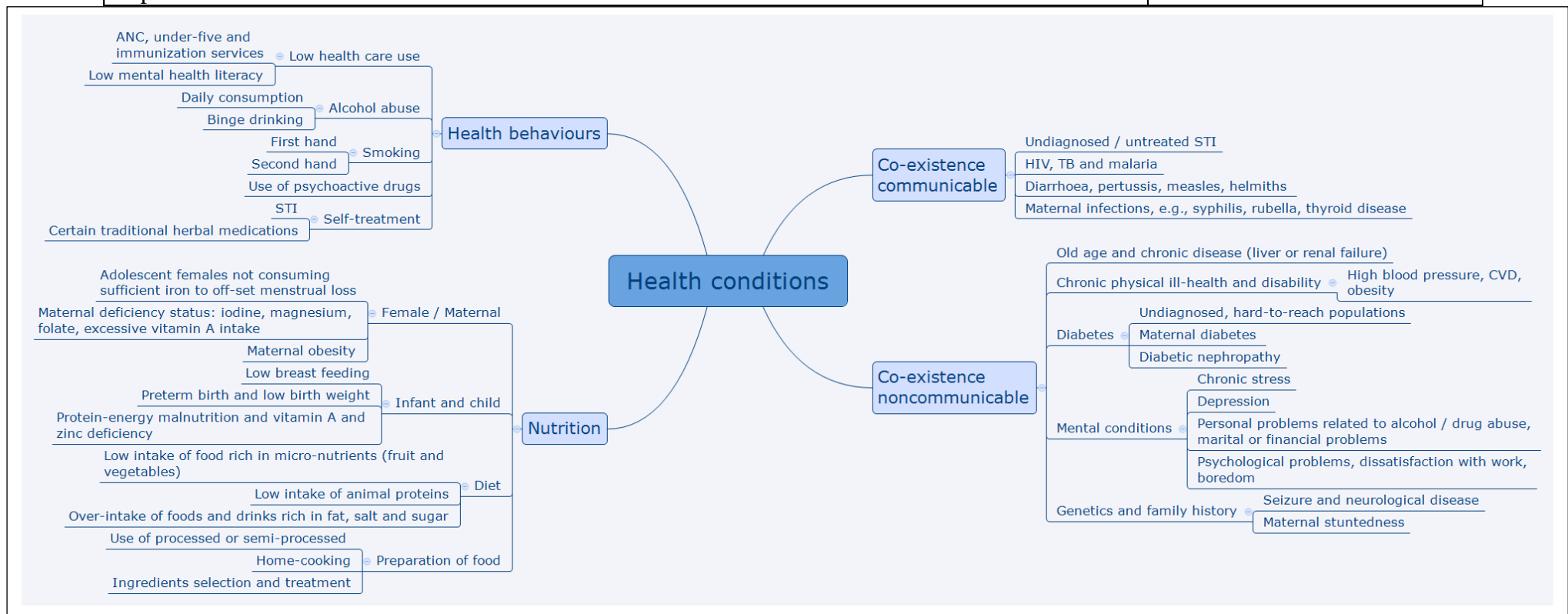
Narrative: The Health conditions domain is where the effects of the other five domains converge and health conditions become determinants in themselves. Prolonged adverse health conditions and co-morbidities mean that affected populations are continuously or for extended periods in a health state where they contribute less than their full to the social and economic development of Suriname and potentially creating a downward social and economic spiral.

The analysis of the Master sheets revealed many health conditions determinants that take part in shaping the level and distribution of health in Suriname across communicable, non-communicable diseases as well as injuries. These can be arranged into four sub-domains: **co-existence communicable, co-existence non-communicable, nutrition, and health behaviours** (*see graph*).

Appropriate policies will greatly help reducing the burden of disease and improve health equity. Absence or non-optimal policies might however hinder action or reduce effectiveness of efforts for improvement.

Who are working in this domain?

- Ministries of Health, Education, Justice and Agriculture (LVV)
- RGD and Medical Mission
- PAHO



Current policy situation for the Health conditions domain as a whole

Compared to the very large number of determinant coming out of the analysis on the 15 Master sheets relating to the four sub-domains of the health conditions domain: ‘co-existence communicable’, ‘co-existence noncommunicable’, ‘nutrition’, and ‘health behaviours’ (*see graph on page 1*), the number of suggestion from Delphi III on possible policy gaps and policy implementation gaps are rather limited (*see table below*). This is quite surprising. It might be due to lack of data on the extent of co-morbidity or due to a tendency of viewing each disease in isolation unrelated to each other and lack of awareness of the common upstream social determinants that shape the diseases. It is, however, even more surprising that there are so few suggestions in ‘nutrition’ and ‘health behaviours’ – both having strong traditions.

The table below captures suggestions from the participants in Delphi round III of where there might be policy gaps and policy implementation gaps for each the four sub-domains. These will be discussed and supplemented during the group discussions in the National Consensus Workshop before proceeding to make recommendations on priority policy options.

Critical gaps by sub-domain

| Policy gaps: <i>Missing policies or insufficiency of current policies</i> | Implementation gaps: <i>Policies might be there – but not [fully] being implemented</i> |
|---|---|
| Co-existence communicable: <ul style="list-style-type: none"> • There is no policy in place to generate, analyse, map and act on data on the extent of co-existence | Co-existence communicable: |
| Co-existence noncommunicable: <ul style="list-style-type: none"> • There is no policy in place to generate, analyse, map and act on data on the extent of co-existence • No policy for decentralized structures that can address substance abuse and underlying mental health problems, especially in the interior. • | Co-existence noncommunicable: <ul style="list-style-type: none"> • Lack of integration of mental health care into primary care. |
| Nutrition: <ul style="list-style-type: none"> • No comprehensive, national policy on maternal, infant and young child nutrition. | Nutrition: |
| Health behaviours: <ul style="list-style-type: none"> • There is no mapping and monitoring of dietary patterns (nutrition), availability and use of sanitation and water among indigenous and tribal peoples | Health behaviours: |

Annex 4: Promising policy entry points for intersectoral action.

From June to August 2015, the 15 largest contributors [diseases and conditions] to the burden of disease in Suriname were analysed in terms of evidence for level and inequity in the burden, risk factors and the social determinants shaping the inequities. The process was participatory, involving more than 70 experts and other knowledgeable individuals in Suriname. The participatory process culminated with the National Consensus Workshop on HiAP held on August 29th and resulted in four products.

1. **15 Master sheets** - one for each of the largest burden of disease summarizing and analysing available information on inequity and social determinants
2. **Six Policy domain sheets** – grouping and further analysing the social determinants of the Master sheets. These policy domain sheets provided together with the Master sheets the input for the National Consensus Workshop
3. **Eight promising policy entry points** – to be further elaborated by intersectoral working groups. Several other potential policy entry points were also suggested, however, the eight promising ones were deemed to be most feasible to start with at this point
4. **The HiAP Monitoring Strategy** – a coordinated rights-based strategy to monitoring of equity, social determinants and health in all policies in Suriname. A high-level HiAP Monitoring Strategy Group, chaired by the Planning office and with health as the Secretariat will steer and operationalize the strategy to anchor it in the institutional, policy and political systems

*The document at hand focuses on the **promising policy entry points**. Over the next about eight months, intersectoral working groups will propose specific policy action, e.g., change of existing policies or establishment of new policies for each of the promising policy entry points. The aim is to inform the next National development plan and UNDAF as well as to provide an operational and enabling policy frame for concrete action by public and private sectors as well as by the civil society in order to reduce health inequities by addressing the social determinants of health.*

The term sector is to be understood broadly, embracing public and private sectors, government ministries and institutions, nongovernment and civil society organizations as well as private businesses – where relevant.

For each of the promising policy entry points, the concerned sectors are listed to participate in the working group. The first sector mentioned (bold italics) will chair the working group. In all cases 'Health' will provide the secretariat.

1 Education and jobs

Health equity and determinants: Poor education and transitioning into adult and working life are strong determinants for health inequity not only for one self, but also for one's children and for responsible participation in society. Social determinants found in the analysis of health condition (*Master and Policy domain sheets*), included: low formal education (*parental and own*); low functional literacy; low knowledge; low health literacy; and lack of jobs and education opportunities for youth; and poverty (*related to unemployment and low paid jobs*)

Policy: Proposed policy options include: compulsory education at primary and secondary levels (4 to 16 years); second chance education; distance learning; aligning education to labour market and local needs (e.g., *agriculture, and vocational training*); improved health, nutrition, sanitation, safe water,

good traditional practices, environment, chemicals (*e.g., pesticides, mercury, etc.*); physical education; and entrepreneurship and innovation in the education system. Integrate policy planning and implementation across education, labour, health, culture and sports. Strengthen district action regarding labour planning, adherence to labour law and health at work place.

Sectors: *Education*, regional development, district councils, labour, trade and industry, agriculture, environment, private businesses, civil society organizations (including grass roots organizations), and *health*

Knowledge and monitoring: student and teacher tracking system, mapping and monitoring of school drop-out and youth unemployment (12 -25 years).

2 Spatial planning and management

Health equity and determinants: People who are already disadvantaged, *e.g.,* poor, less educated or marginalized by society are likely to be more affected by the consequences of poor or inadequate spatial planning and management than those better off. Determinants found in the analysis of health conditions (*Master and Policy domain sheets*), included: proximity between housing, industry, waste sites, smelters, mines and other sources of environmental pollution and destruction; slum formation (*crowding, clustering and deprivation*) with low availability of health services, water, electricity, sanitation; roads not built for traffic burden; congestion and lack of separation of traffic, in particular for pedestrians and cyclists; low access to public transport, and local job opportunities depending on the bigger plan (*i.e.,* which district will do what, how the districts are going to finance and realize the plans).

Policy: Pass and create awareness about environmental laws; legislate on coordinated physical planning; strengthen district level structures and capacities to monitor and act; policy on "neighbourhood planning", *e.g.,* standards to reserve x-amount of hectares per y-number of families, or z-number of hectares for schools, recreation (sports and "public parks"), sub-stations for utilities, health centers, police, fire brigade, public transportation, etc; create community centres; recognize communal land rights for indigenous and tribal peoples; reduce and eventually stop illegal mining; inventory of harmful facilities and activities, in particular in or near towns and communities; decrease of the immediate destruction of the environment.

Sectors: *Planning Office*, regional development and district councils, public works, environment, physical planning, trade and industries, natural resources, agriculture, education, civil society, and *health*

Knowledge and monitoring: Monitoring for the proper implementation of the spatial planning, mapping of determinants, and mapping of determinants overlaid with health outcomes, educational achievement and unemployment.

3 Built environment

Health equity and determinants: The built environment, i.e., the roads, the transportation system, the settlements, the housing, and the infrastructures like water, sanitation, electricity, communication, recreational facilities, etc. provide the frame for how people live and move. These are all determinants for health inequity – communicable and noncommunicable diseases and injuries. Disadvantaged people also tend to be surrounded by less favourable built environments compared to the more advantaged groups. Determinants found in the analysis of health conditions (*Master and Policy domain sheets*), included: slum formation, poor condition of housing and infrastructure; poor environmental sanitation, sewerage, etc.; road traffic is not separated in small and large – e.g., pedestrians and cars; absence or poor condition of side-walks, road crossings and cycle lanes; poor road safety and low walkability and absence of areas for physical activity, including poor condition of sports facilities; lack of public transport; etc.

Policy: Formulation and implementation of infrastructural norms that consider health and well-being; apply “Bouwwet” (=building act) for the whole country with guidelines based on local practice; coordinated policy on low cost housing; adequate and affordable housing as part of district plan; etc.

Sectors: *Public works*, regional development, district councils, housing authority (Office of President), transport, planning office, police, home affairs, National Institute for Environment and Development (NIMOS), civil society, social affairs, and *health*

Knowledge and monitoring: Mapping and monitoring of unfavourable built environments, community and neighbourhood monitoring / logs for action.

4 Integrated approach at community and household levels

Health equity and determinants: A disadvantage seldom comes alone. Disadvantages tend to cluster in certain communities (geographic, ethnic, social sub-groups) where they are mutually reinforcing each other and thus amplifying the health divide (*inequity*). The analysis of health conditions revealed a large number of determinants at play at the community and household level (*see Master and Policy domain sheets, in particular those on Physical structure, Social disadvantage and Health conditions*). Addressing the determinants individually rarely has a lasting effect. Sustainably reducing the burden of disease and health inequity would require simultaneously addressing the determinants in a concerted multipronged collaboration between different sectors, the communities and individual households.

Policy: Increase political and administrative responsibility and accountability at local council (“ressortraad”) / community level; multidisciplinary action on gender and domestic violence and child abuse; early child development policy; linking integrated planning at community level to regional and national planning; conditional cash transfer;

Sectors: *Regional development*, district councils, public works, education, justice and police, social affairs, planning office, spatial planning, sports and youth, gender bureau, civil society, and *health*.

Knowledge and monitoring: The knowledge required for action is usually available at the local level in the community and at the lowest levels of government services. The challenge is often to structure and make this knowledge meet the ‘official system’ and translate into coordinated and collaborative action by government and private sectors and communities. One option may be community led approaches for mapping and monitoring, e.g., community logs.

5 Consumables (food, tobacco and alcohol)

Health equity and determinants: The large and growing proportion (58%) of the burden of disease caused by noncommunicable diseases in Suriname is closely linked to dietary, smoking and alcohol use risks. Available data suggests that consumption patterns differ across population groups, by ethnicity and socio-economic status (*see Master sheets*) and thus playing a major role for both the level of disease and health inequity.

Policy (*supply side focus*): Taxation according to nutrition and health value; regulation of advertising and marketing, including targeting children, and content of processed food (*salt, sugar, trans-fats, additives*); packaging standards and labelling; regulation on distribution of alcohol and fast food outlets; and promotion of local healthy food production and distribution.

Sectors: *Trade and industry*, finance, agriculture, regional development, spatial planning, education, vocational training institutions serving the food sector, private food and beverage sector, civil society, and *health*.

Knowledge and monitoring: there is limited knowledge on the nutritional transition in Suriname including the availability and consumption patterns of alcohol and processed food, e.g., what is driving the cultural and socio-economic differences in consumption leading to inequities in health outcomes.

6 Training and employment of staff (*health and other*)

Health equity and determinants: health and other public and private organizations and services have the potential to reduce inequities. However, sometimes they miss the opportunity or even contribute to further widening inequities. Often, managers and staff-members do not have the knowledge and skills to be aware of how social determinants and actions in the ‘business’ of the various sectors influence health, how to appropriately do ‘business’ and interact with the clients, and how to deal with other professions and sectors. Causes for this may include that: basic professional training across disciplines does not address the interlinkages between health and social determinants; there are no incentives (managerial and financial) for doing so; recruitment and work assignment policies do not take, e.g., cultural, language and social differences into account; and pre- and in-service training does not address inequity, social determinants and intersectoral action.

Policy: Assessment and revision of curricula of training institutions (*health and others*); include in generic and specific post descriptions; incentives and rewards for “desired” behaviour; integration of inequity and social determinant knowledge and skills into in-service training and career paths; integrated training for community workers; etc.

Sectors: *Education, professional and higher learning institutions*, regional development, district councils, spatial planning, public works, trade and industry, agriculture, justice and police, social affairs, professional associations, civil society, and *health*.

Knowledge and monitoring: There is limited information on staff knowledge, attitudes and performance with respect to equity and social determinants and how they influence service provision and work outputs in general; there is no systematic approach to monitoring intersectoral action and collaboration at local, institution, district or national levels.

7 Health systems governance

Health equity and determinants: How the health system is governed influences how it operates, including its ability to work with other sectors and actors to address determinants of health and who benefits from services and who do not. As such health systems governance will have an effect on narrowing or widening health inequities. Important determinants found in the analysis of health conditions (*Master and Policy domain sheets*) and in the consensus workshop include: political commitment; how priorities are set, e.g., how resources are allocated between levels of care and between health promotion, preventive and curative services; participation; transparency and accountability, e.g., mechanisms for redressing malpractice and discrimination.

Policy: Institute health inequity reduction as part of the overall health system's ethics code, budget allocation and success criteria; make contributions of all relevant sectors visible in policy, budget and reporting; legal structure for participatory bottom-up multi-sectoral and culturally appropriate policy planning, implementation and systematic monitoring for health; strengthen system for patients' rights, including safe ways of complaining, and legally empowered National Ombudsman institution and Medical Disciplinary Tribunal (medisch tuchtcollege).

Sectors: *Regional development*, district councils, social affairs, insurance, NGO and private health care providers, civil society, justice, and *health*

Knowledge and monitoring: appropriate collection, disaggregation and availability of data from public and private services for intersectoral analysis and use from local to central levels; specific focus on health system's contribution to reducing or increasing health inequities.

8 Health system organization and management

Health equity and determinants: the organization and management of health systems may cause these to perform below their potentials to improve the level of health and reduce inequities in health. The analysis of health conditions (*Master and Policy domain sheets*) and the consensus workshop identified a number of determinants of sub-optimal performance in this respect that may be addressed through appropriate policies: fragmentation of the national health system; weak administrative and managerial capacity to implement policies and programmes; low cost-effectiveness of the system, including drug procurement, supply and utilization; inadequate implementation of and information on primary health care (PHC) both in the interior and coastal areas, including integration of traditional healers and medicines; weak referral system, including financial, cultural and language barriers as well as lack of appropriate and affordable accommodation for patients and relatives where treatment facilities are; disease-focused rather than a holistic (*person and population*) based health-view; and incentive and provider-payment mechanisms non-optimal for working with other sectors and promoting preventive health activities, including at community level.

Policy: Enhanced and coherent coordination of the different subsystems of the national health system; enhancing evidence-based managerial effectiveness towards health inequity reduction goals; enforcing PHC policy, including intersectoral action, referral system and the integration of preventive services; telemedicine; etc.

Sectors: *Regional development*, district councils, social affairs, insurance, NGO and private health care providers, professional associations, civil society, and *health*.

Knowledge and monitoring: There is limited or no data and knowledge available on co-existence of diseases, linking health conditions and outcomes with social determinants and on effectiveness of the system, e.g., to address inequities.

Annex 5: The HiAP Monitoring Strategy

A coordinated rights-based strategy to monitoring of equity, social determinants and health in all policies in Suriname

The vision of the Health in All Policies (HiAP) Monitoring Strategy – in short, the Strategy – is that it will become a key driver to reduce health inequities in Suriname. Health inequities are caused by social determinants. Addressing the social determinants means dealing with complex societal processes for which both actions and effects can be difficult to predefine. The Strategy sees monitoring in a comprehensive sense comprising collection and analysis of a wide range of quantitative and qualitative data, discussing and translating the results to action. Data collection and analysis may take many shapes and forms from community to national levels. Those involved in the monitoring processes may include: primary school children, ordinary citizens, civil society organizations, government and private sector staff, statisticians and other experts in various fields as well as local and national politicians. A key tenet of the Strategy is that data should be analysed and used as close to where action can be taken and where the people concerned are, as well as be appropriately consolidated for policy making, and feedback. The Strategy is a response to the request made by the National Consensus Workshop on HiAP (NCW) held on 25. August 2015.

The HiAP Monitoring Strategy has two interlinked objectives:

- To further improve the evidence base with respect to the level and distribution of the burden of disease, including the social determinants that are causing the health inequities.
- To strengthen existing and if required to create new mechanisms for analysing, interpreting, translating evidence and for facilitating decision-making concerning equity and social determinants that are participatory, transparent and foster accountability across sectors and levels of society

The assumption of the quick assessment prior to the NCW was that data would be available. This turned out to be only partly true. The assessment revealed considerable data and knowledge spread over multiple sources but also major gaps, resulting in incomplete analyses of the level and inequities for the leading contributors to the burden of disease, their risk factors and the social determinants at play. The health of a population is determined by the conditions under which people are born, grow, live and age. Individual health care only explains about 20% of the level of and inequity in population health. The remaining 80% is shaped by a range of social determinants (50%) and individual health behaviours (30%)⁴⁰. However, the health behaviours are also shaped by social determinants. Sustained improvements to health therefore must begin with addressing the social determinants. Health inequities are unfair and represent lost social and economic development opportunities for communities and the Nation. The causes and the effects of health inequity are thus a concern for all sectors.

⁴⁰ <http://www.countyhealthrankings.org/>). In the Strategy, social and environmental determinants are considered under one label, i.e., social determinants.

What will be monitored?

In order to monitor health inequity in Suriname, it is necessary to link important health outcomes and major risk factors with dimensions of inequity and social determinants.

- **Health outcomes** – the Strategy will focus on the 15 largest contributors to the burden of disease in Suriname (*Annex 1*)
- **Risk factors** – the Strategy will focus on those risk factors that most frequently came out of the quick assessment analysis (*Annex 2*)
- **Dimensions of inequity** – The Strategy will use three main dimensions, i.e., geographical location, socio-economic status, and population group and gender. These dimensions can be further broken down (*Annex 3*)
- **Social determinants** – The Strategy will focus on those social determinants identified through the NCW process for the first wave of promising policy entry points (*Annex 4*)

How will it be monitored?

The HiAP Monitoring Strategy is rights-based. This means, among others, that its core principles are: participation, transparency and accountability. The general guiding rule is integration and institutionalization into existing instruments and structures. This means that the potentials of existing instruments and structures should be explored and exploited first. However, if these are not appropriate or cannot be modified to adequately serve the objectives of the Strategy – then new instruments and structures should be pursued. There are currently no systematic mechanisms in operation for participation in monitoring.

Four business lines

The Strategy has four business lines: ‘*BL.1 Administrative and service data*’, ‘*BL.2 Repeated surveys*’, ‘*BL.3 Ad hoc surveys, studies and research projects*’, and ‘*BL.4 Policy adequacy, implementation and effect*’.

BL.1: Administrative and service data

Administrative and service data, e.g., on health outcomes, risk factors and social determinants are routinely collected by a number of health, social and other public and private entities. However, the collected data rarely link to dimensions of inequity; do not cover those who for varying reasons are not excluded or marginalized; and often data are incomplete, have different formats and are not or cannot easily be consolidated, analysed and acted upon. Nevertheless administrative and service data, because they are routinely collected provide a great potential for data and information.

Activities in BL.1 include:

- Identify who are collecting which data (*Annexes 1 – 4*) in which formats, where and how often (frequency)
- Resolve incompleteness, compatibility and linking issues, including use of national ID numbers

- Develop tools for analysis at local, district and national levels
- Undertake analysis at national level

BL.2: Repeated surveys

Suriname undertakes a number of repeated surveys, e.g.: the National Census, Multi-Indicator Cluster Survey (MICS), National Budget and Household Survey, Price surveys, etc.. Because they are population-based and repeated they have a huge potential for monitoring trends, linking dimensions of inequity, social determinant, and risk factors, as well as to some extent health outcomes. However, some of these surveys are done with long intervals, e.g., the National Census every ten years and the MICS every five years. Further, some have incomplete coverage or small sample sizes. The latter making them less suited for local use. Activities in BL.2 include:

- Identify which surveys are collecting which data (*Annexes 1 – 4*) in which formats, where and how often (frequency)
- Provide input to adjusting survey instruments to better capture the needs for monitoring health outcomes, risk factors, dimensions of inequity and social determinants
- Develop appropriate, including participatory tools for analysis at local, district and national levels
- Undertake analysis at national level

BL.3: Ad hoc surveys, studies and research projects

A large number of ad hoc surveys, studies and research projects, including Master theses are carried out in Suriname. These projects provided valuable input to the quick assessment in particular with respect to the social determinants analyses. However, the quick assessment experienced challenges in accessing the results and the data-bases of these various pieces of work. Further, because the projects are ad hoc and carried out with a variety of funding sources and within different institutional contexts, each might only provide a few pieces to an overall incomplete puzzle. Nevertheless, such projects have a huge potential in getting closer to explaining the social determinants and how they influence population health. Activities in BL.3 include:

- Establish and maintain a catalogue of knowledge gaps on health outcomes, risk factors, dimensions of inequity and social determinants (*see, e.g., Annex 4*)
- Technical advice for study protocols to cover the above knowledge gaps and peer review
- Limited funding for studies to cover critical knowledge gaps in the catalogue
- Support development of guidelines for ownership of and access to data collected
- Provide opportunity for sharing of new knowledge relevant to the Strategy (*see also BL.4*)

BL.4: Policy adequacy, implementation and effect

Monitoring of policy adequacy, implementation and effect across different sectors is inherently challenging. A policy might be ‘owned’ by one sector, implementation involves several actors in different public and private sectors, while the results might show up in one or more other social and

economic sectors. Further, it might be difficult or impossible to define simple indicators for policy adequacy, implementation and effect. However, monitoring is the foundation for participation, transparency and accountability. A well-designed monitoring approach will help driving policy and policy implementation and is therefore indispensable for health in all policies and population health in Suriname. Activities in BL.4 include:

- Develop and test community level monitoring tools, e.g., community logs and self-administered assessments, integration into school curricula (*primary and secondary*), community self-accountability, etc.
- Follow, coordinate and support the work of the policy entry point working groups (*see Annex 4*)
- Prepare an Annual Population Health Report presenting the newest knowledge on the burden of disease, risk factors, inequity and social determinants at plan, and policy action in Suriname
- Organize a National Health Forum 2017 providing the opportunity for politicians, sectoral managers, researchers, private sector and civil society to review the newest knowledge and policy and implementation progress, share experience, innovate and discuss the way forward.

Steering of the HiAP Monitoring Strategy

The HiAP Monitoring Strategy needs to be more than just a document, it requires a structure and an engine to take it forward, anchored sufficiently high in the policy and political system – but, yet sufficiently independent to be operational. The HiAP Monitoring Strategy Group will have the following characteristic and tasks:

- Chaired by Planning office (Office of the Vice President), Secretariat by Ministry of Health, members are Bureau of Statistics, University, Regional development, and a representative from civil society. The level of membership is Directors, and technical advice will be provided by PAHO/UNCT
- The group will
 - Meet at least once every two months to review progress and achievements and to follow up with sectors and actors as required
 - Identify and facilitate resource allocation for and oversee the work of the four business-lines
 - Present the Annual Population Health Report to the National Assembly
 - Initiate and oversee the National Health Forum 2017

Annex 1: Current availability health outcome data by inequity dimension

As found during the quick assessment of health equity and social determinants done prior to the National Consensus Workshop on HiAP and shown in the Master sheets

| Top-15 burden of disease | Prevalence per 10,000 by Geographical location | Prevalence per 10,000 by socio-economic status | Prevalence per 10,000 by population group and gender | Risk factor per 10,000 by inequity dimension |
|---------------------------------|--|--|--|--|
| 1 HIV/AIDS | AIDS death only | No | Yes – Ethnicity & Sex | No |
| 2 Stroke | Yes - District | No | Ethnicity only | Obesity / ethnicity only |
| 3 Pre-term birth complications | No | No | No | No |
| 4 Ischemic heart disease | Cardiovascular diseases group only | No | Cardiovascular diseases group only | Yes - smoking by wealth quintile |
| 5 Self-harm | Suicide only | No | Suicide only | No |
| 6 Major depressive disorder | No | No | No | No |
| 7 Road injuries | Yes – District | Yes - Age | Yes – Ethnicity & sex | No |
| 8 Diabetes | Yes - District | Yes - Wealth | Yes – Ethnicity & sex | Obesity / ethnicity only |
| 9 Iron deficiency anaemia | No - Only cases from academic hospital – grossly underrepresenting | No | No - Only cases from academic hospital – grossly underrepresenting | No |
| 10 Low back pain | No | No | No | No |
| 11 Neonatal encephalopathy | No | No | No | No |
| 12 Congenital anomalies | No | No | No | No |
| 13 Lower respiratory infections | No - Only cases from academic hospital – grossly underrepresenting | No | No - Only cases from academic hospital – grossly underrepresenting | No |
| 14 Chronic kidney disease | Yes – District | No | Yes – Ethnicity & sex | Yes – Diabetes by wealth quintile |
| 15 Adverse medical treatment | No | No | No | No |

Annex 2: Population-based risk factors

| Rank | Population-based risk factors (identified for two or more of the largest 15 contributors to the burden of disease) | 1. HIV/AIDS | 2. Stroke | 3. Preterm b. compl | 4. Ischemic heart dis. | 5. Self-harm | 6. Major Depressive d. | 7. Road injury | 8. Diabetes | 9. Iron-def. anae. | 10. Low back pain | 11. Neonatal encep. | 12. Cong. Anomalies | 13. Low resp. inf. | 14. Chr. Kidney de. | 15. adv medical t. | Frequency |
|--|---|-------------|-----------|---------------------|------------------------|--------------|------------------------|----------------|-------------|--------------------|-------------------|---------------------|---------------------|--------------------|---------------------|--------------------|-----------|
| Knowledge, attitude and practice related risk factors | | | | | | | | | | | | | | | | | |
| 1 | Nutritious /unhealth diet | | 1 | 1 | 1 | | | | 1 | 1 | | 1 | | 1 | 1 | | 8 |
| 2 | Tobacco smoking | | 1 | 1 | 1 | | | | 1 | | | | | 1 | | | 5 |
| 3 | Alcohol consumption | | 1 | 1 | 1 | | | 1 | | | | | | | 1 | | 5 |
| 4 | Lack of exercise | | | | 1 | | | | 1 | | 1 | | | | 1 | | 4 |
| 5 | Dom. violence, sex. abuse, neglect | 1 | | | | 1 | 1 | | | | | | | | | | 3 |
| 6 | High / low maternal age | | | 1 | | | | | | 1 | | 1 | | | | | 3 |
| 7 | Incomplet vacc coverage | | | | | | | | | | | 1 | 1 | 1 | | | 3 |
| 8 | Low use of ANC services | | | 1 | | | | | | | | 1 | 1 | | | | 3 |
| 9 | Multiple pregnancies / births | | | 1 | | | | | | | | 1 | | | | | 2 |
| Health-related risk factors | | | | | | | | | | | | | | | | | |
| 1 | High blood pressure | | 1 | 1 | 1 | | | | 1 | | | | | | 1 | | 5 |
| 2 | Co-exist. noncommunicable | | 1 | 1 | 1 | 1 | | | | | | | | | 1 | | 5 |
| 3 | Obesity | | 1 | | 1 | | | | 1 | | | | | | 1 | | 4 |
| 4 | Co-exist. communicable, maternal, neonatal and nutritional disorders | 1 | | 1 | | | | | | 1 | | 1 | | | | | 4 |
| 5 | Genetics | | | 1 | 1 | | | | | | | | 1 | | | | 3 |
| 6 | High blood cholesterol | | 1 | | 1 | | | | | | | | | | | | 2 |

Annex 3: Inequity dimensions

| Main inequity dimension | Sub-dimensions |
|------------------------------------|---|
| Geographical location | District |
| | Local council (Ressort) |
| | Neighbourhood |
| | Urban, costal rural, interior rural |
| Socio-economic status | Wealth / income |
| | Education level |
| | Age |
| | Migratory status |
| Population group and gender | Ethnic group, religion (?) |
| | Sex |
| | Lesbian, Gay, Bisexual and Transgender (LGBT) |
| | Drug-users |
| | Sex-workers |

Annex 4: Promising policy entry points with social determinants, policy, sectors and knowledge and monitoring.

From the National Consensus Workshop on HiAP and subsequent further input from the participants

1 Education and jobs

Health equity and determinants: Poor education and transitioning into adult and working life are strong determinants for health inequity not only for one self, but also for one's children and for responsible participation in society. Social determinants found in the analysis of health condition (*Master and Policy domain sheets*), included: low formal education (*parental and own*); low functional literacy; low knowledge; low health literacy; and lack of jobs and education opportunities for youth; and poverty (*related to unemployment and low paid jobs*)

Policy: Proposed policy options include: compulsory education at primary and secondary levels (4 to 16 years); second chance education; distance learning; aligning education to labour market and local needs (*e.g., agriculture, and vocational training*); improved health, nutrition, sanitation, safe water, good traditional practices, environment, chemicals (*e.g., pesticides, mercury, etc.*); physical education; and entrepreneurship and innovation in the education system. Integrate policy planning and implementation across education, labour, health, culture and sports. Strengthen district action regarding labour planning, adherence to labour law and health at work place.

Sectors: *Education*, regional development, district councils, labour, trade and industry, agriculture, environment, private businesses, civil society organizations (including grass roots organizations), and *health*

Knowledge and monitoring: student and teacher tracking system, mapping and monitoring of school drop-out and youth unemployment (12 -25 years).

2 Spatial planning and management

Health equity and determinants: People who are already disadvantaged, e.g., poor, less educated or marginalized by society are likely to be more affected by the consequences of poor or inadequate spatial planning and management than those better off. Determinants found in the analysis of health conditions (*Master and Policy domain sheets*), included: proximity between housing, industry, waste sites, smelters, mines and other sources of environmental pollution and destruction; slum formation (*crowding, clustering and deprivation*) with low availability of health services, water, electricity, sanitation; roads not built for traffic burden; congestion and lack of separation of traffic, in particular for pedestrians and cyclists; low access to public transport, and local job opportunities depending on the bigger plan (i.e., which district will do what, how the districts are going to finance and realize the plans).

Policy: Pass and create awareness about environmental laws; legislate on coordinated physical planning; strengthen district level structures and capacities to monitor and act; policy on "neighbourhood planning", e.g., standards to reserve x-amount of hectares per y-number of families, or z-number of hectares for schools, recreation (sports and "public parks"), sub-stations for utilities, health centers, police, fire brigade, public transportation, etc; create community centres; recognize communal land

rights for indigenous and tribal peoples; reduce and eventually stop illegal mining; inventory of harmful facilities and activities, in particular in or near towns and communities; decrease of the immediate destruction of the environment.

Sectors: *Planning Office*, regional development and district councils, public works, environment, physical planning, trade and industries, natural resources, agriculture, education, civil society, and *health*

Knowledge and monitoring: Monitoring for the proper implementation of the spatial planning, mapping of determinants, and mapping of determinants overlaid with health outcomes, educational achievement and unemployment.

3 Built environment

Health equity and determinants: The built environment, i.e., the roads, the transportation system, the settlements, the housing, and the infrastructures like water, sanitation, electricity, communication, recreational facilities, etc. provide the frame for how people live and move. These are all determinants for health inequity – communicable and noncommunicable diseases and injuries. Disadvantaged people also tend to be surrounded by less favourable built environments compared to the more advantaged groups. Determinants found in the analysis of health conditions (*Master and Policy domain sheets*), included: slum formation, poor condition of housing and infrastructure; poor environmental sanitation, sewerage, etc.; road traffic is not separated in small and large – e.g., pedestrians and cars; absence or poor condition of side-walks, road crossings and cycle lanes; poor road safety and low walkability and absence of areas for physical activity, including poor condition of sports facilities; lack of public transport; etc.

Policy: Formulation and implementation of infrastructural norms that consider health and well-being; apply “Bouwwet” (=building act) for the whole country with guidelines based on local practice; coordinated policy on low cost housing; adequate and affordable housing as part of district plan; etc.

Sectors: *Public works*, regional development, district councils, housing authority (Office of President), transport, planning office, police, home affairs, National Institute for Environment and Development (NIMOS), civil society, social affairs, and *health*

Knowledge and monitoring: Mapping and monitoring of unfavourable built environments, community and neighbourhood monitoring / logs for action.

4 Integrated approach at community and household levels

Health equity and determinants: A disadvantage seldom comes alone. Disadvantages tend to cluster in certain communities (geographic, ethnic, social sub-groups) where they are mutually reinforcing each other and thus amplifying the health divide (*inequity*). The analysis of health conditions revealed a large number of determinants at play at the community and household level (*see Master and Policy domain sheets, in particular those on Physical structure, Social disadvantage and Health conditions*). Addressing the determinants individually rarely has a lasting effect. Sustainably reducing the burden of disease and health inequity would require simultaneously addressing the determinants in a concerted multipronged collaboration between different sectors, the communities and individual households.

Policy: Increase political and administrative responsibility and accountability at local council (“ressortraad”) / community level; multidisciplinary action on gender and domestic violence and child abuse; early child development policy; linking integrated planning at community level to regional and national planning; conditional cash transfer;

Sectors: *Regional development*, district councils, public works, education, justice and police, social affairs, planning office, spatial planning, sports and youth, gender bureau, civil society, and *health*.

Knowledge and monitoring: The knowledge required for action is usually available at the local level in the community and at the lowest levels of government services. The challenge is often to structure and make this knowledge meet the ‘official system’ and translate into coordinated and collaborative action by government and private sectors and communities. One option may be community led approaches for mapping and monitoring, e.g., community logs.

5 Consumables (*food, tobacco and alcohol*)

Health equity and determinants: The large and growing proportion (58%) of the burden of disease caused by noncommunicable diseases in Suriname is closely linked to dietary, smoking and alcohol use risks. Available data suggests that consumption patterns differ across population groups, by ethnicity and socio-economic status (*see Master sheets*) and thus playing a major role for both the level of disease and health inequity.

Policy (*supply side focus*): Taxation according to nutrition and health value; regulation of advertising and marketing, including targeting children, and content of processed food (*salt, sugar, trans-fats, additives*); packaging standards and labelling; regulation on distribution of alcohol and fast food outlets; and promotion of local healthy food production and distribution.

Sectors: *Trade and industry*, finance, agriculture, regional development, spatial planning, education, vocational training institutions serving the food sector, private food and beverage sector, civil society, and *health*.

Knowledge and monitoring: there is limited knowledge on the nutritional transition in Suriname including the availability and consumption patterns of alcohol and processed food, e.g., what is driving the cultural and socio-economic differences in consumption leading to inequities in health outcomes.

6 Training and employment of staff (*health and other*)

Health equity and determinants: health and other public and private organizations and services have the potential to reduce inequities. However, sometimes they miss the opportunity or even contribute to further widening inequities. Often, managers and staff-members do not have the knowledge and skills to be aware of how social determinants and actions in the ‘business’ of the various sectors influence health, how to appropriately do ‘business’ and interact with the clients, and how to deal with other professions and sectors. Causes for this may include that: basic professional training across disciplines does not address the interlinkages between health and social determinants; there are no incentives (managerial and financial) for doing so; recruitment and work assignment policies do not take, e.g., cultural, language and social differences into account; and pre- and in-service training does not address inequity, social determinants and intersectoral action.

Policy: Assessment and revision of curricula of training institutions (*health and others*); include in generic and specific post descriptions; incentives and rewards for “desired” behaviour; integration of inequity and social determinant knowledge and skills into in-service training and career paths; integrated training for community workers; etc.

Sectors: *Education, professional and higher learning institutions*, regional development, district councils, spatial planning, public works, trade and industry, agriculture, justice and police, social affairs, professional associations, civil society, and *health*.

Knowledge and monitoring: There is limited information on staff knowledge, attitudes and performance with respect to equity and social determinants and how they influence service provision and work outputs in general; there is no systematic approach to monitoring intersectoral action and collaboration at local, institution, district or national levels.

7 Health systems governance

Health equity and determinants: How the health system is governed influences how it operates, including its ability to work with other sectors and actors to address determinants of health and who benefits from services and who do not. As such health systems governance will have an effect on narrowing or widening health inequities. Important determinants found in the analysis of health conditions (*Master and Policy domain sheets*) and in the consensus workshop include: political commitment; how priorities are set, e.g., how resources are allocated between levels of care and between health promotion, preventive and curative services; participation; transparency and accountability, e.g., mechanisms for redressing malpractice and discrimination.

Policy: Institute health inequity reduction as part of the overall health system’s ethics code, budget allocation and success criteria; make contributions of all relevant sectors visible in policy, budget and reporting; legal structure for participatory bottom-up multi-sectoral and culturally appropriate policy planning, implementation and systematic monitoring for health; strengthen system for patients’ rights, including safe ways of complaining, and legally empowered National Ombudsman institution and Medical Disciplinary Tribunal (medisch tuchtcollege).

Sectors: *Regional development*, district councils, social affairs, insurance, NGO and private health care providers, civil society, justice, and *health*

Knowledge and monitoring: appropriate collection, disaggregation and availability of data from public and private services for intersectoral analysis and use from local to central levels; specific focus on health system’s contribution to reducing or increasing health inequities.

8 Health system organization and management

Health equity and determinants: the organization and management of health systems may cause these to perform below their potentials to improve the level of health and reduce inequities in health. The analysis of health conditions (*Master and Policy domain sheets*) and the consensus workshop identified a number of determinants of sub-optimal performance in this respect that may be addressed through appropriate policies: fragmentation of the national health system; weak administrative and managerial capacity to implement policies and programmes; low cost-effectiveness of the system, including drug procurement, supply and utilization; inadequate implementation of and information on

primary health care (PHC) both in the interior and coastal areas, including integration of traditional healers and medicines; weak referral system, including financial, cultural and language barriers as well as lack of appropriate and affordable accommodation for patients and relatives where treatment facilities are; disease-focused rather than a holistic (*person and population*) based health-view; and incentive and provider-payment mechanisms non-optimal for working with other sectors and promoting preventive health activities, including at community level.

Policy: Enhanced and coherent coordination of the different subsystems of the national health system; enhancing evidence-based managerial effectiveness towards health inequity reduction goals; enforcing PHC policy, including intersectoral action, referral system and the integration of preventive services; telemedicine; etc.

Sectors: *Regional development*, district councils, social affairs, insurance, NGO and private health care providers, professional associations, civil society, and *health*.

Knowledge and monitoring: There is limited or no data and knowledge available on co-existence of diseases, linking health conditions and outcomes with social determinants and on effectiveness of the system, e.g., to address inequities.

Annex 6: Health of the Population – Health of the Country

Health and development

Poor health and health inequities cause personal suffering and missed opportunities for social and economic development. Each year, Suriname loses 170 000 productive life-years due to ill-health and premature death. “Communicable diseases, maternal, neonatal, and nutritional disorders”, “Non-communicable diseases” and “Injuries” account for **27%**, **58%**, and **15%** respectively.

Benchmarking against 15 comparator countries⁴¹ shows that for all Suriname’s 15 largest contributors to the burden of disease, there is considerable room to improve compared with the “best-in-class” (see table).

| Comparator countries (similar level of income per capita) | Overall rank | The 15 largest contributors to the burden of disease in Suriname (listed according to size of burden) | | | | | | | | | | | | | | |
|--|--------------|--|-----------|--------------------------------|---------------------------|--------------|------------------------------|----------------|-------------|----------------------------|-------------------|-----------------------------|--------------------------|-----------------------|----------------------------|-------------------------------|
| | | 1. HIV/AIDS | 2. Stroke | 3. Preterm birth complications | 4. Ischemic heart disease | 5. Self-harm | 6. Major depressive disorder | 7. Road injury | 8. Diabetes | 9. Iron-deficiency anaemia | 10. Low back pain | 11. Neonatal encephalopathy | 12. Congenital anomalies | 13. Lower respiratory | 14. Chronic kidney disease | 15. Adverse medical treatment |
| Serbia | 1 | 5 | 14 | 2 | 11 | 13 | 1 | 6 | 4 | 1 | 13 | 1 | 2 | 1 | 2 | 3 |
| Cuba | 2 | 4 | 3 | 1 | 9 | 12 | 12 | 4 | 3 | 7 | 2 | 3 | 3 | 6 | 5 | 9 |
| Macedonia | 3 | 2 | 15 | 6 | 14 | 5 | 6 | 2 | 7 | 2 | 14 | 2 | 4 | 2 | 4 | 2 |
| Montenegro | 4 | 1 | 13 | 3 | 13 | 14 | 13 | 8 | 2 | 3 | 12 | 6 | 1 | 3 | 3 | 1 |
| Panama | 5 | 11 | 2 | 4 | 4 | 10 | 4 | 9 | 8 | 5 | 9 | 5 | 11 | 7 | 12 | 5 |
| Jamaica | 6 | 12 | 11 | 5 | 1 | 1 | 5 | 1 | 12 | 11 | 5 | 12 | 6 | 4 | 10 | 13 |
| Colombia | 7 | 9 | 1 | 8 | 5 | 8 | 14 | 7 | 1 | 9 | 10 | 8 | 12 | 10 | 6 | 4 |
| Iran | 8 | 3 | 6 | 9 | 15 | 4 | 15 | 15 | 5 | 6 | 15 | 4 | 15 | 5 | 1 | 7 |
| Brazil | 9 | 6 | 8 | 10 | 7 | 9 | 11 | 12 | 6 | 4 | 11 | 11 | 9 | 11 | 7 | 6 |
| South Africa | 10 | 15 | 10 | 11 | 3 | 2 | 3 | 3 | 12 | 8 | 8 | 14 | 5 | 15 | 13 | 8 |
| Dominica | 11 | 7 | 4 | 12 | 2 | 3 | 10 | 10 | 11 | 10 | 7 | 13 | 10 | 12 | 8 | 11 |
| Saint Vincent and the Grenadines | 12 | 10 | 7 | 14 | 8 | 7 | 7 | 5 | 14 | 13 | 3 | 9 | 8 | 9 | 9 | 10 |
| Dominican Republic | 13 | 8 | 9 | 13 | 12 | 6 | 2 | 14 | 9 | 12 | 1 | 10 | 13 | 13 | 11 | 15 |
| Belize | 14 | 14 | 5 | 7 | 10 | 11 | 9 | 13 | 15 | 15 | 4 | 7 | 7 | 14 | 14 | 12 |
| Suriname | 15 | 13 | 12 | 15 | 6 | 15 | 8 | 11 | 10 | 14 | 6 | 15 | 14 | 8 | 15 | 14 |

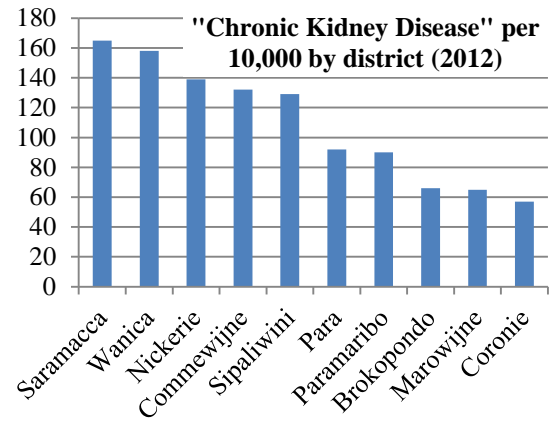
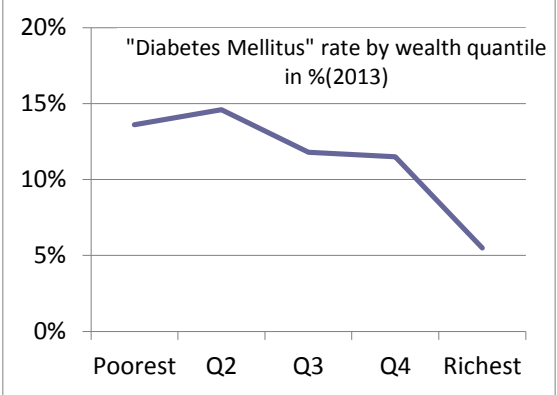
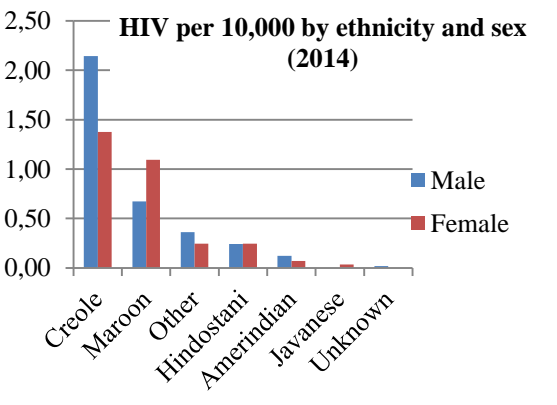
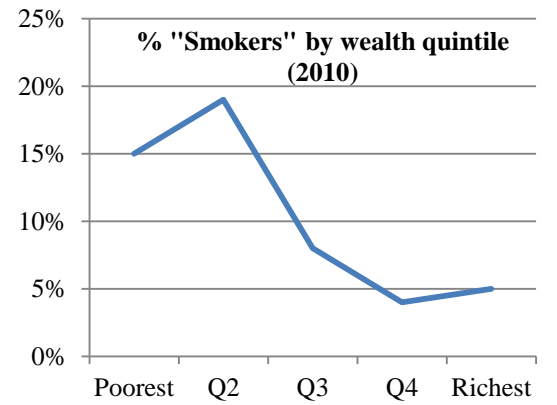
Individual health care only explains 20% of the level and inequity in population health. The remaining 80% is shaped by a range of social determinants (50%) and individual health behaviours (30%)⁴². Health behaviours, in turn are also shaped by social determinants.

Dimensions of inequity

Social determinants are the conditions, in which people are born, grow, work, live, and age. Key forces at play are: social, economic and political systems; development agendas; and social norms. Social determinants cause health inequities and influence health and development via several pathways. They can be addressed through public policy and intersectoral action. The three main dimensions of inequity in Suriname are: geographic location, socio-economic status, and population group and gender.

⁴¹ Adapted from http://www.healthdata.org/sites/default/files/files/country_profiles/GBD/ihme_gbd_country_report_suriname.pdf

⁴² <http://www.countyhealthrankings.org/>.

| | |
|--|---|
| <p>Geographical location – For each of the leading causes of burden of disease with data available, there are marked inequities across districts. However, not the same district is ‘worst off’ in all cases. E.g., for diabetes, it is Coronie, for cardiovascular disease it is Sipaliwini, etc. It is likely that inequities also exist across locations within each district and urban / rural.</p> <p><u>Social determinants include:</u> population composition, clustering of disadvantage, poor infrastructures and housing, proximity to waste sites, smelters or mines, obesogenic environments, etc.</p> |  <p>"Chronic Kidney Disease" per 10,000 by district (2012)</p> |
| <p>Socio-economic status – For diabetes there are clear inequities according to wealth with the poorest being four times more affected than the richest. In Suriname it is only for diabetes such data are available. However, inequities could, with data available be shown for most of the other major diseases also by level of education, age, and migratory status.</p> <p><u>Social determinants include:</u> lack of jobs and educational opportunities, low knowledge, lack of social capital in families and communities, etc.</p> |  <p>"Diabetes Mellitus" rate by wealth quantile in % (2013)</p> |
| <p>Population groups and gender – HIV is unevenly distributed across ethnic groups and between men and women. There are different inequity patterns for different diseases. E.g., for stroke and kidney disease the blunt of burden is borne by Hindustani, for cardiovascular diseases by particularly Maroon women. Limited data exist for groups such as drug users, sex-workers, and LGBT.</p> <p><u>Social determinants include:</u> social and cultural norms and gender roles, access to social and health services, social stigma and discrimination, marginalisation, intersection with poverty, etc.</p> |  <p>HIV per 10,000 by ethnicity and sex (2014)</p> |
| <p>Risk-factors – Such as smoking, alcohol drinking, unhealthy diet, lack of physical activity, co-existence of other health conditions, etc. are also unevenly distributed across geographical locations, socio-economic status, population groups and gender. However, limited concrete information on population-based risk factors is available.</p> <p><u>Social determinants include:</u> marketing, pricing and availability of tobacco, alcohol and unhealthy food products, nutritional transition, social and gender norms, lack of knowledge, poverty, etc.</p> |  <p>% "Smokers" by wealth quintile (2010)</p> |

Promising policy entry points

Health inequities are avoidable and can be reduced by addressing the social determinants causing them. The government, communities, and public and private sectors share the responsibility for action. The National HiAP Consensus Workshop identified promising entry points for first-wave policy action.

1 Education and jobs - Poor education and transition into adulthood are strong determinants for health inequity for one self and for one's children, and for responsible participation in society. Proposed policy options include: compulsory education (4 to 16 years); second chance education; aligning education to labour market needs; improve teaching on health, nutrition, water and sanitation, good traditional practices, environment, physical education, entrepreneurship and innovation; and strengthen labour planning, adherence to labour law and health at work place.

*Sectors: **Education***, regional development, district councils, labour, trade and industry, agriculture, environment, private businesses, civil society organizations, and **health**

2 Spatial planning and management - People who are already disadvantaged, e.g., poor or marginalized are more affected by weak spatial planning and management than those better off. Proposed policy options include: coordinate physical planning; strengthen district level structures and capacities; neighbourhood planning and community centres; recognize communal land rights; reduce illegal mining; inventory of harmful facilities and activities; decrease destruction of the environment; etc.

*Sectors: **Planning office***, regional development, district councils, public works, environment, physical planning, trade and industries, natural resources, agriculture, education, civil society, and **health**

3 Built environments - Roads, transportation system, settlements, housing, and infrastructures provide the physical frame for how people live and move. Proposed policy options include: formulate and implement infrastructural norms that consider health and well-being, including for safe walking and physical activities; coordinated policy on low cost housing; adequate and affordable housing as part of district plan; etc.

*Sectors: **Public works***, regional development, district councils, housing authority, home affairs, transport, planning, police, home affairs, environment, civil society, social affairs, and **health**

4 Integrated approach at community and household levels - Disadvantages tend to cluster in certain communities and households where they are mutually reinforcing. Proposed policy options include: increase political and administrative responsibility and accountability at local and community level; multidisciplinary action on gender and domestic violence and child abuse; early child development; link integrated planning at community level to regional and national planning; conditional cash transfer; etc.

*Sectors: **Regional development***, district councils, public works, education, justice and police, social affairs, planning, spatial planning, sports and youth, gender bureau, civil society, and **health**

5 Consumables - There are close links between food, smoking and alcohol consumption patterns and the level of disease and health inequity. Proposed policy options include: taxation according to nutrition and health value; regulation of advertising and marketing (*including targeting of children*), content of processed food (*salt, sugar, trans-fats, and additives*), labelling, alcohol and fast food outlets; and promotion of local healthy food production and distribution

Sectors: *Trade and industry*, finance, agriculture, regional development, spatial planning, education, vocational training institutions serving the food sector, private food and beverage sector, civil society, and **health**

6 Training and employment of staff – often staff of public and private organizations do not know how their ‘business’ influences health and how they can work with each other to reduce inequity. Proposed policy options include: Assessment and revision of curricula of training institutions (*health and others*); include HiAP in generic and specific post descriptions; incentives and rewards for “desired” behaviour; integration of inequity and social determinant knowledge and skills into in-service training and career paths; integrated training for community workers; etc.

Sectors: *Education, professional and higher learning institutions*, regional development, district councils, spatial planning, public works, trade and industry, agriculture, justice and police, social affairs, professional associations, civil society, and **health**

7 Health system’s governance - influences how it operates, its ability to work with other sectors, how priorities are set, who benefits; and participation, transparency and accountability mechanisms. Proposed policy options include: make inequity reduction part of the system’s ethics code, budget allocation and success criteria; make contributions of all relevant sectors visible in policy, budget and reporting; structure for participatory, multi-sectoral and culturally appropriate planning and implementation; safe systems for protecting patients’ rights and handling malpractice.

Sectors: *Regional development*, district councils, social affairs, insurance, NGO and private health care providers, justice, civil society, and **health**

8 Health system’s organization and management - may cause the system to perform below its potential for reducing health inequities due to e.g.: fragmentation, weak administrative and managerial capacity. Proposed policy options include: Enhanced and coherent coordination of the different subsystems of the national health system; enhanced evidence-based managerial effectiveness towards health inequity reduction goals; enforcing Primary Health Care (PHC), including intersectoral action, referral system, telemedicine and the integration of preventive services

Sectors: *Regional development*, district councils, social affairs, insurance, NGO and private health care providers, professional associations, civil society, and **health**

Next steps

- **Intersectoral working groups** on each of the above eight promising policy entry points to feed into sectoral policy making, action and the next National Development Plan / UNDAF.
- A comprehensive rights-based **HiAP Monitoring Strategy** for health and equity with four business lines: (1) administrative data, (2) repeated surveys, (3) *ad hoc* surveys, studies and research projects, and (4) policy adequacy, implementation and effect.
- An **Annual Population Health Report** presenting the newest knowledge on the burden of disease, inequity, risk factors, social determinants at play, and policy action in Suriname.
- A **National Health Forum 2017** providing the opportunity for politicians, sectoral managers, researchers, private sector and civil society to review the newest knowledge and policy and implementation progress, share experience, innovate and discuss the way forward.