Epidemiological status of schistosomiasis in Suriname

Presented by: Lesley Resida MD, MPH.

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General map with administrative divisions and topography

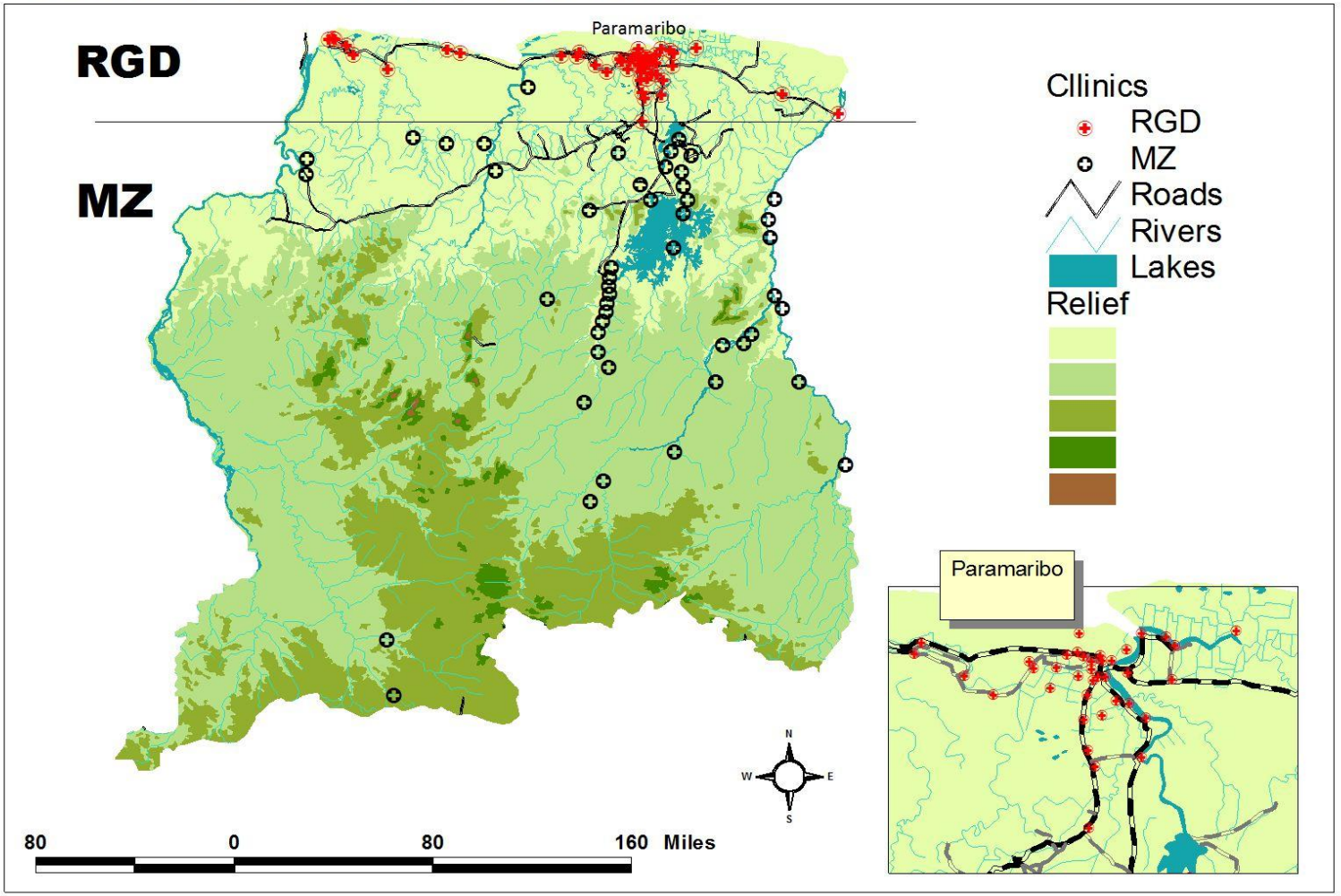
General information about Suriname

- Total population of 541,638 (Census, 2012)
- Ethnic distribution of 27.4% East Indian, 21.7% Maroon, 16.4 Creole, 13.6% Javanese, 13.3% Mixed, 3.7% Indigenous, 1.5% Chinese, 0.3% Caucasian and 1.3% other (foreign?) (Census, 2012)
- Growth rate of 9.9% (Census 2012 vs. Census 2004)
- 2 administrative divisions (10 districts subdivided in 62 resorts)
- Average population density of 3.3/km²(ABS, 2010)
- Highest the capital district Paramaribo (1323.8/km²(ABS, 2010)
-); lowest for the interior district Sipaliwini (0.3/km²) 51.3% of Paramaribo and Wanica are considered poor based on basic food package subsidies. (Min. of Social affairs, 2008)
- 34.1% were rightful claimants to health care benefits of the government (Min. of Social affairs, 2010)
- The coastal areas has 63 regional health clinics (RGD), approximately 300 private GPs and 5 hospitals
- The interior has 57 Medical Mission clinics

Overview of districts

Nr	District	Resorts (Nr)	Surface (km^2)	Percentage (%) of estimated total population of 2010 (531,170)
1	Nickerie	5	5,353	6.2
2	Coronie	3	3,902	0.5
3	Saramacca	6	3,636	3.1
4	*Wanica*	*7*	*443*	*20.7*
5	*Paramaribo*	*12*	*183*	*47.4*
6	Para	5	5,393	4.4
7	Brokopondo	6	7,364	2.4
8	Commewijne	6	2,353	5.4
9	Marowijne	6	4,627	3.5
10	Sipaliwini	6	130,566	6.3
Total		**62**	**163,829**	**100%**

Access to health services (map)



MOH and NIDs

- The Ministry of Health is responsible for availability, accessibility and affordability of Health
- Currently implementation of Social Security Package (Basic Health Insurance , minimal wages , pension fund).
- Health services provision fragmented and provided through several subsidized health care providers

Within NIDs programme

- RGD responsible for diagnosis and treatment of STH integrated in PHC
- MM responsible for comprehensive PHC interior, (facilitating) diagnosis and treatment of NIDs (STH, Leishmaniasis, Leprosy)
- Dermatology clinic responsible for diagnosis and treatment of skin-related NIDs (Leprosy, Leishmaniasis)
- Blood Bank responsible for Safe Blood Program (100% screening of all blood and blood products e.g. for *T.cruzi*)
- Center of Excellence responsible for the diagnosis and treatment of Chagas (morbidity control)
- Drug Supply Company procurement of regular stock of Albendazole, Mebendazole, Praziquantel, Pentamidine etc.

Bureau of Public health (BOG)

Within NIDs programme (cont'd)

- BOG is responsible for ..
- Program planning, epidemiology and execution of vaccination, diagnosis, treatment, health promotion and education, environmental inspection and intervention, vector control
- The schistosomiasis programme, amongst other NIDs (STH, Chagas, LF) and other health programmes

Capacity

- BOG has a Parasitology, Helminthology and Entomology department, an advanced laboratory and an Environmental Health Inspection department.
- Activities of the schistosomiasis program are planned with support of PAHO, based on PAHO/WHO guidelines
- Human resources are generally scarce. To execute activities, additional personnel is often 'borrowed' from a range of departments .

Involvement of (other) ministries

Ministry	General description of relevant tasks
Ministry of Health	Organization of the health system Service delivery and access to health services Health promotion and education M&E and surveillance of diseases and programs Environmental health (inspection and education)
Ministry of Public Works	Solid waste management Public environmental (sanitation/hygiene) management Sewerage system of the country Housing/building legislation
Ministry of Natural Resources	Drinking water supply and distribution Safe/potable drinking water
Ministry of Labor, Technology and Environment	General environmental issues
Ministry of Education	School (health/education) projects School health care services
Ministry of Social Affairs and Housing	Free access to health and housing projects for population with a low socio-economic status
Ministry of Agriculture, fishery and animal husbandry	Agricultural policy, food safety, food security and veterinary health
Ministry of Trade and Industry	Laws regulations and guidelines regarding the import of pharmaceuticals
Ministry of Regional Development	An integrated government response, aimed at regional development and improvement of the the living environment of the interior districts

***Social Security Package responsibility of MoH, MoLTE and a pension fund**

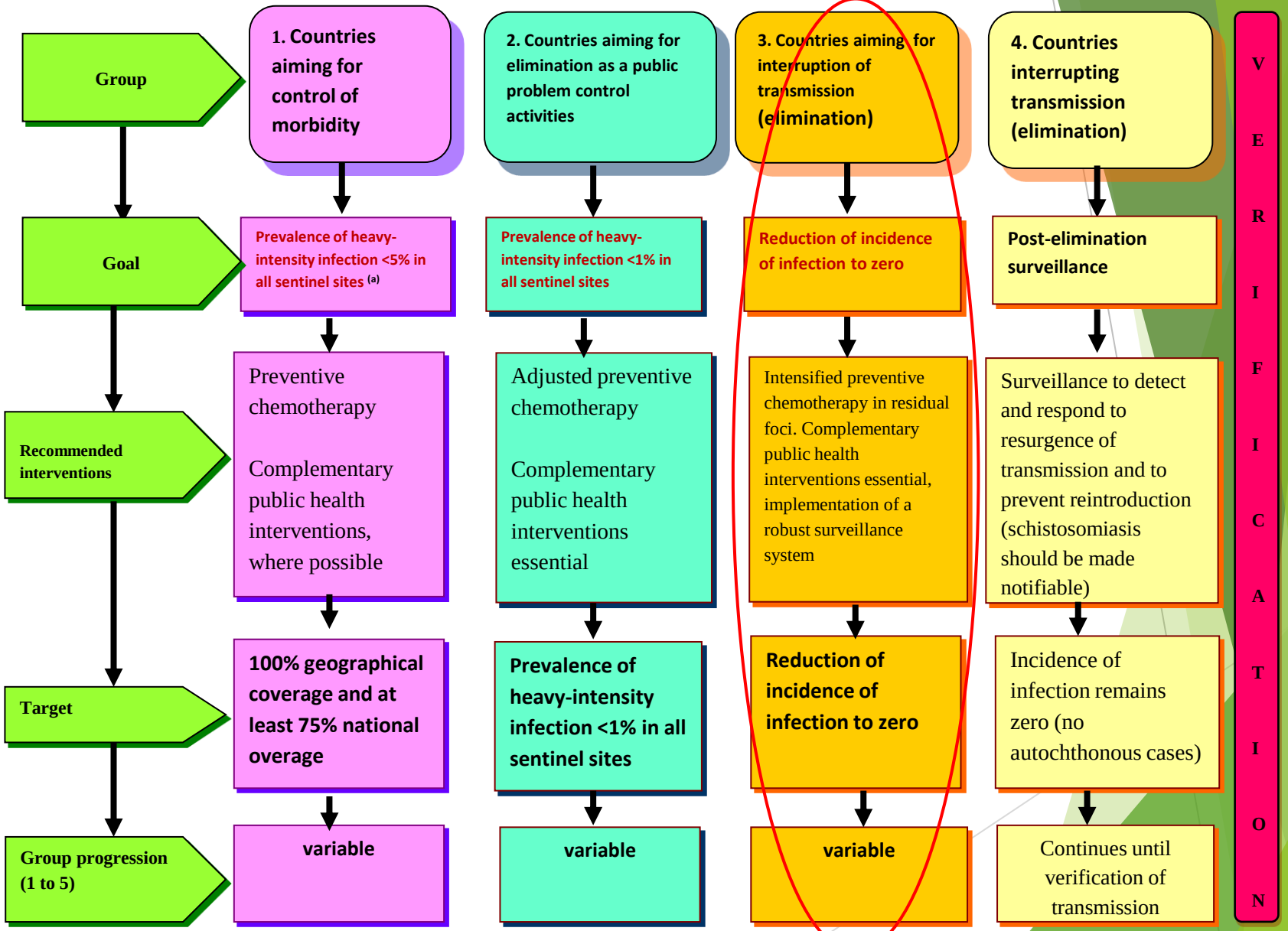
Status of SCH strategy

- Suriname has experience in eliminating several communicable diseases (e.g. LF).
- To strive for elimination became part of the public health tradition
- In support of PAHO SCH and STH strategies were developed (2012)
- Implementation is hampered due to
  - Changes in SCH recommendations, resulting in contemplations about modifications
  - Suriname is somewhere between MDA/No MDA
  - Still debate in country about the exact procedure to follow
- The original strategy is captured in the draft *Integrated Plan for NIDs .*
- A summary of all relevant recommendations guiding the choice of activities taken up in draft NID plan

Previous SCH epidemiology

- The first case of SCH was discovered in 1911
- From 1925 regular surveys showing endemicity in
  - Paramaribo (54.7 %;1949-51)
  - Coronie (34.0%; 1957)
  - Saramacca (16.8%;1974)
  - Commewijne (2.7%; 1962-63)
  - Marowijne and Nickerie: 1 single outbreak (1967 and 1975, respectively)
- SCH prevalent along shell-ridges present along the northern coast
- *B.glabrata* abundant in swamps and ditches along northern coast
- Shell-ridges ideal for building settlements, roads and for agriculture
- Settlements not all equipped with adequate sanitation and piped water, resulting in poor hygienic circumstances
- Control activities consisted of house- to-house treatment surveys and occasional use of molluscicides, health promotion and environmental inspection
- Socio-economic development e.g. installation of piped water (1933), building law (1960) and range of environmental laws and improvements
- Result steady decrease of SCH prevalence (range 0.3-4.7%, 1997-2001)

Progression towards elimination of schistosomiasis



Source: Towards the elimination of Schistosomiasis procedures, criteria and strategies for the verification of interruption of transmission, WHO (Draft version)

Current SCH epidemiology

Last Epidemiological Survey (2009/2010)

- In 2009/2010 SCH survey executed in 7 of 10 districts
- 5 previously endemic, 2 potentially endemic districts
- In 132 schools primary schools among 1700 6^{th} graders
- ELISA prevalence ranged from 3.4-11.8%
- No positive Kato Katz cases

Other cases

- Clinical cases (stool analysis) of SCH are found yearly; mostly adults, very few among SAC (37 clinical cases between 2008-2013)
- Occasional small-scale surveys can result in 1 or 2 cases in SAC out of 400-500 SAC

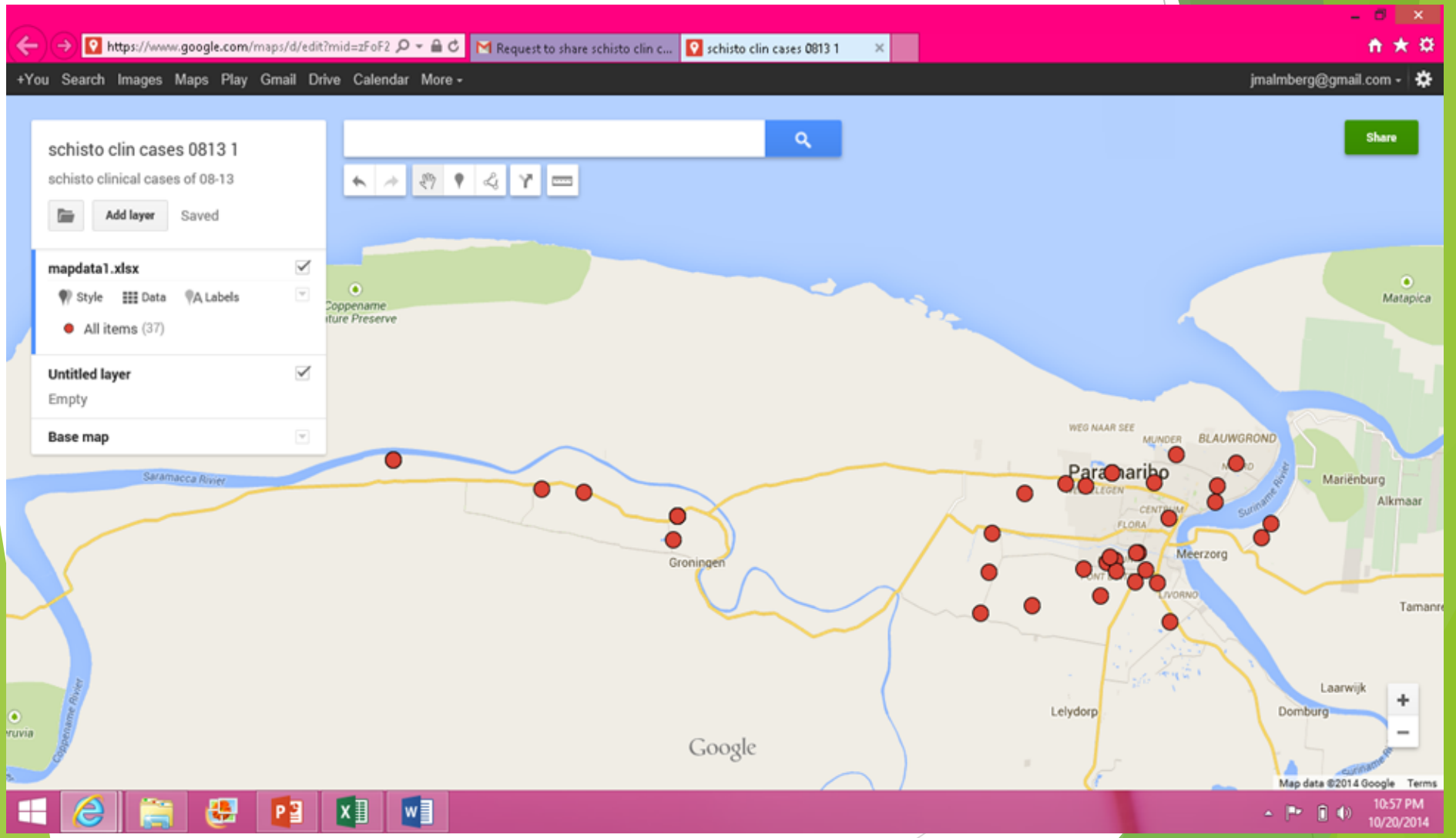
Legislation

- SCH is not a notifiable disease

Number of exams by BOG (based on clinical indications and referral)

Year	Exams	S.M Nr	HW Nr	AL Nr	TT Nr	EV Nr	SS Nr
2007	7535	10	27	31	8	2	141
2008	5048	12	35	13	2	6	132
2009	3847	7	28	11	5	1	47
2010	3184	6	10	8	5	6	37
2011	3043	5	5	8	1	0	30
Total exams 2007-2011	22,657	40	105	71	21	15	387
Average Prev. 2007-2011		0.17%	0.66%	0.31%	0.09%	0.06%	1.70%

Map of clinical SCH cases 2008-2013



Status of the programme

Achievements

- Regular integrated house-to-house surveys (case detection and treatment)
- Intensive Health Promotion and Education efforts targeting environmental and personal hygiene
- Intensive environmental efforts (legislation as well as inspection)
- Significant decrease in SCH and STH prevalence
- Interruption of Transmission of LF

Status of the programme (cont'd)

Epidemiological procedures

- Suriname is contemplating the right intervention to achieve elimination
  - MDA/No MDA?,
  - epidemiological assessment?,
  - another representative survey?
- Suriname is contemplating the right way to go about MDA, if selected
  - How do you choose 'implementation unit'
  - What are criteria for deciding MDA?
- Some innovation needed to appropriately survey cases and identify foci
  - Regular digital storage of cases
  - Yearly mapping of cases,
  - Regular protocol for when cases are encountered

Resources

Human resources

- Limited; especially highly educated personnel

BOG

- Head of helminthology department retired
- Director (head of parasitology department)
- 3 Kato Katz analysts
- Nr young graduates (2010) working in different departments
- For activities personnel borrowed from other departments or programs

Other highly educated

PAHO (1), University (1), freelance (2-3)

Financial Resources

- Within MOH NIDs financially not a priority
- Resources often from PAHO/WHO; Some funds allocated for SCH
- Often BOG contributes financially in the form of logistics (transport /fuel and accommodation)
- Number of proposals prepared; no news yet

Resources (cont'd)

Material Resources

- Donations for certain ages (Kato Katz kits, Albendazole, Mebendazole, Praziquantel)
- Other materials when budgets (for survey/activities) allow
- Limited human resources result in limited infrastructure for SCH activities.

Integration with other NIDs

- From the beginning SCH efforts were integrated with STH and LF efforts
- SCH focus is coastal region
- Included in the plan is sentinel surveillance that includes SCH, STH and LF.
- Combined with appropriate MDA/No MDA strategy in suspected/identified foci

Challenges and Opportunities towards the control /elimination of Schistosomiasis and other NIDs in SURINAME

Challenges	Opportunities
Human resources (educated, dedicated, consistent)	**Know-how and dedication** on management level
Period of Transition hampering decision making (control to elimination, House-to-house to MDA/Epidemiological assessment)	**Nr foci limited, nr square miles limited, nr affected population limited and within hours range over road**
Financial resources within MOH	