Report on impact survey conducted in the Oio Bafata and Farim regions of Guinea-Bissau

Summary

An impact survey was conducted in the Bafata, Oio and Farim regions following three rounds of mass drug administration (MDA) with azithromycin. The estimated prevalence of TF in 1-9 year old children was 1.4% in Bafata, 2.9% in Oio and 4.2% in Farim. These are below the levels which would indicate a need for further MDA. There is still a lot of trichiasis particularly in Oio.

Background

The Guinea-Bissau Programa Nacional de Saude Visuel(PNSV) , with support from Sightsavers International has conducted three rounds of azithromycin distribution between 2009-2012 -in the regions of Oio, Bafata and Farim(formerly part of Oio). The indicator recommended by the WHO as indicating a need for mass distribution is the prevalence of TF in 1-9 year olds (TF_{1-9}). If this is more than 10% in a district there is a need for mass drug administration which usually continues for three years. Decisions to stop or continue MDA after three years are usually made together with the Technical Expert Committee (TEC) of the International Trachoma Initiative(ITI), which manages the azithromycin donation programme. If following three rounds of treatment TF_{1-9} remained above 10% MDAs might continue. The impact survey was conducted to determine the prevalence of follicular trachoma (TF) following that intervention.

Survey methodology

Sample size determination

The survey aimed to detect a prevalence rate of 6% to -/+ 3% in order that there would be adequate power for 95% confidence that the prevalence of TF were less than 9% in each region. Normally this would require 241subjects, but owing to the uneven distribution of TF in sampling surveys the WHO recommends a design effect (variance inflation factor) of 4 suggesting that about 964 children aged 1-9 would be needed in each region. The survey aimed to sample 1000 children in 20 clusters aiming for 50 children per cluster.

Selection of survey villages

Population data from Bafata Oio and Farim were obtained from the Guinea-Bissau census data. Selection of villages to sample was by probability proportional to size- the total population was divided by 20 to calculate a sampling interval. Settlements were listed and their cumulative populations tabulated. Next a random number between 1 and the sampling interval was determined and the sampling interval successive added to generate 20 selection numbers. Villages were then identified using these selection numbers applied to the cumulated population(Appendix 1 for list).

Selection of households

Households in each selected village were listed using a form (Formulario 1-Appendix 2) We expected that there would be 3-4 children aged 1-9 in each household, and so to reach 50 children 15 households were selected for examination (using a random number generator in Excel) with three reserves. In the event that the 15 households did not contain 50 children, or that the selected households were unavailable reserves were used until 50 children had been examined. Where more than 50 children were found in 15 households, no more households were examined.

Listing of eligible children

All children aged 1-9 living in selected households were eligible for survey. A listing of the eligible children in each household was made using Formulario 2-(Appendix 3) which doubled as a data entry form.

Eye examinations

The survey was conducted by ophthalmic nurses and cataract surgeons from the PNSV who had received training in the grading of trachoma according to the WHO simplified system, and had received training in the field in the study procedures. A training workshop was held in Bissau in the second week of February 2013 with three days of field training and standardisation of graders using photographs. Both eyes of all eligible children were examined and graded for the presence of signs of trachoma (TF, TI and TS). This information was recorded on the form (Formulario 2). In addition the presence of any adults with trichiasis in the target households was recorded.

Data entry

A simple database was designed in Microsoft Access to enable summary data from each household recorded on the forms to be entered in the PNSV office, using a data entry form created in Access, and queries designed to summarise the data by region. Data were entered by Wilson Sa of the PNSV and checked against the paper records on Formulario 2.

Analysis

Data are presented as prevalence of TF in 1-9s by region with 95% confidence intervals adjusted for the study design. For trichiasis crude minimum estimates are made based on the proportion of the population included in the survey.

Results

20 villages were selected in each region (Appendix 1)

1519 children were examined in 335 households in 20 clusters in Bafata, 1378 in 303 households in 20 clusters in Farim and 1462 in 362 households in 20 clusters in Oio.

TF

Table 1 Estimated Prevalence of TF in Bafata, Oio and Farim

REGION	No of 1-9s examined	Number with TF	Prevalence of TF in 1-9s	L95%	U95%
BAFATA	**1519**	**21**	**1.38%**	**0.37%**	**2.40%**
FARIM	**1378**	**58**	**4.21%**	**2.39%**	**6.00%**
OIO	**1462**	**43**	**2.94%**	**1.60%**	**4.28%**

The prevalence of TF in 1-9 year olds in Bafata is 1.38% with a 95% confidence interval from 0.37%-2.40%. Similarly the estimate for Farim is 4.21%(95% CI 2.39%-6.00%) and for Oio 2.94%(95% CI 1.6%-4.28%)

Trichiasis

There were 3 unoperated cases of trichiasis reported in 335 households in Bafata, 10 among 303 households in Farim and 14 among 362 households in Oio. The prevalence of trichiasis cannot be

determined directly from these data. However one can extrapolate a rough minimum burden based on the total populations, by assuming that these figures arise from total populations in the households examined of about 4,500, and multiplying up to the regional populations. We estimate a **minimum** trichiasis rate of 3/4500 or 0.67 per 1000 total population in Bafata, 10/4500 or 2.2 per 1000 total population in Farim and 14/4500 or 3.1 per 1000 total population in Oio. Assuming the total populations of Oio, Bafata and Farim are 181,000, 210,000 and 63,000 respectively there would be **at least** 560 cases of trichiasis in Oio, 140 in Bafata and 140 in Farim. These figures are very approximate and certainly will be underestimates with wide confidence intervals.

Discussion and Conclusions

Following three rounds of MDA the estimated prevalence of TF in 1-9 year olds is below the 5% threshold in Oio, Bafata and Farim: 2.9% in Oio, 1.4% in Bafata and 4.2% in Farim. There seems to be no need for further distribution in these regions. This represents a notable achievement by the PNSV. The survey also suggests there is quite a lot of trichiasis particularly in Oio and Farim which are above the 1 case per thousand population threshold suggested by the WHO, even with the minimum estimates this survey provides.

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Data entry was conducted by Wilson Sa

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Appendix 1 List of Villages(tabancas) selected for impact survey

BAFATA

Bafata

1. Bafata- cidade - Bairro III (Ciberia)
2. Ponta Nova II
3. Djabicunda III
4. Bigine II
5. Tanta Cosse Samba
6. Bunancari

Xitole

7. Sintcha Conco+Tendinto

Ga-Mamudu

8. Pacua
9. Dando+Sissau
10. Buntunssum

Bambadinca

11. Bambadinca-cidade-Bairro I
12. Ga-Ture

Galomaro

13. Dulombe
14. Umaro Cosse

Contuboel

15. Canhamina
16. Sunbundo
17. Contuboel Bairro II
18. Tabanane
19. Sintchu Cantaba+Sare Quejam
20. Mantassequi

OIO

Nhacra

1. Atim
2. Nhacra-Cidade-II
3. Sumo

Mansoa

4. Ga-Mamudo
5. Mansancrim
6. Bindur/Dugal
7. Rossum
8. Mansoa-cidade-Santa Tomo

Mansaba

9. Djendu/Gendu
10. Demba So
11. Gebacunda
12. Ollossato II
13. Ngharan (Iaram)

Bissora

14. Cuale
15. Dame-Sor
16. Quinhaque-II
17. Patche Iara
18. Tchale
19. Impasse
20. Bissora-Bairro Braga

FARIM

1. Faquina Fula
2. Tonhataba(Taichataba)
3. Suluco
4. Cuntima I
5. Sare Demba Taquel
6. Djeca(geba)
7. Fambanta Morcunda
8. Sancalanco
9. Canjanco
10. Bricama I
11. Salquenhidim
12. Dungal
13. Sangal(Ganjalo)
14. Caurdim
15. Fajonquito(Fanhar)
16. Guidadje
17. Soncoia(Ioncoia)
18. Cidade Farim I
19. Cidade Farim III
20. Cidade Farim VII

Appendix 2

Pesquisa de Impacto do Tratamento de Tracoma nos regioes de Oio Bafata e Farim

Lista de Agregados Famíliares

Regiao: _____

Tabanca:_____

Número da Casa	Chefe de familia			Seleccion da casa
	Nome Próprio	Apelido	'Nome de Casa'	*Deixe em branco*
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Appendix 3

Formulário do Registo para Crianças 1-9 Anos de Idade

Pesquisa do Impacto do Tratamento de Tracoma dos regioes de Oio, Bafata e Farim

Regiao _____

Tabanca _____ Chefe de Família _____

Há adultos na casa para completar esta ficha? Sim Não

Se Não, depois de 3 tentativas: **Desista**! Registre o nome da casa dos vizinhos e vá para a casa ao lado. Liste os nomes de todas as criancas de idade 1-9 anos residentes no domicílio.

Número	Nome Próprio	Apelido	Nome de casa	Sexo (M/F)	Idade (anos)	Data de Nacimento (dd/mm/aaaa)	Gradação Clínica do Tracoma de crianças 1-9 anos
01							OLHO DIREITO TF TI N OLHO ESQUERDA TF TI N
02							OLHO DIREITO TF TI N OLHO ESQUERDA TF TI N
03							OLHO DIREITO TF TI N OLHO ESQUERDA TF TI N
04							OLHO DIREITO TF TI N OLHO ESQUERDA TF TI N
05							OLHO DIREITO TF TI N OLHO ESQUERDA TF TI N
06							OLHO DIREITO TF TI N OLHO ESQUERDA TF TI N
07							OLHO DIREITO TF TI N OLHO ESQUERDA TF TI N
08							OLHO DIREITO TF TI N OLHO ESQUERDA TF TI N