

# Palau National Lymphatic Filariasis Survey

**June 2012**

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**Republic of Palau**

**Ministry of Health**

**Bureau of Public Health**

# Background



- **History of filariasis in Palau**

Palauan Aulokope went to Spain, sponsored by Queen Isabel II. The picture of Aulokope was taken in Cadiz, Spain in October 1863. The picture is an earliest known picture of a Palauan.

- A survey in the Trust Territory (1952) showed that incidence of filariasis was highest in the Palau and Truk Districts, and faded away to practically none in the Marshalls.



# WHO designation

- WHO designation of LF endemicity
  - $>1.0\%$  prevalence considered endemic
  - Palau is classified as partially endemic (prevalence  $<1.0\%$ )
- Timing of this survey
  - Palau is part of the Pacific Program for Elimination of Lymphatic Filariasis
  - Dr Kim visited in February 2012
    - WHO believes that prevalence in Palau is below  $1.0\%$  and can be declared non-endemic

# Surveys

- Recent filariasis surveys

Year	Method	Target	No examined	No of positives	Prevalence
2001	ICT	14 states	2031	9	0.44%
2002	ICT	Ngardmau	131	3	2.29%
2002	ICT	Ngchesar	141	0	0
2003	ICT	Southwest Islands	98	0	0

# Goals for 2012 survey

- **Determine current prevalence of filariasis infection in ROP**
  - Complete national survey
    - **Blanket survey** of 2 states
      - **Ngardmau** where most recent cases reported
      - **Ngchesar** as comparison blanket state
    - **Random sample** of remaining states
  - Test everyone in household age 5 and above

# Methods

- Household survey
  - ICT test for filariasis antigen
  - Household list supplied by WHO
    - Used 2005 census data to select households
    - Households are sub-samples from STEPS scheme
  - Minimum sample size: 1,000 to prove  $<1\%$  prevalence
- Dates of survey – June 1-28, 2012
- Survey teams
  - 12 teams, 3 persons on each team
  - One member of each team to do finger sticks
  - Teams traveled to each household location

# Schedule

## Palau National Lymphatic Filariasis Prevalence Survey June 2012

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 <i>Sonsorol</i>	2
3	4	5 <i>Koror</i>	6 <i>Koror</i>	7 <i>Koror</i>	8 <i>Koror</i>	9
10	11 <i>Aimeliik Ngatpang Ngeremenglui</i>	12 <i>Ngaraard Ngarchelong</i>	13 <i>Ngardmau</i>	14 <i>Ngiwal Melekeok</i>	15 <i>Ngchesar</i>	16
17	18 <i>Airai</i>	19 <i>Airai</i>	20 <i>Follow-up</i>	21 <i>Peleliu Follow-up</i>	22 <i>Angaur Follow-up</i>	23
24	25 <i>Follow-up</i>	26 <i>Follow-up</i>	27 <i>Follow-up</i>	28 <i>Kayangel Last day to do tests</i>	29 <b>DONE!!!</b>	30

# Equipment, supplies and personnel

## **WHO provided:**

- 2400 ICT test kits
  - Expired 6/28/2012
- Sampling supplies
  - Lancets
  - Alcohol swabs
  - Cotton balls
  - Sharps containers
  - Some gloves

## **MOH supplied:**

- Administration
- Staff
- Vehicles/fuel
- Gloves
- Paper towels
- Flashlights



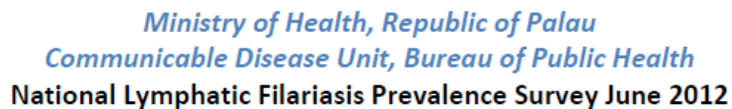
# ICT test training

- June 4<sup>th</sup>  
Dr. Nino Dayanghirang from WHO trained 36 team members
  - Dr. Nino validated the ICT test kit batch
- Training included first day of testing on Ngerkebesang



# Household log sheets

- Households were identified by WHO (n=679)
- Household log sheets were pre-printed with HH number and name
  - Each household packet included a pre-printed consent form with signature page on the back
  - Teams had extra blank forms in case the household was larger than 20



Date \_\_\_\_\_ Time start: \_\_\_\_\_  
Team \_\_\_\_\_ Time end: \_\_\_\_\_

**Hamlet: Karmaliang**      **State: Ngchesar**

If household has changed, current household name: \_\_\_\_\_ # of people in household \_\_\_\_\_  
# people home \_\_\_\_\_

[illegible]



*Ministry of Health, Republic of Palau*  
*Communicable Disease Unit, Bureau of Public Health*  
**National Lymphatic Filariasis Prevalence Survey June 2012**

**BABIER RA KENGEI**

**Kengei era kloulchad me a turk era chedil, chedam, me a chad el oungerachel ra ngalek el mekesai a rekil ra teruich ma eiai (under 18yrs old)**

A Etbael a rakt el moiul loeak a rekas el ngarngii a ermel a Etbael er ngii e mengchii a Chad e oiuelii tial ermel mora chad. A ermel a Etbael a mekerei el diak lemoes er a mad. A Ministry ra Health a mengetmohl er tial survey el mo olterkokl el kmo ngdirk ngarngii a rakt el Etbael er Belau malechub eng mla mo diak.

A om kengei el mo ngar tial survey ea ki ousbech e ra ngimch er a resechem. A kimo tundii a etngelel a chimam e monguu tial rasch. Ngsebechel mo telekib el meringel. Ngarngii a kekerei el techall el mo klou el merael a rasch malchub eng ngmasch a baiking. A rechad el meruul er tial survey a meduch lousbech a kliikid el klekedall meng kmal kekerei a techellel a baiking. A test a teruich el bung eng mo mechuii ea ki subedau er a omsodel . Al sekum ngarngii a ermel a Etbael el medangch, eng kiram el lmuut el rullii osisiu el test. A dil lolecholt el kmo ngarngii a ermel a Etbael, eng ngarngii a kar el kerul a etbael el kibeskau alsekum ke kongei. Aikal test ma kar a diak locheraol.

A omsodel a test a di tirkal chad ra survey a sebechir el mes. Rokui lomesodel aikal test a mo berrotel loltirakl a llach. A ngklem a diak bol mocholt er a ngii dil babier ma lechub eng report el tuobed ra Ministry ra Health. A test card a mo mechoit loltirakl a llechul omngitel a ngarngii a rasch er ngii el klekedall ra ukeruul.

Klou el chad ( 18 a rekil morbab) Ngarngii a lemeltel el kongei malchub eng diak mkengei er tial survey.

Parents /Guardian (Demal, Delal, malchub oungerachel er a ngalek el 5-17 a rekil. Ke mimohl el kongei malchub eng diak mkengei er tial survey el mora ngalek. Ngdiak a ngeral mo metemall a om kotouar er tial survey.

The Palau Institutional Review Board approved the study and the study materials.

Consent signatures were collected on reverse side of form which was pre-printed with household number.

# Household visits

- Teams used Household log sheet to record visit(s), responses
  - Teams located the household from the list
  - The team leader introduced the team and the study
  - The team scribe recorded household information
  - The team explained the study to each person 5 years old or older and invited him/her to participate
  - All participants signed a consent
    - Children 5-17 provided assent and a parent or guardian provided consent
  - The team recorded the outcome for each person including those who refused or who were not available

# ICT testing

- Finger stick for 0.1ml blood heparinized
  - Discharge blood onto pad; close
  - Wait 10 minutes to read results
  - Each person tested received his/her result immediately
- Tests results are **negative, weakly positive, positive**
  - Any weakly positive or positive tests were repeated immediately
- All persons testing **positive or weakly positive** on the **first test** were treated, no matter the result of the second test.

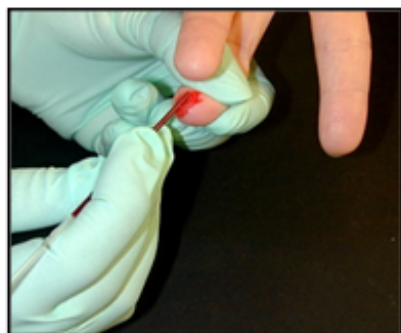
## Test Procedure

1

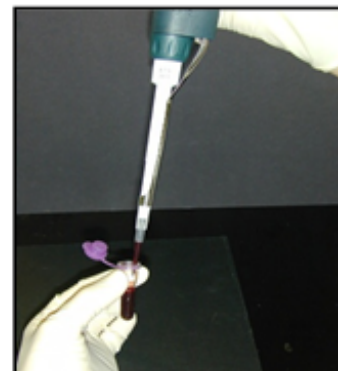


Remove card from pouch just prior to use

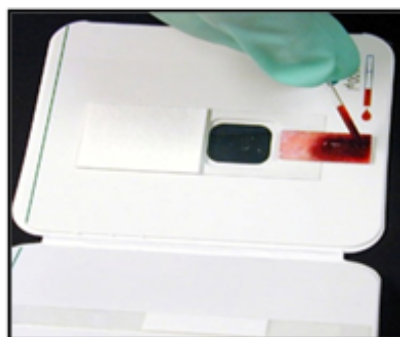
2



Collect 100 $\mu$ L blood by finger prick using a calibrated capillary tube OR measure 100 $\mu$ L of blood from a microcentrifuge tube using a micropipettor. **DO NOT** add blood directly from the finger to the card.



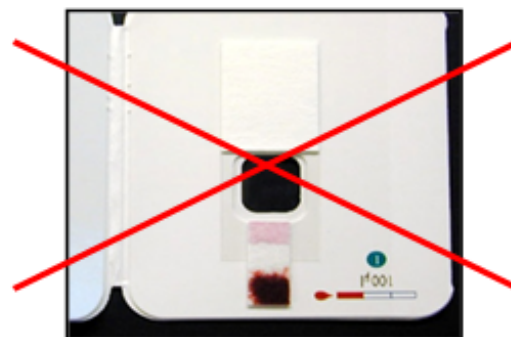
3



Add blood sample slowly to the white portion of the sample pad



**DO NOT** add blood directly to the pink portion of the sample pad



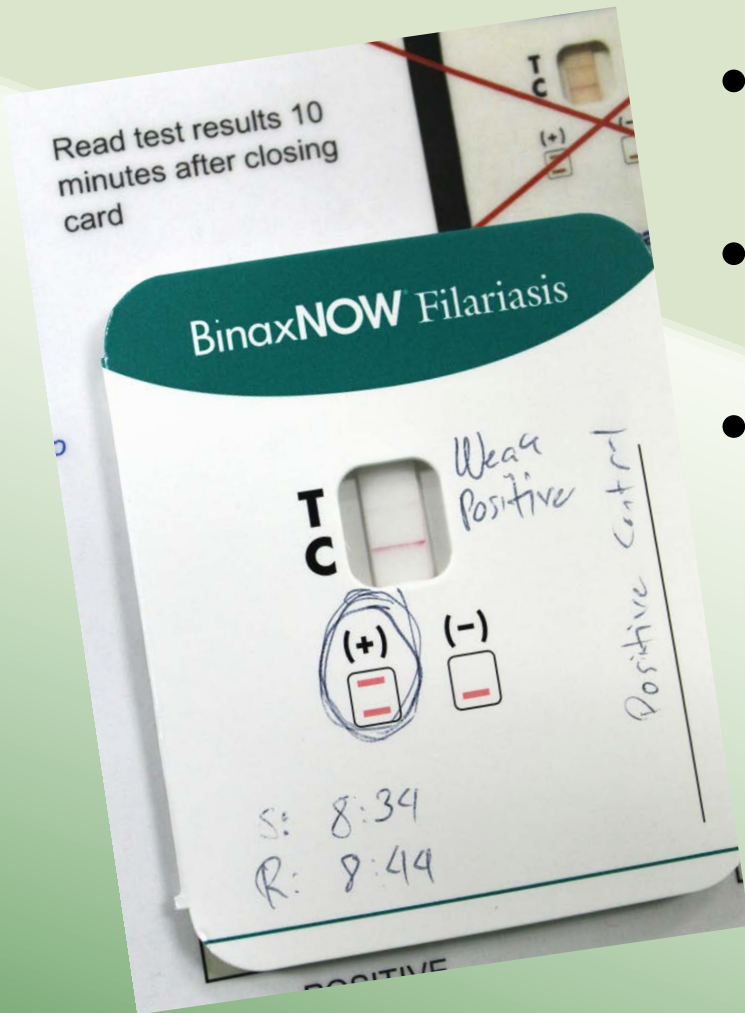
**DO NOT** close the card before the sample migrates to the pink portion of the sample pad (takes approximately 30 seconds after adding blood)







# Interpreting the ICT Test



- Every test must have a line by the 'C' to be valid
- Negative = no line by the 'T', one by the 'C'
- Positive = two lines, one by the 'T' and one by the 'C'
  - 'T' line may be very faint pink to strong pink/red
    - Lines that are not pink are not positive
    - Lines can be brown but not a valid test
  - Challenging to read in low light

## Palau National Lymphatic Filariasis Survey

TREATMENT: One albendazole plus number of diethylcarbamazine (DEC) indicated in table below  
(dose = 6mg/K body weight)

weight KG	weight lbs	number of 50 mg pills
20	044	3
21	046	4
27	060	5
33	073	6
39	086	7
45	099	8
51	112	9
57	126	10
63	139	11
69	152	12
75	165	13
81	179	14
87	192	15
93	205	16
99	218	17
105	231	18
111	245	19
117	258	20
123	271	21
129	284	22
135	298	23

# Treatment

- Each person who tested positive received initial treatment immediately
  - Teams contacted nurse if one not with them at the moment
- Positives have been followed-up in clinic and will follow usual filariasis treatment guidelines
  - 1 course DOT 1x/year for 5 years

# Households in each state

State	Frequency
Aimeliik	15
Airai	58
Angaur	8
Kayangel	2
Koror	362
Melekeok	25
Ngaraard	17
Ngarchelong	16
Ngardmau	59
Ngatpang	7
Ngchesar	74
Ngeremlengui	12
Ngiwal	8
Peleliu	19
Sonsorol	1
<b>TOTAL</b>	<b>683</b>



Sampled total of **683** households

4 additional households screened,  
2 in Ngardmau and 2 in Ngchesar

# Household surveys

Households			
<i>from WHO</i>	679		
<i>added</i>	4	<i>2 each in Ngardmau, Ngchesar</i>	
<b>Total</b>	<b>683</b>		
number in households	2294		
number home	2120	92.4%	percent home of number in household
<b>number completed surveys</b>	<b>1963</b>	<b>92.6%</b>	percent surveyed of those home
number refusals	155	6.8%	percent refusals of number in household
number not available	169	7.4%	percent not available of number in household

# Household outcomes

outcome	Frequency	Percent
<b>COMPLETE</b>	<b>583</b>	<b>85.4%</b>
ALREADY SURVEYED	3	0.4%
BLANKET REFUSAL	7	1.0%
NO ONE EVER HOME	12	1.8%
VACANT	59	8.6%
DEMOLISHED	2	0.3%
HOTEL	1	0.2%
NEVER EXISTED	13	1.9%
NOT VISITED	3	0.4%
<b>TOTAL</b>	<b>683</b>	<b>100.0%</b>

# Household complete time

Complete time	Frequency	Percent
WEEKDAY	340	49.8%
EVENING	211	30.9%
WEEKEND	39	5.7%
MIXED	93	13.6%
<b>TOTAL</b>	<b>683</b>	<b>100.0%</b>

# Participant outcomes

Participant consent	Frequency	Percent
YES	1969	88.4%
REFUSED	132	5.9%
NOT AVAILABLE	126	5.7%
<b>TOTAL</b>	<b>2227</b>	<b>100.0%</b>
<i>Of those who consented and were tested</i>		
ICTtest1result	Frequency	Percent
NEGATIVE	1961	99.90%
WEAKLY POSITIVE	2	0.10%
<b>TOTAL</b>	<b>1963</b>	<b>100.00%</b>

6 people who consented were not tested due to lack of sufficient blood flow for the specimen

Treated and now in MOH follow-up program

# Number people tested

State	NEGATIVE	POSITIVE	TOTAL	Percentage
Aimeliik	41	0	41	2.1%
Airai	162	0	162	8.3%
Angaur	22	0	22	1.1%
Koror	1167	0	1167	59.4%
Melekeok	71	0	71	3.6%
Ngaraard	27	0	27	1.4%
Ngarchelong	38	0	38	1.9%
Ngardmau	147	2	149	7.6%
Ngatpang	15	0	15	0.8%
Ngchesar	165	0	165	8.4%
Ngeremlengui	33	0	33	1.7%
Ngiwal	24	0	24	1.2%
Peleliu	49	0	49	2.5%
<b>TOTAL</b>	<b>1961</b>	<b>2</b>	<b>1963</b>	<b>100.0%</b>



# Population description

sex	Frequency	Percent
FEMALE	1072	48.5%
MALE	1138	51.5%
<b>TOTAL</b>	<b>2210</b>	<b>100.0%</b>

Totals don't match  
because of missing  
values for either sex or  
age.

Age group	FEMALE	MALE	TOTAL
5 - <15	152	178	330
15 - <25	148	156	304
25 - <35	137	161	298
35 - <45	189	206	395
45 - <55	180	187	367
55 - <65	113	124	237
65 - <75	58	51	109
75 - <85	35	16	51
85 - <95	13	5	18
95+	2	1	3
<b>TOTAL</b>	<b>1027</b>	<b>1085</b>	<b>2112</b>

# Summary

- Completed national survey
  - 683 households in 12 states
    - Ngardmau 149
    - Ngchesar 165
    - All others 1649
    - No testing in Sonsorol, Tobi or Kayangel
  - Tested 1,963 people age 5 and up
    - Youngest 5, oldest 104
- LF prevalence in Palau 0.1%
  - Qualifies as non-endemic

# Next steps

- Make the results known in Palau
  - Thank participants
  - Discuss ramifications of change in designation
  - Include information about mosquito control and exposure
- Report to WHO
  - Final report
  - De-identified data set
  - Official forms to certify Palau as non-endemic
- Receive notification of non-endemic status

# **Thanks to our amazing teams members!**

**Allyne Andrew**

**Husayn Beketaut**

**Basiano Kitalong**

**Ian Kemaitelong**

**Bernard Sikyang**

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**Bieb Olikong**

**Jerome Oiterong**

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**Destiny Trolii**

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**Dorcas Ngiruchelbad**

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**Elenda Rengolbai**

**Sheila Tmarsel**

**Ellen Chiokai**

**Sylvia Tmodrang**

**Eunice Rafael**

**Tmong Sakuma**

**Eustoria Borja**

**Verna Fancisco**

**Francine Ngemaes**

**Violet Rolmii Rengolbai**

**Godwin Siliang**

**Willa Wong**

**Gustap Salii**

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