

# NCD Risk Factors in Chuuk

(STEP-Survey Results 2007)

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# Purpose

- To share result of the Chuuk NCD Risk Factors Survey
- To describe the burden and prevalence of NCDs in Chuuk
- To share ideas on ways forward
- Provide baseline data
- Guide for policy direction, decision making and intervention programs

# Target

- Population-based--Target 20% of adult population 25-64
- Cross-sectional --NCDs risk factors of the population at a particular point in time
- (Note: Chuuk wanted to look at 15-24 yrs old also)

# Survey focus

## Prevalence of

- **key risk factors: tobacco, alcohol, betel nut, physical activity, nutrition**
- **diabetes, hypertension, cholesterol**

# Method (3)

- STEP 1 - Basic Demographics (age, sex, ethnicity, residence, educational level, income)
- STEP 2 - Physical measurement
- STEP 3 – Biochemical measurement (blood)

# Sampling and method

- Based on 2000 Census population
- Based on FSM/Chuuk Census EDs
- Samples randomly selected State population divided into 175 EDs

# Methodology (3).....

- Target sample = 3000
- Total participants = 2831
- Response rate = 94% (very good)



# Survey Pictures...





# Islands and places surveyed

Island	Women	Men	Total	%
Fefen	49	48	97	3%
Kuttu	42	55	97	3%
Other lagoon	145	230	375	13%
Paata	31	64	95	3%
Tol	136	158	294	10%
Uman	30	69	99	3%
Weno	630	1148	1778	63%
Total	1063(35%)	1772(65%)	2831	100%

# Survey Results

# Average age of education

Age group	Mean		
	Men	Women	Both sexes
25-34	9.7	9.5	9.6
35-44	9.5	9.2	9.2
45-54	10.3	9.5	9.8
55-64	9.6	7.4	8.3
<b>25-64</b>	<b>9.8</b>	<b>9.1</b>	<b>9.4</b>

# Tobacco - % current smokers

Age group	% current smokers		
	Men	Women	Both sexes
15-24	46	8	28
25-34	53	10	32
35-44	57	16	36
45-54	49	18	34
55-64	37	13	25
25-64	51	14	32

# Tobacco - % daily smokers

Age group	% daily smokers		
	Men	Women	Both sexes
15-24	35	26	19.6
25-34	47	5	26
35-44	53	13	32
45-54	47	15	31
55-64	36	11	23
25-64	47	11	29

# Tobacco – average age started smoking

Age group	Average age		
	Men	Women	Both sexes
15-24	15	17	16
25-34	17	19	17
35-44	17	21	18
45-54	18	21	19
55-64	18	28	20
25-64	17	22	18



# Betel nut – % current chewers

Age group	Percent (%)		
	Men	Women	Both sexes
15-24	66	43	55
25-34	60	30	45
35-44	24	8	15
45-54	12	2	7
55-64	7	2	4
25-64	32	23	18

# Betel nut – % daily chewers

Age group	Percent (%)		
	Men	Women	Both sexes
15-24	49	32	41
25-34	37	20	28
35-44	10	3	6
45-54	4	1	3
55-64	4	1	2
25-64	18	8	13

# Alcohol – current drinkers

Age group	Percent (%)		
	Men	Women	Both sexes
15-24	32	3	21
25-34	20	3	12
35-44	25	0.3	13
45-54	27	---	15
55-64	32	---	16
25-64	25	1.3	13

# Alcohol consumption— frequency and quantity in last 7 days (male)

Age group	Percent (%) current drinkers	
	% drank in 4 in last 7 days	% 5+ drinks on any day
15-24	12	60
25-34	17	17
35-44	2	15
45-54	3	20
55-64	10	15
25-64	9	17

# Alcohol consumption– Number of standard drink per day (men)

Age group	Number of standard drink on a drinking day			
	1 drink	2-3 drinks	4-5 drinks	6+ drinks
25-34	4	13	11	72
35-44	1	4	11	84
45-54	2	6	10	82
55-64	--	--	--	100
<b>25-64</b>	<b>3</b>	<b>9</b>	<b>10</b>	<b>79</b>

# Alcohol consumption– Number of standard drink per day (both sexes)

Age group	Number of standard drink on a drinking day			
	1 drink	2-3 drinks	4-5 drinks	6+ drinks
25-34	5	14	11	69
35-44	2	4	11	88
45-54	2	7	10	81
55-64	--	--	--	100
<b>25-64</b>	<b>3</b>	<b>9</b>	<b>10</b>	<b>77</b>



**Fruit and Vegetables– Average number of days in a week  
fruit and vegetables are consumed (both sexes)  
(recommended – 5 servings or more a day)**

<b>Age group</b>	<b>Fruit</b>	<b>Vegetables</b>
25-34	2	3
35-44	3	3
45-54	3	3
55-64	2	3
<b>25-64</b>	<b>3</b>	<b>3</b>

## Percent of inactivity

Age group	%
25-34	53
35-44	60
45-54	64
55-64	69
<b>25-64</b>	<b>63</b>

## Percent of obesity

Age group	Men	Women	Box Sexes
25-34	21	58	40
35-44	32	66	50
45-54	40	69	55
55-64	39	58	49
<b>25-64</b>	<b>31</b>	<b>63</b>	<b>48</b>

## Percent of hypertension

Age group	Men	Women	Box Sexes
25-34	6	4	5
35-44	10	11	10.3
45-54	22	24	23
55-64	43	34	38
25-64	16	15	15.2

# Prevalence of cholesterol

Age group	Men	Women	Box Sexes
25-34	5	8	7
35-44	6	21	15
45-54	20	30	25
55-64	19	47	35
25-64	12	24	19

# Prevalence of Diabetes

Age group	Percent		
	Men	Women	Both Sexes
25-34	15	13	14
35-44	23	35	30
45-54	53	54	55
55-64	70	63	67
<b>25-64</b>	<b>35</b>	<b>37</b>	<b>36</b>



# NCD Burden: FSM & RMI STEPS Results

	POHNPEI (2002)	CHUUK (2007)	RMI (2002)
<b>Primary Risk Factors</b>			
Daily tobacco smoking	25.5 %	25.1%	19.8%
Alcohol Binge drinking amongst users	35.1%M : 22.0%F	48.4% M : 37.4%F	67.1%M: 55.0%F
Fruits and Vegetables :Take less than 5 servings	81.8%	90.4%	91.0%
Low Physical Activity	63.8%	64.7%	66.1%
<b>Intermediate Risk factors</b>			
Overweight/obese	73.1%	62.6%	62.5%
HTN	21.2%	10.1%	10.5%
DM	32.1%	35.4%	29.8%
High Cholesterol	46.6%	19.2%	21.6%

**Table: The Diabetes Rates (%)\* among  
25-64 age group in the 8 PICs**

<b>PIC (%)</b>	<b>Diabetes Rate</b>
<b><i>American Samoa</i></b>	<b><i>47.3</i></b>
<b><i>Tokelau</i></b>	<b><i>43.6</i></b>
<b><i>FSM (Chuuk)</i></b>	<b><i>35.4</i></b>
<b><i>FSM (Pohnpei)</i></b>	<b><i>32.1</i></b>
<b>Marshall Islands</b>	<b>28.3</b>
<b>Kiribati</b>	<b>28.1</b>
<b>Nauru</b>	<b>22.7</b>
<b>Fiji</b>	<b>22.6</b>

# Pacific in Transition



# In summary....

- **Chuukese** are not eating enough fruits and vegetables
- **Chuukese** are physically inactive
- **Chuukese** are heavy drinkers and smokers
- **Chuukese** are obese
- **Health of the Chuukese** young population is threatened.

# In summary....

- **Chuukese** are dying early of diseases
  - Noncommunicable Disease (NCD) is the leading cause of death (~70%) in the FSM – mostly premature (Chuuk is the second)
- **Chuukese Children** are increasingly becoming obese and developing related diseases
- **Chuuk's productivity** is affected by NCDs
- **Business as usual** is unacceptable
- **Chuuk's** great resources are yet to be maximised



*Way forward*



# Redirect approach

**TAP TURNERS OR FLOOR MOPPERS ?**



# Turkey tail



- Slow down on the turkey tail
- Slow down on trans fat and saturated fat
- Slow down on salt or reduce salt intake

Risk Factors/Diseases	Intervention
Tobacco	<ol style="list-style-type: none"> <li>1. Tax increase</li> <li>2. Smoke free places</li> <li>3. Health Information and warning</li> <li>4. Bans on tobacco adverting, promotion, and sponsorship</li> <li>5. Enforce laws and regulations</li> <li>6. Tobacco Free Chuuk</li> </ol>
Harmful use of alcohol	<ol style="list-style-type: none"> <li>1. Tax increase</li> <li>2. Restricted access</li> <li>3. Bans on advertising</li> </ol>
Unhealthy diet and physical inactivity	<ol style="list-style-type: none"> <li>1. Reduce salty/fat /sugar intake</li> <li>2. Increase public awareness</li> <li>3. Increase sports/recreational opportunities and facilities</li> <li>4. Include side walks in new roads construction</li> </ol>
Cardiovascular disease and diabetes	<ol style="list-style-type: none"> <li>1. Counseling and multi-drug therapy for people with high risk</li> <li>2. Treatment with low daily dose of aspirin</li> </ol>

Concepts	Intervention
Cultural norms	<ol style="list-style-type: none"> <li>1. Funeral, wedding, birthdays, ordination, etc – too much food!</li> <li>2. Portion serving – size of serving too much!</li> <li>3. Eat to Live NOT live to eat</li> <li>4. Drink to get crazy NOT drink to socialized</li> </ol>
Policy and curriculum change	<ol style="list-style-type: none"> <li>1. Incorporate and strengthen PA in all school curriculum</li> <li>2. Incorporate nutrition education in school curriculum</li> </ol>
Agricultural/local food production	<ol style="list-style-type: none"> <li>1. Promote local food production and consumption</li> <li>2. Improve food availability</li> <li>3. Improve food accessibility</li> <li>4. “Go Local”</li> </ol>

# THE CHALLENGE

***‘IF NCD IS A CRISIS WE  
CANNOT JUST DO  
BUSINESS-AS-USUAL’***

**WHOLE OF  
GOVERNMENT AND  
SOCIETY APPROACH**



# NONCOMMUNICABLE DISEASES AND WHAT ARE THE CAUSES?

## BEHAVIORAL

- Tobacco
- Diet
- Physical Activity
- Alcohol

## ENVIRONMENTAL

- Socio-cultural
- Policy
- Economic
- Physical

## NON-MODIFIABLE

- Age, Sex, Genes

## INTERMEDIATE RISK FACTORS

- **Raised Blood Pressure**
- **Abnormal Blood lipids**
- **Raised blood sugar**
- **Obesity**

## NCD END-POINTS

- **Heart Disease (incl Hypertension & Stroke)**
- **Diabetes & complications**
- **Cancer**

# The Human Suffering of NCDs

## Rule of 75/80:

- ~ 75% in Renal Dialysis Unit due to NCD
- ~ 75-80% of general surgery due to NCD
- ~ 75 - 80% adult admission to general wards due to NCD





JOHNSON S. ELIMO  
GOVERNOR  
RITIS HELDART  
LIEUTENANT GOVERNOR

## OFFICE OF THE GOVERNOR STATE OF CHUUK

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### EXECUTIVE ORDER NO.

DECLARING A STATE OF HEALTH EMERGENCY DUE TO THE EPIDEMIC OF NON-COMMUNICABLE DISEASES (NCDs) IN CHUUK STATE AND ORDERING THE DIRECTOR OF HEALTH SERVICES TO IMMEDIATELY ESTABLISH PROGRAMS TO STOP THE EPIDEMIC AND REDUCE THE RISK FACTORS FOR NON-COMMUNICABLE DISEASES

**WHEREAS**, the State of Health Emergency on Non-Communicable Diseases (NCDs) has been declared by the Pacific Island Forum Leaders held in New Zealand on September 2011, the Pacific Island Health Officers Association (PIHOA by its Resolution No. 48-1) and endorsed by the Micronesian Chief Executive, Micronesian Presidents, Association of the Pacific Island Legislatures, Micronesian Traditional Leaders Council and Micronesian Chief Justices and the Pacific Island Forum Leaders; and

**WHEREAS**, the Nadi Statement, on the Crisis of Non-Communicable Diseases in the Pacific Island Countries, is being adopted as a pan Pacific statement on NCDs and has been addressed at the High Level Meeting in the United Nation General Assembly; and

**WHEREAS**, Chuuk as one of the four states of the Federated States of Micronesia and home to more than 47,000 people living in 40 municipalities spanning hundreds of square miles of ocean; and

**WHEREAS**, the leading causes of morbidity and mortality for adults in Chuuk are from Non-Communicable Diseases (NCDs), including obesity, cancer, heart diseases including stroke, diabetes, depression, and injury; and

**WHEREAS**, the rates of NCDs and their risk factors for adults in Chuuk are high and rapidly increasing, including high tobacco use, high alcohol consumption, significant environmental and behavioral health barriers to healthy eating and healthy families – a propensity toward injury and a high prevalence of sedentary lifestyles; and



**WHEREAS,** NCDs cause a significant loss in longevity, quality of life, and loss to workforce productivity in Chuuk; and

**WHEREAS,** the NCDs burden can be expected to worsen significantly over the next generation, with children dying before their parents due to premature mortality, because of NCDs knowing the comparatively large percentage of youth in the Chuuk population; and

**WHEREAS,** the Non-Communicable Diseases (NCDs) has reached an epidemic proportion in Chuuk State resulting in the Department of Health Services spending a minimum of 50 percent of its appropriated budget for its management; and

**WHEREAS,** the current health care system in Chuuk State, including the health account, human resource capacities, ancillary and support services, model of health care delivery and over all policy designs are inadequate in addressing the burden of NCDs efficiently; and

**WHEREAS,** strengthening care systems, reinvigorating primary health care and revitalizing health setting that will improve other programs in the Department of Health Services is urgently needed at this time in order to stop, reduce and eliminate the incidences of Non-Communicable Diseases;

Now, therefore, pursuant to the authority vested in the Governor by Article VI, section 12 of the Chuuk State Constitution required preserving public peace, health, or safety at a time of extreme emergency caused by the epidemic of Non-Communicable Diseases (NCDs) due to the absence of medicines, inadequate or very limited medical workforce, resources, facilities and awareness, refusal, neglect, ignorance or poor sanitary conditions and other relevant factors relating NCDs, I hereby order as follows:

1. The Director of the Chuuk State Department of Health Services is to utilize the Department's command system to coordinate activities to manage the crisis brought about by Non-Communicable Diseases (NCDs).
2. The Director of the Chuuk State Department of Health Services will align all policies, programs, services and activities of the Department of Health Services in order to stop the epidemic and reduce the risk factors for Non-Communicable Diseases (NCDs).
3. All principal officers, advisors, head of the State Government's agencies, bureaus, commissions and taskforce, when called upon, are to assist the Director of Health Services in his effort to engage, undertake and tackle the crisis on Non-Communicable Diseases.

4. The Director of the Chuuk State Department of Health Services shall keep all records of requests for assistance from the principal officers, advisors and heads of states' agencies, bureaus, commissions and taskforces, to include any form of assistance provided and report to the Governor.
5. A Task Force is hereby organized and established to address this emergency. The Task Force shall compose of the following:
  - a) Chairman of the Disease Surveillance Technical Group;
  - b) Members of the Disease Surveillance Technical Group;
  - c) Director, Department of Health Services;
  - d) Director, Department of Public Safety;
  - e) Attorney General;
  - f) Executive Director, Chuuk Environmental Protection Agency;
  - g) Director, Department of Education;
  - h) Two (2) members of the Non Government Organizations to be selected by the Chairman; and
  - i) Mayor of Weno Municipality or his designee.

The Task Force shall be headed by the Chairman of the Disease Surveillance Technical Group and shall immediately from the issuance of this Declaration call a meeting. The Task Force shall address the immediate and most viable solutions to this epidemic and for the duration of this epidemic.

SO ORDERED on this 8<sup>th</sup> day of October 2011.

  
**JOHNSON S. ELIMO**  
Governor  
Chuuk State

Kinisou Chapur