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**Describing the Chief Complaints in a
Mobile Primary Care Clinic in Haiti :
The Burden of Non- Communicable Diseases**



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Agenda



- Background
- Objectives
- Methods
- Results
- Discussion
- Conclusions



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Background


- The incidence and prevalence of non-communicable diseases (NCDs) are increasing across the globe. (Yach,2006)
- More than 80% of people with diabetes live in low/medium income countries (WHO, 2011)
- The prevalence of diabetes in developing countries is estimated around 10% and obesity between 30- 40% (Hospedales, 2011)
- Some of the most common personal, contributing factors include obesity and diet. (Moussavi, 2007)
- Many people suffering with NCDs are unable to see a physician for diagnosis and subsequent management, and can not afford to maintain a treatment regimen (Krusk, 2010)



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Objectives

- Contribute to information on the burden of non-communicable diseases in Haiti .
- Identify the prevalence of non-communicable diseases (Diabetes and HTN) in a primary care setting
- Determine if there is any difference in NCD prevalence between the urban and rural areas in Haiti
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Methods

- From 2008-2013, nine day-clinics offered primary care services in Haiti
- Demographic information, chief complaints, diagnoses, and treatment are documented in the medical chart for each patient.
- Clinic sites classified by location
 - Urban – Port-au-Prince, Carrefour, Cite Soleil
 - Rural – Kenscoff, Zanglais

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Analysis

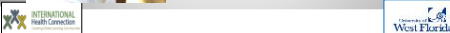

- Retrospective analysis using 1,451 patient records
- Descriptive statistics
- Chi-Square used to assess differences in prevalence of selected chronic diseases by location
- Age and BMI reported when known correlation between these factors and the disease of interest exists



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Results

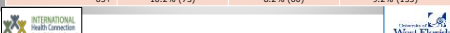
- Diabetes and Hypertension



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Demographics




	Urban	Rural	Total
N	719	732	1,451
Average Age	Mean (SD) 32.4 (22.9)	Mean (SD) 27.7 (22.8)	Mean (SD) 30.0 (23.0)
Average Adult BMI	25.6 (5.5)	24.3 (4.9)	25.0 (5.2)
Sex	% (n)	% (n)	% (n)
Female	72.3% (520)	69.3% (507)	70.8% (1,027)
Male	27.7% (199)	30.7% (225)	29.2% (424)
Age	% (n)	% (n)	% (n)
Under 5	13.2% (95)	19.1% (140)	16.2% (235)
5-15	16.1% (116)	17.9% (131)	17.0% (247)
15-25	13.1% (94)	12.4% (91)	12.7% (185)
25-35	14.0% (101)	14.9% (109)	14.4% (210)
35-45	14.3% (103)	8.6% (63)	11.4% (166)
45-55	9.9% (71)	10.2% (75)	10.1% (146)
55-65	10.6% (76)	7.7% (56)	8.9% (129)
65+	10.2% (73)	8.2% (60)	9.2% (133)



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BMI Measure




- BMI ranges
 - < 18.5 = Underweight
 - 18.5-24.9 = Normal
 - 25.0-29.9 = Overweight
 - \geq 30.0 = Obese



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Hypertension: Measures

- Single reading at intake
- Clinical Definition by NIH
 - **Normal** - less than 120/less than 80 mmHg
 - **Pre-hypertension** - 120-139/80-89 mm Hg
 - **Stage I** - 140-159/90-99 mm Hg
 - **Stage II** - $>160/>100$ mm Hg





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Pre-Hypertension

	Urban (n=719)	Rural (n=732)	Total (N=1,451)
	% (n)	% (n)	% (n)
Pre-hypertension	12.8% (92)	11.5% (84)	12.1% (176)
Average Age (SD)	39.4 (15.0)	43.3 (17.1)	41.2 (16.1)
Average Adult BMI (SD)	25.7 (5.9)	24.5 (4.4)	25.1 (5.2)

- No significant difference in prevalence by location





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Stage I Hypertension

	Urban (n=719)	Rural (n=732)	Total (N=1,451)
	% (n)	% (n)	% (n)
Stage I Hypertension*	12.8% (92)	7.9% (58)	10.3% (150)
Average Age (SD)	52.6 (16.1)	41.1 (15.1)	52.0 (15.7)
Average Adult (SD) BMI	26.3 (5.4)	25.3 (5.7)	25.9 (5.5)

*p=0.030. Significantly higher prevalence in urban locations
Urban patient sample has higher age and BMI than rural





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Stage II Hypertension

	Urban (n=719)	Rural (n=732)	Total (N=1,451)
	% (n)	% (n)	% (n)
Stage II Hypertension	16.7% (120)	14.5% (106)	15.6% (226)
Average Age (SD)	57.0 (16.4)	53.6 (17.4)	55.2 (17.1)
Average Adult (SD) BMI	27.6 (5.9)	25.7 (5.3)	26.7 (5.7)

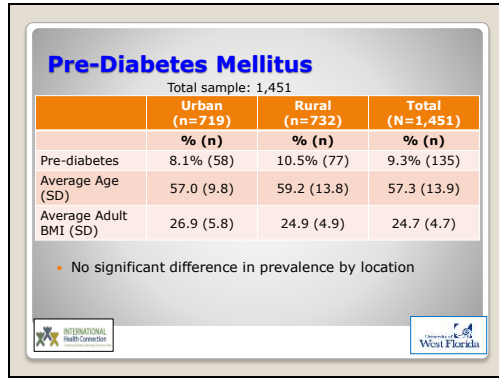
- No significant difference in prevalence by location



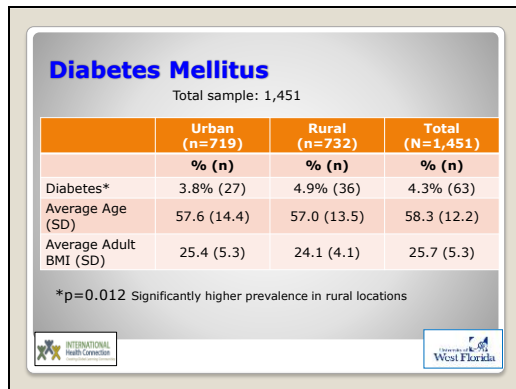
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- ### Diabetes Mellitus: Measures
- Single reading at intake using a capillary blood glucose test with a portable glucometer.
 - Patients asked time since last meal
 - Definition by NIH
 - Fasting
 - Pre-diabetes: 100-125 mg/dl
 - Diabetes: >125 mg/dl
 - Non-fasting
 - Diabetes: >140 mg/dl after 2+ hours
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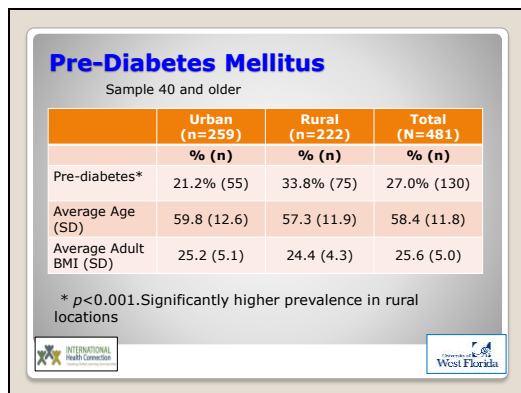
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Diabetes Mellitus



Sample 40 and older

	Urban (n=259)	Rural (n=222)	Total (N=481)
Diabetes*	10.4% (27)	15.3% (34)	12.7% (61)
Average Age (SD)	57.7 (9.3)	61.2 (12.5)	59.6 (11.3)
Average Adult BMI (SD)	27.5 (5.3)	24.5 (4.3)	25.5 (5.1)



* $p=0.015$ Significantly higher prevalence in rural locations



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- ### Discussion
- Most of the studies for NCD in Haiti have been in urban areas and population-based.
 - Our results show lower prevalence of diabetes in urban areas than rural but similar to the prevalence in previous studies (Jean-Baptiste, 2006)
 - Factors that can explain the difference between urban / rural might be the composition of the population and specific risk factors that need to be further investigation (Caballero 2002, Van de Poel, 2007)
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- ### Conclusion
- Increase in incidence and prevalence of NCDs is impacting Haiti, but the burden of this shift is still unknown
 - Prevalence of diabetes appears to be significantly higher in rural locations. Further analysis and studies are needed
 - Very high prevalence of hypertension, around 40% of the population seen, mostly undiagnosed. No significant difference by location.
 - Improving the surveillance system will contribute to the design of more effective health strategies, prevention programs, and the identification of underlying causes in NCDs
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