

# Incidence of convulsive Epilepsy: Results of 5 years of surveillance in the Kilifi DSS

Anthony Ngugi, Victor Odera, Evasius Bauni,  
Thomas Williams, Anthony Scott & Charles R Newton.

Kenya Medical Research Institute/Wellcome Trust  
Research Programme, Kilifi, Kenya.

INDEPTH – SEEDS Group.



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# Outline

- Epilepsy in developing countries
  - Prevalence
  - Incidence
- Incidence study in Kilifi
  - Methodology
  - Results
  - Discussion



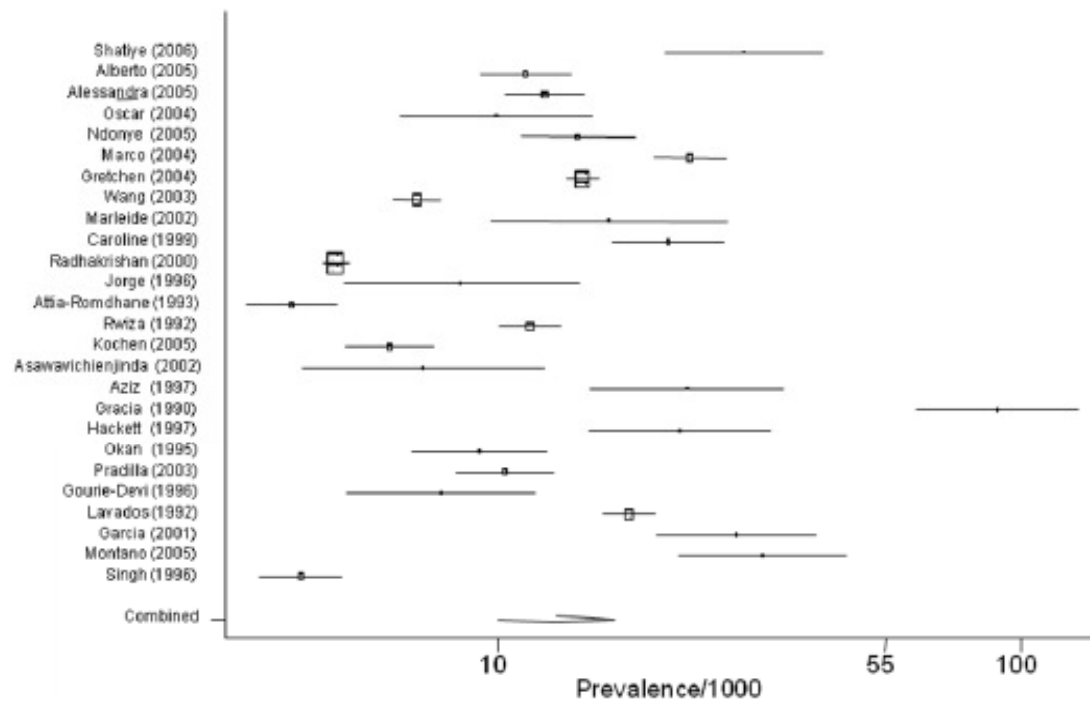
# Epilepsy in developing countries

- Common; WHO estimates
  - Affects ~ 50 M people worldwide
- Up to 40M PWE (80% of global burden)
  - Our analysis = 45 M (rural) and 17 M (urban)
- Estimates based upon little data
- Heterogeneity – clinical or methodological?
- Socio-cultural misunderstanding
- Comorbidity: Social, Cognitive, Psychiatric
- Can be controlled in > 75% of cases
- But 56% (range; 31 – 100) not on medication



# Prevalence of Epilepsy

Figure 4: Forest Plot for the LTE prevalence data from developing countries.



- Developing countries: 12.9/1000
- Developed countries: 5.8/1000

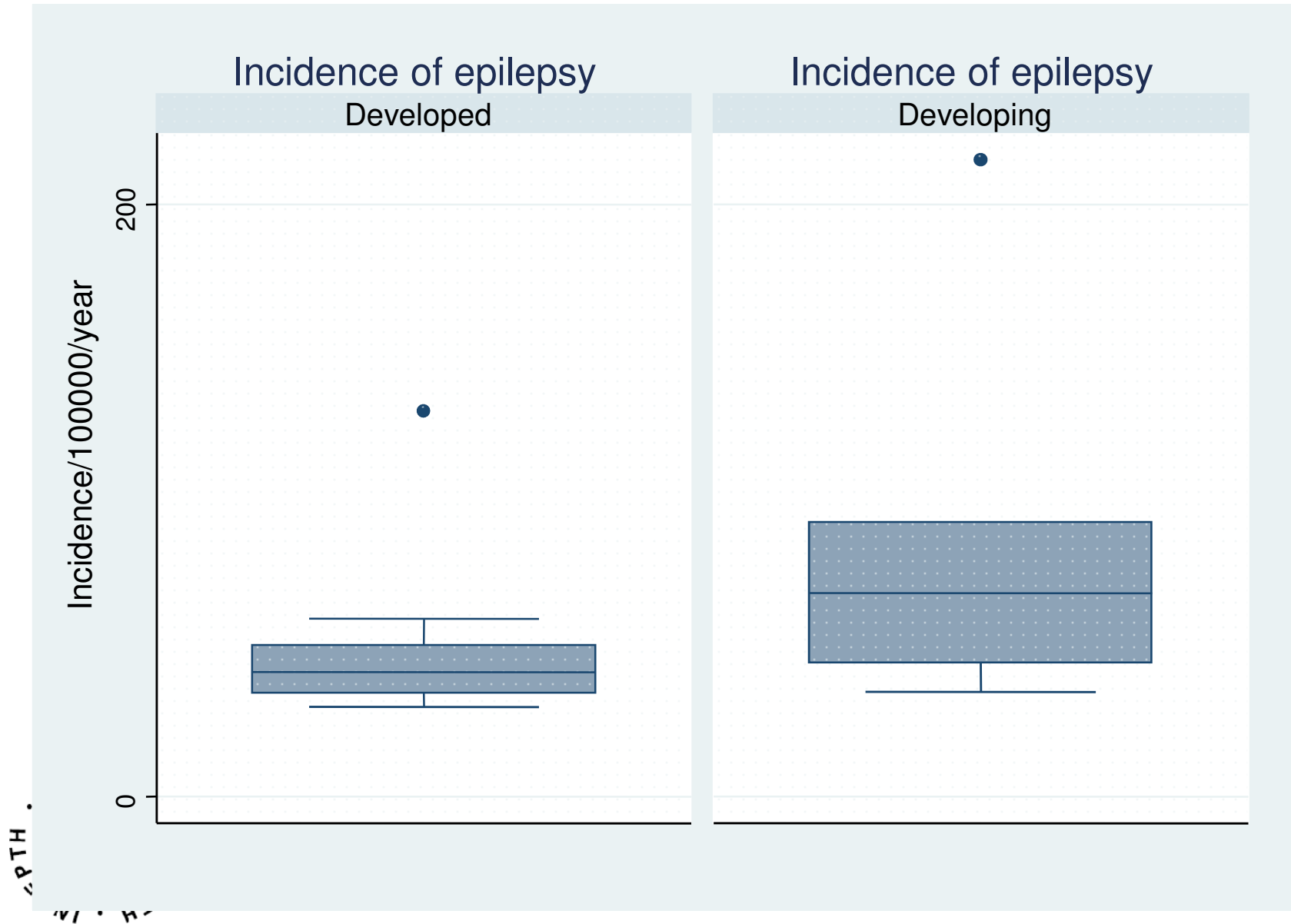


# Incidence of Epilepsy in RPC

Study	Year	Country	Study Population	Follow-up (Years)	Incidence /100,000
Medina et al.,	2005	Hondurus	6,473	1	92.7
Kaiser et al.,	1998	Uganda	4,743	4	215.0
Tekle-Haimanot et al.,	1997	Ethiopia	61,686	7	64
Rwiza et al.,	1992	Tanzania	16,635	10	73.3
Saha et al.,	2008	India	20,966	5	42.1
Mung'ala-Odera et al.,	2008	Kenya	10,218	2.5	147



# Comparison of Incidence



# Incidence study in Kilifi DSS

- A 2003 survey established a non-epilepsy cohort
- Followed-up within the DSS for vital status and migration
- Cohort linked to the re-evaluation survey (2008) by unique ID numbers
- Attempt to locate all members of the cohort still within the DSS area
- Poisson model for the number of cases



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# Results



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# Estimation of Incidence - ACE

- 1<sup>st</sup> cross-sectional survey (2003)
- 2<sup>nd</sup> cross-sectional survey (2008)
- 1<sup>st</sup> Survey: 151,408 non-ACE subjects
- Follow-up ~ 5 years = 516,607 pyos
- Incident cases = 194
- Incidence Rate:
- 37.6/100,000/year (95% CI; 32.7 – 43.3)



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# Age/sex-specific incidence -ACE

Age	Male			Female			Total		
	Pyo	Cases	IR (95% CI)	Pyo	Cases	IR (95% CI)	Pyo	Cases	IR (95% CI)
6-12	83,649.0	40	47.8 (35.1-65.2)	79,245.0	36	45.4 (32.8-63.0)	162,890.0	76	46.7 (37.3-58.4)
13-18	43,190.0	21	48.6 (31.7-74.6)	31,324.0	16	51.1 (31.3-83.4)	74,510.0	37	49.7 (36.0-68.5)
19-28	33,388.0	10	30.0 (16.1-55.7)	51,310.0	27	52.6 (36.1-76.7)	84700.0	37	43.7 (31.7-60.3)
29-49	43,504.0	12	27.6 (15.7-48.6)	79,432.0	7	8.8 (4.2-18.5)	122940.0	19	15.5 (9.9-24.2)
50+	29,642.0	12	40.5 (23.0-71.3)	40,925.0	13	31.8 (18.4-54.7)	70570.0	25	35.4 (23.9-52.4)
<b>Total</b>	<b>233,372.0</b>	<b>95</b>	<b>40.7 (33.3-49.8)</b>	<b>282,235.0</b>	<b>99</b>	<b>35.1 (28.8-42.7)</b>	<b>515,607.0</b>	<b>194</b>	<b>37.6 (32.7-43.3)</b>

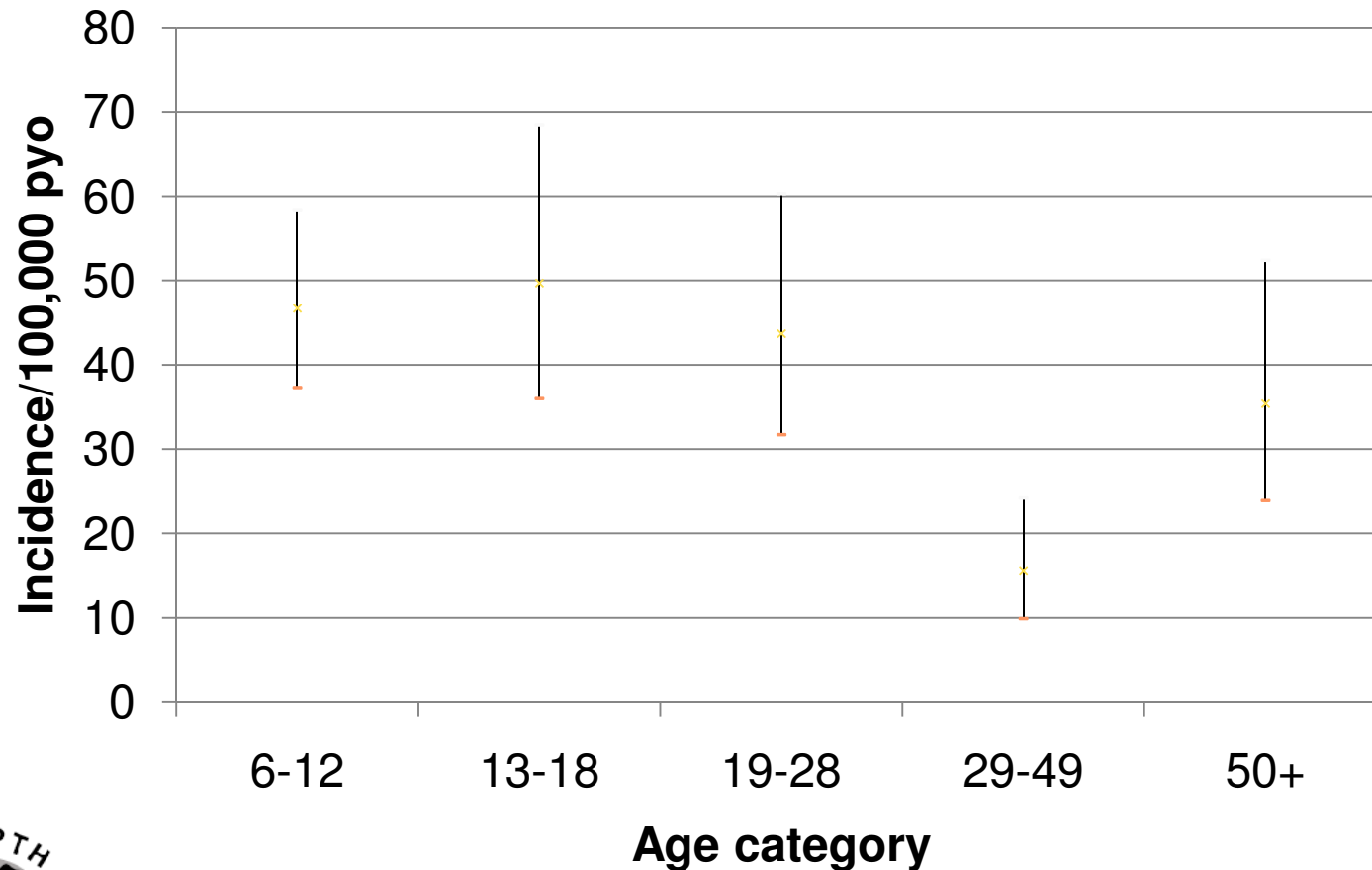


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# Age-specific incidence of ACE



# Linearity of Incidence with age & area

	Model 1: (Adjusted for age)			Model 2: (Adj. for age and sex)			Model 3: (Adj. for age, sex and area)		
	IRR	(95% CI)	Lrtest (age)	IRR	(95% CI)	Lrtest (sex)	IRR	(95% CI)	Lrtest (area)
<b>AGE GROUP</b>									
6-12	1			1			1		
13-17	1.06	(0.72-1.58)		1.10	(0.72-1.58)		1.06	(0.71-1.57)	
18-28	0.94	(0.63-1.39)	0.001	0.94	(0.63-1.39)		0.95	(0.64-1.42)	
29-49	0.33	(0.20-0.56)		0.33	(0.20-0.55)		0.34	(0.21-0.57)	
50+	0.76	(0.48-1.19)		0.76	(0.48-1.19)		0.76	(0.49-1.20)	
<b>GENDER</b>									
Female				1			1		
Male				1.10	(0.80-1.41)	-	1.06	(0.80-1.41)	
<b>AREA</b>									
Roka-Matsangoni-Mida							1		
Ngerenya							0.57	(0.30-1.12)	
Tezo							0.54	(0.33-0.90)	
Chonyi							0.52	(0.37-0.76)	0.042
Soko							1.05	(0.58-1.89)	
Jaribuni-Kauma							0.62	(0.28-1.38)	
Junja							0.56	(0.24-1.32)	



# Discussion

- Largest study of incidence in developing countries
- Estimates lower than those reported elsewhere
  - Investigated convulsive epilepsy only
  - Over-estimation in other studies
  - Stigma-related concealment of seizures/epilepsy?
- Incidence highest in younger and older age-groups
  - Could reflect pattern of exposure to risk factors



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# Discussion - 2

- DSS infrastructure useful in follow-up & re-evaluation of a large cohort
  - Accurate denominator
  - Better precision of estimates
- Study could be replicated in other SEEDS sites



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Thank you



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