

# Lassa fever pathobiology in children and during pregnancy

Donald S. Grant<sup>1,2,3</sup>

<sup>1</sup>Viral hemorrhagic fever program, Kenema Government Hospital,  
Kenema, Sierra Leone

<sup>2</sup>Ministry of Health and Sanitation, Freetown

<sup>3</sup>University of Sierra Leone, Freetown

Kenema

Government

Hospital



Photo Title: Lassa  
fever in a child

**Project Title:** Lassa fever pathobiology in children and during pregnancy

**Researcher's Name/Organization:** Donald S. Grant<sup>1,2,3</sup> / 1.Lassa fever program, Kenema Government Hospital 2.Ministry of Health and Sanitation 3.University of Sierra Leone, Freetown,

## Research Approach:

- Measured seroprevalence for LASV in endemic and non-endemic regions in Sierra Leone
- Analyzed clinical and laboratory data at the Kenema Government Hospital to link patient signs and symptoms with survival outcomes and characterize Lassa fever epidemiology and its risk factors.
- Aim 1: “PEERHealth Serosurvey Form” captures sex, age, ethnicity and past diagnosis of Lassa fever.
- Aim 2: “Investigation Form” captures possible exposures and risk factors for study participants. This questionnaire involves ascertaining information from the subject as well as direct observation of the subject’s house and surrounding environment.
- The “Case-Control Trap Form” will document rodent trapping in subjects’ homes.



Kenema  
Government  
Hospital

**Project Title:** Lassa fever pathobiology in children and during pregnancy

**Researcher's Name/Organization:** Donald S. Grant<sup>1,2,3</sup> / 1.Lassa fever program, Kenema Government Hospital 2.Ministry of Health and Sanitation 3.University of Sierra Leone, Freetown,

**Key results so far:**

- In Kenema District, LASV IgG seroprevalence varied from 10 to 62%.
- While Kenema district remains among the highest district in terms of Lassa fever prevalence in Sierra Leone, other districts are now increasingly reporting cases. Some villages in Tonkolili have seroprevalence rates similar to those of high prevalence villages in Kenema district.
- Some villages showed seroprevalence increases with increasing age (suggesting a long- term exposure to LASV) while others showed similar seroprevalence across age groups (suggesting a more recent introduction of LASV)
- Pregnant women with active LASV infection were represented among patients presenting to KGH with signs and symptoms of Lassa fever. Case fatality rates were not significantly different between pregnant and non- pregnant women regardless of serostatus.

Kenema

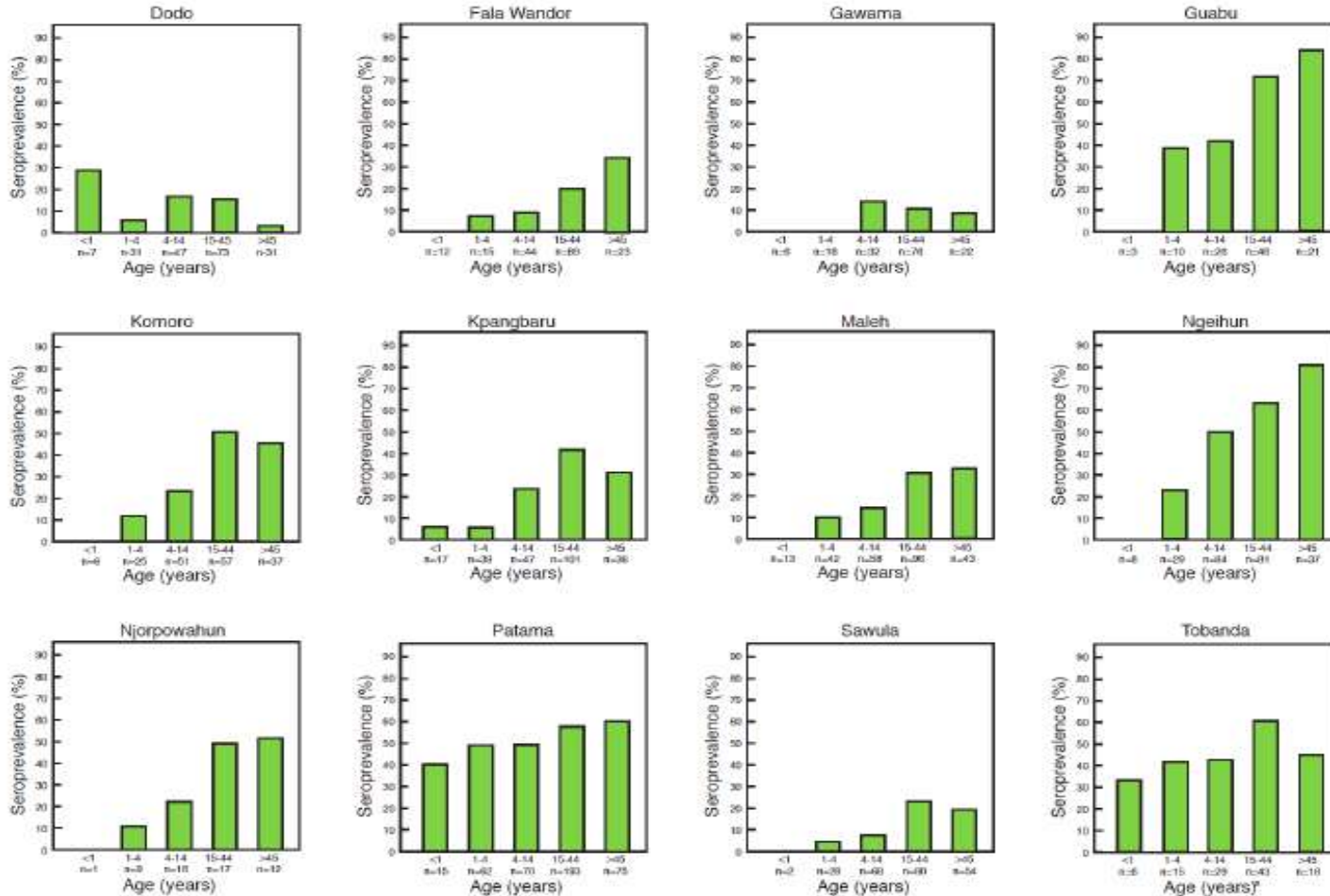
Government

Hospital



# Project Title: Lassa fever pathobiology in children and during pregnancy

**Researcher's Name/Organization:** Donald S. Grant<sup>1,2,3</sup> / 1.Lassa fever program, Kenema Government Hospital 2.Ministry of Health and Sanitation 3.University of Sierra Leone, Freetown,



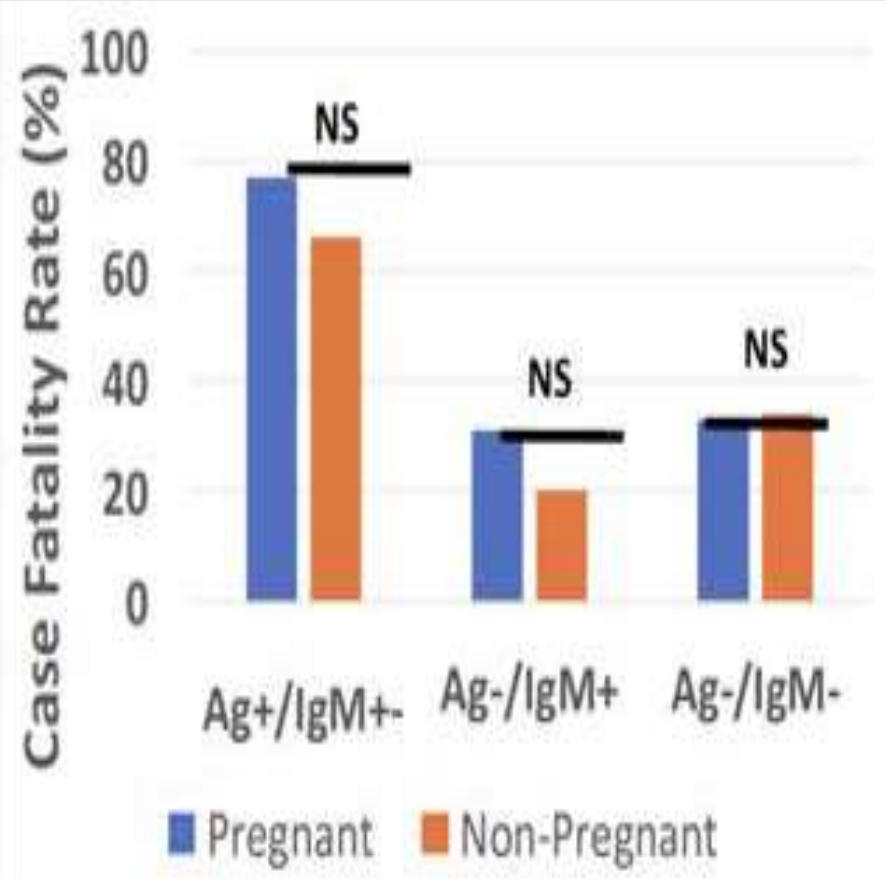
**Sero-  
prevalence  
in Kenema  
District by  
village and  
age group.**

**Project Title:** Lassa fever pathobiology in children and during pregnancy

**Researcher's Name/Organization:** Donald S. Grant<sup>1,2,3</sup> / 1.Lassa fever program, Kenema Government Hospital 2.Ministry of Health and Sanitation 3.University of Sierra Leone, Freetown,

Symptom	Ag+/IgM+ (n = 222)	Ag-/IgM+ (n = 459)	Ag-/IgM- (n = 1221)	p <sup>a</sup>
<b>Fever</b>	195 (88)	359 (78)	1027 (84)	.002
No fever	27 (12)	100 (22)	194 (16)	
<b>Weakness</b>	172 (77)	335 (73)	825 (68)	.004
No weakness	50 (23)	124 (27)	396 (32)	
<b>Sore throat</b>	122 (55)	153 (33)	387 (30)	<.001
No sore throat	100 (45)	306 (67)	854 (70)	
<b>Vomiting</b>	144 (65)	235 (51)	566 (46)	<.001
No vomiting	78 (35)	224 (49)	655 (54)	
<b>Cough</b>	159 (72)	258 (56)	616 (50)	<.001
No cough	63 (28)	201 (44)	605 (50)	
<b>Abdominal pain</b>	107 (48)	208 (45)	457 (37)	<.001
No abdominal pain	115 (52)	251 (55)	764 (63)	

Note. All results based expressed as frequency (%) unless indicated otherwise. Subgroup data unavailable for some subjects.  
 a. Corresponds to Pearson's chi-square test for assessing characteristic differences among the serostatus groups.



Kenema  
 Government  
 Hospital

**Project Title:** Lassa fever pathobiology in children and during pregnancy

**Researcher's Name/Organization:** Donald S. Grant<sup>1,2,3</sup> / 1.Lassa fever program, Kenema Government Hospital 2.Ministry of Health and Sanitation 3.University of Sierra Leone, Freetown,

**Top next steps for your project:**

Longitudinal studies investigating Lassa fever seroprevalence and incidence are critical for proper design of public health interventions, including LASV vaccine studies in humans

**How data and results will impact stakeholder decisions and the development problem:**

LASV infection in Sierra Leone is more widespread than previously known and this information may give a fair understanding of the public health importance and burden of the disease that helps immensely in planning.

This new information will guide evidence-based investments for public health programming and policy to prevent transmission of LASV to children and pregnant women.

**Challenges you have faced in collecting data:**

The 2014-16 Ebola outbreak occurred during the project period.

Kenema
Government
Hospital

