

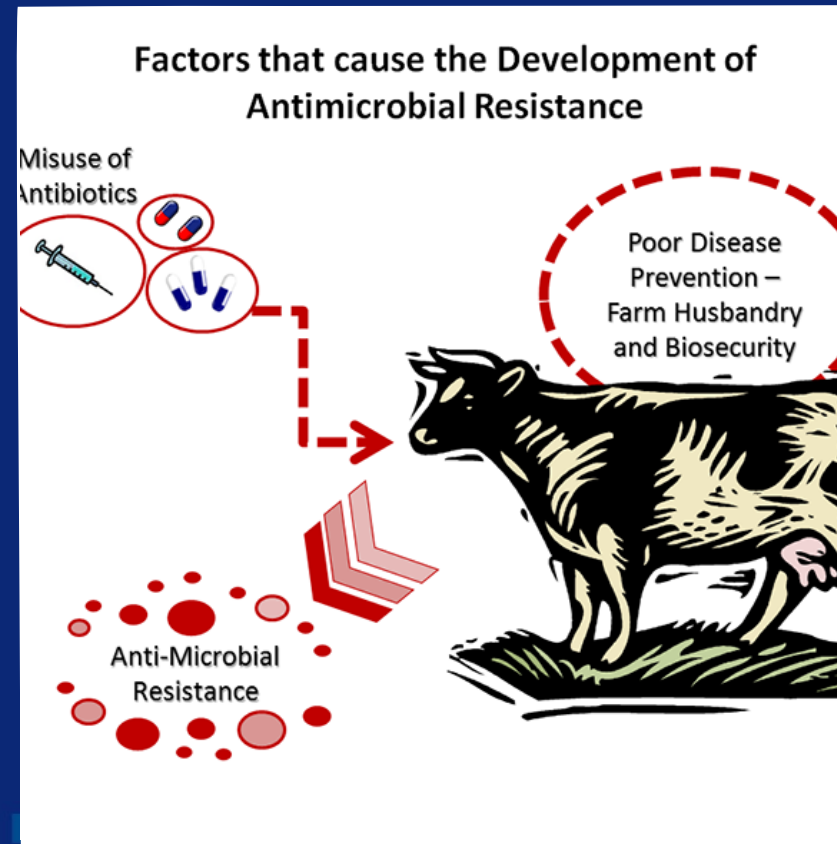
Monitoring antimicrobial use in livestock in Sierra Leone: challenges, actions, impact

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Freetown, Sierra Leone

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for Research and Training in Tropical Diseases



2019: How it all began in Sierra Leone



Dr Leno Amara

- One of three veterinary doctors in Sierra Leone
- Data Manager for transboundary animal diseases
- Officer in charge of import and export of veterinary antimicrobials
- Advocate for 'One Health'

STRUCTURED OPERATIONAL RESEARCH AND TRAINING INITIATIVE (SORT IT)

2000 TRAINED; 100 COUNTRIES; 70 INSTITUTIONS: 51% CONTINUE RESEARCH INDEPENDENTLY

PURPOSE: Generate and utilize data for informed-decision making to improve public health

“Data rich, Information rich, Action rich”

Europe

17	Armenia	4	Greece
1	Azerbaijan	4	Italy
3	Belarus	2	Latvia
5	Belgium	3	Moldova
1	Denmark	2	Serbia
1	Estonia	1	Switzerland
2	Georgia	26	Ukraine
		12	United Kingdom

Asia

5	Afghanistan	4	Kazakhstan	1	Singapore
12	Bangladesh	5	Kyrgyzstan	6	Sri Lanka
14	Bhutan	1	Malaysia	4	Tadjikistan
5	Cambodia	1	Mongolia	1	Timor Leste
21	China	79	Myanmar	1	Turkmenistan
168	India	26	Nepal	17	Uzbekistan
1	Indonesia	31	Pakistan	5	Viet Nam
				1	Yemen

South Pacific

1	American Samoa
1	Cook Islands
	Federated States of Micronesia
3	Fiji
25	Guam
1	Kiribati
4	Marshall Islands
3	New Caledonia
3	Palau
12	Papua New Guinea
1	Samoa
2	Solomon Islands
2	Tonga
3	Vanuatu

South America

5	Brazil
11	Colombia
1	Dominican Republic
1	El Salvador
1	Guatemala
2	Haiti
1	Honduras
2	Mexico
11	Peru

1	Benin
3	Botswana
6	Burundi
1	Central African Republic
2	Côte d'Ivoire
6	Democratic Republic of the Congo
3	Egypt
34	Ethiopia
8	Ghana

Africa

7	Guinea
47	Kenya
1	Lebanon
1	Lesotho
10	Liberia
1	Madagascar
19	Malawi
1	Mauritania
6	Mozambique

3	Namibia
1	Niger
9	Nigeria
6	Rwanda
40	Sierra Leone
2	Somalia
2	Somaliland
12	South Africa
3	South Sudan

1	Sudan
22	Uganda
2	United Republic of Tanzania
10	The Kingdom of eSwatini
2	Zambia
53	Zimbabwe

Health workers and decision-makers “in the driving seat”

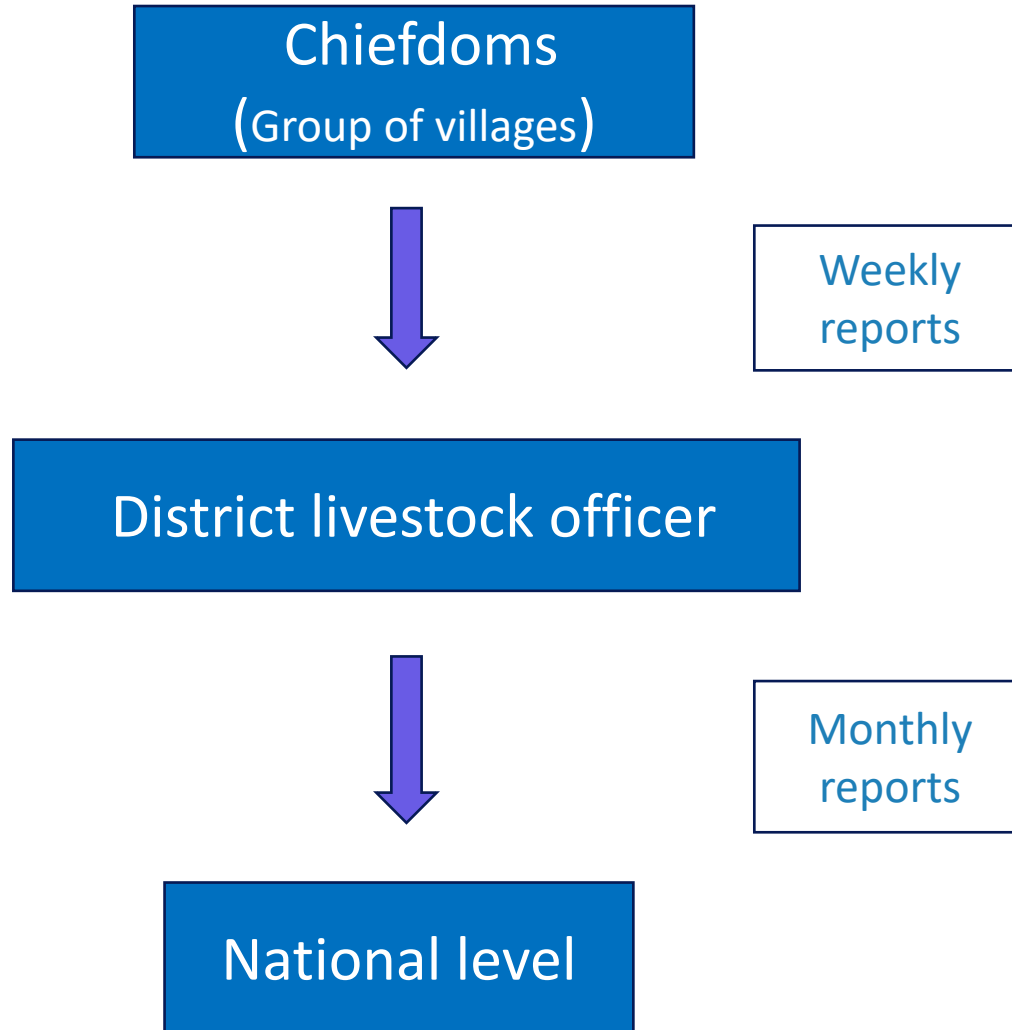
- Government Ministries
- Disease control programmes
- Non Governmental Organizations

Antimicrobial use in livestock

- Antimicrobials are used for prevention and treatment of diseases.
- Overuse of antimicrobials leads to antimicrobial resistance.
- Regular reporting and monitoring of antimicrobial use is necessary for:
 - ✓ Evaluating prescribing practices
 - ✓ Informing antimicrobial stewardship



Reporting framework for antimicrobial use in Sierra Leone (2012)



Study objectives

On a country-wide level in Sierra Leone, to assess:

- Reporting frequency of antimicrobial use in livestock
- Data quality: completeness and concordance
- Availability of human resources and infrastructure at reporting sites



Methods

Study design:
Cross-sectional
study

Study sites:
14 District livestock
offices

Study period:
2016 to 2021

Data sources:

Review of district and
sub-district reports

Human resources
and IT infrastructure



Findings (challenges)

Parameters	Gaps
Data reporting Number of districts	Only 3 of 14 (districts)
- Completeness	Only 1% of reports were complete
Human resources (animal health workers)	72/168 recommended (57% gap)
Infrastructure / transport	No computer or internet
	No motorbike for field supervision

How did we communicate the findings

- Published the study in an international journal
- Effectively and persuasively communicated the findings to decision-makers







*Tropical Medicine and
Infectious Disease*



Article

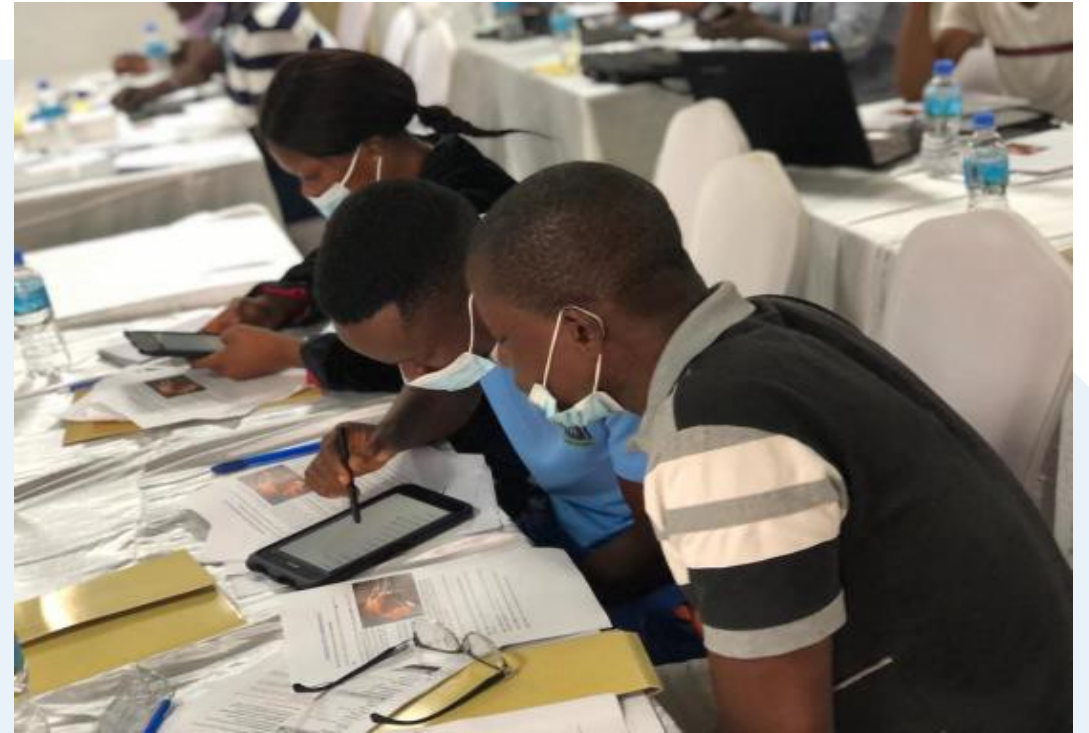
Veterinary Healthcare Provision and Quality of Reported Data on Antimicrobial Use in the Treatment of Livestock in Sierra Leone, 2016–2019

Amara Leno ^{1,2,*}, Walter Kizito ³, Amadu Tejan Jalloh ¹, Mohamed Alpha Bah ¹, Sorie Mohamed Kamara ⁴, Maria Zolfo ⁵ , Amara Aidara Sheriff ⁴, Katrina Hann ⁶ , Pruthi Thekkur ⁷  and Ajay M. V. Kumar ^{7,8,9} 



Actions: Ministry of Livestock and FAO

- Country-wide mandatory weekly reporting
- Trainings on data collection in all districts
- Provided 32 computer tablets and 30 motorbikes
- Established district “reporting hubs”



Impact: Follow-up SORT IT study

Open Access Article

An Update on the Surveillance of Livestock Diseases and Antimicrobial Use in Sierra Leone in 2021—An Operational Research Study

Parameters	Before	After
Data reporting		
- Number of districts	3 of 14 (21%)	14 (100%)
- Completeness	1%	88%
Infrastructure	No computers or internet	Computers / Internet ++
Transport	No motorbikes / No supervision	32 motorbikes / Supervision ++

Wider Impact

- Research has impact and is strengthening health systems against AMR
- Research capacity was built
- Research communication improved
- By embracing a “One Health” approach, comprehensive engagement was established with AMR coordinating committees
- SORT IT activities are aligned with national AMR action plans



I benefited from SORT IT



Learned the practical skills of conducting operational research



Developed the skills to mentor others and build a critical mass of researchers



Published policy relevant papers



Continue to improve surveillance of antimicrobial use

The region benefited from SORT IT

- Regional SORT IT research networks
- National SORT IT research networks



Sierra Leone benefited from SORT IT: capacity building

17 published studies / 40 trained



Article

Hand Hygiene Compliance at Two Tertiary Hospitals in Freetown, Sierra Leone, in 2021: A Cross-Sectional Study

Gladys Nanilla Kamara ^{1,*}, Stephen Sevalie ^{1,2}, Bailah Molleh ², Zikan Koroma ³, Christiana Kallon ⁴, Anna Maruta ⁵, Ibrahim Franklyn Kamara ⁵, Joseph Sam Kanu ⁶, Julian S. O. Campbell ⁷, Hemant Deepak Shewade ⁸, Saskia van Henten ⁹ and Anthony D. Harries ^{10,11}



Article

Inconsistent Country-Wide Reporting of Adverse Drug Reactions to Antimicrobials in Sierra Leone (2017–2021): A Wake-Up Call to Improve Reporting

Fawzi Thomas ^{1,2,*}, Onome T. Abiri ^{1,2}, James P. Komeh ^{1,2}, Thomas A. Conteh ^{1,2}, Abdulai Jawo Bah ^{2,3}, Joseph Sam Kanu ^{2,4}, Robert Terry ⁵, Arpine Abrahamyan ⁶, Pruthi Thekkur ⁷ and Rony Zachariah ⁵



Article

How Well Are Hand Hygiene Practices and Promotion Implemented in Sierra Leone? A Cross-Sectional Study in 13 Public Hospitals

Sulaiman Lakoh ^{1,2,3,*}, Anna Maruta ⁴, Christiana Kallon ⁵, Gibrilla F. Deen ^{1,2}, James B. W. Russell ^{1,2}, Bobson Derrick Fofanah ⁴, Ibrahim Franklyn Kamara ⁴, Joseph Sam Kanu ^{1,5}, Dauda Kamara ⁵, Bailah Molleh ³, Olukemi Adekanmbi ^{6,7}, Simon Tavernor ⁸, Jamie Guth ⁹, Karuna D. Sagili ¹⁰ and Ewan Wilkinson ¹¹



Article

Antibiotic Use in Suspected and Confirmed COVID-19 Patients Admitted to Health Facilities in Sierra Leone in 2020–2021: Practice Does Not Follow Policy

Ibrahim Franklyn Kamara ^{1,*}, Ajay M. V. Kumar ^{2,3,4}, Anna Maruta ¹, Bobson Derrick Fofanah ¹, Charles Kuria Njuguna ¹, Steven Shongwe ¹, Francis Moses ⁵, Sia Morenike Tengbe ⁵, Joseph Sam Kanu ^{6,7}, Sulaiman Lakoh ⁵, Alie H. D. Mansaray ⁸, Kalaiselvi Selvaraj ⁹, Mohammed Khogali ¹⁰ and Rony Zachariah ¹⁰

University of Sierra Leone: Sustainable capacity building

- Integration of SORT IT: medical and public health curricula
- Many SORT IT alumni became lecturers



Published SORT IT studies: Available at:

Links:

[Operational Research and Capacity Building to Tackle Antimicrobial Resistance in Sierra Leone \(mdpi.com\)](https://www.mdpi.com/sort-it)

[AMR in low- and middle-income countries](https://www.mdpi.com/sort-it)



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Article

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