

Aus der Medizinischen Fakultät Heidelberg der
Ruprecht-Karls-Universität
Institut für Public Health
(Direktor: Prof. Dr. med. Rainer Sauerborn)

**Evaluation of the Integrated Disease Surveillance
and Response (IDSR) system for infectious diseases
control in Ghana**

Inauguraldissertation
zur Erlangung des Doctor scientiarum humanarum (Dr.sc.hum.)
an der
Medizinischen Fakultät Heidelberg
der
Ruprecht-Karls-Universität

vorgelegt von
Martin Nyaaba Adokiya

aus
Navrongo, Ghana

2014

Tag der mündlichen Prüfung:

12. MRZ. 2015

Table of Contents

List of abbreviations	vii
List of figures	viii
List of tables.....	ix
1. Introduction.....	1
1.1. Background and problem statement.....	1
1.2. Study objectives	4
1.3. History of public health surveillance	5
1.4. Integrated Disease Surveillance and Response (IDSR) System.....	10
1.4.1. Key concepts of disease surveillance system	12
1.4.2. Core functions of an IDSR system	13
1.4.3. Support functions of an IDSR System	15
1.5. Practice of disease surveillance	15
1.6. Selected infectious diseases	18
1.6.1. Principal causes of morbidity and mortality - horizontally addressed	18
1.6.2. Principal causes of morbidity and mortality - vertically addressed	22
1.6.3. Diseases with high epidemic potential	26
1.6.4. Diseases targeted for elimination and eradication.....	31
2. Methods and materials	38
2.1. Study setting.....	38
2.1.1. Republic of Ghana	38
2.1.2. Health system in Ghana	41
2.1.3. Health Information Management System in Ghana	42
2.1.4. IDSR System in Ghana.....	45
2.2. The study area – Upper East Region	48
2.3. Study design	51
2.4. Time frame of the research.....	52
2.5. Quantitative methods	53
2.5.1. Field procedures	56
2.5.2. Quantitative data analysis.....	57

2.6.	Qualitative methods	57
2.6.1.	Key informant interviews	57
2.6.2.	General characteristics, structure and content	58
2.6.3.	The interview, interviewee and interviewer.....	59
2.6.4.	Sampling	59
2.6.5.	Field procedures	60
2.6.6.	Semi-structured questionnaire and tools	60
2.6.7.	Pre-testing of the questionnaire	61
2.6.8.	Transcription.....	61
2.6.9.	Qualitative data analysis	61
2.7.	Quality control	62
2.8.	Triangulation	62
2.9.	Ethical considerations	62
3.	Results	64
3.1.	Quantitative findings	64
3.2.	Qualitative findings.....	76
3.3.	Overall functioning of the surveillance system.....	76
3.3.1.	Core functions	77
3.3.2.	Support functions.....	85
4.	Discussion	90
4.1.	Methodological considerations.....	90
4.2.	Quantitative findings	90
4.2.1.	Incidence of selected infectious diseases.....	90
4.2.2.	Reporting completeness and timeliness.....	92
4.2.3.	Data accuracy	93
4.3.	Qualitative findings.....	94
4.3.1.	Overall functioning of the IDSR system.....	94
4.3.2.	Core functions	95
4.3.3.	Support functions.....	97
4.4.	Strengths and weaknesses	98
4.5.	Conclusion	98

5. Summary.....	99
6. Bibliography.....	101
7. Own publications	110
8. Appendices/Annexes	111
8.1. Health facility level questionnaire.....	111
8.2. District level questionnaire	115
8.3. Regional level questionnaire.....	120
8.4. Consent form for health workers.....	125
8.5. IDSR monthly summary reporting form.....	127
8.6. IDSR weekly summary reporting form	129
8.7. IDSR immediate case-based reporting form.....	130
8.8. IDSR case-based laboratory reporting form.....	131
8.9. Sub-district/health facility monthly IDSR data reconstruction form.....	132
9. Curriculum Vitae.....	133
10. Acknowledgement	135