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Original Research Article

Strengthening of sentinel surveillance through priority settings in public health resource allocation

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ABSTRACT

Background: Sentinel Surveillance assists in designing, re-designing and formulating health policy, programs and public health interventions and hence there is need to have a relook into the need for improving its implementation, monitoring and evaluation.
Methods: Informal interview based cross sectional study was undertaken during January 2015 to December 2016 among the programmatic stakeholders including the doctors, laboratory technicians and support staff for understanding of the constraints observed during conduct of surveillance.
Results: Time constraint and delayed supply of goods (94%), non-observance of guidelines (56%), dilution of sample quality (46%), requirement of training needs assessment (32%), absence of local communication network among stakeholders (68%), need for new initiatives (68%) and need for well trained staff during sample transport (34%) are important areas for quality enhancement.
Conclusions: Framework support for surveillance requires strengthening from technical inputs of stakeholders thereby facilitating multi stage corrective actions directed towards achievement of appropriate public health actions.

Keywords: Intervention, Priority, Public health, Resource allocation, Sentinel, Surveillance

INTRODUCTION

The observance of Sentinel Surveillance activity requires understanding of its applied public health importance for subsequent evidence based support at various levels of planning, implementation, management, support and monitoring cum evaluation.[1] Improvements in the methods, style, strategy and framework of the Sentinel Surveillance is the answer to achieving the highest desirable goal of reaching the nearest and most refined information base towards conclusive recommendations for national health plan.[2]

The challenges of data triangulation, utilization of inferred data, validity of data, geo-specific variability of information, conversion of raw data into useful data, data encryption and its subsequent utilization for health care settings, training, research and academics through building of health system capacity remains a challenge in view of limitations and constraints faced during designing of protocol, collection, compilation, arrangement, monitoring and inference derivation from the data.[3] In addition, real time data, sustenance of data collection system, up-gradation, continuity and reliability are essential ingredients of surveillance set up in

Thailand, China Mainland, South Korea, Taiwan, Japan and Malaysia.[4]

Hence, the purpose of this study was to identify important challenges of the Sentinel Surveillance strategy adopted in developing countries.

METHODS

Informal interview based cross sectional study was undertaken among the programmatic stakeholders including the doctors, laboratory technicians and support staff during January 2015 to December 2016 at People's College of Medical Sciences & Research Centre, Bhopal, Madhya Pradesh and other health care facilities for understanding of the constraints observed during conduct of surveillance. The stakeholders not desirous of discussion were excluded from the study. The questionnaire based information was sought through discussions and was filled in the format upon completion of the interview. The interviews were held in person, through telephone and during various technical interactions spread during and after observance of surveillance. The participants and their opinion was obtained in unlinked anonymous manner and hence the study does not require ethical approval. The important observation points of the study are depicted in the tables herein.

Data was analyzed using Epi Info™ 7.1.4, a free software tool available at CDC (Centre for Disease Control) website: (http://wwwn.cdc.gov/epiinfo/7/)

RESULTS

The respondents included doctors (39%), Laboratory Technicians (47%) and Support Staff (14%), who have been associated with the Sentinel Surveillance round at least once during the past. The representatives of the study group comprised of sexually transmitted diseases (STD Site: 27%), antenatal case (ANC Site: 56%), high risk group (HRG Site: 11%) and Medical College (Testing Centre: 6%), thereby making it fully representative of the Sentinel Surveillance process including the implementation, monitoring and evaluation of the technicalities (Table 1). Multiple option selection was allowed to the respondents to have a comprehensive overview of the requirements for identifying areas for improvement in the strategic inputs.

Table 1: Distribution of respondents (n=75).

Sentinel sites	Doctors	Laboratory technicians	Support staff	Total
STD site	09	10	03	22 (27%)
ANC site	18	21	02	41 (56%)
HRG site	02	04	02	08 (11%)
Medical college	-	-	04	04 (06%)
Total	29 (39%)	35 (47%)	11 (14%)	75

STD Site: Site with HIV Surveillance for STD Cases; ANC Site: Site with HIV Surveillance for ANC Cases; HRG Site: Site with HIV Surveillance for High Risk Group Cases.

Table 2: Concerns about difficult logistics management (n=75).

S. No.	Causes identified*	No. of respondents	%
1	Time constraint and delayed supply of goods	71	94
2	Delayed/zero procurement of consumables, kits and equipment	53	70
3	Non-assessment of consumables, kits and equipment requirements	21	28

(*): Choice of multiple options permitted.

Logistics management issues, as observed, are found to be in order of priority as being (a) time constraint and delayed supply of goods (94%), (b) delayed or zero procurement of consumables; (b) kits and equipment (70%); and, (c) non-assessment of consumables, kits and equipment requirements (28%) (Table 2).

The capacity building measures, predominated and important being the training, have been observed in order of their importance as (a) attitude of the involved staff (86%); (b) non observance of guidelines (74%); and, (c) identification of the problems faced in the field and solving them before the next round of Sentinel Surveillance. The other important areas identified for administrative and technical attention include (a) feedback problems (62%); (b) dilution of the sample quality (46%); and (c) non identification of the critical issues (38%) (Table 3).

Reporting delay was observed due to absence of local communication network among the stakeholders (68%), followed by lack of co-ordination with the centre (66%) and lack of co-ordination with the periphery (32%) (Table 4).

The issues related to better monitoring have been identified in the study as enhancing commitment of the staff (96%), effectively use the available resources (88%) and there should be no change of priority change during program implementation (82%). Remaining important critical issues, in order of their thus identified prioritized public health attention, include that the results should be

visible (74%), there is need for proper and clear responsibility distribution (68%), and restriction on frequent transfers during the round (60%) (Table 5).

Table 3: Issues related to training among the respondents (n=75).

S.	Causes identified*	No. of respondents	%
1	Attitude of the involved staff	65	86
2	Non observance of the guidelines	56	74
3	Identification of the problems faced in the field and solving them before the next round	48	64
4	Feedback problems	47	62
5	Dilution of the sample quality	35	46
6	Non identification of the critical issues	29	38
7	Training needs assessment of the trainees not done and less learning based on past experience	24	32
8	Less emphasis on the hands on training	24	32
9	Failure corrections and documentation difficulties	21	28
10	Less emphasis on the understanding of the surveillance and its importance	17	22
11	Vague training needs assessment	14	18
12	Practical feasibility	12	16
13	Insufficient guidelines	11	14
14	Non observance of unlinked anonymous status	5	6

(*): Choice of multiple options permitted.

Table 4: Opinion of respondents about reporting delays (n=75).

S. No.	Causes identified*	No. of respondents	%
1	Absence of local communication network among the stakeholders	51	68
2	Lack of co-ordination with the centre	50	66
3	Lack of co-ordination with the periphery	24	32

(*): Choice of multiple options permitted.

Table 5: Suggestions of respondents for better monitoring (n=75).

S	Suggestions*	No. of respondents	%
1	Enhance commitment of staff	72	96
2	Effectively use the available resources	66	88
3	Priorities should not change	62	82
4	Results to be visible	56	74
5	Need for proper and clear responsibility distribution	51	68
6	Need for new initiatives	50	66
7	Restriction on frequent transfers during the round	45	60
8	Avoidance of repeat mistakes	44	58
9	Enhancing horizontal integration	39	52
10	Discuss the weaknesses at all levels after the round	36	48
11	Ensure meetings with important stakeholders	29	38
12	Focus on timely start and completion	26	34
13	Development of insight towards quality adherence	18	24
14	Upgrading the level of understanding for precision	6	8

(*): Choice of multiple options permitted.

Table 6: Problems identified by the respondents for safe transport of the samples (n=75).

S.No	Causes identified*	No. of respondents	%
1	Limited number of the testing centers	51	68
2	Skill development sometimes not taken as priority area	51	68
3	Lack of well trained staff during transport	26	34
4	Difficult terrain for travel	18	24

(*): Choice of multiple options permitted.

The important issue of sample transport for its safety and efficacy requires, as per the respondents, attention for addressing the limited number of the testing centres (68%) and skill development emphasis (68%), whereas other problems include lack of well trained staff during transport (34%) and difficult terrain for travel (24%) (Table 6).

DISCUSSION

Resource allocation and its priority setting requires strengthening for surveillance activities for assessment of current scenario, planning and devising the strategic inputs at various levels of public health interventions.

In the present study, it has been observed that addressing time constraints and issues related to delayed supply of goods (94%) overrides the other challenges including constraints in procurement (70%) and requirement assessment delays (28%). The observed findings agree with those with a study from Tanzania inferring that evidence based decision, involving all stakeholders including health program planners, subject experts and heath care functionaries in the field, is the key for better program implementation.[2,5]

Program monitoring, as evidenced in the study, with wide ranging issues including but not limited to (a) enhancing horizontal integration (52%); (b) developing insight towards quality adherence (24%) and upgrading the level of understanding for precision (8%) requires elaborate pre planning especially for decision on the intricacies of surveillance design, sampling strategy and data management as has been emphasized with micro details by the World Health Organization.[6]

The horizontal and vertical integration of the health programs can only be achieved if the health care functionaries are trained for adhering to the guidelines (74%), revising the local inputs based on the experience of earlier surveillance rounds (64%) and putting in best foot forward (85%) for achievement of the set goals directed towards external and internal quality assurance. Hence, prioritization within the program components is the need of the hour as emphasized in a study by School of Public Health and George Institute for International Health, University of Sydney.[7]

Integration of public health systems are stated to be important for comprehensive strategic development of the health program design and the current study also highlights similar observations that co-ordination with centre (66%) and periphery (32%) along-with improvement in communication network among the stakeholders is required for proper, timely and protocol based achievement of the results of Surveillance activities.[8]

The importance of community based epidemiological findings and their centralized research based inferences have been found to be effective underlining the observation of the present study citing example of requirement of well trained staff during transport of samples (34%), skill development (68%) and need for increasing the linkages among sentinel sites and testing centres (68%).[9]

CONCLUSION

The well-knit design of surveillance scheme supported by collective evidence based findings through spectrum of public health initiatives at all levels of program implementation will go a long way in providing preventive support to the urban, rural and tribal settings of developing countries. This can be achieved through translation of programmatic and technical recommendations received during various interactions with the field functionaries in the light of accepted universal norms, technological advances and needs of the public health interventional requirements under universal health initiatives through established health care systems.

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