Large Scale Mobile Medical Service Programme: Data Insights for strengthening local surveillance

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Objective

We report the findings of Andhra Pradesh state's mobile medical service programme and how It is currently used to strengthen the disease surveillance mechanisms at the village level.

Introduction

India has an Integrated Disease Surveillance project that reports key communicable and infectious diseases at the district and sub-district level. However, recent reviews suggest structural and functional deficiencies resulting in poor data quality [1]. Hence evidence-based actions are often delayed. Piramal Swasthya in collaboration with Government of Andhra Pradesh launched a mobile medical unit (MMU) programme in 2016. This Mobile medical service delivers primary care services to rural population besides reporting and alerting unusual health events to district and state health authorities for timely and appropriate action. The MMU service in the Indian state of Andhra Pradesh is one of the oldest and largest public-private initiatives in India. Two hundred and ninety-two MMUs provide fixed-day services to nearly 20,000 patients a day across 14,000 villages in rural Andhra Pradesh. Every day an MMU equipped with medical (a doctor) and non-medical (1 nurse, 1 registration officer, 1 driver, 1 pharmacist, 1 lab technician, 1 driver) staff visit 2 service points (villages) as per prefixed route map. Each MMU also has its own mobile tablet operated by registration officer for capturing patient details. The core services delivered through MMUs are the diagnosis, treatment, counseling, and free drug distribution to the beneficiaries suffering from common ailments ranging from seasonal diseases to acute communicable and common chronic non-communicable diseases. The routinely collected patient data is daily synchronized on a centrally managed data servers.

Methods

For this analysis, we used aggregated and pooled data that were routinely collected from August 2016-March 2018. Patient details such as socio-demographic variables (age, sex etc.) medical history and key vitals (random blood sugar, blood pressure, pulse rate etc.) and disease diagnosis variables were analyzed. Besides, communication and action taken reports shared with Government of Andhra Pradesh were also analyzed. We report the findings of the programme with reference to strengthing the village level communicable disease surveillance. Unusual health events were defined as more than 3 patients reporting the epidemiologically linked and similar conditions clustered in the same village.

Results

We observed 4,352,859 unique beneficiaries registrations and 9,122,349 patient visits. Of all unique beneficiaries, 79.3% had complete diagnosis details (53% non-communicable disease, 39% communicable and 8% others conditions). A total of 7 unusual health events related to specific and suspected conditions (3 vector-borne diseases related, 4 diarrhea-related) were reported to district health authorities, of which 3 were confirmed outbreaks (1 dengue, 1 malaria, and 1 typhoid) as investigated by local health authorities.

Conclusions

Mobile medical services are useful to detect unusual health events in areas with limited resources. It increases accountability and response from the Government authorities if the timely information is shared with competent health authorities. Careful evaluation of the mobile health interventions is needed before scaling-up such services in other remote rural areas.

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References

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Distribution of beneficiaries served as % of total population in rural Andhra Pradesh, India (2016-2018)

District	Unique Beneficiaries	Population (Census 2011)	% Beneficiaries (Of total population)	Clinics conducted (Total)	Total Visits	Beneficiaries per Clinic
Ananthapur	418693	4081148	10	25875	701840	27
Chitoor	396080	4174064	9	27341	862478	32
East Godavari	318134	5154296	6	27201	776624	29
Guntur	465287	465287	10	21739	833455	38
Kadapa	410485	28882469	14	25363	778571	31
Krishana	284671	4517398	6	20508	658383	32
Nellore	344783	2963557	12	25263	781652	31
Prakasam	374981	3397448	11	21293	648130	30
Srikakulam	229690	2703114	8	22174	614370	28
Vishakhapatnam	277648	4290589	6	19497	557001	29
Vizianagram	219915	2344474	9	17899	501483	28
West Godavari	226410	3936966	6	21972	698277	32
Kurnool	386082	4053463	10	20808	710085	34
Total	4352859	49386799	9	296933	9122349	31