

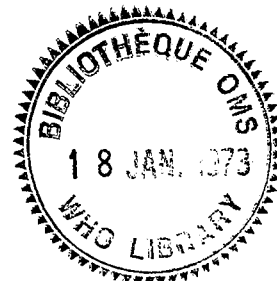
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CONSEQUENCES OF POOR REPORTING
AN EXPERIENCE ENCOUNTERED IN GULBARGA DISTRICT,
MYSORE STATE, SOUTH INDIA

by

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Smallpox has ravaged the world since time immemorial and although means of preventing smallpox have existed since the end of the eighteenth century, still it remains a major public health problem in many parts of the world. India alone contributed nearly 63% of the world total of cases during 1959-1963. The persistence of smallpox infection is a threat not only to our own country and to our neighbours but indeed to all countries.

As the only source of the virus is man and successful vaccination provides good protection for a number of years, eradication of smallpox in endemic areas is well within the compass of modern preventive medicine. Failure to achieve it is attributable to a variety of factors like the use of poor vaccine, defective and/or poor reporting systems, incomplete coverage of the population because of inadequate health services, shortage of equipment or personnel and failure to conduct concurrent evaluation of the adequacy of the vaccination campaigns. A human factor also needs to be added to this list since the rapidity, efficiency and integrity with which the personnel involved in the Eradication Programme rise to the occasion, also decide the persistence of infection and the quality of the containment measures.

A pre-requisite for the world-wide eradication of smallpox is adequate case-finding and reporting. A defect in this fundamental procedure has implications to the persistence of infection in a given area as well as far-reaching consequences on its dissemination. This paper highlights an example in one of the Districts of Mysore State, where, due to poor reporting of cases, smallpox infection assumed epidemic proportions, attracting the attention not only of the State Government but of the neighbouring State Governments and of the Central Government as well.

Gulbarga is one of the 19 Districts of Mysore State and forms a part of Hyderabad Karnatak region. The District is surrounded by Bidar District of Mysore State and Osmanabad District of Maharashtra State in the North, Medak and Hahaboobnagar Districts of Andhra Pradesh on the east, Raichur District of Mysore State on the south and Bijapur District of Mysore State and Sholapur District of Maharashtra State on the west. The District has an area of 16 000 sq. kms. and is the second biggest district in the state. It has 10 towns, 1 283 inhabited villages and 74 Bechrak villages. The District consists of

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10 taluks with three revenue subdivisions. The land has an elevation ranging from 1 000 feet to 2 000 feet above mean sea level and forms part of the Deccan Plateau. The population of the District is 17 39 671 (1971 census). This is 6% of the state's population. The density of the population is 107 per square kilometre, less than the average of 153 in the state.

There are no major fairs and festivals attracting large human populations but there are a number of small fairs and festivals which attract people from surrounding villages.

The following medical and health facilities are present in the district:-

- 1) One medical college
- 2) One Government General Hospital at Gulbarga
- 3) 53 dispensaries (Civil, Health Unit, Ayurvedic and Unani)
- 4) 17 Primary Health Centres
- 5) One Model Medical and Health Unit
- 6) Control centres for filaria, tuberculosis and malaria eradication
- 7) One District Public Health Laboratory
- 8) One Regional Chemical Examiner's office and laboratory
- 9) One District Family Planning Bureau

Previous history of smallpox in the District

Information regarding the history of smallpox in the district during past years is not readily available. Unofficial sources indicate that the disease has been prevalent in the past in a sporadic form with an insignificant number of cases and deaths.

Present experience

Recently, the District experienced a bitter episode wherein smallpox appeared and spread to a vast area. Investigations have revealed that the epidemic started in December 1970 and reached a peak during April 1972, after which it declined. A total of 1 359 cases with 123 deaths were recorded in 133 villages.

The centre of the present epidemic was Chittapur town and neighbouring villages where the disease had its roots during December 1970. The epidemic spread and gradually disseminated from this area to villages farther away during the years 1971 and 1972 and in course of time, the villages located to the north, west and south-west of Gulbarga City were affected. The disease also spread to Bidar District in the north.

A second and independent focus developed in the western part of Raichur District, in an area neighbouring Kushtagi town and smallpox infection was recorded in this area beginning in January 1972. From here, the disease spread to a neighbouring area of Dijapur District during early 1972.

Source of Infection

Infection was introduced into Gulbarga District during December 1970, when an infected person came from Kallolli village, Bijapur District. This case arrived at Petsirur village in Chittapur Taluk of Gulbarga District in a febrile state and developed a rash immediately thereafter. Transmission continued at Petsirur village and during April 1971, the disease spread to neighbouring Bhagodi village. The disease later spread to Chittapur Town in June 1971.

Among other villages infected, special mention must be made of Kurkunta village, a border village of Mysore State in Gulbarga District and adjoining Andhra Pradesh, wherein is located a big cement factory. From this infected focus, the disease spread to a number of villages in the neighbourhood, a few of which are located in neighbouring Andhra Pradesh State.

So far as Gulbarga District is concerned, no cases of smallpox were reported in 1970 and none in 1971 until September. In 1969, smallpox had been reported from two villages of Shahapur Taluk, Gulbarga District. The distance from these villages to Chittapur is about 50-70 miles. No relationship could be discovered between these outbreaks and those occurring later.

Smallpox was also introduced into Bidar District of Mysore State and Hahaboobnagar District of Andhra Pradesh from ordinary secondary foci from Hyderabad District of Andhra Pradesh.

Circumstances which favoured the widespread nature of the smallpox epidemic

The NSEP staff and other staff of the Primary Health Centres in the District evinced no interest in the detection, reporting or containment of smallpox cases. In a few instances, it was found that even though the field staff detected smallpox in their areas, the information was intentionally concealed. Sometimes, even the Medical Officers of the Primary Health Centres did not take pains to report such instances.

Petsirur village, the first village affected, is the headquarters of three staff members attached to the Primary Health Centre, Kalgi, and even though smallpox infection was raging in this village, these staff members did not bother to report the occurrence to the authorities. Kurkunta village, which was heavily infected, is the headquarters of one Basic Health Worker, and an Auxiliary Nurse Midwife attached to the Primary Health Centre, Mudhole. Even from this heavily infected village, no cases were reported from July 1971 to February 1972. The infection came to light when authorities of Andhra Pradesh reported the importation of the disease from Kurkunta village. In Neeloor village of Afzalpur Taluk, Gulbarga District (Primary Health Centre, Cobbur), the disease was present since January 1972. The NSEP staff knew about the occurrence of the disease when 10 cases had already occurred. The matter had been brought to the notice of the Medical Officer of Health, Primary Health Centre, Cobbur, and even though a number of these cases were typical

smallpox, the Medical Officer of Health declared all of them as chickenpox and hence the disease was allowed to spread in the village without being reported. During the visit of the investigating team to this infected village on 13 May 1972, when the whole day was spent for a detailed investigation of these cases, the February episode was throughout concealed by the Medical Officer. State level field investigators who were assisting in the investigation work accidentally discovered these concealed cases by sheer chance.

The Medical Officer of Health, Primary Health Centre, Kalgi and the then District Health and Family Planning Officer, Gulbarga, were duly informed by official correspondence about the smallpox outbreak which had occurred in Chittapur since September 1971. These authorities, however, did not report this to the State headquarters. Neither did they take containment measures.

The above serve as only a few examples to indicate the attitude of the local health staff. Local administrative authorities like the Revenue authorities, police patels, village munsiffs, office bearers of the panchayats, municipalities, etc. also were of no assistance in reporting. The epidemic thus reached the end of 1971 absolutely uncontrolled, unabated, undisturbed and unrecognized to the detriment and disadvantage of the people and detriment to the fair name and fame of the administration.

Another important contributory factor responsible for the spread of the epidemic was the inadequacy of containment measures instituted immediately after cases of smallpox were encountered. Even after the recognition of cases only a proportion of the total population in the said villages was covered. Susceptibles were left unprotected amidst the prevailing epidemic, in the guise of their refusing to take vaccination.

Attitude and immunity status of the population

There are four distinct groups of population existing in the area, 1) Migrants, 2) Lambani people living in the Thandas, 3) Harijans and 4) others.

The first three groups represent only a minority of the population but they accounted for large numbers of cases and were responsible for the spread of the disease over wider areas. This is attributed to the fact that this section is highly illiterate and they simply refused to take vaccination. In addition, they declined to extend cooperation to institute containment measures. The refusal of these groups to be vaccinated also had an adverse effect on the progress of vaccination in the remaining sections of the community. When the vaccinators thrust vaccination on the people by coaxing and coercion, there were many instances of verbal and physical threats.

Social factors

Before the end of 1971, smallpox was circulating in several large cities and towns and other thickly populated villages like Chittapur, Sedam, Kurkunta and also very probably in Gulbarga City. During the peak periods of the epidemic, movement of the population in the rural areas increased substantially and this also favoured the spread of the disease to new areas.

A brief description of the epidemic

The stage was set for the flare-up of an outbreak of smallpox in Gulbarga District and the contributory factors such as the presence of susceptibles, seed and environment were very favourable. The seed was sown during the month of December 1970 and took firm roots. From this primary focus, innumerable secondary foci developed which attracted the attention of the State Government and of other authorities. The first case was encountered on 24 December 1970 and the last case on 10 September 1972. To date, 1 359 cases with 123 deaths have been recorded. The registration of every such case was possible due to the incessant and honest efforts of bands of field staff deputed from the State headquarters and also due to the in-charge staff ably supplemented and guided by the WHO Consultant, who actively associated and involved himself in the investigation of the cases and the institution of the containment measures. These cases and deaths have been registered from one City Municipality, 5 Town Municipalities and 127 villages in the District. The year 1970 contributed one solitary case, 1971 contributed 198 cases with 18 deaths and the year 1972 contributed 1 160 cases with 105 deaths. In April 1972, the maximum numbers of cases and deaths occurred - 383 attacks with 35 deaths. The Primary Health Centre Mudhole in Sedam Taluk contributed the largest number of cases - 390 cases with 36 deaths. Amongst the Taluks, Sedam Taluk, in which the Primary Health Centre Mudhole is located, takes the first place since the Taluk has a single block with only one Primary Health Centre. Sedam subdivision takes the pride and first place for having contributed the maximum number of cases of all three Revenue subdivisions - 917 cases with 86 deaths.

Age incidence

Children between 0-4 years bore the main brunt of the onslaught, accounting for 38% of the total. Of the total, 78% of the cases were in children under 14 years.

Vaccination status

Of the total cases, 82% were unvaccinated and 71% occurred in unvaccinated children under 14 years of age. This indicates a low level of immunity which existed in the population.

Deaths

The case fatality rate was 9.0% which is fairly low. About 87% of the total deaths were in children under 10 years of age and 93% were in unvaccinated persons.

Measures taken since the beginning of April 1972

When the epidemic was brought to light, immediate action on a war-footing was taken as follows:

- 1) Detection of cases on a large scale in the whole of Gulbarga District, utilizing the services of all available Agencies to detect not only fresh cases but also cases which had been missed and which had occurred since January 1971.
- 2) Streamlining and improvement of the reporting systems.

- 3) Improvement of investigation of smallpox cases for tracing the source of infection and detecting additional cases.
- 4) Improvement in cross-notifications.
- 5) Augmenting the vaccination programme in the affected and neighbouring villages with special attention towards the susceptibles.
- 6) Institution of permanent case finding action up to 6 weeks after the onset of rash of the last case, visit to all houses twice weekly in the infected villages and once weekly in the neighbouring villages.
- 7) Vaccination of all persons attending the out-patient departments of all hospitals and dispensaries in the district and carrying out neo-natal vaccinations in the maternity sections of all the hospitals and dispensaries in the district.
- 8) Vaccination of the remaining portions of the population living in the 'silent' villages of the district.

It was possible to implement the above measures by the following methods:-

- 1) A concerted and coordinated action by the departmental authorities of Health and Family Planning services and by the authorities of the other sister departments both at the District level and also at the Taluk levels and below.
- 2) Reinforcement of the existing staff by the deputation of Staff from outside Gulbarga District, appointment of temporary vaccination staff and utilizing the services of the vaccination staff working in the municipalities, etc.
- 3) Reinforcement of the existing transport services by obtaining extra vehicles from outside Gulbarga District and by commandeering the vehicles of other sister departments for the quick transport of men, materials and vaccine.
- 4) Getting the area declared as infected with an outbreak of smallpox under Section 16(1) of the Hyderabad Infectious Diseases Act, 1950.
- 5) Banning all human congregations as fairs, festivals and other religious functions.

Some highlights of the present epidemic episode

The following serious setbacks were experienced not only in investigating the outbreak but also in effectively implementing containment measures:

- 1) The then District Health and Family Planning Officer, Gulbarga, had been placed under suspension.
- 2) The post of the Assistant District Health Officer at Gulbarga was vacant for indefinite periods and the post is vacant even now.
- 3) The post of the Assistant Director (Smallpox) at the State Headquarters had been vacant from the very inception and the post has been filled just recently.
- 4) The Deputy Director (Communicable Diseases), Bangalore, was on sick leave.

- 5) There was existing in Gulbarga District a human factor which was not favourable for the quick, expeditious, efficient and timely investigation of the cases and the institution of containment measures.

In spite of the above serious setbacks, it is gratifying and encouraging to note that the present epidemic of smallpox in Gulbarga District has been effectively and efficiently put down by the deputed and in charge staff who never left any stone unturned and who paid serious attention even to the minutest organizational and administrative matter connected with the case detection investigation and the institution of containment measures. The success of the programme is also due to the sincere and honest efforts of the Deputy Commissioner, Gulbarga and his band of colleagues and subordinates who have all risen to the occasion and physically involved themselves in the institution of the containment measures. The success of the programme is also due to the unstinted support, sympathy and whole-hearted cooperation of several officers of the Department at the State headquarters who readily responded to the requests made by this office. Last but not least, the success of the programme is also due to the painstaking and unstinted efforts of Dr V. Zikmund, the WHO Epidemiologist, who visited this area on many occasions during the epidemic and who physically involved himself in the programme and for his timely advice, guidance and direction.

TABLE 1
Outbreak of Smallpox in Gulbarga District
(1970-1971 and 1972)
Newly infected villages by month and year

Month	Year		
	1970	1971	1972
January	-	1	10
February	-	-	14
March	-	-	43
April	-	1	34
May	-	1	12
June	-	2	4
July	-	2	-
August	-	-	-
September	-	1	1
October	-	-	-
November	-	1	
December	1	5	
TOTAL	1	14	118

Analysis: No. of villages 127
No. of town municipalities 5
No. of city municipalities 1
Total 133

TABLE 2
Distribution of cases by month
 (Based on the date of onset of rash)

Year and month		Number of	
		Cases	Deaths
1970	December	1	-
1971	January	5	-
	February	1	-
	March	8	2
	April	17	2
	May	5	1
	June	13	1
	July	16	2
	August	14	-
	September	24	3
	October	25	1
	November	34	3
	December	36	3
1972	January	112	12
	February	142	20
	March	376	17
	April	383	35
	May	119	16
	June	20	3
	July	5	2
	August	2	-
	September	1	-
TOTAL		1 359	123

TABLE 3
Cases by Age, Sex and Vaccination Status

Age Group (years)	Males			Females		
	Protected	Unprotected	Total	Protected	Unprotected	Total
0-4	-	261	261	-	255	255
5-9	32	180	212	35	184	219
10-14	15	41	56	19	47	66
15-19	12	19	31	20	14	34
20-29	26	26	52	34	39	73
30-39	20	18	38	23	16	39
40+	6	6	12	5	8	13
TOTAL	111	551	662	136	563	699

TABLE 4
Analysis of deaths due to smallpox

Age Group (years)	Males Number of deaths			Females Number of deaths		
	Amongst protected	Amongst unprotected	Total	Amongst protected	Amongst unprotected	Total
Below 1	-	13	13	-	11	11
1-4	-	27	27	-	29	29
5-9	-	10	10	-	17	17
10-14	-	2	2	-	1	1
20-24	2	2	4	2	1	3
30-34	3	-	3	1	-	1
40+	1	1	2	-	-	-
TOTAL	6	55	61	3	59	62

Abstract Statement of the Incidence of the Disease and the Containment Measures Instituted
(Information as of 1.10.1972)

TABLE 5

Taluk	Primary Health Centre	Number of villages			Population in the villages			Number of cases in the infected villages		Vaccinations			
		Infected	Non-infected	Total	Infected	Non-infected	Total	Cases	Deaths	Pry.	Rev.	Total	Cover-age (%)
Chittapur	Kalgai	20	55	75	66383	82781	149164	333	38	14585	90296	104881	77
"	Kollur	11	40	51	18722	55578	74300	53	2	7110	44479	51589	68
Sedum	Mudhole	30	83	113	47623	53002	100625	390	36	10387	74040	84427	83
Chinchohalli	Kuncha-wararam	18	115	133	23947	108598	132545	141	10	10963	85619	96582	72
Yadgir	Yergol	11	45	56	44723	64738	109461	96	4	10387	74040	84427	84
"	Konkal	9	77	86	22050	68720	90770	60	8	9289	76750	86039	94
Shahapur	Wadgera	1	85	86	62	70471	70533	1	-	5922	58097	64019	91
"	Dornhalli	1	61	62	350	78297	78647	1	-	6516	67419	73935	94
Jewaragi	Yedrami	1	73	74	1135	56473	57608	20	2	1912	45129	47041	81
"	Nelogi	2	70	72	1136	63039	64175	9	1	4792	48403	53195	83
Afzalpur	Gobbur	1	86	87	2183	109616	111799	15	-	4960	67864	72824	63
Alland	Madan-												
"	Hippurga	2	62	64	4280	82206	86486	3	1	8340	51025	59365	68
"	Narcona	2	62	64	1836	103400	105236	2	-	12641	72681	85322	81
Gulbarga	Kamalapur	15	54	69	28775	46059	78434	76	5	8462	56792	65254	81
"	Farotabad	8	62	70	10058	69217	79275	107	10	7952	59073	67025	84
Shorapur	Kakkera	-	83	83	-	70849	70849	-	-	3114	56325	59439	84
"	Kemhavi	-	92	92	-	76167	76167	-	-	2358	52208	54566	72
Gulbarga	City	1	-	1	145630	-	145630	52	6	11851	94020	105871	72
TOTAL		133	1205	1338	418893	1259211	1678104	1359	123	141541	1174260	1315801	78