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INTER-COUNTRY SEMINAR ON
SURVEILLANCE IN SMALLPOX ERADICATION

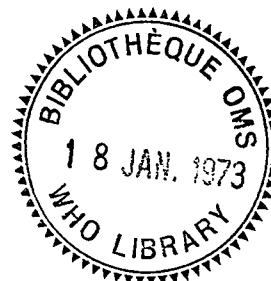
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SMALLPOX ERADICATION IN ASIA

by

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When analyzing the present status of the smallpox eradication programme in Asia, there are different angles by which the smallpox situation can be studied so as to give us the answers to the questions "How do we stand? What has still to be done? What is going wrong in our programme? Where will we be in 6 months time? in one year and two years time? We can compare the present situation with that existing one year ago, 2, 5 and 10 years ago, so as to help us to determine to what extent we have progressed and therefore what progress we can predict for the future. We can also compare our present status in Asia with that of other continents, which reflects our relative successes or failures. Above all, we can clearly determine what is the cause of our failures, analyse the obstacles and problems which we are encountering, so that we can remedy these. We can determine what measures have helped us to achieve certain goals in the past so that we can give these further priority in the future.

What is our position in Asia as compared to other continents? As far as the total World incidence is concerned, at the present time, Asia has recorded 36 000 cases in 1972 from January to September. This accounts for nearly 70% of the World's incidence i.e. 52 000 cases. The remaining 30% of the cases have occurred mostly in Africa. If we look back to last year we note that Asia accounted for approximately 48% of the global incidence, 5 years ago for 84%, and 10 years ago for 65%. We therefore see that in respect to other continents, Asia has not been in such a good position in the past, nor is at the present time.

When comparing the present situation in Asia with that existing in the past - what do we see? As concerns the incidence of smallpox in the continent, we note that 10, 5, 2 and 1 year ago the incidence was as follows:

<u>Year</u>	<u>Incidence</u>
1962	63 692
1967	111 340
1970	26 324
1971	25 200
1972(Jan-Sep)	35 599

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From these figures, together with the knowledge that 5 and 10 years ago notification was considerably less complete than at the present time, we can conclude that we are in a much better position in 1971 and 1972 than 5 and 10 years ago. However noting the figure of 36 000 cases recorded during the first 9 months of this year i.e. a 75% increase of cases as compared to the 20 000 cases which were recorded in the corresponding period last year, we can ask ourselves what countries are responsible for this higher incidence in Asia and what this increased incidence represents? India recorded a 66% increase in incidence as compared to the same period last year, Pakistan a 20% increase - Bangladesh has reported in 1972 more than 8 000 cases, whilst last year no case had been recorded from the country. Can we correlate this higher incidence with a downward trend in our activities? The answer is yes and no. On the negative side, we have for example more than 1 500 cases resulting from a major focus in Gulbarga district in the Southern Region of India in Mysore State, whilst last year only 223 were recorded in that State. We have more than 3 000 cases recorded from West Bengal State as compared to 392 in 1971. In both these above mentioned States we know that these figures are the result of either poor surveillance or insufficient control measures - coupled in West Bengal with a poor vaccination status of the population.

However, on the positive side we know that the increase of incidence in certain areas such as Sind Province in Pakistan, Uttar Pradesh and Bihar States in India is due to better surveillance and more complete reporting:

	<u>Year</u>	<u>Cases</u>
Sind	1971	579
	1972 (uptill Sep)	2 412
Uttar Pradesh	1970	1 024
	1971	4 862
	1972 (uptill Sep)	7 972
Bihar	1970	268
	1971	1 307
	1972 (uptill Sep)	4 474

Knowledge of precisely where the disease exists and has existed in the past is the first pre-requisite of progress in smallpox eradication. It is evident that if the health officials have no knowledge of the occurrence of cases, no action can be taken to combat outbreaks which therefore slowly continue unmolested until they attain epidemic proportions. At the present time we are putting much effort in the areas mentioned above whilst two years ago, their exact status was unknown due to under reporting and poor assessment of the situation.

What countries in Asia account this year for the present incidence? Of the 36 000 cases recorded uptill September this year, India accounts for approximately 62%, Bangladesh 22%, Pakistan 14%, Nepal 1% and Afghanistan and Indonesia less than 1%.

When noting that Afghanistan and Indonesia have accounted for less than 1% of the smallpox incidence in Asia, the most successful chapter of the smallpox eradication programme in Asia must now be opened, chapter entitled "What countries and regions have become smallpox free and where has a virtual interruption of smallpox transmission been achieved?" No cases have been reported in Thailand since 1963, in Sri Lanka since 1964 and in Burma since 1970. These countries have however reported from time to time a few imported cases which have been effectively dealt with. Although in Bangladesh major outbreaks are being presently combatted, we know that an intensive surveillance programme had resulted in a virtual interruption of transmission during the last quarter of that year. No cases were reported from that time till January 1972, although some undetected cases may have occurred in border districts.

In Indonesia 45 000 cases were officially recorded in the country in 1965 with 87% of the population living in endemic areas. An intensive eradication programme based on surveillance was initiated in 1968. Last year the incidence fell to 2 100 cases and this year only 34 cases from a localized outbreak in West Java occurred in January. In spite of the intensive nation-wide search no cases have been detected during the last nine months.

In Afghanistan since the start of the programme four years ago, a steady yearly decrease in the incidence has been observed resulting from a well-organized programme based on intensive surveillance and systematic selected vaccination. Since February this year all cases were due to importation of immigrants from Pakistan and their contacts.

We have therefore the proof that in a number of countries in Asia a smallpox free status has been achieved in spite of the many difficulties that had to be overcome - difficulties pertaining to logistics, unfavourable terrain, problems connected with the quality or quantity of staff and the frequent hinderances and delays due to too rigid administrative procedures. This gives hope and encouragement to those countries where smallpox is still endemic in Asia, i.e. India, Pakistan, Bangladesh and Nepal.

However even in these countries we are now able to delineate large areas which are smallpox free and others which appear to be nearing the point of interruption of transmission. Where are these areas? In India, the Southern, Western and Far Eastern regions are now recording a low incidence of smallpox. If we exclude the major outbreak having its focus in Gulbarga District, Mysore State which extended to some of the neighbouring districts of that State and of those of Andhra Pradesh, the South (Mysore, Andhra Pradesh, Kerala, Tamil Nadu, and Maharashtra States) accounts for only 1.6% of the total 1972 incidence in India.

If we draw a line across the centre of the Indian continent above Gujarat State through the centre of Madhya Pradesh and above Orissa, the total number of cases reported this year south of this line represents only 9.8% of the total incidence in India (this includes all the cases recorded in the 5 Southern States previously mentioned, Gujarat, and Orissa States and the 20 Southern Districts of Madhya Pradesh).

In the West, the States of Rajasthan, Punjab, Himachal Pradesh, Jammu & Kashmir including again Gujarat State account for only 7.9% of the total incidence reported in 1972. And yet two of these States were in the past considered smallpox disaster areas - Gujarat and Rajasthan States which recorded the highest incidence in India in 1969 (6 278 cases) and in 1970 (4 074 cases) respectively. Gujarat has only recorded 39 cases this year, all due directly or indirectly to importations. Rajasthan has reported this year 1 728 cases in comparison to the 4 821 cases in 1971 and during the last three months the figures has fallen to a very low level.

In the Far Eastern Wing only 18 cases have been reported from the 6 States in this area, 8 cases in Assam State, 6 in Tripura (the index case being from Bangladesh) and 4 suspect cases have also been recently reported in Arunachal Pradesh but these have still to be confirmed.

Thus we see that more than 80% of cases reported from India, originate from a northern belt extending from West to East which includes the States of Haryana, Uttar Pradesh, Bihar, West Bengal and the north-western districts of Madhya Pradesh.

In Bangladesh following a general assessment of the situation carried out early in the second quarter of this year, an active search revealed that more than 90% of the cases were occurring in four districts, Barisal, Faridput and Khulna Districts in the South West and Rangpur district in the North. Considerable progress has been made in the latter district and although small localized outbreaks have been reported from other districts during the past six months, at present 15 districts out of 18 account for less than 10% of the total incidence in Bangladesh.

In Nepal only 2 of the 14 zones of the country have experienced outbreaks this year resulting in 370 cases, 98 of these having occurred in 1971, but were reported in 1972. These outbreaks were recorded in the western region of the country, in Seti and Bheri zones where the SEP was only initiated in last 1971, contrary to the situation last year where outbreaks were only reported from the eastern region. In 1972, 6 districts have been affected, two-thirds of the active cases having occurred in one of these districts, Kailali district. Thus at the present time the vast majority of the country seems to enjoy a smallpox free state.

From the general bird's eye view of the present situation in Asia, I think that to my first question "How do we stand at the present time?" we can answer that we are in the same position as a gardener who after having taken out the weeds from wide areas of his lawn, plans how he can most rapidly pull out the weeds from the remaining bad patches before the seeds of these settle and grow over the cleaned areas. We are now able to pin-point and define priority areas where we must put in maximum efforts. It is no longer a question of stating that "smallpox is endemic in India" or that "smallpox is wide-spread in Pakistan", as was printed till recently in text books. We are now drawing up maps and charts showing which districts, blocks, or Thanas or Unions in the region are infected, which districts are reporting regularly, which Municipalities need guidance etc. We no longer have to fight on a vast battle field but can now concentrate our efforts to restricted areas.

We know that in the heavily infected northern belt in India certain districts account for a high percentage of the total incidence. Chart No.1 shows that 22 districts out of the 348 districts and Union territories in India accounted for 76% of the total incidence of India this year (January to September). Certain individual districts like Santhal Parganas of Bihar State and 24-Parganas in West Bengal account for a very high percentage of cases in their respective states. These 22 districts are continuously feeding other areas especially neighbouring districts with infected labourers and immigrants and thus creating new foci outside their borders. The source of infection of a number of outbreaks in the rural areas have similarly been traced back to a few town and cities of the country, one of the most notable being Calcutta city. If we take into consideration not only the number of cases that have occurred in these 22 districts, representing already 76% of the total incidence but also the outbreaks which occurred in other districts which were due directly or indirectly to importations from these highly endemic districts and municipalities, we know that a very high percentage of all the smallpox problems in India can be accounted for by a small number of localized areas. To the question "What is going wrong with our programme?" the most salient answer is that in India sufficient priority in terms of experienced personnel and transport has not yet been given to all highly endemic areas. Our past experience in surveillance has taught us that to eradicate smallpox, action must be taken by the right persons at the right places and at the right time. In the case of a war, victory can only be achieved if arms and troops headed by competent officers are rushed to the scene of battle whilst a general dispersion of the army results in failure. In the war against smallpox, sufficient staff and vehicles must also be temporarily transferred from smallpox free areas to a highly endemic ones and qualified personnel sent on the spot to confirm the diagnosis, investigate the outbreaks, organize the containment and search for further cases. But the multipurpose District Medical Officers are frequently unable to abandon their post at short notice, and for more than a few day's time - a number of them are not trained in the new methodology - many administrative difficulties also frequently hinder or delay such transfer of personnel and vehicles

from one district to the other. The experienced SEP central or state officials often cannot cope with a number of simultaneous outbreaks. Experience has shown that full time national and state surveillance teams - or mobile squads, fire-fighting teams as they are also called - can remedy the situation and both in endemic and non-endemic areas play the key role in smallpox eradication. Such teams are now being used in a few of the Indian States and 16 are functioning in Bangladesh where they have shown excellent results; four have recently been created in Nepal.

The future of the smallpox eradication programme in Asia is largely dependent on the quality and extent of activity deployed by the surveillance teams and the guidance and assistance given by the Central and State or Provincial programme officers. As concerns the endemic areas it is essential that priority be given to those districts and municipalities known to export cases - that epidemiological investigation of all outbreaks be made so as to determine where the other main foci of infection are - that rapid and complete reporting of both active and old cases and prompt cross notification be carried out to bring to light previously undetected infected areas. Considerable progress has been achieved during the last six months in certain endemic districts in India and endemic sub-divisions in Bangladesh and therefore it is a question of giving a final push during the coming season to bring the incidence in these areas to a low level. However, in others, surveillance activities have still to be understood, have still to be initiated.

In the large areas which we have noted as being smallpox free or where the incidence is at a low level, all efforts should be made so as to maintain the smallpox free status or achieve such a status as soon as possible. The task involved is to first ensure that the incidence is really as low as it appears to be. There are a number of districts in these areas where cases have not been reported this year but which have not been visited by Central or State level SEP staff for more than one or two years, and from where reports are only infrequently received. Regular and complete reports including 'nil' from these districts, as well as an assessment by active search for cases in these areas may well bring to light some unknown foci of infection and suspect cases. Each of these are to be thoroughly investigated by competent staff from the Central and State level and the clinical and epidemiological investigations should be assisted when necessary by the laboratory examination.

During this Seminar you will be getting detailed information on the progress made by certain programmes, the failures of others. Details on the manner by which a major city has remained free from smallpox - the manner by which a State recording a low incidence, experienced an important epidemic through lack of reporting. The manner by which certain highly endemic areas have achieved a low level incidence. The manner by which non-endemic areas have rapidly detected importations and traced back their source of infection. The

failures as you will see are not due to lack of vaccine, to lack of funds or to lack of manpower, but are for the most part due to lack of training, lack of organization, lack of inter-district coordination and lack of supervision.

Progress has been achieved by the implementation of methodology of smallpox eradication but above all by hard work. Work in the office drawing up, despatching and analyzing reports, work involved in organizing the transfer of personnel from one area to another etc., work in the field, checking that each man knows what he has to do and is doing it. Hours spent checking the containment of an outbreak, obtaining from an index case the source of infection of each outbreak. There is still much to be done in our region, but we are confident that we can intensify our efforts and that by working together we will achieve in the near future the eradication of smallpox in Asia.

Chart I
DISTRICTS RECORDING THE HIGHEST INCIDENCE
IN INDIA IN 1972

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<u>State</u>	<u>District</u>	<u>Jan-Mar</u>	<u>Apr-Jun</u>	<u>Jul-Sep</u>	<u>Total</u>	<u>Total State-wise</u> (uptill Sep)
BIHAR	Santhal Parganas	611	2 180	1 006	3 797	4 474
HARYANA	Hissar	455	402	15	872	1 506
	Ambala	240	154	9	403	
MADHYA PRADESH	Morena	87	209	33	329	1 005
MYSORE	Gulbarga	223	1 011	32	1 266	1 526
RAJASTHAN	Jaipur	101	281	23	405	1 728
	Bharatpur	106	333	2	441	
	Alwar	102	130	24	256	
UTTAR PRADESH	Budaun	514	455	39	1 008	7 972
	Shahjahanpur	442	543	20	1 005	
	Hamirpur	599	403	0	1 002	
	Bulandshahr	609	92	7	708	
	Moradabad	262	165	15	442	
	Sitapur	39	314	0	353	
	Hardoi	297	54	0	351	
	Meerut	383	10	0	393	
	Mainpuri	170	107	14	291	
	Agra	138	89	14	241	
Bareilly	132	78	28	238		
WEST BENGAL	24-Parganas	961	846	462	2 269	3 400
	Calcutta	36	119	237	392	
	Cooch-Behar	160	60	64	284	
ANDHRA PRADESH	Hyderabad	77	129	76	282	353
	<u>23 Districts</u>				----- Total: 17 028 =====	