From: Chief, Smallpox Eradication

To: Smallpox Staff

Subject: Progress Report 28 - Target Zero 9 December 1974

1.0 Introduction

The autumn saga of 1974 has been marked by weeks of unexpectedly rapid decreases in the number of pending outbreaks in Asia interspersed with weeks where there has been little or no decline. At present, we seem to be again in the latter phase. Does this signal the beginning of a phase where seasonally increased rates of transmission overbalance our capability to contain the outbreaks or does it represent but a pause in the countdown as we regroup to redeploy forces and to tighten up containment procedures and so recommence the countdown? In my view, it could and should be the latter, but there is no time to lose. Last year at this time, there were in Uttar Pradesh, for example, several Districts with substantially more pending outbreaks than are presently found in our now most afflicted Districts. However, with good search and containment, we were able to stop transmission in these Districts during the period December through February. Unquestionably, a greater effort is required during the winter months to insure containment of each outbreak, but the task can be accomplished.

With search activities now reasonably well-developed in most Districts and with market searches and the system of rewards serving to assure discovery of outbreaks missed in search, it seems to me that now is the time to deal far more rigorously with containment measures. In many areas, it seems to me, staff have not dealt with containment as rigorously as is now required. This is not surprising. During the summer and early autumn months, further spread of smallpox occurred only infrequently even when containment measures were less than optimal. Inevitably, emphasis shifted to improving the search procedures, sometime perhaps at the expense of the arduous and meticulous work required to assure 100% containment. With increased rates of transmission and more population movement, containment procedures which were effective in October are no longer so effective.

At this stage, and with the comparatively few outbreaks we have, every patient must be subjected to 24 hour guard and, as required, food provided to the families to provide further incentive for them to stay put. If the guard is fully effective, every subsequent contact will be protected by vaccination. But frequent supervision by epidemiologists and senior staff is mandatory if the system is to work. Then begins the now necessary but arduous task of tracing all contacts of the patient from the time of onset of rash. This procedure is in effect in some areas but, as of the time of my visit two weeks ago, it was not in effect everywhere. These additional measures coupled with vaccination, area search, source tracing, etc. should insure a resumption of the sharp downward trend.

Most important now is for each epidemiologist to consider each new outbreak as being indicative of a possible failure in the system. The question for each outbreak must be asked - "Why did this outbreak occur and what should be done to prevent a repetition of the episode?"

2.0 Countdown

From early August until mid-October, the number of pending outbreaks *decreased at a remarkably stable 14% per week - a trend which if maintained* would result in a first '0' sometime in late March or early April. But, suddenly, in mid-October, the countdown accelerated in speed in India and a wave of optimism permeated the meetings that a first '0' in January might be achieved. Then, in mid-November, the number of outbreaks in Bangladesh

increased in number and during the past 7 to 10 days, the number of outbreaks in the Indian States has failed to show a decrease. Nevertheless, the total of pending outbreaks on the subcontinent is now essentially what one would have expected if the 14% per week decrease had continued from August to date. Assuming this trend were to resume, what might we expect in numbers each month?

	end November (week 48)	end December (week 52)	end January (week 5)	end February (week 9)
Assam	29	16	7	0
Bihar	240*	131	61	33
Uttar Pradesh	48	26	12	6
Other States	12	7	3	0
Bangladesh	128	70	33	18
	457	250	116	57

With transmission estimate rates gradually increasing at this season, it is clear that these figures must represent "maximum" (upper limit) goals over the coming months if we are to succeed. For Bihar and Bangladesh, a more rapid pace than that shown here would be important to assure that all areas progress at a more even pace.

3.0 The main problem areas

3.1 Mymensingh and Rangpur Districts, Bangladesh - 117 pending outbreaks

The problem in Bangladesh is almost wholly confined to these two Districts - not surprisingly, the two most seriously afflicted by famine. Beggars, moving in large numbers from place to place, have served to spread the disease with unexpected rapidity. Where local health staff have been grossly negligent, the problem has been compounded. Outbreak detection has generally been prompt, but containment has been weak. An effective system of guards at the door of every infected house, provision of food to infected patients and their families, more extensive forward tracing of contacts and much more intensive supervision of containment measures was obviously required and these measures have been implemented. The efficacy of these measures, however, will not be known until perhaps mid-December, but I would be hopeful that a downward trend in outbreaks would soon resume.

3.2 Purnea, Katihar and Saharsa Districts, Bihar - 59 pending outbreaks

Three contagious Districts in north-eastern Bihar which at the end of June recorded almost 1 000 pending outbreaks and, as recently as the end of August, 850 outbreaks. This was the most heavily afflicted area on the subcontinent this spring and still remains moderately heavily seeded with smallpox. Containment measures until very recently were necessarily less rigorous because of the number present. These will now need to be supervised much more closely to insure a continuing downward trend.

3.3 Rohtas, Bhojpur, Patna, Gaya and Ourangabad - Bihar - 108 pending outbreaks

Five contagious Districts in west central Bihar which were not so heavily afflicted this spring as Purnea-Katihar-Saharsa and now may be potentially the most serious problem area on the subcontinent. With less smallpox in the spring, overall immunity may be assumed to be lower than in the north-eastern and southern Districts and the potential for spread that much greater. Of special concern is Gaya District now with 43 pending outbreaks or almost as many outbreaks as all of

Uttar Pradesh State.

4.0 Ethiopia

Operation Crocodile commenced on 15 November with one helicopter and 18 staff in Gojjam Province, and one helicopter with 32 staff in Begemdir. Other teams are continuing intensive work on foot and muleback in Shoa and Wollo Provinces pending transfer of the helicopters to these areas and skeleton surveillance teams are continuing surveillance in areas now believed to be smallpox-free.

Reports of work since 1 November and including two weeks activities with the helicopters have just been received. The Provinces are divided into "debras" which are more or less the equivalents of villages with populations of 400 to 800 persons each. In Gojjam Province, there are 781 debras of which 268 have now been searched and, in the process, 58 000 vaccinations given. Only three smallpox cases were discovered. It is expected that operations in Gojjam can be concluded by end December and the areas of northern Shoa will then be dealt with. In Begemdir Province, 147 debras have been searched, but no smallpox cases were found. Operations are expected to be concluded by 10 December at which time, the helicopter and many of the teams will move to Wollo Province.

Since 1 October, only 320 cases of smallpox have been detected in Ethiopia, a decrease of 63% from the 867 cases recorded during this same period last year. Thus far, the outbreaks discovered have been small and located in remote and isolated villages. If this situation continues to prevail, programme staff feel that transmission could be interrupted by late February or early March.

5.0 Conclusion

Never in history has smallpox been so restricted, both in extent and in numbers of cases. For the first time, we have sufficient staff, sufficient transport and sufficient money to finish the task. It's now up to each of you in the field. With an heroic effort during the coming few weeks, it would seem to me that there is every reason to believe that we could record one first '0' worldwide no later than the end of March.

6.0 Number of active foci

	Tabulation on 31 July	Tabulation on 30 Sept.	Tabulation 4 November	Tabulation 9 December
Bangladesh				
Mymensingh District	254	149	34	66
Rajshahi District	113	29	3	0
Rangpur District	135	39	19	51
All Others	85	63	22	11
	587			
Pakistan				
Punjab Province	35	5	3	0
Sind Province	47	3	0	0
NWFP - Baluchistan	8	0	0	0
India				
Bihar	4 177	1 748	695	261
Uttar Pradesh	1 669	274	133	48
West Bengal	436	46	12	2
Madhya Pradesh	47	1	0	1
Assam	87	52	60	27
All Others	76	16	6	8
TOTAL	7 169	2 425	987	475

DR. P. A. KOSWARA

It is with sadness and a sense of profound personal loss that I convey to you the sad news of the death of Dr. P. A. Koswara, a colleague who contributed so greatly to the global eradication programme. Dr. Koswara died suddenly on 18 November in Addis Ababa of a myocardial infarction.

As Director of the Indonesian Smallpox Programme from its inception, Dr. Koswara was a tireless worker and a principal driving force in establishing the programme on a sound footing. At the earliest point in the global programme when so many were doubtful of the surveillance-containment strategy, and favoured the older concept of mass vaccination, he had quickly grasped the essentials of this approach and brilliantly implemented the strategy in Indonesia. The effectiveness of these efforts may be summarized simply by saying that only 43 months elapsed between the beginning of the Indonesian programme (July 1968) and the onset of the last case (January 1972). Among many innovations stemming from this programme, it was Dr. Koswara and his colleagues who first demonstrated the considerable value of surveillance in the schools, and it is he whom we must thank for the idea of the Recognition Card, now universally employed in all programmes. A particularly vivid personal memory is of a seminar in New Delhi in December 1970, when Dr. Koswara presented a paper "Is routine vaccination a necessity in a smallpox eradication programme?". The paper brought a storm of criticism from many at the seminar when he concluded: "the author demonstrates that proper surveillance-containment action brought smallpox under control (in West Java) in a short period while on the contrary, routine vaccination and mass vaccination campaigns had little effect in interrupting transmission." He staunchly defended his contention - and 13 months later Indonesia detected its last case.

In 1972, Dr. Koswara joined WHO as an epidemiologist with the smallpox campaign in Ethiopia, where he assumed principal direction for the programme in the difficult northern provinces. Despite all too few staff and staggering problems of transport and communication, he worked tirelessly and imaginatively to develop a sound programme and to inspire an always overtaxed field staff. His efforts, with those of his colleagues, have brought Ethiopia today to the point where the interruption of smallpox transmission within months is a foreseeable objective.

We will greatly miss one of the most determined and dedicated workers who has fought with us the battle of smallpox eradication. More, we will miss a truly good friend and respected colleague.