The Post-War Tuberculosis Program in the Philippines

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Introduction

The problems faced by the Philippine Commonwealth government at the end of the Second World War included not only those resulting from actual hostilities, but many problems arising from the failure of the Public Health program before the war broke out. In 1941 this program had deteriorated badly and equipment was already obsolete. As a consequence, the danger of large-scale epidemics was great by 1945. The United States came to the assistance of the battered country shortly after the war ended; a budget of $5,000,000 was appropriated for public health rehabilitation. Of this sum, $1,000,000 was specifically set aside for tuberculosis control, since this had long been one of the chief public health problems in the Philippines. The fund was to be administered by the Department of Health of the Philippine Commonwealth and the United States Public Health Service; the Philippine government obligated itself to carry on the program alone at the end of five years.

The tuberculosis control program was worked out by Dr. Leroy K. Young, of the United States Public Health Service, and representatives of various local organizations interested in tuberculosis control. The writer was present representing the director of the Bureau of Health. It was realized by all concerned that the sum allotted was small, in terms of the size of the population (about 20,000,000) of the Philippines, and the seriousness of the tuberculosis hazard. Various approaches were considered, but it was finally decided to adopt Dr. Young's suggestion, and concentrate upon the control program which was proving so successful in the United States at that time—mass chest radiography.

Results of Large-Scale Chest X-ray Survey

In a period of five years, about 1,000,000 people were x-rayed by mobile units or at permanent chest examination stations. Approximately 9 percent of those examined were found to be suffering from tuberculosis of the lungs. If this rate persists throughout the entire population, it would mean that about 1,800,000 people in the Philippines have active and contagious tuberculosis. Fortunately, there is reason to believe that this rate is not typical of the whole population, but there was confirmation of what was already known, that tuberculosis is a major Philippine health problem.

The survey was otherwise of little consequence, even among those who received x-ray films. For the most part, the active cases of tuberculosis were confirmed and then released. There were no facilities for isolation; we had neither the sanatorium beds nor personnel. The great majority of
these known tuberculous individuals remain untreated, uncares for, unisolated, and free to continue spreading infection. It has even proved impossible to provide medicine and supplementary food for these known cases of clinical disease. This episode became another example of how excellent public health programs can become ineffective and wasteful when they are designed without regard for local conditions.

Further Public Health Measures—BCG

Since we were unable to deal with the cases of tuberculosis that we had, it was obviously foolish to continue to concentrate our program on further case finding, and we were forced to reconsider our approach. The same problem, grossly insufficient funds, remained. At this juncture, BCG was suggested and favorably received. It was felt that since the facilities for isolation, treatment, and education were lacking, immunization was the one remaining approach, offering substantial possibilities. Financial and technical assistance on such a program might be available, it was felt, since the World Health Organization was interested in BCG.

The World Health Organization encouraged this program, and soon after the Philippines became a member, it made available the personnel necessary to begin the undertaking. Dr. Gumersindo Sayago, of Cordoba, Argentina, was among the first workers to arrive; he spent six weeks visiting local chest centers, holding conferences with medical groups, and conducting a two week training course for Philippine medical personnel.

Even before the war BCG had been used in the Philippines, but only on a small scale. Those interested in this early program, including myself, were not particularly impressed with the vaccine at the time, and were inclined to oppose the large-scale program. However, in some degree because of the influence of the World Health Organization, the Philippine government and powerful social groups became enthusiastic. The findings of the early Philippine experiments were neglected in favor of the apparently encouraging reports from South America and Europe. BCG became the official tuberculosis control program of the government and absorbed a great share of the financial resources available. Attempts to reexamine the question have been promptly and firmly discouraged; the writer's protests against the enthusiasm BCG has generated have been bitterly attacked both by officials concerned with the program and by local health leaders.

BCG in the Philippines—Its Feasibility

The writer's interest in BCG is not new; it began about 25 years ago at the Sixth International Conference on Tuberculosis, held in Rome in 1928. Following that conference, and a tour of the leading tuberculosis centers of Europe, the writer summarized his objections to BCG as follows:

"What should be the attitude of Philippine workers toward this vaccine? The controversy which BCG has occasioned would not be so serious if the question raised by its opponents concerned merely the effectiveness of the vaccine. But can we really consider the use of this control measure when
acknowledged authorities seriously question its safety? Are we justified in subjecting—to borrow the word of von Pirquet—the next generation to the uncertainties surrounding such a vaccination? We must not allow ourselves to be overcome by a well-meaning desire to be pioneers in this new treatment, this biological novelty that promises nothing short of the elimination of the white plague from the whole world."

The writer has been interested in BCG since that time. Literature on the subject has been followed sympathetically; prejudice against a control measure is impossible, if it works. Tuberculosis is our leading health problem in the Philippines and the "number one" killer of our people. If the vaccine could be demonstrated to be as effective as its proponents have claimed, its service in these islands would be incalculable.

However, the status of BCG has not materially improved since 1928. The basic questions raised at the Sixth International Conference are still the basic questions; they have not been answered. In all the publications on the subject since that date there is little that touches upon the fundamental immunizing principle of BCG. There is a tremendous amount of information upon its stability, standardization, optimum dosage, dried versus fresh vaccine, methods and routes of injection, and tuberculin criteria and conversion. The writer searched in vain, however, for new views and fresh research on the great question—the nature of its supposed immunizing properties.

Doubts on this matter can be reduced to six main heads:

(a) What is the nature of the immunological process that is provoked by the entrance of BCG into the human body?
(b) How does BCG respond in standard tests of immunology?
(c) Why is not BCG effective against bovine tuberculosis?
(d) Has BCG even been conclusively proved to be what it is alleged, a strain of attenuated bovine-type bacilli?
(e) Why should it be a hazard in the presence of pre-existing allergy?
(f) What has been clinically established of the effectiveness of BCG?

(a) The Nature of the Immunological Processes that are Provoked by the Entrance of BCG into the Human Body. Immunity to a particular disease results from the acquired ability of body tissues to destroy invading germs by intracellular digestion (phagocytosis of Metschnikoff) or by extracellular digestion (phagolysis of Pfeifer). It is a fundamental principle of preventive medicine that such immunization is always specific. Why should tuberculosis be the exception to this principle; why should we inoculate for human tuberculosis with bovine bacilli?

(b) BCG in the Light of Other Immunological Tests. It is sufficiently established that the blood serum of animals immunized to a given bacterium develops biological products not found in the serum of non-vaccinated animals. One of these elements is specific precipitins (Kraus); when the blood serum of an animal immunized against a given bacterium is mixed with a culture filtrate of emulsion of that same organism, a "precipitate" or protein deposit results. Specific agglutinins (Gruber and
Moeller's work has been studied, and the vast literature and the large number of experiments done on BCG pass the question by—significantly, we think.

(c) The Effectiveness of BCG in Bovine Tuberculosis. The seriousness of the failure of BCG to meet standard immunological tests is magnified by its peculiar failure to confer immunity where such immunity would most reasonably be anticipated—in the treatment of cattle. Again, literature is apt to be non-contributory so far as concrete evidence is concerned. The most prominent fact is that in the countries, such as the United States, where bovine tuberculosis is under firm control, this has been accomplished without vaccination. BCG was given extensive trial but did not seem to be efficacious among cattle. The Joint FAO WHO Panel on Brucellosis on the subject of bovine tuberculosis concluded the following:

"Vaccination of livestock, particularly with BCG, may be considered a temporary expedient, applicable under certain conditions of economic hardship when it is necessary to reduce the spread of the disease before eliminating the infected animals. Vaccination has its disadvantages: it may create an allergy non-distinguishable from natural infection; intravenous injection of BCG—which sometimes replaces subcutaneous injection—may produce local or general reactions. Vaccination must therefore be used with caution."

The plain fact is that in no instance has bovine tuberculosis been controlled by the use of BCG. Surely this compound cannot be taken seriously among scientists until some explanation is advanced to explain this unique finding, that a vaccine is more effective against a related but distinct organism than it is against its own parent strain.

(d) Is BCG Conclusively Proved to be a Strain of Bovine-Type Bacillus Rendered "Non-Pathogenic"? In contemplating the scientifically incommensurable findings that have been advanced for BCG, we have occasionally been assailed by a grave misgiving. Are the organisms in this vaccine really attenuated bovine bacilli at all? Or are they only saprophytes, such as Moeller's Timothy Bacillus? We have been assured that this doubt is fantastic, but if so, this can readily be demonstrated. The "personality" of BCG can easily be established by repeating the experiments of Calmette and Guerin and duplicating their results. In the many years that BCG has been studied, this simple procedure has never been done; all of our BCG serum is derived from the original experiments.

(e) The Positive Untoward Effect of BCG when Injected into Persons with Naturally-Established Tuberculin Allergy. By all immunologic criteria, a person who is tuberculin-allergic should be one who has a pre-existing tuberculosis infection and thereby already possesses the blood elements which confer specific resistance to subsequent infection. Physicians are constantly cautioned that BCG should not be administered to such persons."
Why? If BCG consists of non-pathogenic bovine tubercle bacilli, as is claimed, there is no conceivable immunologic theory that could account for untoward effects in this instance. Obviously, untoward effects are to be feared. The only situation in which such effects might be feared is if human tuberculosis were so different from bovine that it could not immunize against the latter, but provided instead a fertile situation for bovine pathogens of a low grade of virulence. It would require, in other words, the assumption that some degree of virulence was present in BCG.

(f) The Positive Role of BCG in Reducing Clinical Infection. The proponents of BCG do not spend much time in a defense of the theory underlying the preparation; in this instance, scientific understanding and control are of less interest than clinical evaluation. But even here unscientific methods make published results of dubious value.

The most enthusiastic reports on BCG came from South America. I think most students would admit, however, that the failure to provide adequate control groups makes these experiments of little value as evidence for BCG.

Most weight is given to the widespread use of the vaccine in the Scandinavian countries, France and Japan. In any of these situations, it is foolish to credit BCG with all progress, without evaluating other factors. In Sweden, for instance, the part played by an increased standard of living and education on the falling morbidity rate is perhaps palpable, but it is certainly large. In France the situation is similar. Anderson, in a paper presented to the National Tuberculosis Association in 1950, commented on BCG in that country as follows:

"In view of the attitude toward BCG, which has been maintained in this country for so many years, it appears that we have something of an obligation to answer our own question and to prove, before it is too late, just what this vaccine could do in our population. We have before us, the example of France, where BCG vaccination was begun nearly thirty years ago, where compulsory legislation was enacted last year, and yet where no reliable data could now be obtained, as to what part BCG has played in the history of tuberculosis in the country as a whole. We cannot give unqualified credence to the assertion, that a general marked decline in tuberculosis morbidity and mortality in France and Denmark or any other country where BCG has been used, constitutes evidence that BCG was effective."

In Japan a campaign of inoculation has been undertaken with the most exaggerated claims advanced as to its effectiveness. Of the conviction advanced there by individuals on the SCAP staff and local public health leaders, that BCG could arrest the increasing incidence of tuberculosis and prevent the appearance of all but a few new clinical cases, Myers wrote, "Such a result has never been approached anywhere by the use of a vaccine." According to Dr. Akira Saita, in a statement made in September, 1951, "Tuberculosis is the major disease in Japan today, and is causing the greatest number of fatalities." He added that deaths due to tuberculosis were about 150,000 yearly, with 10 times that number of active cases.

It is somewhat surprising to find proponents of BCG using the World
Health Organization's vaccination of 50,000,000 children as evidence for BCG's further use. The effect of this mass inoculation has not, and cannot be, evaluated. As evidence for or against BCG, it can be anticipated with confidence that this program will always be meaningless. The diverse training of technicians, the lack of standards for interpretation, most especially the lack of a system of controls, guarantees that the results of this gigantic undertaking will always remain an enigma.

It is our conviction that in none of these instances has the effectiveness of BCG been put beyond dispute. Most of the large-scale applications have been debated for 10 years, and authorities on tuberculosis remain unconvinced. No other tuberculosis control measure has been so questionable after such a long period of use. The opponents of this measure are being asked, for the time being, to stop being men of science; to accept this vaccine without the rigorous demonstrations of its harmlessness and effectiveness that are demanded of other medical preparations.

Conclusions

The writer is quite aware of the fact that this article will be interpreted as another hypercritical attack on BCG. However, personal considerations should not be allowed to influence judgment upon so important a matter. It is our dispassionate conviction that BCG has not proved itself elsewhere, and there is no reason to anticipate that it will have any greater effect in the Philippines than it has had in Japan. It is particularly unfortunate that this remedy should appear hard on the heels of our disappointment with mass surveys. BCG represents a continuation of our effort to deal with tuberculosis without taking into account the local conditions in which the disease is generated.

All students would agree, of course, that the factors which contribute to our high morbidity and mortality rates can be adequately summarized in one word: poverty. On the one hand, there is ignorance of the most elementary sanitary methods, malnutrition and overcrowding; on the other hand, lack of facilities for isolation and treatment of known cases of disease, lack of trained personnel, and even lack of finances for medication.

In this situation, it requires no very great amount of imagination to devise a health program that could be guaranteed, over a period of time, to accomplish our ends. It would involve the following:

(a) Nation-wide education in sanitation and domestic science.
(b) A program of hospital construction simultaneous with case-finding work.
(c) A vigorous government program directed to improvement in the standard of living, including provision for housing and social security measures designed to eliminate malnutrition.

All leaders in public health would agree that these measures are the fundamental ones to tuberculosis control; perhaps all would agree that tuberculosis will remain with us as a serious public health problem, BCG or no, until these measures are undertaken. There is, nevertheless, no concerted drive at the present time for such a program.
The fact is that public health officers are trying to be doctors and legislators at the same time. As men of medicine it would seem that their one duty is to diagnose the problem and prescribe the best treatment; it is up to the Philippine Commonwealth to meet the prescription as best as it is able. The medical profession should be inflexible in its diagnosis; it does not dare encourage the laymen responsible for implementing its program with false confidence in less than the most desirable way of meeting the problem. If money must be had for an adequate public health program, a lot more will be available than first appeared possible.

Instead, our medical officers are being “realistic”. Their attitude is well summarized by the following:

“As a public health man, I consider tuberculosis in this country a major epidemic, which requires immediate and drastic measures. The tested methods of hospitalization and treatment are beyond our means. Education, another tested weapon, is too slow . . . . It seems reasonable, therefore, to try BCG vaccination en masse. It is the cheapest and only measure within our means.”

I suggest that it is not “reasonable” to substitute a remedy of doubtful effectiveness, an unknown quantity, for the tried and proved remedy because the latter is “too expensive”. No doctor would consider such an approach in dealing with a patient. When a patient suffers from an operable malignancy, the doctor must insist upon the necessity of the operation. To encourage such a patient to have faith in an antibiotic because he could not afford the operation would be dereliction of duty. Yet that is exactly what we do as public health officers.

It is our obligation to describe the methods necessary to the accomplishment of the objective, the elimination of tuberculosis, and then to administer the outlined program to the full extent permitted by the funds made available. We are not legislators, calculating on the basis of what is legislatively desirable. It is generally agreed that a broad program of public health is the surest and, in the long run, the quickest way to achieve our objective. It is our duty to insist upon this fundamental fact without compromise and without allowing the problem to be obscured by unproved short-cuts. Many years ago Professor Vaughan of Ann Arbor said concerning tuberculosis in the Philippines:

“I went through your tenement districts yesterday and I want to say quite emphatically that as long as such districts continue in your city and in your country, you are not likely to get rid of tuberculosis. I went up to a house and I found there was no light except that which came through the doorway. I went to the kitchen, and I saw the conditions under which the food was prepared. I want to say frankly that I do not believe that you can do very much in the eradication of tuberculosis in this country as long as such tenement houses exist.”

There is no evidence at this time that BCG fundamentally alters Dr. Vaughan’s analysis. Poverty is still the problem. BCG can only waste money, however, little, that might otherwise be used to combat the disease at its root, and it can only encourage laymen in the false conviction that
a short-cut can be found. In view of the knowledge available about BCG, any public health agency which considers making specific recommenda-
tions for a mass BCG program assumes a large responsibility.

SUMMARY

1) During a recent five year period, 1,000,000 persons in the Philippines were examined and approximately 9 per cent were found to be suffering from tuberculosis. While this is probably a higher percentage than exists throughout the Islands, it is a reasonably good criterion of the magnitude of our problem.

2) When these cases were found, facilities were not available for isolation or adequate treatment so they remained free to continue spreading infection. It was not even possible to provide medicine and supplementary food for them.

3) BCG had previously been used in the Philippines on a small scale but without impressive results. However, it was suggested and strongly encouraged by the World Health Organization as the method of solving the problem.

4) BCG has become the official tuberculosis control program and has absorbed a great share of the financial resources available to combat tuberculosis.

5) Nowhere has the effectiveness of BCG been placed beyond dispute. Authorities on tuberculosis remain unconvinced of its value. Opponents of BCG are asked for the time being to stop being men of science but to accept this vaccine without the rigorous demonstration of its harmlessness and effectiveness that are demanded of other medical preparations.

6) BCG has not proved itself elsewhere and there is no reason to anticipate that it will do so in the Philippines. It can only waste money that might otherwise be used to combat the disease at its roots and it can only encourage laymen in the false conviction that a short-cut can be found.

7) The only program that offers any promise of controlling tuberculosis in the Philippines consists of nation-wide education, sanitation, hospital construction for isolation simultaneous with case finding and a vigorous government program directed to improvement of the standards of living. Until these measures are undertaken, tuberculosis will remain with us as a serious public health problem, BCG or no. It is our duty to insist upon the fundamental program so successfully employed elsewhere and to avoid unproved short-cuts.

RESUMEN

1) Durante el último periodo reciente de cinco años se examinaron 1,000,000 de personas en las Filipinas y aproximadamente se encontró que 9 por ciento sufrían tuberculosis. Si bien este es un porcentaje más alto que el que existe en todas las Islas, es un criterio razonable para estimar la magnitud del problema.

2) Cuando se encontraron estos casos, no había facilidades para el ais-
lamiento o el tratamiento adecuado, de manera que continuaron disemi-
nando la infección. Aun el proveerlos de medicinas y alimentación suplementaria no fué posible.

3) El BCG, se habla usado previamente en pequeña escala, pero sin resultados impresionantes. Sin embargo, su empleo fué sugerido y fué alentado por la organización Mundial de la Salud, como el método adecuado para resolver el problema.

4) El BCG, ha venido a ser el método oficial para dominar la tuberculosis y ha absorbido una gran parte de los recursos financieros existentes para combatir la tuberculosis.

5) En ninguna parte se ha demostrado la efectividad del BCG. Las autoridades en tuberculosis permanecen no convencidas de su valor. A los opositores del BCG, se les ha pedido que por el momento dejen de ser hombres de ciencia y que acepten esta vacuna sin la rigurosa demostración de inocuidad y efectividad que se piden a otras preparaciones médicas.

6) El BCG, no ha dado pruebas de eficacia en otras partes y no hay razón para prever que así resulte en las Filipinas. Sólo puede consumir el dinero que podría emplearse de otra manera para erradicar la enfermedad y puede sólo alentar alas personas fuera de la profesión en la convicción falsa de que puede encontrarse un camino más directo.

7) El único plan que ofrece alguna promesa de dominar la tuberculosis en las Filipinas, consiste en la educación amplia, la mejoría sanitaria, la construcción de hospitales para el aislamiento simultáneo con el descubrimiento de los casos y un plan de gobierno tendente a la mejoría del nivel de la vida.

Hasta que estas medidas se pongan en práctica, la tuberculosis permanecerá entre nosotros como un serio problema de la salubridad, ya se use el BCG o no. Es nuestro deber insistir sobre el plan fundamental tan satisfactoriamente empleado en otras partes y evitar no demostrados caminos breves hacia la meta.

RESUME

1) Pendant ces cinq dernières années, 1,000,000 d’individus ont été examinés aux Philippines et on dénombre parmi eux environ 9% de tuberculeux. Bien que ce pourcentage soit probablement plus élevé que celui de l’ensemble des isles, il représente legiquement un bon critère de l’amplitude du problème.

2) Après l’identification de ces cas, il n’a pas été possible de leur donner les facilités d’isolement ou de traitement et ils persistèrent à semer la contagion. Il n’a même pas été possible de leur accorder des médications et un supplément de nourriture.

3) Le B.C.G a été utilisé précédemment aux Philippines sur une petite échelle, mais sans résultats impressionnants. Toutefois, il a été conseillé et fortement encouragé par l’Organisation Mondiale de la Santé comme le procédé susceptible de résoudre la question.

4) La vaccination par le B.C.G. est devenue le programme officiel de la lutte contre la tuberculose et a absorbé une grande part des ressources attribuées à cette lutte.
5) Nulle part le B.C.G. n'a été considéré comme ayant une efficacité indiscutable. Des personnes qui font autorité en phthisiologie n'ont pas été convaincues de sa valeur. On demande à ceux qui s'opposent à la pratique du B.C.G. de cesser pour l'instant d'être des hommes de science et d'accepter ce vaccin sans avoir la démonstration d'innocuité et d'efficacité que l'on demande aux autres produits.

6) Le B.C.G. n'a fait, en aucun autre lieu, le preuve de son efficacité et il n'y a aucune raison d'imaginer qu'il en sera autrement aux Philippines. Il ne servira qu'à gâcher les ressources pécuniaires qui auraient pu d'une autre façon être utilisées à s'attaquer aux racines du mal. Il ne servira qu'à répandre la fausse conviction qu'il est capable de simplifier la lutte contre la tuberculose.

7) Le seul programme qui offre quelque espoir de vaincre la tuberculose aux Philippines consiste en une éducation sanitaire étendue, en la construction d'hôpitaux permettant l'isolement des malades à mesure qu'on les dépiste et en une action gouvernementale énergique pour l'amélioration du standard de vie. Tant que ces mesures n'auront pas été mises en route, la tuberculose restera un grave problème de santé publique, qu'on utilise le B.C.G. ou qu'on ne l'utilise pas. L'auteur considère que son devoir est d'insister sur le programme fondamental qu'il estime avoir été la cause des succès obtenus dans les autres pays et d'ôter l'utilisation de procédés dont l'efficacité n'a pas été démontrée.