Memorandum on measles.

FOR OFFICIAL USE.

MEMORANDUM

ON

MEASLES.

LONDON:
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LOCAL GOVERNMENT BOARD,
WHITEHALL, S.W.
10th April, 1911.

SIR,

MEASLES IN LONDON.

I AM directed by the Local Government Board to state that they have had under consideration the present outbreak of measles in London, and that on the suggestion of the President their Medical Officer has conferred with the Medical Officers of the London County Council and of the various Borough Councils as to the measures which may be taken for dealing with it.

Memorandum on Measles.

At the conference the view was generally expressed that Sanitary Authorities have been hampered in their efforts to check the spread of the disease by the absence of early information of cases, and the question was considered whether this difficulty would be removed if measles were made a notifiable disease.

On this question widely divergent views as to the value of notification were shewn to exist. A very large number of cases are not attended by a doctor, and it was pointed out that in such cases the adoption of the Notification Act would be a dead letter.

It may also be observed that the notification of measles has been tried in a large number of towns and then abandoned.

Without therefore expressing any view on the question whether the notification of measles would be justified, it is clear that such other means of obtaining information as are available should be fully utilised.

The Board find that the School Attendance Department of the London Education Authority have supplied much valuable information as regards measles in the past, and in view of the proceedings at the conference, it appeared to the Board that it might be practicable to arrange that this source of information should be made more readily available.

On this question the Board have consulted the Board of Education, and it has now been arranged that so long as the present emergency lasts the School Attendance Officers will give speedy information to the Medical Officers of Health of all cases of illness coming under their notice. It is hoped that, by this means, early information of the majority of cases of measles will reach the Medical Officers of Health.

The information thus obtained will necessarily require to be followed up. Probably many cases will be reported which are not measles, and arrangements should be made for obtaining a proper diagnosis, for securing that the cases are properly isolated, and for urging on the parents the need of obtaining medical aid where such aid is required.

No doubt the Council's official who visits the home will be able to do much in the way of giving advice as to the care and nursing of the patients.

Removal to Hospital.

The Board have been in correspondence with the Metropolitan Asylums Board, and it is understood that that Board will agree to receive cases of measles on the recommendation of the Medical Officer of Health. The accommodation of the Metropolitan Asylums Board for this purpose is necessarily limited, and arrangements will be made by which preference will be given to those cases most needing hospital treatment.

The Board may also remind the Borough Council that they have power to provide temporary hospitals, and if at a subsequent date the amount of accommodation for measles which is available in the hospitals of the Metropolitan Asylums Board should come to be exhausted, this power might have to be utilised.

(19530—21.) Wt. 43112. G 29. 200. 4/11. D & S.

Staff required for dealing with outbreak.

For dealing with this outbreak and properly following up the information which will be obtained it is essential that each Medical Officer of Health should be provided with an adequate staff, and the Board trust that the Council will at once appoint any additional temporary assistants (medical and other) that may be required.

At the same time I am to enclose a copy of a Memorandum which the Board's Medical Officer has prepared on the subject of measles.

I am, Sir,

Your obedient Servant,

H. Monro

Secretary.

To the Town Clerk.

MEMORANDUM ON MEASLES.

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MEMORANDUM ON MEASLES.

1. *Preliminary.*

The present Memorandum is intended to summarise for purposes of sanitary administration our knowledge of this disease, to state briefly the difficulties in controlling its spread, and to indicate some of the more promising methods of control which are available under present circumstances of administration. For fuller details on some of the points raised in this Memorandum, reference should be made to the special report by Dr. Theodore Thomson as to Means for Obtaining Control of Measles, which was published in the Annual Report of the Medical Officer of the Board for 1894–5; and to the Joint Memorandum of the Medical Officers of the Local Government Board and of the Board of Education on Closure of and Exclusion from Schools.

2. *Heavy Mortality from Measles.*

Measles chiefly occurs in childhood, and, so far from being a mild and negligible disease, causes a very high proportion of the total deaths in the first five years of life.*

Its total death-toll in the Metropolis is heavier than that caused by the aggregate of all the acute infectious diseases, which, being compulsorily notifiable, are in greater or less degree under administrative control. In the five years 1905–09 measles caused in London 9,301 deaths, while all the infectious diseases at present compulsorily notifiable (including smallpox, scarlet fever, diphtheria, enteric fever, &c.) caused 8,585 deaths.

The mortality from measles is not, moreover, a complete index of the mischief wrought by it. Measles is a frequent cause of retarded growth and development and of ill-health; it often lights up latent tuberculosis; and deafness and defects of eyesight are in many instances attributable to it.

In large centres of population, epidemics of measles occur about every second year with almost automatic regularity; and at longer intervals, for reasons which are obscure, these epidemics are more serious and fatal in character, as during the first quarter of 1911.†

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* Thus, in London during the five years 1905–09, measles caused 2·7 per cent. of the total deaths from all causes in the first year of life, 18·0 per cent. in the second year, 17·9 per cent. in the third year, 15·5 per cent. in the fourth year, and 13·8 per cent. of deaths from all causes in the fifth year of life. At ages 5–10, it only caused 4·9 per cent. of the deaths from all causes, and very few deaths at higher ages.

† This is illustrated by the following comparative figures for London (only weeks in which more than 80 deaths from measles occurred are given).

Number of Deaths in weeks of highest mortality from Measles in London.

Year.	
1911	... 95, 86, 103, 132, 136, 175, 197, 182‡.
1910	... 85, 94, 113, 83, 90, 83.
1909	... 82, 93, 94, 92, 105, 129, 118, 94.
1904	... 86, 81, 86, 83.
1898	... 130, 134, 130, 80, 87, 100, 106, 115, 141, 134, 143, 115, 109, 117, 131, 107, 99, 82.
1897	... 87, 120, 108, 122, 134, 112, 166.

‡ Up to the week ending March 25th, 1911.

The efforts hitherto made to control measles, so far as can be seen, have not in most instances greatly influenced the course of events.

3. *Essential Difficulties in Controlling Measles.*

This lack of success is due in the main to the special characteristics of the disease, though the failure to secure complete interchange of information and help between parents, school officers, and medical officers of health, has also contributed to the result.

Measles starts with the symptoms of a "severe cold," and the characteristic rash appears only on or about the fourth day of the illness. Infection is spread chiefly during this catarrhal stage and in the earliest days of the rash ; it is disseminated probably as spray when the patient coughs or sneezes.

Experience shows that most persons not protected by a previous attack are susceptible to measles,* and acquire the disease when they come within range of infection.

The course of events in a school class is usually as follows :—a child attends school suffering from the preliminary catarrh of measles. Twelve days later the first crop of cases occurs among the children in this class, and in twelve days more the majority of the unprotected children will have been attacked.

If the first child's attack were known of at an early date it would be practicable, by arranging for closure of the class from the tenth day (two days before the appearance of the first crop) until the first crop of cases appeared, to prevent, for the time being, further spread in the particular class.

The preceding outline of the course usually pursued by a school outbreak shows how difficult is the problem. Under present circumstances, the first case is rarely known to the medical officer of health, and may not be known to the school officers until the crop of cases commencing twelve days later has occurred and been recognised.

It is generally agreed that measles is spread on the largest scale by the attendance at public elementary infant schools of children in the catarrhal stage of the disease. The occurrence of similar spread in the boys' and girls' departments of the same schools is prevented by the fact that most of the scholars in these departments are already protected by previous attack.

It must also be realised that if by any means at present available the amount of measles occurring in large towns among children who attend infants' schools were to be reduced, a somewhat corresponding increase would be likely subsequently to occur in the number of cases in the boys' and girls' departments. This consideration does not, however, justify the failure to adopt every practicable means for reducing the incidence of measles in younger children ; inasmuch as the postponement of epidemics, so that a

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* In one epidemic in which this point was accurately investigated, only one out of every eight children in invaded houses, who had not previously had measles, escaped attack.

larger proportion of individual attacks occur at a higher age, implies the saving of many lives.*

Measles is commonly introduced into a family by school children, and the less frequently this introduction occurs, the less the danger that children under three, among whom most of the deaths from measles occur, will be attacked.†

The problem clearly consists of two parts: means for preventing the spread of measles, and means for preventing deaths from measles. One of the means of preventing death from measles, as already indicated, is postponement of attack. Other means are considered in paragraphs 8–10.

4. *The Frequent Absence of Medical Attendance.*

The sanitary authority and its officers are unable to take action for preventing the spread of measles until they possess information as to its occurrence and incidence. This can only be obtained by a system of notification of cases of measles, which implies a diagnosis of the disease. Unless a doctor is in attendance, it is difficult to ascertain whether the disease has been recognised, and from information based on inquiries made respecting cases of supposed measles intimated to medical officers of health by school teachers and school attendance officers, it appears that a very high proportion of cases of measles occurring among school children have not had medical attendance.

5. *Notification by Parents.*

Experience having shown that compulsory notification of the notifiable infectious diseases (small-pox, scarlet fever, diphtheria, &c.) is only effective when a doctor is in attendance on the patient, although a like duty is imposed on the parent, it does not appear likely that attempts to enforce the notification of cases of measles by parents would be more successful than in the case of other acute infectious diseases.

6. *Notification by School Officers.*

Although there is little prospect of enforcing compulsory notification of cases of measles by parents to the medical officer of health, the knowledge they possess can be utilised indirectly through the school officers. Many parents inform teachers of measles when it is the cause of absence of their children from school; and the regulations made by the London Education Committee impose the duty on head teachers of forwarding each day to the local medical officer of health information possessed by

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* Thus the fatality (case-mortality) at the age period 5–10 in actual outbreaks has been found to be only one-ninth of the fatality in the third year of life. In the fifth year of life it is only one-seventh, and in the fourth year of life it is less than one-half of that holding good for the third year of life (*see* table on p. 138 of Dr. Thomson's Report).

† During the five years 1905–09 measles caused 9,301 deaths in London. Of this number, 7,601 occurred in the first three years of life, viz., 2,040 in the first, 3,988 in the second, and 1,573 in the third year of life.

them as to cases of measles among their scholars. School attendance officers also obtain information in the course of their duties, which is of value to the medical officer of health, and the Local Government Board and the Board of Education have recently been in communication with the London Education Committee, with a view to having the fullest and most prompt use possible made of the information so secured during the epidemic prevalence of measles. No doubt any assistance that can thus be given by the school attendance officers will be readily accorded.

Some of the information thus supplied to the medical officer of health may prove to be erroneous. This is inevitable when no medical practitioner is in attendance ; but if, as is hoped, medical officers of health are supplied with the necessary assistance for visiting suspected cases of illness, this can be partially overcome, and much disease may be detected and its further spread prevented.

The detection of undiagnosed infectious disease forms one of the necessary public health developments of the future ; and the provision of a medical staff to aid in this work will repay the expenditure incurred ; for the information obtained will enable the term of exclusion from school to be defined ; will prevent the indiscreet or unwitting exposure of infectious children ; and may be trusted materially to lessen the loss of health, life and money now caused by neglected and multiplied disease.

7. *The Objects of Notification.*

Notification of cases of measles by itself has a mere statistical value. Its value, apart from this, must be judged by the extent and promptitude with which notifications can be followed by administrative action.

Among the most important measures rendered possible by notification of cases are improvement in domestic management and treatment of the patients, removal to a hospital of patients who cannot be efficiently treated at home, arrangements as to exclusions from school, and as to cleansing and disinfection of rooms when required.

8. *Domestic Isolation and Treatment of Patients.*

Much of the mortality caused by measles owes its origin to the common impression that this disease may be safely treated by the mother alone. The facts as to the high fatality of attacks of measles show how erroneous is this impression.*

It is important to note that the disease is often fatal, apart from exposure or neglect during convalescence, to which greater importance is commonly attached. Thus, in one town, in which 419 deaths from measles were investigated, it was found that one-fourth of the deaths occurred in the first six days of the illness, *i.e.*, within about three or four days from the appearance of the rash, while another third of the total deaths occurred between the seventh and the end of the twelfth day of disease.

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* See footnote on page 4.

9. "*Following up*" *of Notified Cases of Measles.*

The fatality of home-treated measles can be diminished, and the spread to other families can be partially prevented if notified cases of measles are efficiently "followed up" by officers of the sanitary authority. There are serious difficulties in securing this. Outbreaks of measles are explosive in character, and a considerably increased staff may be required during a few weeks. But the work is very promising. There is reason to hope for much saving of life and prevention of spread of infection if the staff suffices to enable frequent visits to be made to the invaded households.

So far as prevention of infection is concerned, a distinction may be drawn between spread in the same family, which is usually inevitable, and spread from family to family which, given prompt notification of the case, and continued supervision, may be avoided.

In some boroughs it may be practicable to divert sanitary inspectors from their usual duties to visit cases of measles and instruct parents as to isolation. It is likely that female sanitary inspectors and health visitors will be best adapted for this work. In view of the great importance of giving advice as to means for avoiding death from, as well as means for preventing infection by, measles, the temporary employment of additional health visitors, who should be trained nurses, should be considered, to visit notified cases of measles and to give skilled advice as to the nursing of the patient and the domestic hygiene of the sick room. Measles, as is well known, is a much more fatal disease in the homes of the poor than among those well circumstanced. The causes of this are complex; but defects of domestic sanitation, especially overcrowding and uncleanliness of rooms and of their contents, as well as of the occupants, have great influence in determining the result. Some unexpected mischief has probably been done by the teaching as to the danger of "draughts" in measles, insufficient stress having been placed on the fact that free perflation of air in the sick room can be secured without draughts. The result has been that the sick room is commonly stuffy. Commonly, also, the patient's skin is not sponged daily with warm water; and owing to these unhygienic conditions the secondary infections producing pneumonia may be favoured. A skilful and sympathetic nurse can effect much good in improving the conditions under which measles patients are nursed at home, and in diminishing the likelihood of chest complications.

10. *Hospital Treatment of Cases of Measles.*

Even if it were not the fact that a very large proportion of the fatal cases of measles occur in infancy, epidemics of this disease are so explosive in character as to make it unlikely that it will be practicable to treat the majority of cases in hospitals. The Metropolitan Asylums Board have arranged for the admission of a considerable number of cases of measles to their hospitals under orders from a relieving officer or other officer of the Board of Guardians. Further hospital beds for measles for children outside the poor law specially requiring hospital treatment will, it is hoped, be shortly available.

There are numerous cases of measles, the hospital treatment of which will increase the prospect of recovery. For most cases, however, it appears probable that domestic treatment will continue to be necessary, and that the greatest scope for saving of life lies in more complete medical attendance, and in skilled nursing and supervision of patients treated at home.

11. *School Closure and Exclusion.*

The general lines of action recommended by the Medical Officers of the Local Government Board and of the Board of Education are set out in the "Memorandum on Closure of and Exclusion from School," to which reference may be made.

In that Memorandum the serious mortality from measles as well as from diphtheria and from whooping cough among children under five years of age is pointed out, and for this reason it is there recommended that "when cases of this disease occur in an infant school, there should be no hesitation in excluding children from attendance who are below the age of compulsory school attendance."

Older children are usually permitted to attend the boys' or girls' departments of schools from families in which there is at the time a case of measles. There is no evidence that this practice leads to spread of infection, whether this result be due to the fact that the infective material is seldom carried in clothes, or to the fact that most of the children in these departments of schools are already protected.

12. *Disinfection.*

Much difference of opinion exists as to the degree of value of disinfection of houses after cases of measles. No clear evidence of diminished prevalence of the disease is forthcoming from districts in which such disinfection is practised as compared with others in which it has never been practised or has fallen into desuetude. This is not surprising in view of the supremely important influence of direct personal infection in spreading the disease, and in the light of the fact that, as in influenza, the infective material of measles quickly dies out.

On the other hand, disinfection of sick rooms is a means of securing increased cleanliness, and if cleanliness cannot easily be obtained without disinfection, this should be done.

13. *Educational means for diminishing Measles.*

The value of means for controlling measles may be measured by their immediate efficiency during an epidemic, or by their value in preparing the way for permanent improvement, which must in the end depend on the willing and intelligent co-operation of the public. It is from the latter point of view that disinfection after every case of measles is thought by some to be advisable, even though its utility in preventing spread of infection may be limited or absent.

From an educational standpoint, the most important preventive measure is that of "following up" the cases coming to the knowledge of the sanitary authority. A tactful inspector, health visitor,

or nurse will be able to secure increased and more intelligent care, and an improved prospect of recovery for the patient, as well as a diminution in the occasions for spread of infection. Gradually it will become realised that measles for children under five years of age is a deadly disease ; and the co-operation of all concerned in the work of prevention and treatment will ensure that in connection with each patient adequate precautions are taken to prevent the spread of infection, and to obtain for each patient the best possible treatment.*

When measles has appeared in a class, arrangements are already made by the Local Education Authority for a circular to be sent to the parent of each child in the class, giving a warning as to the importance of keeping any child who has a severe "cold" away from other children until it is certain that the case is not one of measles.

Sanitary authorities evidently cannot carry out the system of visitation and supervision recommended in the preceding paragraphs without incurring considerable added expenditure. If carried out efficiently, the expenditure will be well incurred ; and it is hoped that there will be manifested a desire to organise the staff required for controlling the spread and especially for diminishing the mortality from measles.

ARTHUR NEWSHOLME,

Medical Officer.

Local Government Board,

March, 1911.

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* Some use may be made of Section 12 of the Children Act, 1908, in inducing parents to provide medical aid. In London the local authorities for this Act are the London County Council and the Boards of Guardians.