Report of the Department of Health / New Zealand.

H. 31

REPORT

OF THE

DEPARTMENT OF HEALTH

FOR THE YEAR ENDED

31 MARCH 1963

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REPORT

THE DIRECTOR-GENERAL OF HEALTH TO THE HON. THE MINISTER OF HEALTH, WELLINGTON.

I have the honour to lay before you the annual report of the Department for the year 1962–63.

The vital and medical statistics which appear in the report are for the calendar year 1962. The financial figures and, in particular, the report of the Division of Clinical Services are for the year ended 31 March 1963.

There are some matters in the report to which I would draw attention as being among the more important activities of the year.

The reorganisation of the Department referred to in the report for year ending 31 March 1960 has been carried a step further by absorbing several Divisions into two of the larger ones: Health Education, Child Health, and Maternal Welfare have joined the Division of Public Health, whilst Physical Medicine, Rehabilitation, Tuberculosis, Social Welfare Services are now in the Division of Hospitals.

The mass immunisation programme against poliomyelitis with trivalent Sabin oral vaccine was an outstanding success as the Division of Public Health shows in its report.

A pilot study into patient-nurse dependency gave a clear indication of how skilled nursing time could be saved if a category of nurse was available to undertake less skilled tasks. There has emerged the concept of a community nurse which is reported in the nursing section of the Bureau of Medical Services. It was clearly shown that fact-finding studies would be of the greatest value to the hospital world and accordingly a Hospital Operational Research Unit was set up on a trial basis. A full-scale study has been undertaken of developmental planning needs of the Christchurch metropolitan area for the provision of hospital facilities.

During the year there has been a growing appreciation of the value to hospital boards of the development of extra-mural services to conserve the use of general beds for acute cases, and to encourage general practitioners to care for the sick as far as possible in their own homes. One board had, in one month, 150 patients ex-hospital and 221 private-doctor patients under assistance with home helps, district nurses, and meals on wheels and laundry service as needed. Another board reported that "the number of people at present provided with home aid would fill a hospital ward of 32 beds all the year round. Mechanical lifting equipment, wheelchairs, and many minor items of nursing equipment are on issue to patients. Oxygen breathing equipment is one field which shows great results. At the present time 38 patients, most of whom would otherwise be in hospital, are using this equipment under the care of their own doctors with the assistance of the district nurses." It is apparent, from the experience of the boards which have developed domiciliary care services, that there is a rewarding return in the evolution of extra-mural services.

The survey of accommodation needs for the elderly undertaken by the Departments of Social Security and Health in cooperation resulted in most important and helpful conclusions being reached. There is mention of this in the section on welfare services in the Bureau of Medical Services report.

PART I—BUREAU OF PUBLIC HEALTH SERVICES

1. PUBLIC HEALTH

The Division of Public Health was reorganised during 1962 into the following branches:

(a) Disease Control and Health Education.
(b) Maternal and Child Health.
(c) Occupational Health.
(d) Food, Drugs, and Poisons.
(e) Environmental Health.
(f) Air Pollution.

Activities for 1962 are surveyed in accordance with that order.

(a) Disease Control

Communicable Diseases

Brucellosis (Undulant Fever)

Undulant fever maintains a level of 30 to 40 cases a year, there being 31 notifications in 1962. In Whangarei two patients were veterinary surgeons. Another patient was a stock inspector. Farmers' families are particularly affected and cases are still associated with raw milk. For example, three people were infected from a herd which, although the cows had been vaccinated against brucellosis for seven consecutive years, on investigation showed 40 per cent to be infected. In another herd, tests showed 16 out of 47 cows to be infected.

Diphtheria

Notifications of diphtheria more than doubled during the year. There were 12 cases compared with five in 1961. All the cases occurred in the upper half of the North Island, almost exclusively among the non-immunised. Six of the cases (including two of cutaneous diphtheria) were in the Hamilton Health District.

In two cases, both young Maori children, the organism was isolated from discharging ears. There was one death, a non-immunised six year old.

Bacillary Dysentery

An outbreak of sonne dysentery affecting 140 persons occurred in a developing housing area with a population of over 10,000. Investigation revealed the typically high prevalence among children and multiple infection in families. By arrangement with the medical practitioners the entire family was treated when a new case arose. By the end of the outbreak 1,517 specimens had been tested and these brought to light 67 positive cases that would not otherwise have been diagnosed.

Another outbreak in a country area originated at the school, and an outbreak in a Maori pa was halted by the treatment of all members of the three families involved. Two hospital outbreaks were investigated. One in a nurses' home was probably due to a child carrier in the children's ward, the other was a small outbreak in the children's ward of a country hospital.

Enteric Fever

Notifications during the year totalled 52 (48 typhoid and 4 paratyphoid). Four cases (including one death) in the Wanganui district, nine in the Hutt district, and one in New Plymouth district all appeared to be attributable to the eating of shellfish taken from the polluted waters of the Wanganui River.

During the year a ship arrived at Wellington with a case of typhoid fever. The 800 passengers were placed under surveillance and no further cases occurred. Similar action was taken in respect of a ship arriving in Auckland with a case of paratyphoid aboard.

Infective Hepatitis

For the first time since this disease became notifiable (1956) there has been a decline in incidence (from 3,870 notified cases in 1961 to 2,816 in 1962), although it still remains, by far, our most common infectious disease. See also p. 29.

In the Wanganui district an outbreak in a school was traced to pollution of the water supply (a well) by a defective septic tank. Following the cutting off of the supply no further cases occurred among the school children.

Leptospirosis

The number of notified cases has again risen – 148 cases in 1962, compared with 104 in 1961. One-third of the notifications came from the Hamilton Health District. This occupational disease of the farming community is receiving increasing attention and in Hamilton the possibility of using a vaccine is under discussion with veterinary surgeons and officials of the Federated Farmers, while a circular has also been prepared to inform farmers of the precautions to be taken to avoid it.

Poliomyelitis

The incidence of poliomyelitis was reduced from 214 confirmed cases in 1961 to five in 1962. It is not without significance that these five cases all occurred in the period January to March, that is, before the Sabin oral vaccine was used on any considerable scale. Since April 1962, when the mass vaccination of all the children with the oral vaccine was commenced, there has not been a single confirmed case of poliomyelitis. The Department emphasises the importance of laboratory confirmation of diagnosis of illnesses which simulate poliomyelitis in order to exclude the possibility of infections from enteroviruses other than poliovirus.

Poliomyelitis Vaccination

The major public health project of the year was the mass vaccination of all age groups with the trivalent Sabin oral poliomyelitis vaccine, which had been available in this country only since August 1961 for the vaccination of infants under 12 months of age.

The mass programme was carried out in two stages. The first stage included all children (other than infants) up to school-leaving age. A two-dose programme was completed in the period April to July 1962. Approximately 97 per cent of the estimated total number of 780,000 children received the oral vaccine – a response quite remarkable for a voluntary campaign.

The second stage took in the adolescents who had left school and all the adults – an estimated total of 1,600,000 persons.

Although no restriction was placed on age, vaccination was recommended with greater emphasis for those up to the age of 40 years. A two-dose programme was carried out during the months of September and November. A highly satisfactory response from the public was again experienced.

During the year the populations of our Island Territories were also vaccinated with the oral vaccine. 18,879 out of an estimated total of 25,000 persons received the vaccine.

A statistical summary of the vaccination campaign appears in Table 9. The total number of persons who have received the oral vaccine exceeds 2,000,000. The overall percentage of the immunised population is therefore approximately 80 per cent; and in the younger age groups the percentage is much higher – approximately 97 per cent. This is a highly satisfactory state of affairs, and the Department acknowledges the efforts of all organisations that assisted in carrying out the campaigns.

Tetanus

There were 28 cases notified during 1962. A striking case was one which occurred following a surgical operation. Investigations did not establish the source of the infection with certainty, but Cl. tetani were found in the cardboard of a box similar to that used as a container for a piece of apparatus used during the operation.

No opportunity should be lost of stressing that tetanus is a preventable disease. Tetanus toxoid, either singly or in combination with diphtheria and whooping cough antigens, is supplied free of charge to doctors. It is open for any person to seek immunisation against tetanus from his own doctor, and the protection is especially recommended for those persons who are working with farm animals or in occupations where there are risks of penetrating injuries.

Quarantine Arrangements

Shipping

With the development of modern sea travel it is now possible to travel over very large distances in less than the incubation period for quarantinable diseases. In 1962 the Department found that a significant amount of shipping was arriving in New Zealand from Asiatic and South American ports within the incubation period for smallpox, with outbreaks of the disease periodically being reported in both Asian and South American countries. The Department now requires that all persons arriving from these areas be in possession of current vaccination certificates.

There were no cases of quarantinable diseases reported in New Zealand during 1962, but following further outbreaks in Europe and the United Kingdom procedures at seaports and international airports have been reviewed.

Vector Control

New Zealand is particularly concerned to ensure that the insect vector of malaria does not become established in this country, and accordingly airlines and airport authorities alike are encouraged to adopt the most up-to-date, tried-and-tested methods of vector control. In spite of this, only two of the five international airlines operating scheduled flights to New Zealand carry out the WHO's recommended pre-flight ("blocks-away") method of disinsecting. Negotiations with the remaining airlines continue.

Tests to demonstrate to airlines the convenience of the "blocks-away" method compared with post-arrival disinsecting were undertaken during the year by the WHO in co-operation with the Pan American Airways, on scheduled passenger flights between Fiji and Auckland.

Regular inspections are carried out over a defined area at all sanitary aerodromes in New Zealand. Details of any revealed evidence of breeding, together with a summary of the protective measures taken, are reported quarterly to the World Health Organisation.

Amendments to Regulations

Minor amendments made to the Quarantine (Air) Regulations 1952 and the Quarantine (Ship) Regulations 1957 bring these into full accord with obligations under the International Sanitary Regulations.

(b) Health Education

Community Health Education

Poliomyelitis Immunisation—The poliomyelitis immunisation programme was the main health education activity for that part of the year. This programme illustrated well the team concept in public health, and clerical and field officers combined to make the campaign the success that it undoubtedly was. In addition to publicity and information at national level, each health district went to great lengths to ensure that the public was thoroughly and accurately informed of the fact that everyone should take the vaccine and the reasons for it. A wide range of methods and media was used and, although many people are undoubtedly motivated towards seeking protection against poliomyelitis, it can be fairly claimed that the health education part of the programme played a significant part in the highly satisfactory results that were obtained.

World Health Day was a Dominion-wide programme in which all districts participated. The theme was "Preserve Sight, Prevent Blindness". Several official and voluntary agencies assisted, in particular the New Zealand Foundation for the Blind, the National Safety Association, and the Department of Labour. Many methods and media were used including the press, trade journals, radio and television, and talks to groups. A national radio broadcast was given by the Minister of Health. As in previous years continuing education on the theme of World Health Day was continued throughout the year.

Cervical Cancer Campaign—Most districts have been taking part in the campaign, which is rapidly spreading throughout the country, to encourage women to visit their doctors to have a simple test made for

the early diagnosis of possible cervical cancer. (Cancer of the lower part of the womb.) There has been close liaison with the British Empire Cancer Campaign Society on this project. This programme is now well under way and a striking reduction in suffering and mortality can be anticipated.

Cigarette Smoking—In common with many other countries, policy in this health programme is to discourage young people from taking up the cigarette smoking habit. Valuable cooperation has been received from officers of the Department of Education, and a booklet *Notes for Teachers on Smoking* has been prepared and circulated to all schools and teachers' colleges. Articles and advertising have been arranged in newspapers and in magazines read by young people.

The British Medical Association and the British Empire Cancer Campaign Society are taking an active interest in this campaign, which must inevitably be a long one if cigarette smoking is to become a less acceptable habit than it is today. The New Zealand Broadcasting Corporation decided to restrict the form and content of cigarette advertising so that appeal to the younger generation was not emphasised.

Near the end of the year the Department wrote to the four tobacco companies operating in New Zealand to suggest that the above principle might well be adopted in all their advertising. All four companies replied to the effect that they would cooperate and two advised that they had already made changes in advertising that might appear to glamorise smoking to young people. Future advertising will be watched with interest as the companies have had little time, as yet, to put their promises into effect.

Other Health Programmes

Other subjects that have received particular attention during the year are hydatid disease, poisons, poisonous plants, rescue breathing, nutrition, children's footwear, fluoridation, food handling, and personal health.

Auckland District Office combined with the Auckland City Council to enter an exhibit in the Hotel and Catering Exhibition. Its title was "Clean Food, Means Better Business" and it was awarded the cup for the best exhibit.

Publications and Films

Bulletin *Health* now has a circulation of 63,000, and continues as one of the main avenues of reaching the public. It is quoted widely by other publications and serves as a valuable link with official and voluntary health organisations overseas.

In addition to the film and pamphlet on cigarette smoking mentioned above, a film *Developmental Tests in Early Diagnosis of Cerebral Palsy* has been completed. It was produced by the Visiting Physiotherapist, Christchurch, in conjunction with the National Film Unit. A booklet was also produced for use with this film. The film strip *Fluoride Water Sprite* was made for the Dental Division.

Education and Training

Health education officers have assisted with in-service training in their districts and with the training of teachers and nurses.

At Head Office, members of the Health Education Branch have assisted with basic training courses and in-service training courses run by the Department and with similar courses outside the Department, e.g., National Hydatids Council, Labour Department, National Safety Association.

(c) Maternal Welfare

57,464 European and 7,664 Maori babies were born during 1962. This shows a decrease of 242 European and 106 Maori births below the figures for 1961.

Table 19 of the Appendix shows statistics for maternity services and cases for 1962. There was an increase in the birthrate for the first half of the year, but the birthrate for the second half was the lowest since 1956. Overall the combined birthrate decreased to 26·17 per 1,000 of population.

Maternal Mortality

The maternal deaths for 1962 are given in detail in table 18 of the Appendix. There were 10 European and nine Maori deaths.

Infant Mortality (see Tables 5, 6, and 7, and under Medical Statistics.)

This year only a combined (European and Maori) infant mortality rate is shown and this has decreased. International comparisons for the quinquennium 1957–61 show that New Zealand now occupies ninth place, whereas for the quinquennium 1956–60 she occupied sixth.

General

During the year further progress was made in drafting the new Obstetrical Regulations, and organisations concerned were given the opportunity to consider and comment on them.

The regulations have been almost completed and it is expected that they can be brought into force during the coming year.

The Maternity Services Committee of the Board of Health has again given valuable assistance to the Department and its advice has been greatly appreciated.

(d) Child Health

At the end of 1962 the Department employed 46 medical officers on child health work, of whom 26 were on a full-time basis. The part-time staff was the equivalent of 11 full-time, giving a total effect of 37 full-time officers which was as for the previous year. During the year, Dr Sarah L. Mullholland retired after over 25 years' service.

A number of areas are still without the services of a medical officer and some districts are short staffed.

Public health nurses continue to devote a large amount of their time to child health work, and accept the extra burden when there is no medical officer.

Pre-school Children

During the year medical officers examined a total of 32,038 European and 1,031 Maori pre-school children. The current aim is to examine all pre-school children twice during pre-school life, but currently one examination would be a reasonable target. To achieve this just over 65,000 examinations are necessary.

School Children

A total of 91,192 European and 12,585 Maori school children was examined by Public Health nurses. Medical officers examined a total of 38,827 European and 7,149 Maori children. These children were referred to them by public health nurses, school teachers, and parents in addition to new entrants who had not previously been examined. Of the children examined, 7,079 European and 1,341 Maori were found to have defects. Those most common in European children were refractive errors, unhealthy tonsils and adenoids, and psychological problems, whereas ear defects and dental caries were predominant in Maori children.

Post-primary School Children

During the year medical officers visited 135 post-primary schools.

Audiometry

A number of new audiometers were issued during the year. Each district now has an audiometer, being operated by audiometrists, medical officers, or public health nurses. As suitable persons become available they will be trained so that each district can have an audiometrist on the staff. When this is achieved, a full screening service can be given to detect deafness in children before it can adversely affect their education.

Maori Children

Public health nurses examined 2,581 pre-school and 10,004 school children, and medical officers examined 1,031 and 7,149 children in each group respectively. More emphasis is being laid on the need to supervise the pre-school group.

Child Health Clinics

In 1961, 1,562 school children were found with a psychological defect and this year the figure increased to 1,638. Not all of these children had to be referred to a child health clinic, but it does indicate clearly the need for the service.

The existing clinics have coped with an increased case load this year and to do this some of the clinic consultants had to increase their hours. There still appears to be a backlog of work, and although the answer to this problem seems at first sight to be to enlarge the clinics and increase their number this is not possible because of the shortage of qualified staff.

General

The new statistical system which was introduced at the beginning of the year has yielded some valuable information which will be of assistance in the revision of child health policy.

A number of departmental officers assisted Dr I. Prior with medical research surveys amongst the Maoris at Ruatahuna and Tikitiki. Plans are now being made for public health nurses to conduct pilot surveys to test Maori pre-school children and pregnant women for anaemia.

The Child Health Council met once during the year.

(e) Occupational Health Programme

Development of industry in this country has continued, bringing new industrial processes and hazards hitherto relatively unknown in New Zealand. Close cooperation has been maintained with the Department of Labour, particularly by way of combined inspections of factories with specific problems, and consultative services have been utilised by managements at the planning stage of alterations and new building of factories. Liaison has also been maintained with other Government Departments and agencies.

The following reports were published during the year:

New Zealand Medical Journal—

Health Aspects of Exhaust Fumes – Copplestone; p. 97, Vol. 61, No. 354, February 1962.

Ventilatory Function Differences Between Polynesian and European Rope Workers – Glass; p. 433, Vol. 61, No. 361, September 1962.

Chest Expansion as a Measurement of Lung Function; A Defence of an Underdog – de Hamel; p. 586, Vol. 61, No. 364, December 1962.

Labour and Employment Gazette—

More Care Needed with Degreasing Plants – Glass; p. 30, Vol. XII, No. 2, May 1962.

Department of Health Special Report Series—

Survey of Work in Compressed Air, Auckland Harbour Bridge – Report No. 6, Issued by the Medical Statistics Branch of the Department of Health.

Notification of Occupational Diseases

Table 13 of the Appendix shows both official and unofficial notifications of occupational diseases received. Again this year no deaths under this heading have been recorded.

Dermatoses—This, as in previous years, continues to increase in incidence paralleling industrial development and the increasing use of many forms of chemical substances. Although a number of skin-sensitivity cases have occurred through contact with epoxy-amine compounds a significant reduction has been apparent in the number of cases notified as arising from various processes using this substance. There have been a number of cases reported of dermatitis arising from handling tobacco plants and experiments with barrier creams and personal

hygiene have been carried out in this industry. Other cases have arisen from oils and greases, solvents, cements, alkalis, detergents, etc.; each of these have been followed up and advice on personal hygiene and preventative measures given to the workers concerned.

There is reason to believe that the total number of cases of skin disease due to occupation is considerably larger than would be imagined from the number of cases notified.

Dusts, Fumes, Gases, Vapours, and Mists—

Trichlorethylene—The use of trichlorethylene in industry as a solvent for cleaning metal work has further increased over the year. A number of operators have complained of a feeling of drunkenness with nausea and headaches at the end of the day's work. In each case the levels of trichlorethylene in the working atmosphere were well over the maximum permissible concentration of 200 parts per million, and resiting of the baths and improvements to the cooling systems were recommended to managements who readily took appropriate action.

Carbon Monoxide—A road worker of a local authority gasworks was overcome by carbon monoxide gas escape. This gas has also been implicated in underwater swimming, where it presents a real hazard if the air compressed into cylinders is contaminated. Carbon monoxide is a gas which is of considerable importance in the health of workers in the motor industry and, while seriously affected cases are fortunately uncommon, there seems to be no doubt that minor symptoms are frequently experienced by some workers.

Metal or Salt of Metal—An interesting case arose in a jewellery factory using an uncommon process involving work with cadmium, mercury, silver, and gold compounds. This process, and a similar one used in Sydney, are the only commercial undertakings of this kind in the Southern Hemisphere; more elaborate ventilation requirements connected with this process were suggested to avoid further cases happening. Other diseases notified as arising under this section include poisoning of an apprentice jeweller by hydrocyanic acid fumes, poisoning in a paint manufacturing firm and a painting operation from ammonia fumes, one of zinc metal spraying, and a case of silicosis notified in a quarry worker.

Physical Agents

Compressed Air Illness—Two cases of "bends" arising from men working in an abutment cylinder for a bridge indicated a need for closer liaison with this Department and medical supervision of all workers so employed.

Eye Injuries—Cases involving eye injuries increased by seven over the figures reported last year and all could have been avoided with proper precautions and goggles against such injuries. Fortunately none of these cases resulted in lost sight. Twelve cases of burns to the eyes were reported, involving three cases of electricians suffering ultra violet ray burns, other cases were caused by sulphuric acid, caustic base paste and powder, acetic acid solution, hot metal chip, molten metal and solder, and maleic anhydride which caused acute conjunctivitis. Cases of conjunctivitis were caused by fumes from sulphuric acid, sodium sulphate,

ammonium chloride, sulphur adhesive dust, and by steam. Accidents involving eye injuries: a carpenter walked into wooden projection on a building site, a stick was thrown up by a forage harvester into a farmer's eye, and a fence standard released of tension struck a contractor's eye. Seventeen other cases notified cover a variety of foreign bodies in the eye.

While eye protection is now accepted by both management and workers as essential, the increasing number of injuries indicates that greater emphasis must be laid on its use.

Hearing—Of the cases notified with impaired hearing three cases arose from sawmilling and associated industries. One case of deafness that would possibly require a hearing aid was notified as an engineering-shop worker.

Considerable work in the form of surveys of noise levels in factories has been carried out in several districts. Noise levels of earth-moving machinery and long-distance transport haulage vehicles have also been and are being investigated. Audiometric testing of workers have been undertaken in some instances in conjunction with noise-level measurements. Persons found to have hearing defects have been referred to their general practitioner where this seemed advisable. Where necessary men have been fitted for ear defenders and given advice on noise prevention, and provision is made where possible for routine follow-up hearing examination. It has been found in more than one district that the use of ear defenders by workers subjected to harmful noise levels continues to be minimal.

Infectious Agents (See also Communicable Disease Section, page 4.)

There were 121 cases of leptospirosis and 12 cases of brucellosis notified as occupational in origin during 1962 compared with 94 and 27 in 1961. The rise in the number of cases of leptospirosis notified follow the trend of recent years and a survey to study cases more closely is now being established.

Control of Health Hazards

The nursing staff and inspectors of health in this Department follow up notified diseases arising from occupation. Routine factory inspections also bring to light significant hazards in particular trades.

Electroplating Processes—Table 15 in the Appendix shows the number of routine examinations of workers engaged in electroplating processes by the nursing staff. Twenty-nine cases of workers suffering from conditions arising from their trade were discovered during such visits; of these 15 were referred to their own doctor, two were suspended from this work, one left employment, and the balance responded to treatment and cleared up under supervision and advice of the nurses. Districts report that, in general, standards for electroplating premises are not good and lag behind overseas practice. It appears that the use of spray suppressants in plating baths does not seem so popular and factories are returning to use extractor ventilation equipment on their tanks. There are five private nurses employed by industry and authorised by this Department to carry out periodic examination of workers engaged in electroplating processes.

Lead Processes—Table 14 shows the number of workers exposed to lead, the number of examinations, and supervision carried out by the nursing staff. Only one case of lead poisoning was notified this year and the worker was admitted to hospital for treatment. During the nurses' routine examinations of lead workers 89 were found to be absorbing lead in unhealthy quantities; six of these were men working in petrol tanks at an aerodrome. Of the total number found absorbing lead 28 were suspended from lead work, two left this work on own accord, 14 were referred to their own doctor, one was admitted to hospital, and the rest remained under supervision of the nurses concerned. The constant need and value of regular testing of lead workers often are emphasised by the uncovering of particular bad practices and conditions. In one instance the payment of production bonuses on increased output appeared to be the main factor in a deterioration of results of blood tests, and in another a worker engaged in buffing car bodies led to investigations into protective equipment and methods generally. Conditions were also improved to satisfaction in other manufacturing firms.

Miscellaneous Hazards

Turpentine Poisoning—A man engaged in painting the interior of 3,000 gallon tanks over a period of two weeks with an anti-corrosive, ready-mix paint containing a large proportion of mineral turpentine, was later confined to bed with pleuritic type pain in his chest but was able to return to work in a few days. There was no sign of a cough, temperature, or other physical signs during enforced rest, although while engaged in this work wearing a respirator he suffered with running eyes and nose, a cough, and a dizzy feeling. The best effective means of protection for such work would be from a full-face mask connected with an airline hose together with overalls made of a non-absorbent material.

Agricultural Chemicals—An aerial spray pilot on agricultural work had symptoms compatible with mild organo-phosphorus poisoning after flying an aeroplane with a leaky spray tank. The warning "Don't fly a leaker" has been expounded by the Civil Aviation Administration and this Department in publications for some considerable period.

Medical, Nursing, and First-aid Services

Attendances for first-aid treatment at industrial health centres and waterfront clinics are shown in table 16 of the Appendix.

It seems possible that there are a number of other areas in which the establishment of a permanent clinic will be justified in the future. A survey of these areas is now being undertaken in order to acquire land in the centre of areas zoned for industry, although the building of these clinics will await the arrival of a sufficient industrial population around them.

While the number of dressings and redressings shows that these clinics are fulfilling a useful purpose in first aid, it must be emphasised that the preventative work by the nurses based in the clinics is much more useful in the long-term view and this cannot be expressed in statistical form.

Medical Examination of Young Workers

The number of medical examinations of young male and female workers prior to commencing employment in factories under the provisions of section 37 of the Factories Act 1946 is shown in table 17 of the Appendix.

While the number of rejections is small, remedial defects shown up by this examination are followed up by public health nurses, who try to ensure that treatment is obtained. The most frequent defects are in vision. Advice on obesity and adolescent skin defects is also given. Thus the examinations not only ensure that a young person is fit to undertake the proposed employment, but also aid them in realising the full physical potential of their age group.

(f) Food, Drug, and Poisons Administration

Nutrition

The Nutrition Section has continued to participate in the Maori health surveys being carried out by the Wellington Hospital Medical Unit. During the year a follow-up of the January 1962 Ruatahuna survey included a study made by the nutrition officer of kinship in the area. This study, which is continuing, is being made in order to discover the importance of genetic factors in obesity and other metabolic disorders such as gout and diabetes in an isolated, intermarried Maori community.

In January 1963 a dietary survey was made in Tikitiki, and the results of the study of this group of rural, coastal Maoris are at present being compared with those obtained in the study of the Ruatahuna Maoris.

Milk

The sampling results shown in table 10 do not reflect the general quality of milk sold in New Zealand. This is because departmental sampling is normally directed towards the improvement of existing substandard supplies. Apart from Christchurch milk, which continues to show a low solids-non-fat figure, the quality of milk sold in this country is generally high.

Antibiotics in Milk

Results of sampling for the presence of antibiotics in locally consumed milk during 1962 have shown figures in keeping with those for the latter half of 1961, when a general reduction was effected, as compared to the original rather high incidence of traces of antibiotic drugs.

The present relatively good picture will need constant attention by those concerned in the town milk industry if it is to be maintained. The aim is to eliminate antibiotic residues completely.

Meat Products

Of 30 prosecutions initiated against retail butchers in 1962 for exceeding the limits for preservative in meat products set by the Food and Drug Regulations 1946, over half were in the Auckland metropolitan area. This evidences the continuing apparent disregard by butchers in that district for these statutory restrictions.

Food Complaints and Seizures

Eight hundred and forty-nine complaints concerning unsound or unfit food were investigated during the year by the Department and resulted in the institution of 39 prosecutions. Examples were a meat pie containing a washer, bread containing a bandage, a bird carcass in butter, fragments of glass in lemonade, a steel blade in bread, and a cake containing a picture hook nail. Some 243 items of unsound food were also seized or destroyed during the year.

Food Processing

One of the least attractive aspects of modern food processing is the apparent inclusion of unnecessary moisture, inevitably sold at the price of the food. The use of conditioning or physical agents to incorporate and hold the moisture frequently leads to demands for the use of other agents, usually preservatives, to counteract the tendency towards instability from mould growth. This seems a regrettable device and an unworthy use of "food technology" from which the consumer needs some protection.

Drugs

It has been apparent for some time that interest in drug legislation was mounting throughout the world, particularly with regard to the ease with which new drugs are marketed. In many cases these are distributed without the authorities of the country knowing a great deal, if anything at all, about their existence, distribution or nature. Certainly those which are poisons could be traced if the need arose, but in other circumstances there was no control whatsoever.

The position was highlighted during the year by the Thalidomide developments. Although the manufacturers had stopped sale and recovered stocks, steps were taken to prohibit the importation and distribution of this drug, and quantities still in the hands of distributors were seized.

Towards the end of the year amendments were made to the Food and Drugs Act which require all new drugs and all changes in drugs on the market in New Zealand to be notified to the Director-General of Health. Preliminary experience suggests that the number of notifications to be received will be very substantial. The notification scheme does not in any sense involve approval or endorsement of drugs, but it is the intention of the Department to draw the attention of importers and manufacturers to any matters which appear to contravene the Food and Drugs Act, the Medical Advertisements Act, or the Poisons Act, and so to avoid many petty breaches which have occurred in the past. Information contained in notifications will, as necessary, be referred to technical committees to make recommendations to Government regarding restriction or control.

As has been done recently in other countries, it is necessary to make quite clear and to emphasise two points on which there is frequent misconception. First, the existence of a Food and Drugs Act and the administration of it is no guaranteee that every food or drug on the market is quite satisfactory, any more than the existence of a criminal code and a police force is a guarantee that there is no crime. Secondly, there is no such thing as a completely safe drug. With effectiveness must go some risk. This applies as much to old drugs as to those that are new.

Narcotics

Generally the more developed the medical services of a country the greater the use of narcotic drugs, New Zealand, on a per capita basis, is amongst the world's largest users. Speculation on whether the quantities consumed are necessary is profitless, but there is a substantial responsibility devolving on prescribers of dangerous drugs, those who dispense prescriptions, and this Department to prevent, as far as possible, reasonable and legitimate usage developing into addiction. Success in prevention will not be revealed but failure becomes apparent. As in the past, sufficient failures have come to notice this year to give reminder that continuing vigilence is necessary.

When the 1961 Single Convention on Narcotic Drugs* has been ratified by a sufficient number of countries for it to replace the multiplicity at present effective, the international operating of restraints on narcotics distribution should be simplified.

Poisons

While a great many substances have been notified under the Poisons Act as being toxic substances for the first time introduced into or manufactured in New Zealand, most of these have been in the field of agricultural chemicals. It is believed that there are a great many substances used as drugs, and used in industry, which are not being notified. It is probable that those which are drugs will now be advised under the Food and Drugs Act, but our occupational health information will be lacking until all industrial toxic substances are advised.

Poisons Committee

The Poisons Committee met on three occasions during the year and discussed a wide range of subjects. Classes of drugs recommended by the committee for inclusion in the Schedules to the Poisons Regulations as "prescription poisons" included ganglionic blocking agents, antihypertensive agents, skeletal muscle relaxants, cytotoxic agents for the treatment of malignant disease, oral diuretics, and psychomotor stimulants. Some measure of control over other classes of drugs such as the antihistamines and perpheral vasodilators is expected by the recommendation that their retail sale be limited to pharmacies.

Stock Remedies and Agricultural Chemicals

The Department of Health collaborated with the Department of Agriculture and in particular with the Stock Remedies Registration Board and the Agricultural Chemicals Board in the re-registration of stock remedies and the registration of agricultural chemicals. Some 550 labels fowarded with the applications for registration of stock remedies, were examined and the attention of the proprietors drawn to any label not complying with the legislation administered by both Departments. Similarly the Agricultural Chemicals Board forwarded for examination the labels of products submitted for registration as agricultural chemicals. Registration was only approved subject to the labels complying with the regulations. It is expected that products bearing labels with the statement "Registered Stock Remedy" or "Registered Agricultural Chemical" will now comply with the requirements of the poisons legislation.

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*New Zealand ratified this Convention on 26 March 1963.

Information on Agricultural, Commercial, and Household Poisons

The booklet previously published under the title *Notes on Economic Poisons* has been revised and enlarged under the title *Notes on Agricultural, Commercial, and Household Poisons*. It is considered that this publication will be of use to all persons requiring a quick reference to the hazardous ingredients present in commercial products and a ready guide to the treatment of intoxication from the more common types of poisons.

(g) Environmental Health and Air Pollution

Air Pollution

An exceptionally mild winter in Christchurch and the virtual total cessation of fume attacks in Auckland has limited manifestation of air pollution to relatively minor and localised nuisances during 1962. It is of course precisely under these conditions of relaxed public attention that statutory control of pollution sources is most essential to prevent a more insidious growth of what has come to be recognised as a major public health problem.

The year 1962 was notable mainly for opportunities it presented to reassess the New Zealand situation by direct access to overseas experience. One such opportunity was the first ever international conference on air pollution to be held in the Southern Hemisphere. The conference was conducted in Sydney and marked the passing by the New South Wales legislature of a very comprehensive Clean Air Bill.

Mr R. T. Douglas, Chief Chemical Inspector, and Mr C. Denmead, Chemical Inspector for Northern Districts, both attended the conference and contributed papers on aspects of air pollution in New Zealand. Their attendance has laid the basis for future useful cooperation between New Zealand and Australia on aspects of air pollution affecting both countries.

The conference also enabled brief but valuable visits to New Zealand by two internationally recognised air pollution authorities: Dr M. Katz, Canadian Department of National Health and Welfare, and Mr W. H. Damon, one-time Chief Alkali Inspector for Great Britain.

In 1957 Mr Damon prepared a New Zealand Government report entitled "Air Pollution in New Zealand", and during his recent visit to New Zealand expressed satisfaction at the extent to which the recommendations made in that report had been adopted and applied by New Zealand during the past five years. In particular, he commented on the efforts made by the acid-fertiliser industry to comply with the 2 grain maximum acid gas escape recommended in the report and now incorporated into the Air Pollution Regulations 1957. All chamber acid plants are in fact now capable of meeting this limit consistently, but this has involved considerable improvement in equipment and operation over these years. Of 34 tests made during 1962, the average of 1·3 grains was the lowest so far recorded.

There were only two minor infringements of the regulations detected in 1962, one concerning the 98 per cent recovery limit for contact plants. Nevertheless, there have been complaints of local nuisances and these will necessitate further improvements.

Dr Katz was very interested in the considerable problems that are presented by the increasing urbanisation of geothermally active areas of the North Island. Hydrogen sulphide, a constituent of geothermal gas,

is regarded overseas as a serious air pollutant, though comparatively rarely met in any quantity in urban atmospheres. In New Zealand it appears that for some time it may be the principal air pollutant as it occurs naturally in some areas in considerable quantity and is also liable to be produced in the disposal of organic wastes from our unusually large-scale, agriculturally based industries. Because of this, efforts are being made to develop satisfactory methods of measuring hydrogen sulphide for survey purposes. There were a number of incidents during 1962 attributable to geothermal gas, including three deaths in Rotorua, and this has emphasised the possible need for more effective control measures. A small committee to examine the problems involved has now been set up in Rotorua.

The air pollution position in Auckland, except for some industrial odours and localised smoke and motor transport fumes, is for the time being reassuring. The improvement has made it possible to reduce the Auckland pollution survey programme substantially, and this is now regarded as being primarily a monitoring service to give warning of any significant change in pollution. The survey continues to be financed by the local authorities but is now staffed and operated entirely by the Health Department at the small air pollution laboratory established by that Department last year. This laboratory has proved most valuable in dealing with a wide range of problems including, for example, a survey of efficiency of trilene inhalers used in quite large numbers in midwifery.

In the Auckland district considerable progress has also been made to control rendering odours from the three major meat works in the Westfield area. A notable air pollution control success has been the use of high-temperature filter bag dust arrestment on a cement kiln at Te Kuiti. This is believed to be the first application of this method to a production cement kiln outside the United States.

The position in Christchurch is less satisfactory, the problems being much more difficult of an economic solution. Real progress must await the findings of the scientific survey, not expected to be completed for another 18 months.

Surveys on a smaller scale are being conducted in Dunedin and the Lower Hutt Valley, the latter of particular interest in view of the proposed establishment of a fertiliser works.

An important duty of the chemical inspectors is to examine proposals for major industrial development with respect to air pollution. Exercising this function, the Chief Chemical Inspector had discussions with the engineering consultants to the Marsden Point petroleum refinery in the course of a visit to The Hague and San Francisco in 1962. Standards for air pollution control were agreed upon at that time. The opportunity was also taken while overseas to spend four weeks with the British Alkali Inspectorate to see something of the control measures regarded as desirable for a number of other industries, including aluminium reduction, potentially likely to be established in this country.

From these contacts with overseas air pollution control authorities it was apparent that in the application of technical methods and legislation New Zealand compared quite well with many much more heavily industrialised countries. However, this should engender no complacency, for economic and social factors are operating here and overseas to create increasing air pollution problems.

Registration of chemical works at the end of 1962 were:

Type of Process	Change	Total
Arsenic		1
Bisulphite	−1	1
Cement		12
Chlorine	−2	6
Fertiliser	1 cons	12
Gas liquor		2
Lead	−1	10
Mineral processing		34
Petroleum	1 cons	4
Sulphuric acid	1 cons	12
Tar	−5	15
Animal products	+6	72
Hydrochloric acid		2
Nitric acid	+1	1
Aluminium	+1	2
Iron and steel		5
Gas and coke		26
Total	216 in 193 premises	

Sewerage Schemes

In the year ended 31 March 1962 the Local Authorities Loans Board sanctioned loan proposals reported on by this Department involving estimated expenditure of over £4,460,000.

Sewage Treatment Subsidy

The sewage treatment-plant subsidy scheme has had, and continues to have, a marked influence on the number of small towns undertaking sewage works. In all, 18 schemes involving subsidies totalling £220,795 were approved up to 31 March 1963.

Water Supplies

During 1962 the Local Authorities Loans Board sanctioned loan proposals examined by this Department involving estimated expenditure of over £2,550,000.

In April 1962 a report entitled "Provisional Grading of Public Water Supplies in New Zealand" was published by the Board of Health. This Report had a marked influence in local authority circles and brought home with considerable force the fact that many communal water supplies in New Zealand are sadly deficient by accepted international standards. It is apparent that the gradings, which it is intended to review and republish from time to time, will serve as a very useful reminder of these deficiencies and act to encourage the raising of water standards generally.

Health Inspectors

A policy of encouraging local authorities to make provision independently for adequate inspection services in accordance with the Health Act has been actively pursued, and steady progress has been maintained in the reorganisation of inspection services. During the year, 26 additional local authorities cancelled the agreement with the Department and either appointed their own sole-charge inspector or joined with a neighbouring local authority in making such an appointment.

The actual position in all health districts is set out in table 12, showing separately the number of areas serviced by local authorities or the Department and the populations now served.

In summary, over the last two years the urban and rural populations serviced by departmental inspectors have been reduced from approximately 20 per cent to 14 per cent and from 60 per cent to 40 per cent respectively.

As a greater annual intake of inspectors is required to make further substantial progress with the changeover and at the same time maintain an adequate and efficient inspection service, some improvements in present methods of recruitment and training seem necessary. However, this is a problem which has been the subject for investigation during the year by a special committee of the Board of Health and its report, which will be available in 1963, is expected to assist in overcoming the present shortage.

Food Sanitation

Since the extension of the Health (Eatinghouse) Regulations to licensed premises in 1961 the work of inspection of some 1,076 hotels – some in remote localities – and negotiating with licensees for proper equipment and conduct of such premises has been proceeding in all local authority areas. Whilst good progress has been made in making necessary improvements, too many hotels do not as yet meet the minimum standards now legally applied.

The regulations require a much higher level of food handling than has been customary and inspectors are finding it difficult to persuade licensees and staff to change unsatisfactory habits and adopt better methods. Too many barmen continue to wear street clothes and to smoke while serving drinks, and the routine of providing a final sterilising rinse for eating utensils in kitchens and for glasses in bars and lounges has yet to be adopted.

The appearance and food service in dining rooms are for the most part good, but licensees will need to raise the level of the other departments considerably before they meet their full legal obligations and local authority inspectors will have a part to play in assisting them to do so.

The regular routine inspection of more than 20,000 food premises of various types required to be registered and comply with specific requirements as to structure, equipment, and conduct under food hygiene laws presents a most formidable task for local authority inspectors.

In recent years the number of premises and the number of customers served daily has increased at such a rate that supervision places a great strain on the staff and resources of most local authorities. The number and frequency of inspections must of necessity be reduced and the quality of each inspection then becomes of increasing importance.

Unfortunately, there is some evidence that already the present reasonable average standard is falling off in some areas. Nearly all medical officers of health report a need for improvement and it is clear that a New Zealand wide concerted effort is necessary.

A start will shortly be made in making an assessment of the actual position and this should provide a starting point for those local authorities where the food sanitation supervision needs strengthening.

In a number of health districts the problem is being met by organis-

ing food sanitation classes and demonstrations, but these health education methods will require to be supported by the keen interest of members of local authorities and a sufficient number of regular inspections of consistently high quality. A long-term programme of sustained effort throughout every health district is required to bring about a worth-while improvement.

During the year there were 462 cases of food poisoning notified and these were scattered throughout the country. One notable outbreak of 156 cases due to clostridium welchii occurred following a wedding breakfast, and another large-scale outbreak of 71 cases among students at a residential college is included in the figures. Although there were fewer cases than were reported last year, the incidence is far too high and gives point to the demands for better preventative measures on the lines of an effective food sanitation programme on a national scale.

Draining and Plumbing

There has been no great slackening in the number of permits issued for drainage and plumbing work during the year, and proper supervision and administration of the Drainage and Plumbing Regulations still absorbs a substantial part of the inspector's time.

Reports from all districts indicate there is now a better spirit of cooperation between inspectors and plumbers and drainlayers, and the standard of plumbing and drainlaying is at a uniformly high level.

The experience gained from the administration of the Drainage and Plumbing Regulations since they were enacted in 1959 show they provide a satisfactory code of practice. However, suggestions for modification and minor improvements are coming forward from individual tradesmen, plumbers' organisations, and inspectors and these are being considered as possible amendments.

The Plumbers Registration Act continues to constitute an important safeguard for the community and provides an incentive for apprentices and journeymen to learn their trade and become competent tradesmen. Developments in the plumbing industry over the years, recent changes in systems for trade training, and other circumstances indicate, however, that the time has arrived for a careful review of this legislation and this matter is at present engaging the attention of the Plumbers' Board and the Division of Public Health.

2. PUBLIC HEALTH NURSING

A healthy outlook is evident among members of the Public Health Nursing service. As the epidemiological approach to disease and disability increases the nurse becomes involved in a wider and ever-changing variety of activities and, although her newer duties are a little strange to her, she gives of her best and provides a standard of service which is a credit to her. With the social and psychological components of illness so evident today, nurses find much of their time is given up to the difficult work of helping people with their social problems and their emotional difficulties. Some city nurses are finding the need for family counselling so pressing that they have been permitted to adjust their working hours to allow them to make home visits in the evenings on several days of the week. Thus they meet the whole family and not just the mother.

With the movement of large numbers of Maori people to the urban areas the nurses's work has been greatly increased. These families suffer in many ways from a radical change in environment. Much of their maladjustment manifests itself in social unrest and ill health. They strive to keep up a standard of living which is not really natural to them. Many mothers are going to work and leaving school children at home to look after small babies in an endeavour to supplement the family income. They have many more calls on their income than previously in a rural setting. All this adds up to greater reliance on and need for the nurse's support and supervision.

Most public health nurses have had an opportunity to visit psychiatric hospitals during the past year. All nurses attending the introductory course for public health nurses now spend one week at Porirua Hospital. Psychiatrists are discovering that public health nurses, with their wide and intimate knowledge of the dynamics of the family, have skills which can be of assistance in the supervision and rehabilitation of the mentally ill. Thus the public health nurse is becoming a team member in the care of the mentally ill.

Medical research teams have been working in a number of areas with a predominantly Maori population and they have enlisted the aid of the public health nurses. This has led to added activities although they are of an intensely interesting nature. A few nurses are also involved at the present time in a detailed anaemia survey among Maori infants and mothers. The outcome of this survey could well influence certain aspects of public health nursing in the future.

With high wages and plentiful seasonal work, there is great mobility in a large section of the population and this makes supervision very difficult, particularly that of young children and babies.

The routine work of the year has had two major interruptions for the oral poliomyelitis campaign and it has been difficult to maintain a balance of duties. However, some relief should be gained from the discontinuance of the typhoid fever inoculations. Many infants and pre-school children are still being immunised by nurses, although every effort is made to persuade the parents to take them to their own doctors.

Infant welfare work still makes heavy demands on the nurses' time and every effort is being made to see that public health nurses hold a Plunket certificate. During the past year 15 nurses gained this certificate. Concentrated efforts are being made to give the health of the pre-school child priority, though this seems a notoriously elusive age group as far as the public health nurse is concerned.

There are still a considerable number of recalcitrant tuberculous patients who try both the energy and the patience of nurses. Although total case loads decrease each year, the really difficult ones remain and their supervision is very time consuming. There are also still a number of new cases coming forward. Nurses find the use of the Heaf gun a great advantage when dealing with contacts.

There are reports of an increased interest in health education and many nurses are found to be doing excellent and original work in this field. However, most nurses feel the need for guidance in health education and are appreciative of any assistance given them.

Nurses are shouldering their responsibility in introducing the student nurse to public health. In some areas individual students are undertaking the care of a family under supervision. This is a major step forward in nursing education and must serve to draw the hospital and the community which it serves closer together.

Because of the change in population and the move from rural to urban areas some district health areas have required adjustment, with the transfer of rural nursing establishments to the towns and cities where the need is greater.

During the year 40 nurses have joined the Public Health Nursing Service and 37 nurses have left the service. The main reasons for leaving are marriage, retirements, and travel. Only a very few nurses have left intending to join another branch of their profession.

Some important rural areas have been vacant during the year and there has been some intermittent difficulty in staffing a few town areas.

Nurses coming forward to join the Public Health Nursing Service are from an increasingly younger age group. This is a desirable development. However, it does throw considerable weight on nurse inspectors with intensive supervisory activities which are necessary with the very young nurses.

The general trend in caring for the physically and mentally ill outside the hospital is putting great stress on the public health nurse, and it is obvious that in the near future we will require greater numbers of nurses working in the community. Most nurses are fully aware of the desirability of this development and cooperate in every way possible to assist in this trend.

3. DENTAL HEALTH

Dental health services provided directly or indirectly by the Department continue to function effectively.

School dental nurses have provided in the year systematic treatment for 419,597 pre-school and primary school children. A further 189,529 children have received regular treatment until 16 years of age from private dentists under the Social Security (Dental Benefits) Scheme, and from a limited number of salaried dental officers.

During the course of the year, in addition to many other overseas visitors, a Mission of Inquiry, sponsored by the Canadian Government, Saskatchewan, led by Dr A. E. Chegwin, Director Dental Health Division, was received.

Staff

On 31 March 1963 the professional and technical staff of the Division, excluding those seconded to other services and foreign students studying in this country, numbered 1,478, comprising 47 dental officers, four matrons, 42 dental nurse inspectors and tutor sisters, 965 school dental nurses (81 part time), 411 student dental nurses, and nine dental attendants.

The number of school dental nurses engaged in field work has increased from 910 to 965. A further 190 are needed.

Adolescent Dental Service

This service is available to children in the age groups 13½ to 16 years of age and is provided by:

(a) Full-time salaried dental officers of the Department; and

(b) Private dental practitioners operating under a Social Security (Dental Benefits) Fee-for-service Scheme.

(a) *Treatment by Salaried Dental Officers*

The following are the statistics for the year under review for clinics in the Division of Dental Health controlled by dental officers (the figures for the previous year in parentheses):

Number of dental officers	17 (18)
Number of dental attendants	14 (18)
Number of treatment centres (including sub-bases)	20 (23)
Number of schools under treatment	29 (32)
Number of children under regular treatment	6,226 (8,147)
Operative dental treatment—	
Total number of fillings	39,013 (42,881)
Total number of teeth extracted	2,427 (2,494)
Total number of operations	61,359 (71,502)

Full-time salaried officers of the Division comprise most of the staff of the Mental Hospital Dental Service. A dental officer is seconded to the Cook Islands and another visits Fiji each year to give dental treatment to New Zealand Civil Aviation personnel and their families at Nandi and Lauthala Bay.

Reference was made last year to the fall in the number of bursars and to the effect of this on the staffing of departmental dental clinics with full-time dental officers. In localities where adequate alternative services were available five adolescent dental clinics were closed.

(b) *Treatment by Private Dental Practitioners*

Statistics relating to treatment rendered under the social security dental benefits for the year under review are as follows (figures for the previous year in parentheses):

Number of children enrolled for general dental benefits as at 31 March	189,529 (177,680)
Number of children who ceased to be enrolled for general dental benefits on attaining 16 years of age	38,008 (31,960)
Total amount paid private dental practitioners for treatment rendered under general dental benefits	£1,125,839 (£1,032,513)
Number of completed treatments in respect of which the above sum was paid	292,569 (269,359)
Average cost per completed treatment for general dental benefits	£3 16s. 7d. (£3 16s. 8d.)

School Dental Service

As shown by the statistics relating to the work of the School Dental Nurse Service, the year under review has shown an increase in the number of treatment centres and in the number of patients enrolled

at school dental clinics. Although there has been an appreciable increase in the number of school dental nurses it has only recently occurred and during the year field staff totals were fluctuating at lower levels.

Number of school dental nurses	965 (910)
Number of treatment centres (including sub-bases) ..	1,045 (981)
Number of schools	2,511 (2,505)
Number of children	419,597 (396,456)
Operative dental treatment—	
Total number of fillings	2,135,903 (2,083,652)
Number of carious permanent teeth extracted ..	737 (654)
Number of carious deciduous teeth extracted	71,756 (62,988)
Total number of carious teeth extracted	72,493 (68,642)
Total number of operations	3,259,028 (3,197,471)

The total number of fillings amounting to 2,135,903 is to be contrasted with 72,493 teeth removed as unsavable. This latter figure, together with 4,747 teeth extracted for School Dental Service patients by contracting dentists under dental benefits represents a ratio of 3·1 teeth extracted because unsavable to every 100 fillings. The fall in the ratio of extractions to fillings is clearly shown in the following table:

Year	Fillings	Extractions	Ratio of Extractions per 100 Fillings
1925	59,322	43,181	72·6
1935	399,560	70,207	17·5
1945	1,017,290	76,335	7·5
1955	1,440,245	83,247	5·8
1963	2,135,903	77,240	3·1

Treatment of Pre-school Children

The number of pre-school children presenting for treatment continues to follow an upward trend. The number receiving treatment in the School Dental Service over the past 14 years is shown in the table below:

Year	Number of Pre-school Children Treated	Approximate Percentage of Total Pre-school Population 2½ to 5 Years of Age
1950	22,514	19
1955	44,976	35
1960	63,012	44
1961	65,001	46
1962	66,827	46
1963	73,158	49

Improvement in the condition of the teeth of pre-school children at the date of enrolment in the School Dental Service is shown, in terms of the mean number of decayed, extracted, or filled teeth per child over the past 12 years, in the table below:

Age in Years	Mean Number of d.e.f. Deciduous Teeth per Child		
	1950	1955	1961
2	1·76	1·60	1·12
3	4·19	4·08	2·95
4	6·41	6·26	5·08
5	7·45	7·34	5·87

Schools for Dental Nurses

The number of students in training at 31 March 1963 (including overseas students) was 411, compared with 372 twelve months ago. During the year 163 students graduated and 229 new trainees were appointed. This is the highest intake to date and has entailed expansion of the training facilities at the Christchurch School to cope with 30 additional students.

Dental Health Education

Teaching the basic principles of dental health continues to be a major activity. As well as routine chairside instruction many displays and exhibits with a dental health motive were prepared and presented by school dental nurses. In all 9,687 lectures and addresses to parents and children were given and 208 health exhibitions and health stalls at schools and public functions were arranged.

With the valuable cooperation and assistance of the Apple and Pear Board much useful teaching material has been distributed to school dental nurses.

No concise method of assessing the results of dental health education has yet been devised. However, as shown earlier in this report, the percentage of pre-school children enrolled and the conditions of their teeth when initially examined continue to improve and can be taken as an indication of parent interest and the reflected effect of the dental health programme.

Colombo Plan and WHO

The New Zealand dental care programme continues to attract attention from many parts of the world. During the year observers came from Burma, Indonesia, and Japan under the aegis of either Colombo Plan or WHO. Twenty-seven overseas persons have been attached for training, seven from Ghana sponsored by SCAAP, 12 from Sarawak, four from North Borneo, two from Singapore, and two from Malaya.

Various countries in the Colombo Plan area are being assisted with the development of their dental services by providing trained New Zealand school dental nurse staff. One dental nurse inspector is in

Ceylon and two dental tutor sisters are teaching in the recently established School for Dental Nurses in Singapore.

It is very satisfactory to report that since 1951, at least 65 overseas persons from one or other of the following countries have been attached for training – Ceylon, Thailand, Malaya, Singapore, Indonesia, North Borneo, Sarawak, and Hong Kong. The strain on staff and existing facilities has at times been considerable but the Division has been pleased to provide all possible assistance to the underdeveloped countries. At the request and expense of the Australian Federal Government two New Zealand school dental nurses are on loan to the territory of Papua-New Guinea assisting in the establishment of a school dental service based on the New Zealand pattern.

Dental Bursaries

Ten bursaries were awarded against three last year. This no doubt is due to the improved conditions.

Dentists Register

In the year ended 31 March 1963 the number of registered dentists (provisional registration included) increased from 1,092 to 1,123. 821 practising certificates were issued.

Dental Research

The Principal Dental Officer (Research) is engaged on a national survey of persons in the 16–21 years age group. Results, when available, will be of the utmost importance for the purpose of evaluating the dental care programme and for future planning.

Pending the provision of permanent quarters the Dental Research Unit of the Medical Research Council is still accommodated at the Wellington School for Dental Nurses.

Dental Health Committee

During the year the Dental Health Committee of the Board of Health investigated and reported on the conditions of employment in the dental technician's industry.

Dental Legislation

A Dental Bill revising and amending the Dentists Act 1936 was introduced into the House of Representatives during the past session. The Bill was referred to the Social Services Committee for consideration.

4. MEDICAL STATISTICS

Publications

During the year four further special reports have been issued – No. 7, Tuberculosis in Canterbury; No. 8, Maori Patients in Mental Hospitals; No. 9, Census of Mental Hospital Patients, 1961; and No. 10,

Elderly Persons Accommodation Needs in New Zealand, 1962. Carcinoma of the Cervix in New Zealand, foreshadowed in the report of the Department for 1962, together with further reports in the course of preparation, will be published later.

Statistical Studies

No important statistical studies other than those contained in the special reports have been undertaken during the year, but in view of the lower incidence of infective hepatitis in 1962 a summary of the study on this disease issued in the last two reports is given to include the 1962 figures.

Infective Hepatitis

Notifications, Numbers and Rates, 1958–62 (Including Maoris)

Year	Number of Notifications	Rate per 100,000 Mean Population
1962	2,816	113·2
1961	3,870	159·4
1960	3,895	163·9
1959	1,973	84·5
1958	1,893	82·8

There has been a significant fall in the number of notifications for 1962 and this has been sustained throughout the whole year, every month showing a decrease as indicated by the following table. The peak months were February, March, and January in that order, notifications being at their lowest in July, December, and August.

Notifications of Infective Hepatitis, by Months, 1958–62

Month	1962		1961		1960		1959		1958	
	No.	Annual Rate	No.	Annual Rate	No.	Annual Rate	No.	Annual Rate	No.	Annual Rate
January ..	273	131·6	470	232·3	172	86·8	163	84·0	70	37·2
February ..	301	145·2	390	192·7	189	95·4	165	85·2	117	61·2
March	290	139·8	295	145·8	169	85·2	158	81·6	127	67·2
April	200	96·5	244	120·6	157	79·2	132	68·4	133	69·6
May	253	122·0	279	137·9	200	100·9	116	60·0	152	79·2
June	230	110·9	328	162·1	214	108·0	167	86·4	182	96·0
July	175	84·4	296	146·3	229	115·2	149	76·8	175	92·4
August	183	88·2	305	151·2	363	183·6	209	108·0	149	78·0
September ..	224	108·0	343	169·4	533	268·8	137	70·8	182	96·0
October ..	247	119·2	338	167·0	584	294·7	174	90·0	202	105·6
November ..	261	125·9	310	153·1	517	261·6	225	115·2	213	111·6
December ..	179	86·3	272	134·4	568	286·7	178	91·2	191	100·8
Totals ..	2,816	113·2	3,870	159·4	3,895	163·9	1,973	84·5	1,893	82·8

This drop in notifications, however, is by no means uniformly reflected in all health districts. In the North Island there has been a considerable fall in all Auckland districts, Hamilton, Rotorua, New

Plymouth, and Palmerston North. Gisborne, Wellington, and Wanganui show a fairly substantial increase. In the South Island the fall is marked in Dunedin and Invercargill. Nelson shows an increase. In the remaining areas the movement is not so pronounced.

In the following international comparison of death rates in 19 selected countries for 1960 (the latest year available), New Zealand, together with Hungary, had the highest figure of 1·4 per 100,000 population. The New Zealand rate, however, fell to 0·6 in 1962.

Deaths from Infective Hepatitis – Rates per 100,000 Population
International Comparison, 1960

Country	Rates per 100,000 Population
Sweden	0·1
Finland	0·1
Denmark	0·2
Yugoslavia	0·2
Norway	0·4
France	0·4
The Netherlands	0·5
U.S.A.	0·5
Canada	0·6
Australia	0·6
Northern Ireland	0·7
Scotland	0·7
England and Wales	0·7
Ireland	0·7
Belgium	0·7
Czechslovakia	0·8
Switzerland	1·3
Hungary	1·4
New Zealand	1·4

Statistical Assistance

A number of requests for medical statistics have again been received from overseas, including the World Health Organisation, and from within New Zealand, in several cases involving a considerable amount of research. The usual programme for medical officers of health, Directors of Divisions of the Department, etc., has been maintained.

Statistical Survey for 1962

Due to circumstances beyond the control of this Branch, population and death figures for 1962 are at present available for the total population only. It is therefore not possible to make a statistical survey for Europeans and Maoris separately at this time.

The total number of live births registered in New Zealand during 1962 was 65,128, this figure being 348 less than in the previous year. Of the total births 57,464 were European, 242 less than were registered in 1961, and 7,664 were Maori, 106 less than in 1961. The stillbirth rate for the total population was 12·80 per 1,000 total births, the lowest figure on record.

The infant mortality rate for the total population also fell to the lowest ever figure of 20·33 per 1,000 live births, but it is not yet possible to state whether the fall has occurred in both races. In view of the relatively steady position of the European rate as contrasted with a marked fall in the Maori rate in recent years, it appears reasonable to assume that the fall in the total rate for 1962 has largely occurred in the Maori figure. The neo-natal death rate (deaths in the first month per 1,000 live births) fell to 12·65, indicating that a considerable part of the saving of life has occurred in this group. Here again it is not possible to make any comparison between European and Maori figures at this stage.

The principal causes of infant mortality (European and Maori combined) are shown in table 6 of the Appendix. The most important movement is the fall in the death rate for the chief respiratory diseases (influenza, pneumonia, and bronchitis), the rate of 2·8 per 1,000 live births being exceptionally low. This is particularly noteworthy in a year in which influenza has taken an increased toll of life.

Principal Causes of Death

Certain causes of death and the rates per 1,000,000 of population for European and Maori combined over a period of five years are shown in table 3 of the Appendix. The causes of death have been classified in accordance with the International Classification of Diseases, Injuries, and Causes of Death (1955 revision), but for the purposes of this table have been grouped to show the causes of death that are mainly responsible for mortality in New Zealand in recent years. All 1962 figures are provisional and are subject to minor alteration. Figures for the two races are always combined in this table as it is considered that a summarised statistical survey should cover the whole population of New Zealand. In cases where race characteristics are important, separate figures can be obtained later from the detailed statistics contained in the *Annual Report on Medical Statistics.*

The death rate from all causes fell slightly to 8·87 per 1,000 of mean population in 1962, compared with 8·97 in 1961.

There were 134 deaths from tuberculosis, this number being the same as in 1961, giving a slightly lower rate of 54 per million in 1962 compared with 55 in 1961. No deaths occurred from poliomyelitis compared with seven in 1961, none in 1960, one in 1959, and 51 in 1956, the last epidemic year. The total of all other infective and parasitic diseases showed a further decline, part of this being due to the fall in deaths from infective hepatitis from 24 in 1961 to 15 in 1962. There was a slight fall in the total number of deaths from vascular lesions of the central nervous system and from all forms of heart disease. The motor-vehicle accident rate fell from 169 in 1961 to 164 although only one more death was registered in 1961 than in 1962 from this cause. The rate for all other accidents increased from 302 in 1961 to 310 in 1962, falls being a major cause of death in this group. Once again the figures disclose an increase in the total deaths from cancer although the rate of 1,459 per million of population is the same as for 1961.

Part of this increase must be attributed to a higher male death toll from lung cancer although there were fewer female deaths from this cause in 1962 than in 1961.

The prevalence of influenza in 1962 is indicated by the total of 188 deaths from this cause, a number only two short of the 190 deaths recorded during the last peak year of 1959. The death rate for 1962, however, was 76 per million compared with 81 in 1959. The following table discloses an increased death toll from the disease in all age groups compared with 1961. Of the total deaths from this cause in 1962, 71·8 per cent occurred in the 65-and-over age groups.

Deaths from Influenza (Total Population), by Age, 1961–1962

Age Group	1962		1961	
	Number of Deaths	Rate per 1,000,000 Mean Population	Number of Deaths	Rate per 1,000,000 Mean Population
0 – 1 year	11	4·42	4	1·65
1–24 years	10	4·02	3	1·24
25–44 years	13	5·22	2	0·82
45–64 years	19	7·64	2	0·82
65 years and over ..	135	54·25	24	9·89
Total	188	75·55	35	14·42

PART II—BUREAU OF MEDICAL SERVICES

1. HOSPITALS

Introduction

As a result of further reorganisation in the Department the special functions of physical medicine, rehabilitation, tuberculosis, and welfare services which had previously been separate units of the Bureau of Medical Services have now been brought into the Division of Hospitals. Four medical officers each now have an allocation of hospital board areas on a geographical basis, and each also has a responsibility on a national basis for one of the following special functions: Welfare Services (care of the aged and youth hostels), Private Hospitals, Tuberculosis, Physical Medicine, and Rehabilitation.

In addition, one medical officer is in charge of an operational research unit which is not dealing with day-to-day hospital board administration, but whose work should produce basic data on which administrative decisions affecting hospital planning and policy can be made.

During the year the operational research unit made its first major survey and investigated the dependency of patients upon the ward nursing staff in three large metropolitan hospitals in Christchurch. The main purpose of the survey was to provide data from which the North Canterbury Hospital Board and the Department could assess the need for new ward accommodation. The first report, which deals with gynaecology, has been presented to the Board; another on geriatrics is practically completed and others will follow shortly. It is hoped that these reports will be of assistance to all hospital boards. The Christchurch survey has been the main activity of the unit so far, but it has also undertaken a series of smaller assignments dealing with obstetric beds and midwifery training. Results to date have been sufficiently encouraging to warrant the establishment of the unit on a permanent basis.

In previous reports credit has been given to the significant post-war achievements of the hospital service in better utilisation of hospital beds, but at the same time it has been emphasised that to provide for a rapidly growing population these achievements in inpatient care must be supplemented rapidly and extensively by other means which are now practicable.

Years ago the family doctor attending his patients in the home was the centre of medical services and hospitals were a last line of defence for unavoidable medical and surgical treatment for serious casualties and emergencies, and for infectious diseases. The provision of hospital benefits under social security removed financial barriers to hospital admission, while at the same time developments in medical science, in surgery, in anaesthesia, in laboratory techniques, in radiography, in drugs, and in equipment were making it possible, both in surgical and medical fields, to cure where previously symptoms only could be alleviated or in many cases little done. These continuing developments have now

made it possible to extend many of the hospital services to the community and to arm the general practitioner with the tools again to treat his patients in their homes after a relatively short hospital stay for the acute stage, or often indeed without the need for hospital admission at all.

The general practitioner now has access to laboratory tests and to radiography to assist diagnosis, to all the modern drugs for treatment, to district nursing services, home-aid services, meals on wheels, hospital laundry services for old people, visiting physiotherapists and occupational therapists, the provision of aids to daily living, to oxygen, artificial respirators, wheel-chairs, and other hospital equipment to enable his patients to be cared for in the familiar and beneficial atmosphere of home. A new group of community nurses is being trained to fit into this overall picture. For the year ended 31 March 1962 district nurses paid 598,000 visits to 77,000 cases; 226,000 meals were supplied through the meals-on-wheels scheme; 64,000 pieces of laundry were washed for old people who could not manage this at home; just on 1,000 cases were cared for by home aids; and physiotherapists and occupational therapists paid over 7,000 visits. Many of the individual stories behind these figures, of families kept together and of the benefit to people of care in their home and family environment, are heart-warming.

Not that all these services are available everywhere or will be for a long time, for, apart from limiting factors of staff, not all hospital boards are yet by any means as active in these fields as they ought to be. The Department has done and will continue to do all it can to stimulate these developments – to encourage the active boards and to stir the inactive.

It is not within the capacity of the country's economy or the resources of the construction industry or the labour pool to provide and staff hospital beds for the growing population up to the level which may have been thought desirable or necessary in the past. The concepts of maximum provision of extra-mural services by hospitals and maximum home care of people who would otherwise require to be in hospital offer not only the best approach to the provision of essential medical services for a rapidly growing population and to limiting hospital expenditure, but equally important a very desirable and much closer relationship between the hospital and the general practitioner in the best interests of the patient.

Hospital Advisory Council

The Hospitals Advisory Council met on two occasions during the year. Matters which were the subject of recommendation to the Minister were the changes in representation on hospital boards, the provision of ward telephones, the provision of filtration plants for hospital swimming pools, and hospital boards' responsibility in operating home-aid services.

With the Minister's approval, the Council appointed a committee to investigate and report upon the current and future needs in cardiac surgery in New Zealand. The committee has heard evidence at Auckland, Wellington, and Dunedin and expects to present its report before June 1963.

Institutional Beds, Patients, and Services

Public and Departmental Institutions

In the supplement to the annual report of hospital statistics as at 31 March 1962, 220 hospital board and departmental institutions were listed, consisting of 72 general hospitals, 98 maternity hospitals, 25 special hospitals, 21 old people's homes, and four Government institutions.

The number of beds at 31 March 1962, of all descriptions, available for patients or inmates in all public institutions and licensed private hospitals are shown in the following table:

Type of Bed	Public Institutions (Including Government)		Private Licensed Hospitals: Number of Available Beds	Total Number of Available Beds
	Number of Available Beds	Average Number of Occupied Beds per Day		
General	12,598	9,728	2,502	15,100
Per 1,000 of population ..	5·2	4·0	1·0	6·2
Maternity	2,699	1,783	377	3,076
Per 1,000 of population ..	1·1	0·7	0·2	1·3
Total hospital beds	15,297	11,511	2,879	18,176
Per 1,000 of population ..	6·3	4·7	1·2	7·5
Non-hospital beds ..	1,228	989	..	1,228

There is a reduction in the number of general beds available in public institutions, the number of new beds commissioned having been more than offset by losses mainly due to the closing of the Waipiata Sanatorium (152 available beds) and the conversion of former in-patient accommodation at one or two hospitals to other purposes.

Private Hospitals

The following table shows the number of licensed private hospitals and beds as at 31 December 1962. The comparable position as at 31 December 1961 is shown by the figures in parentheses:

Type of Hospital	Number of Hospitals	Number of Licensed Beds
Maternity	27 (32)	240 (285)
Medical and surgical	46 (47)	987 (952)
Medical	63 (62)	991 (927)
Medical and children	6 (6)	*249 (247)
Maternity, medical, and surgical	7 (7)	†457 (455)
Psychiatric	2 (1)	31 (17)
Totals	151 (155)	2,955 (2,883)

*Consists of 199 children's beds and 50 medical beds which is two more children's beds than last year.

†Consists of 91 maternity beds and 366 medical and surgical beds, as compared with 91 maternity beds and 364 medical and surgical beds last year.

During the year nine private hospitals were closed resulting in a decrease of 33 medical and surgical, 40 maternity, and 23 medical beds, but the losses in beds were more than offset by the opening of five new hospitals and by the licensing of additional beds in existing hospitals.

Persons Being Treated or Maintained in Public Hospitals

The number of persons who were treated or maintained in public institutions during the year ended 31 March 1962 was 265,089 including 2,021 persons maintained at some time during the year in non-hospital beds mainly in hospital board old people's homes. This total is equivalent to 10·81 per cent of the population of this country. The number of attendances by outpatients was 2,224,601 including 79,364 attendances by dental outpatients.

The statistics now obtained from hospital boards enable figures for general hospital beds and maternity beds to be separated as shown in the following table and while detailed comparison cannot be made in this way with previous years the grand totals show comparison with the previous year and a decade previously.

Number of Patients

1962	Available	Average Beds Occupied per Day	Inpatients Treated	Turnover	Number of Births	Outpatients Attendances (Including Dental)
General hospital beds—						
In institutions classed as general hospitals ..	10,652	8,248	187,885	22·8	..	2,096,318
In other institutions ..	1,946	1,480	10,251	6·9	..	128,283
Maternity beds—						
In institutions classed as general hospitals ..	1,318	862	30,974	..	28,117	
In separate maternity hospitals	1,381	921	33,957	..	28,768	
Grand totals—						
1962	15,297	11,511	263,067	..	56,885	2,224,601
1961	15,294	11,453	253,436	..	53,962	1,994,342
1951	14,394	10,803	190,681*	..	not available	1,452,727

*Also includes persons maintained in hospital board old people's homes.

The 1,946 beds in "other institutions" referred to as having these general hospital beds comprised 580 beds in hospitals which are also old people's homes, 1,196 in special hospitals of several types, and 170 general beds in maternity hospitals.

In the section relating to maternity beds, all births are shown as relating to these beds, but some small proportions of births, for example, those occurring from caesarean operations will have taken place in the surgical section of general hospitals. It will also be noted the number of patients treated in maternity beds exceeds the number of births, and this is due to admissions for ante-natal treatments and the inclusion in the statistical definition of "patient" of babies requiring special treatment after birth.

Special Departments and Specialist Services in Public Hospitals

Summarised totals (inpatient and outpatient combined) of the work done by special departments in all hospitals are as follows:

		Year Ended 31 March		
		1956 (000)	1961 (000)	1962 (000)
X-ray diagnostic:	Number of examinations	609	664	660
X-ray therapy:	Number of treatments	77	87	97
Physiotherapy:	Number of treatments	862	1,250	1,436
Pathology—				
	Number of tests	896	1,796	2,059
		No.	No.	No.
	Number of post-mortems	3,276	4,312	4,335

Staff in Public Hospitals

The total of employees of all hospital boards at 31 March 1962 was 932 more than the previous year.

Institutional staffs, i.e., excluding administration, district nursing, farm, and miscellaneous staff, employed at 31 March 1962 totalled 23,391 for the total of 16,248 beds in hospitals and old people's homes. Of these beds 12,283 were occupied daily and the staff engaged averaged 1·9 per occupied bed.

Staff Employed

The number of staff employed in public hospitals and other institutions and activities controlled by hospital boards at 31 March 1962 and the actual payments of remuneration for the year which ended on that date, with the corresponding figures in parentheses for the previous year, are as shown below:

	Numbers Employed at 31 March 1962	Salaries and Wages Payments for 1961–62 £(000)	£(000)
Institutional medical (whole time and part time)	1,421* (1,389)	1,503	(1,331)
Other professional and technical	1,760 (1,655)	1,243	(1,186)
Nursing	10,845 (10,434)	4,701	(4,533)
Other treatment staff	394 (391)	321	(299)
Domestic and other institutional staff ..	8,971 (8,676)	5,973	(5,745)
Administrative staff	523 (525)	492	(474)
District nursing	267 (197)	170	(155)
Farm (including vegetable gardening) ..	36 (49)	29	(46)
Other non-institutional	211 (180)	140	(116)
Total	24,428 (23,496)	14,572	(13,885)

*The numbers are those of positions filled at all institutions and persons are duplicated where they provide clinical services at more than one institution.

Medical Staff

The following table shows the number of medical officers employed by hospital boards at 31 March 1963. In the case of visiting medical officers the hours worked have been converted to show the number of

whole-time employees that would be required to give an equivalent service.

—	Whole Time	Part Time	Whole Time Equivalent	Total
Medical administrators	54	18	9	63
Physicians—				
General	24	103	38	62
Tuberculosis	16	7	3	19
Others	9	63	23	32
Surgeons—				
General	24	81	34	58
Others	21	135	49	70
Pathologists	30	6	3	33
Radiologists and radiotherapists ..	39	34	13	52
Anaesthetists	30	135	34	64
Other medical staff	6	55	14	20
	253	637	220	473
Registrars	145	..	..	145
House surgeons and house physicians ..	178	..	..	178
	576	637	220	796

Overseas Post-graduate Study Leave

Leave on pay and assistance with fares for overseas study in 1963 was granted to eight whole-time and 19 part-time senior medical officers.

In an effort to induce junior medical officers to remain longer in hospitals a scheme for a grant of £1,530 and £150 towards fares for overseas study was introduced in 1962 for those giving four years continuous post-graduation service. The first awards were made last year to 19 officers.

House Surgeons and Registrars

The shortage of junior medical officers continues to be a matter of considerable concern. In an effort to secure a more equitable distribution of available staff, house surgeon establishments for 1963 were reviewed by a committee of representatives of the Medical Superintendents' Association and the Department, and in a number of cases these establishments were reduced. Boards so affected were permitted to recruit additional junior medical officers up to the previously approved establishment, provided they did so with recruits from overseas or from outside the normal house surgeon pool. Overall there appears to have been a slight improvement in that 178 effective house surgeon appointments were made compared with 168 in 1962. There was also an appreciable increase in the number of registrar appointments made.

Equal Pay

For many years equal pay had applied in the Government services to women in professional occupations and in graded clerical posts, and in the hospital service to such groups as medical staff and laboratory and X-ray workers. Following the extension of equal pay by the Government

Services Equal Pay Act 1960, Government approved the application of the principles of this Act to other women in the hospital service whose salaries and conditions of employment are determined under the Hospital Employment Regulations. New scales applying the principles of equal pay in three stages, from 1 April 1961, 1 April 1962, and 1 April 1963, to dietitians, nurses, occupational therapists, and physiotherapists were issued in December 1962. A significant change in conditions of employment for nurses was made to take effect from 1 April 1963 in conjunction with the last stage of the equal pay scales. Whereas previously nurses' salaries were expressed as living-in salaries with free board and lodging or with a living-out allowance, they are now expressed from 1 April 1963 as live-out salaries with a deduction where board and lodging is provided. In comparing the remuneration of nurses with that of other groups there has previously been a tendency by the public, and also sometimes within the hospital service, to ignore the substantial element of remuneration represented by free board and lodging. This change in the basis of salary which has been widely favoured for some years, and will also simplify administration, will in future give a much clearer perspective to such salary comparisons.

Salaries Advisory Committees

Decisions arising from recommendations made by salaries advisory committees included improved salary scales for laboratory workers, physicists, visiting medical officers, and radiographers. A new class of hospital scientific officer was provided for in the laboratory workers' scales.

Hospital Works and Development

Hospital Works

The annual building programme for hospital boards, table 20 of the Appendix, is compiled from a return of estimates provided by hospital boards. This aggregate of costs based on present-day figures is substantial and reflects the large programme of work in progress and in various stages of planning.

The forecast of expenditure by boards tends to overestimate the rate at which works will progress and also the time new works will start and, while some individual projects may exceed estimated expenditure, the aggregate results are invariably below the expected totals. The corresponding table last year showed that boards collectively estimated to spend £6·6 million during 1962–63. A detailed revision by the Department and Ministry of Works reduced this sum to £5·3 million while actual expenditure is less than £4·9 million. The building industry continues to be heavily committed, particularly in the larger centres.

Hospital works projects of a value of over £10,000 are usually financed by loans raised by boards. Hospital boards are in competition with other local bodies with large expansion programmes, and in this respect the advice of the Local Authorities Loans Board is invaluable to the Department and the Hospital Works Committee in the determination of forward planning of hospital buildings.

Details of building projects that have been completed in the past 12 months appear in table 21 of the Appendix.

Hospital Works Committee

The Hospital Works Committee held 19 meetings and in its advisory capacity during the past financial year dealt with the following items (each of a value of over £10,000):

Hospital Board—	
Building projects	114
Development schemes	6
Land purchase and sales	2
Loans	23
Private hospital loan applications	11
Old people's homes and pensioners' flats ..	19
General items	16

Building proposals for hospital boards are dealt with by the committee from provisional approval right through each design stage so that the number of proposals considered is in aggregate much greater than 114.

Architectural Services

The architectural advisory service deals with a continuing large volume of building projects both small and large. This is reflected in the value of projects that appear in aggregate value in table 21. In addition, this service extends to hospital development schemes, old people's homes, pensioners' flats, private hospitals, etc., and involves inspections of existing facilities, sites of proposed new structures, discussions with hospital boards and their consultants.

While the building of bed accommodation still plays an important role in new buildings, emphasis has recently been on the provision of more adequate outpatients' facilities in an endeavour to reduce the inpatient loads in hospitals.

St. Helens Hospitals

Auckland—The new 80-bed nurses' and domestics' home on the new hospital site at Western Springs, adjoining Chamberlain Park, was commissioned in March 1963. Tenders are being called for the new 63-bed hospital on that site. The duty nurses are being transported to and from the old hospital in Pitt Street until the new hospital is built.

Wellington—The new 60-bed hospital block adjacent to the present hospital in Coromandel Street is due for completion in 1964. When the new hospital block is completed the present 33-bed hospital will be converted to nurses accommodation for the additional staff required for the new hospital.

Christchurch—The 60 bed extension to the present 48-bed hospital is due for completion towards the end of 1963. Work has commenced on the new nurses' home, timed for completion during 1964.

Consents to Capital Expenditure

The actual annual rate of expenditure does not fluctuate substantially, and the fluctuation here merely shows the point of time at which formal consents as required by the Hospitals Act are issued for boards to undertake future expenditure.

Buildings—During 1962–3 consents were granted to hospital boards to undertake building projects (with 1961–1962 figures for comparison) as follows:

	1961–1962 £(000)	1962–1963 £(000)
Major works exceeding £20,000	1,988	4,217
Consents ranging from £10,000 to £20,000	366	265
Consents ranging from £5,000 to £10,000	269	267
Consents ranging from £500 to £5,000	355	336
	£2,978	£5,085

Hospital Equipment and Furnishings—In the same period approvals were issued to boards for expenditure of £1,057,614 for items of equipment and furnishings costing more than £500 (with 1961–1962 figures for comparison) as follows:

	1961–62 £	1962–63 £
Motor vehicles: Ambulances, trucks, cars	48,055	70,049
X-ray equipment	40,745	75,821
Furniture: Nurses' homes, staff accommodation	54,280	117,517
Ward equipment	62,182	53,147
Surgical and specialist equipment	22,377	85,310
Laundry equipment	28,701	98,352
Hospital equipment	144,035	321,419
Boilers and generators	164,784	235,999
	£565,159	£1,057,614

Finance

Actual expenditure of hospital boards in 1961–62 for both capital and maintenance purposes (inclusive of expenditure from loans, but exclusive of amounts paid between boards or to Government institutions) totalled nearly £33 million and is summarised thus:

	1960–61 £(000)	1961–62 £(000)
Maintenance	23,728	25,189
Capital	7,007	7,442
	£30,735	£32,631

Maintenance Expenditure

A summary of maintenance expenditure of hospital boards for 1961–62 (with the figures for 1960–61 for comparison) is given below:

—	1960–61		1961–62	
	Amount	Percentage of Total	Amount	Percentage of Total
	£(000)		£(000)	
Institutional maintenance	20,995	88·5	22,109	87·7
Outdoor relief	59	0·3	66	0·3
Grants to private hospitals, etc. ..	55	0·2	53	0·2
District nursing (including grants) ..	245	1·0	267	1·1
Transport of patients (including grants) ..	246	1·0	276	1·1
Administration	585	2·5	609	2·4
Interest on loans	1,214	5·1	1,286	5·1
Superannuation	181	0·8	210	0·8
Services provided for other boards or departmental institutions	..	..	17	0·1
Miscellaneous	148	0·6	296	1·2
Totals	23,728	100·0	25,189	100·0

Inpatient Expenditure – General Hospitals

For the year 1961–62 the average daily expenditure for individual inpatients treated in hospitals classed as general hospitals was £4 17s. 11d., outgoings totalled just under £45,000 each day for resident patients. On the average each inpatient cost £75 4s. as compared with £73 7s. in the previous year.

Daily expenditure per inpatient in general hospitals was made up as follows:

Treatment expenditure—	1960–61	1961–62
Salaries and wages—	£ s. d.	£ s. d.
Medical	5 3	5 11
Nursing	1 0 4	1 0 11
Technical and other treatment staff	2 1	2 3
Total	1 7 8	1 9 1
Special departments (e.g.) X-ray laboratories ..	3 11	4 4
Supplies and expenses	6 3	7 0
Subtotal, treatment	1 17 10	2 0 5
Institutional administration	7 8	8 0
Heat, light, power, and water	7 8	8 0
Household (housekeeping, dietary, laundry) ..	1 15 5	1 16 7
Buildings and grounds	4 11	4 11
Subtotal, non-treatment	2 15 8	2 17 6
Total daily expenditure	£4 13 6	£4 17 11

The total expenditure per inpatient was made up as follows:

	1960–61			1961–62		
	£	s.	d.	£	s.	d.
Treatment	29	13	0	31	0	0
Institutional administration	6	0	0	6	3	0
Heat, light, power, and water	6	0	0	6	3	0
Household	27	15	0	28	2	0
Buildings and grounds	3	18	0	3	15	0
Miscellaneous		1	0	0	1	0
	£73	7	0	£75	4	0

Inspection and Advisory Services

Officers of this and other Divisions have continued their active programme of inspection of hospital boards.

Hospitals in their respective areas have been visited by the Director and his Assistant Directors and they, too, also accompanied the Director-General on inspections.

The nursing, physiotherapy, and occupational therapy inspectors have inspected relevant services and activities. The Department's architect, his staff, and the advisory engineer have dealt with architectural and engineering problems.

The inspection of laboratories is undertaken by several pathologists from the larger hospitals who visit other hospitals. District nurse inspectors regularly inspect and report on maternity hospitals.

The advisory officers and advisory house managers visited 14 hospital boards during the year, reporting on the administration services and activities of the boards and hospitals visited. Several special visits were also necessary during the year, particularly to assist and advise boards on equipping new wards and departments and these officers now also maintain a regular programme of visits to all departmental hospitals.

Many deputations from boards are received by the Division, and these visits enable problems in connection with buildings, finance, and equipment to be discussed with departmental officers and close and cooperative associations are maintained.

Dietary

The Department's advisory service has continued throughout the year to give assistance on all aspects of hospital dietary administration to hospital boards and to the Mental Health Division. In addition to visits to public hospitals, visits to psychiatric hospitals were proceeded with and all have now been visited at least once; it is considered that a satisfactory basis for future advisory visits has been established.

Fifty-two dietitians were employed by hospital boards in 1962; this is a slight increase on numbers employed for some years but is still well below establishment.

Nine students passed the State Examination for Dietitians and became eligible for registration. In 1963 a record number of 20 students entered training at the four training hospitals. Twelve of them hold Health Department bursaries.

In 1962 there was an increase in value of the bursary of £20 per annum. Twelve new bursaries have been awarded and 23 renewed at the higher rate.

Ambulance Services

Ambulance Transport Advisory Board

The Board met on three occasions during the year and, in addition, the working committee of the board met on a number of occasions.

Air Ambulance Service

A total of 25 licensed aircraft operated by aero clubs and commercial operators are now available for ambulance purposes.

Civil aircraft carried 298 ambulance cases during the year 1961–62 and although it is difficult to arrive at the full cost of the service, because payments are included under the general heading "Transport of Patients", it would appear that the average journey cost about £40. Air ambulance facilities were also provided by the RNZAF and NAC when necessary.

Road Ambulances

Hospital boards are required by statute to make provision for the transport of sick and injured patients, and they either do this work themselves or else enter into an arrangement with a voluntary organisation to provide the ambulance services for their district.

Hospital boards which operate their own services had a combined fleet of 64 ambulance vehicles and 44 ambulance stations as at 31 March 1962, and in addition voluntary organisations operated, on a subsidised basis, 143 ambulances from 80 ambulance stations. A total of 153,804 patients were transported during the same financial year and the combined running totalled 1,826,391 miles.

Finance

Grants made by hospital boards to subsidised organisations during the year 1961–62 amounted to £170,805 for maintenance purposes and £8,845 for capital purposes towards the cost of purchasing eight new ambulance vehicles. In addition to the grants received from hospital boards, ambulance operators themselves provided a considerable sum of money by way of voluntary contributions.

Ambulances operated by hospital boards incurred an expenditure of £39,167 for maintenance purposes, and consent was given for a capital expenditure of £11,250 for the replacement of four ambulance vehicles.

Policy

The Ambulance Transport Advisory Board has for some time recognised the need for ambulance services throughout New Zealand to be manned by skilled personnel and in this connection it has, in conjunction with Priory Headquarters of the Venerable Order of St. John, proceeded to draw up a syllabus of training for ambulance-driving officers. It is hoped that it will be possible to institute this syllabus and the related training organisation in the coming financial year.

2. PHYSICAL MEDICINE

Rehabilitation

If earlier discharge of patients from hospitals is to be accomplished, positive restorative measures by prescribed physiotherapy and occupational therapy become essential.

While some hospitals are active in this field, it is one which remains to be fully developed.

Institutions specialising in rehabilitation are the Auckland Hospital Board's centre at Otara which provides physical rehabilitation and prevocational training, and the Waipawa Hospital Board's Pukeora Home which features residential occupational therapy and workshop facilities for 40 young, severely disabled persons.

Rehabilitation through occupational therapy is a feature of treatment in all mental hospitals, and particularly so in the training schools for the mentally subnormal.

Vocational training and sheltered employment for disabled civilians is available on the recommendation of a national panel through the Disabled Servicemen's Re-establishment League at Auckland, Wellington, Napier, Christchurch, Dunedin, and Invercargill.

Also various voluntary organisations such as the Crippled Children Society, the Disabled Citizen's Association, the After Care Association, and the Sheltered Workshop Association provide rehabilitation services for special groups.

Rheumatism

Dr B. S. Rose reports that the Recommendations of the Royal College of Physicians, London, on Chronic Rheumatic Diseases (1962) have largely been the practice in New Zealand. These recommendations include the provision of beds for the short-stay investigation and treatment of patients suffering from these diseases by experienced rheumatologists, together with the provision of longer-stay beds as a complementary feature. They also recommended orthopaedic services, special units, and suitable home treatment and advice – all of which are being carried out at the Queen Elizabeth Hospital. The hospital provides consultant services in Wanganui and Palmerston North in addition to its work in Rotorua.

Considerable research activities have taken place in the epidemiology of rheumatoid arthritis and gout, and the rheumatologists have collaborated in the surveys being carried out on Maori health and nutrition conducted by Dr Prior of the Wellington Hospital. An opportunity of comparing the incidence of arthritis and gout in the Cook Islands was afforded by the secondment of Dr G. A. Q. Lennane as acting Chief Medical Officer at Rarotonga during the year. He carried out a survey which showed that gout and hyperuricaemia are relatively common in Rarotonga and that filariasis is responsible for symptoms indistinguishable from gout, apart from the history.

Physiotherapy

The number of suitable applicants for the school in Dunedin continues to be satisfactory. On 4 March 1963 there were 68 students in their first year, 46 in the second year, and 56 in their third year. This, together with five students having to repeat their examinations, totals 174 in training. This includes 10 Colombo Plan students. Forty-six

students, including one from Ceylon, passed the final State examination during the year. The school continues to experience considerable difficulties in maintaining the number of its teaching staff.

Physiotherapy staff in hospitals rose to an average of 214 as compared with 205·5 last year. It did not, however, keep pace with requirements and the average shortage was 24 per cent of establishment over the past year.

Some of the larger hospitals are conducting day-stay centres, particularly for long-term medical cases. This service enables the discharge of patients to their homes while ensuring their care and rehabilitation throughout the greater part of the day. Good use is being made of obsolete wards for this work and there is close integration of physiotherapy with all other sections concerned with the care of these patients.

Occupational Therapy

The occupational therapy staff in hospitals increased during the year to 52. This was still far short of the present establishment of 74.

The encouraging tendency, noted in last year's annual report, for increased occupational therapy services to be provided by hospitals continued during the year. The integration of occupational therapy with physiotherapy is important, and this will be facilitated by the two departments being built alongside one another in all new buildings.

A departmental exhibit of self-help devices has been prepared and is available for demonstration purposes to all hospitals. This has proved very popular as a means of showing how people can live independently in spite of their disabilities.

During the year, 25 occupational therapy students qualified for State registration and eight overseas-trained occupational therapists were granted State registration.

The increased staff and accommodation of the training school at Auckland have allowed for an intake of 24 students in January 1963. The increasing numbers under training will assist hospitals and other institutions to fill their needs.

A pleasing feature during the year has been the return to New Zealand of many New Zealand trained occupational therapists with a background of valuable overseas experience.

Cerebral Palsy

Working in liaison with the unit at Rotorua, there are now visiting cerebral palsy therapists centred on Wellington, Christchurch, Palmerston North, and Nelson health districts. In addition, one of the physiotherapists from the unit visits New Plymouth regularly. Gradually coverage is being extended throughout New Zealand. These therapists, in addition to running small clinics, visit patients in their own homes and instruct mothers in methods of treatment and management of their children. By this means correct treatment can be introduced at a very early age and, as the mother is with the child all the time, the management can be carried out in all circumstances of the child's life – eating, playing, washing, and dressing, and even as regards posture during sleep. Results of this policy are so far very encouraging. It has been possible to get nearly all those whose mental condition has not been seriously affected by brain damage to attend ordinary schools.

A film *Developmental Tests in the Early Diagnosis of Cerebral Palsy* has been made by the New Zealand National Film Unit under the

direction of the Senior Visiting Cerebral Palsy Therapist. This film shows tests which can be made to indicate the occurrence of brain damage with a view to early recognition, and is available from the Department for instruction purposes to doctors and therapists.

A seminar on cerebral palsy was held jointly with the Department of Education in March 1963. Members of the staffs of both Departments engaged actively in cerebral palsy work, took part.

Cerebral Palsy Unit

During the year there were 18 admissions, eight readmissions, and 26 discharges at the unit. Seventy-five outpatients were examined and the therapists gave 91 treatments to these outpatients.

Courses of observation and instruction of various duration were given to therapists and teachers concerned with the treatment and education of cerebral-palsied children, including the New Zealand Crippled Children Society's bursars.

Proposals to hold a specific cerebral palsy course with an examination and certificate have been under active consideration during the year, but its introduction has been delayed by staffing and administration difficulties.

Very active liaison was maintained between the unit and the visiting cerebral palsy therapists throughout the country by visits of the Supervisor to these therapists and by the therapists meeting at the unit for conferences.

The coordination of medical and educational services in the unit is of a high order, with consequent benefits to the efficiency of treatment and the welfare of the children.

Queen Elizabeth Hospital

In spite of the usual staff shortages, the work of the hospital continued with increasing activity. The patient turnover amounted to 794, compared with 713 the previous year. Outpatients increased from 857 to 2,098, almost three times the number during the previous year.

Orthopaedic services have been increased with a twice-weekly session of the visiting orthopaedic surgeon, and many patients have gratefully acknowledged the benefits they have received from surgery.

Work on the new hydrotherapy block commenced this year. When completed, the main Bath House will no longer be required, and it will be available for other purposes. The advantages of having all treatment facilities as well as all consultation and outpatient services under one roof are obvious.

Hospital inpatients received 1,103 treatments, while hospital outpatients and casual visitors received 1,385 treatments, bringing the total number of treatments at the Bath House to 2,998.

3. CLINICAL SERVICES

This year's total expenditure on health benefits was £23,758,225, an increase of £787,287 over the previous year. Particulars will be found in table I of the Appendix.

Medical Benefits

The number of doctors providing general medical services fell by 13 to 1,838. Expenditure on general medical services fell by £68,466, to a total of £4,016,092.

The number of "services" per head of population was 4·3 as compared with 4·5 last year.

The Committee on the Availability and Distribution of Medical Practitioners has been meeting regularly since December 1959, but its final report is unlikely to be ready until late in 1963. This long interval is a measure of the difficulty of the problems with which it is faced.

Some facts brought out in a review of the trends in distribution and remuneration of private practitioners in the 10-year period 1952 to 1962 may be of interest. This survey was principally concerned with doctors actively engaged in private practice, and in the figures quoted below only active practitioners have been included.*

In 10 years the population as a whole, excluding special areas, increased by 26 per cent. General practitioners without specialist interests increased at the same rate, but there was a 39 per cent increase in the total numbers of active practitioners.

Doctors in Active Practice, by Type

—	Number in Active Practice		Increase
	1 April 1952	1 June 1962	
			Per Cent
(a) General practitioners	909	1,145	26·0
(b) General practitioners with specialist interests	96	145	51·0
(c) Specialists	226	415	83·7
Total	1,231	1,705	38·5

There has been a considerable increase in the proportion of doctors practising on the schedule system in preference to refund. Ten out of 11 general practitioners now practise on schedule.

Percentage Practising on the Schedule System

—	1952	1962
	Per Cent	Per Cent
(a) General practitioners	83·7	91·1
(b) General practitioners with specialist interests	45·8	68·3
(c) Specialists	11·9	40·7
All active practitioners ..	67·6	76·9

In 10 years the population per active practitioner fell by 8·7 per cent. The "effective" population per general practitioner (allowing for work done by specialists) fell by only 2·3 per cent, however, and the figure per schedule general practitioner (allowing in addition for work done by refund general practitioners) showed little change – 1,773 per schedule general practitioner in 1952, 1,789 in 1962.

*General practitioners (of any type) receiving less than £300 a year for general medical services were regarded as not being in active practice; but in all calculations due allowance was made for the work done by them.

Taken as a whole, in the 18 designated urban areas of New Zealand the population increased much more rapidly than the number of general practitioners; 32 per cent as compared with 26. In 12 of these urban areas the "effective" population per schedule general practitioner (allowing for the work of specialists and refund general practitioners) increased by from 5 to over 45 per cent, as can be seen from column (3) in the following table:

Urban Areas in Which the "Effective" Populations per Schedule General Practitioners Increased Between 1952 and 1962

Urban Area	"Effective" Population per Schedule G.P.		Percentage Increase	Population Served by Urban Doctors 1962	Active General Practitioners 1962	
	1952	1962			Refund	Schedule
	(1)	(2)	(3)	(4)	(5)	(6)
Napier	1,031	1,511	46·6	39,000	..	24
Palmerston North ..	1,721	2,426	41·0	52,300	12	13
New Plymouth ..	1,225	1,681	37·2	34,900	..	18
Wellington	1,336	1,618	21·1	158,300	20	69
Tauranga	1,024	1,221	19·2	31,860	..	25
Whangarei	1,263	1,493	18·2	32,800	..	21
Wanganui	1,533	1,785	16·4	41,700	5	19
Gisborne	1,797	2,082	15·9	31,280	..	14
Auckland	1,364	1,523	11·7	471,300	8	273
Dunedin	1,526	1,652	8·2	111,100	3	59
Rotorua	2,003	2,122	5·9	35,350	..	16
Hamilton	1,305	1,373	5·2	61,300	2	35

In only three urban areas was there a reduction in the "effective" population per schedule general practitioner. These were Hutt (5,174 to 2,937), Invercargill (2,252 to 1,998), and Timaru (1,700 to 1,388). Christchurch showed little change (1,911 to 1,914). There are no schedule doctors in Hastings or in the city area proper of Nelson.

In 1962 the average "effective" population per schedule general practitioner throughout New Zealand was 1,789. Services per head of 4·4 (not an excessive figure) gave an average gross return for general medical services of £2,980. Under present-day conditions an "effective" population of 1,750 per general practitioner appears to be satisfactory.

On this criterion it will be seen that eight out of the 12 towns listed in the table are below the optimum. The following areas could, however, still support some additional general practitioners:

Urban Area	Active Schedule General Practitioners 1962	"Effective" Population per Schedule General Practitioner 1962
Hutt	31	2,937
Palmerston North ..	13	2,426
Rotorua	16	2,122
Christchurch	100	1,914

The Hutt urban area is distinctly underdoctored. It includes Upper and Lower Hutt, Petone, Eastbourne, Wainuiomata, and Stokes Valley.

Pharmaceutical Benefits

Expenditure on this item amounted to £7,987,620, an increase of £309,282 over the previous year. In addition, £71,340 was charged to this vote for refund of Customs duty to wholesalers in order to facilitate the introduction of a revised pricing schedule from 1 July (see below).

Prescriptions passed for payment totalled 15,745,668 (14,771,958 last year) or 6·4 per head of population (6·1 last year). The average cost per prescription was 10s. 1¾d. (10s. 4¾d. last year) the cost per head of population being £3 4s. 2d. (£3 3s. 2d. last year).

Remission of Customs Duty

The 1957 Special Committee on Pharmaceutical Benefits endorsed the recommendation of the Department of Health that items included in the Drug Tariff should be free of Customs duty. After much delay, this was finally implemented on 1 July. Prescriptions issued in that month would be priced in August.

From February to July inclusive the 1962 monthly price per prescription ran along at an average of 4d. per script above the 1961 prices. In August the price fell to 4d. *below* the 1961 price in August – 10s. 2d. as compared with 10s. 6d. – and from August to March inclusive the average monthly difference in favour of 1962 was 6¼d. Most, if not all, of this smart reduction must have been due to the remission of customs duty, the total saving to the end of the year (eight months) amounting to about £425,000.* The net saving to public funds, allowing for loss of Customs duty, would be about half this figure.

"The South Island Experiment"

There has been considerable doubt in many people's minds about the value of restrictions on the period of supply of prescriptions. It has been argued that artificial restraints of this kind (seven days plus one repeat for ordinary prescriptions, one to three months for "extended supplies") may even, like rationing, increase consumption in certain circumstances. This proposition was put to the test in what became known as "the South Island experiment".

Early in July, period-of-supply restrictions were lifted in the South Island, doctors resident there being encouraged to prescribe according to their estimate of the requirements of each particular case, with due regard to economy and the avoidance of waste. The restrictions continued to apply as before in the North Island.

The pharmaceutical cost per head of population in the South Island has always been considerably less than that in the North Island. In the 36 months up to the commencement of the experiment it averaged only 90 per cent of the North Island figure, and only in five months did it exceed 95 per cent.

In the nine months July 1962 to March 1963, inclusive, there was a marked increase as compared with the corresponding period in the previous three years:

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*The South Island experiment, which also commenced in July, kept the cost per prescription abnormally high during the whole of this period; so the saving on Customs duty was probably even greater than the estimate quoted.

Cost per Head of Population: South Island as a Percentage of North Island, July to March Inclusive

	Per Cent
1959–60	88·7
1960–61	90·5
1961–62	90·1
1962–63	95·6

It is clear that the suspension of restrictions in the South Island was followed by a relative increase in costs, which would have amounted to a formidable figure had the restrictions been lifted throughout the country as a whole. (The population of the North Island is 2·3 times that of the South Island.) The experiment was terminated towards the end of April 1963.

This experiment was valuable, not only in showing that these much disliked restrictions are effective in keeping down costs, but in demonstrating a practical and sensitive method of evaluating controls on prescribing.

Special Committee on Pharmaceutical Benefits

The report of this committee was presented on 25 March 1963. As a comprehensive review of the operation of the first 21 years of the scheme it should be of permanent value.

On the whole, the committee had little fault to find with the general structure and method of operation of the scheme, although they were able to point to a number of ways in which its efficiency might be improved and economies effected.

Hospital and Maternity Benefits

As from 1 April 1963 payment of hospital and maternity benefits for private hospitals on the basis of class of hospital ceased. Payment is now dependent upon the class of treatment afforded.

The new rates for hospital treatment are as follows:

(a) Surgical patients, £2 per day.
(b) Maternity patients, £2 5s. per day.
(c) Medical patients, £1 8s. per day.

4. NURSING SERVICES IN HOSPITALS

Towards the end of 1962 Miss F. J. Cameron who had been Director of the Division of Nursing for 12 years retired, and Miss Audrey Orbell who was Deputy Director of the Division was appointed to replace her.

At the present time nursing service in hospitals must provide care for patients to cover a total of approximately 28,000 beds. Of these, 13,500 are general beds, 3,000 are maternity beds, 2,500 are mixed private-hospital beds, and the remaining beds, approximately 10,000, are for psychiatric patients.

The increase in the number of hospital beds and the number of patients treated in hospitals for which a nursing service must be provided has over the years presented many problems to the nursing profession through the shortage of staff. Any increase in the number of nursing staff available has been offset by the above two factors. It

now appears that it is for the profession as a whole to take stock of the situation and find ways and means of making better use of the staff that is available as well as to continue to recruit suitable applicants for the profession.

This year a pilot scheme has been introduced for the training of a new category of nurse to be known as the community nurse. Already 13 hospitals have either commenced or will shortly be training local women to supplement their nursing staffs. It is going to be difficult for some nurses and some members of the community to accept this new category of nurse whose training has been for one year only. They are afraid that the nurse who has taken three years to do her training will become a figurehead or a technician, full of the science of nursing but devoid of the art of nursing. Such fears should be allayed here and now. The community nurse will never replace the registered nurse, it is not expected or planned for her to do so. The main responsibility of the registered nurse will continue to be at the bedside of the patient. It is, however, not realistic for nurses who have taken three years to train to do nothing more for patients than a mother would do for her own children or any woman could be taught to do in a short period of experience. Traditionally, bed making is a nursing task, but is it, as a survey recently showed, right and proper in any extensive nursing service for nurses who have been training for three years and ward sisters of many years experience still to be making empty beds and moving furniture?

The final evaluation of the community nurse pilot scheme will not be made for 18 months or more. At the moment it is showing indications of being workable and successful.

Another aspect of hospital nursing service which appears to warrant further consideration is the use of the registered nurse who is only available from Monday to Friday because of her domestic commitments. Many hospitals are using such staff, but there is still the problem of who will look after the patients at weekends. Is it too unrealistic to think that some wards could be closed at weekends if better grouping of patients within hospitals was achieved? Already two medical superintendents have indicated their interest in such a scheme and it would certainly assist in the nursing service.

With regard to our maternity nursing service, most matrons still have the problem of insufficient staff available for their small maternity hospitals and larger maternity units. Better placing of the available staff is not easy to achieve as the shortages exist more in country and semi-rural areas, which are less socially acceptable as far as young nurses, are concerned, than in towns.

A survey recently undertaken with regard to midwives has shown that in 1961 approximately 40 per cent of full-time midwives were employed in small hospitals catering for less than one birth a day, and one in six midwives were employed in hospitals which were not averaging one birth a week. It would therefore appear that the situation concerning midwives will continue to be uneconomical as long as a nursing service for small country maternity hospitals with a low admission rate must be maintained.

Overall, the nursing service available in hospitals is improving, and while there are still some hospitals that have staffing problems, many have reached a state when some criteria will soon be required as a standard for what is considered to be a sufficient number of nursing staff to give satisfactory care to patients.

In the nursing administration of hospitals two aspects are worthy of mention. One is the reluctance of suitable nurses to prepare themselves to accept higher administrative positions and, secondly, the lack of opportunity for nurses in the middle administrative category to attend refresher courses in order to stimulate their work and professional thinking.

The recently introduced Ward Sisters Course has proved well worthwhile, and all matrons speak highly of the results they see when their junior ward sisters return to their hospitals. There is, however, nothing between the Ward Sister Course, which is undertaken at senior staff nurse and junior ward-sister level, and the Post-graduate Diploma Course. Many of our ward sisters for various reasons do not undertake post-graduate training, and even if they do, sometimes return to hospital and remain as ward sisters or supervisors for many, many years. It is true that in-service training programmes are usually available within the larger hospitals, but there are many instances where these cannot meet the demands, and consideration will be given to providing courses for this group.

5. WELFARE SERVICES

Care of the Aged

Accommodation

(a) *New Proposals*

Although several new proposals of a major nature have been deferred awaiting the survey of accommodation needs for the elderly, this has not affected schemes previously agreed to in principle or a number of small projects. Twenty schemes submitted by religious and welfare organisations have received approval during the year, involving Government assistance as follows:

	Number of Beds	Government Subsidy and Loan
		£
Approved, 1962–63	323	668,563
Total approvals, 1950–63	3,211	4,873,956

(b) *Current Programme*

(i) *Religious and Welfare Agencies*

	Old People's Home and Hospital Beds	Flats and Cottages	Total
New beds commissioned, 1962–63	134	22	156
Under construction	440	85	525
Authorised, awaiting construction	257	27	284
	831	134	965

(ii) *Hospital Boards*—Three hospital boards have major replacement or modernisation schemes under way for home and hospital beds specifically for the aged. A total of 126 beds are in these projects.

(c) *Local Authorities – Pensioners' Housing*

Fourteen schemes consisting of 158 single flats and 20 doubles were completed during the year. Subsidy payments amounting to £227,000 reached their highest level since local authorities undertook the provision of this form of housing. Approved new schemes also attained a new level with 417 singles and 66 doubles.

	Number of Schemes	Number of Beds	Government Subsidy Authorised	Government Loan
			£	£
Approvals, 1962–63	29	549	393,748	447,780
Total approvals to 31 March 1963	..	2,897	1,614,772	1,892,039

The acquisition of land which is suitable both as to situation and cost continues to be one of the main difficulties for local bodies, more so in the main centres.

Closer attention to rentals has been necessary as cases have occurred where the proposed rents substantially exceed what age beneficiaries would find reasonably manageable.

With the aim of assisting local bodies in planning pensioner housing, the preparation of revised standard plans and other guide material is receiving attention.

(d) *Survey of Accommodation Needs for the Elderly*

From information gathered in a Dominion survey of 4,170 elderly persons, with particular reference to accommodation, the main conclusions to emerge are:

(i) Ninety-three per cent of the population aged 65 years and over, live under normal community conditions.

(ii) *Housing*—Except for 3·57 per cent, their housing is generally of a suitable standard. After making allowance for unsatisfactory dwellings which are repairable, 2·62 per cent need housing of the pensioner-flat type. This is in addition to what has already been provided and amounts to approximately 5,300 units. Single flats are the predominant need, in the proportion of at least three to one double unit.

(iii) *Residential Care*—The need for residential care in old people's welfare homes increases with age and is most marked in those 80 years and over. Of the population surveyed, 2·57 per cent occupied beds in public and private welfare homes in the proportion of four to one respectively. On medical assessment a few were regarded as not sufficiently dependent to warrant residential care. Those with a confirmed need constitute 2·42 per cent of the elderly. With a further 0·65 per cent living in the community and recommended for care in a home, the total is 3·07 per cent of the aged or 6,240 persons.

(iv) *Hospital Care*—From the medical assessment of elderly people receiving institutional care at the time of the survey, 1·65 per cent or 3,384 persons were classified as hospital cases. A further 0·57 per cent living in the community were considered to need hospital care. A

combination of these two totals amounts to 2·22 per cent or 4,550 persons in the age group 65 years and over. On further breakdown, 1·43 per cent are classified as the long-term geriatric sick and the balance, 0·79 per cent, in the short-stay category. While these findings need to be considered in relation to factors such as the availability and usage of public hospital beds by the aged, no significant lack of hospital provision for the elderly is apparent from the survey.

(v) *Sharing Accommodation and Relationships*—More than 20 per cent of the elderly live alone, 37 per cent with their spouse, while a further 37 per cent are accommodated with others. The survey team found only limited evidence of strained relationships of any consequence where the elderly were sharing accommodation with others.

(vi) *Meals*—Less than 1 per cent of old people living in the community were found to have a meal problem.

(vii) *Provision of Help*—One-third of the elderly needing regular help are being assisted by relatives. This exceeds all other sources of assistance.

A full account of the survey and its conclusions have been issued in the Department's Special Report series for distribution to all statutory and voluntary agencies concerned with the elderly and their welfare. The information it provides will be of considerable value in shaping future policy, particularly at the levels of housing and residential care.

Meals-on-wheels and Laundry Services

Seven hospital boards inaugurated new meals-on-wheels schemes within their districts and in practically all existing schemes there has been extension. The number of elderly people being assisted through this service increased from 1,200 to 1,422 during the year, and total meals supplied from 243,888 to 301,552. In four years the number of recipients has doubled. Voluntary helpers continue to perform a splendid service, not only in delivering meals but maintaining a link with the elderly.

The laundry service is being continued by a few hospital boards on a limited scale.

Advisory Committee on Care of the Aged

Two meetings of the committee were held during the year. The accommodation survey, regulations and fire precautions for old people's homes, functions of welfare councils, and grants from Government lottery funds were amongst the principal items receiving attention. On the last of these, the Advisory Committee prepared a basis on which it considered lottery funds might be utilised for welfare of the aged. This has been submitted to the appropriate distribution committee.

Accommodation for Young People

Subsidies totalling £49,550 have been approved for seven youth hostel schemes during the year. When completed, they will make a further 138 beds available. A proposal in Auckland to provide accommodation for 136 young men, which received Government approval in 1961, has

subsequently been modified to 65 beds for the first stage. Since the introduction of this form of Government assistance, subsidy totalling £441,522 has been authorised for 839 beds.

Under a recent policy decision by Government, university halls of residence provided by religious and welfare organisations will be assisted under a separate policy to be administered by the University Grants Committee.

6. TUBERCULOSIS

The first two decades of the century saw the establishment of special tuberculosis sanitoria in various parts of the country for the treatment of pulmonary tuberculosis with the sanatorium regime of treatment. With the establishment of the Division of Tuberculosis some 20 years ago, the two major tasks which it faced was the provision of adequate institutional accommodation and the setting up of suitable hospital chest clinic services under qualified tuberculosis officers.

A gradual change in emphasis has become more apparent of recent years with the introduction of specific drug therapy for the disease. This has led to less reliance on prolonged rest as the main therapeutic method and more stress on specific therapy often on an ambulatory and domiciliary basis. Also fewer cases of the disease are now notified. In the year 1945 there were 2,172 new cases of pulmonary tuberculosis. In 1961 the total new notifications numbered 1,082.

It has, therefore, been possible in recent times to dispose of various specialised sanatoria, namely Pleasant Valley, Pukeora, and Waipiata, while surplus bed accommodation at Cashmere has become available for geriatric cases.

It is, however, important in the present control scheme that the chest clinic facilities provided by hospital boards be maintained and even extended. This is particularly so in areas where large concentrations of Maoris are to be found. While some fall in incidence of cases among the Maori people is evident, it is much less as compared with the European race. Major emphasis in future must be towards lowering incidence in the Maori.

In past years the Department has been dependent on the number of new notifications of disease together with the number of deaths attributed to tuberculosis infection each year as a measure of the success of the campaign against tuberculosis.

While the mortality rate will continue to provide important information for comparative purposes, neither the mortality rate nor the number of new notifications are now accepted as a totally reliable guide. The picture has been changed since the introduction of effective drug therapy, which has undoubtedly reduced the mortality in known cases. It is now rare for persons to die from the immediate effects of tuberculosis.

The use of drugs for chemoprophylaxis in children with positive tuberculin reactions has tended to increase the numbers of new cases notified. In past years a child whose only evidence of infection was a positive tuberculin reaction would not have been notified nor treated.

In future, more reliance must be placed on the results of wide-spread tuberculin testing as an index of the amount of infection throughout the community. To this end the Department has increased testing, particularly among primary-school entrants. This should permit reliable comparisons to be made not only from year to year but also between different districts and between the two races.

The relevant statistics for the year will be found in tables 22 to 26 of the Appendix.

It will be seen that:

(a) New notifications for the year decreased slightly to 1,283, the European rate being 3·4 as against a Maori rate of 28·3 per 10,000.

(b) The mortality rate fell slightly to 5·4 per 100,000 although the total number of deaths remained at 134.

(c) 203,455 mass x-ray examinations were made and 169 active cases of tuberculosis were found.

(d) 24,035 vaccinations with B.C.G. vaccine were performed.

In March 1962, Professor J. W. Crofton, Professor of Chest Diseases, Edinburgh University, visited New Zealand and was guest speaker at a course on chest diseases held in Wellington. Professor Crofton's visit was made possible by the generosity of the Wellington Tuberculosis Association.

During the year a complete survey was made to determine the incidence of tuberculosis in Niue Island.

This survey was planned and executed by members of the Division of Tuberculosis in conjunction with the Niue Island administration. A report summarising the findings was submitted to the Minister of Island Territories. This should enable the administration to make the eradication of tuberculosis in the island community a possibility in the foreseeable future.

PART III—BUREAU OF MENTAL HEALTH SERVICES

1. MENTAL HEALTH

During the year ended 31 December 1962 there were 15,397 persons under care in mental hospitals and 1,531 in hospitals and training schools for the mentally subnormal. In all, there were 6,861 admissions and 6,515 discharges. Of the admissions, the majority (4,109) were voluntary inpatients (1,244 more than last year). Informal admissions numbered 1,119. Those admitted by order of an authority number 1,633 – 455 less than last year. Although 16,928 persons were under care in the Division's hospitals during the year, the average number of occupied beds was 10,267 that is, only 261 more than last year. The average number of occupied beds in the three hospitals and training schools for the mentally subnormal were 1,457 (97 more than last year).

The substantial increase in the number of admissions to the Division's hospitals during 1962 should be considered with the corresponding rise in discharges and the very modest increase in the total numbers resident at the end of the year. It should not be interpreted as indicating a significant rise in the incidence of mental disorder in New Zealand. As the increase has affected hospitals which have shown very little change in their admission and discharge rates in recent years, as well as hospitals which have had a more sharply rising admission and discharge rate for some time, such inferences might well be drawn by the casual observer or commentator in the absence of any further explanatory comment. Closer examination, however, will show that several factors are responsible for the much greater patient movement and rise that has been made in the Division's hospitals during 1962.

During the period under review the population of the Dominion increased by some 57,443. The gain by natural increase alone would have been only 43,000; the balance being made up of 14,000 immigrants, the majority of whom were adults. Thus, whilst the total population "at risk" increased by about 2·33 per cent, the total number of patients resident in the Mental Health Division's hospitals (excluding those in hospitals for the mentally subnormal) increased only by 1·9 per cent. This is quite in keeping with the trends over the past 20 years, during which time there has been a steady fall in the number of inmates resident per 100,000 population. During the same period there has been a very substantial rise in the number of persons admitted for treatment and care of mental disorders, or for care, treatment, and training for mental subnormality.

However, it should be noted that in 1962 the percentage increase in the total admission rate was substantially the highest yet recorded.

During the year there were 12,321 attendances at the various outpatient and clinic services with which the professional staff of Mental Health Division are directly concerned throughout the country. In addition there were over 1,300 attendances to psychiatric members at child health clinics.

A much greater readiness to seek psychiatric help and increased awareness of the value of early treatment accounts for many short-stay admissions to hospitals. An increasing measure of public confidence in the hospital services; a perceptible lessening in discriminatory attitudes towards patients in mental hospitals; and welcome signs of recognition in more enlightened quarters that the stigma is in the mind of the stigmatiser, have also played a part. All these trends, however, have been gaining in strength in recent years and thus can only be held in part accountable of the unusual admission and discharge statistics for 1962.

Some part of the increase will, no doubt, be attributed to the widespread favourable publicity in recent years to the growing efficacy of hospital therapeutic programmes in which the use of some of the newer synthetic pharmaceuticals plays an important part. The most extensively used drug at the present time was first used in treatment of psychiatric cases in New Zealand nearly 10 years ago, and several of the better known and well tried preparations have been quite widely used for several years. The success that has attended the properly supervised use of certain so-called tranquiliser or anti-depressive drugs as part of the therapeutic programme for a patient has, no doubt, played its part in the rising total admission rate with earlier remission of acute symptoms.

Patients admitted under reception order may now be discharged "Recovered" or on trial leave after a relatively short stay. The voluntary inpatient however, encouraged and perhaps overoptimistic with the signs of early remission, may be tempted to leave hospital after an even shorter stay, sometimes indeed despite contrary medical advice. In either case the remission may not always be enduring and re-admission is subsequently sought. In this connection legislative changes have played a part.

The 1961 Mental Health Amendment Act made important innovations in the provisions relating to voluntary inpatients, who are now only required to give 24 hours' notice of intention to leave instead of the seven days' notice required prior to 1 January 1962. With the seven days' notice of intention to leave, many voluntary inpatients, who might have somewhat precipitately tendered their notice of intention to leave, subsequently withdrew this notice before expiry of the seven-day period. Since 1 January 1962, unless the Medical Superintendent is of the opinion that it is to the serious detriment of the patient or the public, a voluntary inpatient must be discharged within 24 hours of given notice of intention to leave. Not unexpectedly, there has been a noticeable rise in the readmission rate for voluntary inpatients during 1962; for example, of 726 voluntary inpatients admitted to Porirua, 360 or 48·2 per cent were re-admissions.

The informal admission provisions of the 1961 Mental Health Amendment Act have contributed to a lesser degree to the rise in total admissions for 1962. The extent to which use has been made of informal admission approximates very closely to the predicted number for the first year in which the Act was operative. No doubt there have been some instances in which informal admission of a mentally infirm person has been sought by relatives who would not have sought such admission when a reception order was required. The method of informal admission for the mentally subnormal cannot have influenced the 1962 admission rate for this numerically important group as, unfortunately, admission to the three hospitals and training schools for the mentally subnormal is still governed by a waiting list and priorities of urgency.

Mental Health Legislation

The important and far-reaching provisions of the Mental Health Amendment Act 1961 have proved in practice to be free of any major difficulties during the first year of operation. Whilst all hospitals appropriately situated have made some provision for voluntary outpatients, the setting up of more comprehensive day services at, or administered by, mental hospitals has been variably delayed on account of the need to provide the requisite accommodation. By the end of the year, three of the mental hospitals had already provided some service, which it is hoped will be rapidly extended. Work is authorised or in progress at two other hospitals for services which should be operative during the first half of 1963. In the case of the hospitals and training schools for the mentally subnormal, all the facilities necessary for a day service for the mentally subnormal in the area are fully set up and advantage has already been taken of this.

Changing Role of Mental Hospitals

Public awareness and understanding of the many important changes that have taken place in the role, purpose, service, and equipment of mental hospitals during the past decade is becoming more apparent: even though in some quarters there is still a reluctance to part with long-established and well worn stereotype ideas, which still retain an unwarranted measure of credance even in otherwise well informed quarters. Curiously enough, there seems to be a much greater readiness to recognise, and even to encourage, the seeking of earlier treatment than there is to extend a corresponding measure of helpful support to both the short- and longer-stay patient on his return to the community after its successful application. Nevertheless, even in this sphere, there are welcome signs of changing outlook on the part of many of the more enlightened employers, voluntary organisations, and, of great importance, among the former patients' neighbours. Fewer people nowadays claim "it has never happened in my family", which is a measure of better understanding.

A recent survey, published by the Medical Statistician, on the mental hospital population in the 1961 Census, an earlier survey of the Tokanui Hospital population by its Medical Superintendent, and the Medical Statistician's report on "Maori patients in Mental Hospital" have all served to draw attention to several aspects of the many far-reaching changes that have taken place. The pattern has changed so rapidly that it is perhaps less generally known that both the actual and relative number of persons admitted to mental hospital with a diagnosis of senile psychosis and deterioration related to cerebral arteriosclerosis is numerically less now than it was 20 years ago.

The later years are years of greater risk in several types of mental disorders. The proportion of all patients over 65 years admitted to mental hospital is only 2·6 per cent higher than the corresponding figure for patients over 65 admitted to public hospital. Despite this, erroneously and unduly pessimistic views at the "increasing number of elderly persons admitted" persist virtually unchanged in form from similar pronouncements to be found in departmental reports of the 1880s.

In spite of the number of elderly persons who respond favourably to a period of inpatient mental hospital treatment, there even seems to be a

residuum of former reluctances to arrange admission for inpatient psychiatric care and treatment for the elderly – even for those who may present quite serious problems in the home, in homes for the aged, or perhaps in geriatric wards of public hospitals. Difficulties in subsequent placement no doubt play a part. A greater two-way or three-way traffic between homes for the aged, public hospital geriatric wards, and mental hospitals might well be to the advantage of both the patient and the organisation concerned.

Some Aspects of Hospital Staffing

Attention has been drawn in earlier annual reports to the increasing complexity and range of required professional skills to meet the present-day requirements of mental and psychopaedic hospitals' therapeutic and training programmes. Many of the skills in greatest demand require a lengthy period of professional training. Graduation and the practice of skills attained do not mean the end of the learning process. The introduction of new and intensive methods of treatment, as the development of these activities and comprehensive integrated training programme call for instruction in the newer techniques and a reappraisal of many well tried older methods. To meet some of the more pressing needs, considerable effort has been directed to the setting up of short, residential, staff-training courses. Courses so far held have been for matrons, head nurses (male), ward charges, ward deputy charges, nursing tutorial staff, recreation officers, psychologists, social workers, and hospital chaplains. For more senior officers, refresher courses and organised study leave is necessary. With the welcome numerical increase in medical and certain other staff categories, the scope and extent of these provisions will need to be augmented if the present progress is to be maintained.

An increasing number of junior medical staff have been granted study bursaries or leave without pay for the purpose of obtaining a post-graduate qualification in psychological medicine. The steady increase in appointment to the medical staff from among younger medical practitioners already poses the question of a higher annual bursary allocation.

The outcome of a 38·5 per cent increase of admissions to mental hospitals in the year, ending in an increase of 1·64 per cent in the total number resident in the Division's mental hospitals, is a source of justifiable pride in achievement on the part of the hospital staffs, especially those sections upon whom the fullest impact of this greater influx has fallen most heavily.

Recent gains in the numerical strength of medical staff have been maintained during the year. There is an encouraging number of younger New Zealand graduates seeking appointment with the Division of Mental Health. The capacity of the whole-time medical staff to fulfil the many and diverse demands of present-day therapeutic programmes has been augmented by additional appointments to the visiting consultant staff and by an extension of part-time appointments to certain mental hospital staffs, either for work in the hospital or for work in connection with extra-mural services for which the hospital may have a responsibility.

The present level of outpatient and other extra-mural services such as advisory services to the Court and the Departments of Education and Social Security have placed an increasing burden of responsibility on the more senior and experienced members of hospital medical staffs.

Psychiatric and Psychopaedic Nursing Staff—As in other branches of nursing, the duties, training, and routine of the psychiatric nurse have undergone and are still passing through a most interesting period of development and change to meet the different demands and emphases of the forms of mental disorder and methods of their increasingly effective control.

The older teaching curricula were intended to meet manifestations of mental disorder and methods of treatment now superseded.

The introduction of electro-convulsive treatment in New Zealand in the early 40s; and the introduction of chlorpromazine and, more recent, synthetic preparations in the last 10 years, together with the very rapid extension of open policies for the non-disturbed patient who did not offer any serious threat to the community, led to a rearrangement and review of emphasis in the psychiatric nursing curriculum. This year a new psychopaedic nursing curriculum, with strong emphasis on child care, development, and understanding, has been approved.

At the end of the year the total nursing staff strength, including student psychiatric and psychopaedic nurses and assistant nurses, stood at 1,697.

Social Workers—At the conclusion of a residential course for social workers held at Wellington during the year, those participating discussed the report of a working group with regard to the role of the social worker in the present-day mental hospital setting. There are many special difficulties which face the social worker in New Zealand; especially in those hospitals serving an extensive rural catchment area. Not the least of the difficulties arise in connection with the coverage of areas remote not only from the psychiatric social worker to the hospital, but often from any alternative source of such service. Some hospitals have most successfully arranged the work of their all too few social workers – the present strength of the Division stands only at 20 – so as to ensure that there is some regularity of coverage of outlying rural areas as special occasions may require. It is often possible to fit in these visits so that the social worker may subsequently assist any of the hospital's outpatient clinics held in the region.

Some of the need to provide courses of instruction in social work theory for non-diploma social workers, at present holding appointments in the State Services, will be met by the establishment of a social work training centre which aims to provide two-monthly residential courses for officers engaged in social work in a number of Government Departments, including Health. The work is due to begin early in 1963 on extensions and modifications to Tiri Moana building at Porirua Hospital, in which the centre will be housed.

Clinical Psychologists—A principal clinical psychologist was appointed during the year, with location in Wellington. Since appointment, in addition to clinical responsibilities at Wellington Hospital Outpatients and in-service training responsibilities in connection with the Canterbury University Department of Psychology concerned with the teaching of clinical psychology bursars, he has undertaken a number of related training and personnel assignments. The number of clinical psychologists and assistant psychologists remains at nine. Two part-time appointments on a sessional basis have been made to meet present needs in the Auckland area.

Occupational Therapy—As will be seen in the excerpts from the report of the Principal of the New Zealand School of Occupational Therapy, serious efforts are being made to overtake the present gap between demand and supply for qualified occupational therapists.

In the hospitals a number of interesting developments have continued. The wider range and diversity of methods and devices which the charge occupational therapists are using are an important adjunct to the rehabilitation of the convalescent patient. There seems to be a greater awareness that for some patients the occupational therapy classroom may offer a favourable medium for the cultivation of fantasy and a graceful withdrawal from the less attractive option of occupations more closely related to the demands of the workaday world. The new developments are intended to overcome this escape route during the period of transition between first remission of symptoms and discharge from hospital.

Recreation Officers—Recreation officers in recent years have been appointed to all the Division's hospitals. With the very great emphasis on activity within the comprehensive hospital programme, it becomes very necessary to coordinate, guide, stimulate, encourage, and unobtrusively direct the very wide range of recreational pursuits which are so often the means of awakening the convalescent patients capacity to take a fuller part in community activities.

Aspects of Rehabilitation

The object of all inpatient treatment should be the ultimate fitting of the person concerned for a return to a fuller life and acceptance of the responsibilities inseparable from living in any urban or rural community. To further this aim it is sometimes desirable or necessary to arrange a period of oversight for the immediate post convalescent stage. In the Wellington area a pilot scheme for a discharge hostel has been in operation for nearly two years. The hostel caters for women patients, and a condition of their residence is that they are in employment and make a fixed monetary contribution for their board and accommodation. At a number of hospitals increasing use is being made of short periods of "work trial". Originally this was introduced to meet the more specific needs of a particular type of patient. Its use is now being extended to cover another small group in whom there is a need to confirm the hesitant will to progress towards a greater measure of real independence. "Work trial" also ensures that, where necessary, any medication which has to continue for a period is maintained.

Most of the Division's hospitals have responsibilities to assisting the Courts, who are themselves very much concerned with the sometimes irreconciliable task of the protection of the community and the rehabilitation of offenders. Increasing use is being made of reference or remand for psychiatric observation and report. The great majority of persons so referred do not prove to be certifiable under the Mental Health Act though they all present, or have presented on their behalf, histories which may be, and sometimes are, indicative of a need for some form of psychiatric treatment, inpatient or otherwise. Taking the hospitals as a whole, these cases from the Courts now account for about 4½ per cent of admissions. There are, however, places in which the number so referred are higher and in one instance they amount to more than three times the national average.

Security Patients

In addition to persons remanded for observation, certain hospitals are responsible for the care, supervision, treatment, and safe custody of a small group of patients who have been found "not guilty on the grounds of insanity" after being charged with serious offences. In addition, there are also a number of patients admitted to mental hospital on account of certifiable mental disorder which has come to notice whilst serving a term in a penal institution. For some years the great majority of such patients, and all those who present any serious threat to others, have been held in two hospitals in which proper provisions for effective supervision have been made pending the setting up of a national security unit to serve the same purpose as the Special Hospitals in the United Kingdom. Work on the New Zealand 60-bed security unit is now nearing completion at Lake Alice Hospital. A medical superintendent, with special interest and experience in this field, is to be appointed early in 1963.

Mental Hospitals – Works Programme

The many efforts being directed towards overtaking the cumulative delays in replacing or modernising important service installations and in providing more of the facilities so necessary to the maintenance of the present trends of reduction in length of stay in hospital continue. They are, however, still dogged with a measure of misfortune and, during 1962, it became necessary to close a large brick building at Ngawhatu Hospital following the West Coast earthquakes. This means a further setback to certain projects, as the Ngawhatu Hospital building contained within it a number of important hospital "centres" which will have to be replaced almost immediately.

It is hoped that the means may be found to overtake several of the more urgent arrears such as those relating to heating and the replacement of certain obsolescent kitchens in a number of the older hospital villas. Even more important will shortly be the need to provide new reception units appropriate to the present rate of admission which several of the reception wards now serving this purpose were not designed to cope with. There is also a need to find additional office and interview room accommodation for the use of an augmented medical, social worker, and psychologist staff.

Attention cannot long be further delayed in the matter of replacement of more than one of the older nurses' homes. In this respect unchivalrously as it may seem, male staff are better accommodated than women in at least one hospital.

Services for the Mentally Subnormal

On 1 January 1962, with the coming into operation of the Mental Health Amendment Act 1961, the former Nelson Mental Hospital was redesignated Braemar Hospital and Training School. Braemar Hospital has, in fact, been entirely serving the needs of the more severely subnormal for a number of years. Now it is administratively separated from Ngawhatu Hospital and its nursing staff in training will come under the new psychopaedic curriculum.

At the longer-established hospitals and training schools at Templeton and Levin there has been a year of consolidation of development of various aspects of the training programme.

All three hospitals have been able to provide short-stay accommodation when requested and this is reflected, in small measure, in the increased patient movements recorded in the statistics.

Templeton Hospital, with the completion of its workshops, has gone ahead in the organisation of a much wider diversity of training occupation. Levin, with its more fully developed training scheme, has been able to devote attention to other important, though less obvious, improvements and developments. At Levin it was not possible to use the full authorised accommodation for part of the year, as the hospital ward has been closed for a comprehensive conversion to meet the special needs of the child who requires and would benefit from an added measure of special attention.

The Mental Health Division recognises the value of providing short-stay and hostel accommodation in relation to other services provided by the Education Department or by the I.H.C. Society, as, for example, in relation to Education Department occupation centres and workshop facilities provided for the benefit of senior groups. The importance of regional planning to ensure that the facilities are provided in such situations and on such a scale as may most suitably and most economically serve the ascertained needs of an area with community of local interest has been stressed.

Work has continued on engineering services and site preparation for the new Mangere Hospital and Training School. Preparation of revised standard plans for certain of the phase I buildings is well advanced.

In view of the very urgent situation that may well arise before phase I is ready for occupation, inquiry is being made into the possibility of acquiring an established institution nearby which would serve the more immediate needs. The building in question could subsequently be utilised as a discharged or after-care hostel and other related purposes.

It is pleasing to record that the National Health Council of New South Wales has recommended that certain basic methods of operating the training programme at Levin Hospital be adopted in the proposed new service in N.S.W.

Administration

Reference is made in the previous annual report to approval of an increased clerical establishment "so that hospital administration can deal more effectively with the increasing complexity of services now being provided". During 1962 the new vacancies so created have been filled and, as the new appointees become familiar with the requirements of their present milieu, there is some progressive relief of more senior officers from certain time-consuming duties. This will materially improve the efficiency of the house management side of the hospital administration. The diversity of responsibility and volume of work which has fallen in recent years on the numerically modest clerical staff of the Division's hospitals was beginning to act as an impediment to improvement of existing services and the timely inauguration of others that from time to time may be required.

Hospital Chaplains and Hospital Chapels

It is pleasing to record the progress that has been made by the Chapel appeal committees of those of the Division's hospitals which are as yet without an inter-denominational hospital chapel. On 1 December 1962 the immediate task of the Tokanui Hospital Chapel Appeal came to

fruition with the consecration of the Chapel of St Barnabas at Tokanui Hospital, for which the foundation stone had been laid earlier in the year by His Excellency the Governor-General, Viscount Cobham.

It seems most likely that within the next year, chapels will be opened, or certainly nearly completed, at three if not four other mental hospitals.

District Inspectors

The Director and medical superintendents of hospitals are once again indebted to the interest and valued suggestions and advice that have from time to time been tendered by district inspectors by the exercise of their responsible honorary duties. From time to time a situation may arise which calls for a more detailed inquiry on the part of the district inspector and, on such rare occasions as have occurred, the district inspector has given most generously and freely of his time for the determination of the matters in question.

Official Visitors

The interest which the newly appointed Official Visitors, and those who have held this honorary for many years, has been fully maintained during the year. Despite the rapid fall in the number of patients admitted under reception order, there are still among those informally and even voluntarily admitted who have reason to appreciate the interest shown by Official Visitors. The value of the Official Visitor's personal contact with and interest in the patient's affairs and troubles remains much as it did at the time such appointments were first inaugurated. Other aspects which have been of great interest to former Official Visitors have in some measure been superseded by the greatly improved advisory and inspectorial services of the Ministry of Works and of the Health Department Head Office.

Appreciation

Once again I have to acknowledge my appreciation on behalf of the Mental Health Division staff for the many services and the assistance that have been freely forthcoming from those Government Departments, such as Education, Justice, Works, Social Security, and the Public Trust, whose responsibilities impinge so closely on the work of the Mental Health Division.

2. EXCERPTS FROM REPORTS OF MEDICAL SUPERINTENDENTS

A. Mental Hospitals

Oakley Hospital

Admissions for the year totalled 1,063; discharges 891.

The new Outpatient Clinic commenced to operate in mid December; it is restricted to the afternoons at present.

The senior social worker reports that her staff have participated in meetings and discussions with all social workers in the region. The hospital magazine, *Oakley News*, edited by a social worker, flourishes. Patients' contributions and interest continues.

The Philadelphia Club (inpatients) meets weekly with social worker supervision and participation. The average weekly attendance is 40–60 patients. Greater emphasis has been placed on individual activity within the group with a view to encouraging future rehabilitation. The results have been most gratifying.

The cost of works completed by our own team of artisans total £14,600. This is in addition to the usual routine maintenance and repair work which is of considerable magnitude in buildings that are of considerable age.

Julius Caesar was successfully produced during the year and concerts have been given by the patients and interested organisations.

During the year the semi-annual meeting of the Australasian Association of Psychiatrists was held in the Connolly Room, which was also used by the Auckland Branch of the New Zealand Registered Nurses Association.

Kingseat Hospital

Admissions totalled 897.

Group therapy has been an important activity with patients participating in leadership.

During the year the Anglican Bishop of Auckland appointed a full-time chaplain to this hospital (Rev. A. M. H. Dewar). He was commissioned in our recreation hall on 14 February 1962 in the presence of a large assembly.

The chapel project is progressing very favourably and I hope that sufficient finance will be available to commence building soon.

A clothing store for the personal outfitting of patients was opened in March. The system of direct exchange of so many items of hospital stores is proving a boon to all sections concerned.

By arrangement with the medical subfaculty, demonstrations and discussions on psychiatry were given by the medical staff to final year medical students. A course was held in October for public health nurses from Gisborne.

Training of Intellectually Handicapped Children—The "school" opened with a roll of 25 pupils and six evening pupils, a total of 31. Attendance has been regular, the health of the children good, and we have been free from epidemics A prefabricated classroom will be ready for occupation in February 1963.

Several women, admitted on account of mental illness following childbirth, were enabled to continue nursing their infants while in hospital.

Tokanui Hospital

Admissions showed a nearly one-third increase over the previous year, having risen from 801 to 1,060.

The aim has been to keep patients in hospital for the shortest possible time consistent with their particular needs.

In 1962 there were 101 admissions with senile mental deterioration, 22 with other diseases of the brain, and 78 severely subnormal from birth. There were thus 837 admissions of non-organic types compared with a total of 819 discharges. Of the discharges, 104 spent under a week in hospital; 204 under two weeks; 424 under a month; 652 under three months. Although a few of the organic group were in fact removed to alternative care, the discharge figures make it possible to say that "intellectually intact" patients admitted to Tokanui for mental illness or emotional disturbance now have one chance in eight of leaving within a week; one in four of leaving within a fortnight; one in two of leaving within a month; and three in four of leaving within three months. The percentage of discharges within a month has risen from 37 per cent in 1960 to 54 per cent in 1962.

Hitherto schizophrenia has been the major mental hospital problem, accounting for over half the occupied beds, and with the resident schizophrenic population slowly increasing from year to year as a disquietening proportion of the admissions in the group became chronically ill. That trend is now reversed. Few schizophrenic first admissions now remain ill enough to have to stay indefinitely in hospital. Those admitted many years ago, and now so fixed in their illness as to prove beyond help with new treatments, form an elderly population. Even better; a few schizophrenics who once seemed incurable can sometimes be "salvaged" by new treatments and approaches.

We had resident at the end of 1962, 95 handicapped children under the age of 15. Tokanui was not specifically designed for subnormal children and perceptive improvisation has been called for to meet their needs. The opening of the recreation hall has released other space so as to allow of a self-contained nursery unit, now accommodating some 30 infants. The decline in the incidence of tuberculosis enabled us, in 1962, to take over the previous female isolation unit and make it

into a largely self-contained wing for older boys, who benefit from being cared for by both male and female staff. The most severely handicapped males now have their own villa. The class for training and teaching activities had a roll of 46 at the end of 1962 under the enthusiastic supervision of a former teacher assisted by other staff and a number of voluntary helpers.

Lake Alice Hospital

Three hundred and twenty-seven patients were on the register at 1 January 1962 and 319 at 31 December 1962.

Work continued on the National Security Unit and the construction of the recreation hall was started towards the end of the year.

Yet again it is a pleasure to report that the public relations factor is excellent. Local interest was maintained. There was a welcome trend towards more interest on the part of Wanganui organisations.

Porirua Hospital

Admissions under all headings (but excluding transfers) were 1,384, 726 being voluntary inpatients; 118 informally admitted, and 540 under some form of compulsory order, including remands for observation and reports.

Discharges number 1,129, of which 698 were voluntary and 431 patients subject to some form of compulsory order.

Outpatient Clinics—At Wellington Hospital the number of outpatient attendances were 1,511: Patients treated in psychiatric wards, 779. At Porirua Hospital – number of attendances, 93. At Masterton Hospital (opened late in the year) the attendances were 55.

Of 726 voluntary inpatient admissions, 360 were readmissions. Of 677 formal and informal patients admitted, 218 were readmissions. A readmission has been taken as any person who has been previously in Porirua irrespective of the number "of years ago".

A course for district clergy and ministers of religion was held during the year.

Lectures and demonstrations in psychiatry and psychiatric hospital procedure were given to two groups of post-graduate nurses. These groups "lived in", which allowed for a more effective programme.

The electroencephalography unit, the first to be established in New Zealand, has functioned very efficiently during the year and a large output of work has been maintained. An increasing number of "Sphenoid tests" have been carried out under general anaesthesia during the year.

The senior social worker reports a shift in emphasis towards more work with relatives. Approximately one-fourth of the social worker's time is now spent on home visiting. Patients and relatives who meet a social worker in this way tend to seek further help more readily when the need arises.

Ngawhatu and Braemar Hospitals

This is the last year in which the reports of Ngawhatu and Braemar Hospitals will be combined.

Outpatient and Day Services: In Nelson itself, weekly outpatient clinics are held at the general hospital. Patients are referred from a number of sources: medical, police, clergy, and an increasing number come of their own volition. Blenheim is visited twice monthly and Woodbourne (RNZAF) en route as required. The Special School for girls at Richmond is visited regularly by Dr Moore and on request.

Perhaps the most notable event was the compulsory closing of the old main building at Ngawhatu because of increasing structural risks and the consequent danger of collapse in the event of a moderate earthquake. This necessitated the transfer at very short notice of 40 patients to Cherry Farm Hospital, and the adjustment of bed space in other villas.

The nursing staff position on the male side remains strong. On the female side the nursing staff position is better at the moment, in both Braemar and Ngawhatu Hospitals, than it has been for years. At times we have had a small waiting list for Braemar.

It might be said that the people of Nelson are becoming increasingly interested in our hospitals, and many drive through our grounds on a Sunday afternoon. We welcome this, as we feel that those who are genuinely interested and appreciative of the conditions visible far outnumber the mere curiosity seekers.

Sunnyside Hospital

The number of patients admitted during the year continues to rise, being now double what it was seven years ago. The number of voluntary inpatients admitted forms an increasing proportion of the total.

There has been a consolidation of previous trends, and greater range and detail in the investigations and services hitherto afforded by virtue of a welcome increase in the medical staff.

The hospital now has more wards that are open or partially open. On the women's side there are over 300 patients living in open wards.

In both the men's and women's admission homes the wards have been so divided as to allow of open and closed sections. The women's side of the reception home is completely open, with the exception of an eight-bed unit with its own sitting room, toilet facilities, and treatment room.

Electroconvulsive treatment has declined, almost to a third of its level only three or four years ago, in favour of certain newer drugs which do not occasion transitory disturbance of memory.

The new clinical psychology teaching programme of the University of Canterbury and the Mental Health Division is fully operative. In addition to its heavy commitments at Sunnyside, the clinical psychology department has also supplied reports on a number of patients from Queen Mary Hospital, Hanmer Springs.

The senior clinical psychologist has contributed to an advanced psychiatric nursing course at Templeton Hospital, a training course for tutors at Levin Hospital, and to the Health Inspectors Conference at Lincoln College.

A senior medical officer conducts teaching sessions in psychiatry for sixth-year medical students.

Work has commenced on the new reception and early treatment unit for Sunnyside. Its completion will pave the way for the reorganisation and renovation of the main buildings, for which the preliminary survey has already been made.

Seaview Hospital

Admissions for the year 1962 were considerably higher than the previous year. Voluntary inpatients increased by 37·2 per cent (59 compared with 43 in 1961). Total admissions for the year, 105.

The opening of the combined men's and women's admission unit has resulted in the creation of a very interesting atmosphere in this reception unit. After a very short period of settling in, when there was considerable diffidence and a tendency to remain in separate groups – something not unknown in other settings in New Zealand – a good sociable atmosphere was established in the dining room, in the grounds, and, on occasions when there were entertainments, in the living rooms. It was pleasing to note how both men and women patients showed interest in cooking and other housekeeping aspects of ward life. This atmosphere is beneficial during treatment and rehabilitation.

During the year the total attendances at Outpatients were 1,320 distributed as follows: Grey Hospital, 788; Seaview Hospital, 459; Westland Hospital, 27; Westport, 46.

A male tutor has been appointed. Despite a few initial difficulties the combined training with Westland Hospital nursing staff is functioning satisfactorily.

Tenders for the chapel were called in November. We continue to be well served by visiting chaplains who hold regular services.

The use of the former Aorangi Ward as a reception centre has helped the recreation officer's programme. The life of this old building is, however, limited, but it will serve until a community centre can be provided.

Seacliff Hospital

The implementation of the 1961 Act to amend the Mental Health Act, which makes provision for informal admissions, did not give rise to any unforeseen difficulties. It has in effect led to more use being made of the therapeutic facilities provided by this hospital.

During the last two years the admission rate has risen sharply: 506 in 1961 and 735 in 1962. There has been an even greater relative increase in outpatient attendances, which have increased from 1,686 in 1960 to 3,340 in 1962.

There was an increase of 66 in voluntary admissions. There were 139 informal admissions. The retention of a special provision for minors has proved useful in the case of young patients in whom mental subnormality is not the main problem.

The completion of the Nurses' Home at Cherry Farm Hospital in October has accelerated the transfer of women patients from Seacliff to Cherry Farm.

At both Dunedin and Southland Hospitals the appointment list was such that, at times, it has been found necessary for two members of staff to work at the oupatient clinics. This has enabled junior members of the medical staff to gain outpatient experience under supervision. Attendances exceeded 3,200.

During the year Villa D was organised as a villa for the activation of chronic schizophrenic patients. Worth-while improvements in the patients and enhanced enthusiasm on the part of the staff have been noted. A varied programme of occupational and recreational activities is applied with the objective to break up the repetitive nature of much chronic schizophrenic behaviour.

This year the charge occupational therapist has been hampered by the non-replacement of trained staff. She has at times carried on only with the assistance of her occupational therapy aides.

Fifth-year medical students, by arrangement with the Professor of Preventive and Social Medicine, accompany our senior social worker on her home visits in the Dunedin city on a set afternoon weekly.

B. Hospitals and Training Schools for the Mentally Subnormal

Levin Hospital and Training School

1962 has seen a slight fall in the number of admissions to this hospital – but only because of the progressive filling of newer accommodation. The numbers requesting admission have continued to rise and the waiting list is now substantial. It will remain so until Mangere Hospital and Training School is operative.

The training activities have continued to develop. Interest in Levin Hospital by overseas visitors is unabated. Professional visitors from New South Wales, South Australia, Queensland, England, France, Switzerland, Burma, and Japan being among those who have looked in – some for a week or even more.

Total number of admissions, 118 (105 informal); total number of discharges, 67 (18 informal); short-stay admissions (informal), 28 boys and five girls.

Visits to the hospital of the orthopaedic and paediatric specialists continue with great benefit to the hospital. The appointment of a visiting specialist anaesthetist has allowed an increase in the scope and extent in dental work in the hospital.

Training and occupational therapy activities continue to develop and the expansion of the mechanical workshop has opened up a new range of activities for those patients who can be trained to use machinery.

The domestic unit, run by the Occupational Therapy Department, is a pronounced success and is proving of considerable value in teaching simple domestic procedures.

The former "Hospital Block" is being reorganised and renovated. The altered ward is intended to house a group of children who will require and benefit from more individual attention in a "family home" type of setting.

Templeton Hospital and Training School

Treatment and rehabilitation are comprised within the overall hospital training programme.

A second special class was begun in May 1962 – a second school building having been provided and equipped by the Education Department. The schoolmaster has now a permanent assistant (male).

Prior to the completion of a workshop, several boys nearing readiness to return to the community were selected for training at the Riccarton Disabled Servicemen's Centre. This group was chosen to give them needs now covered by the newly completed Templeton Hospital workshop.

Those taking part in sports outside the hospital are provided with blazers, berets, and ties, and a hospital badge designed by a member of the staff.

Drawing, painting, printing, and light woodwork groups are being formed. Both boys and girls participate in mixed groups. It is hoped that girls will be able later to take part in leather work. Other crafts are to be introduced next year.

The new hairdresser's salon has noticeably raised the morale of the girls.

A paediatrician visits each fortnight for consultations, and an orthopaedic consultant attends on request. Mr Gunz, of the Haematology Department, has begun a long term survey of all mongol patients for a chromosome investigation.

Members of the Intellectually Handicapped Children's Society are frequent visitors, individually, in formal groups, and as representatives of their society.

C. Queen Mary Hospital, Hanmer Springs

The increased admission rate indicates that this hospital is making its due contribution to the national health services. As a hospital for functional nervous disorders, it offers a more continuous milieu of treatment than can be given by outpatient clinics or day hospitals, with the added advantage to the patient of a temporary complete break from his or her particular environment in which the breakdown occurred.

The period of inpatient treatment has been curtailed, averaging two to two and a half months compared with the previous three months. There is now no waiting list delay for admissions to hospital.

The hospital provides a base for the medical and allied services required for the district. The outpatients department attached to the hospital caters for all local medical needs.

The visitors' and tourists' interest at Hanmer Springs has been further helped by their privilege of access to our thermal pools and the tea kiosk. A small increase in the admission charges to the thermal pools and for private thermal baths was made during the year – the first change for over 30 years. There was a slight falling off in attendances; 87,000 attendances compared with the previous year of 90,000 and a relatively greater increase in revenue of £1,000.

A milk-treatment plant has been installed. Milk for our own use is now pasteurised at the hospital.

An increased tempo of rehabilitation has been maintained. A total of 23 patients has been accepted for temporary or other positions on the staff. Of our present total staff strength, just over 33 per cent are former patients.

Renovations and extensions have been completed in the Occupational Therapy Department. The building, octagonal in shape, has at its hub an octagonal, glazed office room from which all sections can be observed by the charge therapist and other staff.

D. The New Zealand School of Occupational Therapy

The Principal reports: The New Zealand School of Occupational Therapy had 87 students in training at the beginning of the first term, January 1962, and 89 at the beginning of the second term, July 1962.

The school feels very strongly that whilst the selection panel does all in its power to choose students with appropriate aptitude, some reassessment of borderline students after the first term would be desirable.

The fact that students enter their first clinical practice after only five months' training places a heavy burden of teaching responsibility on the charge occupational therapists. Junior students need constant guidance and supervision in their work. The charge occupational therapist is the source of such guidance in clinical practice terms.

There are four Colombo Plan students in training at the school.

It is felt that one of the school tutorial staff should visit hospitals where there are students taking clinical practice to assist the charge therapists with any training problems that may arise. Such visits need to be regular. This would improve liaison, for which there appears to be a greater need at the present time.

The accommodation at the school has been increased. The new wing was completed during the second term. This is most welcome. It provides two classrooms, cloakroom, and a small store. These rooms have been for the present allotted to the new intake students; the fifth-term seniors are now using the school's former lecture room in the original occupational therapy building.

PART IV—SPECIAL BRANCHES

1. NATIONAL HEALTH INSTITUTE

Hospital Laboratory Advisory Committee

As indicated in last year's annual report arrangements had been put in hand to decentralise the examinations for hospital bateriologists or medical laboratory technologists. The Institute's administrative staff has provided secretarial services for both Hospital Laboratory Advisory Committee and the new Provisional Examination Board. Decentralisation with its many, instead of one, examination centres has meant a large increase in the administrative work but the arrangements have worked well and appear to have given general satisfaction. Thanks are due to the Provisional Examination Board members who have given much time and careful thought to making the new arrangements a success. During the year two intermediate and two final examinations were held. Twenty-five medical laboratory technologists passed their final examination for the C.O.P. in Hospital Laboratory Practice, and 41 candidates passed the intermediate examination.

I. Epidemiological Section

1. *Training Courses and Lectures*

Nineteen trainees attended the 1962 Health Inspector Training Course. Five of these were sponsored by local authorities and the remainder were trained for the Department.

The 14 trainees of the 1961 course all passed their final examination for the diploma of the Royal Society of Health in May 1962.

Two refresher courses for qualified health inspectors were held during the year. Twenty-two inspectors attended the first course held at Lincoln College. The organisation of the second course was taken over by the Division of Public Health. This course was held at Massey College and 19 inspectors attended.

The epidemiologist has given a course of 14 lectures in applied microbiology and epidemiology at the Post-graduate Nurses' School. In view of the activity of the epidemiologist in studies connected with the work of the nurse in relation to hospital cross infection he has frequently been asked to lecture senior nurses and midwifery trainees on the prevention of cross infection.

2. *Investigations of Disinfectants and Disinfecting Cleaning Agents*

In the past few years there has been a renewed emphasis upon a clean and sterile hospital environment. As a consequence many new formulations for disinfectants and disinfectant cleaners have been marketed, for some of which high claims of bactericidal power, based upon the phenol coefficient test, are made. This test is performed under quite artificial conditions and bears little or no relation to the behaviour of disinfectants under practical conditions of use. In the hospital environment disinfectants are required to kill bacteria on

many different types of surface and in the presence of organic matter. Similar considerations apply in food-handling premises. A test has been designed to mimic these conditions in a rough-and-ready manner; different pathogenic bacteria are distributed in a dried-milk film upon a glass slide with an irregular surface and these slides are immersed in the antiseptic or disinfectant under test. The time taken to kill the bacteria gives a measure of the efficiency of the disinfectant. The older type of disinfectant of the phenolic group has stood up well to the test, whereas a number of the more recently introduced disinfectants have proved disappointing.

3. *Hospital Theatre Ventilation and Air Conditioning*

It is surprising that while in industry many investigations have been made of the optimal conditions of temperature and humidity required by various types of worker, very little attention has been given to the investigation of the conditions in operating theatres where patient and staff should be at their best. This has been due largely to the assumption that the patient required warmth to prevent shock and that the staff must condition itself to this for the patient's benefit. The occurrence of heat stroke in patients undergoing operation, and the lessened importance attached to heat in surgical shock, have led to the whole subject being re-examined. In addition to the safety and comfort of the patient, temperature and humidity have a bearing upon bacterial survival in air and the epidemiologist has been studying some types of air-cooling equipment. Small units, apart from lower cost, appear to have a number of advantages over large, centrally placed plants. The small unit allows individual control for each theatre, is readily accessible for maintenance, and in the event of breakdown affects only one theatre. Two points required elucidation, the possibility of increasing bacterial contamination with recirculation of air and the possible danger from an increasing concentration of anaesthetic vapour in the presence of a brush motor. The first possibility has not been found to occur in actual tests. The danger from anaesthetic vapour is, as far as can be determined at present, by no means as great as at first thought possible. Further information is being obtained on this point.

4. *Conferences and Publications*

The epidemiologist contributed to a discussion at two sessions of the International Conference in Soil Science in connection with the suggested correlation of the incidence of some types of cancer to certain soils.

The booklet *Notes on Staphylococcal Cross Infection* has been printed and circulated.

Papers upon cleaning equipment in hospital wards, the danger of taking unsterilised cardboard containers into operating theatres, and the impression plate technique of testing the bacteriology of surfaces have been submitted to various scientific journals.

5. *Acknowledgment*

The Institute is indebted to the many hospitals and their medical superintendents whose cooperation and helpfulness has made the studies on hospital cross infection possible. The Medical Superintendent in Chief and the staff of Wellington Hospital have, as in the past, been generous in the provision of facilities for this work.

II Laboratories

The overall number of specimens received for examination, 9,352, remains at very near the same level as last year's figure of 9,407. There have, however, been changes in the distribution of the numbers of specimens received by different sections of the laboratories. The Virus Laboratory received many more specimens, 2,008 this year as against 664 last year. About half of this increase was due to a survey of the results of Sabin poliomyelitis vaccination by taking pre- and post-vaccination blood samples from children for antibody tests. However, the increase also undoubtedly represents an increased interest in and awareness of diseases caused by viruses. The number of specimens received for toxoplasma tests also rose from 1,110 to 2,001, and a large part of this increase is explained by the examination of 385 serum specimens collected by the medical research unit of Wellington Hospital in the Te Karaka and Ruatahuna areas in a survey of Maori health. The number of specimens received by the hospital cross-infection laboratory fell from 5,829 to 3,549 and it is to be hoped, and in fact it appears to be the case, that this corresponds with a decrease in hospital cross infection.

General Bacteriology

The total number of specimens examined from January to December was 3,840, made up as below:

Sera for *Leptospiral agglutinins*	1,262
Sera for toxoplasma tests	1,598
Sera in toxoplasma Survey of Te Karaka and Ruatahuna areas	385
Toxoplasma isolation specimens	18
Sera for miscellaneous *agglutinins*	18
Faeces	265
Foodstuffs	9
Shipping rats	8
Miscellaneous cultures	52
Salmonella / Shigella cultures	123
Water samples	64
Miscellaneous examinations	38

Types of Enteric, Food Poisoning and Dysentery Organisms Identified

S. typhi murium	19	*S derby*	7
S. choleraesuis	7	*S. typhi*, phage type A	10
S. anatum	10	*S. typhi*, phage type B2	5
S. bovis morbificans	4	*S. typhi*, phage type C1	5
S. saint paul	1	*S. typhi*, phage type D1	3
S. newington	6	*S. typhi*, phage type E1a	18
S. weltevreden	2	*S. typhi*, untypable	3
S. dublin	1	*Shigella sonnei*	19
S. muenchen	1	*Shigella flexneri*, type I	1
S. senftenberg	1		

One of the above serotypes, *S. muenchen,* was identified in New Zealand for the first time. It was isolated from a patient who had been travelling in the Greek Isles.

Of the 1,262 specimens of sera examined for agglutinins to *leptospira,* 100 were positive from 91 separate cases. The commonest infecting strain, as in previous years, was *L. pomona* (50), and other strains showing a positive titre of 1/300 or more were *L. semaranga* (2), *L. hyos* (9), *L. ballum* (30), *L. medanensis* (8), *L. andaman A* (14), and *L. sentoti* (5).

As from 1 October the Toxoplasma Section was merged in the General Bacteriology Section and for the purposes of this report the total Toxoplasma specimens are included here. The Toxoplasma parasite was isolated from skeletal muscle in one of the attempted isolations.

During recent years the condition of clinical tuberculosis due to atypical organisms, which are not tubercle bacilli, has been more widely recognised and a few cultures had been received for examination. In order to determine the frequency and importance of these atypical mycobacteria in causing disease in New Zealand all medical laboratories were asked to cooperate by sending any cultures isolated for examination. Shortly after these arrangements were made it was learnt that the WHO had organised a regional centre for similar studies situated in Perth, Western Australia. Liaison is being maintained with this centre. Eleven cultures of Mycobacteria were received during 1962. They were grouped according to Runyon's classification as: 4 Group II (Scotochromogens), 4 Group III (Non-chromogens) and 1 M. tuberculosis. Of the remaining two; one failed to grow after repeated attempts at subculture, and one (from the lymph node of a cow) is not yet grouped. Of the non-chromogens; one was isolated from urine, two were single isolations from the sputum of patients not known to have had tuberculosis, and one was from an old tuberculosis case. Three of the Scotochromogens were isolated from the sputa of patients who had suffered from tuberculosis and one came from urine.

Among other projects undertaken during the year was a comparison of different standard culture media for the bacteriological examination of water. Significant differences in the most probable number estimates were found with different media and the investigation is continuing.

Virus Section

Three hundred and fifty-eight specimens from 289 patients were examined for the presence of virus. Forty-four viruses were isolated. These viruses included one poliovirus type 2 and two poliovirus type 3; seven Coxsackie B2, 15 Coxsackie B5, and three other Coxsackie B viruses; seven adenoviruses of four different types; two Influenza A2 viruses and four Influenza B viruses; two Herpes Simplex viruses and a vaccinia virus.

In the serological tests 342 sera from 224 patients were examined. It was not possible to complete the examination of all the specimens received during the year. Virus examinations are laborious and, as an example, in the above investigations over 10,000 tissue culture tubes were employed.

The work of the Virus Section this year has been mainly concerned with the attempted diagnosis of diseases suspected of having a virus causation, with particular reference to diseases caused by enteroviruses and apt to simulate poliomyelitis. At the same time material has been accepted from sporadic cases of disease in which laboratory investigations might substantiate a supposed specific viral aetiology.

From the work done on the material submitted the following is of interest. The Coxsackie B4 virus which was the prominent enterovirus isolated in the substrates used here during 1961 was replaced by Coxsackie B5; the first recovery being made in January 1962 from a case of bilateral 7th nerve palsy in a young woman of 20. This virus has been responsible for a few cases of definite paralysis and many cases in which the diagnosis of poliomyelitis was suspected on the clinical

grounds of an aseptic meningitis syndrome. A Coxsackie B2 virus was also implicated in similar syndromes from a lesser number of cases. Polio viruses were not recovered from these cases and the few strains isolated were obtained following ingestion of the oral vaccine.

The vaccinia virus recovered was from a patient accidentally infected by her sister, a nurse recently vaccinated.

The two strains of herpes simplex virus isolated were of more interest. The first was recovered from a herpetic whitlow suffered by a dental nurse – a classical situation. The other strain was responsible for a fatal encephalitis in an adult woman.

Of the adenoviruses isolated the type 3 was probably responsible for a typical pharyngoconjunctival fever, but due to the lack of clinical details this remains a surmise only. The other adenovirus strains were recovered from infants and young children with pneumonia and it is uncertain how much effect these agents had on the current illness.

The 1962 winter influenza situation was from a clinical standpoint more severe than in previous years and this was no doubt due to the presence of the major influenza types A and B in the community.

Following one overseas report demonstrating the recovery of an infective hepatitis virus using a particular cell line this tissue was utilised in an endeavour to repeat the work using faeces accumulated in past years. This work was not substantiated and it seems from other accounts this investigator was not dealing with the true infective hepatitis virus.

Significant results from the serological side of the material received, in the absence of positive virus isolations, have been reduced to two cases: the unequivocal diagnosis of typed poliomyelitis in an adult male and mumps infection in a case of orchitis. Puzzling results such as lack of antibody to herpes simplex in the herpetic whitlow case and similarly no antibody in a case of Coxsackie B2 meningitis of long duration of symptoms have no clear explanation.

A large amount of unfinished work is evident in two directions, both concerned with neutralisation test serology, (a) examination of sera from cases of enterovirus disease for poliovirus and Coxsackie B virus neutralising antibody, (b) examination of pre- and post-Sabin vaccine paired serum specimens.

Hospital Cross-infection Section

The work of this section has fallen into three categories: routine examination of specimens, work as the National Centre for Staphylococcal Phage Typing, and special tests on various products and equipment for the epidemiologist.

1. *Routine Examinations*

Cultures for phage typing	2,707
Miscellaneous specimens for bacteriology	539
Antibiotic sensitivities and serological tests	41

2. *National Centre for Staphylococcal Phage Typing*

A new set of 22 phages and 24 staphylococcal cultures was received from the world centre, Colindale, England, at the end of 1961. In March 1962 work was begun on preparing and freeze-drying fresh stocks of phages and staphylococcal cultures from the new set in sufficient quantities to supply both the Institute itself and the five base

laboratories which undertake phage typing for the next three to four years. By the end of the year work on 14 of the phages and 20 of the staphylococcal cultures had been completed. In the meantime laboratories have been supplied from stocks prepared in earlier years.

3. *Special Tests*

(a) A number of investigations have been made of methods which could be used in the hospital or home for preventing infections in babies. These have included studies of methods of cleaning and disinfecting babies' napkins, of methods of sterilising babies' feeding bottles and their teats using hypochlorite solutions, tests of wide-necked baby-feeding bottles fitted with plastic caps, and a comparison of different antiseptic preparations for dressing the umbilicus in newborn babies.

(b) Assistance was provided to the epidemiologist in testing a number of disinfectants and antiseptics.

(c) Among miscellaneous tests carried out were the trial of a glass and instrument detergent cleaning agent and tests on an ultraviolet cabinet for treating hairdresser's equipment. Ultraviolet light does not penetrate and the cabinet, while reducing the bacterial counts, did not sterilise instruments.

Vaccine Laboratory

Smallpox vaccine production from embryonated eggs has been continued throughout the year and nine batches of vaccine were prepared. In addition, vaccine was produced from calves and this calf vaccine has been stored for later processing. Of the egg vaccine prepared this year, 53,450 doses were freeze dried to form part of an emergency stock.

Issues have increased this year and consisted of 51,000 capillaries, 3,000 doses in bottles in liquid form, and 4,000 doses in freeze-dried ampoules.

Research Laboratory

It was reported last year that the expected increase in the use of organophosphate insecticides in New Zealand had not been accompanied by an increase in demand for tests for blood choline esterase. The position has remained the same this year and it seems, happily for this country, that the development of new organophosphates has largely removed the hazard of acute toxicity which accompanied the early organophosphates.

However, the comparative ease with which organophosphates pass the skin suggests that some quantity of the less toxic organophosphates might be absorbed without the typical symptoms, and it became necessary to consider poisoning by metabolites in relation to any atypical symptoms occurring. Testing of specimens at random was therefore continued in the hopes of discovering any atypical cases. The greater accuracy of laboratory tests was needed for this purpose, since changes in blood enzymes could be rather small. From a second year's experience, it is concluded that the handling of organophosphates in New Zealand has been without noteworthy toxicity to the careful handler, and that the chief hazard in future is likely to arise from accidents in handling or from faulty equipment. If testing is to be continued, it could be used most appropriately for checking specific processes or types of equipment, or for securing baseline values on workers most exposed to risk of accidents.

Routine Choline Esterase Tests

Choline esterase tests on plasma and red blood cells of factory workers handling diazinon have been continued at two-monthly intervals. Five of these workers have now been under observation for four years, and in this period the range of blood enzyme levels has been as follows:

—	Subject				
	A	B	C	D	E
Plasma Choline Esterase (pH change per hour at 25°C)—					
Maximum	0·93	0·85	0·73	0·96	1·22
Median	0·81	0·64	0·58	0·85	1·09
Minimum	0·69	0·52	0·38	0·67	0·89
R.B.C. Choline Esterase (pH change per hour at 25°C)—					
Maximum	0·80	0·78	0·67	0·75	0·79
Median	0·75	0·71	0·62	0·72	0·70
Minimum	0·69	0·60	0·53	0·62	0·61

Choline esterase tests on plasma and red blood cells of nine workers from another factory were done as a control on field tests made simultaneously at this factory. In this case, the hospital laboratory is some 20 miles distant and blood sampling for laboratory tests is more difficult.

In a second comparison between laboratory and field tests, the district medical officer of health, Timaru, organised the testing of berry fruit-growers and sent specimens from five subjects before and after the seasonal spraying operations. It is believed that the red blood cell enzyme provides the best index of cumulative effects, but there was no effect detectable on the red blood cell enzyme in this comparison. Detected effects on the plasma enzyme were small and of doubtful significance since specimens were taken rather late (one to three months after the last previous spraying). There was only a weak correlation between laboratory and field tests, but this might be expected since the changes observed were marginal ones in any event.

Twenty-eight other specimens were sent in for testing, 24 as a result of suspected poisoning and five in connection with anaesthesia for surgery. In the latter group were three specimens from one case, following collapse under operation. The results with these specimens (taken before transfusion of 4 pints of blood, and then one day and eight days afterwards) were 0·07, 0·24, and 0·23 units. Thus the low level initially was apparently not a transient effect on the enzyme due to any of the other drugs in use.

2. DOMINION X-RAY AND RADIUM LABORATORY

Introduction

The Radioactive Substances Act 1949 provided legislation for the safe use of all sources of ionising radiation and established the Radiological Advisory Council, consisting of seven experts. This Council advised the Government on the three regulations issued under the Act:

(a) The Radiation Protection Regulations 1951, amended and reprinted in 1954.

(b) The Transport of Radioactive Substances Regulations 1951.
(c) The Radioactive Substances Appeals Regulations 1954.

The Dominion X-ray and Radium Laboratory administers the Act and the regulations, and provides the services and facilities which ensure that the purpose of the Act is achieved, i.e., the protection of the health of persons likely to be exposed to harmful radiation.

I. Field Services

A considerable part of the working time of the Laboratory's radiation officers is taken up with visits to places where radiation sources are used, with the issuing of the resulting reports and recommendations, and with answering correspondence on questions of dosage or protection.

Reference to dosimetric and calibration work done as part of our field services has been included in Section II (c) of this report.

During the year under review particular attention was paid to users of unsealed radioactive substances. On several occasions decontamination of work areas where unsealed radioactive substances were used was necessary. A special visit was made to prepare radioactive waste material for disposal following major decontamination work.

From a hospital where the radiotherapeutic use of cobalt-60 needles and wire had been discontinued, these radioactive materials were recovered and both the needles and the working area were checked for residual contamination. Contamination resulting from a misplaced cobalt wire was detected.

An investigation of radioactive contamination of aircraft engines and accessories was made at an engineering workshop. The low level of detected contamination was associated with the internal air passages and the leading edge of the air-intake system. In a requested survey of the deck space and cargo of a ship that had travelled outside the controlled area set for the 1962 American Pacific bomb tests, no indication of radioactive contamination could be found.

II. Laboratory Services

(a) *Occupational Exposure*

The Laboratory's postal radiation test film service is used for the routine monitoring of the exposures received by all radiation workers in New Zealand. During the last few years the postal radiation test film service has been extended to X-ray workers in hospitals and dental establishments in Samoa, Fiji, and North Borneo.

During the year under review, 13,870 personnel monitoring films were processed, evaluated, and reported on. An additional 1,415 films were evaluated in special tests which included the checking of the adequacy of protection arrangements in shoe-fitting machines and the surveying of rooms occupied by non-radiation workers.

(b) *Supply of Therapeutic Applicators*

During 1962 the Laboratory produced and supplied 542 gold-cased radon "seeds", 34 gold-cased radon "needles", and two special ophthalmic applicators to hospitals and medical practitioners. In addition eight

orders for small quantities of radon for educational purposes were fulfilled. A total of 779 millicuries of radon was dispatched, providing a total of 633 millicuries at the time of insertion or use.

The two strontium-90 beta-ray applicators kept by the Laboratory for hire to medical practitioners were on hire for 94 days.

(c) *Radiation Measurements*

All secondary standard dosemeters and several clinically used dosemeters and treatment monitors used in radiotherapy departments were calibrated *in situ* twice during the year, and new dosemeters in two departments were given their initial calibrations against the Laboratory's primary standard equipment. In seven New Zealand radiotherapy departments there are now 26 dosemeters and treatment monitors.

In addition to the bi-annual calibration visits to all radiotherapy installations, the basic calibration was undertaken of the replacement cobalt-60 source supplied by the Australian Atomic Energy Commission for the Palmerston North Hospital teletherapy unit.

Equipment capable of producing potentially hazardous neutron levels exists now in several institutions in New Zealand. For this reason the Laboratory has started a neutron standards dosimetry programme and the provision of a monitor film service for those potentially exposed to neutrons is being prepared.

During the past year there has been a marked increase in the number of survey meter calibrations. Five survey meters have been calibrated for use by the Armed Services, five for civil defence training purposes, 22 radiation monitors for use in the Laboratory's fall-out monitoring programme in the Pacific islands, and three new survey meters for use as radiation monitors at the major ports of entry.

Reference to further dosimetric work is made under Section IV (c) and (d).

(d) *Technical Services*

Section II (f) of last year's annual report mentioned the work done by the mechanical and electronic workshop sections in developing an automatic sample changer for low-background beta-counting equipment. The instrument has proved so successful that another automatic changer has since been built and incorporated in our second low-level anticoincidence counting unit. A paper on the design, construction, and operation of these automatic sample changing units has been published in the *Journal of Scientific Instruments*.

A considerable amount of work had to be done at extremely short notice on the construction and adaptation of special counting and measuring equipment for use in the Pacific islands during last year's nuclear weapons tests. The necessity to process hundreds of milk and food samples in a short period also created a number of problems, which had to be overcome by the Laboratory's technical services by designing, building, and installing batteries of multiple burners.

(e) *Advisory Services*

A considerable part of the radiation officer's time is spent in answering inquiries from licensees on many aspects of radiation work in medical, industrial, or research applications.

Throughout the year, as the design of new science buildings for Auckland University and the Van de Graaff Accelerator building for the Institute of Nuclear Sciences progressed, consultation took place and advice was given on shielding and other radiation-protection features for the buildings. Radiation-protection plans have been designed for three hospitals and for the sub-critical reactor at the University of Canterbury. Design drawings and recommendations for a radium safe were provided for a hospital at Fiji. The Laboratory has continued to provide advice to the civil defence authorities on matters of radiation protection and instrumentation, and assistance was given by the Laboratory with the training of hospital physicists and industrial radiographers, some of whom went overseas to do work under the Colombo Plan.

Assistance was provided in the design of a soil-moisture meter containing a radium-beryllium neutron source and a cobalt-60 gamma ray source for an agricultural research station. The sources were ordered and loaded by Laboratory staff, and transport and storage containers for the sources were designed.

III. Fall-out Monitoring

Throughout 1962, two chemists and one technician were working on fall-out analyses. The installation of a second low-background beta counter, and the conversion of both counters to automatic sample changing, enabled an expanded programme of fall-out measurements to be made on samples collected from New Zealand and from the Pacific Island Territories during the period of nuclear weapon testing which started in the Christmas Island area on 26 April 1962. However, the lack of a multichannel analyser is a continuing severe handicap.

(a) *Monitoring During Tests of Nuclear Weapons in the Pacific*

When the United States Government announced, in March 1962, that nuclear weapon tests were to be carried out from a base on Christmas Island, the Laboratory was made responsible for arranging the measurement of radiation, the collection of samples, and the interpretation of results to indicate what danger, if any, might exist for the people in the Pacific Island Territories. The RNZAF provided a regular transport service to bring out samples for laboratory testing. A member of the Laboratory staff at Penrhyn, and observers of the Meteorological Service, and members of the D.S.I.R. staff in various locations in the Island Territories, undertook the local supervision of the measuring and sampling programme.

Since barely a month elapsed between the decision to set up a monitoring service and the first test explosion, the programme had to be organised and put into operation at very short notice. For the measurement of gamma radiation intensities at stations in the Pacific a number of monitoring instruments were obtained. Equipment required for the sampling of food, rainwater, and air at the various sites was also obtained or built in the Laboratory workshop. The assistance of the RNZAF and of the Department of External Affairs made it possible to get the monitors, sampling equipment, and observers to their stations in time for the first test.

A table of levels of radioactive contamination at which certain actions would be taken to protect the population of the Pacific islands was calculated for the particular situation of short-term contamination – if it occurred at all – of areas inhabited by civilian populations in peacetime.

Details of the operation of the monitoring programme have been published in the Laboratory's "Quarterly Report: Fallout in New Zealand and Pacific Island Territories: DXRL-F5" and the subsequent reports DXRL-F6 and DXRL-F7. Some aspects of the work are mentioned in sections III (b) and (c), and IV (a) of the present report.

(b) *Measurement of Total Beta and Total Gamma Activities*

(i) *The Radioactivity of Air-filter Samples Collected Near Ground Level*—up to the end of April 1962 air-filter samples were collected continuously at Christchurch. From the beginning of May 1962, during the period of monitoring the weapon tests in the Pacific area, air-filter samples were collected daily from Penrhyn, Western Samoa, Niue, Rarotonga, Auckland, and Christchurch. Sample collection from the Pacific islands was discontinued during the first week in August and air-filter collections at Auckland and Christchurch were reduced to three filter changes per week in mid August. In total, 767 air-filter samples have been measured during the year.

(ii) *Total Beta Activity of Fallout Deposited on the Ground*—The measurement of total beta activity in rain samples collected at Christchurch has continued throughout the year. Additional collecting stations were established at Penrhyn, Manihiki, Nukunono, Funafuti, Tarawa, Western Samoa, Nuie, and Rarotonga for the Pacific islands monitoring programme. Altogether 209 samples, including six drinking water samples, were processed and measured during the year.

(iii) *Total Beta Activity of Land and Sea Food from the Pacific Islands*—Over 1,000 land and sea food samples from Penrhyn, Manihiki, Nukunono, Western Samoa, and Rarotonga have been ashed and measured for total beta activity as part of the islands monitoring programme.

(c) *Measurement of Specific Radioisotopes*

The measurement of specific radioisotopes allows a more precise estimation of fallout distribution and potential health hazard. The following fall-out radioisotopes were measured in environmental samples from New Zealand stations and Fiji during 1962:

Strontium-89 (half life 50·4 days), strontium-90 (half life 28 years), and iodine-131 (half life eight days).

(i) *Strontium-89 and Strontium-90 in Rain*—Strontium-89 measurements were made on selected samples collected during April, and from May these measurements were being made on samples from all collecting stations. The arrival here of fresh fission debris was first confirmed in May and since then strontium-89 has been positively identified and estimated in monthly rain samples from all stations.

Strontium-90 measurements on rain from the 10 collecting stations in New Zealand and Fiji show that the average yearly deposition has increased over the last three years. The depositions for the years 1960,

1961, and 1962 were 0·9, 1·2, and 1·6 millicuries per square kilometre respectively. The station with the highest annual deposition for 1962 was Greymouth with 2·76 mc./km.^{2}. The lowest was Christchurch with 0·70 mc./km.^{2}. October was the month of highest fall-out, with strontium-90 levels reaching 0·53–0·57 mc./km.^{2} at the collecting stations with highest rainfall, i.e., Kaitaia, New Plymouth, and Greymouth.

(ii) *Strontium-90 in Milk*—Samples representing each month's production are obtained from eight collecting stations. The average level of strontium-90 contamination for all stations for 1962 was 6·1 strontium units. This is somewhat higher than the 1961 average of 4·9 strontium units (S.U.). Greymouth milk continued to have the highest contamination during 1962 with an average level of 13·5 S.U. The lowest level was in Christchurch milk with an average of 2·1 S.U.

(iii) *Iodine-131 in Milk and Cattle Thyroid*—Positive indentification and measurement of iodine-131 in Northern Hemisphere milk samples followed the resumption of testing in September 1961. To check conditions in the Southern Hemisphere, samples from town and city milk supplies were collected from Auckland, New Plymouth, Wellington, Greymouth, Christchurch, and Dunedin over the period 20 July 1962 to 10 August 1962. In all these samples iodine-131 concentrations were below the limit of detection.

(iv) *Strontium-90 in Human Bone*—The Laboratory now has 16 ashed-bone samples from three different collecting areas, and analysis of these samples has commenced.

IV. Research and Developmental Work

(a) *Radiochemical Analytical Methods*

Concurrently with the radiochemical analytical work on strontium-89 and strontium-90 described in Section III (c) of this report, further work on the development of the ion exchange method of strontium carrier separation and for the radiochemical separation and measurement of iodine-131 has been carried out. A paper on this work has been prepared for publication.

(b) *Radiation Test Film Sensitivity*

A detailed investigation of the beta and gamma sensitivity of the radiation protection test films was made. Anomalies previously observed in the test film responses to caesium-137 gamma rays were checked and an increased accuracy over a wider range of radiation qualities was obtained.

(c) *Hazards from Radioactive Luminous Paints*

Work has continued on the analysis of the breath of workers engaged on luminising work and on the investigation of the radiation hazards associated with the use of radium-226 activated luminous paint. A special report on this investigation has been made to the New Zealand Horological Institute and, at the editor's request, a paper has been prepared for the *Journal of the New Zealand Horological Institute*.

(d) *Contamination and Action Levels*

The fundamental considerations used in the calculation of the "action levels" referred to in Section III (a) of this report can be used for the general derivation of dose levels produced by a single short-term contaminating event in a community. At the request of the editor of *Health Physics,* the official journal of the Health Physics Society, a paper on these wider implications of the Laboratory's monitoring work in the Pacific is being prepared.

(e) *Medical Radiations and Leukaemia*

In an investigation of the part played by radiation in the aetiology of sporadic human leukaemia, Dr F. W. Gunz, Haematologist, Department of Pathology, Christchurch, obtained histories of exposure to medical radiations from 590 unselected patients with leukaemia, 122 with myelomatosis and 712 controls. Integral and bone marrow doses were calculated at this Laboratory for radiotherapy exposure, and marrow doses were calculated for diagnostic exposures. The preliminary results of the investigation have already been published. A coauthored paper has now been prepared for publication under the title "Medical Radiations and Leukaemia: A retrospective survey".

(f) *Depth of Skin Carcinoma and Dose Homogeneity*

It is a basic requirement of the radiotherapy treatment of tumours to deliver an optimum dose to the tumour and a minimal dose to surrounding and underlying normal tissue. Criteria were derived to guide the clinical choice between soft X-rays and conventional superficial X-rays by relating this choice to the depth of the lesions and the dose homogeneity over this depth of tissue. The results of this study have been published.

(g) *Bone Simulating Materials and Dose Attenuation Data*

Dose transmission measurements were made through post mortem specimens from the skull, ribs, sternum, femur, and pelvis. These measurements were matched with measurements through equivalent substitute materials such as aluminium, bone dust, wax mixtures, and plaster of paris. A paper on this work is being prepared for publication.

(h) *Depth Dose Measurements under Bone*

Using the bone simulating materials developed in the work listed in Section IV (g) of this report, depth doses under spongy and compact bone have been measured for a wide range of radiation qualities, taking into account a series of associated parameters. The results of these measurements are presented in a clinically useful form, similar in layout to conventional tissue depth dose tables. The experimental measurements and most of their analyses have been completed and the results are being prepared for publication.

V. GENERAL

(a) *Publications, Addresses, Lectures*

During the year the staff of the Laboratory published 10 scientific papers and gave 21 addresses and lectures on the scientific work of the Laboratory. Numerous demonstrations and popular talks were given, and broadcasting and television media were used to inform the public on various aspects of the radiation-protection problem.

(b) *Overseas Tours of Duty*

The Director (Mr G. E. Roth) resumed duties in April 1962 after secondment to the International Atomic Energy Agency as Director of the Division of Isotopes since 1959.

The Assistant Director (Mr H. J. Yeabsley) proceeded overseas in April for seven months on a WHO fellowship to study current trends in radiological health and safety work in the U.K., U.S., and Canada. He attended the Tenth International Congress of Radiology at Montreal and a FAO/IAEA/WHO international training course on the measurement of radionuclides in food at the Robert A. Taft Sanitary Engineering Center, Cincinnatti.

Mr J. F. McCahon, who had returned to duty from his IAEA fellowship in the U.S.A. in January, attended a course on radiological reconnaissance at the Australian Civil Defence School, Macedon.

In the course of the Laboratory's fall-out monitoring programme, Mr P. O'Sullivan was stationed at Penrhyn Island for three and a half months, and Mr J. F. McCahon and Mr G. E. Roth were on tours of duty in the Pacific islands for periods of two weeks each. A more comprehensive report, incorporating statistical tables and more detailed information, is available from the Laboratory (P.O. Box 1456, Christchurch, New Zealand).

PART V—MISCELLANEOUS

1. BOARD OF HEALTH

As in previous years the Board of Health in 1962 found it necessary to hold only two meetings. The meeting in December was notable for a discussion on St. Helens Hospitals and midwifery training, and for the setting up of an inquiry, on the Minister's request, into policy on sterilisation procedures in public hospitals and allied institutions and services. The Board's work is best summarised under the names of its committees.

The Local Authority Affairs Committee set up a subcommittee to inquire into and report on the recruitment and training of health inspectors. The report is expected to be presented to the Minister about mid 1963. The Committee is especially interested in and keeps informed of progress in the provision of water supply and sewerage schemes and the general discharge by local authorities of their responsibilities in maintaining sanitary environments.

The Fluoridation Committee did not meet, but members kept in contact over developments concerning fluoridation both here and overseas. Despite the fact that fluoridation failed to win the support of a majority of those voting in referenda held in Nelson and Whangarei, it is apparent that there is a growing public awareness of the need to fluoridate public water supplies and this is shared by the more developed countries, especially in North America and Europe.

The Services for the Deaf Committee met once during the year and considered developments in regard to services for the deaf.

The Epidemiology Advisory Committee met on two occasions during 1962. Its main business was to provide advice to the Department on the vaccination of various age groups with the Sabin oral poliomyelitis vaccine.

The Air Pollution Committee met twice during the year, deliberating on effective means of combating industrial air pollution and the need for uniformity in research in this field, especially with Australia. Committee members had opportunity to meet Dr M. Katz from Canada, who has wide experience in air-pollution research, and Mr W. A. Damon, former U.K. Chief Alkali Inspector, following their attendance at the N.S.W. Clean Air Conference.

The Maternity Services Committee met on four occasions during the year and was able to give consideration to a number of important issues. Some of the matters on which the committee offered its views included the future role of the St. Helens Hospitals, some aspects of maternity hospital planning, a recommendation about maternity-days stay, and the outline of a scheme to provide for the regular calibration and testing of trilene inhalers. With the consent of the Minister of Health, the membership of the committee was widened early in 1962 to include a nominee from the National Council of Women. Mrs J. S. Stacey, of Wellington, has acted throughout the year. An encouraging

feature of the committee's work has been the cooperation which it has received from the various professional bodies and lay organisations interested in the country's maternity services.

The Maori Health Committee met on 15 November 1962 and considered several surveys and other projects that had been instituted during the year. The committee felt it had a useful function to perform and it will continue to meet from time to time.

The Metric System Committee recommended in its final report to the Board of Health (published as No. 8 in the Board's series) that the changeover to the metric system in medical and pharmaceutical practice should take place on a date to coincide with the adoption in this country of the British Pharmacopoeia 1963. As the British Pharmacopoeia Commission was not certain of the time of publication a definite date could not be recommended but it is probable that the change will take place towards the end of 1963.

The Dental Health Committee met on a number of occasions during the year to hear representations from interested organisations and persons on the conditions and scope of employment of dental technicians. In October the committee reported on this phase of its work and a report was later published, entitled "The Employment of Dental Technicians in New Zealand" (No. 7).

The Sterilisation Procedures Committee, set up under the authority of the Board of Health in December, held its first meeting in February 1963. A very wide order of reference has been placed before the committee and three subcommittees have been asked to give particular study to specific items.

2. NURSES AND MIDWIVES BOARD

Four meetings of the Board were held during the year.

Mr Bate and Professor Wright completed their terms of office and were both reappointed. Miss Sandford retired from the Board and Miss Te Ngaire Hughes was appointed to replace her.

Provision has been made to have the membership of the Board increased by having an additional registered nurse and a representative of the Medical Superintendent's Association.

During the year Miss Flora Cameron, O.B.E., who had been Registrar for twelve years, retired and was replaced by Miss Audrey Orbell, who was Deputy Registrar.

During her term of office Miss Cameron gave unstintingly of her experienced opinion concerning the training and practice of nurses. Her detailed knowledge of the Nurses and Midwives Act and regulations did much to facilitate the day-to-day business of the Board. At her last meeting, members of the Board expressed their appreciation of Miss Cameron's contribution to the nursing profession. The Board also expressed its thanks to Miss Sandford and Miss Boyd who retired during the year.

Nurse Training Schools

The annual returns from training schools show a continued overall increase in nursing staff over the past five years. This is particularly so with regard to registered nursing staff, both full time and part time.

General Training Schools

Student nurse intake, which rose when the age of registration was lowered to 20 years but which decreased over the 1960–61 period, is now increasing again and at the present time there are 4,500 nurses undertaking their general training.

The wastage rate of students during training remains high. Although it is comparable with other overseas countries the situation cannot be considered as satisfactory. As more girls become available more thought could perhaps be given to better selection, not only from the applicant's theoretical ability but also from her personality and general aptitude, of her suitability for nursing. Marriage, problems regarding study, and unsuitability are the three major reasons why nurses discontinue training.

It is perhaps rather disappointing that the increase in the numbers of students as shown in this year's returns as compared with last year is in the group with three or more years' secondary education rather than in the groups with School Certificate or higher educational attainment.

Nursing Aids

The situation regarding the training of nursing aids differs little from other years. There are 14 hospitals training this category of nurse, one of which was approved for training during the year.

These aids are continuing to serve a very useful purpose in the staffing of some of our hospitals of the less specialised type.

Obstetrical Training

(a) *Midwifery*

The number of midwives trained during the year was 109. The whole question of midwifery is being surveyed at the present time with a view to ascertaining how many midwives it is necessary to train each year in order to meet the demand for their services. It would appear that there is an ever-increasing demand for this category of nurse. The number of nurses who qualify as midwives and who actually practise obstetrical nursing for any appreciable length of time afterwards is also being investigated.

(b) *Maternity*

Because maternity nursing is now included in the basic training of nurses, only 24 undertook the six months' maternity course last year. This will be a decreasing number. The number doing the 18 months' training shows a slight but steady increase each year. At the present time there are 239 nurses undertaking the 18 months' course.

Male Nurses

The number of male nurses in training continues to decline as does the number of registered male nurses employed in training schools.

At present there are 34 male nurses in training. As was mentioned in 1960, the introduction of a three-year course for the training of male nurses has not had the anticipated effect of attracting larger numbers of students.

Although, individually, the male nurses who register and continue in hospital service serve a very useful function, it is a matter of concern that so few students come forward for training.

Psychiatric Nursing

It is a matter of concern that only 51 student psychiatric nurses qualified for registration during the year. This is too few for our needs.

Psychopaedic Nursing

A curriculum for this training, which was approved in 1962, is now being commenced at Levin, Templeton, and Braemar Psychopaedic hospitals. The indications are that this has created a degree of interest and suitable recruits for training are gradually becoming available for this three-year course.

3. INTERNATIONAL HEALTH

The impact of the work of the World Health Organisation on the health services of New Zealand is not readily apparent yet membership of this organisation is of the utmost value. While the range of activities of WHO is always increasing, participation in seminars or other international gatherings, and the granting of fellowships for specialised study overseas, are particularly valuable.

During 1962 the Director-General of Health, as well as participating in the annual meeting of the World Health Organisation Assembly, attended a meeting of WHO's Expert Committee on Health Statistics. The Deputy Director, Division of Mental Health, attended a seminar held in Manila on the epidemiology of mental disorders, while Dr D. P. Kennedy, Director of Public Health, attended a joint ILO/WHO Committee on Occupational Health in Geneva.

During a meeting of the WHO Regional Committee for the Western Pacific held in Wellington in 1961, recommendations were made for the expansion under WHO auspices of the dental services of the region. It is pleasing to report that these recommendations are being acted on and Colonel J. F. Fuller, Director of Dental Services to the Armed Forces, is to be appointed a short-term WHO consultant to carry out the preliminary work associated with this project.

The control of narcotics by the incorporation of nine separate agreements, conventions, and protocols into a single convention was mentioned in last year's report. This convention was ratified in March 1963. With the coming to independence of Western Samoa, that country needed to provide machinery for the control of narcotics and, to advise the Western Samoan authorities on desirable legislation, an officer of the Division of Public Health visited Apia.

APPENDIX

CONTENTS

TABLE 1—Social Security Fund Medical Benefits: Statement Showing Expenditure Since 1 April 1953

——	1953–54	1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	1960–61	1961–62	1962–63
Subdivision I—Maternity Benefits										
	£	£	£	£	£	£	£	£	£	£
Public hospital fees	455,271	606,447	753,404	776,321	780,364	873,755	892,692	905,389	989,239	1,002,877
Private hospital fees	142,455	170,385	200,532	190,613	180,222	181,254	185,978	184,679	194,808	177,269
Medical practitioners' fees	296,967	329,481	396,494	398,848	440,563	411,661	432,170	441,276	474,677	584,151
Medical practitioners' milage fees	9,949	12,662	14,929	14,732	16,131	17,223	19,198	20,581	21,137	20,507
Obstetric nurses' fees	4,415	3,545	4,705	4,153	3,055	4,102	3,693	5,026	3,717	2,943
Private hospital loans	7,500	15,500	6,500	30,100	29,024	54,498	28,130	99,774	71,467	70,763
Private hospital subsidies	8,059	9,287	..	..	..	..	..	..	..	..
	924,616	1,147,307	1,376,564	1,414,767	1,449,359	1,542,493	1,561,861	1,656,725	1,755,045	1,858,510
Subdivision II—Medical Benefits										
Capitation fees	4,792	4,998	4,412	4,412	4,411	4,412	4,411	..	..	..
Capitation and general medical services milage	169,643	183,039	197,493	207,292	219,505	205,362	214,860	193,445	182,918	169,050
General medical services	2,835,983	3,092,144	3,275,171	3,510,971	3,626,825	3,680,520	3,931,273	3,950,639	4,084,558	4,016,092
Special arrangements under section 82	63,746	64,450	63,470	69,166	73,019	76,572	87,094	91,755	} 112,329	118,809
Purchase of sites and erection of residences for medical officers appointed under section 82	11,585	5,549	7,534	5,221	4,132	2,780	5,723	8,959		
Remuneration, allowances, and expenses of medical practitioners in areas other than those covered by section 82	..	..	..	..	..	..	..	..	..	..
	3,085,749	3,350,180	3,548,080	3,797,062	3,927,892	3,969,646	4,243,361	4,244,798	4,379,805	4,303,951
Subdivision III—Hospital Benefits										
Treatment in public hospitals	1,598,947	2,638,191	3,662,651	3,564,457	3,595,714	4,252,604	4,255,681	4,322,413	4,782,976	4,797,526
Outpatient treatment	175,338	187,406	341,875	397,716	414,234	414,602	414,460	413,921	414,458	412,953
Treatment in private hospitals	241,918	375,069	579,542	601,126	616,964	755,215	770,358	789,907	942,361	939,225
Treatment in approved institutions	56,107	76,432	95,453	107,057	111,789	117,153	125,275	129,936	80,140	92,849
Private hospital loans	..	30,282	68,151	179,368	180,210	196,423	64,577	15,795	25,659	86,937
Private hospital subsidies	97,138	84,547	3,028	..	..	..	..	..	..	..
Grant to Royal New Zealand Society for Health of Women and Children towards operating costs Karitane hospitals	14,791	19,113	13,966	19,729	11,513	38,522	19,901	13,239	13,977	8,204
	2,184,239	3,411,040	4,764,666	4,869 453	4,930,424	5,774,519	5,650,252	5,685,211	6,259,571	6,337,699

TABLE 1—Social Security Fund Medical Benefits, etc.—*continued*

—	1953–54	1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	1960–61	1961–62	1962–63
					Subdivision IV—Pharmaceutical Benefits					
Drugs supplied by—	£	£	£	£	£	£	£	£	£	£
Chemists	2,847,919	2,952,269	3,949,164	4,475,606	4,353,752	4,973,558	5,787,684	6,605,889	7,433,732	7,747,082
Medical practitioners	10,267	10,068	15,951	17,934	22,463	27,274	32,126	48,736	73,937	70,199
Institutions	61,434	84,994	74,030	79,017	90,326	111,511	136,492	143,532	170,669	170,339
Refund of Customs duty to wholesalers	..	..	..	..	..	..	..	..	..	71,340
	2,919,620	3,047,331	4,039,145	4,572,557	4,466,541	5,112,343	5,956,302	6,798,157	7,678,338	8,058,960
					Subdivision V—Supplementary Benefits					
Radiological services	379,641	409,381	448,374	474,369	471,792	471,202	489,459	510,234	522,997	541,547
Laboratory services	189,070	227,914	277,458	338,673	414,863	471,795	585,644	732,964	882,290	1,052,566
Physiotherapy services	62,575	64,347	64,863	66,499	61,569	61,679	63,005	61,916	64,078	69,356
Specialist service (neuro surgery)	2,794	2,719	3,181	2,872	2,990	3,790	5,003	3,324	5,784	4,013
District nursing services	127,016	137,339	150,117	162,016	181,892	195,518	206,587	222,916	234,490	246,954
Dental services	659,570	716,251	798,756	906,420	932,451	940,590	1,000,877	1,000,561	1,045,629	1,142,209
Domestic assistance	7,015	6,071	7,744	9,977	12,560	12,365	14,757	14,039	10,834	12,008
Grants to public servants and dependants in respect of medical, hospital, etc., expenses while stationed overseas	2,110	2,703	2,620	2,275	4,332	4,562	5,086	4,610	6,554	7,709
Ambulance benefits	..	..	..	..	..	..	..	..	..	..
Artificial aids benefits .. .. .. (artificial limbs, hearing aids, contact lenses, etc.)	61,721	63,000	63,646	73,229	82,786	93,782	107,789	114,899	109,128	119,907
Payments under section 26, Social Security Amendment Act 1943	1,310	3,090	1,359	81,263	117,782	206	..	95,830	13,899	50
Grants to intellectually handicapped children's parents' associations	..	251	581	1,280	1,074	885	1,641	2,247	2,494	2,788
	1,492,822	1,633,066	1,818,699	2,118,873	2,284,091	2,256,374	2,479,851	2,763,540	2,898,179	3,119,105
Grand totals	10,607,046	12,588,924	15,547,154	16,772,712	17,058,307	18,655,375	19,891,627	21,148,431	22,970,936	23,758,225
Recoveries	5,285	4,489	5,566	10,053	7,666	4,774	4,670	4,570	3,271	8,659
Net totals	10,601,761	12,584,435	15,541,588	16,762,659	17,050,641	18,650,601	19,886,957	21,143,861	22,977,665	23,749,566

TABLE 2—Cost per Head in Health Districts, General Medical Services, and Capitation, 1962–63

Health District	Population as at 1 April 1962	Number of Doctors	Average Population per Doctor	Method of Claiming		Total Cost of General Medical Services and Capitation, Excluding Milage	Average Amount Claimed per Doctor	Total Cost of General Medical Services and Capitation, Including Milage	Cost per Head of Population
				Indirect	Direct				
				Per Cent	Per Cent	£	£	£	£ s. d.
Whangarei ..	87,790	49	1,792	..	100	125,374	2,558	137,300	1 11 3
Auckland ..	532,020	499	1,066	18	82	1,030,189	2,065	1,049,554	1 19 5
Hamilton ..	217,960	140	1,557	3	97	369,345	2,638	397,866	1 16 5
Rotorua	128,810	88	1,464	..	100	228,735	2,599	244,426	1 17 11
Gisborne	63,550	30	2,118	7	93	71,983	2,399	75,953	1 3 11
New Plymouth ..	97,700	61	1,602	..	100	152,331	2,497	158,631	1 12 6
Napier	94,210	69	1,365	45	55	143,770	2,084	147,268	1 11 3
Palmerston North ..	205,200	115	1,784	29	71	248,976	2,165	258,544	1 5 2
Wellington ..	301,750	253	1,193	42	58	457,579	1,809	464,651	1 10 10
Nelson	76,650	54	1,419	48	52	108,731	2,014	117,458	1 10 8
Christchurch ..	315,110	239	1,318	17	83	523,635	2,191	545,928	1 14 8
Timaru	101,290	65	1,558	11	89	158,568	2,437	170,564	1 13 8
Dunedin	150,190	114	1,317	21	79	265,537	2,329	279,405	1 17 0
Invercargill ..	98,800	62	1,593	35	65	119,895	1,934	129,167	1 6 2
Total ..	2,471,030	1,838	1,344	21	79	4,004,648	2,171	4,176,715	1 13 10

TABLE 3—Principal Causes of Death

Causes of Death	Number of Deaths					Rates per 1,000,000 of Mean Population				
	1962	1961	1960	1959	1958	1962	1961	1960	1959	1958
Tuberculosis (all forms) ..	134	134	114	137	200	54	55	48	59	87
Syphilis and its sequelae ..	8	11	14	17	22	3	5	6	7	10
Acute poliomyelitis	..	7	..	1	6	..	3	..	..	3
All other infective and parasitic diseases	98	127	140	154	136	39	52	59	66	59
Malignant neoplasms ..	3,630	3,541	3,290	3,339	3,297	1,459	1,459	1,384	1,430	1,442
Diabetes mellitus	308	299	280	240	286	124	123	118	103	125
Vascular lesions of the central nervous system	2,704	2,738	2,537	2,570	2,606	1,087	1,128	1,067	1,101	1,140
Rheumatic fever and chronic rheumatic heart disease ..	251	231	220	242	281	101	95	93	104	123
Other diseases of the heart and hypertension	7,359	7,413	7,122	7,130	6,618	2,957	3,054	2,996	3,054	2,895
Influenza	188	35	28	190	37	76	14	12	81	16
Pneumonia	1,189	1,066	1,002	1,059	751	478	439	422	453	329
Bronchitis	609	594	497	560	477	245	245	209	240	209
Ulcer of stomach and duodenum	145	151	159	177	170	58	62	67	76	74
Nephritis and nephrosis ..	151	121	128	119	155	61	50	54	51	68
Motor-vehicle accidents ..	409	410	356	362	405	164	169	150	155	177
Other accidents	771	733	736	683	684	310	302	310	293	299
All other causes	4,129	4,171	4,269	4,148	4,170	1,659	1,719	1,795	1,777	1,825
Totals	22,083	21,782	20,892	21,128	20,301	8,875	8,974	8,789	9,050	8,881

TABLE 4—Still Births and Infant-mortality Rates (Both Races and Maori), 1958–62

Period	Both Races					Maori				
	Deaths per 1,000 Live Births			Rates per 1,000 Total Births		Deaths per 1,000 Live Births			Rates per 1,000 Total Births	
	Under 1 Month	1 and Under 12 Months	Total, Under 1 Year	Still Births	Peri-natal Deaths	Under 1 Month	1 and Under 12 Months	Total Under 1 Year	Still Births	Peri-natal Deaths
1962 ..	12·65	7·68	20·33	12·80	23·93	*	*	*	*	*
1961 ..	14·54	8·22	22·76	13·69	26·29	20·21	29·47	49·68	13·58	30·47
1960 ..	14·81	7·78	22·59	13·92	26·84	17·26	27·24	44·50	10·81	25·61
1959 ..	14·53	9·34	23·87	15·00	27·27	19·21	35·21	54·42	18·87	33·71
1958 ..	14·54	8·81	23·35	15·14	27·34	22·01	32·36	54·37	16·20	34·42

*Figures not yet available.

TABLE 5—Infant-mortality Rates per 1,000 Live Births – International Comparison

Country	Quin-quennium	Deaths Under 1 Year per 1,000 Live Births	Country	Quin-quennium	Deaths Under 1 Year per 1,000 Live Births
Sweden	1957–61	16	Israel	1957–61	33
Netherlands	1957–61	17	China (Taiwan)	1956–60	34
Iceland	1955–59	18	West Germany	1957–61	34
Norway	1956–60	20	Japan	1957–61	34
Australia	1957–61	21	Austria	1957–61	39
England and Wales ..	1957–61	22	Greece	1957–61	41
Denmark	1957–61	22	East Germany	1957–61	41
Switzerland	1957–61	22	Italy	1957–61	46
New Zealand (both races) ..	1957–61	23	Hong Kong	1957–61	47
Finland	1957–61	23	Hungary	1957–61	53
United States of America ..	1957–61	26	Argentina	1955–59	61
Scotland	1957–61	27	Venezuela	1956–60	62
Czechoslovakia	1957–61	27	Ceylon	1955–59	66
Northern Ireland ..	1957–61	28	Poland	1957–61	66
Union of South Africa ..	1957–61	29	Malaya	1956–60	73
Canada	1957–61	29	Mexico	1957–61	76
France	1957–61	30	Portugal	1957–61	85
Cyprus	1956–60	31	Yugoslavia	1957–61	90
Belgium	1957–61	31	Columbia	1956–60	100
Republic of Ireland ..	1957–61	32	Chile	1956–60	122

TABLE 6—Deaths of Infants Under One Year by Causes (European and Maori Combined) 1958–62

Principal Cause of Death	Number of Deaths					Rates per 1,000 Live Births				
	1962	1961	1960	1959	1958	1962	1961	1960	1959	1958
Influenza, pneumonia, and bronchitis	185	230	190	276	225	2·8	3·5	3·0	4·5	3·6
Gastro-enteritis, diarrhoea, and dysentery	51	53	56	62	53	0·8	0·8	0·9	1·0	0·9
Congenital malformation ..	253	269	253	259	255	3·9	4·1	4·0	4·2	4·2
Birth injury	150	142	178	150	156	2·3	2·2	2·8	2·4	2·6
Asphyxia and atelectasis ..	140	166	158	144	162	2·1	2·5	2·5	2·3	2·7
Haemolytic disease of newborn	36	41	33	44	50	0·6	0·6	0·5	0·7	0·8
Immaturity	158	176	191	205	186	2·4	2·7	3·0	3·3	3·1
Other	351	413	361	337	329	5·4	6·4	5·9	5·5	5·4
Totals	1,324	1,490	1,420	1,477	1,416	20·3	22·8	22·6	23·9	23·3

TABLE 7—Deaths of Infants Under One Year

A = Under one month. B = One month and under one year.

(Figures in parentheses denote those where prematurity was mentioned associated with death.)

Principal Cause of Death		Both Races										Maori									
		1962		1961		1960		1959		1958		1962		1961		1960		1959		1958	
Influenza, pneumonia, and bronchitis	A	24	(5)	33	(12)	36	(15)	40	(12)	43	(13)	*		8	(3)	7	(2)	10	(3)	12	(2)
	B	161		197	(2)	154	(1)	236	(1)	182	(2)	*		109	(2)	84	(1)	145		95	(1)
Gastro-enteritis, diarrhoea, and dysentery	A	3	(1)	4		6	(1)	7	(3)	6	(1)	*		2		4	(1)	2		4	(1)
	B	48		49	(2)	50	(1)	55		47	(1)	*		35	(1)	44	(1)	41		37	(1)
Congenital malformations	A	137	(16)	148	(20)	145	(17)	155	(24)	144	(14)	*		13	(2)	9	(1)	19	(5)	12	
	B	116	(3)	121		108	(3)	104	(2)	111	(1)	*		26		18	(1)	9		20	
Birth injury	A	147	(70)	142	(80)	178	(85)	148	(54)	156	(78)	*		31	(16)	27	(11)	29	(11)	33	(11)
	B	3		..		..		2	(1)	..		*		..		..		2	(1)	..	
Asphyxia and atelectasis	A	139	(70)	166	(102)	157	(91)	141	(89)	158	(99)	*		29	(15)	23	(12)	19	(9)	28	(17)
	B	1		..		1		3		4	(1)	*		..		..		1		..	
Haemolytic disease of the newborn	A	36	(17)	41	(23)	30	(13)	42	(19)	49	(14)	*		2		1	(1)	1		..	
	B	..		..		3		2		1		*		..		..		..		..	
Immaturity	A	158		175		191		205		185		*		35		27		34		42	
	B	..		1		..		..		1		*		1		..		..		1	
Other	A	180	(98)	243	(146)	188	(97)	161	(84)	141	(63)	*		37	(17)	30	(14)	23	(9)	20	(9)
	B	171	(2)	170	(4)	173	(5)	176	(2)	188	(3)	*		58	(3)	56	(1)	53	(1)	69	
Totals	A	824		952		931		899		882		*		157		128		137		151	
	B	500		538		489		578		534		*		229		202		251		222	

*Figures not yet available.

TABLE 8a—Notifiable Diseases in New Zealand for the Year Ended 31 December 1962 Showing Distribution by Months: All Cases (Including Maoris)

Diseases	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Cerebro-spinal meningitis	4	..	1	3	7	2	3	2	7	2	3	2	36
Diphtheria	..	..	2	1	..	..	3	2	..	..	3	1	12
Dysentery—													
Amoebic	..	2	..	..	1	..	1	..	..	2	1	1	8
Bacillary	3	16	7	14	27	68	37	36	55	54	75	20	412
Eclampsia	4	4	3	2	5	2	2	3	5	1	1	2	34
Enteric fever—													
Paratyphoid	1	..	1	..	..	..	..	..	1	..	..	1	4
Typhoid	5	4	6	2	1	14	6	2	1	5	1	1	48
Food poisoning	22	23	6	..	28	201	3	..	8	128	25	18	462
Hydatids	2	6	5	4	1	8	5	3	1	3	2	1	41
Infective hepatitis	273	301	290	200	253	230	175	183	224	247	261	179	2,816
Leptospirosis	4	5	9	5	8	3	4	3	12	17	48	30	148
Ophthalmia neonatorum	8	5	7	1	6	3	5	4	2	3	1	1	46
Pemphigus neonatorum	4	6	..	2	..	3	3	3	2	4	2	3	32
Poliomyelitis	1	2	2	..	..	..	..	..	..	..	..	..	5
Puerperal infection	2	..	4	2	2	4	4	1	3	5	3	4	34
Salmonellosis	7	17	20	6	10	10	3	..	5	4	6	18	106
Staphylococcal pneumonia and septicaemia (of the newborn infant)	1	..	..	..	..	..	..	..	..	1	..	..	2
Tetanus	4	4	1	2	3	..	2	3	1	2	4	2	28
Tuberculosis—													
Pulmonary	62	58	97	41	101	101	98	101	83	87	84	115	1,028
Other forms	20	15	22	13	27	29	7	21	14	31	34	22	255
Undulant fever	5	1	5	2	1	..	4	3	4	2	3	1	31
Actinomycosis	..	1	..	1	..	..	..	..	..	..	..	..	2
Anchylostomiasis	..	..	..	3	..	..	1	2	..	7	..	..	13
Beriberi	..	..	..	..	..	..	..	..	..	..	1	1	2
Leprosy	1	1	..	..	..	..	..	1	..	..	..	..	3
Malaria	7	18	8	3	6	2	4	2	..	1	2	..	53
Pneumonic influenza	..	..	..	..	..	..	3	8	3	..	..	..	14
Trachoma	..	..	..	1	..	..	1	..	..	1	..	..	3
Total	440	489	496	308	487	680	374	383	431	607	560	423	5,678

TABLE 8b—Notifiable Diseases in New Zealand for the Year Ended 31 December 1962, Showing Distribution by Health Districts: All Cases (Including Maoris)

Diseases	Whangarei (p. 87,790)	Takapuna (p. 141,740)	Auckland (p. 274,680)	South Auckland (p. 115,600)	Hamilton (p. 217,960)	Rotorua (p. 128,810)	Gisborne (p. 63,550)	Napier (p. 94,210)	New Plymouth (p. 97,700)	Wanganui (p. 83,900)	Palmerston North (p. 121,300)	Hutt (p. 151,100)	Wellington (p. 150,650)	Nelson (p. 76,650)	Christchurch (p. 277,810)	Greymouth (p. 37,300)	Timaru (p. 101,290)	Dunedin (p. 150,190)	Invercargill (p. 98,800)	Total (Total Population 2,471,030)
Cerebro-spinal meningitis	..	1	5	1	6	6	2	1	3	1	..	4	..	..	2	1	..	1	2	36
Diphtheria	..	..	1	2	6	1	2	..	..	..	..	..	..	..	..	..	..	..	..	12
Dysentery—																				
Amoebic	..	..	5	1	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	8
Bacillary	..	6	5	3	12	37	33	33	15	3	37	149	14	1	5	..	57	..	2	412
Eclampsia	3	1	2	1	7	..	2	..	1	1	1	..	4	2	5	..	..	3	1	34
Enteric fever—																				
Paratyphoid	..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	4
Typhoid	3	1	10	1	1	14	2	..	1	5	..	9	..	1	..	..	..	..	..	48
Food poisoning	9	6	39	..	40	6	..	3	..	41	156	3	..	16	52	..	..	83	8	462
Hydatids	..	2	1	..	6	3	4	3	..	2	3	4	..	..	11	..	1	..	1	41
Infective Hepatitis	136	120	180	152	407	244	145	87	63	136	41	188	229	70	185	4	41	354	34	2,816
Leptospirosis	17	12	3	10	55	17	..	..	19	..	6	..	..	2	4	3	..	..	..	148
Ophthalmia neonatorum	2	..	2	1	..	2	3	1	..	8	..	..	1	..	22	1	..	3	..	46
Pemphigus neonatorum	5	1	2	..	1	..	3	..	2	1	..	..	..	4	7	..	1	2	3	32
Poliomyelitis	..	1	1	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	5
Puerperal infection	..	..	..	..	..	2	..	2	..	..	..	..	25	..	..	1	1	..	3	34
Salmonellosis	..	11	24	1	8	4	2	10	2	2	1	..	11	..	10	..	5	12	3	106
Staphylococcal pneumonia and septicaemia (of the newborn infant)	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Tetanus	1	1	2	1	4	3	..	3	2	2	2	..	..	..	2	..	2	1	2	28
Tuberculosis—																				
Pulmonary	73	39	166	69	68	75	46	30	16	32	29	47	75	22	113	8	28	64	28	1,028
Other forms	26	5	33	13	28	24	8	7	11	8	6	8	20	4	18	7	10	10	9	255
Undulant fever	5	2	2	..	7	1	1	..	1	..	..	..	..	..	2	..	5	1	4	31
Actinomycosis	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2
Anchylostomiasis	..	3	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
Beriberi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	2
Leprosy	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Malaria	1	..	2	..	1	..	1	..	..	5	..	..	..	..	39	..	2	2	..	53
Pneumonic influenza	..	..	..	..	..	..	1	..	..	2	..	..	2	3	1	..	4	1	..	14
Trachoma	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Total	282	214	501	256	658	439	255	180	136	249	283	413	383	125	482	25	158	538	101	5,678

TABLE 8c—Notifiable Diseases in New Zealand for the Year Ended 31 December 1962, Showing Distribution by Age and Sex: All Cases (Including Maoris)

Diseases	Under 1 Year		1 and Under 5		5 and Under 10		10 and Under 15		15 and Under 25		25 and Under 45		45 and Under 65		65 and Over		Totals		Total
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Cerebro-spinal meningitis	5	3	8	4	5	2	1	..	4	3	1	..	..	..	..	..	24	12	36
Diphtheria	1	..	..	2	1	2	..	1	2	1	..	1	..	..	..	1	4	8	12
Dysentery—																			
Amoebic	..	..	..	..	..	1	..	1	..	..	2	2	2	..	..	..	4	4	8
Bacillary	19	16	69	51	56	44	14	12	5	33	31	41	7	5	5	4	206	206	412
Eclampsia	..	..	..	..	..	..	..	..	..	21	..	13	..	..	..	..	..	34	34
Enteric fever—																			
Paratyphoid	..	..	1	..	..	..	..	..	..	..	1	1	..	..	1	..	3	1	4
Typhoid	2	1	1	3	2	5	1	2	4	12	2	6	2	4	..	1	14	34	48
Food poisoning	..	..	2	3	5	4	5	10	113	70	90	87	46	22	2	3	263	199	462
Hydatids	..	..	..	..	1	2	1	1	4	5	5	6	6	3	5	2	22	19	41
Infective hepatitis	2	..	51	68	261	250	224	201	323	258	474	416	124	94	33	37	1,492	1,324	2,816
Leptospirosis	..	..	..	..	2	..	9	1	35	..	63	4	29	4	1	..	139	9	148
Ophthalmia neonatorum	26	20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26	20	46
Pemphigus neonatorum	20	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20	12	32
Poliomyelitis	..	..	..	1	..	..	..	..	..	..	3	..	1	..	..	..	4	1	5
Puerperal infection	..	..	..	..	..	..	..	..	..	17	..	17	..	..	..	..	..	34	34
Salmonellosis	7	11	16	14	5	5	5	4	3	2	12	7	5	5	2	3	55	51	106
Staphylococcal pneumonia and septicaemia (of the new born infant)	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2
Tetanus	..	..	2	..	4	..	3	2	2	2	4	..	2	5	..	2	17	11	28
Tuberculosis—																			
Pulmonary	5	2	34	38	29	27	13	17	56	67	201	150	209	90	69	21	616	412	1,028
Other forms	..	..	9	12	15	7	14	8	10	28	47	55	28	12	3	7	126	129	255
Undulant fever	..	..	..	..	2	..	..	..	10	2	12	1	3	1	..	..	27	4	31
Actinomycosis	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	2	..	2
Anchylostomiasis	..	..	..	..	2	..	2	..	2	4	3	..	..	..	..	..	9	4	13
Beriberi	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	1	2
Leprosy	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	1	2	3
Malaria	..	..	..	..	..	..	..	..	31	..	20	1	1	..	..	..	52	1	53
Pneumonic influenza	1	..	1	..	..	..	..	..	2	..	3	1	2	1	1	2	10	4	14
Trachoma	..	..	..	..	..	..	..	..	..	..	1	..	1	1	..	..	2	1	3

TABLE 8d—Notifiable Diseases in New Zealand for the Year Ended 31 December 1962, Showing Distribution by Health Districts (Maoris)

Diseases	Whangarei (p. 21,625)	Takapuna (p. 4,325)	Auckland (p. 12,742)	South Auckland (p. 8,161)	Hamilton (p. 23,761)	Rotorua (p. 28,693)	Gisborne (p. 22,293)	Napier (p. 7,343)	New Plymouth (p. 6,347)	Wanganui (p. 10,614)	Palmerston North (p. 5,572)	Hutt (p. 4,347)	Wellington (p. 3,979)	Nelson (p. 1,558)	Christchurch (p. 2,684)	Greymouth (p. 363)	Timaru (p. 636)	Dunedin (p. 604)	Invercargill (p. 1,286)	Total (Total Maori Population, 166,933)
Cerebro-spinal meningitis	..	1	2	..	2	3	2	..	..	1	..	..	..	..	..	..	..	..	..	11
Diphtheria	..	..	1	1	4	..	2	..	..	..	..	..	..	..	..	..	..	..	..	8
Dysentery—																				
Amoebic	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bacillary	..	1	2	..	2	9	28	16	2	..	1	6	..	..	..	..	..	..	..	67
Eclampsia	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Enteric fever—																				
Paratyphoid	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Typhoid	3	..	8	1	1	13	2	..	1	4	..	9	..	..	..	..	..	..	..	42
Food poisoning	7	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	8
Hydatids	..	1	..	..	3	2	3	1	..	1	1	1	..	..	..	..	..	..	..	13
Infective hepatitis	47	3	16	10	41	36	25	8	5	19	4	10	7	1	3	..	..	2	..	237
Leptospirosis	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Ophthalmia neonatorum	..	..	..	..	..	2	3	1	..	2	..	..	..	..	1	..	..	..	..	9
Pemphigus neonatorum	1	..	..	..	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	5
Poliomyelitis	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Puerperal infection	..	..	..	..	..	1	..	1	..	..	..	..	1	..	..	..	..	..	..	3
Salmonellosis	..	..	1	..	2	1	1	1	..	..	..	..	..	..	..	..	..	..	..	6
Staphylococcal pneumonia and septicaemia (of the newborn infant)	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Tetanus	1	..	..	..	2	1	..	..	1	..	..	..	..	..	..	..	..	..	..	5
Tuberculosis—																				
Pulmonary	51	11	67	40	36	54	35	9	5	17	7	7	14	3	6	..	3	3	3	371
Other forms	19	2	19	10	15	15	4	4	3	5	3	3	6	1	3	..	..	1	2	115
Undulant fever	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Actinomycosis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Anchylostomiasis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Beriberi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Malaria	..	..	1	..	..	..	..	..	..	2	..	..	..	..	18	..	1	..	..	22
Pneumonic influenza	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Trachoma	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Total	132	20	119	63	113	137	108	42	17	51	16	36	28	5	31	..	4	6	5	933

TABLE 8e—Notifiable Diseases in New Zealand for the Year Ended 31 December 1962, Showing Distribution by Age and Sex (Maoris)

Diseases	Under 1 Year		1 and Under 5		5 and Under 10		10 and Under 15		15 and Under 25		25 and Under 45		45 and Under 65		65 and Over		Totals		Total
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Cerebro-spinal meningitis	2	..	4	..	1	1	..	..	1	2	..	..	..	..	..	..	8	3	11
Diphtheria	1	..	..	1	1	1	..	1	2	1	..	..	..	..	..	..	4	4	8
Dysentery—																			
Amoebic	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bacillary	9	7	16	8	7	3	3	2	..	2	4	3	2	1	..	..	41	26	67
Eclampsia	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	3	3
Enteric fever—																			
Paratyphoid	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	1
Typhoid	2	..	..	3	2	4	1	2	3	12	2	6	2	3	..	..	12	30	42
Food poisoning	..	..	..	..	1	1	1	..	..	..	1	3	..	..	1	..	4	4	8
Hydatids	..	..	..	..	..	..	..	..	2	2	2	3	2	..	2	..	8	5	13
Infective hepatitis	1	..	15	10	26	20	20	18	38	21	28	27	10	2	1	..	139	98	237
Leptospirosis	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	2	..	2
Ophthalmia neonatorum	5	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	4	9
Pemphigus neonatorum	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	5
Poliomyelitis	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1
Puerperal infection	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	3	3
Salmonellosis	2	1	..	..	1	..	..	..	..	..	..	2	..	..	..	..	3	3	6
Staphylococcal pneumonia and septicaemia (of the newborn infant)	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Tetanus	..	..	..	..	1	..	1	1	1	..	1	..	..	..	..	..	4	1	5
Tuberculosis—																			
Pulmonary	5	2	26	32	23	13	7	5	27	39	60	55	35	29	10	3	193	178	371
Other forms	..	..	5	8	5	3	7	4	5	20	21	23	8	3	1	2	52	63	115
Undulant fever	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1
Actinomycosis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Anchylostomiasis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Beriberi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Malaria	..	..	..	..	..	..	..	..	11	..	11	..	..	..	..	..	22	..	22
Pneumonic influenza	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Trachoma	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1	2

TABLE 9—Poliomyelitis Vaccination (Sabin Vaccine), Summary of Vaccination State of Population up to 31 December 1962

Health District	Population	Children (Including Infants Under 12 Months Vaccinated Since August 1961)			Adults		Totals		
		First Doses	Second Doses	Third Doses (Infants Only)	First Doses	Second Doses	First Doses	Second Doses	Third Doses (Infants Only)
Whangarei	87,790	33,095	30,945	957	32,794	32,199	65,889	63,144	957
Takapuna	141,740	46,750	45,351	2,699	47,571	45,887	94,321	91,238	2,699
Auckland	274,680	73,565	72,880	2,457	177,856	169,283	251,421	242,163	2,457
South Auckland	115,600	42,270	40,686	1,079	46,991	46,842	89,261	87,528	1,079
Hamilton	217,960	82,432	78,179	4,301	108,106	107,078	190,538	185,257	4,301
Rotorua*	144,380	55,624	52,687	892	58,096	55,544	113,720	108,231	892
Gisborne	63,550	26,235	24,768	871	24,930	23,025	51,165	47,793	871
Napier	94,210	33,904	31,509	999	42,643	38,425	76,547	69,934	999
New Plymouth	97,700	35,314	35,059	1,347	40,860	37,867	76,174	72,926	1,347
Palmerston North*	189,630	65,502	59,857	1,269	79,948	76,619	145,450	136,476	1,269
Hutt	151,100	50,009	45,519	3,101	57,368	55,889	107,377	101,408	3,101
Wellington	150,650	40,719	39,461	1,693	94,243	89,710	134,962	129,171	1,693
Nelson	76,650	25,574	23,179	926	35,568	33,309	61,142	56,488	926
Christchurch	277,810	88,748	84,529	1,110	125,999	121,729	214,747	206,258	1,110
Greymouth	37,300	12,331	11,310	262	20,920	20,370	33,251	31,680	262
Timaru	101,290	34,443	32,446	1,185	48,881	43,401	83,324	75,847	1,185
Dunedin	150,190	48,384	46,981	1,536	80,081	74,544	128,465	121,525	1,536
Invercargill	98,800	34,631	33,839	969	47,204	44,283	81,835	78,122	969
Totals	2,471,030	829,530	789,185	27,653	1,170,059	1,116,004	1,999,589	1,905,189	27,653
Other groups (all ages), Island Territories							18,879	17,947	
Miscellaneous (Chatham Islands and service personnel abroad), estimated							2,000	2,000	
							2,020,468	1,925,136	

*Includes part Wanganui Health District.

TABLE 10—Milk Sampling Summary for Year Ended 31 December 1962: Tests Applied and Results

N/c = Non-complying. W = Warning. P = Prosecutions.

District	Total Samples				Fat			Solids Not Fat			Water			Reductase			Phosphatase		
	No.	N/C	W	P	No.	N/C	Per Cent	No.	N/C	Per Cent	No.	N/C	Per Cent	No.	N/C	Per Cent	No.	N/C	Per Cent
Whangarei ..	223	32	27	..	148	8	5·4	115	1	0·9	1	1	100	48	1	2·1	127	..	..
Takapuna ..	692	36	8	1	687	9	1·3	687	2	0·3	687	1	0·1	680	4	0·6	651	2	0·3
Auckland ..	1,173	190	8	..	1,173	44	3·7	1,165	26	2·2	12	12	100	1,161	7	0·6	1,067	..	..
South Auckland ..	254	17	..	..	251	3	..	253	1	..	245	9	..	252	2	..	254	..	..
Hamilton ..	1,196	50	23	19	115	3	2·6	114	7	6·1	111	4	3·6	989	33	3·3	25	1	4·0
Rotorua ..	46	19	..	..	42	..	..	37	5	..	4	1	..	4	..	..	9	..	..
Gisborne ..	159	17	..	..	57	..	..	57	2	3·5	57	..	..	13	1	7·7	1	..	..
Napier	52	15	..	2	51	2	3·9	51	15	29·4	30	11	36·7	..	..	..	5	..	..
New Plymouth ..	390	26	..	..	227	4	1·8	227	..	..	..	..	..	4	..	..	14	..	..
Palmerston North	620	23	..	..	203	..	..	203	..	..	51	3	5·9	267	7	2·6	13	..	..
Wanganui ..	162	20	2	1	119	..	..	118	4	3·4	9	1	11·0	7	..	..	15	..	..
Lower Hutt ..	591	27	..	..	355	2	0·6	347	1	0·3	..	..	..	19	..	..	47	..	..
Wellington ..	44	4	..	2	39	..	..	39	4	10·3	39	2	5·1	..	..	..	3	..	..
Nelson	192	13	3	..	94	2	2·1	94	2	2·1	..	..	..	20	1	5·0	6	..	..
Christchurch ..	780	160	11	2	259	20	7·7	211	79	37·5	4	..	..	263	21	8·1	24	..	..
Greymouth ..	267	28	3	..	83	2	2·4	81	5	6·2	..	..	..	66	4	6·1	28	..	..
Timaru	122	19	1	..	118	..	..	118	6	5·1	..	..	..	99	2	2·0	99	1	1·0
Dunedin ..	970	96	12	..	375	14	3·7	359	21	5·6	359	..	..	54	3	5·6	139	11	7·9
Invercargill ..	345	48	8	..	59	1	1·7	60	3	5·0	26	..	..	30	3	10·0	13	2	..
Totals ..	8,278	840	106	10·0	4,455	114	2·5	4,336	183	4·3	1,635	45	2·8	3,976	89	2·2	2,540	17	0·7

TABLE 11—Food and Drug Sampling, 1962

—	Total Samples	Samples Non-complying	Warnings Issued	Prosecutions Recommended
Cereals and bread	..	..	..	..
Sausages	703	85	61	13
Minced meat	817	70	50	13
Bacon and ham	73	..	..	..
Fresh meat	82	5	1	4
Other meats	134	7	6	1
Meat pickling preparations	..	..	..	..
Fresh fish	4	..	..	..
Other fish	8	1	..	..
Cream	332	84	30	..
Milk shakes	367	160	108	..
Butter	69	1	1	..
Other milk products	13	1	1	..
Eggs	..	..	..	..
Salts and spices	16	9	2	..
Sauces, vinegar, and pickles	..	..	..	..
Sweetening substances and confectionery	13	1	..	..
Ice cream	357	166	42	..
Fruit, vegetables, and products	146	2	..	..
Edible fats and oils	8	..	..	..
Culinary essences	..	..	..	..
Beverages (non-alcoholic)	69	4	3	..
Beverages (alcoholic)	28	2	..	..
Drugs and proprietary drugs	171	18	5	..
Disinfectants	..	..	..	..
Miscellaneous	4	1	..	..
Total	3,414	617	310	31

Food complaints investigated, 849: Prosecutions resulting, 39.
Water for domestic use, number of samples, 3,829.
Other waters, number of samples, 819.

TABLE 12—Health Inspection Services – Local Authorities
Serviced by local authority = L. Department = D.

Districts		Cities	Boroughs	Counties	Town Districts	Road Districts	Totals	Grand Totals
Whangarei (87,790)	L	..	1	2	..	..	3	14
	D	..	3	5	3	..	11	
Takapuna (141,740)	L	1	6	1	..	..	8	12
	D	..	2	1	1	..	4	
Auckland (274,680)	L	1	8	..	..	..	9	11
	D	..	..	1	..	1	2	
South Auckland (115,600)	L	..	8	2	..	..	10	10
	D	..	..	..	..	..	..	
Hamilton (217,960)	L	1	6	6	..	..	13	25
	D	..	7	5	..	..	12	
Rotorua (128,810)	L	..	6	3	1	..	10	12
	D	1	..	1	..	..	2	
Gisborne (63,550)	L	1	..	..	..	..	1	10
	D	..	2	7	..	..	9	
Napier (94,210)	L	2	2	4	..	..	8	10
	D	..	2	..	..	..	2	
New Plymouth (97,700)	L	1	2	1	..	..	4	18
	D	..	4	8	2	..	14	
Wanganui (83,900)	L	1	..	1	..	..	2	15
	D	..	5	4	4	..	13	
Palmerston North (121,300)	L	1	3	2	..	..	6	21
	D	..	6	9	..	..	15	
Hutt (151,100)	L	1	3	3	..	..	7	14
	D	..	5	2	..	..	7	
Wellington (150,650)	L	1	2	..	..	..	3	3
	D	..	..	..	..	..	..	
Nelson (76,650)	L	1	1	1	..	..	3	13
	D	..	3	5	..	2	10	
Greymouth (37,300)	L	..	1	1	..	..	2	11
	D	..	6	3	..	..	9	
Christchurch (277,810)	L	1	..	2	..	..	3	27
	D	..	4	20	..	..	24	
Timaru (101,290)	L	1	5	4	..	..	10	13
	D	..	1	2	..	..	3	
Dunedin (150,190)	L	1	2	3	..	..	6	26
	D	..	14	6	..	..	20	
Invercargill (98,800)	L	1	2	2	3	..	8	17
	D	..	5	3	1	..	9	
Totals as at 31 December 1962	L	16	58	38	4	..	116	282
	D	1	69	82	11	3	166	
Populations as at 1 April 1962	L	884,830	485,360	504,040	3,870	..	1,878,100	2,471,030
	D	20,600	205,690	354,305	9,840	2,495	592,930	

Total population served .. L Urban, 1,374,060
Rural, 504,040
D Urban, 231,130
Rural, 356,800

TABLE 13—Notifications of Diseases Arising From Occupation

Source	Whangarei	Takapuna	Auckland	South Auckland	Hamilton	Rotorua	Gisborne	Napier	New Plymouth	Wanganui	Palmerston North	Lower Hutt	Wellington	Nelson	Greymouth	Christchurch	Timaru	Dunedin	Invercargill	Total	Deaths
Official notifications	27	23	71	4	11	37	6	7	13	3	6	17	23	61	..	20	7	24	15	375	..
All sources—																					
1. Skin diseases arising from occupation—																					
Dermatitis due to oils and greases	..	..	4	1	..	..	1	1	..	..	2	3	5	1	..	2	2	2	..	24	..
Dermatitis due to solvents	..	1	10	..	..	8	..	1	..	2	..	2	5	..	..	1	1	3	..	34	..
Dermatitis due to various chemicals	1	2	..	..	9	1	1	..	2	..	8	2	16	1	..	15	6	14	2	80	..
Dermatitis due to cement	..	..	11	..	1	..	1	1	..	1	2	3	1	..	..	1	..	1	..	23	..
Dermatitis due to other causes	..	2	60	2	5	..	2	4	2	..	4	3	5	55	..	8	3	8	..	163	..
Chrome ulceration	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	4	..
Other diseases of the skin	1	..	4	..	..	3	..	..	..	..	..	..	..	..	..	1	..	..	..	9	..
Subtotals	2	5	91	3	15	13	5	7	4	3	16	13	32	57	..	28	12	29	2	337	..
2. Diseases due to dusts, fumes, gases, vapours, or mists—																					
Chronic lead poisoning	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..1	..
Phosphorous poisoning	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poisoning from any pesticide and agricultural chemical met with at work	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..
Poisoning from any gas, fumigant, or refrigerant met with at work	..	..	1	..	..	..	..	..	1	..	3	..	..	1	..	..	..	..	..	6	..
Poisoning from any solvent met with at work	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	..
Poisoning from any metal or salt of any metal met with at work	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	3	..
Diseases of respiratory system arising from occupation	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..
Subtotals	..	..	4	..	1	..	..	..	1	..	3	..	3	1	..	1	..	2	..	16	..
3. Physical agents—																					
Compressed-air illness	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	2	..
Eyesight—																					
(a) Non-traumatic	1	..	1	..	..	2	..	..	..	..	4	..	2	..	..	..	..	..	..	10	..
(b) Trauma	2	7	6	1	..	5	1	..	..	..	..	4	11	..	..	..	3	..	..	40	..
Hearing	..	..	1	..	1	..	..	2	..	..	..	..	..	2	..	2	..	..	13	21	..
Other causes	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Subtotals	3	7	8	1	1	7	1	2	2	..	4	4	13	2	..	2	3	..	13	73	..
4. Occupational diseases due to infectious agents—																					
Leptospirosis	17	12	1	..	45	17	..	..	18	..	5	..	..	2	..	4	..	..	..	121	..
Brucellosis	5	2	1	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12	..
Subtotals	22	14	2	..	49	17	..	..	18	..	5	..	..	2	..	4	..	..	..	133	..
Total—All sources	27	26	105	4	66	37	6	9	25	3	28	17	48	62	..	35	15	31	15	559	..
(Totals—All sources for 1961)	(33)	(25)	(109)	(13)	(54)	(26)	(5)	(18)	(18)	(..)	(25)	(17)	(24)	(15)	(2)	(44)	(16)	(35)	(8)	(467)	(1)

TABLE 14—Supervision of Workers Exposed to Lead

Occupation, Trade, or Process	Number of Firms	Approximate Number of Workers Under Supervision	Number of Examinations	Number Absorbing Lead in Unhealthy Quantity	Number of Cases of Lead Poisoning Notified
Shipbreaking, etc., in which oxy-acetylene flame is used on paint	4	44	79	..	..
Manufacture of compounds of lead	2	16	127	10	..
Smelting of materials containing lead or compounds of lead ..	27	128	394	6	..
Manufacture of lead accumulators	22	237	1,660	61	1
Manufacture of paints containing lead or compounds of lead ..	16	136	684	1	..
Spray painting with paints containing lead or compounds of lead	14	66	96	..	..
Lead burning in chemical plants	7	43	206	2	..
Manufacture of lead arsenate ..	..	..	..	..	..
Pottery works in which glazes containing lead or compounds of lead are used	1	25	25	..	..
Rubber works in which compounds of lead are used in manufacture of rubber ..	..	..	..	..	..
Vitreous enamelling works in which lead or compounds of lead are used in enamelling..	2	32	95	2	..
Lead wiping or grinding or buffing (in motorcar-body manufacture)	8	154	548	6	..
Tinning of metal hollow ware in which lead is used ..	2	8	10	..	..
Printing and newspapers ..	104	976	1,320	1	..
Trades not listed	29	291	407	..	..
Totals	238	2,156	5,651	89	1
(Totals for 1961) ..	(253)	(2,065)	(5,233)	(56)	(..)

TABLE 15—Supervision of Workers Engaged in Electroplating Processes

District	Number of Firms	Approximate Number of Workers Under Supervision	Number of Examinations	Number of Workers Suffering from Conditions Arising from Occupation
Whangarei	2	2	2	..
Takapuna	8	21	220	1
Auckland	19	48	400	9
South Auckland	..	..	..	..
Hamilton	3	18	26	..
Rotorua	1	3	8	..
Gisborne	1	2	20	..
Napier	3	8	15	..
New Plymouth	2	5	12	..
Wanganui	..	..	..	..
Palmerston North ..	2	7	30	..
Hutt	6	16	102	1
Wellington	7	20	260	1
Nelson	1	3	6	..
Greymouth	..	..	..	..
Christchurch	15	56	261	11
Timaru	1	2	24	..
Dunedin	6	25	250	7
Invercargill	2	4	4	1
Totals	79	240	1,640	31
(Totals for 1961) ..	(89)	(241)	(1,675)	(43)

TABLE 16—Attendances at Industrial Health Centres and Waterfront Clinics

District	Centre	Attendances		Total	Referred to	
		First	Redressings		Own Doctor	Hospital
Takapuna ..	New Lynn[5] ..	..	..	..	..	..
Auckland ..	Penrose[1] ..	4,654	3,761	8,415	316	304
	*Queen's Wharf ..	6,604	5,522	12,126	1,019	847
	Mount Wellington[2]	740	424	1,164	153	43
	Onehunga[7] ..	..	..	..	..	..
	Carbine Road[4] ..	..	..	..	..	..
Hutt ..	Petone[2] ..	407	672	1,079	50	74
Wellington ..	*Waterfront ..	3,164	1,451	4,615	701	400
	Te Aro[7] ..	..	..	..	..	..
	Rongotai[4] ..	..	..	..	..	..
	Porirua[6] ..	..	..	..	..	..
Christchurch ..	Woolston ..	814	770	1,584	136	19
	Hornby[2] ..	163	32	195	47	6
	*Lyttelton Waterfront ..	1,902	2,188	4,090	358	41
Timaru ..	Industrial Foreshore[2] ..	346	207	553	34	35
Dunedin ..	*Foreshore ..	1,110	420	1,530	73	85
	Mobile Clinic[3] ..	..	..	..	..	..
	Totals ..	19,904	15,447	35,351	2,887	1,854
	(Totals for 1961) ..	(18,953)	(16,316)	(32,269)	(2,319)	(1,665)

*Financial support from Waterfront Industry Commission; remainder with financial support from the Workers' Compensation Board.

[1]Being expanded into base unit (work in progress), with outposts at Mount Wellington and Carbine Road; the latter being approved in principle.

[2]Buildings completed and handed over to the Department by the Workers' Compensation Board in March and April 1962.

[3]Dunedin mobile unit to commence operation in May 1963. This is the first mobile unit of its kind and is an experiment to service industry over a dispersed area.

[4]Establishment approved in principle by the Workers' Compensation Board and land being sought.

[5]Proposal being investigated and suitable land being sought.

[6]Under investigation.

[7]To be reviewed again later.

TABLE 17—Medical Examination of Young Workers

Examinations	Number Examined			Number of Certificates Issued			Number of Rejections		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
First examination	1,877	1,204	3,081	1,871	1,201	3,072	6	3	9
Subsequent examination ..	236	142	378	236	141	377	..	1	1
Totals	2,113	1,346	3,459	2,107	1,342	3,449	6	4	10
(Totals for 1961) ..	2,045	1,324	3,369	2,033	1,316	3,349	12	8	20

TABLE 18—Maternal Deaths, 1961 and 1962

Int. List No.	Causes of Death	Number of Deaths		Rate per 1,000 Live Births	
		1961	1962	1961	1962
	A. European				
642	Toxaemia of pregnancy—				
·3	Eclampsia of pregnancy	..	1	..	0·02
·5	Other	2	..	0·03	..
		2	1	0·03	0·02
648	Other complications arising from pregnancy—				
·3	Other	2	2	0·03	0·03
651	Abortion with sepsis—				
·0	Spontaneous or unspecified	4	1	0·07	0·02
·2	Induced for other than medical reasons	2	2	0·03	0·03
		6	3	0·10	0·05
670	Delivery complicated by placenta praevia or antepartum haemorrhage	1	..	0·02	..
672	Delivery complicated by other postpartum haemorrhage	1	..	0·02	..
674	Delivery complicated by disproportion or malposition of foetus	1	2	0·02	0·03
675	Delivery complicated by prolonged labour of other origin	..	1	..	0·02
681	Sepsis of childbirth and the puerperium	1	1	0·02	0·02
684	Puerperal pulmonary embolism	3	..	0·05	..
688	Other and unspecified complications of the puerperium—				
·2	Sudden death from unknown cause in the puerperium	1	..	0·02	..
·3	Other	1	..	0·02	..
		2	..	0·04	..
	Totals, including illegal abortion	19	10	0·33	0·17
	Totals, excluding illegal abortion	17	8	0·29	0·14

TABLE 18—Maternal Deaths, 1961 and 1962—*continued*

Int. List No.	Causes of Death	Number of Deaths		Rate per 1,000 Live Births	
		1961	1962	1961	1962
	B. Maoris				
642	Toxaemia of pregnancy—				
·2	Pre-eclampsia of pregnancy	1	..	0·13	..
·3	Eclampsia of pregnancy	..	1	..	0·13
·5	Other	1	..	0·13	..
		2	1	0·26	0·13
644	Other haemorrhage of pregnancy	..	2	..	0·27
648	Other complications arising from pregnancy—				
·3	Other	..	1	..	0·13
670	Delivery complicated by placenta praevia or antepartum haemorrhage	1	2	0·13	0·27
674	Delivery complicated by disproportion or malposition of foetus	1	1	0·13	0·13
675	Delivery complicated by prolonged labour of other origin	..	1	..	0·13
677	Delivery with other trauma	..	1	..	0·13
684	Puerperal pulmonary embolism	2	..	0·26	..
	Totals, including illegal abortion	6	9	0·77	1·21
	Totals, excluding illegal abortion	6	9	0·77	1·21

Deaths not Classed to Pregnancy and Childbirth but Associated Therewith

B. Maoris

	Cause of Death	Number
VII	Diseases of the circulatory system—	
	Mitral Stenosis	1

TABLE 19—Statistics of Maternity Services and Cases, 1962

——	Private Hospitals	Public Hospitals	St. Helens Hospitals	Alexandra Home, Wellington	Totals, all Hospitals
1. Hospitals and beds—					
Number of hospitals	35	155	3	1	194
Number of available beds ..	386	2,523	133	20	3,062
Percentage of beds in each type of institution	12·6	82·4	4·3	0·7	100·0
2. Admissions—					
For ante-natal treatment ..	184	3,503	350	12	4,049
For delivery	7,970	49,566	4,112	423	62,071
Total admissions	8,154	53,069	4,462	435	66,120
Admissions per available bed ..	21·1	21·0	33·5	21·8	21·6
3. Confinements—					
At full term	8,076	48,181	3,633	408	60,298
Between seventh month and full term	312	3,086	455	5	3,858
Total confinements ..	8,388	51,267	4,088	413	64,156
Percentage of confinements in each type of institution	13·1	79·9	6·4	0·6	100·0
4. Inductions of labour—					
Medical	441	2,837	153	20	3,451
Surgical	570	3,482	211	36	4,299
Combined	286	1,245	74	7	1,612
Total inductions	1,297	7,564	438	63	9,362
Percentage of inductions (to confinements)	15·5	14·8	10·7	15·3	14·6
5. Abortions—					
Abortions	7	50	5	..	62
6. Complications—					
Instrumental delivery	750	3,585	245	47	4,627
Caesarian section	74	1,082	86	..	1,242
Manual removal of placenta ..	116	856	80	7	1,059
Haemorrhage—					
Accidental	23	683	61	3	770
Unavoidable (placenta praevia)	17	291	40	1	349
Postpartum	87	2,797	281	5	3,170
Eclampsia	4	44	5	..	53
Total complications ..	1,071	9,338	798	63	11,270
Percentage of complications to admissions	13·1	17·6	17·9	14·5	17·0
7. Morbidity					
Notifiable (puerperal pyrexia) ..	75	982	127	..	1,184
Puerperal fever	..	..	..	..	..
Total morbidity	75	982	127	..	1,184
Morbidity rate (per 100 admissions)	0·9	1·9	2·8	..	1·8
8. Transfers—					
Before delivery	15	595	18	7	635
After delivery	9	658	23	1	691
9. Deaths of infants—					
Born alive	8	442	56	1	507
Stillborn	15	449	42	6	512
Total deaths of infants ..	23	891	98	7	1,019
Infants deaths and still births (per 100 confinements) ..	0·3	1·7	2·4	1·7	1·6

TABLE 20—Hospital Works Programme as at 31 March 1963 (Projects over £10,000 only*)

—	Total Estimated Cost	Expenditure up to 31 March 1963	Expenditure, 1962–63	Estimated Expenditure, 1963–64	Estimated Expenditure, 1964–65	Estimated Expenditure, 1965–66	To Complete
	£	£	£	£	£	£	£
Category A	18,001,360	9,770,644	4,106,700	5,721,207	2,091,029	410,464	7,916
Category B	57,004	..	..	33,990	15,644	7,370	..
Category C	1,282,374	17,938	17,938	395,295	475,806	358,740	34,595
Sub-totals	19,340,638	9,788 582	4,124,638	6,150,492	2,582,479	776,574	42,511
Category D	692,800	823	823	99,991	162,986	..	429,000
Category E	9,579,558	122,349	122,349	938,783	2,132,856	1,978,138	4,407,432
Category F	9,399,849	8,000	8,000	307,144	1,572,412	2,075,993	5,436,300
Category G	5,274,701	..	..	50,000	465,701	345,000	4,414,000
Totals—	24,946,908	131,172	131,172	1,395,918	4,333,955	4,399,131	14,686,732
31/3/63	44,287,546	9,919,754	4,255,810	7,546,410	6,916,434	5,175,705	14,729,243
31/3/62	45,620,946	10,392,909	4,088,198	6,590,209	7,079,789	5,506,913	16,051,126

*In addition, the total value of projects £1,000 to £10,000 was £650,000 for the year ended 31 March 1963.

Category A × Work commenced.
Category B × Acceptance of tenders authorised.
Category C × Tenders called.
Category D × Working drawings approved.
Category E × Sketch plans approved.
Category F × Preparation of sketch plans authorised.
Category G × Provisionally approved.

TABLE 21—Hospital Building Work

New Hospitals, Wards, and Clinical Services

The following were completed during the year:

Location and Work	Number of Beds		
	General	Maternity	Old People's Home
Whangarei: Base hospital	160	..	..
Rotorua: Outpatients	40	..	..
Cambridge: Maternity hospital	..	20	..
Hamilton: Fairholm additions	..	..	32
Waipawa: Ward block	62	..	..
Wanganui: Theatre and ward block ..	60	..	..
Palmerston North: Centennial block ..	..	40	..
Levin: Maternity hospital additions ..	..	6	..
Westport: Maternity annexe	..	20	..

This represents a net gain from all these works of 229 general and 71 maternity beds. In addition 32 beds were added to an old people's home.

Nurses' Home and Other Staff Accommodation

The following were completed during the year:

Location and Work	Number of Staff
Cambridge: Maternity hospital	28
Stratford: Nurses' home additions	12
Wellington: Medical officers	4 units
Invercargill: Dee Street Maternity Hospital	20

Ancilliary Services

The following were completed during the year:

Location	Work
Whangarei	Road alignment.
Whangarei	Boilerhouse and laundry.
Auckland	Costly block alterations.
Auckland	Linen room.
Auckland	Grafton Road access.
Auckland	Greenlane laboratory additions.
Waihi	Reconstruction.
Cook	Pathology block.
Napier	Central linen room.
Napier	Kitchen alterations.
Stratford	Central linen room.
Wanganui	Nurses' kitchen and dining room.
Palmerston North	Theatre additions.
Silverstream	Sprinkler system.
Wellington	Kitchen alterations.
Porirua	Roading and site work.
Masterton	Boilerhouse.
Masterton	Tutorial.
Nelson	Boilerhouse.
Hokitika	Boiler.
Westport	Electric reticulation.
Invercargill	Kew workshop and store.

New Hospitals, Wards, and Clinical Services

Work in progress or tenders have been accepted for the following:

Location and Work	Number of Beds		
	General	Maternity	Old People's Homes
Auckland: National Women's Hospital	..	282	..
Auckland: National Women's isolation block	..	48	..
Middlemore: Acute block, stage I	136	..	..
Middlemore: Acute block, stage II	170	..	..
Henderson: Maternity hospital	..	60	..
Kaitaia: Ward block	88	..	..
Waikato: Ward block	200	..	..
Huntly: Maternity additions	..	2	..
Rotorua: Maternity block	..	40	..
Thames: Ward block	118	..	..
Tauranga: Ward block	90	..	..
Whakatane: Ward block	60	..	..
Cook: Memorial Home additions	..	..	20
Masterton: Ward block	62	..	..
Wellington: Seddon block	150	..	..
Porirua: Maternity hospital	..	40	..
Hokitika: Maternity ward	..	11	..
Westport: Ward replacement	60	..	..
Oamaru: Clinical and children's ward block	32	..	..
Dunedin: Parkside ward replacement	32	..	..
Invercargill: Lorne Hospital improvements	46	..	..

Nursing and Other Staff Accommodation

Work in progress or tenders have been accepted for the following:

	Number of Staff Beds
Kaitaia Nurses' Home	52
Greenlane and National Women's Nurses' Home	435
Henderson Maternity	75
Middlemore Nurses' Home	210
Waikato Nurses' Home	150
Tauranga Nurses' Home	83
Whakatane Nurses' Home	44
Stratford Domestics' Block	24
Invercargill Lorne Hospital	27

Ancillary Services

Work in progress or tenders accepted for the following:

Location	Work
Whangarei	Chapel.
Auckland	Middlemore boilerhouse.
Auckland	New boilers.
Auckland	Temporary linen room.
Auckland	New garages.
Auckland	Greenlane sewer line.
Auckland	Workshops.
Auckland	Temporary emergency and accident department.
Auckland	Middlemore kitchen alterations.
Waikato	Electric reticulation.
Rotorua	Boilerhouse.
Waikato	Convert laundry to store.
Waikato	Water storage tanks.
Waikato	New mortuary.
Waikato	Kitchen and cafeteria.
Thames	Paeroa hospital alterations.
Tauranga	Laundry.
Tauranga	Boilerhouse.
Whakatane	Kitchen.
Opotiki	Steam services.
Cook	Heating ward VI and theatre.
Hastings	Nurses' kitchen and dining room.
Hastings	Roading, lighting, fire mains, etc.
Waipukurau	Theatre improvements.
Wanganui	Boilerhouse additions.
New Plymouth	Board room and X-ray additions.
Wellington	Ward 5 lifts.
Hutt	Boilerhouse additions.
Wellington	Lift improvements.
Marlborough	Boilerhouse additions.
Greymouth	Boilerhouse and laundry.
Christchurch	Princess Margaret, maintenance block.
Christchurch	Laundry extensions.
Burwood	Boilerhouse.
Christchurch	Boilerhouse.
Christchurch	Kitchen alterations.
Oamaru	Boilerhouse.
Dunedin	King Edward Pavilion lift.
Dunedin	Office and store block.
Dunedin	Stage II, corridor.
Balclutha	Boilerhouse additions.
Invercargill	Kew boilerhouse.
Invercargill	Kew generator and electric reticulation.

TABLE 22—Results of Mass X-ray Examinations

Year	Number Examined	Tuberculosis			Active Cases per 1,000 Examined	Other Lung Conditions	Cardio-vascular Disease
		Healed	Inactive	Active			
1959 ..	256,332	2,211	794	279	1·08	2,450	1,023
1960 ..	257,766	2,018	758	246	0·96	1,850	813
1961 ..	214,497	1,396	609	212	0·98	1,418	789
1962 ..	203,455	1,519	584	169	0·83	1,492	558

TABLE 23—Morbidity: Notification of New Cases of Tuberculosis During Statistical Year: Incidence of Type of Disease by Race and Sex with Number and Rate per 10,000 Estimated Mean Population

Year	Respiratory						Non-respiratory						All Types		
	European			Maori			European			Maori			Both Races		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
1958	553	375	928	270	227	497	80	88	168	51	54	105	952	746	1,698
	5·2	3·5	4·3	35·8	31·2	33·6	0·74	0·82	0·78	6·9	7·4	7·1	8·3	6·7	7·4
1959	505	292	797	213	193	406	62	66	128	28	47	75	808	598	1,406
	4·6	2·7	3·6	27·2	25·5	26·4	0·56	0·61	0·58	3·6	6·2	4·9	6·9	5·1	6·0
1960	481	306	787	197	196	393	79	73	152	55	49	104	812	624	1,436
	4·3	2·8	3·5	24·3	25·0	24·6	0·71	0·66	0·69	6·8	6·3	6·5	6·8	5·3	6·0
1961	447	249	696	215	171	386	72	80	152	51	47	98	785	547	1,332
	3·9	2·2	3·0	25·2	20·7	23·0	0·63	0·71	0·67	6·0	5·7	5·8	6·4	4·5	5·4
1962	423	234	657	193	178	371	74	66	140	52	63	115	742	541	1,283
	3·6	2·0	2·8	22·1	21·1	21·6	0·63	0·57	0·60	5·9	7·5	6·7	5·9	4·3	5·2

TABLE 24—Morbidity: Cases of Tuberculosis on Tuberculosis Register at End of Statistical Year: Prevalence of Type of Disease, by Race, with Number and Rate per 10,000 Estimated Mean Population

Year	Respiratory						Non-respiratory					
	European		Maori		Both Races		European		Maori		Both Races	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1958 ..	8,181	38·3	4,082	276	12,263	54·0	657	3·08	421	28·4	1,078	4·7
1959 ..	7,989	36·6	4,091	266	12,080	51·7	547	2·5	408	26·4	955	4·1
1960 ..	7,513	33·9	3,985	247	11,498	48·3	528	2·4	368	23·0	896	3·8
1961 ..	6,781	30·0	3,697	220	10,478	43·2	562	2·4	437	26·1	999	4·1
1962 ..	6,151	26·6	3,538	206	9,689	38·9	560	2·4	412	24·0	972	3·9

TABLE 25—Results of Mantoux Testing

Year	Age Groups (Years)														Total B.C.G. Vaccinations
	0–4		5–9		10–14		15–19		20–24		25–34		35+		
	Tested	Positive	Tested	Positive	Tested	Positive	Tested	Positive	Tested	Positive	Tested	Positive	Tested	Positive	
1959	2,174	183 (8·4%)	2,417	332 (13·7%)	30,736	3,785 (12·3%)	5,629	1,548 (27·5%)	1,140	471 (41·3%)	754	396 (52·6%)	281	168 (59·8%)	34,669
1960	2,441	172 (7·0%)	2,838	353 (12·4%)	30,801	2,941 (9·5%)	4,972	1,559 (31·4%)	1,072	512 (47·8%)	1,055	484 (45·4%)	537	323 (60·2%)	35,421
1961	2,168	66 (3·0%)	9,159	505 (5·5%)	34,933	2,873 (8·2%)	2,797	897 (32·0%)	1,485	910 (61·2%)	528	233 (44·1%)	268	148 (55·2%)	35,184
1962	2,558	133 (5·2%)	15,915	455 (2·9%)	23,613	1,677 (7·1%)	3,044	1,229 (40·3%)	564	298 (52·8%)	479	279 (58·2%)	569	293 (51·5%)	24,035

TABLE 26—Mortality: Deaths from Tuberculosis During Statistical Year, Mortality by Type of Disease, by Race and Sex, With Number and Rate per 100,000 Estimated Mean Population

Year	Respiratory									Non-respiratory									All Types								
	European			Maori			Both Races			European			Maori			Both Races			European			Maori			Both Races		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
1958—																											
Number ..	84	41	125	26	21	47	110	62	172	7	8	15	10	5	15	17	13	30	91	49	140	36	26	62	127	75	202
Rate ..	7·8	3·9	5·8	34·4	28·9	31·7	9·6	5·5	7·5	0·7	0·8	0·7	13·2	6·9	10·1	1·5	1·1	1·3	8·5	4·6	6·5	47·6	35·7	41·8	11·0	6·6	8·8
1959—																											
Number ..	61	24	85	19	14	33	80	38	118	6	7	13	3	3	6	9	10	19	67	31	98	22	17	39	89	48	137
Rate ..	5·6	2·2	3·9	24·2	18·5	21·4	6·8	3·3	5·1	0·5	0·6	0·6	3·8	4·0	3·9	0·8	0·9	0·8	6·1	2·9	4·5	28·0	22·5	25·3	7·6	4·1	5·9
1960—																											
Number ..	54	23	77	12	10	22	66	33	99	4	7	11	4	4	8	8	11	19	58	30	88	16	14	30	74	44	118
Rate ..	4·8	2·1	3·5	14·8	12·7	13·8	5·5	2·8	4·2	0·4	0·6	0·5	4·9	5·1	5·0	0·7	0·9	0·8	5·2	2·7	4·0	19·7	17·8	18·8	6·2	3·7	5·0
1961—																											
Number ..	56	30	86	14	16	30	70	46	116	8	1	9	5	4	9	13	5	18	64	31	95	19	20	39	83	51	134
Rate ..	4·9	2·7	3·8	16·4	19·4	17·9	5·7	3·8	4·8	0·7	0·1	0·4	5·9	4·9	5·4	1·1	0·4	0·7	5·6	2·8	4·2	22·3	24·3	23·3	6·8	4·2	5·5
1962—																											
Number ..	*	*	*	*	*	*	80	35	115	*	*	*	*	*	*	12	7	19	*	*	*	*	*	*	92	42	134
Rate ..	*	*	*	*	*	*	6·4	2·8	4·6	*	*	*	*	*	*	1·0	0·6	0·8	*	*	*	*	*	*	7·4	3·4	5·4

*Not available.

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