

Report of the Department of Health / New Zealand.

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REPORT
OF THE
DEPARTMENT OF HEALTH
FOR THE YEAR ENDED
31 MARCH 1964

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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 1963-64.

The vital and medical statistics which appear in the report are for the calendar year 1963. The financial figures and, in particular, the report of the Division of Clinical Services are for the year ended 31 March 1964.

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

The year has been one of consolidation of the reorganisation of the Department referred to in previous recent reports.

The Division of Public Health has been strengthened by the appointment of an engineer (Mr R. R. Harcourt) as an Assistant Director responsible for the Environmental Health section. So many problems in this section have mainly an engineering aspect that the step taken is an important one.

Reference is made to the establishment in Auckland of the National Audiology Centre. The work of this centre will advance substantially the services for the deaf and the conservation of hearing in the community.

It is pleasing to record the completion and commissioning of the Occupational Health Laboratory at the National Health Institute in Wellington.

Attention is drawn to rehabilitation of hospital patients mentioned in the section of Physical Medicine in the Bureau of Medical Services and in the Bureau of Mental Health. It is a most important aspect of hospital care and treatment, but there seems clearly to be some lack of local enthusiasm and necessary driving force in obtaining action in some areas. New Zealand is lagging behind what is happening in England and indeed other countries.

It is pleasing to read of the success of the pilot schemes carried out by 15 hospital boards in the training of community nurses. This category of nurse is going to fill a most important need in our nursing services.

The report of the Division of Clinical Services records a fall in the cost of pharmaceutical benefits compared with last year and this section will be read by many with interest.

The Operational Research Unit is proving its value in hospital planning and its reports in the Department's "Special Report Series" are most useful contributions to the better use of existing facilities and services.

PART I—BUREAU OF PUBLIC HEALTH SERVICES

1. ENVIRONMENTAL HEALTH

Water Supplies

During 1963 the Local Authorities Loans Board approved loan proposals examined by the Department involving an estimated expenditure of £2,306,000.

Progress in the improvement of public water supplies is slow. Only a few of the unsatisfactory supplies listed in the *Provisional Grading of Public Water Supplies in New Zealand*, published by the Board of Health in 1962, have been improved. Some supplies have deteriorated so that lower gradings will be given at the next evaluation unless remedial action is taken. There is a general lack of appreciation of the risks that are being taken with the health of the general public through the deterioration of the quality of the water supplied by local authorities, where no treatment or inappropriate processes of treatment are being used. It is expected that the Board of Health will publish a further report* on public water supplies soon, with recommendations for improvements in organisation, management, and financing. Nevertheless, in most of the larger urban areas of the country, the quality of water supplied to the public is good.

Sewerage Schemes

Further efforts were made by local authorities and drainage boards to provide satisfactory sewerage and sewage disposal throughout the country. Two-thirds of the urban population are now served by approved systems.

In the year ended 31 March 1964 the Local Authorities Loans Board sanctioned loan proposals reported on by this Department to an estimated value of £6,134,000. This included the provision of sewage disposal for two more cities. Six other cities and at least 40 boroughs and towns have yet to prepare satisfactory proposals for sewage disposal.

Sewage Treatment Subsidy

The sewage treatment-plant subsidy scheme continued to encourage the smaller local authorities to undertake the construction of sewage treatment plants. Seven more schemes, involving subsidies totalling £105,191, were approved during the year. A further five applications are under consideration. Two local authorities have not commenced construction within the time limit of three years and must make fresh applications.

Although the subsidy scheme has given encouragement to the smaller local authorities, additional financial assistance is needed in special cases where the cost of sewerage reticulation is likely to impose an excessively heavy burden on the ratepayers. In such towns improvements in environmental health will be delayed until satisfactory sewerage and sewage disposal can be provided.

*Board of Health Report No. 10—“An Evaluation of the Administration and Servicing of New Zealand Water Supply Undertakings.”

Water Pollution Control

The Waters Pollution Act 1953 is administered by the Marine Department, but since the Waters Pollution Regulations became effective on 1 April 1963, this Department has increased its assistance to the Pollution Advisory Council. In addition to giving increased assistance to the Ministry of Works in water quality surveys, district staff of the Department are supervising classified waters by acting as inspectors for the Pollution Advisory Council.

Food Sanitation

The usual widespread outbreaks of food poisoning occurred during the year with a total of 435 notified cases. These occurred in some 33 instances, the largest of which involved 100 cases and resulted from food at a wedding breakfast.

An interesting outbreak with nine cases of chemical food poisoning was traced to the consumption of rhubarb. The stalks of rhubarb usually contain harmless quantities of oxalic acid, but, in this instance, an abnormally high amount was present.

Notification of food poisoning by chemical agency is quite uncommon and food infections or intoxications due to the contamination of food with micro-organisms is by far the greatest cause of illness. These cases, which frequently cause considerable distress and sometimes death, are preventable by cleanliness and care in the manufacture, preparation, storage, and sale of foods.

Many outbreaks occur at weddings, parties, socials, sports meetings, and similar gatherings where foods are prepared in advance, often with temporary and inadequate facilities and with untrained staff. Commercial caterers and food shops are responsible for a large number of cases. The prevalence of food poisoning, which is much higher than indicated by notifications, points to the need for continuous health education and efficient supervision of all types of food premises.

For some years the Department has been aware of a gradual lowering of the standard of food sanitation in most health districts and, although efforts have been made to correct this downward trend they have been only partially successful. No real progress has been made and it would seem that a coordinated and concerted effort on the part of all local authorities is needed before a reasonably good average level throughout the country can be achieved.

The Department has embarked on a full scale national programme for improvement and has initiated an entirely new system for the supervision of hotels, restaurants, and all other food premises and for the uniform enforcement of enactments regulating the conduct of such premises.

It is expected that, before the end of 1964, every food premises in New Zealand will have been inspected and evaluated by means of the new scoring method and individual proprietors told what changes are necessary to meet minimum requirements.

There are more than 20,000 registrations of premises selling a wide variety of foods, so that the provision of adequate supervision is a time consuming and exacting task for inspectors. The shortage of trained inspectors adds to the difficulty and, until this can be overcome, inspections and consultations with proprietors must, of necessity, be reduced to the minimum necessary to maintain standards.

Medical officers of health are confident that, with all health inspectors working on this problem in concert and using the same methods and uniform inspection techniques, there will be progressive improvement. For the first time a base line is being fixed and future progress can now be measured.

Health Inspection Services

Further progress has been achieved in reorganising health inspection services and during the year 14 more local authorities made arrangements to appoint their own inspector, relieving the Department of the responsibility for providing an inspection service in those areas. There are now only 48 departmental inspectors engaged in local body work and the position should be reached within the next few years when the number has been reduced to a minimum. A few of the smaller local authorities will require the assistance of the Department for some years to come. One retarding factor in this progressive changeover is the shortage of qualified inspectors and this was one of the problems studied by a subcommittee of the Board of Health during the year.

The report furnished by this subcommittee* dealt comprehensively with "the training and employment of health inspectors in New Zealand" and, *inter alia*, urged local authorities to take action to recruit sufficient staff to provide for both normal wastage of staff and population increase.

The report is a valuable guide to all concerned with providing an efficient health inspection service. Local authorities are involved and it is hoped that they will play their part in building up an adequate number of well trained inspectors to maintain a high level of environmental standards throughout the country.

Plumbing

The ratio of registered plumbers to population shows a slight improvement, but there is still a need for an increase in the number of competent tradesmen if plumbers are to be readily available in all districts.

The standard of workmanship continues to be satisfactory. During the year there were fewer complaints of unsatisfactory work or failure to obtain permits for sanitary plumbing.

Gas Fittings

During the year a number of fatalities occurred in New Zealand as a result of faulty gas fittings. Although as a matter of tradition gas fitting has always been part of the plumbing trade, the Plumbers Registration Act does not apply to the installation of gas supplies and appliances. This matter has been considered at meetings of interested parties arranged by the Department and general agreement reached that gas fitters should be registered.

Drainage

From time to time questions have been raised as to whether the standard of drainlaying is generally satisfactory and whether the current method of examination ensures a sufficiently high level of competency for registration as a drainlayer.

Various proposals for changes are under investigation.

*Board of Health Report No. 9—"The Training and Employment of Health Inspectors in New Zealand."

Air Pollution

Staff remained as last year and there were no legislative changes. Mr C. Denmead was able to represent the Auckland Air Pollution Research Committee at a meeting of Australian States air pollution officers in Sydney in February and make a New Zealand contribution to the standardisation of methods of measurement of air pollutants in this part of the world. It is important to New Zealand to have its say in such standardisation for much of the equipment reaching industry in this country originates in Australia and is made to meet standards set there. Following the gazetting of comprehensive air pollution control regulations this year in New South Wales there have already been repercussions in this country on the availability of certain types of control equipment.

The major public complaint about air pollution during the year continued to concern the Mangere treatment plant of the Auckland Drainage Board. This plant by diverting large quantities of organic waste from the Mangere inlet eliminated the serious hydrogen sulphide pollution which, up to two years ago, afflicted a substantial part of urban Auckland. In this respect the treatment works continues to be a complete success. There is, however, an odour problem local to the works from the main sewer ventilation and possibly also on occasions from the oxidation ponds as a result of efforts to control midge infestation. A Government Commission of Inquiry* has been set up following complaint from a small area of suburban development. A somewhat similar problem to the original Auckland fumes nuisance is associated with the disposal of meat works wastes by anaerobic digestion in open ponds. The chemical inspectors have had to point out that efforts to reduce river pollution in this way have led, in some cases, to air pollution nuisance. A technical committee, set up in cooperation with the meat industry, has been studying this problem and it has become rather abundantly clear that practice has outrun understanding of the scientific principles involved. At one works a relatively serious nuisance already exists. The chemical inspectors are of the view that the scientific study of the disposal of organic waste is urgently needed in New Zealand not only to prevent serious air and water pollution developing, but also to improve industrial efficiency and possibly develop new products of economic value.

The measurement of existing levels of atmospheric pollution, even when these are known to be low compared to the more grossly polluted parts of the world, is useful in that it provides the basic data on which the effects of new industrialisation can be assessed. In the Gracefield area of Lower Hutt, for example, this year the proposal to establish a fertiliser plant was strongly opposed by residents and was the subject of two appeals for which extensive technical evidence had to be prepared. During the winter, therefore, four sulphur dioxide measuring stations were operated in the Hutt Valley. The results, on the basis of monthly average and 24 hours average, have shown a satisfactorily low level of sulphur dioxide, although one station has occasionally shown rather higher daily values which, while not serious, indicate a substantial individual source of pollution worthy of further investigation. The main value of the results is, however, in combination with an assessment of the total quantity of sulphur dioxide discharged

*Manukau Sewage Treatment Commission of Inquiry.

into the atmosphere from all sources. They then become a measure of the capacity of the atmosphere to absorb pollution and a basis for prediction of the effects of new industries or growing urbanisation. If need be, more specific tests will be carried out next winter on the simulated discharge of pollutants from the proposed fertiliser works before departmental approval is given to the establishment of this industry. Negotiations have also been commenced with the consultants responsible for the proposed iron and steel industry and for extensions to two other sulphuric acid plants.

Similar surveys, but on a much more extensive scale, have continued during the year in Auckland and Christchurch. These are, however, separately reported by the local air pollution committees who provide the bulk of the funds for carrying out the work involved. In Rotorua the small committee set up last year to investigate the dangers of geothermal gas has produced a pamphlet on safety precautions called "Heat from the Ground" (Health Department Pamphlet 146), and has strongly recommended the adoption by the local authority of bylaws more stringently controlling the use of geothermal heat for domestic purposes. This committee, in the course of its investigations, found very many aspects of the urbanisation of a geothermally active area which warranted further study. Measurements made so far of general atmospheric pollution in Rotorua and near Wairakei power station did not show levels likely to have any significant health effects, but they were high enough in many areas to cause serious corrosion damage to electrical equipment. A prototype instrument is being constructed for recording hydrogen sulphide concentrations in the 5 to 50 p.p.m. range which are regarded as particularly important for assessing health danger.

The number of industrial registrations, chemical works, which come under the provisions of Part V of the Health Act has risen slightly from 216 to 224 processes in 194 premises. Under the Air Pollution Regulations 77 tests were made of stack discharges. A number of infringements of the regulations were observed which were either immediately corrected or satisfactory undertakings were given to make good at the first practicable opportunity. No prosecutions were therefore considered necessary. The whole staff was employed for more than a week in measuring, in a comprehensive way, the discharges from one cement works. As usual this type of concentrated effort proved most rewarding and much more field measurement of such pollution sources is desirable not only as a control measure, but also to build up technical knowledge of the industries concerned and of the efficiency of available control equipment. The chemical inspectors have again been able to aid industry by the loan of special equipment for dust and fume measurement. Frequently it is found that, where measurements can be made and the degree of pollution established unequivocally, the industry concerned will immediately take steps to rectify the situation without any need for threatening legal processes. In all this work, and in some industrial hygiene problems, the small Auckland air pollution laboratory has proved invaluable. The latest acquisition to equipment there has been a Barco dust particle size analyser the only instrument of its type available in this country and particularly useful for measuring grits from boiler stacks. An infrared absorption meter is on order which will enable much more satisfactory measurement of pollution arising from motor vehicles.

2. PUBLIC HEALTH SERVICES

(a) Communicable Diseases and Quarantine

There were no alterations during the year to the list of notifiable diseases as set out in the First Schedule to the Health Act 1956. Tables 8a-e show the incidence of confirmed cases of notifiable diseases during the year. There was no striking difference in incidence of any particular disease during 1963 as compared with the previous year.

Brucellosis (Undulant Fever)

Twenty-nine cases were notified. Cases were widely distributed throughout the health districts with the highest incidence in Hamilton district (seven cases) and Palmerston North district (five cases).

Tetanus

Twenty-four cases were notified. No notifications were received from the two most northern health districts or from the four most southern districts. Six of the cases were Maori people, all except one of these being between five and 15 years of age.

Poliomyelitis

There was no confirmed case of poliomyelitis during 1963. Indeed the country has not experienced a positive case of this disease since April 1962. Over that period several suspect cases have, after further clinical and laboratory investigation, been declared not to be poliomyelitis. We cannot expect to continue indefinitely without a case, but the present situation appears to justify the highly successful Sabin oral vaccine campaign outlined in last year's annual report.

Poliomyelitis Immunisation

The Department continues to advocate and offer a three-dose course of immunisation with the oral vaccine for all infants under 12 months of age. The country is fortunate that, as a result of the mass vaccination campaigns in 1962, a high percentage (approximately 80 per cent overall) of the population was protected against poliomyelitis. However, indifference in the protection of infants, together with the effect of the immigration of significant numbers of unprotected people, could, in only a few years, alter the situation. In order that maximum coverage may be maintained, a course of the oral vaccine is offered to all permanent new arrivals from overseas and also to any person who did not have oral vaccine during the mass campaigns.

Infective Hepatitis

A further decline in notifications was recorded - from 2,816 in 1962 to 2,293 - and it may be that the peak of incidence (which stood at 3,870 notified cases for 1961) has passed for the country as a whole. However, eight districts report an increase as against decrease in the 11 other districts and it seems that some parts of the country have yet to experience their maximum incidence. Medical officers of health have noted the occurrence of multiple cases in families and school groups and have intensified health education on handwashing directed at the latter group.

Leptospirosis

Notifications of leptospirosis were rather fewer (128 as against 148 the previous year). The vaccine mentioned in the report for 1962 has become available and a pilot immunisation scheme is being put into effect in the Hamilton Health District. The Departments of Health and Agriculture are exchanging information useful in the tracing of sources of infection. Positive control of this disease would be a great advantage to the farming community.

Hydatids

The incidence of new notifications (there were 38 compared with 41 in the previous year) is a poor indicator of the effectiveness of the hydatids eradication campaign.

Districts report local authority activity, and departmental support by way of health education, in the hydatids eradication campaign. It was disturbing, however, to read in the report of one medical officer of health from whose district five new cases were notified (two adults and three children aged 14, 11, and nine years) that in all areas except two in the district the incidence of hydatids in dogs was high and in some areas actually increasing. There will be an intensive education campaign in this district during the coming year.

Anchylostomiasis

Thirteen and 11 cases were notified in the last two years compared with only the occasional case a decade ago. Anchylostomiasis is a chronic debilitating infection caused by hookworm and is widely endemic in tropical and subtropical countries, the more so in areas where sanitation is primitive or substandard. In all the notified cases the infection has been contracted overseas, the patients being predominantly Pacific Islanders. No case of local infection is known and, in view of New Zealand's high standard of living and of hygiene, there would seem to be very little risk of hookworm becoming established as an endemic disease.

Food Poisoning

The figure for notified cases of food poisoning (435) is comparable with that for the previous year (462). (See also Food Sanitation—page 5.)

Quarantine Arrangements

General

No cases of quarantinable diseases were reported in New Zealand during 1963.

In addition to medical officers of health, who have overall responsibility for port health work, the Department has approximately 50 medical practitioners appointed as port health officers to cover the seaports and airports throughout the country. During 1964 a second port health officer was appointed at Whangarei to assist with the increased overseas shipping arriving at that port.

Vector Control

The negotiations with international airlines to adopt pre-flight ("blocks away") spraying of aircraft mentioned in the last annual report have been successful. Regular inspections of sanitary aerodromes for evidence of mosquito breeding have been satisfactory.

(b) Health Education

Community Health Education

Fluoridation of Community Water Supplies—For some years now health districts have been developing programmes to encourage fluoridation.

Departmental doctors, dentists, nurses, dental nurses, health inspectors, and health education officers have all been involved and are beginning to see a gratifying response to their efforts.

As with all major advances in public health, such as vaccination against smallpox and pasteurisation of milk, there has been opposition to fluoridation. However, the success of the pilot scheme in Hastings, associated with increased public knowledge and understanding, has resulted in four more communities adopting this public health measure.

City	Population	Date Commenced
Hastings	25,400	Sep 1954
Lower Hutt	54,900	July 1959
Palmerston North	43,600	Jan 1962
Tauranga	20,400	Feb 1963
Invercargill	41,600	Sep 1963

Other communities have approved of fluoridation in principle and several are preparing for the installation of equipment.

Food Handling—In several districts, in conjunction with local authorities, particular emphasis has been given to the importance of clean food handling to public health. One district arranged a Clean Food Exhibition in several towns, another took part in a Catering Exhibition and others ran classes for food handlers.

Cervical Cancer Campaign—This is a long-term campaign. During 1963 Health Department officers have worked with the British Empire Cancer Campaign Society and others to educate women to use available facilities.

Cigarette Smoking—The campaign continues throughout the country, as outlined in last year's report, with the emphasis on discouraging young people from taking up cigarette smoking. There has been considerable activity in schools with lectures, discussions, and poster and essay competitions. A survey was made of the smoking habits of New Zealand doctors and results will be published during 1964.

Hydatids Disease—District offices are working with hydatids control officers and staff of the National Hydatids Council to help maintain public understanding of, and interest in, the hydatids eradication campaign.

World Health Day had the theme "Freedom from Hunger". The opportunity was taken to demonstrate New Zealand's fortunate position in this regard in comparison with many other countries.

Other Health Programmes

A programme on "Holiday Health and Safety" was developed by several districts this year and it is intended that a national campaign be organised for the holiday season next year. Wellington and Hutt districts combined to hold a week devoted to educating the public regarding deafness. They worked with the Deaf Society, N.Z. League for the Hard of Hearing, visiting teachers for the deaf (Education Board), and the hearing aid clinic at Wellington Hospital. Activities included the production of a 15-minute television documentary *The Silent World*.

All three Auckland districts combined with the local branch of the Pharmaceutical Society to organise a campaign against "Accidental Poisoning".

Home safety, influenza, infective hepatitis, and water safety were all the subjects of special campaigns in one or more districts.

The range of health topics covered throughout the country remained as wide as ever, but increasing attention is being given to health education of school children. Here again the range is wide extending from children's shoes and first aid to venereal disease and education for family life.

The generosity of radio and television stations has enabled most districts to use one or both of these media to some extent.

A diabetes survey was made in Otaki which, in addition to educating the people about this disease, discovered six suspect cases of diabetes. Other districts are considering surveys of this sort which combine health education with case finding.

Education and Training

District staff are assisting hospitals in the basic training of nurses in public health and with the training of student teachers. Planned courses are also arranged in some districts for such groups as apprentices, unmarried mothers, and secondary school children.

(c) Maternal and Child Health

Maternal Welfare

For the second year in succession there has been a decline both in the total number of births and in the combined European and Maori birthrate which is now 25.4 per thousand population. The decrease in births in 1963 occurred in the European population, 56,548 births being recorded, 912 less than for 1962. The Maori birth total of 8,127 showed an increase of 463 (see further comment under Medical Statistics).

Maternal Mortality

The details of maternal deaths registered in 1963 are given in table 15 of the Appendix. The total of 26 deaths was made up of 21 European and five Maori. The combined races rate was 0.40, the European rate 0.37, and the Maori rate 0.62 per 1,000 births. There is liable to be a considerable fluctuation in the maternal death rate in a small country such as New Zealand and the higher rates for 1963 must be viewed as an upswing from the exceptionally low figures of 19 deaths and the rate of 0.29 recorded in 1962.

New Zealand occupies a leading position among the countries of the world with low maternal death rates. This situation is all the more meritorious when it is realised that this country could be at a disadvantage because of the accuracy of its maternal death recording. Very few countries have access to so many sources of information about the facts of death as have the authorities in this country and this makes it very unlikely that any death due to maternal causes is omitted from the statistics. As a matter of interest and for comparison the following figures for countries with recorded rates below 0.50 level have been extracted from a recently issued World Health report. The rates are per 1,000 live births and apply to the year 1961 except when stated as being for 1960:

	Country	Per Cent
Sweden	0.21
New Zealand	0.29
Denmark (1960)	0.30
England and Wales	0.34
Scotland (1960)	0.35
United States	0.37
Netherlands (1960)	0.39
Czechoslovakia	0.40
Belgium	0.41
Norway	0.42
Australia	0.45
France	0.45
Canada	0.46
Switzerland	0.49

Particularly among the Maoris, who are included in the rate of 0.29 above, New Zealand has a very much higher level of parity than that of almost all the countries listed. High parity is a factor in increasing the risk at childbirth.

Despite the good overall picture there remains the fact that 26 maternal deaths occurred this year, and the Maternity Services Committee of the Board of Health is at present giving considerable thought to ways and means of reducing this figure.

Hospital and Home Confinements

As a result of combining the birth registers for the two races more accurate information about the place of delivery of Maori births has become available. In 1963, 99.3 per cent of European and 94.8 per cent of Maori mothers were confined in hospital. In actual numbers 7,819 Maori births took place in a hospital, 314 in a private residence, and 119 in such places as ambulances, cars, and boats.

Infant Mortality

(See tables 5, 6, and 7, and comment under Medical Statistics.)

The infant death rates for 1963, with 1962 figures in brackets, per 1,000 live births, were 17.8 (18.0) for the European, 32.6 (38.8) for the Maori, and 19.6 (20.4) for both races combined. All three rates represent new low records for this country.

The achievements in the fields of obstetrics and paediatrics shown by a study of table 3 in the Appendix, is reflected not only in the improved infant figures, but also in the parallel decline in the still birth rates. New Zealand, which after 1949, lost the world lead in low rates of

infant loss, has, with the figures produced in 1962 and 1963, now moved close to the top in international ranking. Furthermore the small discrepancy between, in particular, the New Zealand European rate and that for the other countries which show lower rates of infant loss, is probably a good deal less than is shown in the official figures. New Zealand adheres much more closely to World Health Organisation criteria for live births and hence for an infant death than appears to be the case with many other countries. For example, the Netherlands do not register a number of live-born infants of less than 28 weeks' gestation and similar omissions take place with foetal deaths. Again in Sweden and Norway, because of the method of registration, there is a likelihood that a number of very premature live births which live for only a very short while are not registered. These countries statistically have a very real advantage over New Zealand because they have a much lower birth rate and, where Sweden is concerned, legalised abortion on health and social grounds also goes towards distorting the picture.

The following are the published infant death figures for those countries which lead the world in low rates of infant loss. The rates are for the year 1962 unless stated to be for 1961 and have been extracted from a recent Epidemiological and Vital Statistics report issued by the United Nations Organisation. The rates are supplied in two subgroups as well as for the whole of the first year of life. In general, neonatal loss reflects the incidence of congenital deformities, the health and fitness of the mother, and the hazards of childbirth along with the standards of maternal care by which risks are anticipated and prevented. The post-neonatal rate on the other hand is a reflection to a large degree of the effect of environment in the widest sense of the term. It is in this latter subgroup that Maori rates compare so unfavourably with the European.

Country	Neonatal Rate (Under 28 Days)	Post-neonatal Rate (28 days and Under One year)	Infant Death Rate (Under One Year)
Netherlands	11.1	4.2	15.3
Sweden	12.5	2.8	15.3
Norway (1961)	12.3	5.6	17.9
New Zealand (European) ..	12.4	5.6	18.0
New Zealand (total population)	12.7	7.7	20.4
Australia	14.7	5.7	20.4
Finland (1961)	15.3	5.5	20.8
England and Wales	15.1	6.3	21.4
Denmark	16.5	5.3	21.8
United States (total population)	18.6	6.7	25.3

For reasons set out in an earlier paragraph there are qualifications to the rates of the three countries with rates lower than New Zealand's. It is notable that the inclusion of Maoris in the New Zealand calculation does not affect the international ranking although it does raise the post-neonatal rate by over two points.

General

This year saw the introduction of the Obstetrical Regulations (1963/60). These should lead to a higher and more uniform standard of maternal care.

The Maternity Services Committee of the Board of Health has given valuable assistance to the Department and its advice on all aspects of maternal care is greatly appreciated.

Child Health

By the end of 1963 only two health districts were without a medical officer, though several areas were understaffed. The Department employed 51 medical officers on child health work of whom 27 were on a full-time basis. Part-time staff was the equivalent of 13 full-time, giving a total effect of 40 full-time officers.

Pre-school Children

During the year doctors examined a total of 37,501 European and 2,617 Maori pre-school children. This represents an increase of approximately 10 per cent for European and 250 per cent for Maori children on last year's figures. The majority of the children were examined at Plunket clinics and, in general, are probably representative of the more responsible families in the community. Unfortunately many children who are most in need of supervision have parents who do not belong to the Plunket Society. Some of these families are being supervised by the public health nurses, but cooperation is often difficult to obtain and much time has to be spent on this aspect. The work with Maori and island families is being extended both with medical and nursing staff.

School Children

A total of 40,279 European and 7,989 Maori children were examined by medical staff which again represents an increase. The total school population is nearly 600,000. The children examined were referred mainly by public health nurses, school teachers, and parents. There were no marked changes this year in the number or pattern of defects found.

Medical staff reporting on their work with intermediate and secondary school children emphasised the need for more health education.

It is clear that there is a startling amount of work required in this field.

Audiometry

Routine testing of hearing continues in all districts. The limitation being available staff to do the testing. At the end of the year approval was obtained for a preliminary increase in establishment which will give much better coverage of all health districts. The establishment of the National Audiology Centre will allow future training of audiometrists to be undertaken at this unit.

Maori Children

Considerable emphasis is being laid on the need for supervising Maori infant and pre-school children. In health districts with a higher Maori than European infant mortality rate, medical officers of health are undertaking detailed investigations. It is still difficult to get Maori mothers with their pre-school children to attend regular clinic sessions and much depends on the nurse working in the area.

The report on the trial scheme introduced in the Waikato for the treatment of chronic otitis media, together with the recommendations made, is now being studied by the Services for the Deaf Committee of the Board of Health. It is hoped next year to report on the implementation of a scheme for the whole Maori child population.

Iron Deficiency Anaemia

Following the findings of a high incidence of iron deficiency anaemia among Maori pre-school children, and particularly those under three years of age in health surveys carried out by Dr I. Prior and departmental officers at Te Karaka and Ruatahuna, a series of surveys by public health nurses of the incidence among rural and suburban Maori pre-school children was planned. Pregnant women were also to be included in these surveys.

The children who were found to have anaemia, according to the World Health Organisation standard, were immediately started on oral iron treatment and all children were retested at intervals. Those severely anaemic were referred to family doctors who cooperated throughout the surveys.

In one area the findings regarding pre-school children have been completed and a preliminary assessment of the results from the other areas shows that they will be similar.

The most severely affected age group was that from six months to two years. All the treated children showed considerable improvement. However, at the end of this survey a number of children were found to be anaemic who were not originally so classified, showing that a fall in haemoglobin level had occurred.

As the World Health standard used is a minimal, not an optimum, level for haemoglobin, the majority of children must be regarded as being "at risk" for the occurrence of anaemia.

From the results it appears that all Maori babies should be treated and that the time to prevent predictable iron deficiency anaemia is before six months. Accordingly it is considered that public health nurses should advise, explain, and supply oral iron for administration to Maori babies at the age of four months and that this should continue for four months.

Further surveys will need to be done so that the overall situation in the light of changing social patterns is known.

Appreciation is expressed to Dr Ian Prior for his assistance in planning the surveys and to the Medical Superintendent and staff of the Wellington Public Hospital for the help given in training the public health nurses.

(d) Occupational Health

Notification of Occupational Diseases

Official and unofficial notifications of occupational diseases received are shown in table 11 of the Appendix. It is gratifying to record that there have been no deaths.

Dermatoses—Over 60 per cent of all occupational disease cases notified were skin conditions; this incidence is similar to that experienced in other countries. The Department tries to reduce these figures by health

education of workers and, where necessary, recommendations for wearing protective clothing or isolation of processes, but the high turnover rate of labour in industry and the increasing use of chemical substances tend to make this task difficult. A considerable number of cases of dermatitis are still not notified. During the year one district approached local dermatologists with good result; they had previously reported their cases only to the insurance companies concerned. As a result no information had reached this Department until the Department of Labour forwarded a notice several weeks later, when investigation proved to be unrewarding. This is no doubt a common practice.

Adhesive, especially neoprene compounds used in shoe manufacture, car trimming, and cabinet making continue to appear among the major causes of dermatitis, as well as urea-formaldehyde and epoxy resin compounds. Chrome ulceration cases are relatively low and cases reported due to cement and solvents appear in the same proportions as in previous years. Some interesting cases occurred among the miscellaneous group reported. There were two small outbreaks of dermatitis due to fibre-glass manufacturing processes, thought to be attributable to sensitivity to formaldehyde in the resin rather than physical irritation of the fibre-glass itself. Oil acne resulted when a worker accidentally spilt oil over his overalls; and an unusual dermatitis affecting women packing birdseed was traced to acirine infestation. Other cases were: photosensitivity and dermatitis occurring in bitumen sprayers from the tar primer, and a glass-handling firm whose cutters were being affected on the arms and knees. This latter problem was attacked by a change of cutting oil, machine maintenance, and elimination of use of reclaimed cutting oil which was found to contain a high proportion of glass spicules.

Dusts, Fumes, Gases, Vapours, and Mists

Ozone—During the process to remove electro-static charges from polythene, film ozone was emitted and produced respiratory symptoms among workers. The firm concerned promptly installed local exhaust ventilation which solved the difficulty.

Toluene di-isocyanate—An elderly man engaged in coach building was admitted to hospital with acute pulmonary oedema after filling insulation panels in a refrigeration van with polyurethane foam mixture. Normally in large plastic-producing firms such a process is totally enclosed. Small firms using foam plastic should heed well the precautions and instructions in the pamphlet provided with these quick-mix materials.

Ammonia—An ammonia leak in a bacon factory with insufficient ventilation caused a number of female workers to suffer some inconvenience. Two were admitted to hospital and returned to work in two days.

Carbon Monoxide—A man engaged in a large factory employing a high-pressure gas system was poisoned by a high concentration of carbon monoxide arising from a gas leak. No gas tests had been conducted for at least eight years and, had the leak situation continued, a serious explosion or fire hazard would have developed. This case underlines the necessity for regular inspection and maintenance of high-pressure systems of all types.

Agricultural Chemicals—A number of cases where poisoning by organophosphorus substances was suspected occurred late in the year in

one health district. The use of insecticide sprays in horticulture and in orchards was investigated. Further action as regards health education for these workers was initiated in conjunction with the Department of Agriculture.

A notification of Endrin poisoning resulted in a visit to a plant nursery where the chemical had been used to coat seeds. The workers planting seeds were supplied with gloves and respirators only. In the case in point the mask had been removed because of condensation.

Lead—A worker in the motorcar industry was notified as suffering from lead poisoning arising during lead filling and buffing operations on car bodies. He was admitted to hospital and discharged eight days later.

Physical Agents

Eye Injuries—Both traumatic and non-traumatic injuries to the eyes of workers are occurring all too frequently. The majority of these cases could have been avoided had eye protection equipment been worn or employed. Fortunately no loss of eyesight has been recorded in industrial cases notified. In conjunction with the National Safety Association of N.Z. Inc., the Department is to intensify an eye-protection campaign in 1964. In addition the Department will continue to give active support and advice to private firms and Government workshops planning or operating eye-conservation programmes.

Infectious Agents (See also Communicable Disease Section, page 9.)

The number of cases of leptospirosis (122) and brucellosis (12) is almost the same as in the previous year. More intensive investigation of cases of leptospirosis was undertaken during the year and the data obtained is now being studied. Discussions with the Department of Agriculture in preventing infection in animals also continue as this seems to be the most logical means of preventing human cases.

Control of Health Hazards

Medical officers of health continue to work closely with the factory inspectorate on occupational health problems. More use has been made recently of inspectors of health in this field and this trend will be intensified in the coming year. Public health nurses have continued their valuable work in routine surveillance.

Electroplating—The number of routine examinations on workers engaged in plating workshops conducted by nurses are shown in table 12 of the Appendix. Forty-nine workers were found to be suffering from conditions arising from plating processes, and, of these, six were suspended from plating operations, one nickel-rash victim left this trade on his own accord, 20 were referred to their own doctor or skin specialist, and the balance of ulcers and rashes cleared under treatment and surveillance of nurses. One worker who had received a splash of sulphuric acid in the eye was referred and treated at hospital. At least one plating firm of low standard was the subject of a report to the Department of Labour, which has since taken appropriate action to rectify the unsatisfactory conditions.

Lead Processes—The number of examinations carried out by nurses on lead workers is shown also in table 12 of the Appendix, which shows, in addition, the number of firms and workers in each health district.

One case of lead poisoning was discovered during routine examinations in addition to the case already reported under notifications received. Four hundred and sixty-one workers were found to be absorbing lead. The large increase in this number over the previous year is due to an investigation in one district into lead used in motorcar assembly: many of these workers were found to be absorbing lead, but none so seriously as to require suspension. Six men in lead-process work in other districts were suspended, four were placed on other work within their respective firms, one left the trade altogether, 16 were referred to their own doctor, and the balance were followed up by periodic retests at frequent intervals and kept under surveillance by the district nurse.

Miscellaneous Hazards

As a result of union complaints, investigations were carried out in a number of fertiliser works where DDT and superphosphate were handled in the dry-mix process. It was found in most instances that this gave rise to dust concentrations above maximum allowable limits for DDT under peak-production conditions. A satisfactory conclusion was reached in one case by the management abandoning dry mix in favour of wet mixing and the workers concerned wearing masks. In another, the management will shortly undertake an extensive rebuilding programme, and, pending improvement in the ventilation system, a limit on output has been instituted.

Anticipating extensive use of parathion by orchardists, pamphlets published by this Department were distributed by suppliers to purchasers of this poison with apparently good results; no proven case of poisoning occurred.

A severe cotton dust nuisance was reported by the Department of Labour in a bedspread manufacturing firm. An efficient extraction system was installed and the management reports there has since been a remarkable reduction in staff turnover as a result.

In conjunction with the Department of Scientific and Industrial Research, an investigation was carried out on conditions causing fatigue in diesel locomotive cab units in use on the Main Trunk railway. Recommendations to improve working conditions in the cabs were made to New Zealand Railways.

An audiometric service conducted by public health nurses at Auckland and Wairakei has been in operation so that apprentices and persons found to be at risk are checked regularly for hearing loss and receive advice on hearing protection. In collaboration with the New Zealand Electricity Department, an occupational health clinic was set up at Wairakei, primarily to operate a hearing conservation programme. The work of this clinic is being closely watched as it may well be the basis for the establishment of further programmes.

There appears to be an increasing awareness of the hazard to hearing from high-noise intensities encountered in some trades and industries. However, the use of preventive measures varies greatly. Attention is now being paid to means of establishing other hearing conservation programmes on a national basis.

A man doing repair work with an oxy-acetylene torch in a confined space on an air conditioning unit had to cease after five minutes because of a severe and disabling bout of coughing with some chest tightness. Freon, the refrigerant used in the unit, had broken down under the

high temperature into the highly dangerous and toxic gas phosgene. Fortunately the worker recognised the fumes from his World War I experience and desisted from further work immediately.

Medical Examination of Young Workers

Medical examinations of juveniles are carried out by certifying factory doctors under section 37 of the Factories Act 1946. All new entrants to factories over the age of 15 and before their sixteenth birthday are examined for their fitness for the particular work on which they will be engaged. During 1963, 1,922 males and 1,471 females were examined, but no certificates of rejection were issued.

It has been the practice for some years for public health nurses to follow up remediable defects even though these may not affect the individual's suitability for employment. During 1963 a survey was carried out of physical defects noted by doctors on the examination forms and the results are shown in table 14.

It is, perhaps, surprising that 1,332 defects of various types were recorded and, although some young workers suffered from more than one defect, it is clear that over one-third of those examined had a defect of some kind. 7.8 per cent of all young workers had some defect of vision, but 4.7 per cent (or almost one in 20) had a remediable defect.

Defects of weight were defined as a variation of more than 20 per cent either way from a table of normal heights and weights for this age group for New Zealand children. 10.8 per cent showed a defect of weight, 6.7 per cent being overweight, and 4.1 per cent underweight.

Dental defects were present in 4.1 per cent of those examined and, since these were examined by doctors and not by dentists, these defects were probably severe.

Perhaps not surprisingly, in this age group 5.7 per cent showed some degree of acne. The majority of defects were in the remediable class and one outstanding case newly discovered was tuberculosis of the kidney.

In 1961 the Board of Health Committee on the Medical Examination of Young Workers* recommended that the scope of medical examinations should continue on a wider scale and include young mine workers and young workers engaged in works of engineering construction; and that all young workers below the age of 18 should be medically examined before entering industrial employment.

The high number of defects found in this survey emphasises the validity of the committee's recommendations.

Medical and Nursing and First-aid Services

Attendances for first-aid treatment at industrial health centres and waterfront clinics are shown in table 13 of the Appendix.

Notable advances during the year were the establishment of a mobile industrial health centre at Dunedin and the extension of services at Penrose, Auckland, to provide physiotherapy services. The mobile clinic is being run experimentally and its services will be reviewed after a full year's operation. The physiotherapy services at Penrose are housed in extensions to the existing building and will be operated by the Auckland Hospital Board.

*Board of Health Report No. 4: "Medical Examination of Young Workers in New Zealand."

During the year a comprehensive review of the future development of these centres was carried out. All areas zoned for industry and exceeding 70 acres have been assessed for their future potential and the need for establishing a clinic in the future. Where this need is clearly seen, steps are being taken to acquire land in the centre of the area, but the clinic itself will not be built until the industrial population has built up.

These clinics provide a useful service to industry, as well as exercising valuable preventive functions. Similar schemes operate on a few industrial estates in Great Britain, but it is pertinent to observe that these cost member firms between £2 and £2 8s. per man employed per year. There are a number of large firms in New Zealand that could well establish comprehensive industrial medical service with a part-time doctor, nurse, and clinic facilities at no greater expenditure when the assistance towards medical services, now available from the Social Security Fund*, is taken into consideration.

(e) Hearing Conservation

In August 1963 the Minister of Health announced that a National Audiology Centre would be set up, to be directed by an otologist and to include an audiologist and an engineer. These appointments have been made and the otologist has spent four weeks in Australia studying the organisation and methods of the Commonwealth acoustic laboratories. Suitable premises for the centre have been acquired, some equipment has already been obtained and preliminary work on the problems of occupational deafness has been initiated. The difficulties of coping with the calibration, maintenance, and repair of essential electro-acoustical equipment will be much simplified in the near future.

Training of personnel has continued as in previous years and this aspect of the work will be facilitated as the centre develops.

In Auckland arrangements made with the National Women's Hospital for the testing of babies whose hearing is "at risk" have continued, and this valuable procedure has extended to some other centres in New Zealand.

Routine hearing tests for school children are now being carried out in practically every part of the country, and arrangements are in hand to improve the coverage, especially in the younger age groups.

There has been a notable improvement in the availability of the services of ear specialists for Maori children in remote areas and the members of the Otolaryngological Society and hospital boards concerned have been enthusiastic and generous in their support and cooperation.

Much remains to be done, but a good start has been made in the prevention of deafness and the provision of improved services for those handicapped by deafness.

(f) Public Health Nursing

The Public Health Nursing Services have been well maintained in 1963, a year in which there has been few large scale campaigns. More time has as a result been available for other aspects of health care and considerable attention has been given to Maori health.

Special programmes have been undertaken in addition to routine public health nursing and participation in anaemia surveys, heaf testing

*Social Security (General Medical Services) Regulations 1950, Amendment No 2 (S.R. 1963/227).

of selected age groups, investigations relating to infective hepatitis, and chronic suppurating otitis media are examples of these.

The public health nursing establishment has remained unchanged, but staff changes have been considerable. The rapid turnover of public health nursing staff, together with some degree of staff shortages, has curtailed the work in some areas and made heavy demands for increased guidance and supervision from nurse inspectors. Public health nurses have, however, willingly carried out additional duties when neighbouring areas were vacant and essential services maintained in this way.

Child health programmes have been continued and have grown in momentum in newly established urban areas where there is a predominance of young children and in areas where large numbers of Maori and island people have moved to towns and cities. This migration brings problems associated with adjustment in its many phases and the public health nurses role in the medical social field is of increasing importance.

The growing demand for this type of assistance comes not only from Maori and island people, but from all sections of the community, and the experienced nurse has, in addition, many referrals from other departments and welfare organisations. The apartment-type housing where rooms are used by families, have, in some instances, added to the problem.

Social visits to the aged and infirm have increased and more and more elderly people are requiring help and some degree of supervision in their own homes.

Immunisation against poliomyelitis has developed into a routine and all infants are offered protection. Regular clinics are established in both city and rural areas.

In line with policy, more and more of the diphtheria immunisation (triple vaccine) is being given by medical practitioners and only in special circumstances is this being undertaken by the public health nurses. A recent survey of one area revealed that a high percentage (70 per cent) of Maori and island babies had not been immunised for varying reasons. In such circumstances the public health nurses still carry out this programme during routine home visiting.

Student education programmes have been formulated to meet the needs of individuals, and groups, at both undergraduate and post-graduate levels. This has involved teaching in schools of nursing and other institutions as well as planning supervised field experience in special aspects of public health nursing. Every effort has been made to coordinate practical experience with the theoretical programme and to provide guidance in the students approach to families and their problems. The number of students requiring field experience is considerable and the public health nursing team accept responsibility for interpreting to them, public health nursing as an integral part of the overall health programme.

Staff education programmes have been a means of acquiring up-to-date knowledge. These programmes include post-basic and post-graduate courses as well as short courses designed to meet a specific need. In addition a two-day conference for nurse inspectors was held.

In-service education programmes arranged at district and regional levels have proved a valuable means of keeping staff members up to date with newer policies and newer thinking. Public health nursing conferences, regular staff meetings, clinics, and lectures have been held. Plunket conferences and study days, arranged by hospital staffs, have

been attended and this liaison with other workers in the field was greatly appreciated.

In order to assist public health nurses working in industry to keep apace with modern techniques, arrangements are under way for those employed in industrial health clinics to spend a short period of time in casualty departments of their base hospital during the coming year.

In collaboration with other members of the health team, the public health nurses have been active in the field of health education. Sessions in schools and for parent and other groups have been undertaken and, in some areas, displays and special campaigns have met with considerable interest and enthusiasm.

Cooperation with other public health and medical social services has been good and the regional meetings arranged in some areas have proved valuable in coordinating the work of the area, resulting in greater understanding of the total services provided for the area.

3. FOOD, DRUGS, AND POISONS ADMINISTRATION

Milk

The quality of milk sold in New Zealand is generally high. Christchurch, however, continues to show a low figure for solids-non-fat.

Antibiotics in Milk

Results of sampling during 1963 for the detection of traces of antibiotics in milk have shown that the general reduction in non-complying samples effected in 1962 has continued in a satisfactory manner.

Figures based on sampling carried out at the milk treatment stations – as reported by the New Zealand Milk Board for the 12 months period ended 31 August 1963 – show that, out of 88,168 samples tested, only 494 (0.56 per cent) were unsatisfactory because of the presence of antibiotics, compared with 70,089 samples tested, 564 samples unsatisfactory (0.80 per cent) in the previous 12 months.

While the above figures confirmed by departmental check sampling show a low proportion of significantly affected milk, it is evident that the supervision carried out to check antibiotics in milk will need to be continued.

Food Complaints and Seizures

Eight hundred and eighty-one complaints of unsound or unfit food were investigated during the year by the Department and 32 prosecutions arose out of these cases.

Examples were a 1 in. nail in a doughnut, a staple in an apricot pie, a key in a can of baked beans, wire in canned soup, a bee in a carton of icecream, and flour containing a rat's nest and a dead young rat, as well as, unhappily, the usual proportion of flies, rodent droppings, and cigarette butts.

Extraneous Bodies in Foods

As indicated above a large number of food complaints arise from the discovery of extraneous bodies in food. Legislation which prohibits the sale of food that is unsound or unfit for human consumption also makes it an offence to sell food containing an extraneous thing which is harmful or dangerous, or which is offensive. It has been necessary, on occasions,

to draw attention to the fact that a foreign substance on the surface of food rather than in it may still render the food unfit for human consumption. The surface of a food which has been in contact with rodent droppings is no more palatable than food that has rodent droppings embedded in the interior.

There were 80 complaints of foreign bodies in bread in the Auckland metropolitan area, and all other areas in New Zealand were proportionately high.

Food processors must maintain a careful watch to ensure that no extraneous substance renders their product unfit for human consumption. Much has been written overseas on carelessness in food industries, but manufacturers have to adopt all reasonable precautions against foreign material, or give way to those who will. Consumers at large, quite apart from health authorities, are demanding penalties against the careless food processor.

Meat Products

There were 36 prosecutions initiated against retail butchers in 1963 for exceeding the limits for preservatives in meat products set by the Food and Drug Regulations 1946, and, except for three in Christchurch, all were in the North Island. This 20 per cent increase over last year's figures again emphasises the continuing disregard by some butchers for the statutory regulations.

Poisons

There has, during the past year, been increasing cooperation with the Department of Agriculture, particularly in relation to agricultural chemicals, which is expected to be to the benefit of both Departments in particular as far as it ensures better compliance with the provisions of the Poisons Act and provides advance information on the characteristics of materials which may become potential residues in foods.

From information which comes to hand it is apparent that there are still too many persons and firms importing, manufacturing, and packing toxic substances who are not aware of their obligations under the Poisons Act. New materials are marketed without information on toxicity being first deposited with the Registrar of Poisons. Even when it is deposited, importers and proprietors are too often unaware of the hazards involved in the materials which they handle. A similar pattern is evident in the notifications of new drugs (419 from 5 December 1962 to 31 March 1964) which are being received under the Food and Drugs Act.

Dangerous Drugs

During 1963 New Zealand was again able to meet all commitments and obligations under the various international treaties governing the control of narcotic drugs. During the year New Zealand ratified the 1961 Single Convention.

During 1963 there was a record number of 78 (detected) narcotic offences, involving 53 people. Offences involving the use of opium were committed by 35 Chinese (mostly in the Auckland area) and by one European. A much more disquieting feature was the 36 charges involving marijuana. In addition to these there was one theft of drugs by burglary and a further case in which drugs were obtained on a forged medical prescription; this latter offence was the only one committed by a woman.

There is increased evidence of the use and even growing of marijuana in New Zealand. Nine principal cases were recorded during 1963, all of which traced back in some way or another to the Auckland metropolitan area. The Department is appreciative that the Police have tracked the offenders they have detected to their sources, and prosecutions have been against "peddlers" or "growers" of the drug.

If New Zealand's record, so far as narcotics are concerned, is to be maintained the trend towards usage of marijuana must be stamped out. It is hoped that the large seizure of opium which H.M. Customs made at Whangarei in May 1963 was not an indication that an international traffic through New Zealand is already in operation.

Nutrition

Two dietary surveys were carried out during the year. The first was made in Rotorua in November 1963 as part of a general health survey of a group of urban Maoris by the Wellington Hospital Medical Unit. The group studied consisted of 143 men and 152 women. A weekly food-consumption survey of a small number of households was also made as a preliminary to a more comprehensive household survey to be made later in the year.

In March 1964, a study of household food consumption was carried out in Tikitiki as a follow-up of the survey of individual diets made in January 1963. Data was also collected on genealogy of persons who had been found in the 1963 Medical Unit survey to be suffering from gout and diabetes.

There has been an increase in the demand for the quarterly publication *Nutrition Newsletter*, which is available to nurses, teachers, and others concerned with the teaching of nutrition. The *Newsletter* was first published in 1956 when 200 copies were printed. The circulation figure is now 3,300.

4. 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 431,941 pre-school and primary school children. A further 185,847 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.

Staff

On 31 March 1964 the professional and technical staff of the Division, excluding those seconded to other services and foreign students studying in this country, numbered 1,534, comprising 45 dental officers, four matrons, 48 dental nurse inspectors and tutor sisters, 984 school dental nurses (84 part-time), 445 student dental nurses, and eight dental attendants.

The number of school dental nurses engaged in field work has increased from 965 to 978. A further 198 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	7	(17)
Number of dental attendants	6	(14)
Number of treatment centres (including sub-bases)	13	(20)
Number of schools under treatment	14	(29)
Number of children under regular treatment	3,210	(6,226)
Operative dental treatment—		
Total number of fillings	13,810	(39,013)
Total number of teeth extracted	1,611	(2,427)
Total number of operations	21,927	(61,359)

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.

The number of bursar graduates available for appointment to departmental dental clinics has fallen still further. In localities where alternative services were available seven adolescent clinics were closed.

(b) *Treatment by Private Dental Practitioners*

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

Number of children who enrolled for general dental benefits as at 31 March 1964	185,847	(189,529)
Number of children who ceased to be enrolled for general dental benefits on attaining 16 years of age	38,269	(38,008)
Total amount paid private dental practitioners for treatment rendered under general dental benefits	£1,167,677	(£1,125,839)
Number of completed treatments in respect of which the above sum was paid	295,612	(292,569)
Average cost per completed treatment for general dental benefits	£3 19s.	(£3 16s. 7d.)

School Dental Service

As shown by the statistics relating to the work of the School Dental Nurse Service, in the year under review there has been an increase in the number of treatment centres and in the number of patients enrolled at school dental clinics. The number of school dental nurses has not increased appreciably and is not expected to do so until at least 1965.

	1964	1963
Number of school dental nurses	984	(965)
Number of treatment centres (including sub-bases)	1,075	(1,045)
Number of schools	2,505	(2,511)
Number of children	431,941	(419,597)
Operative dental treatment—		
Total number of fillings	2,298,449	(2,135,903)
Number of carious permanent teeth extracted	707	(737)
Number of carious deciduous teeth extracted	78,010	(71,756)
Total number of carious teeth extracted	78,717	(72,493)
Total number of operations	3,517,097	(3,259,028)

The total number of fillings amounting to 2,298,449 is to be contrasted with 78,717 teeth removed as unsavable. This latter figure, together with

5,805 teeth extracted for School Dental Service patients by contracting dentists under dental benefits, represents a ratio of 3.6 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
1964	2,298,449	84,522	3.6

Treatment for 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 15 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
1964	78,627	51

Schools for Dental Nurses

The number of student dental nurses in training at 31 March 1964 (including overseas students) was 463, compared with 411 12 months ago. During the year 177 New Zealand students graduated and 244 (including seven overseas) new trainees were appointed. This is the highest intake to date and has entailed further expansion of the training facilities at the Christchurch School to cope with a total increase of 60 to the student roll. Two additional training clinics have been established in the precincts of two large suburban schools in Christchurch. Decentralisation is a new approach to conserve the time of both children and student dental nurses.

Dental Health Education

Teaching the principles of dental health continues to be a major activity. Chairside instruction is given as a routine to all children and many displays and exhibits with a dental health motive were prepared and presented by school dental nurses. In all 11,657 lectures and addresses to parents and children were given and 287 health exhibitions and health stalls at schools and public functions were arranged.

Valuable cooperation continues to be received from the Apple and

Pear Board in the preparation of teaching material and, more recently, the Milk Board has extended similar assistance.

During the course of the year the dental health education tutorial staff was increased from three to four tutor sisters.

Colombo Plan and WHO

The New Zealand dental care programme is still attracting attention from overseas. During the year observers came from the United Kingdom, Switzerland, Ceylon, Singapore, and Sarawak under the aegis of either the Colombo Plan or WHO. The Canadian Government also sent an observer.

Twenty-six overseas persons have been attached for training, nine from Ghana sponsored by SCAAP, two from Malaya (for advanced training), seven from Sabah, and eight from Sarawak. Five members of the New Zealand school dental nurse staff are at present serving overseas. One dental nurse inspector is in Ceylon, two dental tutor sisters are in Singapore, and one tutor sister and one senior school dental nurse are at Port Moresby in New Guinea.

During the course of the year the Director of the Division of Dental Health, at the request of the Department of External Affairs, undertook a study of the dental services which are being developed with New Zealand assistance in the Colombo Plan area. He visited Ceylon, Malaya, Singapore, Sabah, Brunei, Sarawak, and Thailand. He reported on the progress to date and advised on the future form of dental aid under the Colombo Plan.

Dental Bursaries

Ten bursaries were awarded - the same figure as last year.

Dentists' Register

The number of registered dentists (provisional registration included) for the period under review increased from 1,123 to 1,132 whilst the number of dentists actively engaged in practice, and for whom practising certificates were issued, totalled 825.

Dental Research

The Principal Dental Officer (Research) is engaged on the national survey (previously reported) of persons in the 16-21 year age group. Results are expected to be available later this year. This officer recently tendered his resignation in order to take up an appointment as senior lecturer at the University of Otago Dental School.

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

The Dental Health Committee of the Board of Health is currently considering matters relating to the provision of dental services in public hospitals.

Dental Legislation

A Dental Bill revising and amending the Dentists' Act 1936 was passed by the House of Representatives during the past session. The new Act, now known as the Dental Act 1963, came into force on 1 January 1964.

5. MEDICAL STATISTICS

Publications

If statistical reports are to have full value they must be issued on a timely schedule while the longer the time-lag between the close of a year and the publication of the report the more unnecessary work is entailed supplying unpublished data. For these reasons the immediate aim of the branch is to catch up on the issue of annual or cyclical reports.

The changeover to a cheaper photo-reproduction method of printing the Annual Report on Medical Statistics resulted in the publication being delayed until late last year, but it is certain that the 1962 report, Part 1, will be issued this year while the 1963 volume is already being assembled. A new departure in respect of the 1961 report was the division into two parts, Part 1 covering mortality data always to be issued earlier than Part 2, which contains routine hospital and cancer registration tables. The objective in this is, firstly, to speed up the publication of the important statistics relating to causes of death so that they become available in the year following the year to which the figures refer and, secondly, to extend the scope of the morbidity report by the inclusion of more tables demonstrating trends in hospitalised disease and the prevalence of sickness in different areas. An entirely new feature is a section devoted to an examination of new cancer cases registered.

The output of publications in the special report series lagged during the year, but reports soon to be published are: No. 16, Smoking Habits of New Zealand Doctors; No. 17, Infant and Foetal Loss in New Zealand; No. 18, Trends in Notifiable Disease; No. 19, Maori School Child E.N.T. Survey. Further reports in course of preparation cover Maori patients in general hospitals, the 1961 census of hospital patients and the epidemiology of cancer of the lung.

In 1955 a comprehensive report entitled Cancer Morbidity and Mortality in New Zealand was issued with the intention that this should be the first in a five-yearly cycle. A second report is now in preparation covering cases reported in the 15 years since the establishment of a National Cancer Registry in 1948.

An expanded Annual Report on Mental Health Statistics, 1961, was published last year while the 1962 edition is soon to be sent for printing.

Statistical Assistance

While priority is given to the statistical requirements of the Directors of Divisions and of medical officers of health, the branch also fulfils another important function in supplying a number of societies, hospital authorities, physicians, and the public in general, both in New Zealand and overseas, with information which it has available on health matters. The following is an analysis under broad headings of the 195 inquiries received during the year by letter, telephone, or personal call for statistical information of one type or another. The volume of work involved in answering requests is considerable and is increasing steadily. Some pro-

jects occupy days of machine and clerical time. One single inquiry will often involve tapping more than the one source of data – a very common association being death and hospital material. This total excludes the routine supply of data to WHO, the United Nations, and internationally recognised statistical collection centres.

Subject-matter of Requests							No. of Topics
Hospitals—							
General	..	..	..	..	..	..	82
Mental	..	..	..	..	..	..	20
Deaths	..	..	..	..	..	..	80
Cancer cases registered	..	..	..	..	..	..	14
Survey material	..	..	..	..	..	..	10
Foetal deaths	..	..	..	..	..	..	10
Births	..	..	..	..	..	..	6
Miscellaneous	..	..	..	..	..	..	22
							244
Total topics	..	..	..	..	..	..	244

Consultant advice and machine assistance was provided for a number of specialists working on disease studies. In addition a number of lectures on health statistics were given to groups requesting them.

Training of Hospital Medical Record Officers

Medical records in hospitals are a valuable source of information in the fields of hospital administration, medical research, and epidemiology. It is in the Department's interests to encourage a high standard of record keeping and, as a first step towards training workers to increase their knowledge and efficiency to a higher level, a meeting of senior medical officers, sponsored by the Department, was held in November. The results of this meeting have been arrangements for the compilation of a textbook on medical record keeping in New Zealand which may be adopted for study for a diploma course and the beginning of a series of one-week basic training courses, the first of which was held at Tiromoana in February.

Statistical Survey

A significant feature of 1963 was the fall in births in both absolute numbers and rates for the second year in succession. The total of 64,675 births registered in 1963 (rate 25.4 per 1,000 of population) compares with 65,127 in 1962 (rate 26.2). The decline in 1963 was in the European population where the 56,548 births were down by 912 over 1962, while the rate of 23.9 was the lowest recorded in this country since World War II. A number of other countries with largely white populations, including Australia, Canada, and the United States, are also experiencing a fall in birthrates and in the absence of any marked economic factor to explain the fall there is speculation that the more general adoption of the new contraceptive method may be responsible. The Maori birth total of 8,127 in 1963 was an increase of 463 over 1962 while the rate of 44.8 per thousand of population was in accordance with the very high level of fertility in the Maori race over a long period of years.

A new low still-birth record for the seventh year in succession was established in 1963 with a total of 824 still births (843 in 1962), representing a rate of 12.6 per 1,000 total births (12.8 in 1962).

The 1963 New Zealand total population infant death rate of 19·6 was the first ever to fall below the level of 20 per thousand live born. The drop in the European rate to 17·8 is a two-point per thousand reduction in three years, while the Maori rate of 32·6 is six points below the previous low record of 38·8 established in 1962. While almost all of the saving of European infant life over the last three years has been in the neonatal (under one month) group, the Maori rates have dropped substantially at both neonatal and post-neonatal ages (deaths between one month and one year). The extent of this decline is shown in table 3 in the Appendix where Maori neonatal rates are shown to have fallen from a level of 20 per thousand liveborn in 1961 to a level of 15 per thousand in 1962 and 1963; at post neonatal ages the Maori rate of improvement was even steeper, from 30 per thousand liveborn in 1961 to 24 in 1962 to 18 in 1963. The still-birth rate of 12·6 per thousand total births for the total population was a new low record as was also the European figure of 12·2 per thousand.

Deaths numbered 22,416 in 1963, of which 21,218 were of Europeans and 1,198 of Maoris. The combined total was an increase of 335 over the 1962 figure, although the crude death rate of 8·8 in 1963 was actually very slightly smaller than that of 8·9 per 1,000 population recorded in 1962. The figure of 1,198 Maori deaths in 1963 was the lowest for a long period of years, reflecting the recent marked improvement in the health of the Maori and the narrowing of the gap between the Maori and the European in the traditional mortality rates. Because the Maori population is such a very young one in comparison with the European, with a relatively small percentage at older ages where the death toll is highest, it is not valid to compare the crude death rates of the two races. An adjusted Maori death rate, which would provide a true comparison with the European rate of 8·8 deaths per thousand of population, would be approximately twice the recorded crude Maori death rate of 6·6 in 1963.

Principal Causes of Death

Certain causes of death and the crude rates per 100,000 of population for both the European and the Maori population combined over the last five years are set out in table 4 of the Appendix. The causes have been grouped into those mainly responsible for mortality in New Zealand over recent years. All 1963 figures are provisional and are subject to minor alteration. The figures for the two races are always combined in this table because, for reasons stated earlier, crude Maori death rates can be so very misleading when set alongside those of the European. In diseases where race characteristics are important, separate figures can be obtained later from the detailed statistics contained in the *Annual Report on Medical Statistics*.

Because increasing numbers in our New Zealand population are living through into old age, a rise in the totals of diseases associated with the aging process is to be expected. There is clear evidence of this in that the groups heart diseases and hypertension, malignant diseases and vascular diseases of the nervous system together accounted for 64 per cent of all deaths registered in 1963. Bronchitis was another disease to record a high rate in 1963, while the rate for pneumonia

which dropped so dramatically with the introduction of chemotherapy, has shown a tendency to rise again in recent years, mostly as a terminal cause of death in old age.

There are three diseases in particular included among the three groups of conditions referred to above as having the highest totals in 1963, which contribute heavily to deaths among middle-aged men. These are coronary heart disease, lung cancer, and chronic bronchitis. All three of these conditions have been proven to have a major cause in cigarette smoking, with overeating and lack of exercise, which lead to excess weight, also known to be factors underlying the development of these diseases in middle age. The death toll from coronary and arteriosclerotic heart disease rose from 5,082 deaths in 1962 (3,224 male and 1,858 female) to the formidable total of 5,497 in 1963 (3,503 male and 1,994 female). This means that close to one death in every four in 1963 was due to coronary heart disease. Lung cancer contributed 535 deaths to the total in 1963, an increase on the 1962 figure of 34 deaths; 461 of the lung cancer deaths in 1963 were of men and 74 of women.

Chronic bronchitis accounts for by far the greater part of all bronchitis deaths and this disease also shows a heavy male preponderance of four male to every one female death; like lung cancer chronic bronchitis is diagnosed much more frequently in cigarette smokers.

The decline in tuberculosis mortality is phenomenal, the 93 deaths in 1963 being 22, or 16 per cent less than in 1962. Despite a severe winter the year was a normal one in respect of influenza. The trend in the residual group of infective and parasitic diseases is consistently downward, the highest number of deaths in this group being 11 for infective hepatitis compared with 15 in 1962. In incidence as well as mortality this disease is very much on the decline. There is, however, a disproportionate loss of life from epidemic diseases among Maori children.

The death rate for accidental causes was the lowest in five years and, while the figure of 407 deaths from motor-vehicle accidents is only 13 less than in 1962, there have been more motorcars on the road and considerably more miles driven and the risk of death from a motor accident should be considered in relation to this rather than to the size of the population.

PART II—BUREAU OF MEDICAL SERVICES

1. HOSPITALS

Introduction

In recent years there has been a very great press of activity, re-planning, and development in all medical services for which hospital boards are responsible. This replanning of medical services has been undertaken against a background of very sharp population rises in most urban areas whilst at the same time in rural areas the population has either remained static or shown decline. It follows, therefore, that, whereas the numbers in the area of some larger hospital boards have virtually doubled in the past 25 years or so, the population of hospital boards in predominantly rural areas has not grown to the same extent, thus accentuating the relative differences. With few exceptions the decline in rural populations is not associated with any corresponding decline in rural economic prosperity and one reflection of this is the remarkable improvement in means of rapid communication within and between the topographically naturally defined regions of the country.

The pattern of distribution of hospital services is changing rapidly and the type of service that individual rural hospitals earlier sought to supply, which may have been entirely appropriate before the advent of rapid and comfortable transport between adjacent regions, is apt to be inadequate to the circumstances of today. This is especially so when one bears in mind the dependency of present-day hospital clinicians on a score or more of differentially qualified technologists, and professional ancillaries, servicing laboratories, and other diagnostic and therapeutic resources.

Almost every hospital board is currently faced, also, with problems arising from the obsolescence or inadequacy of many of their catering services, laundries, workshops, and other services which, particularly in many of the older hospitals, are apt to be most awkwardly sited in relation to any further hospital development. Pre-occupation with the pressing and immediate domestic problems facing the administration of individual hospitals has no doubt distracted from other and equally important problems in the field of coordination of effort and pooling of resources in order to provide a more efficient range of service for the region as a whole. The development of such patterns of cooperation, involving as they may the acceptance of some limitation of "sovereign status", has too often aroused strong feelings of local patriotism which, once aroused, are apt to obscure vision for the wider issues.

The course of events in the development of hospital services for the Northland region may well serve to illustrate the problem. It was in the Bay of Islands in 1840 that the first public meeting was called to consider the establishment of a New Zealand hospital. The meeting, under the chairmanship of Governor Hobson, broke up after two hours, having failed to agree on the choice of location of the proposed hospital as between two sites only 2 miles apart. In the following year a hospital was established in Auckland, 140 miles away. In 1885 a new Hospitals Act authorised a hospital district covering

the then three northern counties, and in the following year this district was expanded to include the whole area north of Rodney County. The area thus defined corresponds exactly with the present boundaries of the Northland Hospital Board.

Between 1885 and 1926, in response to local representations, no fewer than six hospital boards were established in the region. Unquestionably at the beginning of the period there was justification for the setting up of widely dispersed small hospital units; for difficulties of communication were very real. By the time these difficulties in communication were overcome, however, the situation of providing six separate effective hospital units (and their accompanying administration) for the dispersed population was demonstrably expensive, inefficient, and anomalous, and the position was resolved by these six amalgamating in 1950. The merging of these six hospital boards to form a single Northland Hospital Board with an effective base hospital at Whangarei, and the proceeding development of a secondary base hospital at Kaitia, giving effective coverage of most specialist services to the whole area, has remained for too long as the sole example of what can be achieved by a proper pooling of medical resources.

The application of many of the recent newly found developments in therapeutic resources, and the increasing safety of what were at one time regarded as somewhat hazardous measures of treatment, has led to a reappraisal of the time factor in inpatient treatment. The possibilities of earlier discharge have been best realised by those hospitals which have been ready to appreciate the importance of the potential and the role of various forms of domiciliary aid and domiciliary nursing services. As might be expected, some of the best results of the initial application of these principles is to be found in one or two of the larger urban centres. It is, however, pleasing to record that very good results are being attained by certain smaller hospitals, particularly those in which there is a substantial part of the regional population within a 10 mile or so radius of the hospital. In terms of concentration of population some areas, which are often regarded as being areas of dispersed population, would seem to be very suitable for the development of a domiciliary service. In certain of these centres, no doubt, one of the factors which has delayed enthusiasm for domiciliary services is to be found in the low bed-occupancy rates of the principal hospitals in the area. Where the bed occupancy of such a hospital is, as is not infrequently the case, of the order of 60 per cent or so, then there would likely be less incentive on the part of the medical practitioners concerned to give thought to other than a token domiciliary service.

Previous reports have endeavoured to focus attention upon the importance of rehabilitation programmes, actively pursued, not only to the welfare of patients, but also to the economics of patient care and to the economy generally. This very essential element is being recognised and furthered in an increasing number of hospitals, though still with varying degrees of enthusiasm, and it is to be hoped that it may soon attain much wider and more active application. Further reference upon this point is made below in the section of Physical Medicine.

Elsewhere in the report of the Bureau of Medical Services will be found some comments of the Hospitals Division's architect. The architect draws attention to the importance of the desire and intention of his staff to devote more time and resources to further research into

translating into acceptable architectural form, the changing functional requirements of outpatient departments, wards, clinical services, laboratories, theatres, and other components of present-day hospitals. A greater proportion of time of an architect will also be devoted to application of some of the findings of the Operational Research Unit, whose publications have already aroused a welcome and interested attention in hospital circles.

Hospitals Advisory Council

The Council met twice during the year. Matters which were the subject of recommendation to the Minister included (a) a proposal by the Local Government Commission, for a Regional Authority in the Bay of Plenty, (b) the closing of various small hospitals, (c) a policy concerning insurance cover held by hospital boards, (d) study leave for hospital board employees, and (e) cardiac surgery.

The Council received and endorsed the report of the Special Committee on Cardiac Surgery in New Zealand which had been set up in 1962, and received the report of the Public Expenditure Committee of the House of Representatives.

Private Hospitals

The following tables give details, as at 31 December 1963, of the numbers of licensed private hospitals and the types of beds licensed. The comparable position as at 31 December 1962 is shown by the figures in parentheses.

Types of Hospital	Number of Hospitals	Number of Licensed Beds
Maternity	25 (27)	236 (240)
Medical and surgical	44 (46)	951 (987)
Medical	66 (63)	1,064 (991)
Medical and children	6 (6)	286 (249)
Maternity, medical, and surgical ..	5 (7)	462 (457)
Psychiatric	2 (2)	31 (31)
Totals	148 (151)	3,030 (2,955)

Some hospitals are mixed, so that the above table does not indicate in all cases the numbers of licensed beds of various classes. Actual figures for beds were:

Maternity	346 (331)
Medical and surgical	1,303 (1,353)
Medical	1,124 (1,041)
Children's	226 (199)
Psychiatric	31 (31)
	<hr/>
	3,030 (2,955)

While several small hospitals have closed, some of the larger hospitals in main centres have expanded, with resultant increase in the total number of private hospital beds.

Institutional Beds, Patients, and Services

Public and Departmental Institutions

In the supplement to the annual report of hospital statistics as at 31 March 1963, 218 hospital board and departmental institutions were

listed, consisting of 73 general hospitals, 95 maternity hospitals, 24 special hospitals, 22 old people's homes, and four Government institutions.

The number of beds at 31 March 1963, of all descriptions, available for patients or inmates in all public institutions and private licensed 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	12,643	9,828.3	2,651	15,294
Per 1,000 of population	5.0	3.9	1.1	6.1
Maternity	2,711	1,730.9	344	3,055
Per 1,000 of population	1.1	0.6	0.1	1.2
Total hospital beds	15,354	11,559.2	2,995	18,349
Per 1,000 of population	6.1	4.5	1.2	7.3
Non-hospital beds	1,156	968.4		1,156

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 1963 was 272,592, including 2,043 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 10.9 per cent of the population of this country. The number of attendances by outpatients was 2,397,056, including 76,951 attendances for dental outpatients.

The statistics now obtained from hospital boards enable figures for general 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

1963	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	10,884	8,384	195,745	23.3		2,264,330
In other institutions	1,759	1,444	10,273	7.1		132,726
Maternity beds—						
In institutions classed as general hospitals	1,377	874	32,260		29,054	
In separate maternity hospitals	1,334	857	32,271		27,568	
Grand totals—						
1963	15,354	11,559	270,549		56,622	2,397,056
1962	15,297	11,511	263,067		56,885	2,224,601
1952	14,266	11,044	200,328*		not available	1,413,973

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

The 1,759 beds in "other institutions" referred to as having these general hospital beds comprised 551 beds in hospitals which are also old people's homes, 1,056 in special hospitals of several types, and 152 general beds in maternity hospitals.

In the section relating to maternity beds, all births are shown as relating to these beds, but some small proportion of births, for example, those occurring from caesarian 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 discharge of the mother.

Special Departments and Special 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		
	1957 (000)	1962 (000)	1963 (000)
X-ray diagnostic: Number of examinations	623	660	702
X-ray therapy: Number of treatments	76	97	95
Physiotherapy: Number of treatments	900	1,436	1,389
Pathology—			
Number of tests	975	2,059	2,286
	No.	No.	No.
Number of post-mortems	3,718	4,335	4,260

Staff in Public Hospitals

The total of employees of all hospital boards at 31 March 1963 was 1,354 more than the previous year.

Institutional staffs, i.e., excluding administration, district nursing, farm, and miscellaneous staff, employed at 31 March 1963 totalled 24,608 for the total of 16,242 beds in hospitals and old people's homes. Of these beds 12,314 were occupied daily and the staff engaged averaged 2.0 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 1963 and the actual payments of remuneration for the year ended on that date, with the corresponding figures in parentheses for the previous year, are as shown below:

	Numbers Employed at 31 March 1963	Salaries and Wages	
		Payments for 1962-63	
		£(000)	£(000)
Institutional medical (whole time and part time)	1,516* (1,421)	1,640	(1,503)
Other professional and technical	1,854 (1,760)	1,389	(1,243)
Nursing	11,580 (10,845)	5,469	(4,701)
Other treatment staff	406 (394)	355	(321)
Domestic and other institutional staff	9,252 (8,971)	6,403	(5,973)
Administrative staff	544 (523)	544	(492)
District nursing	235 (267)†	193	(170)
Farm (including vegetable gardening)	32 (36)	28	(29)
Other non-institutional	363 (211)	129	(140)
Total	25,782 (24,428)	16,150	(14,572)

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

† This number includes 49 home aids and seven social workers.

Medical Staff

The following table shows the number of medical officers employed by hospital boards at 31 March 1964.

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
Medical administrators	51	19	9
Physicians—			
General	23	109	40
Tuberculosis	15	8	4
Others	14	65	24
Surgeons—			
General	22	94	35
Others	18	145	53
Pathologists	30	8	4
Radiologists and radiotherapists	40	35	12
Anaesthetists	31	135	35
Other medical staff	7	50	13
Registrars	144	..	..
House surgeons and senior house officers	196	..	..
	591	668	229

Overseas Post-graduate Study Leave

Leave on pay and assistance with fares for overseas study in 1964 was granted to nine whole-time and fifteen part-time senior medical officers.

Overseas study grants were also made to 24 junior medical officers who had completed four years' continuous service in public hospitals.

Junior Medical Staffing

The approved establishment for 1964 was for 197 house surgeons and 18 supernumerary positions, the latter to be filled by appointment from outside the house surgeon pool or from overseas. The numbers employed at 31 March 1964 were 181 house surgeons and 15 supernumeraries.

Actual appointments made in 1963 for service this year included a number who subsequently failed completely or partially in the final examinations. These are not included in the 181 mentioned above, but in some cases they have been permitted to remain in the hospital service pending the sitting of special examinations in May this year.

Although the position is still far from ideal there has been appreciable improvement in the staff position from the previous year, and the immediate future prospect remains fair.

Hospital Works and Development

Hospital Works

Table 17 of the Appendix indicates the large volume of hospital buildings of patient accommodation and ancillary services being undertaken in the continued development, expansion, and up-grading of hospital services.

This table is based upon the returns submitted annually by hospital boards and coordinated thereafter by the Department and the Ministry of Works upon a national basis. Last year's expenditure was estimated at £6.59 million in original returns and provision was made for a sum of £5.48 million. Final figures for actual expenditure are not yet all to hand, but the indications are that the amount paid out for 1963-64 will be slightly below this latter figure.

This pattern of estimated versus actual outgoings on hospital works has obtained for some years past; the deciding factors being the capacity of available contracting firms with due regard to the overall pressure of construction work in any particular district.

A forecast of expenditure is available also in forward estimates made by hospital boards of their spending for 1964-65 and subsequent years. The tables estimated in current returns for all boards are £7.1 million for 1964-65, £8.6 million for 1965-66, and £8.6 million for 1966-67 and while these figures are unlikely to be reached, they do indicate the continuing demand that must be faced, in order to maintain and to up-grade our hospital facilities. In addition to the need for new buildings to keep pace with the needs of an increasing population, it must be recognised that there is a considerable task in the replacement of obsolete and substandard units, and that work in this field must continue for some years yet.

Details of building projects that have been completed in the past year appear in table 18 of the Appendix and of work in progress or about to commence.

Hospital Works Committee

This joint committee of Health Department, Treasury, and Ministry of Works held 18 meetings during the year. Proposals made to the Department by hospital boards upon building projects are considered by this committee at all stages from initial approval in principle, through design, and to the calling and acceptance of tenders.

Projects considered by the committee this year each of a value exceeding £10,000, were:

Building projects	135
Development schemes	11
Land transactions	5
Loan proposals	21
Loan applications for private hospitals	6
Old people's homes and pensioners' flats	25
Miscellaneous	28

In addition, and as a new departure in hospital building policy, the committee has this year undertaken the examination of building and engineering projects for the Mental Health Division of the Department, and has made recommendation to the Minister upon 13 such proposals.

Architectural Services

The size of the present building programme is reflected in the very large volume of work being handled by this section. Not only is there an increase in the capital value over last year, but included in the

programme are some of the largest hospital proposals yet to be considered. In addition to public hospital buildings, the work covers, also, old people's homes, private hospitals, and departmental hospitals as well as the making of inspections and consulting in relation to hospital development planning.

Changes in medical and nursing technique result in constantly changing planning requirements. In this respect it is essential that more time be available for research into the design of units suitable for use in this country, so that a fuller consultative service can be provided to the various hospital boards and their architects. This very important aspect of the Departments work has so far been prevented from being properly developed due to lack of staff, but its value cannot be stressed too much.

A start has recently been made on preparing more detailed analyses of plans in relation to cost in order to check more accurately that proposals submitted are not excessive in overall planning or in actual expenditure.

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. A contract has been let for the new 63-bed hospital on that site and work is in progress. Until the new hospital is commissioned, the duty nurses are being transported to and from the old hospital in Pitt Street.

Wellington—The new 60-bed hospital block, adjacent to the present hospital in Coromandel Street, is due for completion towards the end of 1964. This new hospital block will replace the present 33-bed hospital and will provide an additional 27 beds in the Wellington city area.

Christchurch—The 60-bed extension to the present 48-bed hospital will be completed about mid-1964. The new nurses' home, which will replace the present accommodation in converted residential homes on the site, is timed for completion in mid-1964 also. The new 60-bed extension will be the obstetric section of the hospital and the present 48 beds will be used for gynaecological purposes.

The hospital is being transferred to the control of the North Canterbury Hospital Board on 1 April 1964 in line with departmental policy to transfer the St. Helens Hospitals to the relative hospital boards at the appropriate time. The obstetric section will continue as a midwifery training school.

Operational Research Unit

The Operational Research Unit published further reports dealing with a survey of the dependency of patients upon the ward nursing staff of three large metropolitan hospitals in Christchurch. The results of the survey have been used to guide regional public hospital planning in the area of the North Canterbury Hospital Board and have also been applied to the population served by the Waikato Hospital Board to assess hospital bed requirements on a regional basis. Other assignments have dealt with the assessment of public hospital services required in two developing areas, the geriatric inpatient needs of a board's area, and the correlation of the clinical conditions of aged persons

on the waiting list with public hospital admissions to a metropolitan geriatric hospital. The staff of the unit have assisted other divisions in designing and conducting studies and have taken part in several seminars and management courses.

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 1963–64 consents were granted to hospital boards to undertake building projects (with 1962–63 figures for comparison) as follows:

	1962–63	1963–64
	£(000)	£(000)
Major works exceeding £20,000	4,217	2,649
Consents ranging from £10,000 to £20,000	265	345
Consents ranging from £5,000 to £10,000	267	271
Consents ranging from £500 to £5,000	336	315
	<u>£5,085</u>	<u>£3,580</u>

Hospital Equipment and Furnishings—In the same period approvals were issued to boards for expenditure of £686,508 for items of equipment and furnishings costing more than £500 (with 1962–63 figures for comparison) as follows:

	1962–63	1963–64
	£	£
Motor vehicles: ambulances, trucks, cars	70,049	50,254
X-ray equipment	75,821	132,625
Furniture: nurses' homes, staff accommodation	117,517	60,467
Ward equipment	53,147	25,084
Surgical and specialist equipment	85,310	75,714
Laundry equipment	98,352	67,752
Hospital equipment	321,419	219,728
Boilers and generators	235,999	54,884
	<u>£1,057,614</u>	<u>£686,508</u>

Finance

Actual expenditure of hospital boards in 1962–63 for both capital and maintenance purposes (inclusive of expenditure from loans, but exclusive of amounts paid between boards or to Government institutions) totalled over £35 million and is summarised thus:

	1961–62	1962–63
	£(000)	£(000)
Maintenance	25,189	27,336
Capital	7,442	8,172
	<u>£32,631</u>	<u>£35,508</u>

Maintenance Expenditure

A summary of maintenance expenditure of hospital boards for 1962-63 (with the figures for 1961-62 for comparison) is given below:

	1961-62		1962-63	
	Amount	Percentage of Total	Amount	Percentage of Total
	£(000)		£(000)	
Institutional maintenance	22,109	87.7	23,962	87.6
Outdoor relief	66	0.3	78	0.3
Grants to private hospitals, etc.	53	0.2	59	0.2
District nursing (including grants)	267	1.1	309	1.1
Transport of patients (including grants)	276	1.1	293	1.1
Administration	609	2.4	660	2.4
Interest on loans	1,286	5.1	1,426	5.2
Superannuation	210	0.8	206	0.8
Services provided for other boards or departmental institutions	17	0.1	26	0.1
Miscellaneous	296	1.2	317	1.2
Totals	25,189	100.0	27,336	100.0

Inpatient Expenditure - General Hospitals

For the year 1962-63 the average daily expenditure for individual inpatients treated in hospitals classed as general hospitals was £5 5s. 11d. Outgoings totalled just over £49,000 each day for resident patients. On the average each patient cost £79 as compared with £75 4s. in the previous year.

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

Treatment expenditure—	1961-62	1962-63
Salaries and wages—	£ s. d.	£ s. d.
Medical	5 11	6 5
Nursing	1 0 11	1 4 5
Technical and other treatment staff	2 3	2 6
Total	1 9 1	1 13 4
Special departments (e.g.) X-ray laboratories	4 4	4 8
Supplies and expenses	7 0	7 7
Sub-total, treatment	2 0 5	2 5 7
Institution administration	8 0	8 6
Heat, light, power, and water	8 0	8 3
Household (housekeeping, dietary, laundry)	1 16 7	1 18 4
Buildings, grounds, and miscellaneous	4 11	5 3
Sub-total, non-treatment	2 17 6	3 0 4
Total daily expenditure	£4 17 11	£5 5 11

The total expenditure per inpatient was made up as follows:

	1961-62			1962-63		
	£	s.	d.	£	s.	d.
Treatment	31	0	0	34	0	0
Institutional administration	6	3	0	6	6	0
Heat, light, power, and water	6	3	0	6	2	0
Household	28	2	0	28	12	0
Buildings and grounds	3	15	0	3	18	0
Miscellaneous		1	0		2	0
	<u>£75</u>	<u>4</u>	<u>0</u>	<u>£79</u>	<u>0</u>	<u>0</u>

Inspection and Advisory Services

An active programme of inspection of hospital boards has been continued by divisional officers.

The Director and Assistant Directors have been to various hospitals and have also accompanied the Director-General on inspections.

The nursing, physiotherapy, and occupational therapy inspectors have inspected relevant services and activities. Laboratories have been inspected by pathologists from the larger hospitals. The maternity hospitals are regularly inspected by the district nurse inspectors.

Ten hospital boards were visited by the advisory officers and advisory house managers. Their reports covered the administrative services and activities of these boards. Several special visits were made to assist and advise boards on equipping new wards, and departments. In addition five departmental hospitals were also visited.

Board members and officers frequently visit the Division to discuss matters in connection with buildings, finance and equipment. Close co-ordination is maintained with boards.

Nutrition Section

An advisory service was maintained during the year to hospitals and mental hospitals, and advice on food service provided to other Departments and to outside agencies.

In 1963 the number of dietitians employed by hospital boards fell from an average of 52 in 1962 to 45. All four hospital training schools were open during the year and, with the registration in January 1964 of 17 successful candidates in State Examination for Dietitians, the level was restored, although still well below the desirable establishment. In January 1964 19 students commenced dietetic training. These numbers reflect a healthy interest in dietetics as a career and indicate that training continues at a very satisfactory level to provide for future staffing of dietary departments.

Eleven student dietitians held Health Department bursaries in 1963, and awards and renewals of bursaries to home science students totalled 36, as compared to 35 in 1962.

Ambulance Services

Ambulance Transport Advisory Board

The board met on four 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 28 licensed aircraft, operated by aero clubs and commercial operators, were available for ambulance purposes. Patients carried by air during the year ended 31 March 1963, were:

Service				No. of Patients
Scheduled air services . .	..	..	..	772
Civil aircraft on charter	..	..	..	343
RNZAF .. .. .	..	..	..	9
				1,124

The cost of transport of these patients by air was £20,164, although no charge was made by the RNZAF for the service aircraft concerned.

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 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 67 ambulance vehicles and 45 ambulance stations as at 31 March 1963, and, in addition, voluntary organisations operated, on a subsidised basis, 155 ambulances from 80 ambulance stations. 157,422 patients were transported during the same financial year and the combined running totalled 1,893,030 miles.

Finance

Payments made by hospital boards to subsidised organisations during the year 1962-63 amounted to £190,409 for maintenance purposes and £4,539 for capital purposes towards the cost of purchasing four 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 funds.

Ambulances operated by hospital boards incurred an expenditure of £47,947 for maintenance purposes, and consent was given for a capital expenditure of £12,974 for the replacement of five ambulance vehicles.

Policy

The Ambulance Transport Advisory Board completed during the year, the preparation of the syllabus for the training of ambulance-driving officers and the Priory Headquarters of the Venerable Order of St. John has agreed to operate the training scheme on behalf of the Department. It is desired to record the appreciation of the Ambulance Transport Advisory Board and the Department to the Priory of St. John for its assistance in this respect.

2. PHYSICAL MEDICINE

Rehabilitation

The need to speed up the processes of recovery in patients after sickness or injury is an essential feature of rehabilitation which is not fully appreciated. On the other hand, the provision of facilities to train disabled people for a new method of livelihood is well accepted.

Only about 1 per cent, however, of all sick and injured people require vocational training, and hospitals must concentrate, therefore, on the adoption of special measures to quicken the recovery process and teach patients early personal independence. Only by so doing can the turnover of beds be increased. This kind of rehabilitation needs no expensive equipment, but it does need the guidance and direction of interested and experienced medical men.

Dr F. S. Cooksey, an expert on medical rehabilitation, visited New Zealand in October. After inspecting rehabilitation facilities and lecturing at the four main centres he conducted a seminar on rehabilitation in Auckland, which was attended by senior medical and surgical staff of the larger hospitals.

The Inter-departmental Committee on Civilian Rehabilitation has now been reconstituted as a committee of three members, one each from the Departments of Health, Social Security, and Labour with power to co-opt, and is now known as the National Rehabilitation Committee. Its functions are to advise Government on all aspects of civilian rehabilitation, and to ensure that the existing machinery for rehabilitation, such as placement in industry, and the vocational training of civilians by the Disabled Servicemen's Re-establishment League, is utilised to the fullest extent.

Many people still think that these workshops are for service people only. In fact the great majority of trainees are now civilians, who are selected by district panels to whom patients can be referred by doctors through the district offices of the Department of Labour.

Unfortunately applications for training are seldom received before a patient's discharge from hospital. It is important that hospital officers should get in touch with the Departments of Labour or Social Security as soon as it has been decided that a patient requires special vocational training.

Rheumatic Diseases

Patients suffering from rheumatic diseases have been greatly helped over the past few years at Queen Elizabeth Hospital by the development of a team approach by rheumatologist, orthopaedic surgeon, anaesthetist, and physical medicine specialist to the question of operative treatment, hitherto deemed inadvisable because of difficulty of anaesthesia. Many operations have now been carried out over the past few years with excellent results.

Recent surveys carried out jointly by staff from Queen Elizabeth Hospital, the Department's Nutrition Section, and the Research Unit of the Wellington Hospital have produced unequivocal demonstration of hyperuricaemia, associated obesity, diabetes mellitus, hypertension, and degenerative cardio-vascular diseases in Maoris who are, as yet, by no means an aging community. This constitutes a public health problem of some present and future importance.

Cerebral Palsy

The visiting cerebral palsy therapist scheme, described in previous annual reports, continues to achieve encouraging results, though hampered by staff shortage.

The main function of the residential Cerebral Palsy Unit at Queen Elizabeth Hospital is to provide short-term residential care and education for children who are not progressing at home or for whom special measures are required. Clinics are held at the unit for visiting therapists and children in their care, and for the counselling of parents as well. They also afford an opportunity for advice and exchange of information between therapists.

During the year there were 10 admissions, 9 readmissions, and 14 discharges. 97 outpatients were seen at the consultation clinics.

At the annual Parents' Week parents spend some time with each of the therapists while the latter are treating or instructing their children. They also attend lectures from the medical staff and the Director.

Parents, who have more contact with their children than do the therapists, have the best opportunities of treating them, provided they know how. Early diagnosis, coupled with training the parents in the proper management of these children, is, therefore, the main objective of the unit and of the visiting therapists.

Physiotherapy

On 31 March 1964 there were 154 students (including seven Colombo Plan students) in training at the Physiotherapy School in Dunedin. Of these, 60 are in their first year, 42 in their second year, and 52 in their third year. University Entrance is now a prerequisite for acceptance at the school.

Throughout the year there has been a serious shortage of teaching staff and it was feared at one time that the numbers of students would have to be cut down.

During the year the first teacher of physiotherapy to train in New Zealand obtained a teaching diploma at the school.

Twenty-seven applications for registration from physiotherapists trained overseas were granted by the Physiotherapy Board.

The average number of physiotherapists employed in hospitals in New Zealand in 1963 was 223.5 - an average shortage of 22 per cent below establishment.

A total of 34 visits of inspection were made by the Department's physiotherapy advisory officers to hospitals.

Changing trends in physiotherapy have occasioned considerable re-thinking in the requirements of hospital departments. Increased patient participation in functional training demands extra space and proximity to the occupational therapy department.

A grant for overseas study in the subject of neuro-muscular physiology was awarded to a physiotherapist employed by the North Canterbury Hospital Board, with a view to organising post-graduate courses in this subject for New Zealand physiotherapists.

Occupational Therapy

On 31 March 1964 there were 98 students attending the School of Occupational Therapy in Auckland, of whom 36 were in the first year, 35 in their second year, and 27 in their third year.

Throughout the year there was a serious shortage of teaching staff and the number of students had to be cut down.

During the year 40 applications for registration were granted. 11 had obtained their qualifications overseas, and two were Colombo Plan students.

At 31 March, 56 occupational therapists were employed by hospital boards and 46 were employed within the Public Service (mental hospitals, Queen Elizabeth Hospital, visiting cerebral palsy therapists, and Education Department). A further seven occupational therapists were employed by private organisations.

A total of 23 visits of inspection were made to hospitals and other institutions during the year by the Department's occupational therapy advisory officer.

The increasing interest in rehabilitation is creating greater demands for occupational therapists, but the school is hampered in maintaining the supply by staffing difficulties.

The concept of occupational therapy is rapidly changing. Emphasis on functional activities and instruction in activities of daily living are superseding the former importance attached to craft work, and, although there is plenty of scope for the latter, the functional work carried out in conjunction with and complementary to physiotherapy is far more important.

Queen Elizabeth Hospital

The work of the hospital continued with some difficulty during the year because of structural alterations, including a new physiotherapy and hydrotherapy block, a screened room for electromyography, modernisation of the operating theatre, and conversion to geo-thermal heating.

The hospital illustrates very well the advantage of semi-permanent construction which can be readily and inexpensively altered to suit new needs.

The patient turnover amounted to 781, compared with 794 the previous year. Outpatients increased from 2,098 to 2,104. Outpatient treatments numbering 21,578 during the year were also given at the main Bath House.

3. CLINICAL SERVICES

Particulars of expenditure on health benefits will be found in table 1 of the Appendix.

It is gratifying to record that this year's expenditure was considerably lower than was anticipated. The total cost of health benefits was £24,191,975, an increase of £433,750 over the previous year, but more than half a million pounds short of the estimates.

Maternity and pharmaceutical benefits cost less than last year, and the cost of medical benefits rose by only 0.25 per cent. The figure for pharmaceutical benefits (£7,913,566) was £145,394 lower than last year, and £511,434 less than had been estimated.

Expenditure on hospital benefits increased by £340,668, and supplementary benefits cost £282,763 more than last year. The largest single factor in the latter was a rise of £127,742 in the cost of the laboratory services. This item alone came to £1,180,308, twice as much as it cost four years ago.

Pharmaceutical Benefits

This year's fall in the cost of pharmaceutical benefits (figures quoted above) was due to two factors.

- (a) The average cost per prescription, 10s. 1¼d. was a fraction lower this year than last.
- (b) Although the population increased by 2.25 per cent, the number of prescriptions issued by doctors rose by only 0.75 per cent. This figure is based on the intake of prescriptions at pricing offices, and is not affected by delays in pricing.

The introduction of the metric system (see below) slowed up the handling of prescriptions in pricing offices from December onwards, and the resulting backlog somewhat reduced this year's payments, and will add to next year's costs; but the figures just quoted show that there has in fact been a real saving of considerable magnitude this year.

Prescriptions passed for payment totalled 15,608,611 (15,745,668 last year), or 6.1 per head of population (6.4 last year). The total intake of prescriptions represented 5.9 per head, a reduction of 7.8 per cent on last year. The cost per head of population was £3 1s. 11d. as compared with £3 4s. 2d. last year.

For several years there has been evidence of a growing awareness on the part of doctors of the problems of cost in relation to pharmaceutical benefits, of an increasing interest in this aspect, and of greater willingness to cooperate with the Department. The work of Dr Stuart MacKay, the Department's "visiting practitioner", whose death in November was a sad loss to New Zealand medicine, is beginning to bear fruit, together with the other means, such as the issue of Prescribers' Notes, which have been employed for the same purpose in recent years.

Dr MacKay was stationed in Auckland, and was able to give more attention to that area than to the rest of the Dominion. A comparison between the Auckland and Wellington pricing office areas in regard to the average cost per prescription is striking.

With a few rare exceptions the Auckland figure has always been the highest in the Dominion, while Wellington has maintained a relatively low average. Within two years of Dr MacKay's appointment, Auckland began to show a distinct improvement as compared with Wellington. By December 1961 the Auckland figure was lower than Wellington's. In the preceding 68 months this had happened on only four occasions. Since then Auckland has been lower than Wellington in 22 months out of 28 and had the lowest figure in the Dominion in six of these months—something which never happened previously. The following table summarises the position:

Average Cost per Prescription, North Island Pricing Office Areas

Year Ended 31 March	Average Cost per Prescription (Pricing Office Areas)		Auckland as a Percentage of Wellington
	Auckland	Wellington	
	s. d.	s. d.	Per cent
1962	10 7½	10 4¾	102.0
1963	10 1½	10 2¾	98.2
1964	10 0½	10 2½	98.2

It might be thought that if the prescriptions issued in Auckland have been less costly, the doctors might, at the same time, be writing more of them. This is not so. The number of prescriptions per head of population in Auckland (based on the intake at the pricing office) has been falling, while in Wellington this figure has continued to rise.

Prescriptions per Head of Population, North Island

Year Ended 31 March	Prescriptions per Head (Pricing Office Areas)		Auckland as a Percentage of Wellington
	Auckland	Wellington	
1961	6.84	5.06	Per cent 135
1962	6.87	5.13	134
1963	6.82	5.23	130
1964	6.71	5.21	129

The fact that the Dominion figure for cost per prescription has not increased this year is gratifying, especially in view of the number of new and expensive items which have been added to the Drug Tariff. There can be no doubt that a major factor in controlling costs this year has been the attention paid by the Division of Clinical Services to the question of drug prices. Negotiations with drug manufacturers and agents have resulted in large savings. Price reductions effected in this way are producing estimated savings, for example, on broad-spectrum antibiotics of about £400,000 per annum, and on oral tablets of Penicillin V of more than £100,000.

Drug prices are under constant scrutiny from the following viewpoints:

- (a) The price of a similar preparation as compounded by a retail chemist.
- (b) The price of the same drug on the English market.
- (c) The cost of other drugs in the same therapeutic class.

Allowance is made for the fact that proprietary medicines may have advantages of elegance, acceptability or stability over similar preparations compounded by the chemist, and for the costs incidental to the New Zealand market. If, however, the difference in price seems excessive, the matter is taken up with the firm. If no satisfactory agreement can be reached, an "Extra for Proprietary" (E.F.P) charge may be imposed, in which case the patient must meet the extra charge.

This inevitably leads to complaints by patients. The point is, however, that the Department has a duty to the taxpayer not to continue to pay what appears to be an excessive price. In many cases the only reasonable alternative to an E.F.P. charge would be to delete a particular brand of drug from the "free list", thereby imposing an even greater burden on the individual patient. Normally, however, an E.F.P. charge is not imposed unless there is some similar preparation, considered to be equally effective, available as a full charge on the fund.

A survey of prescriptions dispensed by chemists in 1961* gives the

*The results of a similar survey for 1963 are unfortunately not yet available.

approximate annual cost of various classes of drugs; only a small selection of individual items can be shown here:

Estimated Annual Expenditure by Therapeutic Class, 1961

				Approximate Total Cost
All drugs dispensed by chemists				7,433,700
A.	Acting on the alimentary system			535,300
	Laxatives, purgatives, etc.	180,400		
B.	Acting on the cardiovascular system			687,000
C.	Acting on the nervous system			1,422,800
	Analgesics	440,300		
	Hypnotics	327,650		
	Tranquillisers	424,500		
D.	Acting on the genito-urinary system			624,100
E.	Acting on infections (other than local applications)			2,310,300
	Penicillins	596,900		
	Tetracyclines	909,900		
	Chloramphenicol	237,250		
	Other antibiotics	91,950		
	All antibiotics	1,836,000		
	Sulphonamides	365,750		
F.	Affecting metabolism and nutrition			565,800
	Vitamins (other than B.12)	133,450		
	Iron (and related drugs)	117,050		
G.	Affecting the respiratory system			478,300
H.	Antihistamines			250,700
I, J.	Acting on the ear and eye (and not included elsewhere)			85,100
K.	Acting locally on the skin			493,400
L, M.	Other drugs and preparations			134,500
	For rheumatism or gout	36,800		

The following table compares the New Zealand figures for the percentage of total expenditure on drugs of certain classes, with those for England and Wales, and for Australia:

Percentage of Total Expenditure on Drugs of Selected Classes

Therapeutic Class	Percentage of Total Expenditure		
	New Zealand 1961	England and Wales 1962	Australia 1961-62
Broad spectrum antibiotics	Per Cent 16.3	Per Cent 16.0	Per Cent 22.4
Penicillins	7.9	7.8	9.6
Sulphonamides	4.8	1.7	3.3
Tranquillisers	5.7	4.6	?
Analgesics	5.8	7.0	7.7
Hypnotics	4.3	5.1	4.9
Antihistamines	3.3	1.7	2.7

So many variables are involved that it would be unwise to make much of these comparisons, but it is interesting to note how closely some of the English figures coincide with ours. The higher percentage of expenditure on sulphonamides in New Zealand may perhaps indicate a more conservative type of prescribing in this country—some would say, better prescribing. Our figure for broad spectrum antibiotics is certainly a great deal more satisfactory than the Australian figure. In general, restraint in the use of this class of drug is indicative of a high standard of prescribing, from the medical point of view as well as the economic.

Metric System

The metric system of dispensing prescriptions was adopted throughout New Zealand on 1 November. There were some initial difficulties (mainly due to shortage of equipment), but on the whole the change was effected remarkably smoothly. Cooperation by chemists and doctors was excellent.

Medical Benefits

The cost of general medical services, £4,038,776, showed an increase of only 0.56 per cent over last year, although the population increased by 2.25 per cent. In the past seven years expenditure on this item has in fact grown at a slower rate than the population—in marked contrast with the preceding period of seven years:

Period	Percentage Increase	
	Population	G.M.S.
1950-57	Per Cent 16.6	Per Cent 50.2
1957-64	16.6	14.9

This is due to the fact that, since 1957, the number of services per head of population has tended to settle at an average of 4.4, whereas up to that date it was steadily rising year by year. In the following table the situation since 1949 is shown in three-year periods:

Period	Percentage Increase		Average Number of Services per Head
	Population	G.M.S.	
1949-52 ..	Per Cent 6.2	Per Cent 19.0	3.3
1952-55 ..	7.5	22.2	3.7
1955-58 ..	6.7	17.2	4.1
1958-61 ..	6.3	8.8	4.4
1961-64 ..	7.1	2.2	4.4

This year the number of services per head was 4.3, as it was last year. This cannot be regarded as excessive. The figures given above show that there is nothing in the nature of widespread or general abuse of the scheme either by patients or by doctors.

A principal factor in promoting this satisfactory situation in recent years has been the increase in doctors' direct charges to patients. The general medical services benefit having remained unchanged since its first introduction in 1941, such increases have been inevitable. There is nothing to indicate that this has caused any real hardship, or has discouraged people from consulting doctors when they should, since it is usual for a doctor not to make any extra charge in necessitous cases. It has undoubtedly had the effect, however, of reducing the number of frivolous or unnecessary demands for medical attention, and this is a good thing. Incidentally, anything which has this effect must also reduce the drug bill.

Availability and Distribution of Medical Practitioners

The special committee set up to investigate this question presented its findings in October. This report has had a wide circulation, and it is unnecessary to discuss it here.

4. NURSING SERVICES IN HOSPITALS

The nursing service in hospitals has generally been well maintained throughout the year.

Thirty-eight general hospitals were visited for advisory and inspection purposes. The standard of nursing service in these hospitals was considered satisfactory. Suggestions for further improvements in patterns of staffing and conditions of work were made.

Nursing staff at all levels has been more available and, with few exceptions, matrons have reported that they have sufficient staff. Up till now, increased demands, resulting from the rapid development of medical science, have exceeded the gains in recruitment. Treatment and associated nursing care has become more complicated and time consuming, requiring the highest degree of skill and accuracy in observing and recording patients' reactions to treatment. This, and the continued increase in patient turnover, both in general and obstetric hospitals, has been responsible for increasing the need for nursing staff.

The spotlight in the future must focus more and more on both quantity and quality of staff. The hospital matron must establish clearly what is nursing, and what is required, both in quantity and quality of staff, to maintain nursing service at a consistently high level.

There are 350 more registered nurses employed in hospitals than there were two years ago. No longer can every graduating nurse expect to automatically stay on the staff of her nursing school as her predecessors have. Even in competition with marriage and overseas travel it seems likely that some hospitals will have more staff nurses than vacancies. This situation should favourably affect the staffing of smaller hospitals and give a more even distribution of nurses.

The Research and Planning Unit of the Division of Hospitals is producing data which is significant to nurses and nursing. This factual information should become the concern of all nurses. At least some of it emphasises the need for nursing administrators to plan carefully and perhaps differently for patients to receive the maximum benefit from nursing care. Without any question of the quality of this care, activity sampling reported on from a small sample of nursing care

gives cause for concern with regard to the semi-dependent and dependent patients. It suggests the need for careful planning so that the more dependent the patient the more care and highly skilled care he receives.

The Community Nurse Programme has completed its initial trial period. Fifteen hospitals have participated in the programme to date. Thirty-five community nurses have completed and 80 are at present undertaking the course. With one exception all these hospitals comment favourably on the principle of training community nurses. Some boards consider the length of the course requires adjustment, while some others have the opinion that this nurse should be trained to take more responsibility. This programme was planned so that the country's nursing resources could be used to the best advantage. It is essential that this second category of nurse should continue to complement but never supplement the registered general nurse.

The need for post-graduate nursing education continues to be imperative to the provision of an up-to-date nursing service. To this end the staff of the Post-graduate School of Nursing have again made a solid contribution. Forty-six nurses, seven of whom were from overseas, were awarded diplomas in November 1963. Courses for ward sisters have also been continued.

I am pleased to report that approval has been given for up to 80 nurses in hospital administrative positions from senior ward sister level upwards to attend refresher courses every five years. The first course was held in February and was attended by the matrons of training schools of an average occupied general bed rate of 200 and under. These courses should supply a most important stimulus to nursing with regard to service, education, and clinical practice.

Today the increasing complexity and demands of nursing administration make it imperative that those responsible for it receive adequate preparation. The time has come when a course at a higher level, than the present Post-graduate School can offer, is necessary to prepare nurses for senior administrative and teaching and research positions in nursing.

Matters which must therefore concern nursing now and in the future are: the preparation of nurses for top-level positions, the more economical and effective use of nursing skills; and the number of nurses required to give patient care of a standard which is today known as "Quality Nursing".

5. WELFARE SERVICES

Care of the Aged

Accommodation and Housing

(a) *Proposals for Additional Beds*

Under the policy of assisting religious and welfare organisations to provide residential accommodation for the elderly needing oversight and care, the Government has approved subsidies during the year, as under:

	Number of Schemes	Number of Beds	Government Subsidy and Loan £
Approved, 1963-64	12	207	444,251
Total approvals, 1950-64 .. ..	..	3,418	5,317,907

Of the 207 additional beds authorised, 186 will be in old people's homes, two are an extension of an existing hospital, and 19 in flats. Three major schemes, totalling 127 home beds, are all in the Auckland area, and Rotorua is to establish its first home of 20 beds by means of this assistance. A small home is to be provided at Balclutha.

(b) *Current Programme*

(i) *Religious and Welfare Organisations*

	Home and Hospital Beds	Flats	Total Beds
Beds completed, 1963-64	320	33	353
Under construction	297	63	360
Authorised, construction pending	274	22	296
	891	118	1,009

The commissioning of 353 new beds is the highest for any year since the liaison commenced between Government and voluntary agencies in establishing accommodation for the elderly. With a Government contribution of £911,000 for this purpose during 1963-64, previous levels of expenditure have also been substantially exceeded.

(ii) *Hospital Boards - Old People's Homes*—Major improvements, including some extensions, have been completed to the Memorial Home, Gisborne, while at Dunedin a completely new Parkside Home of 60 beds is almost ready to commission. Replacement of 27 beds at Kynnersley Home, Westport, is under way and planning has commenced for a new 40-bed Alexandra Home at Richmond, Nelson.

(c) *Pensioners Housing - Local Authorities*

(i) *New proposals*—Local authorities throughout New Zealand have continued to respond encouragingly with proposals for the provision of suitable housing for the elderly. Twenty-seven new schemes, consisting of 499 single and 58 double flats, have been authorised for subsidy as follows:

	Number of Schemes	Number of Beds	Government Subsidy Authorised	Government Loan
Approved 1963-64	27	615	£451,100	£465,400
Total approvals to 31 March 1964 .. ..	..	3,512	2,065,872	2,357,439

Although almost half of the proposed new units are to be in Auckland and environs, the remainder are suitably distributed over the rest of the Dominion.

A feature of some schemes now being submitted by local bodies is their size. One involves more than 100 units and raises questions as to the advisability of so large a single concentration. Obviously where land is offering, there is a desire to provide the maximum number of units within the limits which social and economic considerations impose. There is, however, growing recognition that the larger the settlement, the greater the likelihood of problems arising regarding oversight, and the difficulty of development of a community spirit within each settlement and establishing satisfactory relationships with the wider community. For this reason, provision within larger settlements for resident wardens and a social centre are desirable amenities.

A feature of certain proposals put forward by the Wellington City Council is the inclusion of pensioner flats on the lower floors of three-storeyed buildings, with single flats for working tenants above. This development will be followed with interest.

(ii) *Completed Schemes*—Twenty-six separate schemes have been completed through the year. With 369 single and 55 double units, housing has been made available for 479 elderly tenants. From the information available, this is the best achievement in the 14 years the scheme has been operative.

Meals-on-wheels and Laundry Services

In addition to the expansion of (all but two) existing schemes, three hospital boards have inaugurated new services and four have extended to previously unserved areas within their district. Twenty-five hospital boards and one voluntary organisation are now undertaking meals-on-wheels services.

As at 31 December 1963, 1,581 elderly people were receiving meals, an increase of 165 on the previous year. Total meals distributed for the year amounted to 355,294 – an increase of 53,742.

The laundry service continues to operate on a limited scale. Eight hospital boards and one voluntary organisation assist in this way.

Advisory Committee on Care of the Aged

The committee met twice in the year. Consideration was given to the functions of old people's welfare councils, with special reference to their participation in providing residential accommodation.

Considerable attention has also been given to the question of responsibility for care of the aged infirm and chronic sick, as distinct from that of the aged sick who need more intensive nursing and medical care, i.e., for "acute" illnesses.

"Intermediate" Care – Residents in Old People's Homes

Arising out of representations to the Department from an organisation concerned with residential care of the aged and on a recommendation from the Advisory Committee, information has been sought on a Dominion scale from hospital boards, religious and welfare agencies, as to the extent to which residents in old people's homes need marginal hospital care. The organisation which raised the issue is of the view that the degree to which "intermediate" care is required, warrants special provision in designing accommodation standards and the payment of a daily benefit in respect of maintenance.

From the extensive information received in response to the Department's inquiries, it is apparent that this matter of the care and oversight needed on account of the increasing age and frailty of residents in old people's homes is a growing problem, though its impact seems to be felt more in homes whose entry into the field of residential care is comparatively recent.

In general, however, this intermediate category does not appear to constitute a problem of sufficient proportions to warrant either a separate classification or any special provision within the existing policy.

Contributions from Government Lottery Funds

In its first year of operation the "Golden Kiwi" distribution Committee for the Welfare of Aged Persons, has substantially assisted a number of services for the elderly, which do not qualify for other Government support. The main levels at which the committee is helping are in grants to Old People's Welfare Councils, by capital subsidies for old people's club rooms, and by some contribution to the maintenance of homes and hospitals caring specifically for the aged. The Department is providing secretarial services to the committee and also has liaison through a departmental adviser.

Accommodation for Young People

Subsidies amounting to £81,413 have been approved by Government to assist two youth hostel proposals. One is for a hostel in Dunedin to accommodate 122 young women. Construction has commenced on a similar hostel in Wellington, and one for young men in Auckland.

Since the introduction of this form of assistance, Government has granted subsidies and loans totalling £522,935 to provide accommodation for 973 young people.

6. TUBERCULOSIS

Tuberculosis can no longer be considered a significant cause of death in either Europeans or Maoris. Attributed to tuberculosis, there were 68 European and 25 Maori deaths notified in the year under review. This is the lowest rate recorded in New Zealand, and represents 3.7 per 100,000 population.

The unspectacular but steady decline in the total number of new cases notified has been maintained during 1963. The 1,186 new cases for the year were almost 100 fewer than for the previous year. This small decline in notifications was shared by both races. There was, however, no relaxation in the campaign of case finding. Indeed the Mass X-ray Campaign reached a new high level; 270,169 persons were examined by the Department's X-ray units and from those X-rayed 214 active cases of tuberculosis were found, a ratio of eight new cases per 10,000 examinations.

Departmental officers were also active in tuberculin testing, particularly in the school entrant groups in both primary and secondary schools. It will be noted from table 21 that valuable information is being obtained on the infection rate in European and Maori children. The programme of prevention was continued with the administration of 34,621 doses of B.C.G. vaccine, concentrated mostly on children reaching secondary-school age.

No major alteration was made during the year in the existing measures for control of the disease.

Relevant statistics for 1963 will be found in tables 19 to 22 in the Appendix to the report.

PART III—BUREAU OF MENTAL HEALTH SERVICES

1. MENTAL HEALTH

Statistics

(a) *Admissions and Discharges*

During the year ended 31 December 1963, there were 6,830 admissions to the various hospitals of the Mental Health Division (including 518 to Queen Mary Hospital, Hanmer) and there were 6,702 discharges (of which 527 were from Queen Mary Hospital). Of the admissions to psychiatric and psychopaedic hospitals the majority, 4,104, were voluntary inpatients, a decrease of 5 on last year's figure.* Informal admissions numbered 1,131, only 12 more than the previous year. Those admissions under formal orders numbered 1,595, a decrease of 38 on the 1963 figures. The total number of persons under care, including those on trial leave, was 18,448 and the average number of occupied beds was 10,487. This increase was largely accounted for by an additional 177 beds at the special hospitals and training schools for the mentally subnormal.

(b) *Voluntary Outpatients and Day Services*

The total attendances were 1,972 at psychiatric and 1,500 at psychopaedic hospitals. In all, these attendances represent a total of 96 enrolled patients.

(c) *Outpatient Attendances*

Six thousand two hundred individual patients produced a total of 15,861 consultations at various outpatient psychiatric clinics conducted by Mental Health Division medical staff. In addition, 294 children were seen during a total of 645 psychiatric consultations at child health clinics.

(d) *Comment*

The most striking feature of these figures is the very considerable increase in outpatient attendances (the figure last year was 12,321). This, plus the opening of the Sunnyside Day Hospital, will have played some small part in reducing the admission of voluntary inpatients below the 1962 figures. The decrease in the number of committed patients is very satisfactory, and it must be borne in mind that the figure includes a total of 341 cases sent for psychiatric assessment and observation by the Courts, either before conviction or whilst awaiting sentence. The use made of the provisions of the Mental Health Act for this type of observation and assessment clearly indicates that they are greatly valued by the Courts.

By contrast with the very substantial rise in the admissions reported in 1962, the increased admission rate for 1963 may represent some

*N.B. Last year's published figures for voluntary inpatients included admissions to Queen Mary Hospital, Hanmer, which this year are shown separately.

levelling off of demand for beds. It needs to be remembered, however, that trends of this sort cannot be judged accurately merely on the basis of admission figures for two consecutive years.

At the outpatient clinics the overriding consideration is still to provide a psychiatric opinion as soon as possible after a request has been received from the family doctor. It is appreciated that, inevitably, some of the more time-consuming aspects of psychiatric practice must yield precedence if this service is to be maintained. The disadvantages inherent in this must be accepted if a ready and rapid referral service is to be maintained. It is considered of paramount importance to ensure that patients for whom a psychiatric opinion is sought can be seen promptly and, until psychiatric coverage for New Zealand more closely approximates the ideal, some priority of this sort will be necessary.

The pattern of population distribution in New Zealand is such that, for an appreciable time to come, it will be a more economic disposal of skilled staff if patients are taken to appropriate centres for treatment, rather than that there should be any attempt to disperse too widely the limited resources of psychiatric and allied skills at the country's disposal.

While the value of outpatient and day hospital treatment in many conditions is unquestioned, it must be accepted, as a matter of practical reality, that only in a very few major centres of population will intensive services of this kind be a practical possibility in the next few years.

Changing Format of Annual Report

Rather than quote excerpts from all the Division's hospitals as formerly, it has been decided to quote more extensively from the annual reports of a metropolitan and a rural mental hospital and of a psychopaedic hospital each year, with the intention that, over a period of three or four years, all hospitals will have been covered.

Trends and Events in 1963

The general pattern of rising admission and readmission rates and falling length of stay, with a steady and encouraging increase in the number of discharges from the group of longer-stay patients whose prognoses were until recently regarded as relatively unfavourable, has continued during 1963.

The year has also been one of continuing emphasis and developments in the field of rehabilitation. Effective use has also been made of staff-training courses as a medium of dissemination of information concerning the developments of well established ways and principles, and of more recent innovations and techniques in this and other fields. In several of the hospitals the sustained enthusiasm of all sections of the staff concerned has resulted in the establishment of a pattern of rehabilitation programmes whose momentum can only be sustained if their staff establishment, including newly established positions, is adequately maintained. It is likewise the case with outpatient services which the Division has been progressively extending since 1926. In the case of all but one of the metropolitan hospitals and in all rural hospitals, attendances at outpatient clinics conducted by the Division's staff has increased by some 50 per cent since 1961. Any further extension of these services, and of the psychiatric services to child health clinics, is necessarily dependent upon the filling of all vacancies in the present and projected medical and social worker staff establishments of the hospitals concerned.

1963 saw the first intake of nursing tutorial classes for the first professional examination of newly established psychopaedic nursing curriculum. Though an amendment to the Nurses and Midwives Act provided for certain persons on the Psychiatric Register now working in psychopaedic hospitals to be admitted to the Psychopaedic Nursing Register without examination, it is a pleasure to record that many senior members of the nursing staff of psychopaedic hospitals elected to take a specially arranged course of instruction and sit the prescribed examination of the Board.

In July the Hon. Mr McAlpine formally opened the Sunnyside Day Hospital service. This Day Hospital service has been established in the former Medical Superintendent's residence, a large two-storey building set in spacious grounds, which allow of a full range of indoor and outdoor activities. Of the eight larger mental hospitals in New Zealand, five are admirably situated within or adjacent to urban areas for the establishment of day services.

Full provision for day facilities is made in the new standard plans for reception units and for the newly authorised psychiatric units that are already programmed for operation in collaboration with a public hospital. Work on the first two of these—one at a mental hospital and one at a public hospital—is due to commence during the 1964-65 financial year.

In September the Directors of Mental Health of the Australian States and New Zealand met in Wellington to deal with an agenda which covered a wide range of clinical and administrative matters of current interest. One immediate outcome of the meeting will be closer consultation between New Zealand and Commonwealth Medical Statisticians, with a view to devising a common format for mental health statistical information in each of the Australian States and New Zealand. It is hoped that such a scheme will be ready in time to be introduced as soon as the International Classification of Diseases Committee has completed its work of Revision of the Code. The value of this contribution to the tools of research is self-evident.

During the year there has also been encouraging and important developments in the field of day services to meet the particular needs of the mentally subnormal. Consultations have been held between the Mental Health Division and the Department of Education on one hand; and between the Mental Health Division and the Intellectually Handicapped Children's Society on the other. This, together with the Government decision to increase both the extent and amount of assistance given to approved societies working in this field, will undoubtedly lead to the establishment of a much more effective range of approved services and should give a very much more equitable coverage in both urban and rural areas. All the psychopaedic hospitals may now take day patients also.

In April the Government acquired the Anglican Children's Trust Board orphanage at Papatoetoe and this is now being operated by the Mental Health Division as the first part of Stage I of the new Mangere Hospital and Training School planned to serve the needs of the Auckland area. The present role of St. John's Home, with its optimum fully developed capacity of about 100 beds, is to serve the needs of the trainable younger intellectually handicapped persons of either sex. Later, when Mangere Hospital is operational, St. John's Home will serve the needs of the older and stabilised "graduates" of Mangere, particularly

those who either require minimal supervision or who are capable of gainful employment under exceptionally sheltered circumstances.

By way of a further contribution to the better public understanding of the needs, potential, and problems of the mentally subnormal, the National Film Unit, in collaboration with Levin Hospital and Training School, has produced a film entitled *One in a Thousand*. It is expected that the film, which is also intended for television audiences, may be released during the first half of 1964.

The Mental Health Division has welcomed the opportunity of contributing to the establishment of the State Services Commission's Social Work Training Centre, Tiromoana, situated at Porirua. Tiromoana became operational in July 1963.

Legislation

Preparatory work, at departmental level, has proceeded during the year for draft proposals for a revision and consolidation of the Mental Health Act. Experience gained in the operation of the Mental Health Amendment Act 1961 has proved of value to the committee working on the draft proposal, as has a comprehensive study of recent mental health legislation, particularly that of England and Wales, Scotland, Northern Ireland, and Australian States. In addition, note has been taken of recent mental health legislation, as it affects particular aspects of the problem, in certain of the States in the United States and some European countries, particularly Scandinavia.

It is only right and fitting that reference should be made to the value of the contribution and thought given to the preparatory stages of the work of revision by the late Dr K. R. Stallworthy, whose notes, comments, and suggestions on the second draft were completed only a few days before his untimely and much regretted death.

Works Programme

Very great emphasis must always be placed on the need to maintain, and indeed to increase, the numerical strength, quality, and standard of training of all categories of professional and ancillary staff concerned with the care and treatment of the mentally ill and mentally subnormal. Nevertheless, the measure of success of the therapeutic team, and the comfort and benefits derived by the recipients of its attentions, are apt to be in many ways influenced by the design and quality of the facilities which obtain in the therapeutic environment in which such care is undertaken.

The importance of providing good standards of accommodation to the patient whose condition requires a period of residential care has long been recognised. During the 50 years or so which have elapsed in New Zealand since the acceptance of the principle that hospital accommodation for the mentally ill and mentally subnormal should be built in small dispersed ward units, rather than in large "monolithic and monumental" multi-storey blocks, there has been a succession of improvements in the design of the ward units.

There has long been a pressing need to overtake arrears of accommodation in that section of the hospital services in which bed occupancy has for too long been in the vicinity of 99 per cent or more. However, the need to devote some part of the annual grants to the improvement of existing accommodation wherever practicable, or its replacement

where the life of the building does not allow of such economy in planning, has imposed a succession of most frustrating postponements of other capital works, most necessary to the effective running of the hospitals concerned. The rewards of patient toleration of long-enduring difficulties are eagerly awaited by the hospital staff, who often work under considerable difficulty.

It is pleasing to be able to record that, on the planning side, work has been steadily going ahead with the completion of a series of standard plans to meet such needs as those of reception and early treatment units having extended provision for day services; Community centres which serve a multiplicity of purposes, including those of activation classes as well as recreation; special-purpose wards for the disturbed and for the multiple-handicapped, and for those who have attained a good level of capacity for self-care, yet who may still require a further period of hospital supervision. Attention has more recently been given to the specialised needs of the hospitals and training schools for the mentally subnormal in the fields of schooling, training activities, and for the special care of the younger patients. The design of accommodation necessary for the present day application of occupational therapy has not been overlooked, and other requirements such as tutorial blocks are also receiving attention. In anticipation of the imminent need to replace service facilities at several hospitals, standardised plans for workshops, laundries, etc., are being developed. To meet the equally pressing need for the accommodation of the larger and more diversified staff nowadays required to operate and administer the complexity of requirements upon which the therapeutic efficiency of the hospital community is dependent, new designs for administration buildings have also been drawn and the prototype of one is shortly due to go to tender.

In accordance with Health Department policy of working towards a closer integration of all aspects of the medical services, it has been decided that all authorities and approvals necessary for the processing and implementation of the Mental Health Division's works programme now come within the purview of the Hospital Works Committee. Thus the capital works programme of both public and departmental hospitals are now considered by the same inter-departmental body.

Further Development of Psychiatric Services

All planning of extensions to the psychiatric services in New Zealand at the present time must take cognisance of three important factors. Of these the one of most immediate relevance is the numerical strength of appropriately qualified and experienced physicians of psychological medicine, social workers (psychiatric), clinical psychologists, and occupational therapists. There is also the need to maintain and increase the present strength of nurses on both the psychiatric and the psychopaedic registers to meet the demands of population growth and to provide a cadre of nursing staff with the necessary experience for present and projected psychiatric services associated with public hospitals. However, the nursing factor is, for the time being at least, relatively less critical and limiting than is the case with the other categories.

The rate at which proposals for the extension of psychiatric services can reasonably and prudently be implemented is, in essence, also strictly dependent upon the extent to which the present strength of the professional cadres necessary to the effective running of such services can be augmented. It is well to bear in mind that it was reported earlier in

1963 to the State Services Commission that, in order to staff existing services and extension of these services approved in principle, some 27 new appointments of senior status would be called for within the next five years for the Mental Health Division alone. This number makes full allowance for all retirements on account of age during the five-year period. It follows, therefore, that proposals for extension of psychiatric services must recognise and allow for these critical realities; otherwise there is little to gain and much to lose if developments in one particular aspect of psychiatric service is sought at the cost of impaired efficiency or retrogression in another and already established field. Due care and tolerance must be exercised to ensure that both the form and the rate of development of new services is such that they will provide an addition to the totality of services available, rather than more elaborate service to a minority selected by chance of location or interest, at the expense of a majority of those who may be in urgent need. It would indeed be contrary to long-accepted principles underlying the social philosophy of hospital services in New Zealand if the servants in "medically popular" and favoured centres were to be allowed unrestrained expansion to the detriment of minimal development in less-favoured areas remote from any base or other psychiatric facilities. Neglect of such considerations would rapidly and inevitably lead to the emergence in New Zealand of an unfortunate pattern which is to be seen in the United States where, for example, the ratio of psychiatrists per 100,000 population is up to 20 times as great in the District of Columbia as it is in some of the "less developed" States of the Union.

A recent survey of hospital areas in New Zealand shows five or six regions which would have sound claims and ascertainable need in the immediate or near future for new day and inpatient psychiatric services associated with the regional public hospital. Work on the first of these is programmed to commence with the 1964-65 financial year and on the second in the following year.

Rehabilitation

Rehabilitation of the mentally ill and habilitation of the mentally subnormal are accorded major emphasis in the work of the hospitals and outpatient services of the Mental Health Division. It is, of course, generally appreciated by all who have a fuller understanding of the nature of mental disorder that there are, unfortunately, some forms of disorder and some persons for whom a more or less lengthy period of inpatient care and treatment is appropriate to the needs of the occasion, if not a matter of necessity. However, the great majority of patients who are referred for treatment, or who seek treatment of their own volition, are unlikely to require more than a relatively short period of inpatient treatment. It is, furthermore, the constant aim of those responsible for the organisation of the hospital therapeutic programme to shorten the length of stay within the measure of the practicable. Such a policy, however, calls for the constant exercise of sound judgment in balancing the relative advantages both to the patient, to the family, and to the community, of very early discharge; especially where there is any likelihood of early need for readmission. This must be weighed against the possible advantages of a somewhat longer stay in hospital with enhanced prospects of maintaining stability for a longer period after discharge. The problems that these considerations impose have been greatly alleviated by the more frequent recourse to periods

of "work trial", whereby a recently treated and convalescent patient may resume an appropriate form of employment, whilst at the same time he or she may continue to reside at the hospital for a brief period. A similar purpose is also served by Cornwall House, a hostel operated by Porirua Hospital and open to female patients for residence for a determinable period, on discharge from hospital or when on trial leave, whilst engaged in gainful occupation.

Services for the Mentally Subnormal

Reference has already been made under the heading "Trends and Events in 1963" to consultations between the Mental Health Division, the Department of Education, and the Intellectually Handicapped Children's Society in the matter of services for the mentally subnormal within the community. One of the main purposes underlying these consultations was to arrive at ways and means whereby the role of the voluntary society and the services which it provides may develop in such a way as to ensure that expanding developments of the more populous centres are not attained at the expense of those less well favoured in terms of location in rural areas. Government assistance towards the capital cost and maintenance of hostels for the purpose of enabling the intellectually handicapped to attend occupation centres has recently been extended and liberalised. This is already assisting in the more rapid setting up of hostels. Other provisions of present Government policy will also allow of the more ready establishment of sheltered workshops and facilities for senior groups. It is, therefore, a matter of prime importance to ensure that these services are developed in such a way as to give as wide a regional coverage as possible. At the same time their location should best serve a clearly defined region, with community of interest, and without detriment to other regions having the prospect of an establishment of an Education Department occupation centre. Such a detrimental situation which might easily arise if an overlarge hostel is allowed to develop in a centre of urban population; for such a hostel would in effect "draw off" children from the area which could otherwise support an occupation centre. The Mental Health Division is encouraged by the growing awareness of these aspects of the problem within the membership of the I.H.C.S.

Public Relations

There is a deep and inexhaustible well of public interest and curiosity in most matters appertaining to the field of mental health. The extent and nature of this interest is as remarkable for the variations in its quality and purpose as it is for the unchanging content of the folklore with which it is so often interwoven. By way of example, how few would appear to be aware that voluntary admission to mental hospital was inaugurated in New Zealand in 1911, or that the first psychiatric outpatient services in public hospitals were established as long ago as 1926. Open wards in mental hospitals were in being prior to the turn of the present century, and all mental hospital development has been on the villa principle since 1912. The formal training of occupational therapists was inaugurated at Oakley Hospital during the first years of the Second World War.

Old ideas, however, seem to die very hard. There is a curious reluctance to recognise the quality of work being undertaken in New Zealand

even when this is a source of interest elsewhere. Not infrequently procedures and practices or methods of treatment which are already in operation in New Zealand hospitals are treated as "new advances" when reported from some overseas sources. On the credit side with the provision of homely visitors rooms at ward level in all new hospital construction, and the growing practice of holding open days at mental and psychopaedic hospitals, together with the interest taken by so many church organisations, sports clubs, and various voluntary associations in patient welfare, both within and without the hospital, a better informed and more charitably disposed body or opinion would seem to be now making itself felt. This is in itself a valuable reinforcement to the therapeutic community resources, and a source of encouragement to those who work towards the alleviation of all who seek its aid.

Hospital Chaplains

The work of the hospital chaplain has been further extended. The dedication of the Chapel of the Holy Spirit at Seaview Hospital in December brings the number of dedicated interdenominational chapels in use at the Division's hospitals to the halfway mark. Chapel appeal committees at three other hospitals are now reaching a stage which they hope very shortly to be in a position to call tenders and it is pleasing to record that there are now chapel appeal committees in being for all the hospitals of the Division which do not as yet possess a chapel.

Official Visitors

I wish to record appreciation for the valuable time and services given by Official Visitors to the Division's hospitals in the exercising of their appointment, and for their sustained interest in such a wide range of hospital activities.

District Inspectors

In expressing appreciation to the district inspectors for their advice, help, and service during the year, it is only right and proper that mention be made, by way of tribute, to the manner in which these duties are undertaken. The district inspector's office is one of the most important statutory safeguards provided under the Mental Health Act to ensure of a proper and independent inquiry when circumstances so require. Suggestions or advice tendered by district inspectors in relation to inquiry arising at a particular hospital have, from time to time, been applied more widely to the general benefit of administrative procedures relating to the rights and liberties of the patient and the responsibilities of staff.

Appreciation

The very close liaison and good relations which the Division of Mental Health enjoy with other Government Departments, especially those of Justice, Education, and Public Trust Office, have greatly assisted the work of the Division in these situations where its responsibilities infringe upon those of the Departments concerned. Likewise appreciation is recorded for the sustained interest and services given by Ministry of Works in relation to the multitudinous facets of works programmes and maintenance services.

Finally, the personal appreciation of the Division is tendered to all members of the Division's staff who have given of their best towards the common aims of their work in the interest and well-being of all patients who come under care or seek attention for the alleviation of their various afflictions.

2. EXCERPTS FROM REPORTS OF MEDICAL SUPERINTENDENTS OF SELECTED HOSPITALS

Porirua Hospital

During the year 11 television sets (now a total of 17) were installed. This amenity is appreciated by almost all patients. It is hoped to add sets to the remaining few wards during the coming year. Over the years I know of no amenity which has been added to this hospital which has been more appreciated by the residents. Its therapeutic value is also not to be ignored.

Tiromoana was reconstructed to provide a training centre for social workers. The unit has been fully occupied during the period with courses for public servants from all parts of New Zealand.

Courses were held at the hospital for public health nurses, university social science students, final year medical students, and final year nursing students from the Wanganui Hospital.

A more suitable site for the hospital chapel has been selected. Sufficient money is now on hand and it is anticipated that the work of this project will commence within a few months.

The hospital's discharge hostel in Tinakori Road continues to function very satisfactorily and is proving of real assistance in the rehabilitation of the discharged patient or ready for discharge patient.

The hospital was honoured by a visit in October last from His Excellency the Governor-General, Sir Bernard Fergusson, and Lady Fergusson. Their Excellencies visited a large portion of the hospital, spoke to many patients and staff, and displayed a lively interest in the hospital and its activities.

Certain groups and organisations have shown continued interest in patients' welfare and the hospital activities. This interest has taken the form of frequent visiting, entertainments, bus outings, and many gifts. Particularly, I have in mind, various church groups (rather many to individualise), the Red Cross, Country Women's Institute, Returned Services Association, Blind Institute, and Stepping Stones.

Seaview Hospital

The position here remains much as at last report. The outpatient clinic being held within the hospital obviates, to a great extent, the necessity to enrol voluntary outpatients from the immediate surroundings, and the wide geographical distribution of other outpatients within the area precludes the attendance at the hospital of patients north of Kumara or south of Ross, except at infrequent intervals. Physical treatments such as E.C.T. have been undertaken within the Westland Hospital not because of lack of facilities for such treatments within this hospital, but because of special circumstances.

On occasion, patients who might have been discharged, but who may have needed further physical treatment, have been placed on leave so that they could return for such treatment if necessary.

Follow-up attendances at outpatient clinics throughout the district are undertaken wherever practical, but again, due to the widespread terrain, not all can be dealt with. When the services of a social worker are obtained, it is hoped that follow-up services can be extended, but at present we rely on the reports of the general practitioners, although the district nurses are very cooperative if information is wanted and the Child Welfare Division have helped unofficially in many ways.

Clinics remain placed and timed as in last report, and as is mentioned there, outpatients are seldom if even seen at the Westland Hospital, although there is still technically an outpatient session there once weekly. Outpatient consultations at the Westland Hospital have been, during the past year, confined to

bed patients within the hospital and the urban and rural people seem to prefer to attend Seaview Hospital for outpatient consultation and treatment.

The numbers attending at the monthly visit to Westport have shown some increase, but infrequency of the clinic more or less limits the work done there to a consultation rather than treatment, and the general practitioner must be left to carry out treatment advised. It has, however, served a very useful function in liaison and there seems to be greater understanding of psychiatric illness in the vicinity than there was before these clinics started.

We have adhered to the policy in other clinics of using them as treatment clinics, not purely consultative, and, although this imposes a considerable stress of work on the psychiatrist, it is thought very well worth while. Both the general hospital staff and the general practitioners are in full agreement with this and the general practitioners, in particular, appear to appreciate the relief to them of patients whom many of them feel unable to treat adequately.

Clinical trial of new drugs continues and it would appear that advances are still being made in the efficacy of new products.

The combined male and female admission block functions well. It has been noted, however, that some diffidence is often observed in immediate recent admissions in mixed company at meals. Matron feels that this is more noticeable in the female group and consideration is being given to providing a small, separate dining accommodation for the preliminary period after admission.

A reactivation programme has been under way for a considerable time, both on the male and female side. The matron, head nurse, and recreation officer are well pleased with the results and a large proportion of the nursing staff have become interested and keen on this type of rehabilitation.

The policy of obtaining work for the longer-term patient on leave has been continued, but presents some difficulties in areas apart from South Westland.

At present one man is working full time from the hospital in town and will shortly be discharged.

Braemar Hospital and Training School

This is the first annual report concerning Braemar as a separate hospital. The name "Braemar" is much appreciated by parents generally, if one is to judge by the many comments. It is also becoming well and favourably known in Nelson itself.

As is to be expected when those admitted are of the long-stay variety, and as our accommodation is already fully occupied, for we have a waiting list, the turnover is not large. This does not imply that progress is small, however, as our activities in treatment and training are really many and varied. We are getting, too, in the circumstances, visible and gratifying results.

Drugs such as ataractics and their relatives are not used much here, and we do not have any particular favourites in the way of drugs, preferring to give that which suits best the individual, rather than specific the disorder. Activation, occupational therapy, and other physical measures are more favoured, and more satisfying, too, particularly if applied in line with the disabilities or natural abilities present. The fact that the children are not beset with the frustrations encountered when they are with other than their intellectual peers is also helpful.

There are 83 of 230 attending the various occupational therapy classes, in addition to those engaged in eurhythmics, dancing, cooking, sewing, formal school, and other related activities.

The occupational therapist and her two well qualified aides do valuable work.

Able and cooperative assistance is given also by the recreation officer, and members of the staff with a flair for the work. It is pleasing, too, to note the interest in the various methods and their results shown by the staff as a whole. A special sewing class for the older girls is taken weekly by members of the local Red Cross, headed by Mrs Eyre, who claims that they are the only members of the Red Cross in the country so occupied.

The social worker, stationed at Ngawhatu, deals capably also with our requirements; and this arrangement works very well.

Mr D. Gunn, Psychologist, attached to the local Education Department, examines as required, and is most cooperative. He has selected, from the numbers examined, some 15 children suitable for a special class, when and if a new school block is available.

There are 38 male and 25 female patients occupied inside and outside the hospital in activities other than organised training. Some of them are very good indeed, and helpful to the nursing staff, for example, in feeding, where it might take 30 minutes to an hour to get a handicapped child to assimilate a meal, and also with many domestic chores.

During 1963 eight registered psychiatric nurses passed the Psychopaedic State Final Examination, after concession in some cases from the Nurses and Midwives Board had allowed them to sit. Six trainee nurses passed the Final Professional Psychopaedic Examination.

At the moment there are 13 in formal training with a further seven waiting to join the next "school" in May. The male tutor is engaged also at Ngawhatu. He can only give us a portion of his time. I am hopeful that he will be able to take the position as full-time tutor here when the position as such in our establishment is ratified.

We are fortunate in having a waiting list of applicants for training which gives us some useful margin in selection.

Our sincere thanks are due to many organisations, churches, and individuals continuing to take great and active interest in our hospital and its children.

More than 60 of our children, mostly those without relatives, have been "adopted" by the one or the other, and are taken for holidays or outings, or get regular letters and birthday or Christmas parcels from those concerned. As a matter of interest we had 150 parcels or donations from these people at Christmas, in addition to large numbers of parcels from relatives by post, or delivered in person.

PART IV—SPECIAL BRANCHES

1. NATIONAL HEALTH INSTITUTE

Medical Laboratory Technologists Board

During the year approval was given for the establishment of the Medical Laboratory Technologists Board which will take over the functions previously exercised by the Hospital Laboratory Advisory Committee and the Provisional Examination Board. The members of this board will be three pathologists nominated by the Society of Pathologists, three medical technologists nominated by the New Zealand Institute of Medical Laboratory Technology, the Director of the National Health Institute, and an independent chairman. The Department will be responsible for clerical services. The board is responsible for advising the Director-General of Health on all matters pertaining to the training and qualifications of medical laboratory technologists and is responsible for organising the examinations for the Departmental Certificate of Proficiency in Hospital Laboratory Practice.

During the year one intermediate examination only was held in March and 42 candidates were successful in passing this examination. Two final examinations were held, one in April and the other in October, and 34 candidates were passed in these examinations.

I. Epidemiological Section

1. *Teaching*

Sixteen trainees attended the 1963 Health Inspector Training Course. Six of these were sponsored by local authorities, one by the World Health Organisation, and the remainder were trained for the Department. All 19 trainees of the 1962 class passed their final examination for the diploma of the Royal Society of Health in 1963.

Lectures in applied microbiology have been given at the Post-graduate Nurses' School. Lectures on hospital cross infection have been delivered to the nurse trainees at St. Helens Hospital, Wellington, and in the Wellington Public Hospital.

The institute has been invited to participate in the making of a New Zealand film on hospital cross infection and the epidemiologist has prepared a script.

2. *Hospital Cross Infection*

The epidemiologist and staff of the National Health Institute have given assistance to several hospitals in the investigation of outbreaks of infection. An outbreak in a small rural maternity hospital in which three babies died from staphylococcal infection has been investigated and reported upon. In another outbreak investigated a series of infections due to intestinal-type organisms and involving the death of one baby was found to be due to a defect in the plumbing. This outbreak illustrated the fact that a potential source of infection may be present for some years before actual infection results. In another investigation of staphylococcal infection in a surgical ward it was found that infection was

probably being spread by ward furniture contaminated by convalescent patients.

Each outbreak emphasised that if the epidemiologist is to give effective assistance he should be called in at an early stage. It may take some time for a hospital to assemble the specialised equipment and bacteriological culture media required in an investigation of hospital cross infection, but the institute can provide the necessary materials and equipment with personnel to undertake an investigation at short notice. Another lesson to be learnt from the outbreaks was that the phage types of staphylococci responsible for epidemics in past years were less prominent, and that other types of staphylococci and a wide range of other bacteria are of importance in hospital cross infection.

3. Special Projects

The testing of disinfectant preparations, including hand disinfecting creams and skin powders, has continued with some disconcerting findings. The discovery of disease-causing anaerobic organisms in a baby dusting powder and that some disinfectant creams may contain large numbers of bacteria, including some capable of causing disease, makes it imperative that a close watch be kept upon all these products.

Investigations of hospital ventilation and air-conditioning equipment have continued and it has been possible to make recommendations on one type of air-conditioning plant. These investigations have shown how little is known and how much more information is required about temperatures and humidity in operating theatres, wards, and nurseries. It is planned to obtain continuous records of temperature and humidity and three hospitals in different parts of the country are already cooperating in this work.

The dangers of some forms of premature baby incubators, the effectiveness of bedpan sanitisers, the possible danger of nurses' gowns conveying infection to babies, and the methods of washing babies' napkins in hospitals are some of the other matters investigated during the year.

4. Development of Work

The work of investigating outbreaks of hospital cross infection and the related work of examining equipment and materials used in hospitals has increasingly monopolised the activities of the epidemiologist. Approval has been obtained for the appointment of a research officer who could relieve the epidemiologist of much of this work, but, despite continued advertising, no applicants have been forthcoming. The services being provided by the epidemiologist in this field are of great importance, both for health and direct economic reasons. The demands for these services are likely to increase and, until additional staff are recruited, the further epidemiological investigations which are planned and some of which have already started can only be attended to after the more urgent needs of the hospitals have been met. At the present time some preliminary work has been done in cooperation with others working on the same problem in surveys to correlate the incidence of leukaemia with local geography and climate. The insistence of American and Danish workers that the allied diseases in animals are probably of a virus nature is another reason for devoting attention to this group.

5. Acknowledgment

We are indebted to the Medical Superintendents of Wellington, Nelson, Cromwell, Masterton, and New Plymouth hospitals, to those of the St. Helens hospitals and the staffs of the Mater Hospital, Auckland, and Calvary Hospital, Christchurch, for affording to the National Health Institute facilities for studies in their institutions. The Institute is also indebted to Dr G. Roth, Director, National Radiation Laboratory, Christchurch, for his and his staff's assistance in the design and manufacture of laboratory equipment used in investigations.

II. Laboratories

The work of the general bacteriology laboratory has increased considerably and that of the hospital cross-infection laboratory has shown a moderate increase. During alterations to the virus laboratory the virologist found it necessary to ask hospitals and practitioners to restrict the type and number of specimens sent and this has resulted in a drop in the number of specimens received by the virus laboratory. The total number of specimens received by the Institute increased by about 10 per cent to 10,620.

General Bacteriology

The total number of specimens examined during the year was 5,454, which was an increase of 1,614 over the 1962 total. The increase was spread over the different routine examinations with large increases in the number of faecal specimens examined and in the number of food poisoning and dysentery organisms sent for identification.

Among the cultures received there were five different types of dysentery organism. The commonest type, of which there were 159 cultures, was, as usual, that causing Sonne dysentery. Of the food-poisoning organisms *Salmonella typhi murium*, of which 69 cultures were received, was again the most common. One type, *newport*, isolated from a Greek immigrant, was identified in New Zealand for the first time. Another type, *oranienberg*, not usually occurring in this country was isolated from aborted ovine foetal material and sent to the Institute for identification by the Agricultural Department; the only known previous isolation of this organism in New Zealand was from a patient who had been travelling in the Far East. The different types of enteric, food poisoning, and dysentery organisms identified during the year are set out in the table below.

Types of Enteric, Food Poisoning, and Dysentery Organisms Identified

<i>S. typhi murium</i>	..	..	69	<i>S. typhi</i> , phage type A	..	1
<i>S. anatum</i>	..	..	55	<i>S. typhi</i> , phage type C1	..	4
<i>S. bovis morbificans</i>	..	..	21	<i>S. typhi</i> , phage type E1a	..	9
<i>S. enteritidis</i>	..	..	1	<i>S. typhi</i> , phage type 38	..	1
<i>S. newington</i>	..	..	3	<i>S. typhi</i> , phage type 46	..	2
<i>S. newport</i>	..	..	2	<i>S. typhi</i> , untypable	..	3
<i>S. senftenberg</i>	..	..	7	<i>Shigella sonnei</i>	..	159
<i>S. mississippi</i>	..	..	2	<i>Shigella flexneri</i> , type II	..	5
<i>S. oranienberg</i>	..	..	1	<i>Shigella flexneri</i> , type III	..	2
<i>S. derby</i>	..	..	4	<i>Shigella flexneri</i> , type VI	..	2
<i>S. chester</i>	..	..	1	<i>Shigella schmitzii</i>	..	2

Of the 1,405 specimens of sera examined for antibodies to leptospira, 130 were positive from 94 separate patients. As in past years the majority of infections were due to *Leptospira pomona*.

From June to November a series of water samples from the eastern bays of Wellington Harbour were examined weekly for the Medical Officer of Health, Lower Hutt.

Two thousand three hundred and sixty-seven samples of serum were received for tests for toxoplasma antibodies. Included in this number were 355 specimens collected by the medical research unit of Wellington Hospital in a survey conducted at Tikitiki. A further 112 specimens were part of a survey of patients in Braemar Hospital.

Virus Laboratory

In all, 815 specimens were received by the virus laboratory. Of these 440 from 384 patients were for virus isolation and 304 specimens were for serological examination. Twenty-two viruses were isolated, including three different types of adenovirus, four different types of Coxsackie A virus, and two types of Coxsackie B virus.

Virus techniques are exacting and staffing difficulties create special problems in this work.

Planned work attempted during the year consisted of:

1. Tests on children's blood collected before and after they received Sabin oral poliomyelitis vaccine in 1962. These samples were to be tested for antibodies to poliomyelitis using a colorimetric test and could have been used to assess the epidemiology of influenza type A and B using a complement fixation test. Neither of these projects was completed.

2. Routine samples of blood from patients with illnesses which might be due to Coxsackie B viruses were to be examined to confirm the diagnosis. A considerable number of specimens were examined by a tube neutralisation test, but the results are not considered sufficiently reliable for analysis.

3. As a personal project the virologist undertook an investigation of respiratory virus syndromes occurring during the winter in Wellington. This project was unfruitful because of technical difficulties and the poor response to a request for specimens.

4. Later in the year the virus laboratory cooperated with a practitioner in Wairoa in an investigation of normal and ill children in that area. This investigation is still continuing and so far has given an indication of the incidence of Coxsackie A viruses in this community.

Points of interest in the positive findings were as follows.

In the first half of the year Coxsackie B2 and B5 viruses continued to be isolated from syndromes of aseptic meningitis and Bornholm disease. Some 30 to 40 cases of pericarditis were investigated and a Coxsackie B virus was isolated from two cases. It is reasonable to assume that this type of pericarditis was caused mainly by the prevalent Coxsackie viruses though the serology was not sufficiently reliable to confirm this. Coxsackie A viruses were isolated from the cerebro-spinal fluid of a medical practitioner who suffered a mild lymphocytic meningitis and from a girl of four who suffered from a mild encephalitis.

Late in the year, in October and November, a small scatter of cases in Wellington were proved on serological grounds to be adenovirus infections. These cases occurred in young children and conformed to the general picture of pharyngoconjunctival fever and a few of them had an ill-defined rash. An infection with adenovirus type 1, proved by both isolation and serology, occurred in a girl of four who, at the time of her infection, suffered from myocarditis and encephalitis. Another case also in a young child, a boy of four, developed a flaccid lower motor

neuron paralysis of the arm and foot, an illness clinically indistinguishable from poliomyelitis. Here, also, an adenovirus type 1 was recovered with serological evidence of recent infection. In view of the high incidence and prolonged excretion of these viruses in this age group, the true aetiology of these illnesses remains in doubt.

Hospital Cross-infection Laboratory

The routine work of this laboratory consisted of the phage typing of 2,931 staphylococcal cultures, the testing of 154 cultures for antibiotic sensitivity, the examination of 127 swabs and other specimens for coagulase positive staphylococci and the examination of five samples of serum for anti-alpha-hemolysin antibody. In an endeavour to improve and simplify the work of phage typing, a trial was conducted of the effect of typing using the phage preparations at different strengths. From October 1962 to August 1963 cultures were typed with phages at three strengths, routine test dilution, a 100 times routine test dilution and a 1,000 times routine test dilution. The previous practice had been to test at routine test dilution and, if the organism was not typable at this strength, to use the 1,000 times routine test dilution. As a result of this trial it has been found that it is possible to obtain substantially the same information by testing all cultures at the single strength of 100 times routine test dilution.

In addition to this routine work, 707 specimens were examined for the epidemiologist and a number of special examinations undertaken. This special work included:

1. Testing of disinfectants and antibacterial ointments.
2. A comparison of a hypochlorite method of sterilising polythene baby bottles with sterilisation by boiling. This involved sampling 1,317 bottles in 63 tests.
3. Tests to discover the time required for home pasteurisation of milk. Thirteen tests were performed to determine the time required to pasteurise 1 pint and 1 quart of milk in a double boiler.
4. Tests were made to determine the survival time of bacteria in ointments, on rubber mattresses, and on a plastic toilet seat.

This laboratory acts as the national staphylococcal phage-typing centre for New Zealand. During the year the work, which was begun in 1962, on preparing and freeze-drying fresh stocks of phages from the new set sent from the world centre in England was completed. In all 37 batches of phage were propagated in 1963. Complete new sets of freeze-dried phages and staphylococcal cultures have been sent out to the five base laboratories undertaking this work in New Zealand. In addition, one other hospital in New Zealand and a laboratory in Indonesia have been supplied with complete sets which will allow them to undertake phage typing.

Vaccine Laboratory

Vaccine production had to be suspended during a large part of the year due to alterations to the laboratory. Routine work on the checking of the safety and potency of stored vaccine has continued as far as possible and during the year 45,560 capillaries and 3,950 doses in 1 ml vials were issued.

Certain special work has also been undertaken by this laboratory. Samples of biological products have been tested for sterility and some preliminary work has been undertaken to assess the usefulness of a

new test for phenylketonuria. This test is a microbiological assay of phenylalanine in blood and is said to be more reliable and to become positive earlier than the present test which is performed on urine.

Research Laboratory

Last year certain of the more toxic organophosphate insecticides came into use among orchardists in larger amounts than hitherto. Warning leaflets were prepared by the Occupational Health Branch of the Public Health Division and enclosed with any purchases, in particular, of parathion. These leaflets advised the orchardists to have blood tests made before and during the spraying season and the programme of testing for blood choline esterase in this laboratory was accordingly continued. At the end of this further season's testing, there has been no major change in the general position—that the handling of organophosphates has been without any important toxicity to careful workers and that the chief hazard will result from faulty equipment or from accidents or carelessness in handling. In the absence of mishap, it seems unusual for an effect on blood choline esterase to be large enough to demonstrate unless the base-line values of that particular worker are previously known. It is satisfactory, therefore, that more information on base-line values among workers exposed to the risk of accidents is now starting to accumulate. Nevertheless for assessing occupational exposures, there remains a definite need for a general method of estimating metabolic products that would be more sensitive than choline esterase tests.

1. Routine Choline Esterase Tests

Choline esterase tests have been continued at two-monthly intervals on plasma and red blood cells of factory workers handling diazinon. The range of blood enzyme levels found among workers with at least four tests during the year was as follows:

	Subject						
	A	B	E	F	G	H	I
<i>Plasma Choline Esterase</i> (pH change per hour at 25°C)—							
Maximum	0.91	0.67	1.24	0.81	1.07	0.99	0.85
Minimum	0.78	0.58	1.01	0.70	0.90	0.75	0.65
<i>R.B.C. Choline Esterase</i> (pH change per hour at 25°C)—							
Maximum	0.76	0.81	0.72	0.62	0.75	0.73	0.81
Minimum	0.62	0.61	0.62	0.58	0.66	0.65	0.67

Among other workers tested, one was detected who had enzyme levels of 0.4 (plasma) and 0.6 (R.B.C.), changing after two months to 0.8 and 0.55. This worker had no symptoms, and the temporary fall in plasma level followed from use of a concentrated spray for three days in preparing diazinon in granule form. There was no corresponding fall in two other workers engaged on the same task.

Tests were made on two workers in another district who were handling experimental sprays of disyston, gusathion, and other insecticides. The plasma and R.B.C. choline esterase levels remained within 5 per cent of pre-exposure values.

There were 32 other specimens sent in for test, of which 22 were for precautionary tests on orchardists using parathion in the Hastings area. Results on these were within normal limits, except for one instance with plasma 0.4 and R.B.C. 0.7. In this case, no pre-exposure test had been requested, and it is at present an open question whether the low plasma value is constitutional or a consequence of exposure. Nine specimens were sent in from cases of suspected poisoning in four different districts. All results were within normal limits even though some cases were associated with symptoms; in these cases it is hoped to obtain base-line values by a retest next winter. One specimen was from a case awaiting surgery after a previous episode of suxamethonium apnoea. The plasma, at 0.3 units, was below normal limits.

During the year it was noticed that a statement on malathion in the *British Medical Journal* under the heading "Any Questions" was erroneous. This led to preparation of a letter, with relevant references to reports of poisoning, which appeared on 12 October (*British Medical Journal*, 1963, ii, p. 823).

2. Possible Alternative Tests for Occupational Exposure of Organophosphates

The increasing evidence that choline esterase tests have not been sensitive enough in detecting occupational exposure to organophosphates, has naturally been followed by a search for better methods. Overseas work has developed along two lines, (a) simplification and automation of the choline esterase test to make it less demanding in skilled time, and (b) development of more sensitive chemical tests.

In the case of automation, if a need for screening large numbers of people should arise, tests (on serum only) could now be run through on an Auto-Analyser, using the Bromothymol Blue technique. Without results on the R.B.C., however, it would be even more important to have pre-exposure values for interpreting the serum results. Chemical tests on urine would have considerable scope and some of these are already important in the limited fields for which specific methods are available (e.g., for parathion). There still seems to be no accepted general method, though, which suggests that there are difficulties to overcome. An investigation of possibilities based on methods for dialkyl phosphates, for alkyl groups, for phosphate or for sulphur has been made in the literature and can be continued experimentally if future experience of poisonings in New Zealand indicates that this is needed.

3. Routine Tests for Serum Glutamic-Oxalacetic Transaminase (SGOT)

Serum SGOT tests can be used for detecting subclinical cases of infective hepatitis. As it might become useful to detect infective carriers, a trial of the analytical technique has been made and the useful life of the reagent solutions in cool storage has been checked.

2. NATIONAL RADIATION 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 in 1954.
- (b) The Transport of Radioactive Substances Regulations 1951.
- (c) The Radioactive Substances Appeals Regulations 1954.

The National Radiation Laboratory (previously known as 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

During the year the Laboratory's radiation officers visited 356 establishments throughout the Dominion. Two hundred and seventy-three visits were made to users of X-ray plants, and 83 were made to places where radioactive substances are used. These visits, which involved calibration and survey measurements, and work on problems associated with radiation protection, were made to X-ray installations used for the following types of work: medical diagnostic (91), medical therapeutic (57), dental (83), chiropractic (17), veterinary (6), industrial (4), shoe fitting (4), and miscellaneous educational and research facilities (11). Among the users of radioactive substances which were visited, 15 used them for medical diagnostic and 22 for medical therapeutic purposes; there were further visits to 18 industrial, 12 research, nine teaching and demonstration, and seven miscellaneous establishments where radioactive substances were used.

Particular attention was paid to the users of unsealed radioactive substances. On several occasions it was necessary to carry out the decontamination of work areas where unsealed radioactive substances had been used. Particular attention has been given to radiation protection of X-ray crystallographic units, and to neutron monitoring.

II. Laboratory Services

(a) *Occupational Exposure*

The Laboratory's postal radiation monitoring film service is used for the routine determination of the exposures received by all radiation workers in New Zealand. In addition the service has been extended to cover X-ray workers in a number of hospitals and dental establishments in Malaysia, Samoa, Fiji, and Rarotonga. During the year under review, 14,835 personnel monitoring films were processed, evaluated, and reported on. An additional 1,036 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.

During the last few years an increasing number of establishments in New Zealand have obtained facilities for neutron work. Provision for routine personnel monitoring for neutron exposure is therefore being made, supplementing the field survey measurements referred to in section I of this report.

Under some circumstances the measurement of occupational exposures may involve the use of radiochemical or low-level counting procedures. A case in point was the suspected contamination of a radiation worker due to a wound inflicted on him by a radioactive fan blade. Urine samples collected over several days were measured for total gamma activity. The samples were then evaporated and ashed for total beta

activity measurements. No radioactivity due to the contaminants on the fan blade was detectable.

(b) Supply of Therapeutic Applicators

During 1963 a total of 43 orders by hospitals and medical practitioners for radon applicators was filled from the Laboratory's radon extraction plant. These orders covered 545 gold-cased "seeds", 43 gold-cased "needles", and 18 special applicators. In addition three orders for a total of five containers of radon for educational purposes were fulfilled. The radon dispatched totalled 850 millicuries at the time of insertion or use.

The strontium-90 beta-ray applicators kept by the Laboratory for hire to medical practitioners were on hire for 360 days.

(c) Radiation Measurements

The 26 clinically used dosimeters and treatment monitors used in New Zealand's seven radiotherapy departments were calibrated *in situ* twice during the year. These calibrations extend over the full range of radiation qualities used in New Zealand. In addition, very full calibrations were made of the instruments used in the survey of patient dosage in diagnostic radiology.

The Laboratory's remotely controlled isodose plotter, previously used at several hospitals and at the Laboratory for depth dose measurements, has been further improved and loaned to a hospital radiotherapy department for a series of measurements under a cobalt teletherapy unit.

(d) Technical Services

The Laboratory's technical services provide not only routine service and maintenance work, but they also develop and construct new equipment to meet the special requirements of the Laboratory. The mechanical workshop had to tackle some heavy engineering problems amongst the 147 jobs it completed during the year. To provide extra steel shielding for the Laboratory's gamma-ray spectrometer, a number of huge old railway engine gear-wheel bosses had to be modified to fit the equipment and to take some additional lead shielding. A lifting device for the 120 lb lid of the shield was designed and constructed, allowing it to be lifted by a foot pedal. On the other end of the scale—precision engineering, approaching watchmakers' standards—two sample changers for the Laboratory's new alpha-counting equipment were designed and built. Marinelli chambers for the gamma-ray spectrometer were made, Teflon and Polythene filtration equipment was produced for chemical work in the Laboratory's fall-out section, and engineering work was done on equipment used by the National Health Institute, Wellington.

Since the Laboratory's automatic low-level counting systems are kept going 24 hours a day, seven days a week, virtually four years of conventional operation is crammed into one working year. Therefore the electronics staff has to spend considerable time and effort on providing adequate spares and improved servicing methods. Design and construction work proceeded on the building of portable scintillometers, transistorised power units, modifications to some of the Laboratory's low-level counting equipment and to the monitoring equipment used during the 1962 Pacific tests. Radiation measuring equipment belonging to the Samoan Department of Health, the RNZAF, Lincoln College, NAC, and Ministry of Works was repaired.

(e) Administrative Services

The administrative services of the Laboratory provide up-to-date records of licences and registers of all sources of ionising radiation, they control the importation of all radioactive substances into New Zealand, and, in addition to undertaking the clerical and statistical work of the Laboratory, the administrative services keep records of the radiation test film results, provide the Laboratory's library and photographic services, and carry out all the non-technical work associated with the radiation test film service.

The classification of radioactive materials according to their potential hazard when involved in a fire has been continued with the notification to fire brigades—through the Fire Service Council—of the classes of such hazards and their locations within the various fire districts.

(f) Advisory Services

A considerable part of the radiation officer's time is spent in answering inquiries from licensees. Plans of radiation protection barriers for nine medical units had to be prepared, and advice was given to university departments on the design of radiochemical laboratories, on the design of areas for the handling of large radiation sources, and on means for keeping potential radiation exposure low. Assistance has been given to industrial and commercial groups in the design of a soil-moisture meter, the disposal of X-ray plants (notably foot-vision machines), protection aspects of X-ray diffraction machines and thickness gauges, the handling of cargoes containing radioactive substances, and the preliminary planning of an installation for radiation sterilisation of medical supplies, and advice on radiation problems had to be given at the request of several Government Departments.

(g) Education and Training

Apart from the presentation of papers at scientific meetings, and the training and educational work done by the Laboratory, radiation protection problems of general interest are being explained to various groups of the public by the Laboratory's radiation officers in a number of public talks and courses.

During 1963 the Laboratory's educational programme has been further extended with a course on "Elementary Radiation Surveys", given to specially selected health inspectors. The course consisted of four days' lectures and demonstrations, including much active participation by the inspectors. At the conclusion of the course the participants sat an examination which tested their ability to cope with situations likely to arise in the field.

III. Environmental Radioactivity

Throughout 1963 three radiation officers, one technical officer, and one technician were working on the measurement of radioactivity in environmental samples. The measurement of radioactivity from fall-out in air, rain, milk, and bone samples was continued on a routine basis and the measurement of naturally occurring radioisotopes in human bone samples has been started. The results of the fall-out measurements are published in the Laboratory's quarterly reports "Fall-out in New Zealand" which receive world-wide distribution.

(a) *Fall-out Monitoring*

(1) *Total Gamma Activity of Air-filter Samples Collected Near Ground Level*—The continuous sampling of the atmosphere at Auckland and Christchurch for airborne radioactivity was maintained during 1963. The air filters were changed three times weekly and measured for total gamma activity. More than 300 air-filter samples have been measured during the year.

(2) *Total Beta Activity of Fall-out Deposited on the Ground*—The measurement of total beta activity in rain samples collected weekly at Christchurch has continued throughout the year. The final collection of rain samples from Funafuti, Tarawa, Rarotonga, and Western Samoa was received early in the year and measured for total beta activity as part of the Laboratory's monitoring operations in the Pacific during the period of nuclear weapons testing in 1962. In total, 60 rain samples have been processed and measured for total beta activity during 1963.

(3) *Total Beta Activity of Land and Sea Food from the Pacific Islands*—The final collection of 24 land and sea-food samples received early in the year from Rarotonga was processed and measured for total beta activity. The measurement of these samples completed the Laboratory's monitoring operations in the Pacific area, following the 1962 weapons tests. The results of these monitoring operations have first been published in the Laboratory's quarterly report "Fall-out in New Zealand and Pacific Island Territories: DXRL-F5", and subsequently in reports DXRL-F6, DXRL-F7, and DXRL-F8.

(4) *Strontium-89 and Strontium-90 in Rain*—The measurement of strontium-89 in rain, which was started in April 1962 to determine the arrival of fresh fission debris, was continued on monthly samples collected from nine New Zealand collecting stations and from Fiji during the first six months of 1963. As was to be expected, following the cessation of nuclear tests in the atmosphere, the strontium-89 levels fell steadily during the first six months of 1963 to an average value of 0.1 mc/km² for June 1963. In view of this low value, strontium-89 measurements were then discontinued.

Strontium-90 measurements on monthly rain samples from all New Zealand collecting stations continued throughout the year. Collections from Fiji, which were made monthly during the nuclear test period, reverted to the normal three-monthly collection period from 1 July. The results of these measurements show that the average deposition of strontium-90 for all New Zealand collecting stations has increased over the last few years. The depositions for the years 1960, 1961, 1962, and 1963 were 0.9, 1.2, 1.6, and 1.8 millicuries per square kilometre respectively. The station with the highest annual deposition was Greymouth with 3.7 mc/km². The lowest was Havelock North with 1.0 mc/km².

(5) *Strontium-90 in Soil*—The sampling of soil at Greymouth for strontium-90 measurement was started during the year and some preliminary work on methods of analysis has been done.

(6) *Strontium-90 in Milk*—The monitoring of milk from eight areas in New Zealand has continued during the year. The average level of contamination for all stations has increased during the last three years. For the years 1961, 1962, and 1963 the level in milk was 4.9, 6.1, and

7.1 strontium units respectively. Greymouth milk continued to have the highest contamination during 1963 with an average level of 17.2 strontium units. The lowest level was in Christchurch milk with an average level of 2.7 strontium units.

(7) *Strontium-90 in Human Bone*—Twenty-two post-mortem samples of human bone from three different localities have been analysed during 1963. The samples range in age from five months to 85 years and the levels of contamination range from 0.1 to 3.2 strontium units, the younger age groups having the higher levels of strontium-90.

(8) *Strontium-90 in Rabbit Bone*—In order to obtain a general picture of strontium-90 fall-out in the years prior to the commencement of routine measurements, samples of rabbit bones collected during the period 1951 to 1958 are being analysed at the Laboratory. The rabbit-bone samples were made available for this work by the Director of the Animal Ecology Division of the Department of Scientific and Industrial Research.

(9) *Caesium-137 in Milk*—A method of measuring caesium-137 by direct gamma counting of liquid or dried milk has been applied by the physics section of the Laboratory. About 40 samples collected as part of the Laboratory's routine monitoring for strontium-90 have been measured for caesium-137 during 1963.

(b) Measurement of Naturally Occurring Radioisotopes

Post-mortem samples of bone from a suspected radium-poisoning case, together with control samples, were received at the Laboratory for the measurement of radioactivity. Total beta and total gamma activity measurements were first made on the ashed samples, but since this type of measurement gives little information on potential hazard, a method of radiochemical separation of the radium in the dissolved samples was then adapted for the purpose. The radium was coprecipitated on barium sulphate, purified from unwanted activities, and measured for alpha activity by a scintillation method. Two samples from the Laboratory's bank of ashed-bone samples for strontium-90 determinations have also been measured for radium by this method. The remaining samples in the bank and future samples received will also be analysed as part of a project in measuring natural radioactivity in the New Zealand environment.

In conjunction with the method for radium determination, a method of measuring the naturally occurring beta emitter lead-210 was developed and a sample of bone from the suspected radium-poisoning case was measured for this radioisotope.

Samples of drinking water from artesian supplies near radium waste disposal areas were measured for their radioactive content. It was confirmed that there was no transfer of radium to the water supply.

IV. Research and Developmental Work

(a) Radiochemical Analytical Methods

The development during the year of a method for the determination of radium-226 and lead-210 has already been described in section III (b).

Further improvements in the Laboratory's ion exchange method of strontium carrier separation from milk or bone samples have resulted in simplification of both apparatus and procedure. A paper has been prepared by Mr L. P. Gregory, incorporating the recent improvements. The manuscript has been accepted for publication in *Health Physics*.

(b) Medical Radiations and Leukaemia

The paper by Mr H. R. Atkinson of this Laboratory and Dr F. W. Gunz, Department of Pathology, Christchurch Hospital, entitled "Medical Radiations and Leukaemia: a retrospective survey", which reported the results of an investigation of the part played by radiation in the aetiology of sporadic human leukaemia, has been accepted for publication in the *British Medical Journal*.

Arising from this study, the authors were invited to contribute an editorial to the American journal *Radiology* under the title "Leukaemia following Radiation" and this has been accepted for publication.

(c) Radiation Doses to Patients in Diagnostic Radiology in New Zealand

A survey is being conducted to determine the radiation dose to the gonads of patients during diagnostic X-ray examinations in New Zealand. Measurements are being made during actual X-ray examinations in those major hospitals and private practices in which the bulk of the examinations are carried out and, with the cooperation of radiographers, in a number of the more important smaller hospitals.

(d) Population Exposure to Gamma Radiation on Niue Island

In February 1963, Dr A. C. Stevenson of the Population Genetics Research Unit, Oxford, requested assistance in a radiation investigation which he was making on Niue Island for the British Medical Research Council. It was known that some soils on the island showed high radioactivity and the investigation was to decide whether the average genetic exposure of the population was sufficiently high to justify sending a group of specialists there to look for genetic effects which could be attributable to radiation. Mr H. J. Yeabsley, Assistant Director of the Laboratory, accompanied Dr Stevenson to Niue where it became apparent that, because of the predominantly coral nature of the terrain, the coastal area where all the villages are located has an unusually low level of natural background radiation, while the uninhabited bush-clad central region was found to have a generally higher radiation level. The detailed evaluation of the dose-rates measured during the visit and of the results of a previous survey both indicated that the external radiation from the pockets of radioactive soil only fractionally increases the average genetic population exposure on Niue. The proposed expedition was therefore cancelled.

(e) The Detection of Low-level Alpha Emitters

The radioactive substances which produce alpha rays are the most radio-toxic materials known. Most alpha emitters are natural radioactive substances and occur in varying amounts in air, water, and foodstuffs. The maximum allowable quantities in human tissues are low and difficult to detect and evaluate. A considerable amount of work was done during the year to improve the identification and measurement of such substances at very low levels of activity. Programmes are being developed

using these methods to measure the normal range of the alpha-emitter contamination of people in New Zealand and to measure some of the sources of this contamination.

(f) Gamma-ray Spectroscopy

Improvements made to the Laboratory's single-channel automatic spectrometer lead to a further increase in its use for identifying and quantitatively measuring gamma-ray emitters without chemical preparation. The unit was operated on a round-the-clock basis throughout the year. The equipment was improved by the installation of an automatic voltage scanner which greatly improved the detection of low-energy emitters such as cadmium-109 (a tracer in one weapons test series) and lead-210 (a daughter of radium-226 and commonly found as a co-contaminant and as a natural fall-out material).

Technical Report

A more comprehensive report on the work of the Laboratory, incorporating more detailed technical and statistical information, is available from the National Radiation Laboratory, P.O. Box 1456, Christchurch.

PART V—MISCELLANEOUS

1. BOARD OF HEALTH

The two meetings held by the Board during the year were concerned with the consideration and study of committee reports and activities.

The scope and nature of the committees' work and interests is outlined in the following summary.

Local Authority Affairs Committee

The committee met on three occasions during 1963. Its main business was with the problems of several local authorities that have postponed improvements to sewerage services for various reasons and are now faced with worsening sanitary conditions and mounting costs.

The subcommittee set up to inquire into and report on the recruitment and training of health inspectors duly reported to the Minister, Report No. 9 "The Training and Employment of Health Inspectors in New Zealand".

The report includes 19 recommendations which have been referred to the appropriate local authority and departmental quarters for consideration.

The Air Pollution Committee

The committee met once during 1963 and discussed further proposals for the application of legal provisions to limit discharges of smoke from industry. The committee also reviewed the results of research being conducted in Christchurch and Auckland on particular aspects of air pollution and generally kept in touch with the measures being taken by the chemical inspectors of the Department to deal with known problems in air pollution control.

The Epidemiology Advisory Committee

The committee met once during 1963, its main purpose being to consider details of a circular about the prevention of tetanus. This circular has been sent to all doctors and has been well received.

The Maternity Services Committee

Two meetings of this committee were held during 1963. Its wide ranging discussions are particularly valuable in bringing forward suggestions and recommendations for the improvement of our maternity services.

The Services for the Deaf Committee

The committee held one meeting during 1963—primarily to keep in touch with recent developments. The approval by the Government to the establishment of a national audiology centre should enable progress to be made on many known problems and result in the committee meeting more frequently.

The Sterilisation Procedures Committee

The committee met on four occasions during the year and discussions were held covering a wide range of items. Three working parties were set up to examine particular aspects of the subject.

The Dental Health Committee

During the year the Dental Health Committee met to consider item (b) of the order of reference, i.e., "The type of inpatients' and outpatients' service which should be provided by dental departments of public hospitals, and the extent to which such hospital dental departments should provide specialist and consultative services." This investigation is continuing.

Fluoridation Committee

The Fluoridation Committee met once during 1963 mainly to review progress made. Two aspects are particularly pleasing to note. First, the 1963 dental survey in Hastings has reinforced earlier demonstrations of the effectiveness of fluoridation in reducing dental decay. It should be noted that not only has the number of carious teeth been reduced, but, where decay does occur, it is much less gross than in areas where fluoridation is not practised. Also it can justifiably be claimed that the teeth of the children in Hastings are better formed and of a better general appearance than elsewhere.

Secondly, it is with pleasure that we observe the awakening interest of local authorities in fluoridating water supplies. During the year the Invercargill city water supply was fluoridated and numerous other local authorities are making inquiries about the possibility of following suit.

Maori Health Committee

The committee did not meet during the year, but reports have been received on the surveys and other projects which the committee approved previously.

Active committees have been operating to good effect in the Whangarei, Taranaki, and Gisborne areas.

2. NURSES AND MIDWIVES BOARD

During the year the Board held four ordinary meetings and one special meeting.

Mrs E. M. F. Chambers and Miss M. E. Little completed their terms of office and were both reappointed.

Under an amendment to the constitution of the Board, two additional members were appointed and these were Mr G. F. Smart, nominated by the Medical Superintendents Association, and the late Reverend Sister Mary Alphonsus, nominated by the New Zealand Registered Nurses Association. Miss E. M. Hollis was appointed to replace Miss G. D. Boyd who retired at the expiration of her term of office, and Dr S. W. P. Mirams who succeeded Dr Blake-Palmer as Director of the Division of Mental Health, became a member of the Board.

The death of the Reverend Sister Mary Alphonsus occurred towards the end of the year and members in expressing regret commented on

the great contribution she had made to the nursing profession and to the Board.

The Board expressed thanks to the retiring members Miss G. D. Boyd and Dr Blake-Palmer.

Legislation

Provision was made in an amendment to the Nurses and Midwives Act for (a) the appointment of a deputy registrar, (b) for the chairman and registrar to act on behalf of the Board between meetings, (c) for an extension of the registration conditions for psychopaedic nurses, (d) for an alteration to the conditions affecting nurses who suffer from a mental or physical disability, and (e) for a reduction to 20 years of age for registration of psychiatric and psychopaedic nurses.

At the invitation of the various nurses registration boards in Australia the Board was represented at two nursing education conferences in Sydney.

Two post certificate courses were approved, one for premature baby and infant care, the other an operating theatre course.

The Board approved the establishment of a midwifery training school in the Anderson Maternity Unit, Fiji, and graduates will be admitted to the New Zealand Register of Midwives.

Negotiations are in progress for new conditions governing the registration of New Zealand nurses with the General Nursing Council for England and Wales.

There has been a decrease of 8 per cent in the number of students undertaking general nurse training. This year's figure is 4,140 compared with 4,500 last year, but there has been a corresponding increase in the number of registered staff employed.

Students with School Certificate or better accounted for 52 per cent of the total in training; with three or more years secondary education, 35 per cent; and with less than three years, 13 per cent. Of this latter figure six pupils had less than one year secondary education.

The wastage rate of students during training remains high at approximately 20 per cent and the causes are principally marriage, study difficulties, and unsuitability.

As in past years there has been little change in numbers of nurse aids in training and they continue to serve a useful purpose in the staffing of the nursing aid training schools.

The number of midwives who qualified during the year was 125 which is an increase of 13 per cent on the previous year. Maternity nurses graduating, however, decreased by 30 per cent and only 126 qualified in comparison with 164 last year.

Once again the number of male nurses in training has decreased and this year there are 24 in training in comparison with 34 last year. Only 17 male nurses have graduated in the last five years. The Board has under consideration a request that male nurses be permitted to train in all "A" grade general training schools.

The number of psychiatric nurses in training is 403 and 79 of this number will sit Final Examinations in 1964. This looks more hopeful than the past year when only 51 qualified for registration.

Twenty-five psychopaedic nurses were registered in 1963 and, although the curriculum for this type of nursing was only introduced a little over 12 months ago, there are now 116 students in training.

Community Nurses

Fifteen hospitals have undertaken a community nurse training programme and approximately 40 students qualified during the year and a further 55 are in training. The pilot schemes under the aegis of the Health Department in association with hospital boards has been a success.

3. INTERNATIONAL HEALTH

At the 1963 World Health Assembly New Zealand was elected as a member entitled to designate a person to serve a three-year term on the Executive Board. This is the body which gives effect to the decisions and policies of the World Health Assembly acting as the executive organ between the annual Assemblies.

Dr W. Murphy, Assistant Director of Public Health, received a WHO fellowship to enable him to study nutrition in London for a year.

The control of narcotic drugs by the incorporation of nine separate agreements, conventions, and protocols into a single convention has been mentioned in previous annual reports. As at 31 March 1964, 29 countries had ratified the convention. Forty countries, however, must ratify it before its provisions become binding on the ratifying countries.

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TABLE 1—Social Security Fund Medical Benefits: Statement Showing Expenditure Since 1 April 1954

	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
<i>Subdivision I—Maternity Benefits</i>										
Public hospital fees	£ 606,447	£ 753,404	£ 776,321	£ 780,364	£ 875,755	£ 892,692	£ 905,389	£ 989,239	£ 1,002,877	£ 990,133
Private hospital fees	170,385	200,532	190,613	180,222	181,254	185,978	184,679	194,808	177,269	198,494
Medical practitioners' fees	329,481	396,494	398,848	440,563	411,661	432,170	441,276	474,677	584,151	581,803
Medical practitioners' mileage fees	12,662	14,929	14,732	16,131	17,223	19,198	20,581	21,137	20,507	19,536
Obstetric nurses' fees	3,545	4,705	4,153	3,055	4,102	3,693	5,026	3,717	2,943	2,691
Private hospital loans	15,500	6,500	30,100	29,024	54,498	28,130	99,774	71,467	70,763	70,866
Private hospital subsidies	9,287	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
	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	1,803,523
<i>Subdivision II—Medical Benefits</i>										
Capitation fees	4,998	4,412	4,412	4,411	4,412	4,411	4,411	4,411	4,411	4,411
Capitation and general medical services mileage	183,039	197,493	207,292	219,505	205,362	214,860	193,445	182,918	169,050	156,523
General medical services	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	4,038,776
Special arrangements under section 82	64,450	63,470	69,166	73,019	76,572	87,094	91,755	112,329	118,809	119,352
Purchase of sites and erection of residences for medical officers appointed under section 82	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 .. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
	3,350,180	3,548,080	3,797,062	3,927,892	3,969,646	4,243,361	4,244,798	4,379,805	4,303,951	4,314,651
<i>Subdivision III—Hospital Benefits</i>										
Treatment in public hospitals	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	4,866,804
Outpatient treatment	187,406	341,875	397,716	414,234	414,602	414,460	413,921	414,458	412,953	417,188
Treatment in private hospitals	375,069	579,542	601,126	616,964	755,215	770,358	789,907	942,361	939,225	1,205,330
Treatment in approved institutions	76,432	95,453	107,057	111,789	117,153	125,275	129,936	80,140	92,849	97,912
Private hospital loans	30,282	68,151	179,368	180,210	196,423	64,577	15,795	25,659	86,937	83,203
Private hospital subsidies	84,547	3,028	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
Grant to Royal New Zealand Society for Health of Women and Children towards operating costs, Karitane hospitals	19,113	13,966	19,729	11,513	38,522	19,901	13,239	13,977	8,204	7,930
	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	6,678,367

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

	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
<i>Subdivision IV—Pharmaceutical Benefits</i>										
Drugs supplied by—										
Chemists	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	7,672,813
Medical practitioners	10,068	15,931	17,934	22,463	27,274	32,126	48,736	73,937	70,199	61,390
Institutions	84,994	74,030	79,017	90,326	111,511	136,492	143,532	170,669	170,339	179,363
Refund of Customs duty to wholesalers .. .. .	..	..	..	..	..	..	..	..	71,340	..
	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	7,913,366
<i>Subdivision V—Supplementary Benefits</i>										
Radiological services	409,391	448,374	474,369	471,792	471,202	489,459	510,234	522,997	541,547	556,891
Laboratory services	227,914	277,458	338,673	414,863	471,795	585,644	732,864	882,290	1,052,566	1,180,308
Physiotherapy services	64,347	64,863	66,499	61,569	61,679	63,005	61,916	64,078	69,356	98,503
Specialist service (neuro surgery)	2,719	3,181	2,872	2,990	3,790	5,003	3,324	5,794	4,013	4,585
District nursing services	137,339	150,117	162,016	181,892	195,518	206,587	222,916	234,490	246,954	296,642
Dental services	716,251	798,756	906,420	932,451	940,590	1,000,877	1,000,561	1,045,629	1,142,209	1,181,635
Domestic assistance	6,071	7,744	9,977	12,560	12,365	14,757	14,039	10,834	12,008	14,166
Grants to public servants and dependants in respect of medical, hospital, etc., expenses while stationed overseas	2,703	2,620	2,275	4,332	4,562	5,086	4,610	6,554	7,709	6,577
Ambulance benefits .. .. .	..	..	..	..	..	..	..	..	..	..
Artificial aids benefits	63,000	63,646	73,229	82,786	93,782	107,789	114,899	109,128	119,907	137,524
Payments under section 26, Social Security Amendment Act 1943	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	5,037
Grand totals	11,633,066	1,818,699	2,118,873	2,284,091	2,256,374	2,479,851	2,763,540	2,898,179	3,119,105	3,481,868
Recoveries	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	24,191,975
Net totals	4,489	5,566	10,053	7,666	4,774	4,670	4,570	3,271	8,639	5,291
	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	24,186,684

TABLE 2—Cost per Head in Health Districts, General Medical Services, and Capitation, 1963-64

Health District	Population as at 1 April 1963	Number of Doctors	Average Population per Doctor	Method of Claiming		Total Cost of General Medical Services and Capitation, Excluding Mileage	Average Amount Claimed per Doctor	Total Cost of General Medical Services and Capitation, Including Mileage	Cost per Head of Population
				Indirect	Direct				
Whangarei	88,850	55	1,615	..	100	£ 115,835	£ 2,106	£ 124,211	£ s. d. 1 7 4½
Takapuna..	549,460	483	1,137	16	84	1,068,728	2,213	1,088,347	1 19 7¼
Auckland..									
South Auckland	222,300	140	1,588	3	97	368,426	2,632	394,350	1 15 5½
Hamilton ..	132,680	83	1,599	..	100	210,003	2,530	219,965	1 12 4¼
Rotorua ..	64,040	30	2,135	7	93	68,560	2,285	71,886	1 2 5½
Gisborne ..	98,880	68	1,454	..	100	149,511	2,197	155,142	1 11 5
New Plymouth	96,960	68	1,426	46	54	143,660	2,113	146,777	1 10 3¼
Napier ..	85,430	51	1,675	8	92	111,406	2,187	117,692	1 7 6½
Wanganui	123,720	70	1,767	40	60	140,617	2,009	145,882	1 3 6
Palmerston North	308,250	248	1,243	44	56	457,163	1,843	463,167	1 10 0½
Wellington	78,460	52	1,508	50	50	105,602	2,031	114,799	1 9 3
Hutt ..									
Nelson ..	321,610	249	1,292	12	88	553,800	2,232	576,653	1 15 10½
Christchurch									
Greymouth	103,150	64	1,602	11	89	159,087	2,486	170,606	1 13 0¼
Timaru ..	152,110	116	1,311	20	80	265,924	2,292	280,384	1 16 10
Dunedin ..	101,180	55	1,840	38	62	115,631	2,102	124,004	1 4 6
Invercargill									
Total	2,527,080	1,832	1,379	19	81	4,033,958	2,202	4,193,865	1 13 2¼

TABLE 4—Principal Causes of Death

Causes of Death	Number of Deaths					Rates per 1,000,000 of Mean Population				
	1963	1962	1961	1960	1959	1963	1962	1961	1960	1959
Tuberculosis (all forms) ..	93	135	134	114	137	37	54	55	48	59
Syphilis and its sequelae ..	10	10	11	14	17	4	4	5	6	7
Acute poliomyelitis ..	..	..	7	..	1	..	..	3	..	..
All other infective and parasitic diseases ..	99	107	127	140	154	38	43	52	59	66
Malignant neoplasms ..	3,741	3,597	3,541	3,290	3,339	1,471	1,445	1,459	1,384	1,430
Diabetes mellitus ..	313	277	299	280	240	123	111	123	118	103
Vascular lesions of the central nervous system ..	2,773	2,729	2,738	2,537	2,570	1,090	1,097	1,128	1,067	1,101
Rheumatic fever and chronic rheumatic heart disease ..	237	251	231	220	242	93	101	95	93	104
Other diseases of the heart and hypertension ..	7,781	7,458	7,413	7,122	7,130	3,060	2,997	3,054	2,996	3,054
Influenza ..	40	191	35	28	190	16	77	14	12	81
Pneumonia ..	1,143	1,219	1,066	1,002	1,059	449	490	439	422	453
Bronchitis ..	650	580	594	497	560	256	233	245	209	240
Ulcer of stomach and duodenum ..	154	149	151	159	177	61	60	62	67	76
Nephritis and nephrosis ..	147	144	121	128	119	58	58	50	54	51
Motor vehicle accidents ..	407	420	405	356	362	160	169	167	150	155
Other accidents ..	723	738	738	736	683	284	297	304	310	293
All other causes ..	4,105	4,076	4,171	4,269	4,148	1,614	1,638	1,719	1,795	1,777
Totals ..	22,416	22,081	21,782	20,892	21,128	8,814	8,874	8,974	8,789	9,050

**TABLE 5—Infant Mortality. Rates per 1,000 Live Births.
International Comparison**

Country	Year	Deaths Under One Year per 1,000 Live Births
Sweden	1962	15.3
Netherlands	1962	15.3
Norway	1961	17.9
New Zealand (European)	1962	18.0
Finland	1962	19.2
Denmark	1962	20.1
New Zealand (both races)	1962	20.4
Australia	1962	20.4
Switzerland	1962	21.2
England and Wales	1962	21.4
United States (white)	1961	22.4
Czechoslovakia	1962	22.5
United States (both races)	1962	25.3
France	1962	25.9
Northern Ireland	1962	26.5
Scotland	1962	26.5
Canada	1962	28.0
Union of South Africa (white)	1962	28.3
Belgium	1962	28.3
Republic of Ireland	1962	29.2

TABLE 6—Deaths of Infants Under One Year (European, Maori, and Total Population) 1959-63

Principal Cause of Death	Number of Deaths					Rates per 1,000 Live Births				
	1963	1962	1961	1960	1959	1963	1962	1961	1960	1959
Influenza, pneumonia and bronchitis	E 109	106	113	99	121	1.9	1.8	1.9	1.8	2.2
	M 74	90	117	91	155	9.1	11.8	15.1	12.3	21.7
	T 183	196	230	190	276	2.8	3.0	3.5	3.0	4.5
Gastro-enteritis, diarrhoea, and dysentery	E 12	15	16	8	19	0.2	0.3	0.3	0.1	0.3
	M 17	34	37	48	43	2.1	4.4	4.8	6.5	6.0
	T 29	49	53	56	62	0.4	0.8	0.8	0.9	1.0
Congenital malformations..	E 229	223	230	226	231	4.1	3.9	4.0	4.1	4.2
	M 31	28	39	27	28	3.8	3.7	5.0	3.6	3.9
	T 260	251	269	253	259	4.0	3.8	4.1	4.0	4.2
Birth injury	E 119	126	111	151	119	2.1	2.2	1.9	2.8	2.2
	M 30	21	31	27	31	3.7	2.7	4.0	3.6	4.4
	T 149	147	142	178	150	2.3	2.3	2.2	2.8	2.4
Asphyxia and atelectasis ..	E 137	105	137	135	124	2.4	1.8	2.4	2.4	2.3
	M 23	18	29	23	20	2.8	2.4	3.7	3.1	2.8
	T 160	123	166	158	144	2.5	1.9	2.6	2.5	2.3
Haemolytic disease of new- born	E 20	35	39	32	43	0.4	0.6	0.7	0.5	0.8
	M 4	1	2	1	1	0.5	0.1	0.3	0.1	0.1
	T 24	36	41	33	44	0.4	0.5	0.6	0.5	0.7
Immaturity	E 113	138	140	164	171	2.0	2.4	2.4	3.0	3.1
	M 21	23	36	27	34	2.6	3.0	4.6	3.6	4.8
	T 134	161	176	191	205	2.1	2.5	2.7	3.0	3.3
Other	E 265	286	318	275	261	4.7	5.0	5.5	5.0	4.8
	M 65	82	95	86	76	8.0	10.7	12.2	11.7	10.7
	T 330	368	413	361	337	5.1	5.6	6.3	5.9	5.5
Totals	E 1,004	1,034	1,104	1,090	1,089	17.8	18.0	19.1	19.7	19.9
	M 265	297	386	330	388	32.6	38.8	49.7	44.5	54.4
	T 1,269	1,331	1,490	1,420	1,477	19.6	20.4	22.8	22.6	23.9

TABLE 7—Deaths of Infants Under One Year by Causes Neonatal and Post-neonatal, 1959-63

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	European					Maori				
	1963	1962	1961	1960	1959	1963	1962	1961	1960	1959
Influenza, pneumonia, and bronchitis	13 A 96 B	22 (6) 84 (1)	25 (9) 88 (1)	29 (13) 70 (2)	30 (9) 91 (1)	9 (2) 65 (1)	9 81 (1)	8 (3) 109 (2)	7 (2) 84 (1)	10 (3) 145 (1)
Gastro-enteritis, diarrhoea, and dysentery	2 A 10 B	14 (15) 123 (1)	14 (1) 135 (18)	6 (1) 136 (16)	14 (19) 136 (19)	17 (1) 12 (1)	33 (1) 12 (1)	35 (1) 13 (2)	44 (1) 9 (1)	41 (1) 19 (5)
Congenital malformation	143 A 86 (1)	100 (64) 126 (64)	95 (64) 111 (64)	90 (74) 151 (74)	95 (43) 119 (43)	19 (13) 29 (13)	16 (1) 21 (12)	26 (16) 31 (16)	18 (11) 27 (11)	9 (11) 29 (11)
Birth injury	119 A .. B	126 (69) 105 (69)	111 (87) 137 (87)	151 (79) 134 (79)	119 (80) 122 (80)	29 (18) 1 (9)	21 (9) 17 (9)	31 (15) 29 (15)	27 (12) 23 (12)	29 (9) 19 (9)
Asphyxia and atelectasis	135 A 2 (1)	105 (22) 35 (22)	137 (23) 39 (23)	134 (12) 29 (12)	122 (19) 41 (19)	23 (1) 3 (1)	17 (1) 1 (1)	29 (1) 2 (1)	23 (1) 1 (1)	19 (9) 1 (1)
Haemolytic disease of newborn	19 A 1 B	35 (10) 138 (10)	39 (10) 140 (10)	29 (10) 164 (10)	41 (10) 171 (10)	3 (1) 21 (1)	1 (1) 23 (1)	2 (1) 35 (1)	1 (1) 27 (1)	1 (1) 34 (1)
Immaturity	111 A 2 B	163 (110) 123 (110)	206 (129) 112 (1)	158 (83) 117 (4)	138 (75) 123 (1)	26 (13) 39 (1)	31 (18) 51 (1)	37 (17) 58 (3)	30 (14) 56 (1)	23 (9) 53 (1)
Other	162 A 103 B	163 (100) 123 (1)	206 (129) 112 (1)	158 (83) 117 (4)	138 (75) 123 (1)	26 (13) 39 (1)	31 (18) 51 (1)	37 (17) 58 (3)	30 (14) 56 (1)	23 (9) 53 (1)
Totals	704 A 300 B	713 321	795 309	803 287	762 327	123 142	115 182	157 229	128 202	137 251

TABLE 8a—Notifiable Diseases in New Zealand for the Year Ended 31 December 1963, Showing Distribution by Months: All Cases (Including Maoris)

Diseases	January	February	March	April	May	June	July	August	September	October	November	December	Total	1962	1961	1960	1959
Cerebro-spinal meningitis	..	..	..	6	7	3	13	4	4	7	5	1	52	36	36	53	87
Diphtheria ..	..	..	..	..	1	..	1	2	..	..	..	..	4	5	1	1	18
Dysentery—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Amoebic ..	1	1	..	1	..	..	..	..	2	1	1	..	7	7	4	4	9
Bacillary ..	8	19	21	17	29	36	37	40	86	96	58	42	489	412	501	408	679
Eclampsia ..	3	..	..	4	4	..	4	6	1	2	..	3	27	34	23	64	64
Enteric fever—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Paratyphoid	1	2	2	1	2	1	..	2	3	1	3	1	3	2	2	5	6
Typhoid ..	5	6	53	66	2	4	47	49	21	26	19	137	435	48	23	45	60
Food poisoning	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hydatids ..	2	2	1	2	4	10	6	5	5	1	3	..	38	41	47	71	69
Infective hepatitis	219	207	199	219	197	166	175	152	156	228	194	181	2,293	2,816	3,870	3,895	1,973
Leptospiiral infections	19	17	10	5	5	6	5	6	16	13	19	7	128	148	104	178	117
Ophthalmia neonatorum	1	6	2	2	4	4	2	1	1	2	3	5	33	46	23	77	127
Pemphigus neonatorum	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis	12	5	2	4	3	1	6	4	6	2	1	2	48	32	47	138	199
Puerperal infections	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Salmonella infections	1	3	2	7	6	3	4	2	5	2	3	3	41	34	27	30	36
Staphylococcal pneumonia or septicaemia of the newborn infant	12	9	23	17	29	7	6	3	13	4	7	6	136	106	126	128	131
Tetanus ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis—	3	3	4	2	1	1	1	..	3	2	1	3	4	2	2	9	20
Pulmonary	64	68	75	70	89	77	82	92	99	95	90	83	984	1,032	1,032	1,180	1,203
Other forms	15	22	17	11	16	23	21	15	14	14	19	15	202	255	250	256	203
Undulant fever	1	..	3	1	5	2	1	2	1	8	3	3	29	31	39	42	36
Actinomycosis	1	..	..	..	..	..	2	..	..	..	..	..	4	2	3	..	1
Anchylostomiasis	..	1	1	2	..	..	..	1	4	1	..	1	11	13	1	8	2
Beri-beri ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bilharziasis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Leprosy ..	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	..	..
Lethargic encephalitis	..	..	..	..	..	..	..	2	..	..	..	..	5	2	2	1	1
Malaria ..	..	..	..	..	..	..	..	1	..	2	..	..	8	12	53	3	3
Ornithosis (psittacosis)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pneumonic influenza	..	..	..	..	..	..	..	1	1	..	..	..	2	14	6	4	50
Tarniasis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Trachoma ..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	5	1	4
Total ..	370	372	416	439	405	344	416	394	439	508	429	496	5,028	5,678	7,314	6,811	5,468

TABLE 8b—Notifiable Diseases in New Zealand for the Year Ended 31 December 1963, Showing Distribution by Health Districts:
All Cases (Including Maoris)

Diseases	Whangarei (p. 88,850)	Takapuna (p. 148,960)	Auckland (p. 277,810)	South Auckland (p. 122,690)	Hamilton (p. 222,300)	Rotorua (p. 132,680)	Gisborne (p. 64,040)	Napier (p. 96,960)	New Plymouth (p. 98,880)	Wanganui (p. 85,430)	Palmerston North (p. 123,720)	Hutt (p. 157,050)	Wellington (p. 151,200)	Nelson (p. 78,460)	Christchurch (p. 284,250)	Greyouth (p. 37,360)	Timaru (p. 103,150)	Dunedin (p. 152,110)	Invercargill (p. 101,180)	Total (Total Population 2,527,080)	
Cerebro-spinal meningitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52
Diphtheria	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
Dysentery—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
Amoebic	1	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	489
Bacillary	1	98	37	41	145	32	14	6	31	35	1	4	..	..	23	1	..	..	..	..	27
Eclampsia	..	..	1	..	9	1	1	..	..	1	..	..	..	..	2	..	..	..	..	..	4
Enteric fever—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Paratyphoid	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19
Typhoid	..	8	6	2	27	..	3	..	..	5	..	..	..	..	..	..	..	..	..	..	435
Food poisoning	..	1	..	..	4	..	4	..	..	100	3	..	140	..	25	..	..	..	..	..	38
Hydatids	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	2,293
Infective hepatitis	117	149	151	162	358	228	189	137	80	159	87	54	85	19	68	1	46	182	21	..	128
Leptospirosis	20	5	2	4	42	24	2	1	15	5	2	1	..	3	1	1	..	..	..	..	33
Ophthalmia neonatorum	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	48
Penphigus neonatorum	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	41
Puerperal infections	4	1	1	..	3	2	9	..	2	..	..	..	23	4	11	..	..	..	..	..	48
Salmonella infections	..	23	13	3	15	4	..	10	..	6	..	..	31	1	12	..	5	6	..	..	136
Staphylococcal pneumonia and septicaemia of the newborn infant..	..	..	..	..	1	..	..	2	3	..	..	..	..	..	..	..	..	..	..	..	4
Tetanus	..	..	2	1	2	..	2	..	2	1	2	..	..	1	4	..	..	..	..	..	24
Tuberculosis—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	984
Pulmonary	67	31	99	49	100	55	47	23	13	38	28	44	101	27	97	4	30	109	22	..	202
Other forms	10	12	15	8	24	28	5	4	5	5	8	21	15	6	10	11	3	8	4	..	29
Undulant fever	3	..	1	2	7	1	..	..	2	1	5	..	..	1	3	..	..	1	..	..	4
Actinomycosis	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
Anchylostomiasis	..	..	..	..	5	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Bilharziasis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Leprosy	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Malaria	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	5
Pneumonic influenza	..	..	..	..	2	..	..	..	..	..	2	..	..	..	3	..	..	..	..	..	8
Trachoma	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	2
Total	234	332	376	277	754	389	301	200	162	366	139	127	417	71	293	18	154	351	67	..	5,028

TABLE 9—Milk Sampling Summary for Year Ended 31 December 1963: Tests Applied and Results
N/C = Non-Complying W = Warnings P = Prosecutions W = Warnings P = Prosecutions

District	Total Samples			Fat		Solids Not Fat		Water		Reductase		Phosphatase		
	No.	N/C	W	P	No.	N/C	No.	N/C	No.	N/C	No.	N/C	No.	N/C
Whangarei	332	67	32	2	266	16	212	12	13	4	25	..	204	..
Takapuna	424	37	14	3	419	33	419	3	419	8	419	..	362	..
Auckland	927	119	10	..	927	33	927	7	12	12	927	..	858	..
South Auckland	348	29	..	..	242	2	244	..	244	..	241	..	244	..
Hamilton	1,216	21	..	1	264	6	261	6	264	13	823	..	99	..
Rotorua	25	4	..	..	23	..	23	2	..	2	17	..	21	..
Gisborne	235	26	..	..	75	..	75	4	75	..	46	..	..	..
Napier	87	4	..	..	37	..	37	4	..	..	..	..	7	..
New Plymouth	487	56	..	..	170	1	170	..	..	..	..	..	15	2
Palmerston North	427	28	18	..	81	5	81	4	12	9	268	..	5	..
Wanganui	244	46	..	..	100	..	97	5	67	6	28	..	17	..
Lower Hutt	127	2	..	..	125	..	123	..	..	..	..	..	14	..
Wellington	54	..	..	..	54	..	54	..	26	..	..	..	..	..
Nelson	99	..	..	..	31	..	31	..	..	..	10	..	9	..
Christchurch	1,002	198	18	1	601	7	587	166	9	6	282	..	34	..
Greymouth	120	56	1	..	109	17	109	43	25	17	76	..	37	..
Timaru	82	17	4	..	76	..	76	8	..	..	70	..	58	..
Dunedin	456	36	3	..	219	9	217	9	217	..	43	..	162	6
Invercargill	196	13	11	1	53	2	53	5	53	1	40	..	31	..
Totals	6,838	761	114	8	3,872	112	3,796	278	1,436	78	3,316	77	2,177	8

TABLE 10—Food and Drug Sampling, 1963

	Total Samples	Samples Non- complying	Warnings Issued	Prosecutions Recom- mended
Cereals and bread	4	3	..	..
Sausages	840	68	50	18
Minced meat	1,025	85	66	16
Bacon and ham	56	1	..	..
Fresh meat	136	5	3	2
Other meats	326	21	13	..
Meat pickling preparations .. ..	..	..	..	..
Fresh fish	49	2	..	..
Other fish	6	4	..	..
Cream	521	123	35	..
Milk shakes	487	187	23	..
Butter	73	3	2	..
Other milk products	41	2	1	..
Eggs	1	1	1	..
Salts and spices	31	2	..	..
Sauces, vinegar, and pickles	3	..	..	..
Sweetening substances and confec- tionery	18	1	..	..
Ice cream	504	252	49	..
Fruit, vegetables, and products	30	4	1	..
Edible fats and oils	4	2	..	..
Culinary essences	9	..	..	..
Beverages (non-alcoholic)	118	21	5	..
Beverages (alcoholic)	63	..	..	..
Drugs and proprietary drugs	84	12	2	..
Disinfectants .. ..	..	..	..	..
Miscellaneous	40	10	1	..
Total	4,469	809	252	36

Seizures and destructions, 177.

Food complaints investigated, 881: Prosecutions resulting, 32.

Water for domestic use, number of samples, 4,246.

Other waters, number of samples, 1,359.

TABLE 11—Notification of Diseases Arising From Occupation

Source	Whangarei	Takapuna	Auckland	South Auckland	Hamilton	Rotorua	Gisborne	Napier	New Plymouth	Wanganui	Palmerston North	Hutt	Wellington	Nelson	Grey-mouth (included in Christchurch figures)	Christchurch	Timaru	Dunedin	Invercargill	Total	Deaths
Official notifications	25	17	87	23	69	53	8	4	10	9	2	16	17	57	..	33	6	19	14	469	..
All sources—																					
1. Skin diseases arising from occupation—																					
Dermatitis due to oils and greases	..	1	10	3	1	5	..	1	2	1	..	6	3	..	5	1	4	4	1	44	..
Dermatitis due to solvents	..	2	10	1	..	2	..	..	..	2	..	..	2	..	..	..	..	3	..	23	..
Dermatitis due to various chemicals	..	1	54	..	12	..	2	..	..	1	..	3	18	..	20	..	9	3	1	127	..
Dermatitis due to cement	..	1	7	..	..	1	..	..	1	..	..	..	..	..	..	..	2	2	..	16	..
Dermatitis due to other causes	..	3	19	11	12	1	1	..	4	..	6	3	2	54	12	..	2	11	..	141	..
Chrome ulceration	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	3	..
Other diseases of the skin	..	..	..	..	..	2	..	4	..	..	..	..	..	..	..	2	..	..	..	8	..
Subtotals	1	9	101	15	26	11	3	5	9	4	6	12	25	54	..	42	8	29	2	362	..
2. Diseases due to dusts, fumes, gases, vapours, or mists—																					
Chronic lead poisoning	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Phosphorus poisoning	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poisoning from any pesticide or agricultural chemical met with at work	..	..	1	1	1	5	1	..	..	..	..	..	..	..	..	..	..	..	2	11	..
Poisoning from any gas, fumigant, or refrigerant met with at work	..	..	2	..	8	4	..	..	..	..	..	..	..	..	..	..	..	..	..	14	..
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	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	4	..
Subtotals	..	1	5	1	11	9	1	1	..	1	..	..	1	..	..	1	..	..	2	34	..

TABLE 12—Supervision of Workers Engaged in Electroplating Processes and Lead Work

District	Electroplating Processes				Lead Work				
	Number of Firms	Approximate Number of Workers Under Supervision	Number of Examinations	Number of Workers Suffering From Conditions Arising From Employment	Number of Firms	Approximate Number of Workers Under Supervision	Number of Examinations	Number of Workers Absorbing Lead in Unhealthy Quantity	Number of Lead Poisonings Notified
Whangarei	2	2	4	2	6	46	46	3	1
Takapuna	9	32	253	7	23	629	629	15	..
Auckland	42	129	1,032	10	87	1,924	1,924	..	..
South Auckland	1	2	7	1	6	35	35	1	..
Hamilton	3	18	34	..	18	325	325	..	..
Rotorua	1	2	16	..	7	66	66	..	..
Gisborne	1	2	20	1	3	..	..	..	..
Napier	4	10	107	..	2	5	5	..	..
New Plymouth	2	4	48	..	1	8	77	..	..
Wanganui	2	2	88	..	5	14	27	..	..
Palmerston North	2	6	72	..	19	63	77	..	..
Hutt	13	16	112	3	20	327	2,157	347	..
Wellington	10	30	247	1	16	109	627	69	..
Nelson	1	3	6	..	4	..	..	..	..
Christchurch (includes Greymouth)	19	68	534	19	11	626	626	20	..
Timaru	1	2	24	..	6	109	109	6	..
Dunedin	6	20	174	4	15	87	87	..	..
Invercargill	3	4	4	1	8	79	79	..	..
Totals (Totals for 1962)	122 (79)	352 (240)	2,702 (1,640)	49 (31)	257 (238)	2,545 (2,156)	6,896 (5,651)	461 (89)	1 (1)

**TABLE 13—Attendances at Industrial Health Centres
and Waterfront Clinics**

District	Centre	Attendances		Total	Referred to	
		First	Redressings		Own Doctor	Hospital
Takapuna ..	New Lynn ¹ ..	..	..	..	..	..
Auckland ..	Penrose ..	5,145	4,581	9,726	260	280
	*Queen's Wharf ..	6,492	5,397	11,889	892	909
	Mount Wellington ..	1,174	792	1,966	148	70
Rotorua ..	Wairakei ⁴ ..	4	1	5	1	..
Hutt ..	Petone ..	677	788	1,465	76	96
Wellington ..	*Waterfront ..	3,744	1,433	5,177	959	329
	Rongotai ² ..	..	..	..	..	..
	Porirua ² ..	..	..	..	..	..
Christchurch ..	Woolston ..	836	744	1,580	132	39
	Hornby ..	199	56	255	37	10
	*Lyttelton Waterfront ..	2,085	2,301	4,386	255	16
Timaru ..	Industrial Fore-shore ..	251	121	372	23	14
Dunedin ..	*Foreshore ..	931	777	1,708	63	64
	Mobile Clinic ³ ..	288	374	662	..	..
	Totals ..	21,822	17,364	39,186	2,845	1,827
	(Totals for 1962) ..	(19,904)	(15,447)	(35,351)	(2,887)	(1,854)

*Financial support from Waterfront Industry Commission: remainder with financial support from the Workers' Compensation Board, except Wairakei.

¹Building to be commenced shortly.

²Land set aside for future building.

³In operation since 10 June 1963.

⁴Established in connection with hearing conservation programme at Wairakei Geothermal Power Station in August 1963.

TABLE 14—Medical Examination of Young Workers

District	Sex	Number of Certificates Issued	Number of Rejections	Visual Defects			Dental Defects	Skin Defects		Aural Defects	Obesity	Underweight	Respiratory Defects		Other Miscellaneous Defects
				Worse Than 6/9 Both Eyes		Colour Vision Defects		Acne	Other				Asthma	Other	
				Without Glasses	With Glasses										
Whangarei	M.	23	..	2	..	..	1	..	1	2	..	..	..	..	..
	F.	6	..	8	1	2	5	..	3	4	4	..	7	..	9
Takapuna ..	M.	63	..	21	3	19	58	8	9	26	14	..	4	7	32
	F.	58	..	8	..	1	2	..	1	5	7	..	..	..	2
Auckland ..	M.	347	..	8	..	4	6	1	3	12	17	..	..	1	4
	F.	205	..	..	..	6	4	1	2	1	..	..	1	..	..
South Auckland	M.	58	..	1	1	1	..	..	2	..	..	..	2	1	1
	F.	38	..	..	..	1	..	..	..	..	..	..	..	..	..
Hamilton ..	M.	108	..	1	1	1	..	..	2	..	..	..	2	1	..
	F.	91	..	1	1	1	..	..	..	..	..	..	..	..	..
Rotorua ..	M.	68	..	1	1	1	..	..	2	..	..	..	2	1	..
	F.	20	..	1	1	1	..	..	..	..	..	..	..	..	..
Gisborne ..	M.	14	..	1	1	2	5	..	..	7	11	..	..	1	4
	F.	16	..	1	1	3	10	6	3	35	24	..	1	1	9
Napier ..	M.	59	..	3	..	8	18	1	..	..	..	..	1	..	3
	F.	39	..	3	..	10	15	..	..	17	6	..	2	1	12
New Plymouth	M.	79	..	3	..	10	18	6	7	7	6	..	..	..	..
	F.	99	..	3	..	11	15	7	8	6	5	..	..	..	..
Wanganui ..	M.	37	..	13	1	11	10	10	3	16	10	..	2	2	33
	F.	22	..	9	..	5	10	10	3	3	10	..	2	2	..
Palmerston North	M.	75	..	1	1	1	..	..	1	3	..	..	..	..	1
	F.	117	..	1	1	1	..	..	..	..	..	..	..	..	..
Hutt ..	M.	184	..	27	2	10	43	2	2	58	21	..	8	11	16
	F.	103	..	17	3	7	4	..	1	14	9	..	3	..	3
Wellington	M.	161	..	16	1	11	9	4	66	20	12	..	1	2	16
	F.	58	..	3	..	4	9	4	..	..	..	..	2	2	..
Nelson ..	M.	55	..	3	..	4	3	..	..	..	..	..	2	..	3
	F.	22	..	..	..	..	..	..	..	..	..	..	..	..	..
Greymouth	M.	251	..	27	2	10	43	2	2	58	21	..	8	11	16
	F.	331	..	17	3	7	4	..	1	14	9	..	3	..	3
Christchurch (includes Greymouth)	M.	251	..	16	1	11	9	4	66	20	12	..	1	2	16
	F.	331	..	3	..	4	3	..	..	..	..	..	2	..	..
Timaru ..	M.	86	..	..	..	..	..	..	..	..	..	..	..	..	..
	F.	78	..	..	..	..	..	..	..	..	..	..	..	..	..
Dunedin ..	M.	143	..	..	..	..	..	..	..	..	..	..	..	..	..
	F.	161	..	..	..	..	..	..	..	..	..	..	..	..	..
Invercargill	M.	111	..	..	..	..	..	..	..	..	..	..	..	..	..
	F.	7	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals—				147	15	105	194	45	112	226	140	34	27	148	
Male	..	1,922	..												
Female	..	1,471	..												
Total (Totals for 1962) ..	..	3,393 (3,449)	(10)												

TOTAL ALL DEFECTS .. 1,332

TABLE 15—Maternal Deaths, 1962 and 1963

Int. List No.	Causes of Death	Number of Deaths		Rate per 1,000 Live Births	
		1962	1963	1962	1963
<i>A. European</i>					
642	Toxaemia of pregnancy—				
·0	Hypertensive disease arising during pregnancy .. .. .	..	1	..	0·02
·1	Renal disease arising during pregnancy .. .. .	..	1	..	0·02
·2	Pre-eclampsia of pregnancy .. .. .	..	1	..	0·02
·3	Eclampsia of pregnancy	1	3	0·02	0·05
·5	Other .. .. .	..	4	..	0·07
		1	10	0·02	0·18
644	Other haemorrhage of pregnancy .. .. .	..	1	..	0·02
648	Other complications arising from pregnancy—				
·3	Other	2	1	0·03	0·02
651	Abortion with sepsis—				
·0	Spontaneous or unspecified	1	..	0·02	..
·2	Induced for other than medical reasons	2	1	0·03	0·02
		3	1	0·05	0·02
670	Delivery complicated by placenta praevia or antepartum haemorrhage .. .. .	..	3	..	0·05
672	Delivery complicated by other post-partum haemorrhage .. .. .	..	1	..	0·02
674	Delivery complicated by disproportion or malposition of foetus	2	1	0·03	0·02
675	Delivery complicated by prolonged labour of other origin	1	..	0·02	..
681	Sepsis of childbirth and the puerperium	1	..	0·02	..
682	Puerperal phlebitis and thrombosis .. .. .	..	2	..	0·04
684	Puerperal pulmonary embolism .. .. .	..	1	..	0·02
	Totals, including illegal abortion	10	21	0·17	0·37
	Totals, excluding illegal abortion	8	20	0·14	0·35
<i>B. Maoris</i>					
642	Toxaemia of pregnancy—				
·3	Eclampsia of pregnancy	1	..	0·13	..
644	Other haemorrhage of pregnancy	2	..	0·26	..
648	Other complications arising from pregnancy—				
·3	Other	1	..	0·13	..
670	Delivery complicated by placenta praevia or antepartum haemorrhage	2	..	0·26	..
672	Delivery complicated by other post-partum haemorrhage .. .. .	..	1	..	0·12
674	Delivery complicated by disproportion or malposition of foetus	1	..	0·13	..
675	Delivery complicated by prolonged labour of other origin	1	1	0·13	0·12
677	Delivery with other trauma	1	1	0·13	0·12
681	Sepsis of childbirth and the puerperium .. .. .	..	1	..	0·12
684	Puerperal pulmonary embolism .. .. .	..	1	..	0·12
	Totals, including illegal abortion	9	5	1·17	0·62
	Totals, excluding illegal abortion	9	5	1·17	0·62

Deaths not Classed to Pregnancy and Childbirth but Associated Therewith

	Cause of Death	Number
	<i>A. Europeans</i>	
Mitral stenosis (rheumatic) .. .. .	.. .. .	1
	<i>B. Maoris</i>	
Mitral incompetence (rheumatic) .. .. .	.. .. .	1

TABLE 16—Statistics of Maternity Services and Cases, 1963

	Public Hospitals	Private Hospitals	St. Helens Hospitals	Alexandra Home, Wellington	Totals, all Hospitals
Number of hospitals	152	30	3	1	186
Number of beds	2,575	350	133	17	3,075
Admissions for ante-natal treatment	5,115	225	436	37	5,813
Admissions for delivery	65,379	7,591	4,296	444	77,710
Total	70,494	7,816	4,732	481	83,523
Confinements—					
Over 42 weeks	1,211	82	23	..	1,316
36-42 weeks	48,369	7,133	3,721	426	59,649
28-36 weeks	1,626	155	250	2	2,033
Total	51,206	7,370	3,994	428	62,998
Surgical inductions	3,677	450	206	59	4,392
Abortions	704	3	11	..	718
Complications—					
Instrumental deliveries	2,832	643	177	63	3,715
Caesarian section	1,487	91	121	..	1,699
Manual removal of placenta	886	111	87	10	1,094
Accidental haemorrhage	785	23	70	3	881
Placenta praevia	337	23	37	1	398
Postpartum haemorrhage	3,064	85	222	4	3,375
Eclampsia	76	1	5	1	83
Total	9,467	977	719	82	11,245
Puerperal pyrexia	909	36	101	..	1,046
Transfer before delivery	815	75	13	11	914
Transfer after delivery	854	28	22	2	906
Total	1,669	103	35	13	1,820
Infant deaths—					
Born alive	557	44	38	1	640
Still births	647	59	55	1	762
Total	1,204	103	93	2	1,402

TABLE 17—Hospital Works Programme as at 31 March 1964 (Projects over £10,000 only*)

—	Total Estimated Cost	Expenditure up to 31 March 1964	Expenditure, 1963-64	Estimated Expenditure, 1964-65	Estimated Expenditure, 1965-66	Estimated Expenditure, 1966-67	To Complete
Category A	£17,163,318	£11,385,185	£4,636,449	£4,665,625	£983,828	£123,477	£5,203
Category B	72,964	3,095	3,095	56,121	13,748	..	..
Category C	813,725	12,086	12,086	315,847	403,058	82,734	..
Subtotals	18,050,007	11,403,366	4,651,630	5,037,593	1,400,634	206,211	5,203
Category D	143,493	..	..	135,729	7,764	..	..
Category E	16,141,860	197,378	197,378	1,465,528	4,454,984	4,868,450	5,155,520
Category F	6,939,152	7,180	7,180	256,510	1,065,272	1,182,265	4,427,955
Category G	11,422,500	..	..	220,000	1,689,500	2,396,000	7,117,000
Subtotals	34,647,035	204,558	204,558	2,077,767	7,217,520	8,446,715	16,700,475
Totals—							
31/3/64	52,697,042	11,604,924	4,856,188	7,115,360	8,618,154	8,652,926	16,705,678
31/3/63	44,287,546	9,919,754	4,255,810	7,546,410	6,916,434	5,175,705	14,729,243

*In addition, the total value of projects £1,000 to £10,000 was approximately £650,000 for the year ended 31 March 1964.

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 18—Hospital Building Work**A. Works Completed***1. New Hospitals, Wards, and Ancillary Services*

The following were completed during the year:

Location and Work	Number of Beds		
	General	Maternity	Old People's Homes
Auckland: National Women's Hospital ..	..	282	..
Middlemore: acute block ..	306	..	..
Waikato: ward block ..	200	..	..
Te Kuiti: stage I alterations ..	6	..	..
Huntly: maternity additions ..	..	2	..
Thames: ward block ..	118	..	..
Cook: Memorial Home additions ..	..	..	20
Masterton: ward block ..	62	..	..
Hokitika: maternity ward ..	..	11	..

2. Nurses Home and Other Staff Accommodation

Location and Work	Number of Staff
Green Lane: nurses' homes ..	435
Waikato: nurses' home ..	150
Wairoa: nurses' home additions ..	43
Stratford: domestics' block ..	24

3. Ancillary Services

Whangarei	..	..	..	..	Chapel.
Auckland	..	..	..	..	Temporary linen room.
Auckland	..	..	..	..	Garages.
Green Lane	..	..	..	..	New sewer line.
Auckland	..	..	..	..	Workshops.
Green Lane	..	..	..	..	Convert old boilerhouse to workshops.
Auckland	..	..	..	..	Temporary emergency and accident department.
Rotorua	..	..	..	..	Boilerhouse.
Waikato	..	..	..	..	Convert laundry to store.
Waikato	..	..	..	..	Water storage.
Waikato	..	..	..	..	Garages.
Waikato	..	..	..	..	Mortuary.
Waikato	..	..	..	..	Kitchen, stage I.
Thames	..	..	..	..	Paeroa alterations.
Thames	..	..	..	..	Tarau Home additions.
Tauranga	..	..	..	..	Laundry.
Tauranga	..	..	..	..	Boilerhouse.
Whakatane	..	..	..	..	Kitchen.
Opotiki	..	..	..	..	Steam services.
Cook ..	..	..	..	..	Heating ward VI, etc.
Cook ..	..	..	..	..	Pathology laboratory.
Hastings	..	..	..	..	Nurses' kitchen.
Hastings	..	..	..	..	Ward 2 improvements.
Waipukurau	..	..	..	..	Theatre improvements.
New Plymouth	..	..	..	..	Board room and X-ray additions.
Wellington	..	..	..	..	Ward 5 lifts.
Wellington	..	..	..	..	Lift improvements.
Marlborough	..	..	..	..	Boilerhouse additions.
Greymouth	..	..	..	..	Trades block.
Greymouth	..	..	..	..	Boilerhouse and laundry.
Christchurch	..	..	..	..	Princess Margaret maintenance block.
Christchurch	..	..	..	..	Laundry extensions.
Christchurch	..	..	..	..	Kitchen extensions.
Oamaru	..	..	..	..	Boilerhouse.
Dunedin	..	..	..	..	King Edward pavilion corridor and lifts.
Dunedin	..	..	..	..	Office and stores block.
Dunedin	..	..	..	..	Stage II corridor.
Dunedin	..	..	..	..	Temporary outpatients block.
Balclutha	..	..	..	..	Boilerhouse additions.
Invercargill	..	..	..	..	Kew boilerhouse.
Invercargill	..	..	..	..	Kew electric reticulation.

B. Works in Progress

Construction is under way or tenders have been accepted for the following:

1. Patient and Service Accommodation

Location and Work	Number of Beds		
	General	Maternity	Old People's
Kaitaia: ward block	88	..	..
National Women's Isolation Block	20	28	..
Henderson: maternity hospital	..	60	..
Rotorua: maternity block	..	40	..
Whakatane: stage I	60	..	..
Taumarunui: 2 ward blocks	60	..	..
Wellington: Seddon block	150	..	..
Porirua: maternity hospital	..	40	..
Karamea: maternity hospital	..	3	..
Hokitika: ward block	60	..	..
Westport: Kynnersley Home	..	..	27
Oamaru: clinical and ward block	32	..	..
Dunedin: Parkside Home	..	..	60
Invercargill: Lorne additions	46	..	..

2. Nursing and Other Staff Accommodation

Construction is under way or tenders have been accepted for the following:

						Number of Staff Beds
Kaitaia Nurses' Home ..	..	..	..	..	..	52
Middlemore Nurses' Home ..	..	..	..	..	..	210
Henderson Nurses' Home ..	..	..	..	..	..	75
Tauranga Nurses' Home ..	..	..	..	..	..	83
Whakatane Nurses' Home ..	..	..	..	..	..	44
Taumarunui Nurses' Home additions ..	..	..	..	..	..	25
Timaru Lindsay Wing ..	..	..	..	..	..	52

3. Ancillary Services

Construction is under way or tenders have been accepted for the following:

			Work
Kaitaia ..	..	..	Boilerhouse.
Auckland ..	..	..	Middlemore boilerhouse.
Auckland ..	..	..	Roading and services.
Auckland ..	..	..	Wallace block lifts.
Middlemore ..	..	..	R.M.O.'s quarters.
North Shore ..	..	..	Alterations and additions.
Middlemore ..	..	..	Kitchen alterations
Middlemore ..	..	..	Animal house.
Green Lane ..	..	..	Roading, tunnel, and services.
Waikato ..	..	..	Electrical reticulation.
Rotorua ..	..	..	Electrical reticulation.
Te Kuiti ..	..	..	Stage II additions.
Tauranga ..	..	..	Roading.
Cook ..	..	..	Boilerhouse and laundry.
Cook ..	..	..	Kitchen and cafeteria.
Westown ..	..	..	Chapel.
Hawera ..	..	..	Steam services.
Wanganui ..	..	..	Boilerhouse additions.
Palmerston North ..	..	..	Bulk store.
Palmerston North ..	..	..	Medical block.
Hutt ..	..	..	Boilerhouse.
Masterton ..	..	..	Tutorial unit.
Nelson ..	..	..	Chapel and calorifier room.
Greymouth ..	..	..	Electrical reticulation.
Burwood ..	..	..	Boilerhouse.
Burwood ..	..	..	Electrical reticulation.
Christchurch ..	..	..	Boilerhouse.
Ashburton ..	..	..	Chalmers ward improvements.
Oamaru ..	..	..	Roading.
Dunstan ..	..	..	Mortuary and store.

TABLE 19—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
1963 ..	270,169	1,643	878	214	0.79	2,104	697

TABLE 20—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.
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
1963 ..	423	242	665	176	143	319	69	53	122	41	39	80	708	478	1,186
	3.6	2.1	2.8	19.1	16.0	17.6	0.58	0.45	0.51	4.4	4.4	4.4	5.5	3.8	4.7

TABLE 21—Results of Mantoux Testing

Race	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
European ..	1963	1,581	57 3.6	18,060	566 3.1	41,840	3,728 8.9	6,123	2,312 37.8	1,710	1,092 63.9	1,288	755 58.6	1,831	1,200 65.6	28,806
Maori ..	1963	2,049	51 2.5	3,006	254 8.4	3,615	812 22.5	1,102	433 39.3	268	147 54.9	222	130 58.6	92	67 72.8	5,815
Combined Total ..	1963	3,630	108 3.0	21,066	820 3.9	45,455	4,540 10.0	7,225	2,745 38.0	1,978	1,239 62.7	1,510	885 58.6	1,923	1,267 65.9	34,621



