



The NSW Food and Nutrition Monitoring Plan and its companion publications (describing suggested methods for use in dietary surveys, monitoring overweight and obesity, and food supplied by school canteens) will be issued soon. The plan is a key step in the implementation of aspects of the strategy described in *Food and nutrition directions for NSW: 1996-2000*, which was launched by the Minister for Health in December 1996. This edition of the Bulletin features the major elements of the plan.

NSW FOOD AND NUTRITION MONITORING PROJECT

GUEST EDITORIAL

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New South Wales can take pride in having one of the world's best food supplies, yet diet-related disease is commonplace. Poor nutrition is a major risk factor for cardiovascular disease, stroke, some cancers, diabetes mellitus, osteoporosis, dental caries and iron-deficiency anaemia. The potential years of life lost to age 65 because of diet-related disease are 70 per cent of those lost because of smoking¹.

The NSW Health Department has recognised that nutrition is a high-priority issue for health promotion and disease prevention, and has initiated important policies for public health nutrition. These include developing explicit nutrition goals and targets, dissemination of a State food and nutrition strategy, and incorporation of nutrition indicators into Area Health Service performance agreements. Such developments increase the need for information by those who are required to plan, monitor, evaluate, argue for, and make decisions about, nutrition programs at State and local levels.

Nutrition monitoring is a key objective of the State food and nutrition strategy. In recent years the NSW Health Department has undertaken some major nutrition-monitoring projects in collaboration with the Nutrition Unit of the Department of Public Health and Community Medicine, University of Sydney.

These began with a landmark publication called *Food and nutrition in NSW: a catalogue of data*². Given the size and complexity of the food and nutrition system and the fact that useful data are located outside the health system, the catalogue was designed to compile relevant fragments of nutrition data into a coherent, accessible form. This project generated baseline data, which is vital for setting State targets and benchmarks for measuring progress. It also clarified strengths and limitations of, and gaps in, the available nutrition data.

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PLANS FOR MONITORING FOOD AND NUTRITION IN NSW

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This article describes the *NSW Food and Nutrition Monitoring Plan*, which makes recommendations for meeting currently unmet information needs in NSW¹. Goals were to:

- provide timely, high-quality, accessible and appropriate data for decision-making about nutrition policy and programs; and
- complement national, State and local monitoring programs.

Recommendations are based on principles of effective monitoring and surveillance^{2,8} and relate to:

- indicators for nutrition monitoring in NSW;
- appropriate tools and mechanisms for collection, analysis, reporting, feedback and dissemination of data on chosen indicators; and
- appropriate roles for the various agencies and levels of government in relation to data collection, analysis, and dissemination.

WHAT IS FOOD AND NUTRITION MONITORING?

The terms "monitoring" and "surveillance" have been defined in many ways and are sometimes used interchangeably¹⁻³. For the purpose of our project, nutrition monitoring is defined as: "An ongoing description of food- and nutrition-related issues useful for decision-making that will lead to improvements in the nutritional status of populations".

WHY IS FOOD AND NUTRITION MONITORING NEEDED IN NSW?

Up-to-date information is needed to make good management decisions about nutrition policies and programs^{9,10}. Monitoring systems can contribute valuable information for meeting these requirements: tracking progress towards goals and targets; assessing the impact of the effort to improve nutrition; comparing population subgroups for nutrition and dietary problems and trends in these; and planning and improving food and nutrition policies, programs and services^{1-3,7-10}. *Food and Nutrition in NSW* highlighted gaps in information and the lack of comparability of methods used to measure common food and nutrition indicators¹¹.

National nutrition monitoring plans were considered carefully in the preparation of the NSW strategy. However, a planned approach to monitoring at the State level is needed to ensure that State priorities are met, that local monitoring activities relevant to these priorities are well coordinated, and that State monitoring complements national and local monitoring.

WHO IS THE PLAN FOR?

Health professionals throughout NSW were consulted, so that users' needs would be met. Participants identified the

most important issues and indicators for Statewide monitoring and how they use nutrition information. This consultation process, with an extensive literature review and liaison with national groups, contributed to the selection of components of the plan for food and nutrition monitoring in NSW. We identified the following potential users of the plan:

1. **NSW Health Department:** Food and Nutrition Unit, Centre for Clinical Policy and Practice, Epidemiology and Surveillance Branch, Centre for Disease Prevention and Health Promotion and the Chief Health Officer.
2. **NSW Area Health Service personnel:** Area planners, Area Health Promotion and Public Health Unit personnel, community nutritionists, health outcomes councils.
3. **Other potential suppliers and users of nutrition information,** including: Commonwealth agencies, researchers and public health academics, nutrition-related non-government organisations and other State governments.

WHAT ARE THE PRIORITIES FOR FOOD AND NUTRITION MONITORING IN NSW?

An effective monitoring system cannot meet all information needs. The NSW plan focuses on information that is either: 1. perceived as a priority for health service managers and policy makers in food and nutrition in NSW; or 2. fills an important gap in information, as identified by those interested in population nutrition. Recommendations are made for collection of information only where valid and practicable population-oriented measurements are available. Needs for nutrition information from a monitoring system (identified by consultation) are wide-ranging, and include: weight status, growth of children, intakes of particular nutrients (fat, iron, calcium, folate), physical and biochemical risk factors for diet-related disease (lipids, blood pressure, iron, folate), food habits (core food groups, breast-feeding and other infant feeding practices, meal patterns, high-fat and low-fat food consumption, salt habits, alcoholic beverages and qualitative aspects of dietary change), food security, and aspects of the food system or food environment.

Concrete plans for monitoring were developed for only a few of these issues, including weight status, fat intake, selected food habits and food security. However, recommendations have been made on the next steps to be taken in developing and testing the methods required to meet other information needs.

COMPONENTS OF THE PLAN

Short dietary survey modules: Short sets of questions suitable for population-based health surveys (including the NSW Health Survey) have been compiled. These measure selected aspects of dietary behaviour (such as intake of fruit, vegetables, breads and cereals), habits related to intakes of fat, saturated fat, calcium and iron, breast-feeding and other infant feeding practices, food security, barriers to dietary change, and meal patterns. The dietary questions have been researched extensively and the rationale for inclusion of each is given. This document is described in more detail in an accompanying article in this issue (p 44).

A guide for monitoring overweight and obesity in NSW: This includes recommendations on which anthropometric indicators should be measured in population health surveys and standards for classifying weight status consistent with recent World Health Organisation recommendations and those drafted for *National Monitoring of Overweight and Obesity in Australia*. Options for obtaining data about population subgroups of interest are outlined, such as anthropometric measurements in population- and school-based surveys and longitudinal studies of selected groups. Use of the guide is recommended for designing and modifying such surveys and studies. Its use would also improve the availability of comparable information on trends in overweight and obesity, particularly among groups for which information is limited or unavailable (for example, school children, adolescents and older people). The guide is described in more detail in the accompanying article (p 46).

A protocol for a validity study of self-reported weights and heights: A validity study is proposed for monitoring the prevalence of overweight and obesity on the basis of self-reported weights and heights in the NSW Health Survey. The error associated with self-reported weight and height data differs among population groups, over time, and with the mode of administration of questions (telephone questions, face-to-face interviews, or mailed questionnaires). Estimates of the error in self-reported data (as determined by measured heights and weights) are therefore required for the NSW Health Survey.

Specifications of NSW requirements from the National Nutrition Survey (NSW data): Detailed tables and specifications for information required from the 1995 National Nutrition Survey have been outlined, including recommendations for analysis, presentation and dissemination of NSW-related data. Information relating to current nutrition goals and strategies in NSW and to the priorities identified by health workers for nutrition data guided the development of specifications.

Update of sections of the food and nutrition catalogue for NSW: Recommendations have been made for the production and dissemination of the first update of *Food and Nutrition in NSW: a catalogue of data*¹¹. This catalogue provides a comprehensive source of data and is widely used by health and nutrition professionals in NSW.

A kit for monitoring school canteens: The kit includes methods and tools for the assessment and monitoring of canteen policies, practices and the availability of healthier food choices. Detailed instructions are provided for health personnel who work with school canteens. Use of the kit would improve the comparability of the substantial amount of information now collected about school canteens. The kit is described more fully in an accompanying article (p 49).

Other activities: Recommendations have been made about other monitoring activities that require development, implementation or support, including:

- identifying and monitoring indicators of the food "environment";
- developing short questions for population-based surveys of selected ethnic groups and children;
- monitoring growth of children in selected population subgroups;

- improved documentation of outcomes of recent nutrient fortification programs;
- surveys of household food insecurity among disadvantaged groups;
- improved information about the initiation and duration of breast-feeding;
- monitoring meals available in institutional settings: for example, child care centres, hospitals;
- establishing a national network for sharing expertise, methods and development of assessment tools for food and nutrition monitoring, in the spirit of the National Public Health Partnership.

STATUS OF THE PLAN

Several aspects of the plan have been implemented: for example, selected short modules in the current round of the NSW Health Survey. The forthcoming Chief Health Officer's report (1997) has included the information recommended in the plan and the validation study of self-reported heights and weights has begun. Other components, such as the school canteen kit, are awaiting approval prior to wide dissemination. Mechanisms to improve the cohesiveness and continuity of the nutrition monitoring efforts in NSW are being considered by NSW Health.

ACKNOWLEDGEMENTS

We thank the many health personnel in NSW who participated in our consultations, and members of the advisory committee and consultants for helpful direction-setting advice throughout the project:

Advisory Committee

Edwina Macoun, Louisa Jorm, Glenn Close, Bill Porter, Andrew Hahn

Consultants

Stephen Leeder, Geoffrey Marks, Ingrid Coles-Rutishauser, Dorothy Mackerras, Alan Shiell, Ross Lazarus, Louise Baur, Bill Schofield, Fiona Blyth, Annette Dobson

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MONITORING ASPECTS OF FOOD HABITS IN POPULATION-BASED SURVEYS IN NSW

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This article describes nutrition modules (short sets of standard dietary questions) recommended for use in population-based surveys in NSW. The rationale for using standard questions in such surveys is presented, and factors that influenced the selection of module topics and the limitations of the modules are discussed.

The modules were developed as a component of the NSW Food and Nutrition Monitoring Plan and are described in detail in the report *Short modules for measuring key aspects of food habits and food intakes in population-based surveys in NSW*¹.

WHY MONITOR FOOD HABITS IN POPULATION-BASED SURVEYS?

For some, improving nutrition is an important public health priority in NSW. In order to develop appropriate policies, programs and campaigns and to assess their impact, relevant and timely information is required by policy makers, planners and public health nutritionists at State and local levels.

Although short sets of dietary questions in general population surveys do not replace the need for periodic in-depth nutrition surveys, they provide a cost-effective opportunity to collect regular and timely information about food habits of current interest.

WHY DO WE NEED STANDARD QUESTIONS FOR MONITORING FOOD HABITS?

State and local population-based health surveys are conducted regularly. Selection of dietary questions should be guided by the nutrition objectives of the survey. Often, however, the rationale for collecting particular types of dietary data has not been well defined in general health surveys. Designers of such surveys either devise their own dietary questions or seek advice from nutrition specialists about which questions to use. Without an agreed set of best questions, there tends to be an ad hoc approach to the measurement of food habits. This often results in the use of inadequate or irrelevant questions that may not be valid indicators of the nutritional issues of interest. Further, there is little consistency across surveys in the dietary questions used. This limits the usefulness and comparability of data and makes it difficult to assess trends in population food habits.

Effective monitoring of trends in food habits is dependent in part on the use of valid standard questions that remain consistent from survey to survey². Use of standard dietary questions will improve the comparability of results from various surveys, helping to create a more complete picture of dietary habits in various population groups and assist in monitoring progress toward nutrition goals and targets.

TABLE 1

RECOMMENDED NUTRITION MODULES FOR USE IN POPULATION-BASED SURVEYS IN NSW

Module	Nutrition issue assessed by module
Core modules	Weight status: body mass index, based on self-reported height and weight Core food group intake (fruit, vegetables, breads and cereals) Fat consumption habits
Supplementary modules	Breast-feeding and infant feeding Food security, barriers to dietary change and meal patterns Food security, qualitative aspects Food habits related to intake of saturated fat, calcium and iron Core food group intake as assessed in the 1996 Tasmanian Food and Nutrition Study

A guide to instruments for monitoring food intake, food habits and dietary change provides a useful summary of questions currently available for measuring key indicators of population nutrition and an overview of issues that need to be considered in developing standard questions³. But there is no agreement in Australia about which brief instruments to use for food and nutrition monitoring.

The recent planning process for an annual Statewide telephone health survey in NSW has highlighted the need, and provided further impetus, for the development of standard modules of diet-related questions.

WHAT ARE NUTRITION MODULES?

Nutrition modules are short sets of standard dietary questions. Short nutrition modules were first developed by the Centers for Disease Control and Prevention in the United States, and these are now widely used in the US Behavioral Risk Factor Surveillance Surveys⁴. Each module is:

- related to a specific nutrition topic;
- self-contained and intended for use as a complete set of questions to obtain the best information about each topic; and
- suitable for use in surveys of the general adult population.

The recommended nutrition modules (Table 1) are based on priorities for nutrition information identified through a review of strategic documents^{5,6,7} and consultations held with health professionals during the development of the NSW food and nutrition monitoring plan. They consist of:

- core modules recommended for annual inclusion in the NSW Health Survey; and
- supplementary modules for periodic inclusion less often than yearly.

Nutrition issues considered to be of the highest priority and those that warrant more frequent data collection for monitoring purposes are recommended as core modules.

WHAT FACTORS INFLUENCED THE SELECTION OF NUTRITION ISSUES FOR MONITORING IN POPULATION-BASED SURVEYS?

Factors considered were:

- the priority given to tracking nutrition goals and targets and progress, including progress that meets the requirements of Area performance contracts;
- the suitability for monitoring in population-based surveys; and
- availability of valid questions for measuring the relevant indicators.

In the selection of specific questions, consideration was given to issues of validity, repeatability, responsiveness of the indicator to change over time, comparability with questions in other key surveys, the mode of administration, and relevance of the question to the target group of interest. Other issues considered were the methods and relative merits of measuring the frequency or quantity of foods consumed (number of "servings"), and the length of the reference period (for example, "usual" compared with "yesterday's" consumption). An example of the type of question recommended for measuring fruit and vegetable consumption is shown in Table 2.

WHO ARE THE NUTRITION MODULES FOR, AND WHEN SHOULD THEY BE USED?

The nutrition modules have been developed for health workers conducting population-based surveys in NSW, including NSW Health Department personnel, Area health personnel and public health researchers.

The recommended modules were developed, in the first instance, for inclusion in the NSW Health Survey, but they are also appropriate for use in:

- other Statewide risk-factor surveys, fitness surveys and health surveys that cover a representative sample of the general adult population of NSW; and
- regional or local health surveys.

LIMITATIONS AND NEXT STEPS FOR FURTHER DEVELOPMENT OF NUTRITION MODULES

Information on the validity, repeatability and responsiveness of most questions relating to food habits and food intake is limited. However, information on the validity of some questions is expected to become available when the results of the 1995 National Nutrition Survey and the 1996 Tasmanian Food and Nutrition Study are published. In the meantime, the proposed nutrition modules should be considered as interim recommendations.

The standard questions have been developed for adults in the general population and are unlikely to be suitable for assessing the diets of children and adolescents, ethnic populations and Aboriginal and Torres Strait Islander peoples. For example, children's recall and their ability to calculate their usual intake is different from that of adults, so the most appropriate reference period for this group should be used. For ethnic population subgroups and Aboriginal and Torres Strait Islander peoples, sources of

TABLE 2

RECOMMENDED CORE MODULE FOR MEASURING INTAKE OF FRUIT AND VEGETABLES

Module	Questions in module*
Core food groups: fruit and vegetable intake	<p>1. How many servings of vegetables do you <i>usually</i> eat each day? (a 'serving' = ½ cup of cooked vegetables or 1 cup of salad vegetables)* (single response)</p> <p>1. _____ serving per day (0, 1, 2, 3, etc)</p> <p>2. don't eat vegetables</p> <p>2. How many servings of fruit do you usually eat each day? (a 'serving' = 1 medium piece or 2 small pieces of fruit or 1 cup of diced pieces)* (Single response)</p> <p>1. _____ serving per day (0, 1, 2, 3, etc)</p> <p>2. don't eat fruit</p>

* Source 1995 National Nutrition Survey

nutrients, particularly fat, in the diet are often different from those of the general population. For these groups, there is a need for further development and validation of questions that reflect nutritional problems of concern and relevant aspects of their diet.

The recommended nutrition modules are based on the best available information at the time of publication. The modules do not replace the need for continuing research and development of the best short modules for monitoring nutrition issues. However, use of these standard questions should provide better quality information to assist in meeting nutrition priorities in NSW.

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MONITORING OVERWEIGHT AND OBESITY IN NSW: A GUIDE

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This article describes why it is important to monitor overweight and obesity, and outlines some of the standard methods developed in the report *Monitoring overweight and obesity in NSW*¹, one component of the NSW Food and Nutrition Monitoring Plan². The report includes information on how to define and measure overweight and obesity, standards for classifying people as overweight or obese and options for obtaining weight status data on the NSW population.

WHY IS IT IMPORTANT TO MONITOR OVERWEIGHT AND OBESITY IN NSW?

Obesity is a risk factor for a range of chronic diseases, including non-insulin-dependent diabetes mellitus, coronary heart disease, hypertension, hyperlipidaemia and gall bladder disease³. Monitoring overweight and obesity provides information on its prevalence and trends. Monitoring can be used by policy makers and field workers to highlight an area of concern for intervention, and to assess the effectiveness of intervention. Overweight and obesity was identified as a high-priority issue for nutrition monitoring in consultations conducted as part of the NSW Food and Nutrition Monitoring Plan.

The 1994 NSW Health Promotion Survey estimated the prevalence of overweight and obesity in NSW, based on self-reported data, as 48 per cent for males and 31 per cent for females⁴. Reducing the prevalence of overweight and obesity is a goal within the overall strategy of reducing cardiovascular disease^{5,6}.

Further, Area Health Services in NSW are increasingly focusing on population health. Performance agreements with the NSW Health Department include strategic activities and performance indicators for overweight and obesity.

OUTLINE OF SOME RECOMMENDATIONS IN THE GUIDE

To monitor overweight and obesity accurately, standard methods for the collection, measurement and analysis of data are required.

What to measure

For population monitoring, simple techniques are needed to indicate the prevalence and degree (mild, moderate, severe) of obesity (excess stores of body fat). However, there is no practical accurate measure of body fat for use in large population studies.

Measurements of weight and height are simple, unobtrusive and relatively inexpensive for the assessment of weight status, and relate reasonably well to risk of some diseases.

Body fat distribution is also an important predictor of obesity-related morbidity and mortality. Abdominal obesity is associated with coronary heart disease, stroke, non-insulin-dependent diabetes mellitus and high blood pressure⁷. Waist circumference measurement is

recommended as a simple way to determine abdominal obesity^{8,9}.

Sociodemographic information is required to interpret anthropometric data and to monitor trends of risk in groups. The information should include data on age, ethnicity, number of years of residency in Australia, and socioeconomic status, including income, education and occupation.

Monitoring weight-related attitudes and practices may assist in planning more effective policies and programs to promote healthy weight control in the population and to reduce the prevalence of obesity. Topics suitable for the development of population-based questions include:

- self-perception of body weight;
- weight loss behaviour and intentions;
- weight goals;
- actions pursued for weight maintenance, weight loss or weight gain; and
- barriers to healthy weight management.

How to measure overweight and obesity

Obtaining accurate measurements of weight, height, length (in infants) and abdominal and hip circumferences is difficult. Protocols for measurement are needed to ensure accurate standard measures, comparable within a survey (so different observers get the same result) and between surveys. The protocols are adapted from the World Health Organisation's recommended protocols¹⁰. Box 1 shows the recommended protocol for measurement of height.

Self-reported weights and heights

Self-reported weights and heights have been used as surrogate measures of actual weights and heights in surveys in Australia and NSW. The advantages of these

BOX 1

HEIGHT MEASUREMENT

- Use a vertical board with an attached metric rule and a movable horizontal headboard.
- Clients should be barefoot or in thin socks and wearing little clothing so that positioning of the body can be seen.
- The client should stand on a flat surface with weight distributed evenly on both feet, heels together and the head positioned so that the line of vision is perpendicular to the body.
- The arms should hang freely, and the head, back, buttocks and heels should be in contact with the vertical board.
- If a person cannot stand straight in this position, only the buttocks and heels or head are in contact with the vertical board.
- Ask the client to inhale deeply and maintain a fully erect position.
- Move the headboard down to the top of the head so that the hair is compressed.
- Record height to the nearest 0.1 cm.
- Record two measurements and if they differ by more than 0.5 cm, then take a third measurement.

BOX 2**RECOMMENDED QUESTIONS TO OBTAIN SELF-REPORTED DATA**

- How tall are you without shoes?
 _____ centimetres
 or
 _____ feet _____ inches
- How much do you weigh without clothes or shoes?
 _____ kilograms
 or
 _____ stone _____ pounds

methods are that they can be included in self-administered questionnaires and used in telephone surveys. Box 2 shows the recommended questions. We know that the overweight tend to under-report their weights and over-report their heights¹¹, and that body mass index based on self-reported weight and height tends to be underestimated as both men and women get older¹², but it cannot be assumed that the error in one group at one time applies to all groups and remains similar over time.

The validity of self-reported weights and heights should be checked (by comparing them with measurements) on various population groups over time. The conditions in which subjects report their weights and heights may also affect accuracy: for example, self-reported data from a face-to-face interview are likely to be different from those of telephone surveys or self-administered questionnaires, where there is no expectation of assessment and where the participant cannot be viewed by the interviewer.

The NSW Health Survey, beginning in 1997, will use self-reported weights and heights as the method for monitoring overweight and obesity for Area Health Services, and a validation study (comparing telephone responses with measured heights and weights) will be conducted.

Standards for classifying people as overweight or obese
 Body mass index (BMI: weight/height in kg/m²) is used to classify weights in the general population. Cut-off points for BMI have varied in the past, making it difficult to compare information between surveys¹³. The guide includes a review of surveys used in NSW over the past decade, and outlines differences between surveys¹. Recently, standard cut-offs have been recommended by WHO, and the analysis of the National Nutrition Survey reflects these. For comparison with past surveys, two standards may be required to classify overweight and obesity. Box 3 shows a summary of these cut-offs.

Where to collect information about the weight status of the NSW population

Ideally, population health surveys, similar to the National Heart Foundation risk factor prevalence surveys (but with a representative sample for states) would be conducted

BOX 3**STANDARDS FOR CLASSIFYING OVERWEIGHT AND OBESITY IN THE GENERAL POPULATION**

- Commonly used categories for comparisons with past surveys are as 'underweight', 'acceptable weight', 'overweight' and 'obese'.

Underweight	BMI <20
Acceptable weight	BMI 20 to 25
Overweight	BMI 25 to 30
Obese	BMI ≥30
- To maintain consistency with the National Nutrition Survey, a further refined breakdown of categories is recommended (using a modified version of the latest recommendations by WHO).

Severe thinness	BMI <6 (WHO grade 3 thinness)
Moderate thinness	BMI 16 to 17 (WHO grade 2 thinness)
Mild thinness	BMI 17 to 18.5 (WHO grade 1 thinness)
Normal weight	(WHO normal range 18.5 to 24.99. Report two categories separately) BMI 18.5 to 20 BMI 20 to 25
Overweight	BMI 25 to 30 (WHO grade 1 overweight)
Obese	BMI ≥30 (WHO grade 2 overweight, 30.0 to 39.99, WHO grade 3 overweight ≥40.00)
- Combine the 'thin' categories and 18.5 to <20 of the normal category to provide an 'underweight' category for comparisons with past surveys.

regularly, to track the changes in population weights and other risk factors. In practice, such surveys are unlikely to occur often because of the cost of bringing people to a centre for measurement. Therefore, the most feasible ways of obtaining information about trends in overweight and obesity are longitudinal studies of particular groups and other general health surveys.

We have identified the following surveys (and there may be others) as opportunities to obtain data about weights in the NSW population:

- The National Nutrition Survey, 1995: includes measured weights, heights, and waist and hip circumferences of people aged two years and over (n≈2,800 in NSW).
- The NSW Health Survey: self-reported weight and height data of people aged 16 years and over (n≈17,000 in NSW), repeated at predictable intervals.
- Measurement of the weights, heights, and waist circumferences of a subsample of the respondents from the NSW Health Survey.

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Monitoring overweight and obesity

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- Women's Health Study: a longitudinal survey, 1996-2016; the baseline survey was conducted in 1996 on women aged 18-22 years, 45-49 years and 70-74 years (n=12,000-15,000 in each cohort).
- Blue Mountains Eye Study: Stage 1, 1992-1994, Stage 2, 1997-1998; includes measured weights and heights on people aged 50 years and over (n≈3,500).

Using a variety of surveys to obtain weight status information enables us to construct a picture of the weight status of various population groups. Use of the guide to plan or modify these surveys will ensure that standard methods are used for the collection and interpretation of weight status data.

CONCLUSION

Information alone is not sufficient to solve the problem of overweight and obesity. But the regular supply of information may continue to draw attention to a problem that requires more intensive and creative solutions than it has had in the past. Such information should lead to better planning, problem-solving and action. As plans for implementation of the National Obesity Strategy become more concrete^{7,14}, NSW plans can be expanded.

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Guest editorial

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The second project concerned a more systematic approach to nutrition monitoring in NSW. While developing the catalogue was worthwhile, it became clear that there was a need for a coordinated approach if we were to furnish timely, relevant nutrition information to users: NSW Health Department planners, Area personnel and those in other agencies. The Department decided to develop a monitoring blueprint to complement the proposed national monitoring and surveillance plan and reflect the needs of the NSW Food and Nutrition Strategy, including the ability to monitor change among nutritionally vulnerable groups.

The articles in this issue report on the four main "products" of the second project. The first is an overview of the NSW Nutrition Monitoring Plan, which provides a blueprint for coordinated Statewide monitoring, and includes recommendations for collection, analysis and dissemination of timely and relevant nutrition information.

The second is a set of recommended short modules – that is, sets of questions or scales – for use in population-based surveys that lend themselves to the assessment of nutrition issues. These are interim recommendations, based on the best available information at the time of publication. They do not replace the need for continuing research and development, at the national level, into the best short modules for nutrition monitoring. Adoption of these interim recommendations by those who conduct population-based surveys in NSW will improve comparability of national, State and local survey data and lead to a clearer picture of progress towards State nutrition goals and targets.

The third product includes guidelines and recommendations for monitoring overweight and obesity. This is an important publication, given that the NSW Health Department has set targets for prevention and reduction of overweight and obesity, and for prevention of related conditions including cardiovascular disease, hypertension and high serum cholesterol levels. Data on overweight and obesity are needed so we can assess the effectiveness of interventions and promote the prevention of overweight and obesity. Most Area Health Service performance agreements with the NSW Health Department include strategic activities and performance indicators on diet, overweight and obesity, and physical activity. Standardised methods are needed for monitoring progress and demonstrating success in reducing the population prevalence of overweight and obesity.

The fourth product is a method for standardised monitoring of the food supplied by school canteens. This is required because of the considerable investment of the NSW Health Department in encouraging the availability of healthier foods in school canteens. It is important to be able to monitor the outcomes of this investment of public money.

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2. Stickney B, Webb KL, Campbell C, Moore AR. *Food and nutrition in NSW – a catalogue of data*. State health pubn. no. (HP) 94-066. Sydney: NSW Health Department, 1994. ISBN 0 7310 3658 1.

MONITORING TRENDS IN FOODS AVAILABLE IN SCHOOL CANTEENS

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This article describes a kit designed to standardise the way in which health workers assess the success of their work with school canteens in NSW¹. The kit was developed as part of the NSW Food and Nutrition Monitoring Plan^{2,3}. When it has approval from the NSW Department of Health and the NSW Department of School Education, the kit will become the recommended method of assessing and monitoring work with school canteens in NSW.

WHY WORK WITH SCHOOL CANTEENS?

School canteens have been identified by authoritative groups as an important setting for nutrition promotion among children^{4,5,6}. Canteens and other food services have been identified by the Food and Nutrition Unit of the NSW Health Department as a priority area of work in NSW². The prevention of childhood obesity and of diet-related chronic diseases in adult years depends to a large extent on healthy food habits established during school years⁶. School canteens, through snack and lunch sales, may supply one-third or more of a child's daily nutrient intake. Preservation of food choice is fundamental to the development of healthy eating habits. Therefore, effective nutrition promotion in school canteens is based on maintaining a range of food choices, including the availability of healthier food choices.

WHY DEVELOP A STANDARD METHOD FOR ASSESSMENT AND MONITORING OF THE FOODS SOLD IN SCHOOL CANTEENS?

In recent years community nutritionists and health promotion personnel have worked with school canteen managers in NSW to improve the nutritional quality of foods sold in canteens. However, no suitable methods have been developed for monitoring and documenting the results of these efforts. A variety of methods has been used to assess canteens and evaluate interventions, and this makes it difficult to compare the results of different studies or combine them.

The kit will enable those working with school canteens to:

- assess how practice in their schools or Areas compares with recommendations;
- report on their Area's progress in relation to Statewide nutrition indicators for school canteens, as outlined in the NSW Health Department's model performance contract for Area Health Services; and
- contribute to a Statewide assessment of the effectiveness of work with school canteens.

WHAT IS THE KIT?

The kit is a set of methods to assess and monitor trends in:

- **factors that influence the foods sold** in school canteens (school canteen policies and practices); and
- the **availability** (and prevalence) of healthier foods in school canteens relative to the availability of less healthy foods.

FOR WHOM IS THE KIT?

The kit is designed for use by health workers, including community nutritionists and health promotion personnel in local Area Health Services, who are working with canteen staff and schools (or planning to do so) to improve the nutritional quality of the foods sold in school canteens.

The kit potentially will provide beneficial information to many groups, for example:

- **canteen managers**, who will have more information about their past improvements and others still required, in relation to the products they sell and the promotions they conduct;
- **health workers and those involved in health-promoting schools projects**, who will be better able to tailor their assistance to particular schools or to particular aspects of the canteen menu, as identified by the kit;
- **principals, school councils, parents and citizens groups and health-promoting schools committees**, which will have a periodic summary of school canteen progress for accountability to parents; and
- the NSW School Canteen Association and the NSW Health Department, which will be able to monitor trends in school canteen policies and practices among those schools in NSW that wish to work with the health services to apply the kit.

WHAT DOES THE KIT CONTAIN?

The kit contains:

- questionnaires about canteen policies and practices (including letters to school principals and canteen managers, seeking their participation);
- a menu assessment tool (checklist) and guidelines for classifying foods into categories according to nutritional criteria (including forms and tables for data collection, analysis, interpretation and reporting); and
- instructions on how to use the kit, including how to
 - identify schools,
 - seek participation of schools,
 - administer the questionnaires and checklist,
 - follow up schools to ensure adequate data collection,
 - analyse and interpret the results,
 - feed the results back to the school community, and
 - become part of the Statewide tracking of progress towards healthier school canteens in NSW.

An example of the nutritional criteria used to classify foods into the healthier and less-healthy categories is shown in Table 3. The kit contains tables and graphs that can be used as templates to summarise and present in simple form the information from one school or a number of schools. An example is shown in Table 4. Summary information will not identify any schools: those who use the kit and supply information to Area Health Services will remain anonymous.

Continued on page 50 ►

Monitoring foods in school canteens

► Continued from page 49

WHAT INFORMATION WILL THE KIT PROVIDE?

From the questionnaires and the menu assessment tools in the kit, the following questions can be answered:

- To what extent does a school or schools have policies and practices that support a healthy canteen? For example, what proportion have:
 - an appropriate nutrition policy and canteen committee?
 - links with the NSW School Canteen Association and the Health Promoting Schools Association?
 - staff trained in nutrition and hygiene?
 - regular promotions of the canteen and the healthy foods it sells?
- What proportion of school canteens:
 - have at least two-thirds of their foods as healthier choices (that is, foods that meet nutrient criteria)?
 - provide sufficient variety of healthier foods, such as breads, fruits and vegetables, on a daily basis?
- Among which food groups (such as hot foods, beverages, snacks) sold in a school canteen, are the choices:
 - predominantly healthier choices (that is, meeting nutrient criteria)?
 - predominantly less healthy choices (not meeting nutrient criteria)?
 - requiring improvement?

HOW WAS THE KIT DEVELOPED?

There were several steps in the development of the kit, as follows:

1. Wide consultation was used to identify the extent to which there was a common set of criteria for defining a "healthy school canteen" and a "healthy food choice". While there was general agreement about these, the details varied among groups and organisations. Consultations also sought information about current practice and need for a monitoring system^{3,7}.
2. An extensive literature review highlighted the lack of uniform methods for evaluating school canteens.
3. Existing canteen checklists and food criteria of authoritative organisations (the Federation of Canteens in Schools and the NSW School Canteen Association) were adapted to improve their suitability for monitoring and their ease of use⁸.
4. A set of instructions for local health workers was devised to assist them in applying the questionnaires and as a menu assessment tool in schools. These were pilot-tested with selected health workers to improve the clarity of instructions and fine-tune the data collection and analysis procedures^{8,9}.

NEXT STEPS

We are planning the implementation of the kit, in consultation with key interest groups. While approval by the Department of School Education is being sought, the kit will be made available for use by health workers in NSW. Roles for the NSW School Canteen Association, the Area

TABLE 3

EXAMPLE OF NUTRIENT CRITERIA USED TO CLASSIFY FOODS INTO HEALTHIER AND LESS HEALTHY CATEGORIES

5.0	Hot foods
5.1	Soups All soups are considered to be healthier food choices
5.2	Combination foods, for example, pasta dishes, rice dishes, pizza, lasagne, instant noodles, pies and sausage rolls Fat: 10 g or less fat per 100 g Sodium: 600 mg or less sodium per 100 g
5.3	Hot chips Fat: 5 g or less fat per 100 g

TABLE 4

MATRIX USED TO CLASSIFY FOOD GROUPS INTO HEALTHIER AND LESS HEALTHY CATEGORIES IN SCHOOL CANTEENS

Food category	Healthier foods		Less healthy foods	
		<i>n</i>		<i>n</i>
1.0 Bread	x		x	
2.0 Breakfast cereals	x		x	
3.0 Vegetables	x		x	
4.0 Meat and alternatives etc	x		x	
5.0 Hot foods	x		x	
6.0 Snack foods	x		x	
7.0 Drinks	x		x	

Health Services and other organisations will be negotiated. Use of the kit by schools and by health workers will be voluntary. A guided implementation phase should begin late in 1997 or early in 1998, involving selected Area Health Services in NSW who wish to apply the kit in selected schools.

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4. National Health and Medical Research Council. *Implementing the dietary guidelines for Australians*. Report of the Subcommittee on Nutrition Education. Canberra: AGPS, 1989.
5. National Health and Medical Research Council. *Acting on Australia's Weight - A strategic plan for the prevention of overweight and obesity*. NHMRC, Draft 1997.
6. Centers for Disease Control and Prevention. Guidelines for school health programs to promote lifelong healthy eating. *MMWR* 1996; 45(No RR-9):1-42.
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TRENDS

Unseasonably high numbers of **Ross River virus infection** were reported with onset in April (Figure 1). This end-of-season surge is likely to be due to increased mosquito activity brought about by late summer rains around the mid NSW coast (stretching from the Hunter though to the Illawarra). Reports of 45 cases of Ross River virus infection among residents of Wentworth Area for the year sparked media attention. Preliminary investigation by Public Health Unit (PHU) staff in Areas around Sydney suggests that most cases acquired infection in non-urban Areas. Figure 2 highlights Areas of the State most at risk of this infection and places media concerns about the risk to Sydney residents in context.

A doubling in the expected number of cases of **meningococcal disease** reports with onset in April reflects increased activity in some Areas of the State, notably in the Wentworth Area (see the May issue of the *NSW Public Health Bulletin*). The release of the National Health and Medical Research Council's *Guidelines for the control of meningococcal disease in Australia* provides timely and useful recommendations for clinicians and public health practitioners.

Reports of **pertussis**, although declining, remain above historical averages (Figure 1). Since 1993, case reports of pertussis in NSW have remained high. May notifications increased from some Areas, notably from the Hunter and Northern Sydney Areas.

HISTOPLASMOSIS

A healthy 27-year-old man was admitted to a Sydney hospital on May 30, 1997 and diagnosed with the rare fungal infection histoplasmosis.

Histoplasmosis causes an illness that affects various systems of the body, primarily the lungs. Symptoms are variable but can last months, and the infection can be fatal. Histoplasmosis is common in many parts of the world (including North America), but rare in NSW. It is likely to be present in bat guano (faeces). A handful of past NSW cases has been associated with caving.

The patient went spelunking in Grill Cave and Fossil Hogans Cave in Bungonia National Park (near Goulburn) with several other people in December 1996. Reports suggest the man may have had intimate contact with bat guano while in one of the caves, indicating that there would be minimal risk to other cave visitors unless they had direct exposure to guano.

The National Parks and Wildlife Service (NPWS) reports that up to 10,000 people enter these caves each year. There is no evidence that people entering the caves are at significant risk for histoplasmosis unless they ingest or directly inhale bat faeces.

Central Sydney Public Health Unit staff have identified other people who entered the caves with the patient and interviewed them about exposures and illness. Some of these individuals are being tested for evidence of infection.

HEPATITIS A OUTBREAK LINKED TO A SYDNEY RESTAURANT

By June 30, 23 cases of hepatitis A linked to attendance at a popular restaurant (restaurant A) had been notified to the South Eastern Sydney Public Health Unit. Of the cases, 11 (48 per cent) were female and ages ranged from 7 to 48 years. All cases reported onset of jaundice since June 2. Nineteen cases reported eating at the restaurant on Mother's Day (May 11), and four reported eating there the following Sunday.

PHU staff inspected restaurant A on June 12. Blood was taken from all 20 food handler employees identified by the proprietor as working on Mother's Day, and all tested negative for recent hepatitis A infection.

On June 18, 1997, the Health Department issued a warning through the media advising that patrons who attended the restaurant since May 1 may be at risk for hepatitis A, and that patrons who developed any symptoms of illness should contact their medical practitioner. The restaurant voluntarily closed for business until the source of infection was identified.

A case-control study was conducted by Public Health Officer trainees, PHU and NSW Health Department staff.

The study included 22 cases and 72 diners who had eaten at the restaurant on Mother's Day, identified from restaurant A's reservation list. Preliminary analysis shows that all cases, but only 53 (74 per cent) controls, reported eating prawns at the restaurant ($p < 0.05$). Cases reported consumption of no other common food items.

The prawns served at restaurant A in June were traced to a batch of frozen fresh-water prawns imported from Burma. In response to the epidemiological and food inspection findings, the importer voluntarily recalled the remaining prawns from the distributors and restaurant A was cleared to reopen to the public.

Detection of hepatitis A virus from food samples associated with illness is difficult. This is because:

- it is not possible to sample the food that has been eaten; and
- the laboratory techniques employed (using polymerase chain reaction [PCR] techniques) are still experimental.

While a positive test will help confirm epidemiological findings, a negative test does not necessarily provide useful information. PCR testing failed to detect hepatitis A in a sample of restaurant A's leftover prawns.

INFLUENZA A AND B RETURN

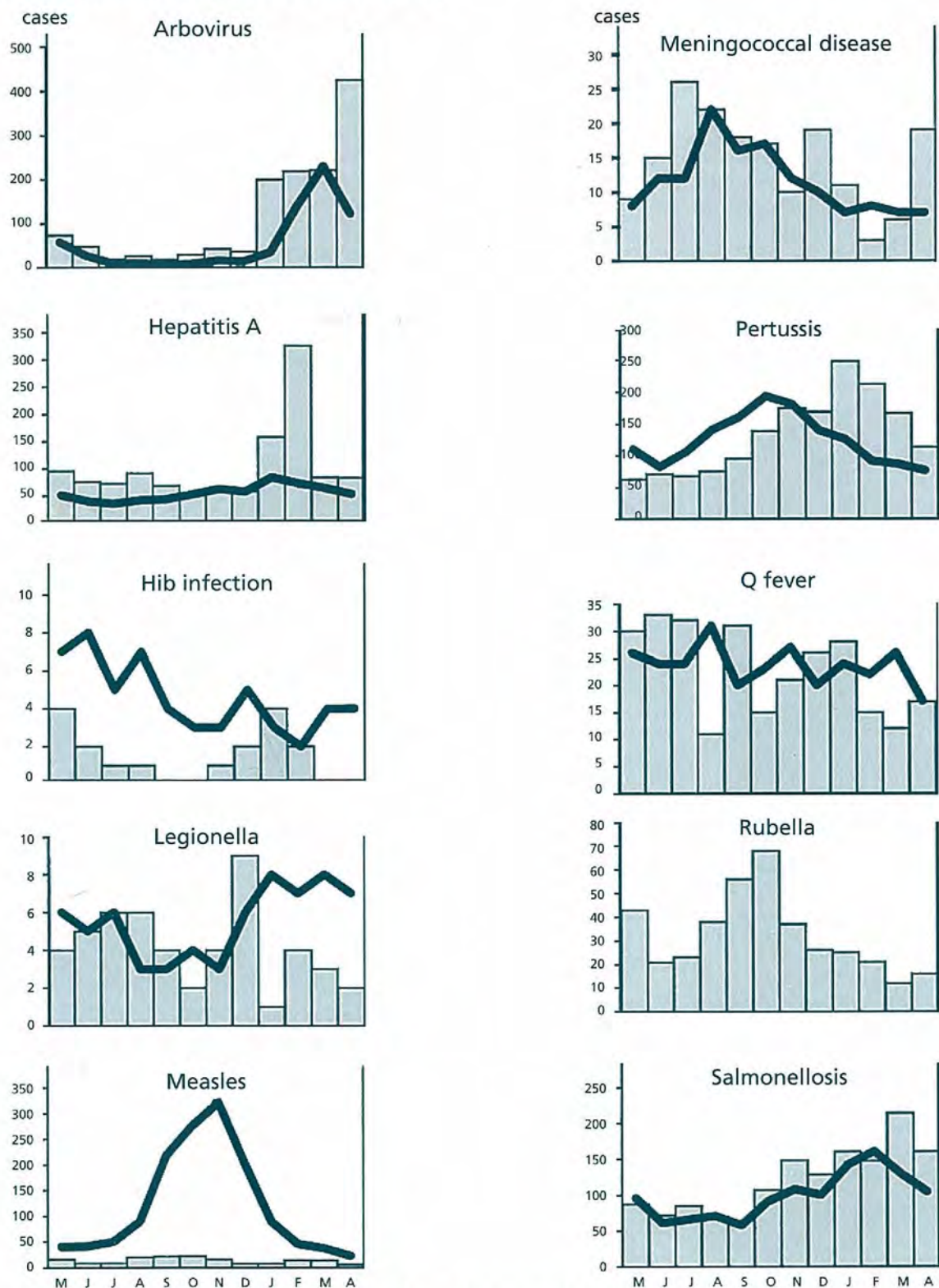
In 1996, NSW and other parts of Australia recorded an increase in influenza A (H3N2) activity which peaked in July. Little influenza B activity was reported.

The consultation rate for influenza-like illness among patients of sentinel general practices in NSW peaked at 2.5 per cent – well below epidemic levels.

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FIGURE 1

REPORTS OF SELECTED INFECTIOUS DISEASES, NSW, 12 MONTHS TO APRIL 1997, BY MONTH OF ONSET (WITH HISTORICAL COMPARISON)



Because of data collation problems, historic rubella figures are unavailable.

■ May 96 - Apr 97 / — Mean May 93 - Apr 96

FIGURE 2

ROSS RIVER VIRUS INFECTIONS, NSW, NOTIFIED JAN – MAY 1997, BY HEALTH SERVICE AREA



Infectious diseases – June 1997

► Continued from page 51

During the 1996-97 northern hemisphere season, many countries reported moderate to severe influenza epidemics. Activity peaked in Western Europe and North America in December 1996 or January 1997, and began in Central and Eastern Europe in mid-January.

Reports of influenza-like illness from the NSW Sentinel GP Surveillance Scheme are received through five Public Health Units, and include data from 5-64 doctors who consult 732-7,411 patients each week. These data show that the rates of influenza-like illness so far in 1997 are similar to (or slightly down on) the same period last year (Figure 3).

Four sentinel hospitals (Prince of Wales, Westmead, New Children's and Liverpool) reported a mixture of influenza A (29) and B (20) cases identified through virology and serology so far in 1997 (Figure 4).

1. *Guidelines for the control of meningococcal disease in Australia.* Canberra: National Health and Medical Research Council. Available from the Publications Officer, NHMRC, MDP 50, GPO Box 9848, Canberra 2601, telephone (02) 6289 7646, facsimile (02) 6289 8776.

FIGURE 3

NSW GP SENTINEL SURVEILLANCE
Influenza-like illness 1997 by week of consultation with historical comparisons



FIGURE 4

LABORATORY REPORTS OF INFLUENZA, NSW
1 JANUARY-29 JUNE 1997

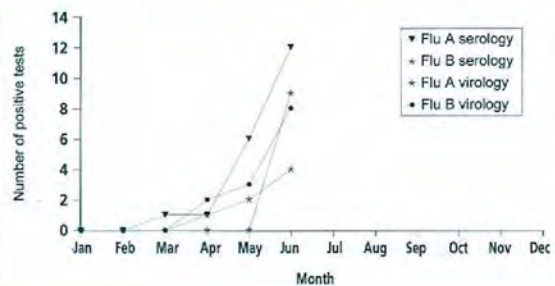


TABLE 5

INFECTIOUS DISEASE NOTIFICATIONS FOR NSW RECEIVED IN MAY 1997 BY AREA HEALTH SERVICES

Condition	Area Health Service																	Period	
	CSA	NSA	WSA	WEN	SWS	CCA	HUN	ILL	SES	NRA	MNC	NEA	MAC	MWA	FWA	GMA	SA	Total for May**	Total to date**
	Blood-borne and sexually transmitted																		
AIDS	4	4	-	-	2	1	-	-	10	-	1	-	-	-	-	-	-	22	148
HIV infection*	1	5	-	1	-	-	2	-	6	1	-	-	-	-	-	-	-	16	170
Hepatitis B - acute viral*	-	-	1	-	-	1	1	-	2	-	-	-	-	-	-	-	-	5	23
Hepatitis B - other*	77	53	24	2	75	15	4	10	51	1	6	-	1	9	-	5	4	337	1,682
Hepatitis C - acute viral*	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2	4
Hepatitis C - other*	91	57	53	13	72	31	51	30	110	14	6	16	2	23	3	13	24	609	3,599
Hepatitis D - unspecified*	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	5
Hepatitis E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Hepatitis, acute viral (NOS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gonorrhoea*	7	1	2	-	1	-	-	-	18	2	-	-	5	-	-	-	-	36	213
Syphilis	10	2	2	-	5	-	-	1	14	-	2	6	3	1	4	2	1	53	255
Vector-borne																			
Arboviral infection*	4	17	14	26	4	93	122	38	3	20	29	7	13	2	10	14	8	424	1,296
Malaria*	1	6	1	3	1	-	-	-	3	1	-	-	2	-	-	-	1	19	77
Zoonoses																			
Brucellosis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Leptospirosis*	-	-	-	-	-	-	1	-	-	-	-	2	-	1	-	1	-	5	13
Q fever*	-	-	-	-	1	-	1	1	-	4	1	8	11	4	-	-	-	31	110
Respiratory/other																			
Legionnaires' disease	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	3	18
Meningococcal (invasive) infection	-	1	-	2	2	-	1	1	-	-	1	-	1	-	-	-	-	9	47
Leprosy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Mycobacterial tuberculosis	5	5	-	-	6	-	1	-	6	-	1	-	-	-	-	-	-	24	138
Mycobacteria other than TB	11	2	4	1	4	-	1	-	6	1	1	-	-	-	-	-	-	31	163
Vaccine-preventable																			
Adverse event after immunisation	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	20
<i>H. influenzae</i> B (invasive) infection	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2	9
Measles	-	1	2	2	2	1	-	-	1	-	2	-	-	1	-	-	2	14	55
Mumps*	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2	19
Pertussis	7	24	13	14	8	2	27	5	7	4	2	2	2	1	-	3	3	124	942
Rubella*	-	1	1	-	1	1	3	-	1	1	-	-	-	-	-	-	-	9	81
Tetanus	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	2
Faecal-oral																			
Cholera*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Foodborne illness (NOS)	4	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	8	49
Gastroenteritis (instit)	-	-	-	-	24	-	36	-	-	-	-	-	-	-	-	-	-	60	265
Hepatitis A	6	2	5	3	2	3	9	1	12	8	8	5	3	4	6	1	-	78	733
Listeriosis*	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	10
Salmonellosis (NOS)*	9	19	12	4	16	6	9	3	9	4	2	9	3	2	4	3	6	120	821
Typhoid and paratyphoid*	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2	15

* lab-confirmed cases only

** includes cases with unknown postcode

TRENDS

In the 12 months to May 1997, almost 1,800 cases of **pertussis** were notified in NSW, including the deaths of four small babies (Figure 5). Pertussis is highly preventable through immunisation, yet immunisation rates in NSW remain too low – the 1995 Australian Bureau of Statistics household survey found that 38 per cent of children under 7 years of age were not fully immunised against pertussis. Pertussis rates for the period June 1996 to May 1997, by Health Area, are shown in Figure 6.

So far this year, there have been two cases of **tetanus**; the two patients were not up to date with their immunisations. The first case, a Sydney woman in her 70s, was notified in January and reported having been scratched by a duck 10 days before admission. The second case, a Hunter Area woman in her 40s, was notified in May, and reported having scratched her leg two weeks before admission to hospital. These two highly preventable cases highlight the importance of doctors routinely (and opportunistically) checking and immunising all adults against tetanus and diphtheria each 10 years.

Reports of **arbovirus** infections remained elevated in May and June. Summer rains around the more populous part of the coast of NSW helped make 1997 a record year for these infections, with 1,590 cases reported to the end of June.

Measles reports also have risen (Figure 5), particularly in the Western sector of Sydney (Table 6).

CRYPTOSPORIDIUM AND SYDNEY WATER

In early July, Sydney Water Corporation reported that it had detected small numbers of *Cryptosporidium* oocysts in treated water late in June and early in July.

Cryptosporidium infection causes an illness lasting several days characterised by 8 to 10 episodes of watery diarrhoea per day, abdominal cramps, fever and vomiting. In people who are immunosuppressed, such as those living with AIDS, infection can last for many months. In response to the water findings, the NSW Health Department and the Public Health Network launched intensive surveillance for diarrhoeal disease and cryptosporidiosis through laboratories, emergency departments, general practitioners and pharmacies throughout Sydney. No evidence of disease attributable to *Cryptosporidium* in drinking water was detected. However, because the HIV-affected community and other sectors of the public have expressed interest in such findings in the past, Sydney Water Corporation released testing details on 17 July.

INFLUENZA SURVEILLANCE

There has been a sharp increase in laboratory isolates of influenza A in July (Figure 7). Between 1 July and 27 July, sentinel laboratories reported 95 diagnoses of influenza A infections and 33 of influenza B infections.

Reports of influenza-like illness from the NSW Sentinel GP Surveillance Scheme are received from five PHUs. Participating GPs report similar rates of influenza-like illness among their patients as previous years (2 per cent), although there was a slight increase in late June (Figure 8).

TRANSMISSION OF HIV POSSIBLY ASSOCIATED WITH EXPOSURE OF MUCOUS MEMBRANE TO CONTAMINATED BLOOD – UNITED STATES

In February 1996 transmission of human immunodeficiency virus (HIV) by an unknown route involving an HIV-infected man and his previously uninfected female partner was reported to the United States Centers for Disease Control and Prevention (CDC). This report summarises the epidemiologic investigation of this incident, which suggests the woman was infected through the exposure of mucous membranes to contaminated blood.

In 1992 the HIV-infected man and his uninfected female partner were enrolled in a study in which couples with one HIV-infected partner and one non-HIV-infected partner were extensively counselled, administered questionnaires, and tested periodically for HIV infection. Blood drawn from the woman on 19 July, 1994 was HIV-negative by both enzyme immunoassay (EIA) and polymerase chain reaction (PCR). However, serum specimens obtained from the woman on 24 July, 1995 and 11 September, 1995 were positive by both EIA and immunofluorescent assay.

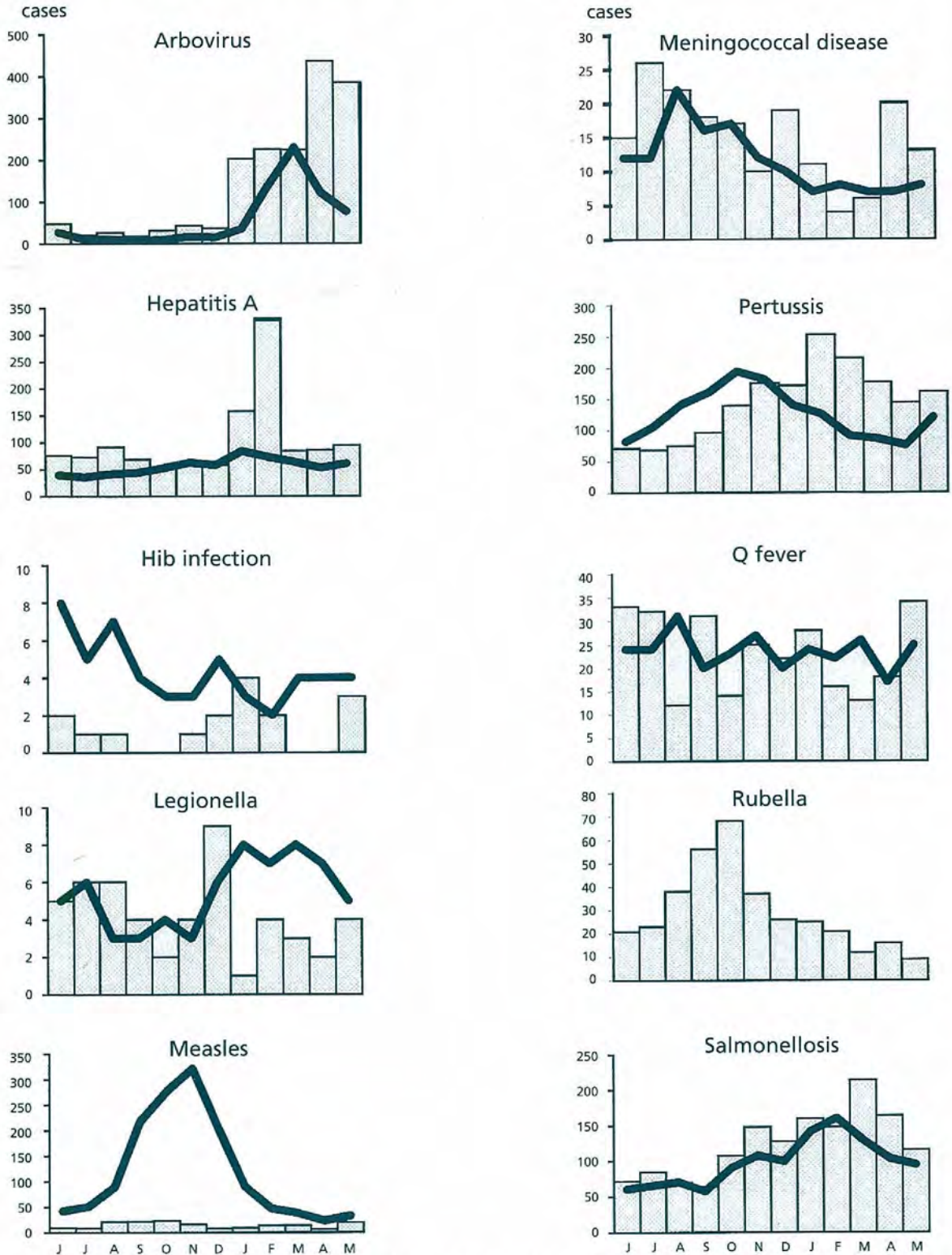
During the interval from the month before her last HIV-negative test (June 1994) to the month of her first HIV-positive test (July 1995), the woman denied known risk exposures for HIV (other sexual partners; non-injecting or injecting drug use; sexually transmitted diseases; blood transfusion; artificial insemination; occupational exposure to HIV; and acupuncture, tattoos, body piercing or other percutaneous injections). The sources of information obtained separately from each partner by two independent interviewers during this investigation and by interview records obtained during the study before the couple was aware of the HIV transmission were consistent regarding the couple's sexual practices between June 1994 and July 1995. During this period, the woman and her partner reported having vaginal intercourse an average of six times a month but never during menstrual periods. They reported always using latex condoms (for men) during sex, most times with the spermicide nonoxynol-9. The couple denied having had anal intercourse during this period. Although they reported a condom breakage that occurred in January 1994, both independently denied awareness of condom breakage or slippage between June 1994 and July 1995 and believed the condom remained in place each time while the penis was withdrawn.

The couple engaged in "deep kissing" (open-mouth to open-mouth) several times a month. The man indicated that his gums frequently bled after he brushed and flossed his teeth and that the couple generally engaged in sexual intercourse and "deep kissing" at night after he brushed his teeth. Occasional instances of oral intercourse between the couple reportedly did not involve the exchange of semen or blood. In addition, the woman recalled using the man's toothbrush and razor, both without visible blood, on one occasion each.

Continued on page 57 ►

FIGURE 5

REPORTS OF SELECTED INFECTIOUS DISEASES, NSW, 12 MONTHS TO MAY 1997, BY MONTH OF ONSET (WITH HISTORICAL COMPARISON)



Because of data collation problems, historical rubella figures are unavailable.

■ June 96 - May 97 / Mean June 93 - May 96

FIGURE 6

PERTUSSIS RATES, NSW, JUNE 1996 – MAY 1997

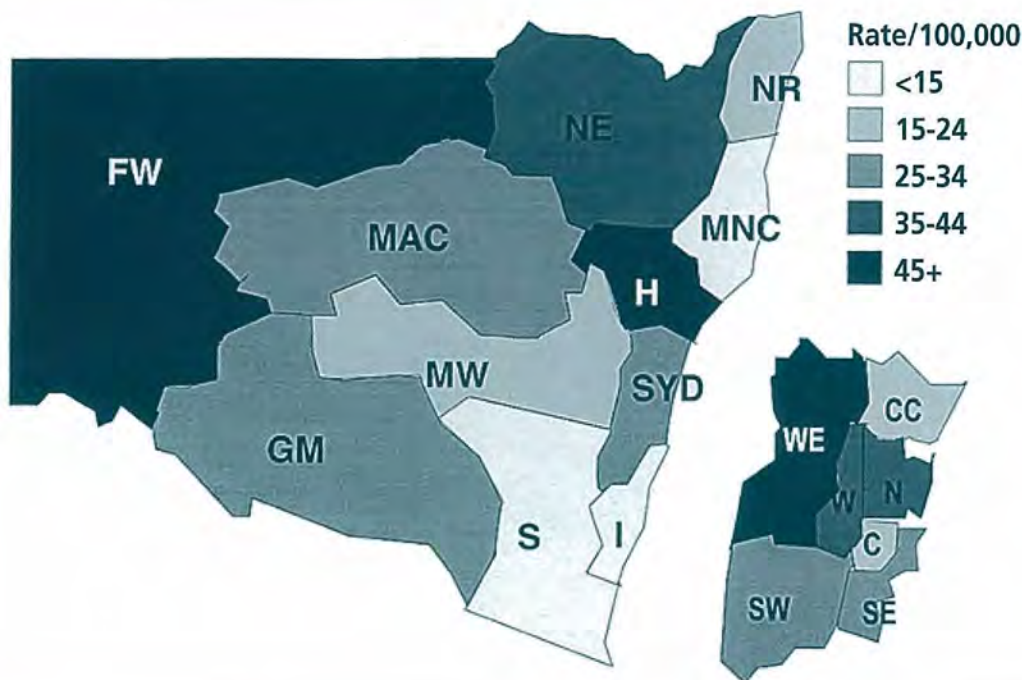


FIGURE 7

Influenza diagnoses by sentinel NSW laboratories, 1 January to 30 July 1997, by diagnostic method

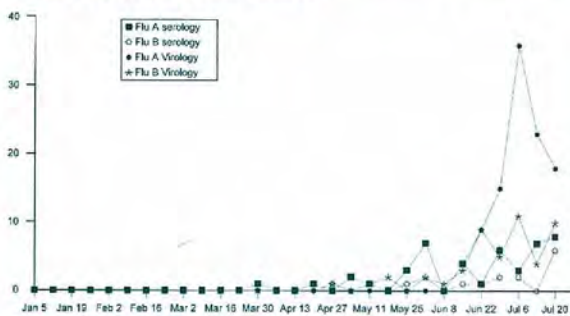


FIGURE 8

Proportion of consultations for influenza-like illness by NSW sentinel general practitioners, 1 January to 27 July 1997 (columns), by week, with historical comparison (line)



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► *Continued from page 55*

She was unable to specify whether these events occurred during the putative infection period of June 1994 to July 1995.

The man had been infected with HIV since 1988 as the result of injecting drug use. He reported longstanding poor dentition and occasional sores in his mouth. On 29 August, 1994 he had a normal platelet count and a CD4+ T-lymphocyte count of 110 cells/mL. On September 6, 1994 he sought medical care at a clinic because of a cough, stress and intermittent weight loss. At this time small vesicles were noted in his throat. At a follow-up visit in April 1995 canker sores, halitosis and gingivitis were noted. In May 1995, at his first dental visit since 1988, gingivitis and oral hairy leukoplakia were diagnosed. He had never received antiretroviral medication.

On 8 August, 1994 the woman underwent a dental evaluation followed by root canal therapy. Her dental records noted poor condition of gums, 2mm to 6mm pockets (indicating periodontitis), poor personal dental hygiene practices and a recommendation for periodontal therapy. No complications or excessive bleeding from the endodontic therapy were reported by the woman or noted by the dentist. The dentist was tested for HIV in May 1996 and was negative by EIA.

On 26 August, 1994 the woman experienced the onset of a syndrome that lasted 7-10 days and was characterised by fever of 39°C, headache, swollen lymph nodes, sore neck and back and muscle aches in her legs. On 2 September she sought medical care from her primary-care physician, who noted erythema and inflammation of the gingiva.

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► Continued from page 57

The physician diagnosed a viral process with concomitant gum infection and prescribed erythromycin for treatment. The woman reported no other clinically important illness from June 1994 to July 1995.

Blood samples were obtained from both HIV-infected partners in April 1996. PCR techniques and sequencing indicated a high degree of relatedness between the viruses infecting the man and woman, supporting the conclusion that HIV was transmitted from one to the other. Testing of stored samples obtained from each partner in 1995 produced similar results.

Comment

This report suggests that the woman probably became infected with HIV between June 1994 and July 1995, as these symptoms were consistent with acute retroviral syndrome¹. In addition, during June 1994 and July 1995, the man's CD4+ T-lymphocyte count was low, which may be associated with increased infectivity and risk for transmission².

Results of the DNA sequencing and phylogenetic analysis support the epidemiologic findings that the woman's infection was acquired from her infected male partner. Although the exact route of transmission in this report cannot be determined, the most likely possibility is that the woman became infected through mucous membrane exposure to the man's saliva that was contaminated by blood from his bleeding gums or exudate from undetected oral lesions. Such exposure may have occurred during "deep kissing". The woman's inflamed gingival mucosa, as indicated by her dental and medical records, might have been a contributing factor.

Exposure to saliva uncontaminated with blood is considered to be a rare mode of HIV transmission for at least five reasons:

- 1) saliva inhibits HIV-1 infectivity³
- 2) HIV is infrequently isolated from saliva⁴
- 3) none of the approximately 500,000 cases of AIDS reported to CDC has been attributed to exposure to saliva
- 4) levels of HIV are low in the saliva of HIV-infected persons, even in the presence of periodontal disease⁵
- 5) transmission of HIV in association with kissing has not been documented in studies of non-sexual household contacts of HIV-infected people⁶. However, rare bite-related instances of HIV transmission from exposure to saliva contaminated with HIV-infected blood have been reported^{7,8}.

Other exposures of the woman to the man's blood or semen cannot be excluded. Although occasional instances of oral sex did not reportedly involve the exchange of semen or blood between the people in this report, these routes of transmission cannot definitively be excluded. Sexual exposure through vaginal intercourse is a plausible mechanism of transmission for the case described in this report; however, other studies of couples in which one partner is HIV-infected and the other is not indicate that HIV transmission is rare when heterosexual couples use condoms consistently during vaginal intercourse⁹. If a condom is not used correctly, it may slip off or break, thereby reducing its effectiveness as a barrier to HIV. However, both partners could not recall any instances of condom slippage or breakage during the time infection was likely to have occurred. In addition, although the shared use of a toothbrush or razor are theoretically plausible routes of transmission, the woman recalled that each event occurred only once, and she could not specify whether either event occurred during the period when transmission was most likely to have occurred.

The findings of this investigation underscore the multiple routes by which exposure to infectious body fluids can occur among sexually intimate people. Uninfected people considering intimate relationships with people known to be infected with HIV should be educated about the rare possibility of HIV transmission through mucous membrane exposures. People choosing to have sex with HIV-infected people or people with unknown HIV serostatus should correctly use latex condoms (for men) during each act of intercourse and should avoid any other exposure to potentially infectious body fluids, including blood, semen, or any other body fluid visibly contaminated with blood.

Adapted from: CDC. Transmission of HIV possibly associated with exposure of mucous membrane to contaminated blood. *MMWR* 1997; 46:620-624

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TABLE 6

INFECTIOUS DISEASE NOTIFICATIONS FOR NSW RECEIVED IN JUNE 1997 BY AREA HEALTH SERVICES

Condition	Area Health Service																	Period	
	CSA	NSA	WSA	WEN	SWS	CCA	HUN	ILL	SES	NRA	MNC	NEA	MAC	MWA	FWA	GMA	SA	Total for Jun**	Total to date**
	Blood-borne and sexually transmitted																		
AIDS	1	1	-	-	-	1	-	-	3	1	-	-	-	-	-	-	1	8	158
HIV infection*	-	-	-	-	-	-	Reported bimonthly										-	170	
Hepatitis B - acute viral*	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	3	30
Hepatitis B - other*	64	39	43	2	69	1	7	10	43	1	-	1	3	2	2	2	1	290	2,027
Hepatitis C - acute viral*	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	6
Hepatitis C - other*	67	48	100	20	83	26	43	29	83	42	21	8	8	19	1	16	25	640	4,382
Hepatitis D - unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Hepatitis E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Hepatitis, acute viral (NOS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gonorrhoea*	16	7	5	3	3	1	4	2	46	1	3	1	5	-	-	-	-	92	309
Syphilis	8	1	7	-	5	1	2	-	9	3	1	5	4	1	3	-	-	50	311
Vector-borne																			
Arboviral infection*	4	16	9	24	7	48	43	25	6	13	19	4	7	2	4	9	5	245	1,590
Malaria*	1	3	2	1	1	-	2	1	2	1	-	1	-	-	-	-	-	15	92
Zoonoses																			
Brucellosis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Leptospirosis*	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	2	16
Q fever*	-	-	-	-	-	-	-	1	-	2	3	8	7	5	2	2	1	31	142
Respiratory/other																			
Legionnaires' disease	2	-	-	-	-	-	2	-	3	-	-	-	-	-	-	-	-	7	25
Meningococcal (invasive) infection	2	1	2	3	1	1	-	1	-	-	1	2	-	-	-	-	-	14	67
Leprosy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Mycobacterial tuberculosis	6	2	7	-	5	-	5	3	4	-	-	-	-	1	-	1	-	34	184
Mycobacteria other than TB	10	3	2	1	2	2	2	-	6	5	-	-	1	-	-	-	-	34	197
Vaccine-preventable																			
Adverse event after immunisation	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	23
<i>H. influenzae</i> B (invasive) infection	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	10
Measles	3	-	5	1	-	1	1	1	1	-	-	-	-	-	-	2	-	15	76
Mumps*	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	20
Pertussis	17	16	15	10	15	2	69	2	25	6	4	2	4	4	1	9	-	201	1,170
Rubella*	-	-	-	-	-	-	4	-	-	-	-	2	-	-	-	-	-	6	87
Tetanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Faecal-oral																			
Cholera*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Foodborne illness (NOS)	5	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	7	56
Gastroenteritis (instit)	-	-	-	29	-	-	1	-	-	-	-	-	-	-	-	-	-	30	295
Hepatitis A	12	12	8	5	4	3	5	4	42	14	8	11	12	4	4	2	-	150	889
Listeriosis*	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	11
Salmonellosis (NOS)*	8	12	6	2	16	6	7	-	8	11	7	2	-	-	3	3	2	93	922
Typhoid and paratyphoid*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14

* lab-confirmed cases only

** includes cases with unknown postcode

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The editor of the *NSW Public Health Bulletin* is Dr Michael Frommer, Director, Centre for Research and Development, NSW Health Department. Dr Lynne Madden is production manager.

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Abbreviations used in this Bulletin:

CSA Central Sydney Health Area, SES South Eastern Sydney Health Area, SWS South Western Sydney Health Area, WSA Western Sydney Health Area, WEN Wentworth Health Area, NSA Northern Sydney Health Area, CCA Central Coast Health Area, ILL Illawarra Health Area, HUN Hunter Health Area, NRA Northern Rivers Health Area, MNC Mid North Coast Health Area, NEA New England Health Area, MAC Macquarie Health Area, MWA Mid West Health Area, FWA Far West Health Area, GMA Greater Murray Health Area, SA Southern Health Area, OTH Interstate/Overseas, U/K Unknown, NOS Not Otherwise Stated.

Please note that the data contained in this Bulletin are provisional and subject to change because of late reports or changes in case classification. Data are tabulated where possible by area of residence and by the disease onset date and not simply the date of notification or receipt of such notification.