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MOVE TO FAIRER RESOURCE ALLOCATION

The NSW Health Department has begun using a Resource Allocation Formula (RAF) as a guide to achieving a fairer distribution of health resources.

The Formula is based on the principles that the need for primary and secondary level health services is mainly related to population size, and that tertiary services are best provided in a small number of established centres of excellence.

The Department is responsible for a Health budget of $4.4 billion. Most of this budget ($3.6 billion) is allocated to Area Health Services and Public Hospitals in NSW through Program 2.3. All acute care public hospitals and community health services are funded through this Program.

Before adoption of the Formula in 1989/90, Area Health Services and Country Regions were funded on a historical basis, ie. a matching of the previous year's budget plus extra funds for new or enhanced services. Allocating resources in this way failed to take proper account of changing population trends. It also tended to reinforce the status quo in the distribution and location of major health facilities.

As a result of using this method of allocation in NSW for decades, health infrastructure is heavily concentrated in the inner suburbs of Sydney. It has not matched the population growth of the western suburbs of Sydney and the North and Central Coast.

The primary and secondary component of the Resource Allocation Formula is determined by population adjusted for:

- age/sex structure
- standardised mortality ratio
- fertility weighting
- net interstate patient flows
- private hospital patient flows
- nursing-home type use of acute hospitals.

The tertiary component is determined by current tertiary (super-specialty) service provision in major teaching hospitals and an assessment of tertiary services to be established/upgraded in growth areas.

The Resource Allocation Formula sets target resource shares for 10 years hence and is used as a guide in the setting of Area/Regional recurrent budget forward estimates. There will be a redistribution of funds over a 10-year period through a process of:

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- targeting areas of high population growth for new capital works (eg. Gosford, Wyong, Nepean, Liverpool and Port Macquarie Hospitals)
- relocating services to areas of greater need when such opportunities arise (eg. the Royal Alexandra Hospital for Children move to Westmead)
- targeting under-resourced Areas/Regions in the allocation of growth funds (eg. Southern Sydney, Wentworth, South Western Sydney, Central Coast, North Coast).

The major transfer of resources will be timetabled to match the completion of new capital works. Recurrent funding will not flow in large lumps until Areas/Regions have the infrastructure in place to effectively make use of it.

Will the RAF improve health outcomes?

The most important consideration in the allocation of resources at the State level is ensuring that they are distributed to Areas/Regions fairly and equitably. The maximising of efficiency and health outcomes within Areas/Regions is considered to be the responsibility of the Area/Region administration.

An underlying principle of the RAF is to encourage Area Health Services and Regions to be self-sufficient in providing primary and secondary health services. The Department's aim here is to reduce the need for residents to travel outside their Area/Region for such services.

In so doing, and in conjunction with global budgeting, the Department is empowering Areas/Regions through a decentralised service management framework. Areas/Regions are more in touch with local health needs and are thus appropriately responsible for developing the most suitable range and mix of health services.

The linking of resource allocation to (adjusted) population sets an upper limit on funding. This encourages Areas/Regions to prioritise service development proposals, maximise activity efficiencies (eg. reduce acute hospital bed days) and examine the costs and benefits of public health and health promotion/prevention programs.

The extent to which the RAF will improve health outcomes by improving access to health services remains to be evaluated. However, it is considered that the population-based resource allocation approach provides greater incentives to improve health outcomes than alternative methods, such as historical funding or the case-mix approach.

The case-mix method is used in the US to pay hospitals on a prospective basis according to an average cost per patient treated, using Diagnosis Related Groups. This method is totally "process-oriented". While it provides incentives for hospitals to increase efficiency, it can also encourage hospitals to increase admission rates, particularly for the most "profitable" cases.

Future Directions

The Department intends to use the RAF to achieve a more equitable distribution of health funds over the next 10 years.

This initiative is one of many stressed in the Department's corporate strategy, which has set improvement in health outcomes as a major goal. In the future, it may be possible to develop a framework for resource allocation which is outcome, rather than demand, based.

At present, the application of funds between primary, secondary and tertiary services, and between treatment programs and prevention strategies, is largely activity and output driven, eg. reduction of waiting lists or increasing hospital throughput. These short-term strategies do not necessarily challenge the efficacy of the service being offered or the relative value of alternative applications of funding.

An important element of the Department's corporate direction is to continue to focus the emphasis of the health industry on its product, ie. determining health status problems and formulating prevention and treatment services. A framework could be developed for setting resource priorities that is not merely aimed at short-term objectives.

The link between resource allocation and health outcomes will be strengthened in the future with the development of hospital financial information systems, particularly cost-centre reporting. These developments will assist in the evaluation of the cost-effectiveness of health care services and programs. The development of clinical outcome indicators will enable more rigorous evaluation of efficacy and cost-benefit appraisal of these programs.

While the Resource Allocation Formula empowers this process, the future impact and success in improving the health of our community is beyond the portioning of resource shares. It rests with health managers and health care professionals.

Richard Gilbert and Christine Bennett, Service Development Branch, NSW Health Department

REDUCING TRAVEL RISKS

Information on measures you can take to minimise risks of infection during travel, especially to Third World countries, is available from a number of sources [1,2,3]. However, as disease patterns change quickly in different parts of the world, this guide has been prepared for those planning overseas travel.

Infections of most concern are either the commonest (eg. gut, respiratory infections) or those which are life threatening (eg. malaria, typhoid fever, yellow fever, AIDS).

The risks of infection may be reduced by:

1. immunisation
2. chemoprophylaxis
3. other health measures.

IMMUNISATION

Quarantinable diseases are infectious diseases which, by international agreement, can be isolated.

Cholera

The current cholera vaccine contains killed *Vibrio cholerae*. The protection rate is only about 60%. This is not a very satisfactory vaccine, and is not recommended unless you are entering a country that requires cholera immunisation. These are Pakistan, Pitcairn and Sudan.

Two doses are required: 0.5ml subcutaneously, 1.0ml 2-4 weeks later (minimum of one week between injections). The injection is best given in the evening. Two aspirin or paracetamol tablets should be taken before going to bed to minimise severity of possible local and systemic reactions.

The Certificate is valid for six months. After that, only a single booster is needed.

TABLE 1

CHOLERA ENDEMIC AREAS (AS AT SEPTEMBER, 1990)

Africa:	Algeria, Angola, Burundi, Cameroon, Cote D'ivoire, Ghana, Guinea, Kenya, Liberia, Mali, Mauritania, Mozambique, Niger, Nigeria, Rwanda, Sao Tome, Tanzania, Zaire, Zambia.
Asia:	Bangladesh, Burma, China, India, Indonesia, Iran, Kuwait, Malaysia, Nepal, Sri Lanka, Thailand, Vietnam. (Sometimes cholera occurs elsewhere, eg. Iraq, Hong Kong, Singapore, Tuvalu.)
Europe:	Romania.

Yellow fever

Immunisation is required if you are visiting known yellow fever endemic areas. It is also required by some countries, including Australia, of travellers returning from yellow fever areas. Recognised yellow fever areas are: Equatorial Africa from Angola in the south to Senegal, Niger, Chad, Sudan, Mali, Ethiopia and Somalia inclusive to the north; Panama and tropical South American countries west of the Andes and to the north of Bolivia inclusive.

The yellow fever vaccine is a live, attenuated vaccine currently administered at a number of travel medical clinics [4]. The Certificate is valid for 10 years after the 10th day following vaccination.

Other infectious diseases

Other infectious diseases against which immunisation is advisable include:

Typhoid fever

Typhoid fever is endemic in most countries of the world, but is far more prevalent in developing countries. If a lot of time is to be spent in such areas, or if you are going off the beaten track, typhoid vaccination is advisable.

It is suggested that the live, oral, attenuated vaccine be used. Dosage: One capsule swallowed whole on day 1, 3, 5 and 7, one hour before a meal. This dosage should provide immunity for up to three years. *NB* Oral vaccine should *not* be taken with antibiotics or certain antimalarials, eg. doxycycline or Maloprim.

Alternatively, the parenteral vaccine could be used — protective efficacy about 70%. Dosage: Two subcutaneous injections of 0.5ml 2-4 weeks apart; minimum period one week. The same measures as for cholera immunisation are suggested to reduce discomfort later.

Some people react severely to typhoid and cholera vaccines. With typhoid vaccine, adequate booster effect may be obtained by the intradermal injection of 0.1ml in the deltoid area, instead of subcutaneous administration.

The vaccine should not be given to you if you have a concurrent illness or are convalescing.

A single booster is needed every three years while ever you are at risk. If many years have elapsed since the initial course, a single booster will be adequate.

Poliomyelitis

Poliomyelitis is endemic in many developing countries, including South-East Asia and the Middle East. Ensure protection with a booster of Sabin oral vaccine if the last dose was taken more than 10 years ago.

Infectious hepatitis (hepatitis A)

Infectious hepatitis is a definite risk in developing countries, especially if you are going off the beaten track. If you make frequent visits to developing areas, it would be worthwhile determining your anti-HAV IgG status (if positive, you are immune and globulin is not needed; if anti-HAV negative, then globulin is advisable). The duration of protection from gamma

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globulin depends directly upon the size of the dose. An adequate dose for 3-4 weeks is 0.04ml/kg of body weight; protection up to six months is given by a dose of 0.12ml/kg of body weight.

Hepatitis A vaccines are currently under field trial.

Hepatitis B
For most travellers to developing countries, hepatitis B vaccine is not indicated. Risk of hepatitis B is greatly increased if you are likely to be handling blood or blood products (eg. medical research or care), are promiscuous, homosexual, a drug abuser or likely to need parenteral injections or a blood transfusion while in these countries. If so, vaccine is advisable, starting six months before departure.

Hepatitis non-A and non-B
Water-borne hepatitis non-A non-B occurs in the Indian subcontinent, South-East Asia, North and West Africa, Mexico and possibly China. All drinking water should be boiled (see Travellers' diarrhoea).

Tuberculosis
Tuberculosis is very common in developing countries. If the Mantoux negative traveller is spending much time, say 12 months or more, in such areas, BCG vaccination is advisable. A chest X-ray up to 12 months after return may be wise.

Meningococcal disease
Meningococcal disease is prevalent in Nepal, Vietnam, Egypt, Brazil, Ghana, Burkina Faso (Upper Volta), Niger, Nigeria, Mali, Sudan, Chad, Saudi Arabia and Mongolia. A bivalent meningococcal vaccine is now available through the Commonwealth Serum Laboratories. One dose of this vaccine provides some protection against the A and C serogroups and has minimal adverse reactions.

Japanese B encephalitis
Japanese B encephalitis is a mosquito-borne virus occurring in China, Taiwan, Japan, Guam, Philippines, Korea, India, Bangladesh, Thailand, Burma and South-East Asia, down to and including Bali.

Vaccination is only advisable if you are planning a long stay, repeated short stays or where field exposure to mosquitoes is likely during summer months in endemic/epidemic areas. Biken inactivated vaccine is available on an Individual Patient Use basis, two or three doses 1-2 weeks apart. Enquiries: Dr Robert Hall, Commonwealth Department of Health, Canberra; tel: (06) 289 8345.

Others
You should be actively immunised against tetanus and diphtheria. A booster (ADT) is advisable every 10 years. Other immunisations are available for special purposes, eg. typhus fever, plague, rabies. These are usually administered to those who will be resident for at least a year in areas where such diseases occur.

CHEMOPROPHYLAXIS

Malaria

The global malaria situation is worsening. Malaria endemic areas are listed in Table 2, including those where chloroquine (and antifolate combination)-resistant strains of falciparum occur.

Precautions against mosquito bites are an essential part of the prevention of malaria.

Anopheles tend to bite from dusk to dawn inclusive, at which time light-coloured, long-sleeved shirts and slacks should be worn. The exposed part of the skin should be smeared with an insect repellant containing DEET (diethyl toluamide), eg. RID. Mosquito nets soaked in permethrin should be used at night. These precautions are not usually necessary in major cities.

The following advice needs frequent revision because of global malaria changes (Table 2).

For the average tourist staying in cities or main towns, the recommended malaria prophylactic is chloroquine. It is effective against all species of *Plasmodium* except chloroquine-resistant strains of *P. falciparum*.

Dose for average size adult: Chloroquine (150mg base per tablet). Two tablets by mouth once a week on the same day each week, starting one week before departure. Continue throughout stay in the endemic area and for four weeks after leaving the area.

TABLE 2
MALARIA ENDEMIC AREAS

Africa:	Algeria, Angola[2], Benin[1], Bhutan[2], Botswana, Burkina Faso[1], Burundi[1], Cameroon[1], Central African Republic[1], Chad[1], Comoros[1], Congo[1], Cote D'ivoire, Djibouti, Egypt, Equatorial Guinea[1], Ethiopia[1], Gabon[1], Gambia[1], Ghana[1], Guinea[1], Guinea-Bissau, Kenya[2], Liberia[2], Madagascar[1], Malawi[2], Mali[1], Mauritania[1], Mauritius, Morocco, Mozambique[1], Namibia[1], Niger[1], Nigeria[1], Rwanda[1], Sao Tome, Senegal[1], Sierra Leone[1], Somalia[1], South Africa[1], Sudan[1], Swaziland[1], Togo[1], Uganda[1], United Republic of Tanzania[2], Zaire[1], Zambia[1], Zimbabwe[1].
Central America:	Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama[1].
South America:	Argentina, Bolivia[1], Brazil[2], Colombia[2], Dominican Republic, Ecuador[1], French Guiana[1], Guyana[1], Haiti, Paraguay, Peru, Suriname[2], Venezuela[1].
Middle East:	Afghanistan[1], Iran[1], Iraq, Oman, Saudi Arabia, Syria, Turkey, Yemen, United Arab Emirates.
Asia:	Burma[2], China[1], Dem. Kampuchea[2], Dem. Yemen, Indonesia[2], Lao People's Dem. Republic[1], Malaysia[2], Sri Lanka[1], Thailand[2], Vietnam[1].
Indian Sub-continent:	Bangladesh[1], India[1], Nepal[1], Pakistan[1], Sri Lanka[1].
Oceania:	Papua New Guinea[2], Philippines[1], Solomon Islands[1], Vanuatu[2].

1. Chloroquine-resistant *P. falciparum*
2. Chloroquine and antifolate resistance (ie. Maloprim, Fansidar, pyrimethamine).

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For anyone who reacts adversely to the 4-aminoquinolines, alternative drugs are:

- proguanil 200mg daily (proguanil is currently not available in Australia); or
- doxycycline 100mg daily (tetracyclines are contra-indicated in pregnancy and in children).

For those who will be spending a lot of time in village settings or for those whose work involves "roughing it" in areas where chloroquine-resistant falciparum strains occur (Table 2), drug prophylaxis should be chloroquine plus Maloprim (dapsone 100mg plus pyrimethamine 12.5mg) once weekly. As with chloroquine, start one week before departure, continue throughout stay and for four weeks thereafter.

Fansidar is not recommended as a prophylactic because of the risk of Stevens Johnson syndrome.

In those areas with strains of falciparum resistant both to chloroquine and antifolates (Table 2), either mefloquine (Lariam) 250mg once weekly or doxycycline 100mg *daily* are advisable.

Mefloquine is a quinine analogue effective against chloroquine and antifolate-resistant strains of *P. falciparum*. It appears to be relatively non-toxic. Occasionally, disorders of equilibrium or co-ordination may occur and some people may suffer psychological disturbance. Half life 21 days.

Dosage: Mefloquine 250mg once weekly starting a week before departure, weekly while in malarious areas and continuing for two weeks after leaving endemic areas.

Other Health Measures

Avoid mosquito bites. Mosquitoes can transmit malaria, dengue, yellow fever, Japanese encephalitis and filariasis.

Travellers' diarrhoea

Diarrhoea is a bane of many travellers. Most travellers' diarrhoea is due to enteropathic strains of *Escherichia coli*. Such diarrhoea usually lasts two or three days and is self-limiting. Many other organisms can cause diarrhoea, including *Salmonella, Shigella, Campylobacter, Vibrio spp, B. cereus*, etc.

Food
In Eastern countries, avoid uncooked salad vegetables because these are commonly fertilised with human night-soil which may contain gut pathogens, including amoebic cysts. It is wiser to eat cooked foods served hot. Eat boiled rice rather than fried rice, and fruit that you can peel yourself.

Drinks
If uncertain about the water, convert it into tea or coffee. Boiling for one minute will kill pathogens.

Bottled, carbonated drinks are usually bacteriologically safe if bought from a reputable retailer.

Water from a hotel tap should be safe for brushing teeth or rinsing dishes.

Freezing does **not** sterilise; ice and ice-cream may be sources of infection.

Milk and cheese
It is best to avoid milk and locally made cheese in Mediterranean countries, eg. Malta, Greece, etc. Some may be infected with *Brucella melitensis*.

Medication
Prophylactic antibiotics against travellers' diarrhoea are not generally recommended, except perhaps for a brief stay (say up to 14 days). Doxycycline 50-100mg daily has been shown to reduce travellers' diarrhoea attack rates for up to 14 days.

Take a few sachets of Gastrolyte or Repalyte for electrolyte replacement for severe diarrhoea. These are useful, especially for children.

Tablets of codeine phosphate 30mg are light to carry, not bulky and give some relief from most attacks of diarrhoea. Some people find that Lomotil or Loperamide tablets suit them better. Use these sparingly.

Enterovioform is contra-indicated because of reported radiculo-myelopathy.

An attack of bloody diarrhoea may be due to *Shigella* for which tetracycline, ampicillin, Septrin or ciprofloxacin may be effective; or *Campylobacter* for which erythromycin is the drug of choice. Ciprofloxacin 500mg bd is active against most bacteria causing diarrhoea, including *Campylobacter*. In cholera-endemic areas where there is risk of infection, tetracycline capsules 250mg twice daily or doxycycline 100mg daily are reasonably effective prophylactics.

Uncooked meat or fish
If possible, avoid eating uncooked or undercooked meats or fish as a number of parasitic diseases are transmitted in this way (*Trichinella, Clonorchis, Taenia, Toxoplasma*, etc.). Uncooked shellfish may carry typhoid, polio, hepatitis A, Norwalk agent, *Vibrio spp*, etc.

Other hazards

General
A small bottle of eye drops, eg. chloramphenicol, will usually control conjunctivitis. A supply of antibiotic ointment or powder such as Neotracin, Neosporin or Cicatrin is useful for minor skin infections. Those prone to tinea may wish to carry powder or tincture of Asterol, Tinaderm or clotrimazole.

Bathing
Do not swim or wade in fresh water holes, streams and rivers in Schistosome areas, eg. Africa, Malagasy, Middle East, Thailand, Philippines, Japan and China. Sea bathing does not carry this risk.

Animals
Avoid fondling or feeding stray animals (cats, dogs, monkeys, etc.) or allowing them to lick you. Rabies is endemic in many countries. If bitten, wash the wound immediately with water and cetrimide (Cetavlon) or soap. Arrange for an injection of rabies immune

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Reducing Travel Risks

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globulin (RIG) and a course of human diploid cell rabies vaccine (HDCV). If these are not available, rabies antiserum (equine) and Semple vaccine may need to be used.*

Footwear

Do not walk barefoot in Third World countries (except on the sand of sea beaches) because of the risk of hookworm and strongyloides. Always wear shoes on coral reefs.

STDs

Be aware that in many Third World countries, there are STDs even more unpleasant than those found in Australia, eg. granuloma inguinale or LGV. In Africa, AIDS is especially prevalent in urban populations. In the Philippines and Thailand, antibiotic-resistant gonorrhoea is rife, as well as AIDS. Hepatitis B is a high STD risk in all developing countries.

Condoms, correctly used, do provide some protection against AIDS and gonorrhoea, less against non-specific urethritis and syphilis. Abstinence is the only certain protection.

Clem Boughton, Prince Henry Hospital and University of NSW.

*The U.S., Australian or British embassies may be able to provide information concerning RIG and HDCV.

1. "Vaccination Certificate Requirements for International Travel", WHO Geneva. Available from Hunter Publications, 58A Gipps Street, Collingwood Vic 3066. Published annually.
2. "Health Information for International Travel". Supplement to *Morbidity and Mortality Weekly Report*, U.S. Department Health, Education and Welfare. Public Health Service Centers for Disease Control, Atlanta, Georgia. Published annually.
3. "Malaria Guidelines for Medical Practitioners". National Health and Medical Research Council (1989) Australian Government Publishing Service.
4. "Health Information for International Travel". Commonwealth Department of Health. Australian Government Publishing Service, Canberra, 1986. Periodically revised.

FACT SHEETS

Health Public Affairs is developing information sheets on measures that can be taken to reduce health risks to travellers.

They contain information on malaria, AIDS, rabies, hepatitis B and bowel upsets. Currently, there are fact sheets for the Philippines and Thailand. There are plans to extend the range to include other countries.

The sheets will be made available to HPUs for distribution.

TABLE 3

INFECTIOUS DISEASE NOTIFICATIONS, NSW, to end of March 1991

DISEASE	Number of Cases Notified					
	Period			Cumulative		
	Feb. 1990	Feb. 1991	March 1991	Feb. 1990	Feb. 1991	March 1991
AIDS	23	20	–	57	34	34
Acute viral hepatitis	–	–	34	–	–	34
Anthrax	–	–	1	–	–	1
Arboviral infection (NOS)		3	7	1	4	11
Brucellosis	2	–	1	2	–	1
Campylobacter infection	161	99	47	357	237	284
Chlamydia	42	24	30	102	48	78
Cholera	–	–	–	–	–	–
Diphtheria	–	–	–	–	–	–
Foodborne illness	1	–	10	1	2	12
Gastroenteritis (inst)	–	–	11	–	–	11
Genital herpes	102	26	19	195	74	93
Giardiasis	81	34	31	132	78	109
Gonorrhoea	36	24	29	90	37	66
Haemophilus influenzae	6	3	4	7	6	10
Hepatitis A	2	6	2	7	16	18
Hepatitis B	29	30	16	86	103	117
Hepatitis C	2	2	3	4	24	27
HIV inf.	136	47	–	306	162	162
Hydatid disease	–	1	–	–	1	1
Infantile diarrhoea	5	–	–	11	1	1
Legionnaires' disease	1	2	2	10	4	6
Leprosy	–	–	–	–	–	–
Leptospirosis	7	4	–	12	12	12
Malaria	14	4	–	35	4	4
Measles	2	10	9	10	23	32
Meningococcal infection	3	2	–	8	9	9
Mycobacterial disease	34	1	6	109	7	13
Non specific urethritis	124	111	114	265	212	325
Pertussis	18	2	–	68	6	6
Poliomyelitis	–	–	–	–	–	–
Q fever	15	2	8	28	5	13
Rabies	–	–	–	–	–	–
Ross River fever	25	23	27	36	50	77
Salmonella infection	70	107	117	168	273	400
Shigella infection	14	7	2	38	20	22
Syphilis	27	50	9	54	86	95
Tetanus	–	–	–	–	1	1
Typhoid & paratyphoid	4	22	–	8	25	25
Viral haemorrhagic fevers	–	–	–	–	–	–
Yellow fever	–	–	–	–	–	–
Yersinia infection	8	11	7	24	28	35

NOS Not Otherwise Specified

inst institutional

INFECTIOUS DISEASES

Until now, the tabulations of infectious diseases in each issue of the Bulletin have reported provisional notifications with up to a 10-week delay. In this issue, the tabulations refer to the month of March.

The Infectious Diseases Data System (IDDS) was introduced into Public Health Units (PHUs) on 1 March to facilitate the transfer of data from notifying medical practitioners and laboratories. Three PHUs have successfully transferred data to the Epidemiology and Health Services Evaluation Branch (EHSEB) using IDDS — Western Sector, South Western Sydney and South Eastern Region.

We have modified the listing of conditions reported in this issue so that it more closely approximates the proposed list of notifiable diseases to be included in the new Public Health Act. We have removed those conditions that have not been reported, as well as those that are of no public health importance.

The condition "acute viral hepatitis" is a provisional diagnosis made by medical practitioners; when laboratory notification is received, the original case is "denotified". Foodborne disease includes the previous category of Food poisoning.

The following are key infectious disease events that have occurred in March:

- The first case of human rabies ever reported in New South Wales was notified to Epidemiology and Health Services Evaluation Branch (EHSEB). A 10-year-old girl died after an encephalitic illness last December. Confirmatory diagnosis was made at post-mortem by a technique using immunofluorescent rabies antibody of brain tissue. The child had migrated to Australia five years previously. Staff of the Western Sector Public Health Unit have determined that the disease was not contracted in Australia and that there was no human-to-animal transmission. Investigations continue to exclude possible human-to-human transmission. The only reported cases of human-to-human transmission of rabies are six cases transmitted through corneal transplants. No organs were donated from the child.
- The first case of human anthrax since 1987 was notified to EHSEB. A 35-year-old male involved in the slaughter and transport, from Western NSW to Sydney, of infected sheep carcasses developed pustules on his hands. The Western Sector PHU will report on this investigation in the next issue of the Bulletin.
- The New England Region PHU reports the incidence of Ross River Fever cases at 10.2/100000 population. General practitioners have been alerted by the PHU staff, and the local media have encouraged the community to protect itself against mosquito bites.
- The current measles outbreak in Central Sydney is not reflected in the tabulations of infectious diseases. This is due to reluctance of doctors to make formal notifications and to delays in transfer of data to EHSEB.

We remind medical practitioners that prompt notification of measles to the local PHU is important. Failure to notify cases can reduce the efficacy of public health action — the immunisation of susceptible contacts.

TABLE 4

TOTAL CONFIRMED HIV-POSITIVE CASES BY RISK GROUP AND SEX*, CUMULATIVE TO 28 FEBRUARY 1991

RISK GROUP	Male	Female	Transexual	Unknown	Total
Homosexual/ bisexual	5397	25	1	179	5602
Heterosexual	131	72	1	2	206
Injecting drug user (IDU)	173	48	0	16	237
Homo/bisexual + IDU	108	7	0	4	119
Heterosexual + IDU	21	19	0	2	42
Homosexual + transfusion	2	0	0	0	2
Transfusion	55	40	0	2	97
Haemophilia	53	0	0	0	53
Vertical transmission	11	6	0	3	20
Specified (NEC)	63	11	0	18	92
Unknown	4098	229	1	1981	6309
TOTAL	10112	457	3	2207	12779

* Westmead and Prince of Wales Hospitals' data to 28/2/91, all previous positives excluded. St Vincent's Hospital data to 31/1/91, previous positives not excluded.
Discrepancies with Table 7 (all cases to 30/12/90) in February issue have arisen due to recoding of exposure categories for some cases from St Vincent's Hospital. The upgrade of the St Vincent's database continues. Most records have now been entered into a new database and previous positive results will soon be excluded from the table.
(NEC) not elsewhere classified.

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TABLE 5

INFECTIOUS DISEASE NOTIFICATIONS, BY HEALTH AREA & REGION, FOR MONTH OF MARCH, 1991

DISEASE	CSA	SSA	ESA	SWS	WSA	WEN	NSA	CCA	ILL	HUN	NCR	NER	OFR	CWR	SWR	SER	OTH	TOTAL
AIDS	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Acute viral hepatitis	–	–	–	3	27	2	–	–	–	–	–	–	–	–	–	2	–	34
Anthrax	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Arboviral inf. (NOS)	–	–	–	–	–	–	–	–	–	–	–	–	–	3	2	2	–	7
Brucellosis	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
Campylobacter inf.	4	3	–	4	8	6	1	3	4	–	1	4	2	5	–	–	2	47
Chlamydia inf.	–	–	16	–	–	1	–	–	–	–	10	2	–	–	1	–	–	30
Cholera	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Diphtheria	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Foodborne illness	–	–	–	1	8	3	–	–	–	–	–	–	–	–	–	–	–	12
Gastroenteritis (inst)	–	–	–	1	4	6	–	–	–	–	–	–	–	–	–	–	–	11
Genital herpes	–	–	15	–	1	–	–	1	–	2	–	–	–	–	–	–	–	19
Giardiasis	–	–	–	1	–	–	–	1	–	–	29	–	–	–	–	–	–	31
Gonorrhoea	–	–	17	3	–	–	1	–	–	–	2	–	–	–	5	1	–	29
Haemophilus influenzae	–	–	–	–	–	–	–	–	1	–	–	1	–	–	2	–	–	4
Hepatitis A	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	2
Hepatitis B	–	–	4	2	2	–	–	–	–	–	5	2	1	–	–	–	–	16
Hepatitis C	–	–	–	–	–	–	–	–	–	–	2	1	–	–	–	–	–	3
HIV inf.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Hydatid disease	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Infantile diarrhoea	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Legionnaires' disease	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	2
Leprosy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Leptospirosis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Malaria	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Measles	–	–	–	–	9	–	–	–	–	–	–	–	–	–	–	–	–	9
Meningococcal inf.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mycobacterial disease	–	–	–	1	3	–	–	1	–	–	–	–	–	1	–	–	–	6
Nonspecific urethritis	–	1	85	28	–	–	–	–	–	–	–	–	–	–	–	–	–	114
Pertussis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Poliomyelitis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Q fever	–	–	–	–	–	–	–	–	–	–	3	3	–	2	–	–	–	8
Rabies	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ross River fever	–	–	–	–	–	–	–	2	–	–	–	25	–	–	–	–	–	27
Salmonella inf.	13	17	7	16	9	11	7	8	3	4	6	3	3	4	1	2	3	117
Shigella inf.	–	–	–	–	–	–	–	1	–	–	–	–	–	1	–	–	–	2
Syphilis	–	–	–	1	4	–	–	–	–	–	4	–	–	–	–	–	–	9
Tetanus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Typhoid & paratyphoid	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Viral haemorrhagic fevers	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Yellow fever	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Yersinia inf.	2	1	–	1	1	–	1	–	–	–	1	–	–	–	–	–	–	7

NOS not otherwise specified
inst institution

TABLE 6

INFECTIOUS DISEASE NOTIFICATIONS, BY HEALTH AREA & REGION, NSW, FOR JANUARY - MARCH, 1991*

DISEASE	CSA	SSA	ESA	SWS	WSA	WEN	NSA	CCA	ILL	HUN	NCR	NER	OFR	CWR	SWR	SER	OTH	TOTAL
AIDS	5	2	17	1	2	2	3	–	–	–	–	–	–	–	–	–	2	34
Acute viral hepatitis	–	–	–	3	27	2	–	–	–	–	–	–	–	–	–	2	–	34
Anthrax	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Arboviral inf. (NOS)	–	–	–	–	–	–	–	–	–	–	–	–	–	4	2	2	3	11
Brucellosis	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
Campylobacter inf.	9	20	2	28	18	41	24	4	12	3	23	22	3	20	–	–	55	284
Chlamydia inf.	1	–	37	–	–	1	5	–	–	1	26	6	–	–	1	–	–	78
Cholera	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Diphtheria	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Foodborne illness	–	–	–	1	8	3	–	–	–	–	–	–	–	–	–	–	–	12
Gastroenteritis (inst)	–	–	–	1	4	6	–	–	–	–	–	–	–	–	–	–	–	11
Genital herpes	9	2	51	3	3	4	–	1	–	–	10	6	–	2	–	1	1	93
Giardiasis	–	4	–	2	2	4	4	1	–	5	82	1	–	4	–	–	–	109
Gonorrhoea	–	1	26	5	–	–	2	–	1	–	4	–	2	–	–	–	25	66
Haemophilus influenzae	–	1	–	–	3	1	–	–	2	–	–	1	–	–	2	–	–	10
Hepatitis A	3	–	–	1	5	1	5	1	–	1	–	1	–	–	–	–	–	18
Hepatitis B	37	5	8	5	9	4	8	–	2	7	8	6	2	–	–	2	14	117
Hepatitis C	12	1	–	1	3	–	2	–	–	–	4	1	–	–	–	–	3	27
HIV inf.*	13	2	37	4	7	–	5	1	1	6	2	–	1	1	–	1	81	162
Hydatid disease	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
Infantile diarrhoea	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1
Legionnaires' disease	–	–	–	–	3	2	1	–	–	–	–	–	–	–	–	–	–	6
Leprosy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Leptospirosis	–	–	–	–	–	–	1	–	–	4	1	–	1	–	1	–	4	12
Malaria	–	–	–	–	1	–	3	–	–	–	–	–	–	–	–	–	–	4
Measles	–	–	–	–	1	1	3	–	–	17	6	2	–	–	–	2	–	32
Meningococcal inf.	–	1	–	–	–	–	1	–	–	3	2	–	–	–	–	2	–	9
Mycobacterial disease	–	1	–	–	2	1	3	1	2	–	–	–	–	3	–	–	–	13
Nonspecific urethritis	–	1	182	29	–	–	–	–	–	–	–	–	–	1	–	–	112	325
Pertussis	–	–	–	1	2	–	1	–	–	–	2	–	–	–	–	–	–	6
Poliomyelitis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Q fever	–	–	–	–	–	–	–	–	–	–	5	5	–	3	–	–	–	13
Rabies	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ross River fever	–	–	–	–	–	–	–	2	–	–	4	43	5	–	4	–	19	77
Salmonella inf.	26	35	12	47	39	28	37	8	15	14	31	11	9	12	3	7	66	400
Shigella inf.	2	–	3	–	–	2	2	1	1	–	4	5	–	1	–	1	–	22
Syphilis	6	3	26	12	6	1	5	5	1	1	11	2	12	4	–	–	–	95
Tetanus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Typhoid and paratyphoid	5	4	2	–	–	5	2	1	1	1	–	–	1	–	–	–	3	25
Viral haemorrhagic f.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Yellow fever	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Yersinia inf.	5	7	–	1	4	3	7	2	–	–	2	2	–	1	–	–	1	35

* February data relate to Prince of Wales and Westmead Hospitals. January data include data from St Vincent's Hospital, but do not exclude previous positive test results.

Abbreviations used in this Bulletin:

CSA Central Sydney Health Area, ESA Eastern Sydney Health Area, SSA Southern 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, NCR North Coast Health Region, NER New England Health Region, OFR Orana & Far West Health Region, CWR Central West Health Region, SWR South West Health Region, SER South East Health Region, IS Interstate, U/K Unknown, OS Overseas, NOS Not Otherwise Stated, inst institutional.

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.

NEWS AND COMMENT

New Public Health Officers

On 25 March, five new officers joined the NSW Public Health Training Program. These non-medical officers are skilled in a number of areas, including pharmacy, physiotherapy, health planning, brain anatomy and physiology, medical records administration and research project management. The training program now comprises 17 medical officers.

Immunisation 1991: The Old And The New

The 2nd National Public Health Association Immunisation Conference will be held at the Canberra Convention Centre on 27-29 May, 1991. It has an exciting program with national, regional and international speakers. Registration is about $120 for the three days. Anyone with an interest in immunisation is invited to attend. Enquiries to Immunisation Conference Secretariat (02) 449 1525.

Public Health Unit Meeting

The Public Health Unit meeting was held at the Health Department's Central Office on 7 March 1991. Unit Directors met in the morning and the general meeting was held in the afternoon.

Key issues discussed at the meetings were as follows:

Environmental Health Officers (EHOs)
Greg Stewart will co-ordinate the development of recommendations for distribution of EHO positions. Epidemiology Branch staff will look into obtaining additional funds to cover EHO transfer costs.

Public health nurses
Liz Sullivan will organise a meeting of public health nurses to discuss their training needs.

EHO trainees
The Environmental Health Special Interest Group (SIG) will assess the needs of EHO trainees and develop training options.

Enhancement funding
Proposals for enhancement funding totalling $1.3 million have been received. Selection criteria were set and the Epidemiology and Health Services Evaluation Branch (EHSEB) staff have been asked to select proposals for funding.

Health advice for travellers
Maryan Heffernan circulated draft information sheets on health plans for travellers. The information sheets will be made available to all PHUs for distribution. George Rubin says that PHUs are encouraged to develop their own policies on providing travel health information to the public.

The Epidemiology and Health Services Evaluation Branch will continue to make MASTA available to PHUs while the Infectious Disease Special Interest Group develops recommendations on a plan for improving the distribution of travel health data.

Infant autopsy services
Michael Frommer outlined the proposal of the recently reconvened NSW Sudden Infant Death Syndrome Advisory Committee to develop a capacity for performing high-quality forensic infant autopsies. These autopsies will form part of an unexpected infant death surveillance program.

Michael Frommer asked PHU directors to collate information on existing pathology services in the country Regions and in the Illawarra and Central Coast Areas. This will be a first step towards establishing a network of pathologists willing to do forensic autopsies after unexpected infant deaths. The autopsies would follow a set protocol.

Infectious disease special interest group
Michael Levy reported several items:

- General practitioners seem to favour a reporting form (with tick boxes) which includes AIDS and other notifiable conditions.
- It is unlikely that TB sisters will be easily assimilated into PHUs due to responsibilities outside public health.
- Representation has been made to the Chief Health Officer requesting a Departmental guarantee that PHUs will not have to pay for Rifampicin supplies out of their budgets.
- Draft protocols continue to be reviewed.
- The Infectious Disease Special Interest Group will meet three monthly instead of monthly.

Environmental health strategy
Stephen Corbett reports that the Department is developing an environmental health strategy with the help of Michael Hensley, Dennis Calvert, Chris Ewan and others. The group had:

- discussed the requirements for training environmental health officers;
- discussed the need for the Health Department to clarify its role with respect to that of the new Environmental Protection Agency;
- suggested that the special interest groups meet three monthly on the day before the PHU general meetings.

Training plan
David Jeffs presented a draft plan for identifying priorities for the NSW public health training program. After much discussion, it was agreed that the program's first priority was to train PHU and Central Administration public health professionals.

PHU's have been asked to send in their comments on the draft plan to David Jeffs in the next two weeks,

along with a plan for the training needs of their professional staff. Training in the use of EPIINFO5 was identified as an immediate need for many PHU staff. Gavin Stewart will organise a program for this training to take place.

Reproductive health group
Michael Frommer invited interested Public Health Unit and Epidemiology Branch staff to join a reproductive health special interest group, to be convened in the next few weeks.

Issues to be considered include the use of the regional perinatal data, the Birth Defects Register, monitoring unexpected infant deaths and developing an abortion surveillance program (initially focusing on induced abortions following antenatal diagnosis of fetal abnormalities).

Dumps of perinatal data available
Michael Frommer advised Public Health Unit staff that dumps of Area/Regional data from the NSW Midwives' Collection (previously known as the Maternal and Perinatal Data Collection) will be offered to PHU Directors within the next few weeks.

The data will comprise unit records, with all personal identification removed. Each Area/Region will receive information on births to women who live in the Area/Region.

In order to receive the data, each PHU director will be asked to undertake in writing that s/he:

- will adhere to the confidentiality and data security policy of the Collection;
- will consult the Epidemiology Branch before any public release of aggregate data. The latter provision is intended to avoid inconsistencies in the interpretation of the data.

The initial release will comprise 1987 data, to be followed by some 1990 data. Subsequently, 1988 and 1989 data will be issued.

Midwives' Data Collection video
Michael Frommer distributed a copy of the new Midwives' Data Collection video to each Public Health Unit. The video, produced by the Department's Health Media Education Centre, is intended to motivate midwives' compliance with data collection.

Michael Frommer urged PHU directors to make the video available for loan, particularly to hospital maternity units and independent midwives. Additional copies are available from Margaret Pym, Liaison Midwife (02) 391 9199.

Infectious Disease Data System (IDDS)
All PHUs should be entering infectious disease data themselves now. Gavin Stewart asked that PHU staff try out the current system without modification until a review of the IDDS in three months time.

Healthnet Computer System
Gavin Stewart introduced a discussion on the computer requirements of the public health network. The following points were made:

- There is a need for PHUs to have adequate data storage facilities to handle large data sets locally.
- Health information systems are being trialled in 23 general practices.
- The statewide health communication system is being improved.
- PHU staff wishing to establish direct linkage with the communication network should approach their Area/Regional computer manager in the first instance.

Health statistics and disease surveillance
David Lyle reported on the National Priorities for Health Statistics Forum held recently in Canberra. Public access to data was discussed at the meeting.

Other issues considered at the Forum were the lack of primary care and mental health data sets, and the perennial problem of data linkage.

Blue-green algae
Peter Christopher presented some data from his recent investigation into the contamination of water supplies at Lake Cargelligo by a toxin-producing *anabaena* species of blue-green algae.

A reported outbreak of a gastrointestinal illness in the town was thought not to be related to this algal bloom. The prevention of health problems related to the eutrophication of inland waterways will largely depend upon a review of agricultural practices in vulnerable areas.

NSW HEALTH INDICATORS
Health Areas and Regions

NSW HEALTH DEPARTMENT

Fact Sheet No. 91/1
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HEART DISEASE 1991
ACUTE MYOCARDIAL INFARCTION HOSPITALISATION

This Fact Sheet is part of a series produced by the Epidemiology & Health Services Evaluation Branch and the Information Centre of the NSW Health Department to provide information about important health indicators in the State. Data on deaths are derived from the official mortality statistics for NSW based on deaths reported to the Registry of Births, Deaths & Marriages. Data on hospital admissions are based on the Inpatient Statistics Collection which provides comprehensive information on inpatients treated in NSW hospitals. Disease classifications are from the International Classification of Diseases, 9th Revision.

Ischaemic heart disease (principally acute myocardial infarction) is the leading cause of death in NSW. Ischaemic heart disease results from the build up of fatty and scar-like deposits (atherosclerosis) which causes narrowing of the coronary arteries. In myocardial infarction (AMI), there is permanent damage to the heart muscle. The main risk factors for heart disease have been well-documented — elevated blood cholesterol levels, smoking, elevated blood pressure, overweight and lack of exercise. These have been targeted for both primary and secondary prevention.

- Separation refers to a patient's leaving or separating from a hospital, or ceasing to be a patient. This occurs when a patient is discharged to home, transferred to another hospital or dies in hospital. The number of separations corresponds to the number of episodes of hospitalisation rather than the number of patients.
- AMI separations include patients experiencing their first heart attack AMI (incident cases) and those with a recurrence of pre-existing disease. Some patients are admitted to more than one hospital during their treatment after a heart attack and others may be hospitalised on several occasions during the year with recurrences of AMI.
- For hospital separations, the single Acute Myocardial Infarction (AMI) code (410) provides the best description of clinically recognised myocardial infarction (Dobson et.al., *Am. J. of Epid.*, 1988, 128, 106-115).
- In NSW, hospital separation rates for AMI have fluctuated over the past 10 years. At the same time, death rates from ischaemic heart disease (mainly deaths from AMI) decreased over this period (see Fact Sheet 90/1 — *Deaths Due to Ischaemic Heart Disease*).
- Male and female separation rates also fluctuated in each of the age groups 25-44, 45-64 and 65+ over the period 1984-1988. Although separation rates for all age and sex groups were lower in 1988 than in 1984, it is too early to say whether AMI separation rates have begun to decline in line with the decline in the deaths.
- Like death rates, hospital separation rates increased with age and males had a higher separation rate than females. The relative difference between males and females was greater the younger the age group and the differences were consistent across the five years 1984-88.

NSW HOSPITAL SEPARATIONS 1979-1988
ACUTE MYOCARDIAL INFARCTION*

YEAR	NUMBER	RATE#
1979	9669	189.5
1980	9675	187.3
1981	10,788	206.1
1983†	10,223	191.0
1984	10,087	186.7
1985	9766	178.7
1986	10,630	192.2
1987‡	5346	190.7
1988	10,206	179.0

** ICD-9 Code 410*
 # Crude separation rate per 100,000 population
† Hospital separations were not processed in 1982
‡ Hospital separations were only recorded for July-December, 1987

- The Central Western and North Coast Health Region had standardised separation ratios for both sexes that were significantly higher than would have been expected from the State figures. In three health areas (Southern Sydney, Central Sydney and Northern Sydney), the ratios were significantly lower.

HOSPITAL SEPARATION RATE# IN NSW, 1984-1988, BY AGE AND SEX
ACUTE MYOCARDIAL INFARCTION

Age Group	Sex	1984	1985	1986	1987†	1988
25-44	M	60.3	60.7	65.0	54.9	53.3
	F	9.6	9.9	8.9	8.7	8.8
45-64	M	554.7	500.5	559.7	538.4	495.0
	F	178.7	189.0	173.2	176.9	158.0
65 +	M	1227.8	1228.2	1254.9	1274.8	1170.1
	F	802.8	719.6	790.9	774.5	744.7

 # Separation rate per 100,000 population
† Hospital separations were only recorded for July-December, 1987

OBSERVED (O) AND EXPECTED (E)• HOSPITAL SEPARATIONS DUE TO ACUTE MYOCARDIAL INFARCTION HEALTH AREAS AND REGIONS, JULY 1988-JUNE 1989, BY AGE AND SEX

Area/ Region	Age:	25-44		45-64		65 +		Total		Standardised Separation Ratio*†	
	Sex:	M	F	M	F	M	F	M	F	M	F
Sth. Sydney	O	42	5	229	80	306	268	578	353	86.8 ↓	85.3 ↓
	E	43	7	276	91	345	315	665	414		
E. Sydney	O	17	2	154	47	198	191	369	240	88.6	89.2
	E	30	5	163	51	223	213	416	269		
Cen. Sydney	O	18	5	140	32	167	165	324	202	78.3 ↓	78.3 ↓
	E	31	5	174	51	208	202	414	258		
S-W Sydney	O	74	5	296	112	257	204	627	321	109.5	107.4
	E	53	9	271	87	247	203	572	299		
W. Sydney	O	76	12	308	81	248	271	635	364	111.2	117.2
	E	52	9	273	84	245	218	571	310		
Wentworth	O	17	5	102	31	97	88	217	125	100.0	105.0
	E	25	4	94	29	97	86	217	119		
Nth. Sydney	O	35	1	261	82	405	384	701	467	77.4 ↓	76.9 ↓
	E	63	11	376	126	465	470	905	607		
Cen. Coast	O	19	2	92	39	205	142	317	183	99.9	91.9
	E	18	3	102	37	197	159	317	199		
Hunter	O	51	9	250	62	291	295	592	367	102.6	105.5
	E	40	6	233	77	303	264	577	348		
Cen. Western	O	19	0	88	35	123	128	233	164	125.7 ↑	153.2 ↑
	E	13	2	79	25	93	80	185	107		
Sth. Eastern	O	9	3	104	55	138	102	254	160	109.0	125.2
	E	16	2	95	30	122	95	233	128		
Illawarra	O	14	2	176	58	195	125	386	185	106.5	93.9
	E	24	4	153	50	184	143	363	197		
North Coast	O	36	5	195	72	326	251	558	328	119.5 ↑	123.6 ↑
	E	28	5	169	58	270	203	467	265		
New England	O	19	5	166	34	165	149	349	187	117.8	113.4
	E	19	3	121	39	155	122	296	165		
Orana/FW	O	17	13	90	29	93	76	201	118	121.9	129.9
	E	11	2	71	21	83	68	165	91		
Sth. West	O	24	4	116	44	164	124	304	173	109.0	109.1
	E	20	3	117	37	141	119	279	159		
NSW Total		487	78	2767	893	3378	2963	6645	3937	100.0	100.0

• Expected number of hospital separations for age group and sex based on State death rate

** Standardised separation ratio, ie. observed separations divided by expected separations X 100*

† Whether there were significantly more separations (↑) or fewer separations (↓) than for the State (Note: the larger the Area/Region population, the greater the sensitivity for detecting differences)

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