

PUBLIC HEALTH ABSTRACTS

Professor James S. Lawson, Professor and Head of the School of Health Services Management at the University of NSW, has prepared the following public health items from the literature.

HIGH DOSE METHADONE IMPORTANT FOR HEROIN ABSTINENCE

There is wide consensus that methadone maintenance treatment reduces drug use among opiate addicts. But standards for methadone dosages remain controversial. A study of programs in the US found that most use dosages well below 60mg a day and that doses above 70mg a day are necessary to prevent the ongoing use of heroin.

Hartel DM, Schoenbaum EE, Selwyn PA et al. Heroin use during methadone maintenance treatment: the importance of methadone dose and cocaine use. *Am J Public Health* 1995; 85:83-88.

DECLINE IN TOBACCO USE IN THE US SLOWS

Among adolescents the prevalence of smoking has fallen more rapidly from 1974 to 1980 (about 2 per cent a year) than from 1985 to 1991 (0 to 0.1 per cent). This is a similar trend to that experienced in Australia. Therefore, as few adults take up tobacco use, anti-tobacco programs should concentrate on young people.

Nelson DE, Giovino GA, Shopland DR et al. Trends in cigarette smoking among US adolescents, 1974 through 1991. *Am J Public Health* 1995; 85:34-40.

TEENAGE INITIATION FOR DRUG USE

Information about the natural history of drug use is scant, so a 20-year prospective study of drug use is of great value. The US study shows that with the exception of prescribed psychoactive medications, there is almost no initiation into alcohol and cigarettes and little into illicit drugs after the age of 29 years. The major risk for initiation into alcohol, cigarettes and marijuana is mostly over by age 20, with peaks at age 16 for cigarettes and 18 for alcohol and marijuana. The overall patterns of risk are very similar for men and women.

Chen K, Kandel DB. The natural history of drug use from adolescence to the mid-thirties in a general population sample. *Am J Public Health* 1995; 85:41-47.

WEAK EVIDENCE OF BIOLOGICAL INFLUENCES ON CRIMINAL BEHAVIOUR

For about 25 years researchers have reported correlations between a low cerebrospinal fluid concentration of a metabolite of the neurotransmitter, serotonin, and criminal behaviour. But meta analyses and gene studies do not confirm a direct association. The gene studies in a Dutch family show there are inherited learning disabilities which may lead to the abnormal behaviour rather than directly from

a genetic abnormality. Nevertheless, there have been suggestions that public policies should be developed from the supposed links between genetics and criminal behaviour, but this appears to be unjustified.

Alper JS. *Br Med J* 1995; 310:272-273.

HEPATITIS C IN AUSTRALIA

Diagnosis of hepatitis C has become possible only since 1989 with the cloning of the virus and the development of a serological assay for anti-HCV. The natural history of infection with hepatitis C is also not known with any confidence. Experiences in Melbourne have led to an increase in knowledge about the infection. Observations include that:

- Injecting drug use is the major risk factor for chronic HCV infection in Australia.
- Many carriers of the virus had chronic hepatitis.
- This hepatitis led to cirrhosis in many patients. Such cirrhosis was directly correlated with the time since first infection with the virus – a median time of 18 years.

Strasser SI, Watson KJR, Lee CS et al. Risk factors and predictors of outcome in an Australian cohort with hepatitis C virus infection. *Med J Aust* 1995; 162:355-358.

THE NEED TO IMPROVE STORAGE OF VACCINES

Vaccines lose their potency before their expiry date if storage conditions are not appropriate. For example, 12.5 per cent of vaccines have been found to be impotent in Australia when stored in adverse conditions. A review of storage conditions in general medical practices in Sydney has found that about 30 per cent of practices did not meet the required standards for storage. This has important implications as GPs provide about 70 per cent of all vaccinations.

Liddle LM, Harris MF. How general practitioners store vaccines. *Med J Aust* 1995; 162:366-368.

TOBACCO SMOKING AND FACIAL WRINKLING

Hard evidence has been missing to link tobacco with premature facial wrinkling. A substantial cross-sectional study in the US has confirmed there is an association between facial wrinkling and tobacco smoking. The increased risk of wrinkling is equivalent to about 1.4 years of ageing.

Ernster VL, Grady D, Muke R et al. Facial wrinkling in men and women by smoking status. *Am J Public Health* 1995; 85:78-82.

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HIGH RISK OF SPREAD OF BLOODBORNE VIRUSES IN PRISONS

A study based in Victoria has shown that 46 per cent of prison entrants used injected drugs, 33 per cent had antibodies to hepatitis B, 64 per cent to hepatitis C and 0.5 per cent to HIV. As 36 per cent of prisoners in Australian prisons inject themselves and 12 per cent participated in anal intercourse there is a risk of bloodborne infection with viruses in prisoners.

Crofts N, Stewart T, Hearne P et al. Spread of blood borne viruses among Australian prison entrants. *Br Med J* 1995; 310:285-286.

LINKING RECORDS REVEALS VACCINE-RELATED ILLNESS

The main vaccine-related illness is convulsions. A British study has shown that by linking hospital records with vaccine records the incidence of convulsions related to a vaccination is about five times that previously identified. This linkage has practical implications when vaccine schedules are being changed and new vaccines introduced.

Farrington P, Pugh S, Colville A et al. A new method for active surveillance of adverse events from diphtheria/tetanus/pertussis and measles/mumps/rubella vaccines. *Lancet* 1995; 345:567-569.

CHLORINATION OF WATER SUPPLIES AND CANCER

Chlorine has been added to water supplies for more than 80 years and has contributed to the reduction in typhoid and other waterborne disease. But there is increasing evidence that chlorine interacts with organic matter in the water to produce carcinogenic chemicals. It is not proven that these chemicals produce an increase in cancer in humans but they do in experimental animals. Studies have also shown increased rates of bladder, colon and rectal cancers in human populations that consume chlorinated water. A study in Finland reported an increased rate of cancer of the bladder of 20 per cent and a 20-40 per cent increased risk for kidney cancer, associated with consumption of chlorinated water. The authors of the studies indicate the results should be treated with caution because they are based on aggregate populations.

Koivusalo M, Jaakkola JJK, Vartiainen T et al. Drinking water mutagenicity and gastrointestinal and urinary tract cancers: an ecological study in Finland. *Am J Public Health* 1994; 84:1223-1228.

FAILURE TO VACCINATE, NOT VACCINE FAILURE

Between June and December 1993 there was an outbreak of measles in Western Sydney that resulted in 900 cases being notified. A case control study has

shown that the effectiveness of the vaccine approached 95 per cent. The vaccination coverage in children aged 1-6 years in Western Sydney was about 85 per cent. This is below the level required for "herd" immunity (95 per cent) which is required to prevent outbreaks of communicable diseases such as measles. This is a reassuring finding, as there had been indications that 50 per cent of vaccinated children were sero negative for measles.

McDonnell LF, Jorm LR, Patel MS. Measles outbreak in Western Sydney. *Med J Aust* 1995; 162:471-475.

HELICOBACTER PYLORI – ITS ROLE IN PEPTIC ULCERS

It is 10 years since Marshall in Perth drank a broth of *Helicobacter pyloridis* and underwent gastroscopy by a colleague a few days later which showed some acute changes of gastritis. This dramatic experiment, in the best traditions of self-trials, may have obscured the need for proving the link between this infection and peptic ulcers as there has been no attempt to prove Koch's postulates. It may be that *helicobacter pylori* is an opportunist who operates only when there is already damage to the peptic mucosa and when there is high acid environment.

Graham JR. *Helicobacter pylori*: human pathogen or simply an opportunist. *Lancet* 1995; 345:1095-1097.

REINTRODUCTION OF AN EFFECTIVE TREATMENT FOR SCHIZOPHRENIA

In 1990 clozapine was reintroduced as a treatment for schizophrenia. It had been withdrawn in 1971 because of an association with agranulocytosis. The clinical benefits of clozapine are now apparent, with a tenfold reduction in suicide rates among a 6,300 cohort of individuals treated with this medication. There have been two deaths due to agranulocytosis. Clozapine is expensive but represents the most important treatment advance for schizophrenia for more than 20 years.

Kerwin RW. Clozapine: back to the future for schizophrenia research. *Lancet* 1995; 345:1063-1064.

CHANGES IN RISK FACTORS EXPLAIN TWO-THIRDS OF THE FALL IN STROKE

Mortality from stroke has been falling for 25 years in most economically developed countries. It is known that the most important risk factor for stroke is elevated blood pressure, and that a fall in the diastolic blood pressure of about 5mm Hg is associated with a 35-40 per cent fall in stroke mortality. Low serum cholesterol concentration is a risk factor for cerebral haemorrhage but not subarachnoid haemorrhage. A large study in Finland has shown that between 1972 and 1992 the mortality rate from stroke fell by 66 per cent in men and 60 per

cent in women. Two-thirds of this fall was attributed to lower blood pressure and lower smoking rates in both sexes, and to lower serum cholesterol in men.

Vartiainen E, Sarti C, Tuomilehto J et al. Do changes in cardiovascular risk factors explain changes in mortality from stroke in Finland? *Br Med J* 1995; 310:901-904.

EDUCATION PROTECTS AGAINST DEMENTIA

The prevalence of dementia increases exponentially with age. About two-thirds of dementia cases are of the Alzheimer's type and one-third of the vascular type. A Dutch study has shown that both forms of dementia are less common in individuals with higher levels of education. They have also shown that this finding is not due to the higher levels of cardiovascular disease in less-educated people. The reasons for the findings are not clear.

Ott A, Breteler MMB, van Harskamp F et al. Prevalence of Alzheimer's disease and vascular dementia: association with dementia. *Br Med J* 1995; 310:970-973.

FISH AND HEART DISEASE

Eating fish appears to confer some protection against heart disease, as does the consumption of red wine, perhaps aspirin and more certainly low-fat diets. The largest study to date has not confirmed the fish-heart disease link. But there may be some problems with the study population. In particular, many participants had increased their diet of fish before the study and may have done so because they may have been at greater risk of heart disease. There is probably some protection offered by having fish in the diet, but more fish is not necessarily better.

Katan MB. Fish and heart disease. *N Engl J Med* 1995; 332:1024-1025. Ascherio A, Rimm EB, Stamfer MJ et al. Dietary intake of marine n-3 fatty acids, fish intake, and the risk of coronary heart disease among men. *N Engl J Med* 1995; 332:977-82.

SUN INCREASES MELANOTIC NAEVI IN QUEENSLAND CHILDREN

Malignant melanoma is a major cause of death from cancer in Australia. The incidence rates rose substantially in the 1980s. Retrospective studies have linked melanoma with exposure to the sun in childhood, but this study is the first to record the high incidence of melanotic naevi, the precursors of melanoma, in a prospective study. The increased naevi in Queensland children observed in this study appear to be associated with direct sunlight and indirect sunlight. There is a risk of melanoma for fair-skinned people who live in Australia and more so for those who live in the north.

Harrison LS, MacLennan R, Speare R, Wronski I. Sun exposure and melanotic naevi in young Australian children. *Lancet* 1994; 344:1529-32.

PERSONALITY CHARACTERISTICS INFLUENCE SUCCESS OR FAILURE

A study of 50 senior health, welfare, education and research managers in Australia has shown the vital importance of "personality traits" to their success or failure. Most of the 50 were clever, hard-working and ambitious, and most – but not all – had the expertise required for the task. However, 25 per cent were not successful. About 15 per cent failed because of personality traits. The two most adverse traits were:

- self-centred behaviour which led to constant seeking of promotion without staying sufficiently long in the same place to achieve some success for the organisation; and
- untrustworthy behaviour, typically by managers who were sycophantic to their bosses but dictatorial to subordinates and who "played favourites" on an irregular basis.

The study showed that successful managers could have a range of personality characteristics. Some were extroverted and others introverted. But all had the virtues of trust, commitment to the organisation and to their colleagues, plus appropriate expertise.

Lawson JS. Success and failure among senior public administrators. The key role of personality. *Intern J Career Management* 1994; 6:10-13.

IODINE DEFICIENCY IN ENDEMIC CRETINISM

Endemic cretinism caused by severe iodine deficiency, particularly during pregnancy, is the world's most common preventable cause of mental retardation. Proof of the causal relation of iodine deficiency was provided by studies in Papua New Guinea. This conclusion has been given support by a new China-based study. It is possible that as many as 20 million people worldwide have preventable brain damage due to the effects of iodine deficiency on foetal brain development.

Hetzel BS. Iodine deficiency and foetal brain damage. *N Engl J Med* 1994; 331:1770-1771.

HODGKIN'S DISEASE – BOTH ENVIRONMENTAL AND GENETIC?

Mack et al in a study of twins have shown there is a significant genetic component to Hodgkin's disease. This does not exclude an environmental component such as the Epstein-Barr virus. There is an increasing body of knowledge which indicates that genetics is an important predisposing factor for many cancers.

Mack TM et al. Concordance for Hodgkin's disease in identical twins suggesting genetic susceptibility to the young-adult form of the disease. *N Engl J Med* 1995; 332:413-8.