



RECORD LINKAGE – PUBLIC GOOD OR INVASION OF PRIVACY?

Abstract

Findings from a number of research studies on children's health outcomes are discussed to illustrate the power of linked population data to deliver significant public health benefits. The paper argues that there are economic and moral obligations to make full use of existing data for both the scientific validity and cost effectiveness. De-identified data, provided to researchers without an individual's consent but in accordance with National Health and Medical Research Council (NHMRC) *Guidelines approved under Section 95A of the Privacy Act 1988*, enables the conduct of high quality research in the public interest, with negligible risk to the individual's right to privacy. The examples provided demonstrate that only complete population data obtained by such linkage is inclusive of all those often under represented or excluded in many studies (such as young, disadvantaged, Indigenous, disabled people or those with particular risks).

The paper also suggests that such record linkage may be far more acceptable to obtain information on sensitive issues that people / study subjects find difficult in interview situations. Total population linked data are always de-identified after linkage to ensure only anonymous statistical analysis.

Australia's only large-scale linked data system for health research, the Western Australian Data Linkage System, is described. Based on this model the Australian Research Alliance for Children and Youth's proposed national data network, linking health, education, community services and justice databases, is outlined.

1. THE POWER OF POPULATION DATA AND LINKAGE FOR PUBLIC GOOD

Record linkage brings together records from different sources, relating to the same individual. It is widely used for administration or case management in areas such as taxation and criminal investigation and is used to a lesser extent in population health research and policy making. The power of population data to be used for public good is undeniable but is still somewhat controversial. This article demonstrates some of the ways in which public health (in particular, the health of children and young people) has been improved through research based on linked population data, while also raising some of the challenges presented from a privacy perspective.

There is already a lot of information available which is influencing public health in Australia: Health Commission data, hospitalisation data and Pharmaceutical Benefits Scheme data. We also have registers of births, deaths, cancer, birth defects and disabilities as well as census information which is collected every five years. Very few of these data are actually linked

together so as to allow analysis of the complex causal pathways to disease or to enable us to look at the effects, good or bad, of medical care, or to evaluate the effectiveness of the health system: is it overall of benefit or are there some aspects that are harmful? The exciting thing about record linkage is that it brings existing data bases together but researchers depend, of course, on having individual identified information (name and sex and date of birth and so on) as in Australia we don't have a number that is given to everyone at birth, we don't have an Australian Card or whatever that could have actually linked these data. But you can only include the total population if this linkage is done on everyone and then that raises the issues of contacting people to get consent - but to do that means that we would not get the total population.

Western Australian Maternal and Child Health Research Data Base

An example of record linkage of population data for public good is the Western Australian Maternal and Child Health Research Data Base, established 30 years ago when privacy issues weren't so obvious and which has had to be adapted over the years in light of those issues. The MCHR database contains data on all birth cohorts from 1980 onwards. It enables us to describe the total burden of problems in children and young people. It describes the risk and protective factors for these problems, enables us to sample unbiased groups for epidemiological studies, do randomised control trials and so on, and also to evaluate the impact of interventions like public health programs or clinical services.

Many other places in the world have wonderful record linkage in the health area – Oxford, Aberdeen, Rochester, Manitoba and Scandinavia are good examples; in Scandinavia the linkage is facilitated by a unique identifying number.

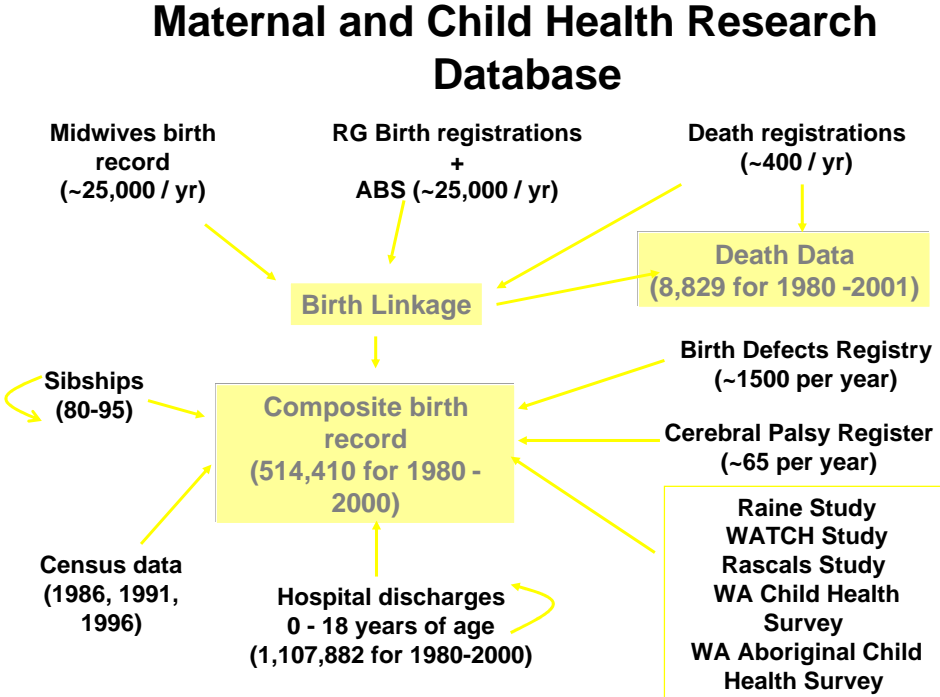


Figure 1 (Slide 6)

Figure 1 shows that now we have composite birth records for over 500,000 children, including data on both parents and the child, from 1980 to 2000. The data come from statutory collections of midwives birth notifications, both antenatal and perinatal, which record information like the birth weight of a baby, whether it's a multiple birth, what kind of complications the mother had in her pregnancy, any problems around birth and whole lot of other information. This birth notification has information about the father and mother, their marriage, ages and occupations to give us their social information. We have wonderful death data with multi-course coding that has been linked to this and then we have a whole lot of other registers (birth defects, cerebral palsy, intellectual disability, autism) and a link also to all hospital discharges, multi-course coded hospital discharges, including all contacts with the mental health system. Then there are a whole lot of other studies and surveys which can be linked into this data to enable, for example if it is child health survey, a link back into the antenatal and birth records. We are linking the collection of district data from the census, not individual data, and that enables us to look at the socio-economic indicators for particular collection districts.

What we are also doing now is creating sib-ships from these data, enabling all births to one mother to be looked at, so it is the beginning of identifying familial patterns.

This data on factors before and during birth, maternal, paternal and child characteristics, can be analysed for all children in relation to all major outcomes causing death, developmental defects and diseases. A variety of causes can be investigated - social causes, environmental causes, family risks and so on - and it is wonderful for monitoring the impacts of health policies that have changed from 1980 onwards.

Advantages of population record linkage

The advantage of population record linkage, from an epidemiological perspective, is that it is not biased and no-one is excluded. This relates to human rights because generally the people who are excluded from studies are the most marginalised (see the discussion below). The results are useful for the whole population. It is always a concern in epidemiological research when there are biases as to how information can be generalised over the total population. Total population information can be generalised to the whole population and allows sub-sets to be looked at, such as rural people and indigenous people, or teenage mothers who are notorious for not responding to questionnaires. Compared with studies where contact needs to be made and consent sought from participants, using record linkage is extraordinarily cost-effective and results in valid and reliable data on issues where it would be difficult to obtain in other, direct ways. For example in studies on psychiatric illnesses, abortion and drug use, it is very difficult for participants to talk about these things in an interview situation. By using linked data researchers don't have to contact people and ask them to provide information.

An example about reporting bias is a study done in New York hospitals where they were asking about the proportion of antenatal patients who were HIV positive, and when they went in and did the blood samples with consent, less than 1% of those blood samples were positive for HIV. When they did anonymous testing of all the samples without consent, nearly 15% of those antenatal samples were positive. Now that resulted in changes to what they were going

to implement as an HIV policy in those hospitals - if they just had the data with consent it would have been a different policy which would not have been as effective.

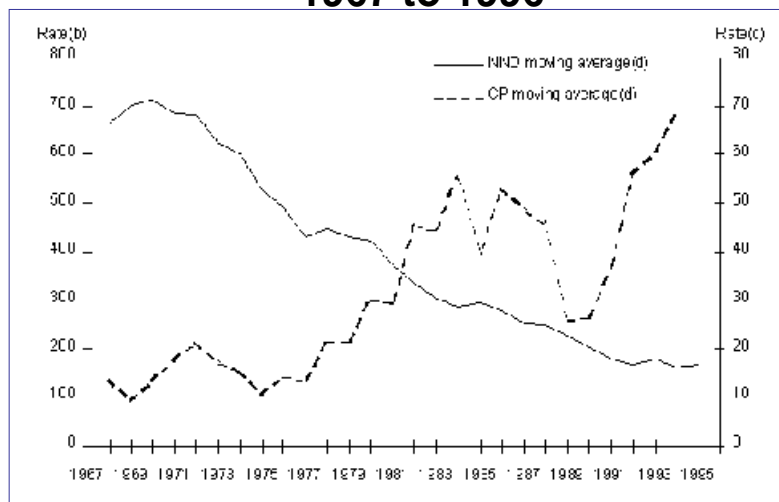
With very low birth weight babies in intensive care units, everyone wants to know what will be the quality of life, what will be the level of disability and so on. It is evident that those who are lost to follow up have much higher rates of disability and death than those followed whereas with linked data we get the whole story – we get all children.

Accurate and reliable data means getting data on people who are usually poorly represented in contact-and-see-consent studies. For example, indigenous people, teenagers or rural people, many of whom are already marginalised in society. The cost and effort of contacting and obtaining consent would probably prohibit much of the research we do and, of course, many people are unable to be contacted – they have emigrated or they’ve died or they’ve moved and we don’t know where they are. It’s interesting that, when we do contact people, few refuse to participate in the studies. For example, participation rates in Western Australia for the studies where we go onto case control or ask mothers about diet or whatever, we get over 92% response rate and in our most recent Aboriginal childhood survey we had 97% response rate. Most non-response, therefore, comes because we can’t find people - they’ve moved, and so on.

Examples of research using linked data

Some examples now of things that we couldn’t do from other studies that we’ve been able to do using the Western Australian linked database. There’s been a lot of concern about what’s happened to very low (ie under 1500 gram) birth weight babies, in terms of what has happened after the introduction of neo-natal intensive care in the early 1970s.

Very low birth weight (a), neonatal death & cerebral palsy rates in Western Australia 1967 to 1996



(a) Birthweight less than 1,500g. (b) Neonatal death rates per 1,000 live births less than 1,500g. © Cerebral palsy rates per 1,000 live births less than 1,500g. (d) 3-year moving averages, note that CP moving average rate for 1994 is derived from 2 years' data only.

Source: Cerebral Palsy Register, Institute for Child Health Research, Perth. Unpublished data

Figure 2 (Slide 8)

Figure 2 shows a dramatic fall in neo-natal deaths, deaths in the first four weeks of life, coincident with the introduction of neo-natal intensive care and the big question was, with these very low birth weight premature babies surviving, what was the rate of cerebral palsy. The follow-up studies show quite low rates of disability and when we looked at our linked data where we could actually do birth weights, specific rates of cerebral palsy, there it was, this dramatic increase in cerebral palsy from around 10 per thousand up to nearly 70 per thousand and after 1995 it went up to about 90 per thousand. It is starting now to plateau off.

This data is unique internationally - it relies upon the linkage of birth information which had birth weight and gestational age and the total population registries of disabilities. Now, of course, the research question is, who is at risk of getting cerebral palsy? We go back to our data bases to investigate that.

Another example concerns the occurrence of birth defects in those infants conceived in reproductive technology programs (in vitro fertilisation and so on). The follow-up studies mostly done in Europe and the United Kingdom showed clearly not much increase in risk of birth defects at all and that was a reassurance to mothers that, in fact, they didn't have increased risk of birth defects if they went into these programs. Our studies in Western Australia, which have caused a world-wide interest, with our complete population registries of birth defects which we were able to link into infertility treatments, showed a two to three fold increased risk of major birth defects. That is important for women and it is important for obstetricians and researchers because we want to know why. Is it because those women who seek infertility treatments are inherently at an increased risk of birth defects or is it because it is something to do with the treatment? That information is important to prevent birth defects.

Other examples relate to some of the sensitive information referred to above. We have done a linkage between suicide data and mental health data – and that gives us attempted suicides – and drug problems, which provide new and important information on the risk associated with cannabis use. (Good information on cannabis use has not been available because of under-reporting, or denial of use). This shows a very strong relationship between suicide and cannabis use, particularly adolescent suicide or attempted suicide where 41% of these suicide attempts were cannabis users and 17% were non-users.

Others in Western Australia have done research looking at road traffic accidents, showing a great increase in the contribution of cannabis to road accidents. It is very difficult to get good information by interview on such a sensitive subject because people don't report cannabis use when we ask them and of course there are also traffic accident fatalities to take into account. The availability of linked population data has allowed a study that is unbiased, accurate, inexpensive and helpful to influence policy.

As another example, in New Zealand, two teenage suicides were linked to Child Protection Services and a study found that a high proportion of suicides had previous contact with the Services and that 30% of them were in contact at the time of death. That finding led to a change in practice and then to a major reduction in deaths among children who were in protection in New Zealand.

Relation between centile birth weight, single parenthood and mental health outcomes in teenagers (WA Child health Survey linked to the MCHRDB)

Characteristic interval	Adjusted odds ratio	95% confidence
Percentage expected birth weight		
<2%	2.90	(1.2 – 7.1)
2 - <6%	1.75	(0.9 – 3.6)
6 - <10%	1.35	(0.6 – 2.9)
10 - <90%	1.23	(0.8 – 1.9)
>90%	1	
Marital status At delivery		
Married	1	
Single	2.32	(1.6 – 3.4)

Zubrick et al 2000

Figure 3 (Slide 10)

Figure 3 shows findings from a study linking Child Health Survey data into the Maternal and Child Health Research data base which found a strong association between antenatal factors such as severe growth restriction during pregnancy and mental health problems (such as Attention Deficit Disorders, aggression, anxiety, depression, delinquency, suicide) more than eleven years later.

This highlights the fact that the pathways to some of these mental health problems start very early - they start in utero. The question is why? Can we use early intervention to prevent these worrying mental health problems which are on the increase in Australian and elsewhere in the world. This is very important data, but you only get it by linkage.

Twin and Triplet Rates, Western Australia 1960-1999

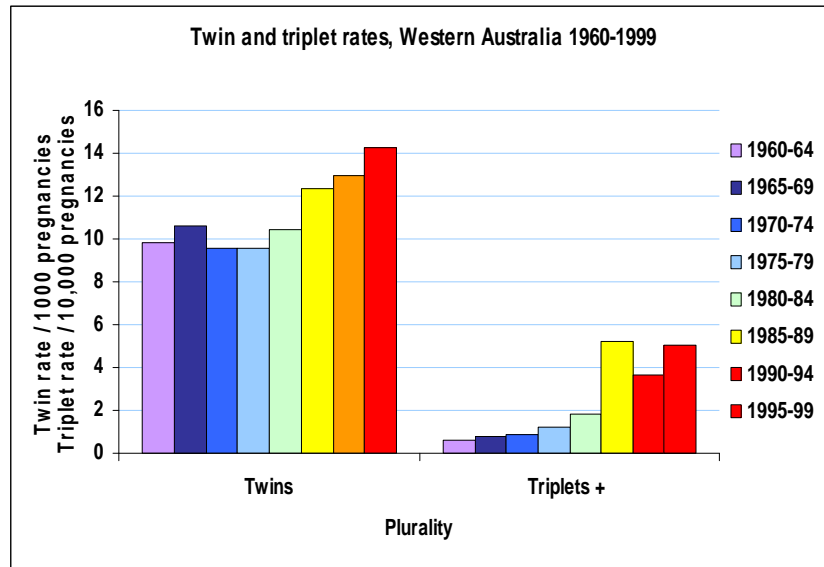
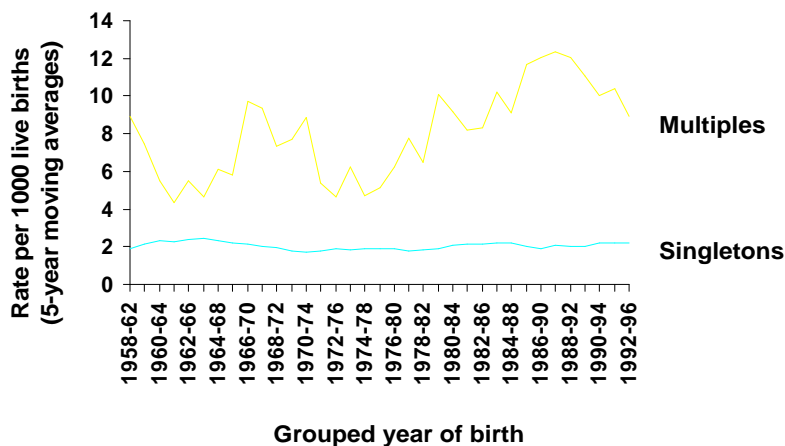


Figure 4 (Slide 11)

Cerebral palsy¹ rates in singleton and multiple births, Western Australia, 1960-1996



¹ Excludes cerebral palsy due to postneonatal causes

Figure 5 (Slide 12)

The rate of multiple births, particularly triplets, has gone up dramatically and we have used linkage to identify that the main reason for this increase was due to infertility treatments such as in vitro fertilisation. There was also some impact on increasing rates among older mothers. We were concerned about this because our data showed that very high rates of cerebral palsy, death and other problems occurred in triplets. We published this data and it has influenced obstetrics practice and then legislation was introduced to reduce the number of embryos that were implanted during IVF procedures. Figure 5 illustrates the beginning of a fall in cerebral palsy and multiple death rates.

Neural tube defects WA 1980-2000

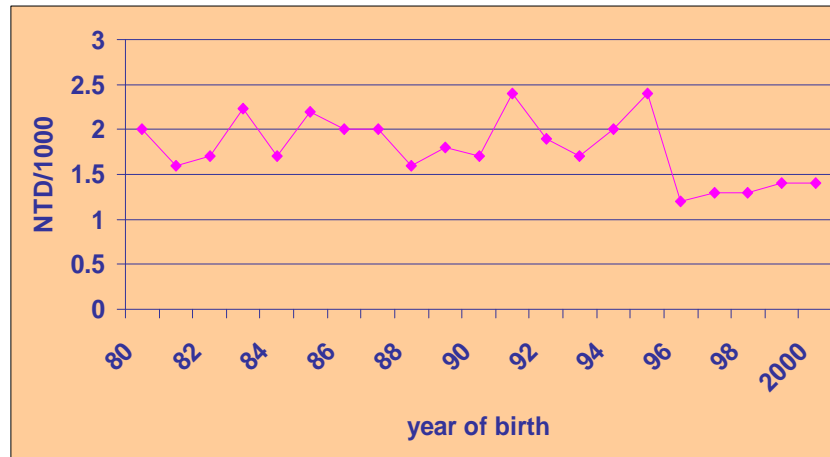
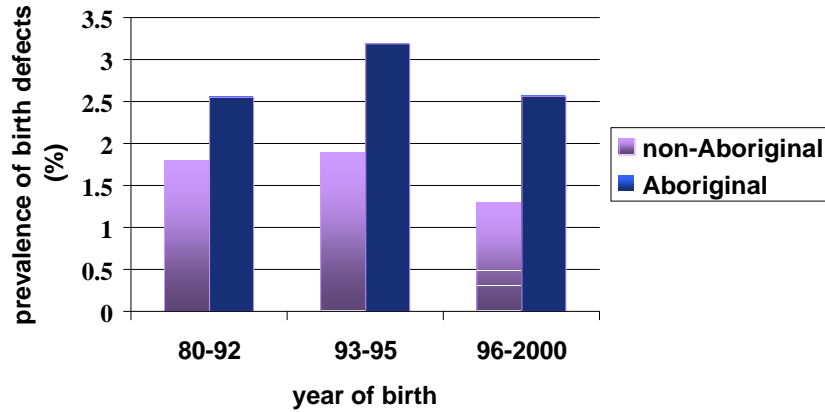


Figure 6 (Slide 13)

One of the most exciting findings I've been associated with in my research career, is that we were one of the groups internationally that studied the relationship between neural tube defects (that is, spina bifida and related defects) and the maternal intake of the vitamin folic acid, around the time of conception. We were one of the groups working internationally that helped with this discovery. And so, in Western Australia, we implemented a program to increase the maternal intake of folic acid to reduce spina bifida and Figure 6 indicates the dramatic decline in incidence, since 1996.

We asked the question, however, why are these still occurring? Was this because causes other than those related to folate are involved here? Or was there a failure of the program? Because of our linked data we could see that there has been a failure of the program and that this has occurred in one particular group in society - that is, in Aboriginal mothers.

Neural tube defects in infants born to Aboriginal and non-Aboriginal mothers in Western Australia 1980-2000

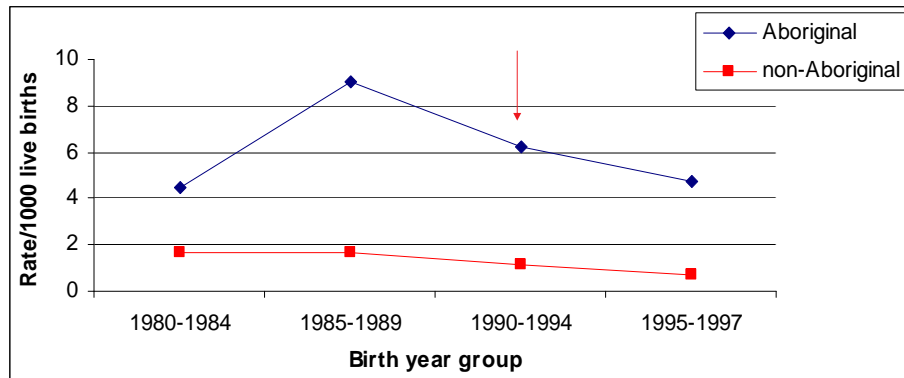


Source: Carol Bower et al, ICHR

Figure 7 (Slide 14)

There was about a 30% fall when the program was introduced in 1992 in non-Aboriginal children but in Aboriginal children there has been no significant change and the rate is still as high as it was before the program was introduced. So we have failed to deliver a preventive program amongst the highest risk group in our community and where the difference here between our non-Aboriginal and Aboriginal children with spina bifida was about 40% higher risk, now it's virtually 200% higher. I would just like to say these data from Dr Carol Bower who produced this program are preliminary so we don't want them quoted if the media were here.

Infant mortality rate attributable to SIDS for Indigenous and non-Indigenous infants, 1980-1998



Source: Jane Freemantle, ICHR

Figure 8 (Slide 15)

A program of changing the sleeping position of infants from birth, encouraging breast feeding, reducing the smoking, and so on, that came in during the 1990s in Australia, has had a dramatic effect on reducing infant mortality attributable to Sudden Infant Death Syndrome (SIDS) in non-Aboriginal children. By going into our linked data base we were able to show that in Aboriginal children there has been no change at all over that time. So we have gone from a two-fold risk in Aboriginal children, to a nearly ten-fold risk between non-Aboriginal and Aboriginal children. So that has implications for a preventive program. We must now become more effective at reducing the risks for Aboriginal children. We can only get these data from the linked data base where we have recorded both race and cause of death.

There are other examples of public good research in the WA linked data:

Darcy Holman did a wonderful study looking at preventable morbidity and mortality amongst psychiatric patients. This wasn't just high rates of suicides, which you'd expect in psychiatric patients, but was the first reporting that these people had much higher rates of heart disease, deaths and heart disease admissions to hospital, and preventable cancers. So again that has changed the policy about looking after psychiatric patients for their general health as well as for their psychiatric illness, both in hospital and in the community. We have had a lot of very good data from cancer registries into environmental, contamination and environmental problems. The most famous in Western Australia is the wonderful linked study looking at mesothelioma in asbestos workers, where they were able to link work records into hospitalisations and cancer registries data.

We are very interested in prescription drugs exposures and birth outcomes, particularly some of the drugs that are known to cause birth defects, like some anti-epileptic drugs and a drug that is used for acne in teenagers. By linking prescription data into birth defect registry data, which we are planning now to do, it will be a fantastic measure of whether the way in which prescriptions are written (that is, to avoid use during pregnancy), is working.

Fantastic studies have been done on evaluating the effectiveness of immunisations including one on Congenital Rubella Syndrome, a totally preventable birth defect which should have been eradicated by Rubella vaccination. Nevertheless, cases were still occurring and through our linkage data we were able to show that these were in women who had arrived in Western Australia more recently and hadn't had the vaccination. As a result the entire vaccination program was changed so that it was given to younger children. We have been able to evaluate influenza-type B vaccinations and shown that it has eradicated meningitis and we have been able to look at the effects of both that vaccination and measles vaccinations on deaths in cerebral palsy to show just how powerful these were and in whom it wasn't being prevented. So again that's caused changes in immunisation policy and the delivery of that vaccination.

Advantages of using linked population data - summary

Linked population data is: inclusive, representative, accurate, very good use of existing data, cost effective compared with the amount of time to contact and get consent from large numbers of people in the total population, and avoids biased response rates and poor recall that you get when you do studies.

It may be particularly advantageous in sensitive research questions when it is very difficult to ask people directly but if we get that information, link it and anonymise it after linkage then that may be the best way to do it. Of course the information is limited to that which is available in data sets, so you can't get everything for population record linkage because the data are not always collected.

As researchers we are obliged to provide the most accurate, reliable and unbiased information to guide public policy, health policy, practice and the way information is given to the public. We are very careful about the information we give out to the public (for example, about what can you do to have a healthy child, what can you do to maximise the health and well-being of your family) because, when you're intervening on healthy populations you have got to get it right.

We are also obliged to make the best use of existing data and so it's about balancing the public good from record linkage against the perception that any linkage of population data without consent is an unacceptable invasion of privacy. But my belief is that is immoral and disrespectful to people to conduct research that could result in biased information or information that excludes certain groups. Usually those groups that don't respond in studies are women, children, teenagers, indigenous, and disadvantaged. These are often marginalised people, being marginalised further by not having information collected about them. There have always been studies that have excluded these people. For example most randomised controlled trials were done in men and not often done in women and children although that's changing now.

2. PRIVACY AND CONSENT ISSUES

So is record linkage of individual data without consent an invasion of privacy? Not if we protect privacy by the way we go about linking and using it. The National Health and Research Council (NHMRC) has guidelines for epidemiological research based on integrity, respect, beneficence and justice: integrity relates to the researchers and people who are going to be using the information; respect relates to respect for the people that we are investigating and the reasons why we are doing so; it's got to be of benefit to society, so that everyone gets the benefit and not only certain sub-groups of the population; and justice.

There are changes happening in technology which make it easier to protect data from being identified and ensure safe storage and of course there is a lot of legislation around this.

In Western Australia we have some very innovative linkage procedures which involve eventually the de-identification and totally anonymous analysis. We now have one Data Linkage Unit in Western Australia and no researchers have access to the unit. In fact only one person in that Data Linkage Unit has access to the identifiable data. But they don't have any access to the data that's in the data base on the health or the other aspects of data that's linked. They move the identifying bits from each of the data sets into a master file and all the sensitive bits of the data are left out and remain with the custodians and their data bases. So when an epidemiologist like me wants to do a study, we have to apply to the Data Linkage Unit, which has three ethics committees, and then the data are linked for that particular purpose and then de-identified and anonymised so that we never see any individual data. I'm not interested in individual data. I'm only interested in getting population statistics. That's all I'm interested in. I'm not interested in any sensitive information on any individual person. We are responding to the issues in relation to privacy to really try and reassure people that the research that we do does not invade their privacy and that there is legislation that will protect this research and protect individual information from misuse. The greatest fear, I think, is that somehow this information will be passed on. And I think the capacity with new technology and methods to conduct linkage will actually reduce the risks of identifying individuals or misuse of information.

So we have now a national statement of ethical conduct, NHMRC guidelines, and human research ethics committees, which may approve access to identified or potentially identified data without consent, of those data where the committee is satisfied that:

- the procedures required to obtain consent are likely to cause unnecessary anxiety for those whose consent is sought or to prejudice the scientific value of the research (the bias, the invalidity of it and so on);
- there will be no disadvantage to participants or their relatives or any connectivity involved;
- it is impossible in practice to obtain consent, due to the quantity, age or accessibility of the records to be studied (eg people have died or have moved);
- the public interest of the research outweighs to a substantial degree the public interest in privacy.

So a lot of this relies upon these guidelines and the ethics committee which have a really important responsibility - to ensure the research is for the public good, that researchers are bonafide and have good track records, that the data can be kept confidentially and no individual identified data will be used in any way and obtaining consent would be prejudicial to science.

There are two stages to go through with the NHMRC. One is a new grant process where you are judged by your peers and which includes an ethical methodology judgement and the second is to go through a rigorous ethics committee. In Western Australia we also go through an ethics committee for population data, and another for use of linkage data – three ethics committees.

Then there are the Office of the Federal Privacy Commissioner guidelines relating to privacy in the private health sector, covering use and disclosure necessary for research and statistics relevant to public health and public safety. In limited circumstances this provision allows uses or disclosures of health information for research purposes or for the compilation or analysis of statistics without consent, where these activities are relevant to public health or public safety. That is, the research must be about, or the statistics related to, public health or safety. As well, of course, the ethics committees have to look at whether it's impractical to seek consent and that's always on a case by case basis. You can't write a prescription for this but have to look at each individual case and decide if it is public good research, if these are bonafide researchers, and whether it's OK to link. To reiterate the point made earlier, many people are not contactable and those who are able to be contacted are usually different from those who are not.

3. FUTURE CHALLENGES

So the future challenges for us in Australia, in terms of my work, are that we have problems relating to children and youth which are extraordinarily worrying. And I know that many of you in many countries around the world are also seeing rises in these problems. We are seeing rises in incidence in problems which are often complex - mental health problems and obesity are two examples. Others are low birth weight, health problems, child abuse and neglect, behavioural problems, learning and education problems, substance abuse, juvenile crime, and youth suicide. Now these problems which are either not decreasing or increasing quite dramatically demand complex information to monitor, study and prevent. They are very costly to treat and manage. We've got a crisis in our child and youth services in Australia, in health, mental health, education and crime, and particularly we have a crisis in child protection - children who are being abused or neglected. This is in modern Australia. Modern wealthy Australia! This is very anguishing to people like me.

Most causal pathways to these problems are complex. Many of them start in early life, as indicated in the birth weight Figure. Some, particularly in Aboriginal families, are intergenerational. Many arise in social and environmental adversity. Most are inadequately researched. The research is fragmented. It is done in separate silos and it certainly doesn't give informed solutions.

Ecological Contexts Shaping Child Development

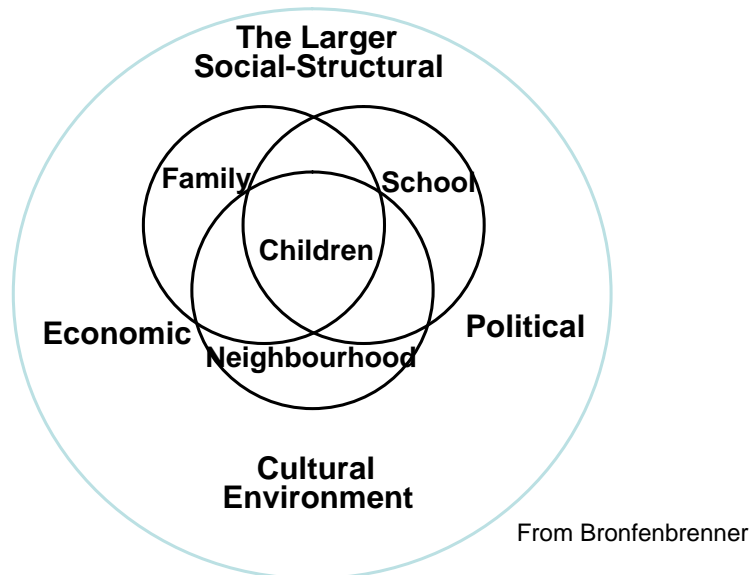


Figure 9 (Slide 27)

This depicts the ecological context that shapes child development, where you have a child in the middle, of course that child is in a family, the child goes to school. Everything is in a neighbourhood and we often just focus on the risk factors and the protective factors that are in those small circles. But look at this larger social-structural, political, cultural, economic, dare I even say it, spiritual environment which are impacting on all these little circles in the middle and either being protective for children or being very negative for children. And many of them are extremely negative for our children. It's up to us to not just be in this circle with our research but to get out into a bigger environment of data that is going to enable us to look at the pathways that start from out here and end up affecting our children.

When researchers in our Institute look at this slide then they put community in the middle, not children. Because if you've got communities right – kids are going to be right. So I have another slide which has got communities in the middle. And are current and social economic policies cost effective for these problems I'm talking about? On the whole they're not. They're developed in silos so that a housing problem is separate from a health problem, separate from the mental health problems and so on and of course children haven't read that part of the book and they just get problems which need joined-up solutions. The focus is on the problems at the end of pathways which are irreversible - diseases that have occurred or problems that happened, and that's very expensive and very ineffective in terms of reducing occurrence. You've got to start earlier if you want to prevent problems. There's very little evidence base, very little that's informed by research or properly evaluated. Of course it's very much easier to measure the dollar costs of policies rather than the benefits and so many very good policies for children and young people in the last 10-20 years in Australia have actually been produced and of course everyone wants a simple solution. For every complex problem there is a simple solution and it's usually wrong.

So what have we done in Australia? We've now developed a new Alliance and the reason for it is to improve collaboration across the whole nation to improve outcomes for children and young people. We're seeing increases in many childhood diseases, disabilities and problems. The causal pathways are many and varied but often have common antecedents. It is quite likely that the causal pathways, for example, to adolescent suicide, are similar to the causal pathways of children who are falling out of the school system and getting into the criminal justice system.

So we have common antecedents and the exciting thing about that is if we work out these pathways and work out how to intervene, we will be improving a whole lot of things, not just one outcome, so that's multiple outcomes from single pathways and multiple pathways to single outcomes. Research is done in silos, policy is not evidence based and we have fragmented data bases all over the country which, if you brought them together, you can start to really inform some of these problems.

So we've called ourselves the Australian Research Alliance for Children and Youth. The purpose of the Alliance, which is now 18 months old, is a national collaboration established to facilitate, coordinate and support the development of knowledge and its effective use to advance the well-being and life chances of children and young people. It is a very ambitious Alliance and one of the major planks for it is a national data network. This is modelled very much on the West Australian data linkage unit to try and maximise our national research infrastructure to bring together all of the groups and organisations around the country who are interested in collecting and using data. We are bringing it together and we've got a fabulous collaboration now with the Australian Bureau of Statistics who have taken a leadership role in this nationally, the Commonwealth Organisation for Research Development, the CSIRO, the Australian Institute of Health and Welfare and a whole lot of other organisations. We believe that we will be able to enhance public good of these data bases by making full use of the existing data and linking it together in ways that protect privacy and that will maximise our national research effort.

It has been very exciting to involve both State and Commonwealth privacy commissioners in this initiative right from the beginning because it is absolutely crucial that we do this with the support of the community, with privacy being a very important issue. So, if we want to understand which interventions work and which are the most cost effective in terms of the critical use of resources and the early interventions being effective, then that is going to impact really very strongly on the future of Australia's children and young people.

If I can just leave you with a quote, this is from Nelson Mandela "there can be no keener revelation of a society's soul than the way it treats its children" and I think that by getting the best information for our children and young people it is a very good way of looking after them for our future.

Thank you very much.