**CHO SEMINAR #3 – July 2007**

# CHO July 4 Evidence, Practice and Institutions

Presenters and their subjects:

"From Evidence to Practice: New Strategies" Dr Brian Richards, Visiting Fellow, Centre for Health Stewardship, Australian National University

and

"From Practice to Institution: Role of Institutions in Promoting Evidence Based Practice" Dr Bruce Barraclough, President Elect, The International Society for Quality in Health Care

## Dr Bruce Barraclough

I am going to give you some practical ideas about how to relate to some academic and policy ideas, about how to do things to create change, and to show you some of the changes we have been able to achieve – by 'we' I mean the Australian Council for Safety and Quality in Health Care and the NSW Clinical Excellence Commission. It was exciting to chair the Council for six years and to put in place a great deal of policy support material and to actually get some things under way. I now chair the board of the Clinical Excellence Commission in New South Wales and much of what I will talk to you about is our work.

More recently than I would like to admit I came across the work of John P. Kotter from the Harvard Business School in strategic approaches to creating change. Basically what he says is that this is not rocket science. This is well known in business, in government and political circles. Anyhow, we on the Council stumbled across the same cascade of activity and eagerly put it into effect.

The first step to change is to establish a sense of urgency, the perception of a crisis. Consider what is happening in our community. As an example, at the moment there are perceived to be, three very high level crises. You may or may not agree that they are real, or that they are imminent, and you may not agree about their importance. But I suggest one is about water, one is about climate change and the other is about indigenous children's health and well being.

These three crises are enabling quite significant political and policy change that will spin down into the community. In this country money follows policy so we can expect some results from policy changes in these crises. It is no different when you are trying to achieve change in the most complex system that humans have ever created – modern health care. If you look at the list of strategic approaches produced by Kotter, who is without a doubt the international guru in leadership for organisations, you follow the establishment of a sense of urgency by building a guiding coalition. Then develop a vision and a strategy, communicate

the changed vision, empower the employees (or whoever) for broad-based action, generate some short term wins, consolidate gains, produce more change and then anchor the new approaches in culture change.

Please keep that in mind while I also ask you to think about strategic approaches to change. Consider the motor vehicle accident statistics in New South Wales. Cars started to emerge in 1908 and, although there was not much activity in the Depression, their popularity and the fatalities they caused built up with rapid motorisation until the 1970s. Seatbelts became compulsory in 1971 - but only after there had been a drop in fatalities in 1970. So the motor vehicle accident rate actually fell before the legislation came into place for seatbelts. Then it went up again as people became blasé. But around the mid-1970s newspapers every day, in Sydney, published the motor vehicle accident statistics. There were pictures on the front page every day. As a result the community attitude changed, the politicians became brave and put the legislation in place. We can say that the newspapers established the crisis, the community started to change, the legislation underpinned it and then kept it going and the accident rate has been dropping more or less ever since. It's a neat example of Kotter's principles and shows that the community does change in response to perceived crises.

Where was the crisis in health care that caused nine governments to set up the Australian Council for Safety and Quality in Health Care - our first national effort to achieve any change in that area? Largely it was the Quality in Australian Health Care Study, which said some really interesting things - that there were 16 per cent adverse events in acute care, that a number of these were very severe in their effect and that 50 per cent were preventable. In a more modern study, with modern technology supporting health care, it was shown that probably only 30 per cent are preventable. The work of Beth McGlynn at RAND has shown that in acute health care only 50 per cent of people get the appropriate care they need, suggesting that appropriateness is the big issue, as well as safety.

On a different tack, if you say to Robert Brook, Professor of Medicine and Health Services at the Centre for Health Sciences at the University of California, that appropriate care delivery is surely where all the money is to be saved, he says, 'Well we don't actually know whether the underuse and the overuse balance out and we are not quite sure about the level of the misuse but we are pretty sure that only 50 per cent get exactly what they need - he might well leave you confused about the result, about how there could be so much inappropriate care.

When I was chair of the Australian Council for Safety and Quality in Health Care I was having lunch in Canberra and somebody rang up from a radio station and asked me to speak on talkback radio. I said fine, went out of the restaurant and stood under a tree and on my mobile phone took some talkback radio. The "shock jock" talked about medication safety for a period of time and then I asked him his age. I said, let's face it, you are probably my age, middle-aged plus, and he said yes. So I said that means that each of us are going to be on one or more medications because that is what we are all on. He agreed and I said most of us have medications that need to be taken three or four times a day in their dosage. I asked whether his were like that and he said yes. I noted that it was two o'clock and asked him whether his lunchtime dose was still at home in the bathroom cupboard. His response was: 'Doctor, I do the jokes here,' and he put the phone down. But it was no joke. I was illustrating the misuse and underuse of effective health care. Now it may not lead to an adverse event, though it might, but it certainly will be less effective. So you can readily see how there might only be 50 per cent of care that it is appropriate.

The NSW Clinical Excellence Commission (CEC) was set up part way through the Australian Council for Safety and Quality in Health Care's life. The Council had about $10 million a year to spend on coordinating the activity of nine different health systems in relation to safety and quality. CEC has the same amount of money to help improve acute care for about 60 per cent of 6½ million people. So this is what the Commission does. It's our mission. I should add that the mission statement is not only about building confidence in the health system by making it demonstrably safer for patients, it is also about making it a more rewarding workplace. Only by making it a more rewarding workplace do we get the changes that we need and we don't get the high levels of recidivism that everybody claims exists in the health system.

So what are we measuring when we look for change? Measurement is really the key to it all. If we don't measure "stuff", we don't understand "stuff". If we don't understand it, we cannot do anything about it, we cannot influence change.

If you look at all those crises that I talked about at the beginning, they are all based on measurement. Whether they be motor vehicle accidents, degrees Centigrade rises in temperature or degrees of emptiness of dams, everything needs to be measured to create the tension that it needs to generate change. And so you start to get into a head space that says you measure what you value. If you do not bother to measure anything the corollary is that you do not really want to change anything.

So what are we measuring in New South Wales? We have an incident information system, which I will talk more about in a moment. We measure the reportable incident briefs which are the high level adverse events, the sentinel events, and we are developing a scheme called "Quality System Assessments", which is similar to accreditation. Basically it measures the compliance of the health system with the guidelines, processes and policies of the department as they relate to safety and quality. CEC also looks at deaths under anaesthesia, deaths associated with surgery, hygiene compliance and compliance with paediatric care guidelines.

We found that most paediatric admissions to hospital in NSW were to hospitals where there was no paediatrician. So we called the paediatric teams and the emergency physician teams to put together guidelines for the twelve most frequent DRGs that caused presentation at emergency departments. The guidelines were produced with an idea to implementation. We went ahead and implemented them and now we are measuring the compliance with that implementation. Already we are measuring improvements in the care of children with asthma.

The incident management system has much to tell us. If we look at the high level risks around clinical management for high level events, the biggest risk category is inadequate review, with 25 risks. Then comes the treatment of patients in an inappropriate setting with 14. Third is the delay in diagnosis with 12. So from our analysis of the high levels of adverse events we are learning where to focus our activity to change behaviour.

If we turn to risks associated with communication, which is another of the major risks for these high level events, the one causing the most risks is cross organisational communication, with 17 risks, then comes team communication with 14, followed by management plan, with 10. Once again we know where to put our effort. We know because we have measured "stuff" that tells us where to put the effort.

Now picture a bar graph showing what has happened since we put this incident management process in place in NSW. The graph covers three years, beginning in 2005 with 2700 reports a month. It went up to 9000 reports a month in the first year and 10,500 reports a month in the second year. It is running at 13,000 reports a month in the current year of 2007. That means we would expect to have about 140,000 incidents reported voluntarily this year by the people who work in NSW Health. Some 100,000 people can make reports. That is the number employed. They can report on the web. We can take 250 reports at any one time and we analyse them and use them as an early warning system to get the information we want.

I must also talk about the principal incident types – falls, medications, clinical management and things like that. The number of incidents involving aggression or an aggressor might be surprising to you – more than 4000 notifications. Maybe it's not so surprising when you think there are places like Liverpool Hospital in NSW, a teaching hospital south-west of Sydney, where the rate of increase of admissions to the emergency department based on acute psychiatric problems, usually due to drugs, has risen at 30 per cent per year/per year for the last three years.

Top of the list of notifications for incidents are falls, followed by medications, clinical management, aggressive behaviour, human performance, documentation and so on. Again, the research shows us where to focus activity. We know about the medications. The high level medication problems involve morphine sulphate, paracetamol and methadone – pain relief mind-altering drugs that are central to part of the medication safety activity. Among them comes warfarin, but there's also heparin. We are beginning to learn which of the multitude of medication events we need to focus on to achieve some valuable change. Analysis also tells us when the medication events occur during the day and they're in the hour between 8am and 9am and 8pm and 9pm. It begs the question, why would you give a seriously problematic medication between 8 am and 9am or 8pm and 9pm?

The Council put a national medication chart on the agenda and all the States are now rolling it out. The chart indicates warfarin should be given at 4 pm, not 8 am and 8 pm. It stands to reason that if you give a dangerous drug after the day shift has gone then nobody has communicated what the measurement of the INR, which is the level of activity of warfarin, should be. Or what the aiming point might be. So you need to get the day staff to finish the day staff's job and make sure that the medication is given at an appropriate time.

We have learned that once you measure, you understand things and you can change things. Another sort of medication is blood. It is very important to us isn't it? Blood is mystical stuff. However, it also creates all sorts of interesting problems. We found a big problem with the administration of blood. This will be the same around the country with a large proportion of blood being wasted. Why does this happen? Blood is precious, it is given by volunteers and is very safe.

We figured there was a crisis because often we got down to no supply or almost no supply. We did not have to create that crisis in the media. We put a coalition together between the Clinical Excellence Commission, NSW Health Area Health Services clinicians and ARCBS, to set a process in place to change behaviour. We gave some finance to it, put project officers in each health area and did a lot of education and information exchange and developed some transfusion committees. The work we did to identify what best practice was, showed that a patient doesn't need a bottle of blood in most circumstances if their haemoglobin is above 8. We realised we were wasting most of the blood before we introduced change management.

Nevertheless we all may have from time to time a requirement for a blood transfusion. You feel superb when you have a bottle of blood, it really picks you up. In the old days we used to give a bottle of blood as a pick-me-up for people after surgery because they felt so much better and ostensibly they improved more quickly. Maybe they did, maybe they didn't, but the evidence would suggest that 8 grams of haemoglobin is the critical measure. So we put an education program in place across New South Wales. Despite this our analysis showed we are still wasting more than half of the blood given. We hadn't achieved all that much, yet we had done everything we thought we possibly should.

So we decided the next step should be to put in some forcing functions. The simplest of these forcing function states that before the blood is released from the fridge in the pathology department of the hospital, the haematologist must be phoned and must give his approval if the haemoglobin of the recipient is over 8. It's a very simple, non-demanding forcing function and all of a sudden, things improved. However, we do expect the effect to wear off over time. Still, we actually changed from a project to a program to 'this is the way we do it round here now'. It's well understood and people are using it and showing very, very significant change by saving thousands of litres of blood.

Let me give you a specific example. The Children's Emergency Care Program that I talked about a little earlier – 12 high level diagnosis related groups in terms of admissions for children presenting to the emergency department, 12 sets of guidelines. We decided we had to change the management plan. It was around continual practice improvement activities, educational outreach and barrier oriented interventions. We introduced interactive educational interventions and got great results.

First though we needed a coalition of emergency department doctors on side. Now, anyone who works in health knows they can be a difficult lot. The paediatric doctors, who everyone knows they are *not* terribly pushy, had to agree with the ED doctors, not only on what the guidelines were, but how you deal with them. It took two years to get that to mesh in a real way across 52 hospitals, but nevertheless it happened.

With asthma we had great success. The audit activity that we measured was the re-presentation rate of children at casualty with asthma. When we added an asthma plan as part of the guidelines, the rate of re-presentation dropped four-fold. Once the doctors had the guidelines they improved the children. Initially re-presentation went up, because initially we weren't insisting on the plan. But we hadn't factored mums into the equation. Mums knew that the doctors could make their children better so they brought them back even more often. Once mums were part of the plan and the children were part of the plan we got the results. This all takes a lot of work. It is not all that expensive, but it takes effort and it takes enormous leadership within ED, within paediatrics, within hospitals, within our organisation, to keep it all on track.

There's also an even simpler message: clean hands save lives. Have you ever been to a hospital recently to have a dressing changed and cringed when your nurse or doctor didn't wash their hands before they came to do it? Those of us that work in health get very used to using antibiotics instead of cleanliness because it is easier, simpler, quicker and you don't really want to walk 40 metres to a wash basin. Everybody around the world had the same experience, everybody around the world found it enormously hard to change.

Then a man called Prof Diddier Pettit from Switzerland started using ‘talking walls’ posters. We learned from him and put posters up in all the hospitals with the ‘ clean hands save lives’. Such posters create a sense of crisis, but also a sense of fun. In one a smiling doctor looks out at you but has a piece of his breakfast stuck in his teeth. The print tells you that of course it is okay to tell the doctor he has got something in his teeth, then adds: ‘now ask him about his hands’. We are empowering patients to insist on an appropriate level of care. With this in mind we decided to do some measuring. We looked up some statistics and found that if you wash with soap and water seven times an hour for 60 seconds, which is what every nurse would do in an eight-hour shift – it would take 56 minutes. That’s fairly significant and you start to understand why from time to time people didn’t wash their hands.

However, if you use an alcohol-based hand rub it takes 20 seconds to clean your hands instead of 60 seconds - and 8 minutes for the shift instead of 56 minutes. Up pops the forcing function that says there is both time and money in this alternative to washing, to say nothing of the improvement in patient care, the lack of readmission, reduction in the cost of antibiotics, lack of the cost of redone surgery and so on.

We began measuring once we had 70 per cent of beds with the alcohol hand rub available. Now we have eight health areas involved. You would think it would be simple but we had to convince eight chief executives to agree to be responsible for it all. We asked the senior executive forum what they thought their major problems were and they all agreed infection was one of the key issues. But two of the chief executives did not really want to support the alcohol hand rub program. It was too difficult. But once they agreed to spend the money on hand rubs the forcing functions at the local system area worked. The compliance of nurses went up 13 per cent and doctors up 16 per cent initially. Now we are over 50 per cent for doctors. Allied health went up 23 per cent, other staff 23 per cent, though in high risk categories in intensive care it went up by just eight per cent. These are all quite significant changes in behaviour, though it is still very early into a long-term plan. But we have got the numbers, though there is about a 20 per cent variation between our health areas. That information will be fed back in very clear terms and one trusts it will become the key performance indicator for the chief executives as another forcing function.

Let’s look at the in-patient medication chart. It too was a creation of the Australian Council; the States eventually accepted it and the teaching hospitals eventually stopped fighting it - previously some of the teaching hospitals had up to 23 different charts, which is a recipe for absolute disaster. What we did was create one national in-patient medication chart. It’s not totally implemented yet, but it’s getting there, and it can be in electronic or paper form. Well, we have audited that chart too and prepared a graph showing the number of medication orders where the frequency of doses is clear, correct and present.

Sydney South West Area Health Service got the number of medication orders right 96 per cent of the time once the national medication chart was implemented. Some of the other health areas achieved a lesser performance and the NSW average was 80 per cent. We still have a way to go, but already the in-patient medication chart is starting to promote change that is very important.

Let’s look again at warfarin, which we know is one of the most dangerous drugs in terms of side effects. The target INR, which is the measure of warfarin activity, is documented 82 per cent in one health area and 29 per cent in another. re-presentation The audit of target INR documentation starts to tell people where they need to take action to create change.

So in essence we are applying learning from a set of measurements and we are doing it with a major falls program, with the hand hygiene program, with communicating for clinical care, clinical hand-over, recognising the deteriorating patient, parent involvement, with another applied learning program called 'correct patient, correct site, correct procedure', and then there's change in surgical practice. These are all currently in place and most of them have moved from projects to programs to institutional activities. Many of these issues are now the way we do things, which is my measure of real change.

We are aiming for an improvement cascade. This includes having a perception of the problem, proof through measurement and analysis, demonstration of improvement through projects and system-wide institutionalisation of improvement through programs and policy – this last one because ultimately, if something is not represented in policy, the money does not flow and the sustainability is not there.

Moving from a non-reporting system to a reporting system in health care has demonstrated a high level of change. Early in the Council's work – probably about 2002 – we started to influence the States and Territories to agree to a list of eight sentinel events that they should collect and analyse. It took two years to get eight governments to agree to that, but they did. They all agreed to collect the same eight and to analyse them using root cause analysis as a simple way of analysing severe adverse events.

They all agreed to report and we found that by getting some national information about those eight high level events, even though they might only happen four or five times a year in a place like the ACT, that we would learn something. But more than that we knew these issues, these eight sentinel events, had political importance. And so we had to start there. Within the first year, having taught 2500 people out of 100,000 employed in NSW Health the rudiments of root cause analysis, we had a 30 fold, not a 30 per cent, a 30 fold increase in reporting of high level sentinel events. And that has persisted. These are the sentinel events: wrong patient wrong site, suicide of a patient in acute care, re-operation for retained instruments or material, intravascular gas embolism causing death or neurological damage, haemolytic blood transfusion reaction from ABO incompatibility, incorrect administration of medication causing death, maternal death or serious morbidity associated with labour or delivery and infant discharged to wrong family. They are all things we knew would create a crisis of public confidence if not handled properly. Yet it took two years to get the Health Ministers of six States and two Territories to agree to collect a simple list of events, to agree to report them. Some States still have not reported. One State is about to report for the fourth time, another for the third time. We will eventually get a national report out of this.

Once we had people accepting that they needed to collect and analyse high level adverse events we said 'these are the features that might be part of an incident monitoring and management system' and the States agreed. Each State is now putting similar systems in place. In NSW, we are now getting 140,000 reports a year and there is similar rapid growth in other places. We are feeding back the results, not as well as we would like, but we are doing it. We are publicly reporting the results and presenting them also at scientific meetings. There are policies in place for the health areas that require the Health Areas to report their high level events - they do not have a choice any more - and the reports go straight to the Minister's computer at the same time as they go to the Department of Health.

There is policy in place now for reporting the high level events. The risk of each of them is identified by the health areas. They have to report the results of their root cause analyses within seventy days, they need to take local action and they need to provide resources for safety. This is now "how we do things around here". It is well accepted and it is stable.

Let me go on the international stage just for a moment. The World Health Organization has the World Alliance for Patient Safety, which is doing a lot of these things too. They are trying to do 'clean care is safe care' across nations where there might be only a few dollars per head, per year, spent on all health care, which makes change difficult. They are developing taxonomy so that across the world we all know what the words mean. They also have what they call the High Fives Program with the Joint Commission. That is similar to the I.H.I. "100,000 lives project". There are also safe surgical team checklists, which are a basis for starting to improve how things are done.

In the not for profit sector, the International Society for Quality in Health Care will meet in Boston between 29 September to 3 October. I have the honour of becoming President of that organisation. We will have around 800 people in Boston. We have had 500 papers offered, though we will present some 300 of them. It's a way of getting a lot of this information out there to delegates who came from as many as 85 countries. We also provide scholarships for people from less well-off countries. We have an international journal and do the accreditation of the accreditors - there is an international accreditation program where countries and accrediting organisations can have their standards accredited. All of this work is going on without much funding, though the Australian Government and the Victorian Government have supported the secretariat of this organisation for the last ten years. The Australian Government's contribution has now stopped so we will be moving the secretariat to the northern hemisphere. Another reason for moving is that the world is actually focusing on two major market segments – Europe and North America. We are getting less involvement and less information down here at the bottom of the Pacific than we ever got before. The internalised thought is going on around Europe and North America, so an international organisation like this does need its international office in the northern hemisphere.

I would like to finish with a poignant quote delivered in 1917 by a man named Ernest Amory Codman, a surgeon in the United States who owned his own hospital. He called it the End Results Hospital because he published end results of care. Ninety years ago he said:
"So I am called eccentric for saying in public that hospitals, if they wish to be sure of improvement, must find out what their results are, must analyse their results to find their strong and weak points, must compare their results with those of other hospitals, must welcome publicity, not only in their successes, but for their errors. Such opinions will not be eccentric a few years hence." Of course such opinions still are and he was "run out of town".

But ladies and gentlemen I will leave it at that. Thank you very much.