TRANSCRIPT OF PROCEEDINGS

THE MEDICO-LEGAL SOCIETY OF VICTORIA

THE ATHENAEUM CLUB

MELBOURNE

FRIDAY 3 MAY 2013

Implementation of e-Health to support Healthcare Reforms

PRESENTED BY: Dr Michael Bainbridge

MERRILL CORPORATION AUSTRALIA
4/190 Queen Street, Melbourne
Telephone: 8628 5555
Facsimile: 9642 5185

MR M. REGOS: Thank you. eHealth applications have been in use in Australia for many years and until recently, little interoperability between the systems and little sharing of data. Last year, a secure electronic record of your medical history, stored and shared in a network of connected systems, was introduced and known as the Personally Controlled Electronically Health Record. This has brought about a lively and healthy discussion of the security, privacy and duty-of-care issues associated with the novel ways of working with what both the new system enables and delivers.

Across the world, there is an increasing realisation that safe, effective and affordable health care can no longer be delivered through business-as-usual and traditional lines. This presentation will explore those issues and the medico-legal challenges facing the professions.

Dr Michael Bainbridge has been a leading figure in clinical infomatics, working for 25 years for governments and industry. He has worked on design and implementation of many health industry systems in the UK. Since 2010, he has been based in Sydney, working for the eHealth Transition Authority as a national lead. The other quirky thing I discovered about him was that in 2008, the readers of the 'EHealth Insider' voted him champion of the year. Maybe he might explain that to us? Please welcome Dr Bainbridge.

DR M. BAINBRIDGE: Thank you for that introduction. Thank you to the organising committee for the privilege of presenting to such an august, learned body. I am going to try to bring some challenges to both the professions

represented here – both the health professions and the legal professions – and try and give you some pointers about how, if we are going to get to health reform and better, more effective, 21st century evidence-based medicine for us as consumers, what will need to happen?

Disclaimer: I have worked for government for long enough to point out that this is a personal view. I am not representing NEHTA tonight. I am not representing any of my old UK people. I do have an academic role in Canada and I work for a small consultancy of four people in Sydney. I worked for the last ten years prior to that on the UK national program. Prior to that I was a family doctor for 25 years, with an interest in building clinical systems, which I actually used in my practice. At one point, I had about 25 per cent of the UK market.

More recently, I also worked on the Continua Alliance, which is an alliance to get telehealth and telecare more interoperable on a global basis, to get vendors to actually deliver better machines that we can actually use at the point of care. I have designed hardware with Intel and Panasonic – we will come up to that. It is a good job I slipped that one in. Yes, I got the award for the champion of the year in 2007. My UK time was spent in the NHS Connecting for Health national programme for IT.

How many of you believe that this was a £12.7 billion, or $15 billion, waste of money? Because that is what the papers say? Yes, lots of you. Yes, well. We spent $10 million on an evaluation. That said, it is widely regarded, and wrongly regarded, as an unmitigated disaster – wrongly regarded. There are lessons in that.

Mukesh and I know, sitting at the sharp end of reform and change, how popular that is with our peers. Some of the lessons I have learned on that program are directly applicable here. Hopefully, as I go through the slides, we can get you to believe me as well.

Health reform – absolutely necessary. We cannot afford not to do it. It is not just your problem in Australia. It is a global problem for all health economies who are practising Western medicine. My medical colleagues will be well aware of some of these data, but just to recap.

We are all getting fatter, over time. Australia has taken the lead by becoming the fastest growing, in weight, population in the world. You are still not quite caught up with the UK, but you are looking good there to catch up. The problem with that is when you get overweight, you need more assistance, you need more interventions medically, therefore you cost more and you therefore do not spend as much time contributing to the economy and you take people from the economy to look after you.

At the same time, we are living longer and we crossed the streams, in 'Ghostbusters' terms. For those of you who remember the film, crossing the streams a bad idea. Same idea here, work force diminishes, more people need looking after. Those are our figures. You are about five years' time shifted to the right. It is about to happen that you are going to have more over 65s than under 16s.

Also, the projected figures, again, I could have got the Australian figures. They are the same. Plausible

supply of clinical people, at best, is this little green line here. Plausible demand is the blue line here, which gives, in the US, nearly a 160,000 shortfall. Again, you have only got to go to South Melbourne here to find shortages in clinical manpower. You haven't got to go out to the bush to find clinical shortages. It is happening here and that is going to dramatically increase over the next 25 years.

Finally, just in case you think you can spend your way out of it easily, this is Eric Dishman, who I worked with at Intel. Projecting forward the American figures and none of us can feel smug, because we are all on this same trajectory, just time-shifted back. The trajectory towards 40 per cent of GDP having to be spent on health is inextricable if we continue to actually try and mechanise the current processes.

The Obama money that has been put into the US health economy, which is about $40 billion, has not changed this trajectory one iota. In fact, it has probably made it worse because they now have this better data to see this rise in the problem. Computerising a current process does not change what I have been talking about there. Working harder? No longer possible. Spending more? Obviously, no longer possible.

We have got to do something different. The something different is going to require much better quality data than any of us have in our systems at the moment. We are doing the equivalent in medicine of running a multibillion-dollar business and we do not have a stock-control system.

The Grattan Institute this week published a fairly sobering paper. I do not know how many of you have actually seen it. But the link is on the slides, which I am sure I will make available to you. The very sobering thing is health expenses are 19 per cent of Australian government expenditure, not the 9 per cent that key people currently say – 19 per cent. More frightening, they grew 74 per cent over the last decade. Therefore, the growth in health expenditure is the biggest challenge for budget – not health, budge – sustainability.

If you look, therefore, the papers have responded in their usual way: Medicare not affordable. We have had the, “Medicare, let’s not fiddle with it.”. That is on top of the new levy which may or may not happen.

Let us just look at some Australian numbers. We spend $16.3 billion on drugs in Australia a year. Nine out of ten Australians, all Australians, take one or more medication on a regular basis. 43 per cent of over-50-year-olds take five-plus medications daily. We do not have a stock control system. We are not really sure in doctor hopping and repeat prescribing as it currently stands, how that is actually working. But it is a number and we need to be careful in mechanising these processes that we actually get some benefits out of it. Information is power, very trite, very commonly said.

Bad data can do harm and it can last for a very long time. $12.7 billion wasted. I know we did not spend it. We gave the money back to Treasury but everyone still believes it was a waste of money. The opportunity cost was lost because our venders in the UK did not deliver what they were contracted to deliver. The contracts were

well-written - they did not get paid. We gave the money back to the Treasury.

Medically, the same thing happens. Andrew Wakefield, a physician in the UK, wrote a paper nearly 20 years ago linking measles, mumps and rubella vaccination with autism and claimed a direct link. This was rebutted by Fiona in the 'BMJ' two years ago now. As a result of that, loads of people did not take their children to be vaccinated. Significant numbers, to the point where we are now in the middle of a measles epidemic, second decade of the 21st century and we have got a measles epidemic in England and people are dying. Despite the 'BMJ' regarding the study as deliberate fraud, coming out and saying it was deliberate fraud we still have a media campaign and we still have companies undermining the measles, mumps and rubella campaign by offering single vaccines. It is causing unnecessary suffering.

On the other side of data, all commercial companies understand it. This is yesterday's 'Financial Review'. Woolworths have just bought a $20 million share in Quantium and they are going be looking at our buying and working out who gets what, and whether or not they should be targeting things that you. FlyBuys is the other lot, but you know what I mean. There will be lots of targeting which they are already thinking about. We do not have that capability anywhere in health. That is the sort of health 1-0-1 primer just to bring us up to what the challenges are.

Reform implies change and we have got some new real chewy challenges which have to be addressed by the professions, clinical and legally as well. Duty of care

came up again. I am pretty sure you would have had to have your head in a bucket not to have heard about this one. Obese patient in Manly won a ruling for $364,000 because his GP did not refer him for surgery to have his stomach stapled so that he would lose weight. He said this was a direct cause of his pancreatic cancer and that the duty of care of his GP was that he should have been referred. That has since been overturned and of course, it will now go to appeal.

That caused an awful lot of very, very worrying discussions about the ePrescribing system that has been in five years in the GP systems. On the back of that ePrescribing is a return-to-GP loop which says, “This prescription has been dispensed.”. The duty of care, anxiety, that came up over that Manly ruling has caused the back channel on the prescribing to be turned off because the duty of care was felt if you did not note that someone had not picked up their prescription and you did not act on it, that would be a liability.

There is an awful lot of professional disquiet about consumer-enter data. Consumers increasingly are champing at the bit to give data and have communications with me, the clinician. This challenge of duty of care is going to be quite difficult because it could stop quite a lot of progress if we are not careful.

Privacy - it is obvious. Clinical data is private and must be very studiously kept private. The current situation in the real world is, perhaps, a little at odds with what we might expect. The boardroom for this hospital is there. Not that the high-ups did not know it was going on. Again, the two people, I have blanked

their faces out, and also the clinic title and the people's names were on the front of these. They were walking towards me with a big smile on their face because a strange doctor was taking pictures of them.

Privacy in the paper world is not as good as we expect. George Clooney, about five years ago, they put a video camera above the notes trolley and suspended 27 staff for having a quick nosy in the records. We are not that good.

Another hands up - do we all know that it is Asia Pacific Privacy Awareness Week? No? It ends tomorrow. Get in there and get some learning in.

We are going to have to work forwards. If we are going to data mine, if we are going to use the data properly in the future, if we are going to gain both research and better audit, then we have got to get personal information in a better state. There is a new law next year, which is going to start being very specific about combining data together so that if you can take anonymsed data one and the data from Coles and the FlyBuys card and put them together and identify people, that is now going to be regarded as private and not acceptable. There is going to be some very interesting discussions. I know that happens quite a lot in commercial world at the moment.

Governance - how do we get control over the information? Who sees what under what circumstance is very, very poorly defined in the paper world. We don't really know. Because apart from George Clooney's notes, we are not sure who is looking at what.

In England it has been a very busy week. Fiona Caldicott produced a seminal report about 10 years ago. There is a new report come out this week, which again is putting into place an audit trail of everyone who accesses your data. This is going to be enshrined in the advice. That is going to be very, very interesting for both software vendors, who are going to have to make their software much more mature than it is currently. It is going to be interesting for medico-legal follow-up because it is going to be much, much easier to see what has gone on.

The Health Secretary has got behind it, and has strengthened their advice, which is not surprising because they paid for the thing in the first place. At the same time, technically, a new anonymisation standard has been produced by the Department of Health and Social Care in the UK and that is all publicly available. Anonymisation which is evidently not breakable - I have not had time to read this because, again, it only came out this week - is going to be absolutely critical in this whole governance piece. Who sees what.

Another big challenge: consumers - us. You and me without our other hats on - active partners. I would like to be an active partner. I want to get to my data. I want to make sure it is correct. I want to make sure any mistakes are corrected. At the same time I would like to contribute. I am the person who has got most interest in my record. I want to be able to tell you about medication. I want to make sure that the St John's Wort I am buying over the counter at Soul Pattinson is not going to harm me. I want to tell you the stuff that

you gave me made me feel horrible. For mums and bubs we have child development.

It would be good and sensible to be able to contribute to that. In our aging and fattening world, again, consumer and carer access to data is going to have to be done well. It is going to have to be done privately.

Sharing care plans. How does the governance of sharing data about your current illness work with a multiplicity of people looking after it? How do we do it safely? How do we do this effectively? How do we do this cost effectively?

We all can become health consumers unexpectedly and quickly. This is me looking at a boat about January last year. About to climb on deck and check that everything was as they said in the advert. That is the x-ray at Saint Vincent's up the road about half an hour later, when I fell off the deck, because, of course, the ladder wasn't long enough. The most expensive taxi ride I have ever taken. $600 for an ambulance.

Moving along. Technology - I'm probably in the guilty party here. We have allowed ourselves to be easy targets in the mechanisation of health. We have not made it easy for normal humans to actually understand what we talk about some of the time. The workflow and usability around some of the offerings that - I will show you - are still there. It is not surprising. We will call it professional resistance. It has normally got more right words in it when you talk to people.

Here we are, from the age of a couple of years ago, a journalist took his son in for a scan. He found that

the staff were jumping through hoops, copying patient files on to a USB key, moving it from machine to machine, rekeying information, or managing the waiting room so they put repeat visitors on the same machine. The risk of wrong data/wrong patient, losing data, privacy issues and the insane workflow means that was an implementation which should never have been allowed to happen. But it is by no means unique.

20 years ago, hardware was a problem. I got away with it as a GP because you could put a commodity item on my desk. People would come to see me. I would use that system at the desk and it would work. Of course, it does not work for community nursing, it does not work for occupational therapy, it does not work in hospitals.

How can we move away from - this is what I used to be accused of by my districts nurses. They gave me this when I was trying to get them to do data entry out there in the real world. When I started, it was a luggable, it was not a portable computer. It did not have a battery. It was, “Hello, I am the doctor. Where is the plug?” Does not go down well. Five years later, “Hello, I am the doctor. Have you got one of those new ports for your telephone so I can plug in with my modem?”. Does not go down well. Then, “Hello, I am the doctor. Ah - I cannot see your records because there is no 3G signal down in this dip.”. Again, does not go down well.

There are some messages there for Mr Conroy, there is messages there for telehealth, about how, if we are sure we want to move care into the community, which again you hear all the time, we need to do it properly and the mobility issues of are significant.

I designed some hardware. If you swab keyboards in hospitals, you grow all sorts of things that are not nice. There was a 'How dirty is your QWERTY?' campaign. I did not do the coms. But this one had some interesting and unintended effects. It is the little light which just goes off after an hour and a half which says, "Please clean me." There are censors in the keyboard, which when you wipe it and push with a wet towel, and it is an alcohol swab, it actually gets the light to go off. The other unintended issue, you have got an alcohol swab in your hand so you clean your hands. It increased hand washing by 70 per cent. It was unintended but it was interesting.

Mobile hardware I will talk about in a minute, but again, it is just interesting to see that. Again, on an intensive care ward, if you take the lid off the computer and you put a swap into the fan area and all the fluff, you grow Klebsiella, Pseudomonas and Staph aureus. For the lawyers, you don't want that. Not at all.

There is a fan here. Every time you knock it, it gets blown out into the ward as well. When you lift it up and have a look underneath, it is not terribly good either. It is nobody's problem. It is not the nurse's problem because it is a computer. It is not the cleaner's problem because it is a computer. It doesn't get cleaned underneath. What we actually said was on the wards you have got to have machines like that. It has got to be a straight cable, not a curly cable, because you cannot clean curly cables, et cetera.

Mobility in hospitals brings new challenges because it is a reasonably intense environment. I know we all

say, “Ah, but the iPad is really much more sexy. I’d like that.” Does anybody want me to pour a bit of wine on their iPad or throw it down the stairs? No, it is a drop-once device. Whereas, these are ruggedised and available.

The problem is the software. The software on here is much more flexible than the software that goes on the better hardware, the hardware with better privacy, the hardware that has better encryption on the networks, but the software is not very good. There is less take-up of those more clinicians wanting to carry those around on the wards - despite the fact that you cannot clean that but you can clean that. Another challenge. It affects law just as it affects medicine. Paper is not fit for the purposes we are trying to make of it in the 21st century.

One doctor, one morning, diabetic clinic. On the left-hand side, one doctor, diabetes guidelines local and national, not - I have not cheated, that is not included in the online references. That is the state that we are trying to achieve. Probably, if you remember anything, this is the one to do - current medical practice relies heavily on the unaided mind to recall a great deal of detailed knowledge. A process which is coyly described as to the detriment of stakeholders. The unaided mind is trying to read and internalise and act on that given this as the stratum on which you are trying to convey things.

When I went to medical school, I maybe improved my knowledge-processing capacity a little bit by going to medical school. It has probably dropped back down now because I am an IT boy. Over the years, the knowledge-

processing requirement as evinced by the stack on the right there has inexorably increased. It has doubled every three years or trebled every two, I cannot remember what. But it has gone exponential.

At some point medicine, even for a super specialist, becomes unknowable. For a GP, I would assert that would be around 1950. But we have not actually changed dramatically in our educational processes or the way we are trying to help clinicians at that sharp end. That detriment harms me.

Because I want, as a consumer, 21st century, affordable, evidence-based Martini medicine, for those of you old enough to remember the advert, “Any time, any place, anywhere which is appropriate to my needs.”. I don’t want to be harmed in that process, thank you very much. If at all possible, could you do some prevention as well intervene when I am ill? We have known about that since this was published in – I can’t remember? 1991, I think. It is not on there. 1971.

VIDEO: “A doctor has to be a guidance system. He is not an oracle that knows the answers. Once he has accepted the concept of being a guidance system, then he knows the data system is the basis from which all his works must take place. And then the record suddenly becomes an unbelievably important document in education, in care, and in research.

But as long as we were profession that thought we could rest on the memory, and if what you know makes a difference instead of what you do, and as long as we thought of doctors as (inaudible) answers instead of guidance systems in different situations, we were willing

to let the record of American medicine talk for itself. Now the computer people will move in, and the Medicare people will move in and the non-medical people will move in, they can hardly believe what they see."

DR BAINBRIDGE: They can hardly believe what see in 1971. But we haven't actually changed the basic paradigm of record-keeping in medicine since then and probably since the 20 years before then. The big folder, whether it is a medical folder or a whether it is a legal folder, I am sure it exists like that, how can we assert completeness? How can we assert being on the right care pathway? Badly implemented clinical systems, electronically, produce you exactly the same problem. In fact, probably a worse problem. Because the printout will be less accessible than the vaguely structured stuff in there, in the paper stuff.

Again, that was Larry Weed on the video. I had to get some two-inch videotape transcribed, which was quite an interesting journey in itself. And much cheaper to do it in England than it is here, by the way.

"The organisation, the medical register should be a matter of immediate concern. Developments are far more advanced and immediately applicable and it is neither premature nor impractical to engage with that.". 1968.

We have known about the problem for a long time. We have allowed the technology - as I said, guilty - to do technology stuff between data bases. Lovely. Beautiful. Technically excellent. You can get data out of one database and put it in another database. You can have lots of acronyms and it is all wonderful. The problem is the interoperability is between doctor over here and

doctor over there. The fact that we have not engaged in some definitions of these basic pieces.

When I say, “current medication,” and I am an anaesthetist, I have a very different idea – because it is probably the next 30 seconds – to a GP, who is probably thinking about the last two years. How do we contemplate sharing information when basic definitions and professional standards for the sharing of these data have not been put in place? A big challenge there.

We are going to use technology at the point of care. We will only get it used when it improves my workflow and brings safety. It is only acceptable if it is usable. Here is a good example. Here is a currently-in-use system. If I look at medication. Prescriptions (1). Drug history (2). Fluids (3). Drug chart (4). There is one down here, allergies (5). There is other allergies up there at the top. I have got to look in at least five places before I have got some hope of finding all the medication that is on the computer. Is that all the medication they are on? I don’t know. So I have probably got to go through the paper record as well. The other thing, there are four different date formats.

It all increases the cognitive load that a clinician is being put under. It is hard enough talking to patient and trying to remember all the other bits and pieces without having to try to work out which way is the date, and what does it mean?

This safety-critical nature has not hit industry yet. These were slides that the Design Council, we worked with the Design Council in the UK, about getting the message across. It is safety-critical. It is risk

and it is very important. Just another example. Current clinical system in the UK. At least there are only two date formats on this page but three horizontal scroll bars. Trying to work out where the data is and what you are not seeing is mega difficult. It would be very tricky to achieve.

Surprisingly, Hambert yesterday said, "Nope, we are not going to use that anymore." That is a system which has cost billions to produce. It is a new system. Because they have not paid attention to basics, it is going to be turned off. At the point where the users start screaming at the vendors, I usually get brought in.

I get brought in when we are at beta test, at best, or we have just released it and everybody hates it. And they say, "Can you make it prettier? Can you do colours and layout and make people love it?" I keep telling them that is the equivalent of putting lipstick on a pig. You can do it and you can make a basic change, but the changes that are needed are way back at original design.

This is a slightly better system where you can see that you are dragged up here to the top left-hand corner. You know you are dealing with Gloria. You are dragged down to some secondary detail. You are dragged over here to look at some penicillin and you are dragged down here to look at the problem list. We have still got medication which is in different formats. We are still using Latin within the dose. I know not many people learn Latin here and I do not think many go on to do medicine after it. The difference between TID and TDS is significant, but not known. Why are we using Latin in the second decade of the 21st century?

The same goes for designing everything. Medication packaging - this happens frequently. I have had prescriptions here already that do this. They either paper over the barcode or paper over the instructions. How can you design it? So we have to go to the manufacturers and say, “Do not do that, do this.” They have got advertising budgets based in the tens of millions. They ought to be able to get basic usability.

The same for putting stuff on screen. I have had to write down in nth-degree detail a lot of this stuff, which is now just publicly available. Very simple stuff. Do not abbreviate the item name. Do not truncate. Avoid wrapping it. Separate the dose by two spaces. Sometimes you get an L which looks like a one. All of that sort of stuff is being written down and beginning to seep into clinical system design. Getting that into clinical system design is going to be interesting.

Back at the sharp end in clinical practice, some of our colleagues are going to need help. Basic putting the monitor somewhere where it does not interfere with the doctor/patient relationship. When I was going into practices and actually looking around - these are real rooms. They are not the real people. Because it is Glyn Hayes and myself when we were going around and looking at installations. We used to have a lot of fun working out what the hell went on in those practices.

Again, is that the right model? It was certainly radical when I took the picture in 1988 and had to get them scanned in off slides. Which again, just shows you - used to be able to turn up to a presentation with a box of slides. Half of them were upside down, but that was

part of the fun. That is where we got to.

This triadic relationship in 1988 was what we thought was going to be important. You have got the patient, you have got the clinician, you have got the computer. They are all going to do different things. We projected forward by 2012 the network would be more in the middle and the patients would be doing self-learning on they were TV. We did not dream that computers would be so pervasive so quickly. There is my slide from 1988 with the three-way working. This is YouTube, on the Internet. Physician exam room etiquette. Again, just what goes around eventually comes around.

It is important because we are not going to get to that quality data that drives the system and drives our stock control and drives our safety and drives our research unless we get evidence in there. This was some waggert, we had a GP strike for a day a few years ago. Some wag put that up. But the change is inexorable. We have got to do it. It has got to be done professionally. The technology is not the limiting step. I have done the propeller head for the last 20 years so that other people do not have to. I am over feeling guilty for the lack of standards in the workplace. We have got to do that. This need not be complex stuff.

I ran a change management programme from 1998 to about 2004. We had about 9,500 practices providing data in a standardised way across the UK. 600 facilitators working with them - well, it was business process reengineering. We did not dare tell them it was business process re-engineering but that is what it was.

We went in and we got them to run a report on how

many people with a diagnosis of ischemic heart disease do you treat with statins? You are supposed to do that. It is a good thing to do. We got the blue line. We then discussed the number with the practice - difficulty in recruiting, getting to the patients, stuff about diagnosis. Very light touch, but just got them to think about the data, the data items, the linkage of the data items and then we ran the report six months later. You can see dramatically how things have changed and how the data quality has risen.

There is a few down the bottom here where version two of the data extraction system did not work. Down here at the real rump, some of the people said, “No, I am not dealing with that,” and opted out. But generally, very simple intervention. “This is your data. You are here.”, can bring some very dramatic changes.

That has now developed into a series of dashboards, which are in use across general practice in the UK, where you can look at your people with irregular heart and look at their risk score and the risk of having a stroke, in this case. This is a small practice with 5,342 people. 84 people with atrial fibrillation, the people with high risk. The people on high risk should be on Warfarin. In this practice they are not. This means there is going to be three strokes. People with atrial fibrillation have nasty strokes which are devastating for the patient.

So you can start looking and working out - because you can click through this: there is the list of people, there is the telephone numbers, there is the address, let’s go out and get them.

If we cannot do these very basic things in clinical

care, how are we going to get to the next bit? Personalisation and precision are the two big, big buzz words going around at the moment. This is a designer drug from Pfizer, which is an anticancer drug, but it is only suitable to people with certain genetic make-up. How do we find those people early? We need better information. We need better stock control.

How, when I get my lab results, can I get something that means something to me? Rather than something that looks like it has been printed on a golf-ball typewriter from some time in the 1960s. Your risk is 15per cent. That means something to me. This is just bringing a standard cardiac workup to a graphic designer from 'Wired' magazine and just saying, "Do something better with it." They just knocked that up very quickly. Why can't we have that in medicine? The reason is we don't ask for it. We ask for paper processes to be mechanised on the screen.

If we are going to get reform in health, supporting practices and making the change happen close to the practice is going to be important. Definitions, coding tools, interoperability, data quality - all absolutely necessary. Security, private, governance are those joining bits up. Duty of care being a big problem in the close future as we work out what it means, because the change will involve changes in that duty of care. Research, iterative, and get it all right. For time, I will jump over that.

We will have to change things and we are going to have to get flexibility into this as we move care out of hospitals, where it is infectious and unaffordable, and

move power and commitment from out of the hospitals and out of skilled and expensive workers to you and me, the citizen.

Gaining wisdom of crowds, big data. Again, big buzz words at the moment but big data with the changes in the privacy laws are going to be quite complex because big data is about bringing big datasets together and making inferences, which is the thing that might have just become illegal in that new act. You are going to have to tell me. Consumer-facing technology, consumer-facing information. If we do not do it, patients are going to do it anyway. Dr Google is a very good source of information for all of us. It will continue to be so.

We have got to be very clear in the near future. We have got to be very clear about what we are attempting and how we bite things off because it is going to be essential to do this very soon. We cannot wait 20 years, because if we do we are going to have to get rid of the navy or get rid of the army or stop child benefits. We are going to do something because 40per cent of GDP will be reached. The value proposition to me, the consumer, and the clinician is going to have to be very clear. The information age is accelerating this.

We have got to balance a number of risks very carefully. Because divulging information to the wrong person will be devastating and will happen. We have got to work out how we deal with that.

As I said, it is almost too late. We should have been doing this since 1971 when very bright people almost got themselves lynched in the Mayo Clinic by going down on videotape and saying that doctors were not doing a

good job. It is interesting when you get into it and when you have got good software to deal with your patients, it does make a difference.

The clinical leadership role again, as Mukesh knows, is very rocky but vital. Technologists cannot deal with this, cannot lead this. It is up to us, the professions, to work together on those chewy problems I showed you earlier. The modularity and interoperability of the systems will have to be there more explicitly. Because if it is not, we get isolated islands, we get duplication of data, we get errors in transcription.

Do not forget, you are part of the solution to a global problem. Some of the PCHR work that is currently going on is world first, world beating. You do not get that from the papers. As I started off, don't believe everything you read in the papers.

VIDEO: "Working really closely with our wonderful clinicians and front-line nursing staff. They know what the problems are. They know their patients. They get excited about their stuff when they have a chance. So if you work with them to solve the problems, I think we'll get the breakthroughs, even faster.

But this is urgent. We've got an aging population, now. We've got health services all around the world running out of money, now. So we need to tackle this problem. There isn't anybody else who is going to solve it for us. But together, we can do it."

DR BAINBRIDGE: So that was two secretaries of state ago. Just to conclude, back in the Middle Ages morbidity and mortality - death and illness - were dealt randomly by a blindfolded lady throwing arrows. Where the arrows hit

either killed you or caused you illness. That was the view of illness. In the 21st century, we have drug charts, where an unknown doctor prescribed an unknown medicine on an unknown date. We know that it went in the mouth, because it is in Latin. An unknown nurse did something in the morning, which might have been to do with three? I am not sure we are doing much better.

Let us take counsel from Elizabeth Blackwell. Elizabeth Blackwell was the first UK woman physician, "We are not tinkers who merely patch and mend what is broken. We must be watchmen, guardians of the life and the health of the generation so that stronger and more able generations may come after.". That is the challenge for both professions, I think, tonight.

My mentor, Samura Grey, is somewhat more blunt about it. He tells me I must put this up in every presentation I do. It is unethical to carry on doing what we are currently doing when we know there are better examples of how to achieve better healthcare, better 21st century care, better evidence, better safety, better privacy, any time, any place, anywhere. Thank you for your attention. I hope it has been a useful talk. Thank you.

MR REGOS: We did not explain why he had been voted champion of the year but I think he well and truly demonstrated it. He has expressed a willingness to take questions so if we have any, we will take a few.

SPEAKER FROM THE FLOOR: Thank you for an excellent talk. What has always puzzled me is how is it going to change me.

DR BAINBRIDGE: Chatham House Rules just came up with (indistinct). Management consultants will always tell you that you are going to get a tax release and benefit

from doing IT. If only you did IT more (indistinct) and a certain supplier has sold that message here. Two years ago in the UK and it has also been sold in Canada (indistinct) bobbing up. What needs to happen to not say much and not to go and cut health budgets, but what we are going to do is reduce the amounts of increase. Push it down. That is about changing the delivery model. It is about using extra resource. We cannot grow more resources per capita. We have got as many as possible to derive for the population. We cannot import other people's because we have worked out they all have the same problem. (indistinct).

There is one resource left. That is you and me. We, the consumers, have got to be given much more structured ways of interacting with doctors. We have got to move care out of hospitals. We have got to forget this 16th century paradigm that you go to a place with bricks and mortars and you become a passive person where people do things to you. We have got to move out and the clinicians have to be able to interact with you in different ways. That is the mobility issue, that is the consumers (indistinct) and all of those things have got to happen

Now there are good examples in places like Veterans Association in America. Adam Darkins is the medical director there. Has shown 19 per cent reductions in admissions. That is the sort of thing that really does change things.

By simple interventions, like grading people with a heart failure once again and electronically relaying that back to a nurse, whose job is to look at that. If they

are in heart failure (indistinct) they can actually intervene by picking up the telephone. How you feeling? Are you taking those? Or something which matters more. But it has not got to the point where there are any crashing failures and they arrive in an expensive ambulance in A & E and they are then in intensive care for a week and it is into the tens of thousands of dollars. Thinking differently about the same problem and thinking away from the current models, to remove people – to get them to drive four hours to a clinic to say, "Are you still taking drugs?" "Yes, Doctor." "Keep taking the tablets. Fine, go home.", and it is how we get better results.

MR REGOS: We will take one more question. Your hand came up first.

SPEAKER FROM THE FLOOR: Thanks a fantastic presentation with plenty of food for thought. We are currently in a state where we can't even get a train ticket system right. What we have been discussing, and what you have presented, is infinitely more complex. My question is – that is great, but?

DR BAINBRIDGE: Yes, small acorns, big oak trees. We have got live, 120,000 people on the domestic NHR. We have got several thousand (indistinct) clinicians (inaudible). That is a personal record, the start. It is pretext, it is documents currently, it has got theFacility Corp. coding and much more active involvement. But again we have to start somewhere with getting data and the paradigm shift. Getting to GP systems and hospital systems to at least start sharing documents is the start of that work.

The trick - you are right - is the clinical leadership that I alluded to. We have got to keep snapping at the heels of the vendors to deliver more functionality, better functionality, in a step -wise fashion because if we do not define this, and we do not make sure the legal framework, the privacy framework, the government framework is also in place we won't get (indistinct).

SPEAKER FROM THE FLOOR: They have tried to do this in various hospitals both public and private and guess what - it does not work?

DR BAINBRIDGE: Hospitals, I think are more difficult than primary care, aged care and (indistinct) that is my experience.

SPEAKER FROM THE FLOOR: So (indistinct) medicine are more specialised, so you need more communication. That is where technology can help. But unless the professional who works that out and how they get it to work, technology will not help.

DR BAINBRIDGE: Those examples were hospital systems. (Indistinct) the medication. We as clinicians have to say, “Come on, that is just bonkers.” But we have not, as a professional body, the UK does. What we have done in the UK is without constituted anoverarching body, across all guilds, all trades, all colleges whose job is to mediate professional standards or records across everything. When I say ‘allergy’ we can now understand it is something to do with your immune system.

SPEAKER FROM THE FLOOR: Do you think that technology can actually help?

DR BAINBRIDGE: Yes.

SPEAKER FROM THE FLOOR: Because it reminded me that the technology is trying to correct that.

DR BAINBRIDGE: We are noticing that. Now for shortcuts, (indistinct).

MR REGOS: Thank you very much, doctor. May I call upon committee member Magda Simonis to deliver the vote of thanks. Thank you.

DR M SIMONIS: Michael, I just want to say a very big thank you for attending this evening, delivering such a tremendous presentation that has informed us about the complexity of the problem that we face, really, as a society and as a global community but also about the importance of having clinical leads informing organisations such as NEHTA and that discussion between the technology world and the medical world is really paramount. I really think that one of the comments you made that reform requires change and if we continue doing things as we do, well, we are just doing it wrongly.

Perhaps harnessing also, the potential for the individual, the consumer, who is now currently starting to look at their own health differently, especially in different socioeconomic groups where they are starting to think more about prevention of their own healthcare and downloading applications.

Maybe we can also look at including in the model some sort of incentive for individuals to self-manage rather than putting the onus on the government and on the taxpayer. Thank you very much, Michael.

- - -