



**NATIONAL INSTITUTE  
OF CLINICAL STUDIES**

**Dave Davis – Getting a grip on Guidelines  
Presentation Transcript**

© Dave Davis 2004

**Slide 1**

Thank you very much, Heather, I'm very pleased to be here today. I want to thank the audience for attending, it's a particularly lovely day. At home it's probably plus 2 degrees and here you have an option to enjoy your Spring, and instead you're crowded in a hotel room like this, so thank you for coming. Thank you also to my hosts, NICS have been wonderful hosts. I'll thank them all individually later, but collectively they've been a great group. I've come actually to learn – to share some slides, but I think in large part to learn, and so in the talks that I've given and the workshops in which I've been a part, I've learned far more than I've shared, so I anticipate that will be the case today.

My apologies to those of you – there are three or four people in the audience who have heard this before, almost to the slide, so my apologies. I tried to change one or two slides so it wouldn't be quite the same for you. And the last thing to say before I start is this is meant to be informal, so what I'm going to do is stand down – if you can hear me all right and see me all right, I'm going to stand down here and use the laptop from here, because there's nothing worse than pretending that you're the professor from afar who knows everything. And you'll hear in due course that there's some evidence in fact that says that didactic lecture didn't work to change behaviour, so maybe it's time that we walked the walk as they say in health promotion.

**Slide 2**

Now you may not like the title "Getting a grip on guidelines". My wife looked at it this morning and thought it didn't exemplify anything to her, so I said well maybe we could do these sorts of things. If you don't like that title, how about – hands up who likes this one at the end. I've got four, you can choose four, you have one choice. Translating guidelines into practice. Putting guidelines in place, or some of us might say in their place, like evidence based managers. Using evidence based educational principles to help clinicians put evidence into practice, that's a mouthful. How about this one: knowledge translation. I hope at the end of the time we can play with this concept, which you've all thought about, perhaps not with this terminology, is it an old concept, but some new tools, and does it give us a better effect, I don't know. Or, it's probably 35 minutes of exquisite boredom for those of you who've been dragged out here today, but lots of room for questions, and I hope that by saying it this way, in fact, it will happen this way.

### **Slide 3**

Heather in her kind introduction suggested that there were two areas that have been spawned by my time at the University of Toronto, where continuing education is my major kind of portfolio. One of them is the Knowledge Translation Program, which is a fairly large, \$5 million a year research intensive group of core researchers and some, probably 35 or 40 researchers interested in the notion of broadly defined educational interventions and do they work or do they not, so that's the research side of the house. Below it is the Guidelines Advisory Committee, funded by the Ministry of Health at about a tenth that value, which is the Guidelines Advisory Committee. In due course I'll tell you a little bit more about that, and if you have some questions I haven't answered, I'll answer them at the end.

### **Slide 4**

This is objectives and questions, I'll just put these all up and I'll ask us to think about them. First of all, what's the evidence for a clinical care gap? Most of us in continuing education for generations have looked at the delivery of continuing education kind of from here, from the podium, from the deliverer of continuing education. I'd like us to start at the other end and say in care, clinical care, what is the evidence for a clinical care gap? Why does such a gap exist? We'll talk a little bit about the evidence for this gap, the problems with the physician, the healthcare system, the evidence itself.

Next thing I'm going to ask the question, and I think you might surmise the answer already, have we failed in CME and in the guideline movement and in translating knowledge into practice? And then the last question for all of us I guess is, so what? I mean so what does this mean for us in healthcare systems today? Implications for the product we create in medical schools and recalling the product when it's flawed in some way, and when the service delivery system doesn't work well. And lastly I'd like us to think about what are the implications for us here today, in this room. What might we wish to talk about.

### **Slide 5**

I'm going to start with a very sad story. You can see immediately it's a sad story. This is Vanessa Young. This is a young woman whom I did not know, who lived and died in a community near to the one that I began my practice life in 30 plus years ago. In 1998 she presented to her family physician – her mother actually took her to the family physician to say she doesn't eat. Family physicians like myself and others frequently hear that complaint from mums of their daughters. She was diagnosed with early satiety, by which it was meant that she would have one or two bites of a meal and that was it, felt full. The doctor of course examined her, and prescribed a medication called cisapride – are you familiar with cisapride? Most of you in the audience are familiar with the story of cisapride as well. And she did very well. She was also referred to a child psychiatrist at the same time, which I thought was excellent, and – it was a she – she concurred with both the diagnosis and the management, with excellent results. Vanessa gained weight, returned to school, did extremely well.

I'm going to take you back in time, 15 years ago or 14 years ago, to 1990, when at least in Canada, at least in North America, cisapride was launched. I think it was called Prepulsid, I can't remember what it was called here. It was a huge launch, quite typical of all drug companies and their launches. All the bells and whistles, the big ads in the journals, the continuing education events, and the opinion leaders, the GI, the child psychiatrists being flown away to Jamaica for a conference, all expenses paid, and then

come back to disseminate the information. The drug reps knocking on family physicians' doors, all the bells and whistles. I've just enumerated five or six ways of communication. But watch this.

In 1992, the first diagnosis of cardiac arrhythmia occurred, one a fatal one. It happened that the individual was on metronidazole, and so for a little while the drug warnings just said don't prescribe metronidazole with cisapride. Slowly over a period of six years the medications were added to that. But look how they were disseminated, these drug warnings. They were all by drug company bulletins, or by the national health agency. Fairly dense text. In the drug company's situation, the text – I was a witness at the inquest – the text was such that buried about page 16 in a fairly thick document were the warnings. I'm sure they were in bold print, but they were buried on page 16, all via print materials, compared to the bells and whistles aspect at the top.

One night in the Spring of 2000 Vanessa left her dinner, went upstairs to do her homework, and died on the stairs.

As I said, I attended the inquest in 2001. It was quite moving, in fact I cancelled a clinic in order that I stay on to watch the family physician and the paediatrician – I'm sorry, the child psychiatrist, to watch the family interact. And I heard the family physician say this, and I could identify both with the words and with him, because he said keeping up with the information overload overwhelmed him, it was like an avalanche. He described something on his desk of materials all recent, two months or so, but he hadn't had a chance to read through it all. And as we know at least in Canada, North America, the medication was pulled. Not as a result just of this death, but of others. So I'd like you to remember that, remember the notion of information overload, how physicians can keep up, because it's not just an item of unhappiness, not just an item of it's unpleasant to think about this, this is a real case that I wanted to share with you.

### **Slide 6**

I'm going to continue the conversation with you, and I hope you feel it's more a conversation than a didactic talk, in five different blocks. I'm going to provide some definitions so at least we're on the same ground talking about things. I'm going to talk a little bit about the care gap. I'm going to talk about the causes of the gap, at least as I see them, and I'd like you to make some notes to kind of push us all a little bit to say are there more causes for this gap. And lastly some possible solutions, both the research implications and some practical applications. This is knowing when to nap, so just about the time when we talk about solutions, that's the time to wake up, so that's a good thing for you to know.

### **Slide 7**

Definitions. So this phrase has hit the Canadian scene fairly heavily, and is increasingly being picked up in the UK and the US, of something called knowledge translation. You can equally say guideline implantation I think, but the broader field probably is:

...the effective and timely incorporation of evidence-based information into the practices of health professionals in such a way as to effect optimal healthcare outcomes and maximise the potential of the system.

So I'd like to just highlight for you some of the phrases here that particularly resonate with me. Effective and timely, so often our guideline implementation strategies are

ineffective or not timely. If you think of Vanessa's case, for example, it's the timeliness of the warnings that need – and the effectiveness of the warnings, I expect, that we needed to think about. And in continuing education we've been quite satisfied if physicians particularly, and all health professionals, leave a room like this and know something more, so we think we've done our job. In fact it isn't enough to know, it's probably necessary but not sufficient, to have new knowledge, but rather effecting optimal healthcare outcomes and maximising the potential of the healthcare system implies changing performance on the part of healthcare practitioners, not, as you know, an easy chore.

### **Slide 8**

I'd also like to share with you the notion of diffusion, dissemination and implementation, just to highlight for you that the natural, unaided process of A talking to B, B talking to C, C happened to read something and conversing with D about it, that natural diffusion is not what we're talking about here. Nor is the more active dissemination, the more active communication. It is in fact implementation, which is putting evidence or a guideline into place, which involves effective communication, and this key piece, overcoming barriers by administrative and educational techniques. That's after Jonathan Lomas in Canada.

### **Slide 9**

Just to share with you some ideas about continuing education, if we asked most physicians in a room, at least physicians in a room, what do they mean by CME, they describe something like this. They describe a Holiday Inn sort of, or cruise ship experience, don't they, with all the seats going one way. When in fact the American Medical Association, not the Australian, but the American Medical Association, 30 plus years ago said it's any and all ways by which physicians learn and change. So I've just put – because I was developing new skills, putting little pictures into my PowerPoint slides, so I thought I'd have fun with this. So it is courses, mailed materials, peers, consultants, reminders, patient education. If this were a workshop and I had some butcher paper – we call them flipcharts at homes, so if the flipchart was up we could spend an hour and a half writing down all the ways in which health professionals learn and change, and they're just a few of them there.

### **Slide 10**

We also use in North America and the UK, and here we use the term continuing professional development. It's a little different – my colleagues and I wrote a book for the American Medical Association, published last year, called the Continuing Professional Development of Physicians, and there we point out that it's probably broader than the narrower definition or common definition of CME. It permits consideration of non-clinical topic areas like, for example, practice management, not that CME can't, but that CME hasn't at least done that. It allows for a broader range of methods, and more importantly, probably most importantly, it's adult learner centred. In the midst of all the guideline implementation stuff, I think we can't forget that there's adult learners, there's adults at the end of it. Health practitioners are autonomous, rational intelligent decision makers, and that we need to bear some responsibility to them, and in our communication with them understand at least the practice.

### **Slide 11**

I like this cartoon. It's to do with information overload. You've heard lots of examples, including the family doctor who looked after Ms Young. We have only to empty it once a

month, this very large mailbox. We have a number of slides about information overload, I expect that we all do between us.

### **Slide 12**

And here's just a pictorial description of the clinical care gap. I'm a family physician as you learned earlier, and I was just reflecting at one of the last talks I gave in the last few days about a diabetes patient whom I saw, whom I hadn't seen in a month or so. Haemoglobin a1C was on the high side the last time I saw her, her blood pressure was a little bit high, and my intention when I walked in the room was to see if we could work on both those things, get her exercising a little bit. But her husband had died of lung cancer and her son had just begun to smoke. And her issue that day was how could she convince this teenage young man not to smoke in the face of his dad's death. So there went the diabetes visit, there went – whatever else I had to do was done sort of peremptorily. And that's an example I think for all of us as practitioners of the sort of thing that can happen to us.

### **Slide 13**

Chassin's 1998 seminal article I think is really useful to read because it kind of sets the stage for us. There are tons of examples in Ontario...

### **Slide 14**

...and beyond. So on the left hand side I've picked just some examples from a world wide literature search, some of them six or eight years old, but treating with antibiotics pharyngitis, otitis media, bronchitis, when there probably isn't any need. If we had a longer time here we could debate the issue of prostate specific antigen screening in a well population with a not so great sensitivity and specificity. How about mammography for low risk women aged 40 to 50. We're probably doing lots of overuse, and again you probably have lots of thoughts about that.

In Ontario there's lots of overuse: hysterectomies, repeat Caesarean sections, modified radical mastectomy, routine pre-op chest x-rays, routine q6-12 month echocardiograms, and sleep studies. There's a new disorder in Ontario, acute remunerative sleep disorder. So you probably – hands up here anybody a respirologist with a sleep lab?

### **Slide 15**

Underuse. Lots of examples. When I showed that first slide to the Ministry of Health people whom I work for, they get all excited, and you could almost see them rubbing their hands – they tried very hard not to, because they're quite professional, but you could almost see them, "all the money we're going to save". Then I showed them this slide, which is only a tiny example of all the underuse, and they – they don't groan exactly. So do we do enough Pap smears? Of course we don't. Do we treat enough congestive heart failure with ACE inhibitors? How do we treat our post MI patients, despite really good efforts at the discharge phase to make sure they get on lipid lowering agents, aspirin, beta blockers, often they come back to the family doctor or general internist without those medications. Atrial fib and anticoagulation. And misuse: beta blockers, tricyclic antidepressants in the presence of cardiac arrhythmia, cisapride knowing what we know today.

### **Slide 16**

So what causes the gap? You've defined it in your own way, and there is no right or wrong way to define it, but I could only find four blocks in a puzzle in the PowerPoint

slides, so I thought I'll go with that. I'll think – I'll see if I can compress all the things that I think cause the gap, or that I've been able to discern from reading the literature that cause the gap, into four areas, and we'll talk a little bit about each of them.

The first is the clinician himself, herself, at the bedside, in the emergency department, the nurse, the doc. The next is the evidence itself or the guideline. We've already described to you the Federal drug warnings, or the drug company warnings, how dense they were. The third element on the right hand side is the education delivery system. It's a misnomer I think to call it that, because it certainly doesn't deliver and it isn't a system, at least the pieces that I'm responsible for are clearly not a system in Ontario.

And lastly, the biggest one, and I moved it somewhere to the side, partly so we can see it better, partly because I don't know that we can perturb it very much, but we need to think about the healthcare system itself, the patient in all of this, and how we're funded, where we work, how we communicate, information technology and all those sorts of things. I'll walk us through each of them. You may disagree with the clustering, but I think it's a useful paradigm for us to explore.

### **Slide 17**

What are the problems of the learner-clinician? Well age, experience, time. On one of our workshops in the last few days, I forget where, someone said, "you know, guidelines change". I mean I've been in practice 30 years and I've seen guidelines for circumcision coming and going, for example, in family medicine, paediatrics, so what should I do about that? I think that's a legitimate complaint, and we'll talk a little bit more about time.

There are disincentives and incentives, and if you think about at least how physicians today are trained, although we're better at training than we were, the emphasis is still on knowledge and not on the management of knowledge. It's still on – we all start from this slate where we all need to know something. We don't define how we need to know something. I had a clerk, clinical clerk visit me a couple of months ago, he was with us for a month, and I was his preceptor for the month, and I said to him, "so what are your learning objectives?" Sorry, I said, "what are your learning needs here?" And he gave me this big blank stare. And I said, "so what are your objectives?" He had learned the phrase in medical school learning objectives. He muttered something, not quite incoherent, but kind of general like, "I'd like to become a better practitioner," or something like that. Nobody had taught him to be very specific about, "you know that cardiac examination I did on the last patient, I missed the mitral stenosis murmur, I got the other things, I got the arrhythmia – that's a need. I need to know more about murmur". We don't – at least in the University of Toronto system, you folks might be better, we aren't training our students to be much more critical about their learning needs. Self-directed learning is a piece of that, and critical appraisal.

On the other side is the type of practice. We know that solo physicians, for a variety of reasons, tend to drift into discompetence at a greater rate than those that practise in groups. Competencies, those are abilities, knowledge and skills for example, of physicians and others. Motivation to change. Too narrow a definition of the "learner", I'll come back to that at the end.

Lastly is the learning cycle. So think of the last thing that you learned about. It was sort of – particularly a guideline – it was awareness that the guideline existed. Secondly it was agreement with the guideline. Thirdly it was the adoption of the guideline, by which

we mean talking about it, thinking about it, reading through it, talking to colleagues about it, for example. And lastly adhering to the guideline, which means in every instance where it's applicable. So I'll come back and I'll talk about that learning cycle, that adoption cycle, as well.

### **Slide 18**

I love this cartoon. This says No Time. "No, Thursday's out, how about never? Is never good for you?" I like that.

### **Slide 19**

My kids think I remind them of David Letterman, so because my kids – I have no gap – I don't make the money that David Letterman does, I have no gap in my teeth, but for some reason they do, and I'm a Dave I guess. So here goes. Here are 10 reasons, when you ask physicians in, for example, focus groups or structured interviews, what do you think about guidelines, do you adopt guidelines or not, what do you think about them, here are the 10 reasons for not buying into clinical practice guidelines.

They change all the time. So we already talked a little bit about that.

Guidelines, what guidelines, which gets at the question of awareness of guidelines.

I'm too busy to adopt all this new stuff, which is a little bit of the element of they change all the time, but also speaks about time.

Patient problems don't fit neatly into those little boxes. So there's an assumption on the part of many practitioners that it's a lock, stab, kind of not very thoughtful, and in fact some of the guidelines are like that. In fact for them at least, the problems don't fit into those guidelines.

They were made in Washington DC, or Ottawa, Saskatchewan, and my patients – of course they wouldn't apply here. Congestive heart failure in Melbourne would be different than congestive heart failure in Adelaide, for example.

### **Slide 20**

I don't trust all this EBM stuff, so many practitioners talk about evidence based medicine and practice in a pejorative sense.

There were no family doctors, no left-handed psychiatrists, whatever the group was that we were looking for buy-in from isn't there.

My patients expect me to make decisions. That's that John Wayne as physician. Some of you – not very many of you are old enough to remember John Wayne, but I do, and that kind of "I'm here as an independent, autonomous, rational decision maker, and I don't need any of that kind of evidence to drive my decision."

Then you meet this individual. This is the guy who says, "I do, yes, all the time, every woman between 20 years of age and 65 years of age, q3 yearly, she gets her pap smears, yes sir, 100% of the time". Then you do a chart audit and it's about 75% of the time I think.

Then there's this person who says, "my patients are different". So my congestive heart failure is different than those folks in Adelaide. Obviously.

So that's just a little example, it's kind of a funny example.

### **Slide 21**

Then less about the clinician, because I think we all understand him or her, let's move on to talk about problems with the guideline or the evidence itself. I'll ask you these questions about a guideline – perhaps a guideline that you have fresh in your mind. How compatible is the new practice with the old practice? How complex is the guideline? The diabetes guideline I referred to is very complex, it's very complex compared to the management of otitis media, for example.

What is the cost of the implementation of the guideline? Cost to my patient, cost to myself? Should I hire in my practice environment a nurse practitioner to manage the diabetic patients, since it's so time intensive? What's the cost for that?

What about the relative advantage for the patient and for ourselves as practitioners, for the healthcare system? How accessible is the guideline information, and in what format is it? Some guidelines, as I've suggested, are this dense text, and some are in bullets, easier to read, easier to get to. What about the patency of evidence, the process of the development?

Hands up those of you who know about the AGREE instrument. The AGREE instrument is a tool – many of you do. It's a tool to walk through a guideline to say, were all the stakeholders necessary at the table for the creation of this guideline; is the format appropriate; what's the evidence base; how clear are the recommendations linked to evidence, among other matters. So it's a tool to sort of give us a quality assurance mechanism to say this is a good guideline, or the process by which the guideline was developed, and I'll give you a URL at the end that will link to the AGREE instrument.

Lastly, one little point. Trial-ability just means can I try it on? Can I visit a practitioner's office where the diabetes guideline is regularly adhered to, and can I observe that and see what strategies he or she has used in order to do that.

### **Slide 22**

Here's another theme, I think, that we'll return to, and that is this. Hands up those of you who've been involved in guideline development, so the creation of a left-handed psychiatric – oh, a lot of you. About half the audience. So this may or may not be true for you, but an organisation, like the American Academy of Psychiatrists for example, would select a clinical question, would search the literature to find the answers to the question, distil/synopsis the literature, pick out randomised control trials versus those that weren't, then agree by consensus and review, then development the statement, and then the Academy would endorse the statement or the recommendations or the guideline, and then look what we do. We distribute it, we mail it, and then we think we're done, right? When in fact it probably is iterative. It probably is that we will be involved with a particular guideline movement until we retire, particularly those of us interested in one piece. It may be that we have to be thoughtful about getting the message out. The rest of the talk has to do with getting the message out.

### **Slide 23**

This also touches on the issues of information management. My Dean thinks a lot about this sort of stuff. He's a health services researcher. It's interesting to have a Dean who's a health services researcher, and that's his quote: "information management is like having your mouth to a fire hose," which is quite appropriate. But I like Sharon Straus, who's one of our knowledge program researchers, who says, "it's pretty simple really, just review the world literature every two weeks." I don't see what the problem is.

### **Slide 24**

All right, so I took this – we were in Kowloon for several hours between flights coming down here, and I thought that's kind of like my office, it's kind of – not in Mandarin of course, but it's kind of like what it's like when I look at the mail in the morning, or look at the computer screen and think about all the information that we have to wade through. I was just proud that I could put that in the computer presentation.

### **Slide 25**

For me, the question of does continuing education work started many years ago when I was at McMaster. I was hired there 27 years ago, and the Dean at the time, like my current Dean, had a big brain as well, and he said to me, "Dave, does CME work?" by which he meant does it affect physician performance. But it's truly two questions it got me thinking about, so what do we mean by CME, and we've talked a lot about that, but also thinking about performance changing. His name was Mustard, and I learned – we call it Clue at home, but it's Cluedo here, anybody got the Cluedo game? So it's Dr Mustard or Colonel Mustard in the den with the candelabra or whatever. Anyhow, it's not him, it's another guy, but he certainly made lots of us think creatively I think about – it was his creation I think to encourage us to think in a strategic way about continuing education.

### **Slide 26**

This is the question, does CME work. I thought the answer is pretty obvious, like this. So this is Dotty. I thought well sure it works, I mean physicians come, right, and they leave, and they leave comparatively happily, and they come back again, and they pay a registration fee, isn't that all there is to CME? So I said yes. I mean I thought if I said no I'd be fired. Why would he want to continue to employ anybody? But it began a lifelong interest in this topic.

### **Slide 27**

So much so that we've been able to put the literature of continuing education in health professionals in an online searchable database format. We currently have 14,500 or so articles about continuing health professional education, guideline implementation, knowledge translation, across the health disciplines. Unfortunately the majority of it is in medicine, probably two thirds of it is medical, but there's lots for the allied health professions as well. I'll give you the URL at the end, but you can go online and search it yourself if you're interested.

### **Slide 28**

I won't be, you'll be happy to hear, talking to you about every one of these trials or studies or before and after descriptive pieces. Instead I'm just going to be sharing with you some information about the randomised control trials in the last decade, and some information, not done by me but by our colleagues in this area, that look at what the literature says about the effect of continuing education interventions, broadly defined.

**Slide 29**

So this is three reviews, all done in the 90s. These are replicable educational interventions like audio tapes and feedback. Each of these studies contain at least 50% practising professionals, and each of them measured one of physician performance or healthcare professional performance or patient outcomes. Each was a randomised control trial.

**Slide 30**

Using some of these strategies, and I'll just walk you through them briefly. Educational materials imply video tapes, audio tapes, printed materials mailed to physicians or health professionals generally. Formal educational meetings of the sort we're engaging in right now. Outreach visits, which included academic detailing, the notion that a pharmacist for example can go to a primary care physician's office, visit, talk about not prescribing a medication generally. Local opinion leaders, those opinion leaders identified by their colleagues within a community – the community could be a ward, it could be a primary care environment or a small town – as being influential in an educational sense, so change agents.

Patient mediated strategies, by which I mean things like reminders mailed to patients about mammography, for example, mailed to the patient, and the question there is do they change physician behaviour. Audit and feedback, you've all been involved in audit and feedback. Reminders at the point of care, so usually they're little yellow stickies stuck on the charts, don't forget to remind your patient not to smoke or whatever, or pap smear due in 2004, or computer generated reminders. Mass media campaigns I needn't explain to you. And combinations of these strategies. So I'll just walk you through some of the information.

**Slide 31**

In 1992 we decided – there were about 50 randomised control trials, and my colleagues – I was then at McMaster – my colleagues and I decided that instead of reporting on each of the individual ones, patient education for example, we'd lump them together using Green's Precede model, that's the health promotion model, which implied that there were three sorts of traits, characteristics, of change agents, so we adapted those for the continuing education world. We talked about predisposing elements like lectures, rounds, academic detailing for example. The enabling strategies, those that help facilitate the change in the practice environment, like patient education materials, maybe algorithms, flow charts. Lastly, once the change had either been started or had been made, to reinforce it, to support the change. We again lumped reminders and audit and feedback in that.

The problem is this. It looked like, for your information, predisposing by itself didn't work very well. Enabling seemed to work okay, maybe small effect size, not much change. Reinforcing by itself tended to work but as soon as you removed it, reminders for example tended to drop right back to the pre-intervention levels. If you put them all together they tended to work a little bit better. But the real problem with this review of the literature was that, for example, academic detailing would also give feedback to the physicians. So it blurred, the distinctions blurred. And lectures and rounds and conferences, you've been to lots of lectures and rounds and conferences, and they're not – they're comparing apples and Toyotas as well.

So based on that information, and knowing there were many more randomised control trials, the early 90s were a great period of growth in the randomised control trial industry in guideline implementation and knowledge translation strategies.

### **Slide 32**

In '95 we published this review of 99 randomised control trials, and I'll just walk you briefly through this. The first set of bars, I'm sorry they don't show very well on the screen, the number of interventions is shown in the bar in white, and the bar to the immediate right of that in yellow is those which changed physician performance. Now it might have been of 10 measures only one measure changed, but if it changed, we called those trials positive trials. So the first set of bar graphs is EM, educational materials. We found 10 interventions, and four of them changed physician performance, at least to one measure.

I'll walk you through the rest. The next one is CO, conferences. I'm sorry, I'd hoped that I could point that out to you on the screen, but I can't, so the number of interventions is 12, but only two changed physician behaviour, even minimally. You can tell how happy people are in my continuing education business when I talk to them about this particular slide. Academic detailing, there were several trials. There were six interventions, four of them changed physician behaviour. Opinion leaders, or OL, the next set of bars, there were four interventions, all four changed behaviour, but only marginally in this four.

Fifteen interventions of the patient mediated strategies. They were quite a powerful tool, particularly of the reminder to the patient to change the physician behaviour, time for my mammogram, and the physician would comply. It seemed to work quite well in that set of studies. Reminders, 31, and 29 of them changed behaviour, however as soon as the reminders stopped, in general, very few long term studies, but in general, results go back to the pre-intervention level.

And lastly audit and feedback, 30 studies, 15 of them changed physician performance. Those that were more immediate in the physician's life, that is in the last three months as opposed to the last two years, feedback on performance, those that were more immediate comparison, that is to say me to my colleagues as opposed to all of us together compared to some folks in Sydney, for example, and the more initiated by the chief of the service in which the individual worked, the more powerful the feedback was. So just three little take home points about audit and feedback.

### **Slide 33**

In 1999, partly stimulated by my colleagues who said do you mean conferences don't work at all, we did a systematic review of the literature. On this occasion we found 14 randomised control trials, and just to convey the two simplistic messages of them, those that seemed to work were interactive lecturing, so those that involved case discussions, small group discussion, lots of interactivity, as opposed to those that were entirely didactic, seemed to work better than those that were didactic. And those that were work-learn-work-learn continuing education sequence sessions, so a three-hour workshop one week, going back into the practice environment to apply whatever's learned, and then go back to the CME environment the next week for another three-hour workshop, those tended to work better than the six-hour workshop done on one day. Again, only in these 14 randomised control trials.

### **Slide 34**

Other overall findings in this group. Needs assessment appeared to be very important, something that we neglected in my conversation with you earlier about the adult learner. The needs assessment piece often in these trials is missed, and those that did a better needs assessment, looking at barriers, subjective needs of the clinicians and objective needs, tended to do much better. Not much evidence yet about long term effects.

### **Slide 35**

In '99 to 2004 a variety of reviewers, some of whom you know, Thompson-O'Brien, Jeremy Grimshaw and others, have shown these findings in general. Most effects of these broadly defined educational change agency interventions are small to moderate at the best, including multiple methods. So on the one hand we thought the more you threw at clinicians, that's early '90s, the more they might change. In fact the later randomised control trials look like that isn't necessarily the case, that four interventions don't work better than three, than two. And mailed materials, unlike our earlier reviews, it looks like the later reviews indicate that probably a simple message might at least have some small effect, say 5% effect size or something.

Reminders still mostly moderate to large effects, but no long term studies. The quantitative methodology is necessary but not sufficient to understand the change. So remember these are randomised control trials. I'm fond of saying it's like saying you've been to France when you've just flown over Paris. So you see them from the ground up, you don't talk to individuals to know why they didn't adopt the new information or did. And it mostly is, unfortunately, most of us as we view all this see it as kind of kitchen sink research, so let's just throw a whole lot of stuff at them and see whether it works or not. We need to build a theoretical base, I think, in order to move forward in the field.

### **Slide 36**

It's also important for all these reviews to say these things up front, I think, rather than here where I put them, but there is a strong publication bias, where positive trials get to see the light of day more regularly than negative trials. There's a screening bias, how we pick up the randomised control trials when we're doing our reviews. We may not always pick up all the trials. There are reporting gaps within each of the studies, so when it says interactive workshop, how interactive, and in what way? What handout materials were given out, etc. There's an EBM-ish kind of thing happening here, which is the randomised control trial is the gospel, and so I want to just flag that and say that qualitative research is something necessary.

Nonetheless, we can say a couple of things about the size and scope of this field. It's a growing field. In terms of continuing medical education at least, getting back to the problem, what we do doesn't work, the mailed materials in general, and the CME conferences which are still, despite best efforts, pretty much more didactic than otherwise, and what we don't do does, that is to say things like audit and feedback that we should be doing much more of regularly, calling it what it is, which is a quality improvement sort of tool and embedding it in practice, doesn't happen as much as the other.

So here's the third exercise for us, and this concludes the talk and hopefully will lead into questions for us all, so what are the implications of this and its cause – the gap and its causes and the knowledge translation piece for research and scholarship in CME and CPD, for guideline implementation, and even for patient education.

**Slide 37**

It isn't quite true that we've made a huge mistake in CME. This is a guy who made a huge mistake. But it is true that we made some smaller mistakes along the way, and I hope as we think about these things we can address them a little bit better.

**Slide 38**

I do like this phrase. I like to flout Canadians here a little bit. So this is Wayne Gretsky, sure he lives in the US, but he's still a Canadian citizen. And he had this great – they said to him one day on TV, “so tell me about your success, Mr Gretsky.” And he said “well, you just have to skate to where the puck is going to be.” So I think the puck for us, healthcare systems, are going to focus on patient safety and quality improvement, and the best optimised patient care possible. I think that's all our goal in this room or you wouldn't be sitting here on a very pleasant day.

**Slide 39**

And I think there's a bridge between – isn't that clever? A bridge between where we are now and where we're going to be in the future.

**Slide 40**

And this is probably what it's going to be like, I think. This is a 2 by 2 table. Anyone spend time at McMaster University, other than my colleagues? A couple. So you know that the whole world can be confined to a 2 by 2 table. So how tall are you? Tall, short. Did you have cornflakes this morning? Yes, no. You see? So this is kind of the current picture and the future. The right hand column is the future and the current picture is the middle. And on the left hand side, the less effective tools and the more effective tools. So let's aim at a knowledge translation toolkit or applications of more effective tools in practice to see if we can change the system, change healthcare practitioner performance.

**Slide 41**

There are three areas I'm going to flag for us in that exercise. You may have many more. One of them is information, how we capture and hold information, and what it looks like. Secondly the broadly defined continuing education, knowledge translation interventions. And lastly a word or two about the learner or the target.

**Slide 42**

The first has to do with the information problem. So we in the Guidelines Advisory Committee, some four years ago, decided, as had NICS and had most clinicians, the problem isn't that there isn't enough information, it's that there's way too much information. We decided that we would give our physicians in Ontario this: the promise that we would review the literature for them, review the guidelines in a particular topic area, like otitis media or diabetes. We would apply trained clinicians like themselves to apply the agreed instrument to see which was the best.

We would summarise the best of those, and allow them in three clicks and 30 seconds to get online to get that synopsis guideline, knowing that it's a bit of a condensed note, and knowing that they might have to drill down to the guideline, so it's like a table of contents for the physician, but summarised in a bite sized format for him or her. Wherever possible, to allow for links on the website to algorithms of care, patient education materials, quality assurance tools.

We would attempt to work with a wide variety of collaborators in the province, like the hospital association, the licensing body, the College of Family Physicians for the province, we would work with – and the five other medical schools in the province of Ontario – to deliver this sort of information, in the same way, in the same format, so that the physicians of the province would slowly know that this was the kind of pre-digested evidence. So that was the promise for the delivery of information, and the piece I wanted to share with you is the capturing of information in that bite sized and usable way.

#### **Slide 43**

This is the website, and I'll give you the URL in just a couple of minutes.

The second is something we are undertaking in the Knowledge Translation Program, which is a systematic review of the literature and a systematic sort of holistic way of targeting interventions.

#### **Slide 44**

This is one model of many, and of course like – it's true all models are wrong, but some are helpful, and maybe this is somewhat helpful for us. So here we took – just to show you that we progressed beyond the 2 by 2 table, it's now a 4 by 3 table. So along the top is awareness to agreement to adoption to adherence, it's that Pathman model of at least physician learning and change. On the left hand side, some notion about predisposing, enabling and reinforcing strategies.

So here for example, if the problem is not awareness on the part of the healthcare practitioner, maybe then the print material is useful to predispose to change. Maybe lectures are helpful, maybe academic detailing, media campaigns. We've had great success with a booth, with a drug company kind of model. So at CME events there's a Guidelines Advisory Committee booth with a person sitting there and handing out the guidelines. Sometimes that's the most effective way to reach physicians when they're in learning mode about a particular kind of topic area.

If however the problem is agreement with a guideline or with a piece of evidence, it probably isn't enough at all just to mail something to them or to hand them. The agreement has to come from something like small groups, maybe opinion leaders, working within communities. This is a theoretical model, as I said, and so we're testing out each of the elements of it with our colleagues.

Lastly if the problems are adherence, I'll skip adoption for just a minute, adherence at the end, maybe reminders and feedback are the way in which to go. So maybe then all the knowledge, all the cognitive skill sets etc are in place, and all we have to do is remind the clinician that this is the thing to do at the time. There's lots of discussion in our shop around the adoption stage and how useful continuing education is about that, and if we have time I'll come back and talk about that.

#### **Slide 45**

Lastly solving the learner problem. Training students and residents to enhance their self-directed learning, critical appraisal, use of EBM, use of online knowledge management strategies, search engines, enhancing their attention to quality improvement concepts and tools, and we've made some breakthroughs in year 3 and

year 4 of the medical school. Unfortunately it's against this huge dent of here's your knowledge for 2 and  $\frac{3}{4}$  year, so it's difficult to deal with that. Nonetheless we're having some impact I think.

#### **Slide 46**

Teaching the students in a different way also implies faculty development, so senior registrars and faculty members also need to be taught about evidence base, critical appraisal, etc, and that isn't a one step kind of opportunity either.

#### **Slide 47**

Solving the learner problem also involves this step I think. I'm sorry, this is a cartoon that says, "Mrs Nortman just sent in this fax of a rash that she's got on her stomach." I think what we need to do is think outside the box. It isn't just the healthcare clinicians that we need to be thinking about, it's also patients that we need to be thinking about. I like this slide particularly because it reminds us of information technology and the huge impact that I've hardly referred to today of information technology, which will provide I think a vehicle for communication in a timely fashion of the right information. That's the hope in any event.

#### **Slide 48**

A few last words. There is this huge body of educational literature or change literature or guideline implementation literature, largely unused by guideline implementers who are not so thoughtful of the specialty agencies who – or associations, national specialty bodies, that just mail out the guideline. Slowly we need to change that. Just as the AGREE instrument has slowly changed the format of the guideline, and the degree to which evidence is applied to the recommendations, I think we need to be much more thoughtful to the implementation piece, and groups like NICS are leading the way.

It's clear to say there's no magic bullet, there's no one way to change healthcare practitioner performance, or else we'd be doing it, I think. Multiple methods might work best if we think about them strategically, and one model might be the awareness to agreement to adherence, etc. It may be useful for us to think about how each of the interventions work.

We certainly have to – in CME, the job for us is to reconceptualise what we're doing, and to work differently and more proactively, I think. But there is hope for the future. There are better models, I think, of understanding healthcare practitioner learning and change, information systems I referred to, Commonwealth initiatives in health we learned a little bit about yesterday in Canberra, NICS, of course. And I'd like to conclude by asking us to remember Vanessa.

#### **Slide 49**

I'll give you just as we sum up three URLs. The first is the Knowledge Translation Program where most of the research is stored and which is accessible. [cme.utoronto.ca](http://cme.utoronto.ca) is our CME website, linked to the other – all three of them are interlinked, and the Guidelines Advisory Committee to talk about the more practical aspects of guideline dissemination, and there you'll find the AGREE instrument linkages as well.