## Lecture Transcript

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| **Module Name** | Mental Health in the Community |
| **Week 5** | Implementation in Health Care |
| **Topic** | Introduction to Implementation Science (Part 3 of 3) |

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## Slide 1

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## Slide 4

So in the second part of this introductory lecture in Implementation Science, we talked about implementation challenges, problems, and gaps in relation to our case study, the WHO surgical safety checklist. Now in this final part of our introductory lecture, we're going to have a broader look at the gap between research findings and clinical practise.

## Slide 5

So, considering our case example of the WHO surgical checklist, the problem we seem to be having in healthcare is a problem of a gap between research or evidence and practise. On the one hand, we produce research evidence, which is on one side of this gap, as you can see on this slide but on the other hand, we've got clinical practise, daily practise. What is the healthcare that is delivered day-in and day-out to patients or service users. And there's a gap between the two because clinical care is not always consistent with the latest evidence or the clinical guidelines.

In fact, one study has attempted to calculate the time it takes for clinical research, evidence, interventions, or guidelines to make it into front-line practise consistently and reliably. They came up with an answer in a figure of 17 years so, in other words, it takes an average of 17 years to translate an evidenced intervention into routine uptake in clinical practice. This means that for some interventions that gap is shorter but indeed for some interventions the gap will be longer than 17 years, which is a pretty long time. In other words, this study shows that we're delaying implementation of well evidenced interventions into routine care and we're therefore possibly offering sub-optimal care to patients.

## Slide 6

Now, perhaps this is not surprising for several years now we have known that the process of generating evidence is only one of several steps that need to take place so that the evidence essentially gets to the point of improving patient care. This study

showed what the actual steps are. It's a really nice paper and it's a really nice figure which we quote on this slide and it's definitely worth the read.

You're starting from the left-hand side, where essentially you have the research and development process you have the generation of evidence from research. But of course, one single study will never be enough to generate a guideline or a policy. You need to have several studies produced and published, which will then be appraised and synthesised into reviews or meta-analysis, which will then be reviewed further by policymaking bodies and guideline producing committees. They will then be synthesised into these policies and guidelines which will have to be written and introduced and publicised, and of course you get to the point of application before these guidelines or evidenced interventions hit patient care, they need to be disseminated and then they need to be actually applied. And as we saw with the example of the checklist, that application can be quite variable.

Essentially when you get to the point of patient care, which is the far right-hand side of this graph, you've got an interaction between the available evidence of the guidelines, what the patient's circumstances clinically and otherwise might be, and of course, what the patient preferences are. All of this needs to be synthesised by the clinician or clinical teams who are interacting with the patient so that the care that is offered is actually consistent with the best evidence that we have. You can see that this guideline translation process is pretty lengthy and indeed pretty complex.

## Slide 7

There are several things that can often get lost in the process of translating evidence into practise in this complex pathway that we've just looked at. So, let's take some time to think about, first of all, the generation of evidence and secondly, what clinical services tend to prioritise. So let's start from the left-hand side of this slide.

What happens in the world of research?

When you do clinical research, your aim is typically to maximise the efficacy of your intervention. Quite logically, no one ever sets out to do a trial to prove that a new intervention is not working, or it is ineffective, or it is really worse than interventions that we already have in place. Because we're trying to maximise the efficacy of a new intervention, we're very careful in how we select participants or clinical faculty or clinicians to deliver those interventions and we can do that because we have research grants that allow us to select these people, train them accordingly, and make sure that they deliver the intervention exactly as it is intended. So we can conduct high-quality evaluations and trials of these interventions and produce high-quality research about the efficacy, the clinical effect. In other words, that these interventions can produce in the context of patient care.

Now if we look on the right-hand side of the slide, we look at the context of health services the perspective here is quite different. Health services managers who run health services are aimed to achieve sustainable delivery of their services. Their priority really is not the latest study for a particular disease or condition they're interested in ongoing service delivery to the patient populations that they served. They're therefore, interested in widespread adoption and not introduction of the latest innovation. They typically deal with hundreds or thousands or sometimes millions of patients and they cannot afford to be selective. They have service delivery funds, which of course are limited and they need to be far more generally applicable than what tends to be research funds that supports a very specific research and very specific interventions. We do know that over the last several decades, that more and more reductions on finances and resourcing in healthcare provision have taken place, not just in the UK, but globally.

And of course, if you're a senior clinical director or manager of services, you cannot be selective in the staff that deliver your interventions either. You have a bunch of generalist practitioners who tend to deliver a number of interventions each. You cannot identify some of them to deliver very specific novel or fresh interventions as part of your service.

Essentially, what this slide offers you is a summary of two very different perspectives on healthcare. The one that comes from the research world where the emphasis is on innovation, and the one that comes from health services, where the emphasis is on reliability and sustainability of delivery. These worlds can be quite different and unfortunately, on some occasions they do not talk enough to each other, which contributes to that gap between research being produced and its implementation into clinical practise.

## Slide 8

The gap that we have just described between research and evidence production and guideline generation, and what happens clinically. What happens in clinical services is precisely the gap that implementation science came to address. This is the reason the field came together in 2006, as most people would take as a starting point of the field. The frustration around this gap in other words, the frustration that we're not delivering the best evidence care to patients and that we're taking quite a few years to translate evidence into practice is what really drove the field to get together.

The field is often defined as the scientific study of methods that promote the uptake of research findings into routine healthcare. And by routine healthcare, we mean clinical, organisational, or policy contexts. This is a definition that you can find on the website and one of the prime journals in the field, the first journal that was dedicated to the field of implementation research, which is called the implementation science. From North America, you have a slightly more detailed definition that has been developed by the National Institutes of Health, which is essentially a funder of

research and development process in the United States. According to their definition, the science of implementation supports innovative approaches to identifying, understanding and overcoming barriers, to adopting, adapting, integrating, scaling up, and sustaining evidence-based interventions, policies, guidelines or tools.

What you get pretty quickly from these definitions, I hope, is that the science of implementation is fundamentally a very applied science and it has very practical goals. We do not study the process of implementation because it's intellectually interesting which of course, I would say it is. We study it because you wish to understand and therefore improve the implementation process address any bottlenecks that you might find and speed up the process of implementation so that we improve patient care and patient outcomes.

## Slide 9

Where does implementation science sit in the so-called translational continuum, which you can see on this slide. The translational continuum typically starts from the left-hand side and goes all the way to the right. What you have on the left-hand side is the birth of innovation is proof-of-concept studies, an early safety studies, where you don't really think about implementation because you have no idea whether a new drug, a new therapy, or a new pathway will actually work at all.

But as you're going from the left-hand side of the slide towards the right-hand side of the slide, implementation is becoming ever more important. When you reach the right-hand side, implementation is your primary focus. That's the only thing you're interested in because you have already proven that a new clinical intervention is safe, it can work, it does work at scale, and you need to make sure that the implementation is optimised. Essentially, what early implementation science was doing was saying that we need to work with well evidenced interventions and optimise the implementation pathway.

So that's what early implementation studies were doing. Increasingly, what you find in the literature is the argument that implementation questions need to come into this pathway a bit earlier, for example, at the same time as the clinical effectiveness questions. That is because you want to reduce the gap between producing clinical evidence and its implementation. We want to know how to optimise implementation around the same time as we know that an intervention is clinically effective. This will help, in theory, reduce that 17 year gap that we discussed a few slides ago.

## Slide 10

So how does implementation research compared with traditional clinical research? So I summarise some similarities and some differences on this slide, the slide is pretty much based on work done by Professor Geoffrey Curran, who's based in the US.

So let's start first of all, looking at the left-hand side of this slide, which is about a clinical research. Clinical research could focus on a clinical intervention such as a drug or a new surgical technique or a new psychological therapy. The primary outcome you would normally use when you design such a study, would be something to do with patient's symptoms or some health outcome. In the context for example of a surgical intervention such as the WHO checklist that we've been talking about as part of this lecture. Patient mortality or infection rates after an operation and so on. These would be your typical patient outcomes. When you design such a study, the unit of analysis and randomization that you would normally apply is individual patients or groups of patients. Of course, you can design studies like that at the level of a health facility, for example, the level of a hospital, which you would do if you have a cluster randomised trial design. Ultimately, the take-home message here is that your interest is in patient reported outcomes than what happens to the service users who receive a clinical intervention because you're trying to establish whether that intervention is effective or not.

Now if we move to the right-hand side of this table and see what the questions are an implementation study might try to answer. We see some similarities in terms of the approach. So you have a research question, you think of an intervention, the primary outcomes, and you design a study with similar statistical concerns. But the type of question you're asking and the type of intervention you're evaluating is slightly different. The first thing to note is that clinical interventions are not the focus of implementation studies. Instead, what the focus is, is any implementation intervention. Normally we call that an implementation strategy. We'll come back to what implementation strategies are in a few slides time. Implementation strategies are often focused not on patients, but they're focused on providers, they're focused on clinicians. The reason is you're trying to introduce behaviour change, organisational change. In other words, you're trying to improve the implementation process of an intervention.

So the primary outcomes are often not coming from patients in these studies, but they come from providers. They relate to how for example provider this find acceptable or feasible to introduce an intervention and the rates of implementation of such interventions by providers. You're interested in adoption of an intervention. You're interested in the so-called fidelity of an intervention, which means whether an intervention is delivered as designed and the like. So you're still considering your unit of analysis and randomization.

But often in implementation studies, you focus on providers, clinicians, or entire clinical teams as your sample. You can still take a cluster randomised evaluation approach in which you focus on entire facilities. But still the participants in these facilities will be clinicians and providers rather than patients. Or at least you need to ensure that if you have some patient reported data, you also have provider reported data. You can see from this slide that the overall research approach asks the same

questions when you do an implementation study. But of course, the context of these questions is slightly different when you're asking implementation question compared to when you're asking a clinical question.

## Slide 11

Now it is important to say that the field of implementation research is relatively new. It's only about 15 years old. Many people would say that the field was born in inverted commas between 2005 and 2006, as I said, because this coincides with the launch of the first dedicated peer reviewed journal, which was called and still is implementation science. The field, however, is growing very rapidly. And this slide gives you an indication of that rapid growth.

You can see for example here that in red, these are the number of submitted papers for consideration for publication in implementation science journal and you can see how rapidly that curve is growing over the first 10 years of the journal being in existence. In addition to peer review journals, there are implementations societies and associations.

So for example in the UK, we have the UK implementation society. And you can become a member of that society for free and you can find out more about their events, attend them, and get further training in implementation science and also meet other people who use implementation approaches in their work. There are similar societies and implementation networks in Europe, North America, and indeed in other continents around the world like for example, in Australia.

There are also further peer review journals which in the last two or three years have emerged in the field. So now you have several scientific outlets that published peer review studies exclusively focused on implementation phenomena. The field will likely grow further in the next few years.

## Slide 12

There are a few key terms that you should start to become more familiar with as you get into the field of implementation research. Subsequent lectures to this introductory lecture, we'll pick up on some of those annual go through them in a bit more detail so you'll get to understand what they mean in the scope and volume of science that supports each one of them.

The first one on this slide, we have already spoken about, it's the concept of implementation strategies. As a reminder, these strategies reflect methods or techniques that you can use to enhance the adoption or implementation or sustainability of a clinical programme or intervention you're introducing.

Essentially, these are the interventions in terms of implementation studies and implementation evaluations. This is what you're introducing and this is what you're

interested in evaluating. A second key aspect of the science is implementation theories and frameworks. We did not cover them in this lecture because it's a slightly more advanced topic which you will cover in other lectures.

A theory is a proposed generalizable explanation about how an intervention or programme is implemented, whether it is successful or not and the reasons why. This is how theory works in the context of implementation. They're very practical and very useful in that they allow you to theorise. In other words, to come up with hypotheses about why certain things might work and how or why they may not work in the mechanism of these effects.

When you do an implementation study, you're essentially testing out these hypothesis and you find support or not for why intervention may be well-implemented or may fail. Another core implementation concept that we haven't really discussed as part of this lecture, but you will cover in subsequent lectures, is the concept of implementation context. What we mean by context here is factors or attributes that are external to your intervention or to the programme that you're trying to implement.

Of course, they're not unrelated because they can facilitate or they can impede an implementation effort. So they can contribute to an implementation being successful or to its failure. Essentially think of context as anything that's outside the actual intervention, but that can impact on the intervention. That's what we consider by context.

## Slide 13

So here we have come to the end of the third and final part of this introductory lecture. You will hopefully by now, have developed an early understanding of the field of implementation research and how it differs compared to clinical research, but also what the similarities are.

We have noted the length of time it can take for trial than evidenced interventions to be routinely offered as part of clinical care and the fact that they're not always offered as intended. We have therefore seen that the purpose of implementation research is to understand the reasons that support or stop adoption implementation of fidelity to an intervention. We have defined the aim of implementation studies are studies that focus on introducing and evaluating implementation strategies and how effective these are in supporting the implementation of interventions and we've also introduced some core themes or topics in the field of implementation research.

So I would conclude by proposing to you that without studying and optimising the process of implementation, then our hopes of improving patient care in any speciality of medicine or clinical work will remain slow at best. And in fact, we might be

substantially hindered because of implementation barriers and obstacles that we're not aware of.

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