

**July 2021: The Australian Approach to Acquired Brain Injury: A Sabbatical Experience**

>> Okay. So, as the title indicates, this is a discussion on my Sabbatical experience in Australia, the Australian approach to acquired brain injury. And what I plan to do is to talk about a number of different areas. The first thing I'd like to do, we have a small group and I know several of the people on this call have been in Australia. I see Nate's name, I see some other names. If I could just have just a few people kind of jump in and tell me if you've been to Australia, just, you know, some of your general observations of the country. That will give us a little bit of context as we move forward.

>> I went to Australia for about a week. I loved it. Australia would be the second place or the other place I'd live compared to San Diego. I had an amazing time. For me, I was in Melbourne so I don't know if anyone else had a different experience but it was a very dense city. It had awesome public transportation. And it was just really diverse, at least in Melbourne it was, there was a lot of different cultures like it wasn't -- I didn't feel like I was out of place being from where I was either. But I was only there for a short period of time and all I did was just have fun. So, that was my experience there but I would love to go back again and I loved Australia and I loved the community and the people out there that I had experiences with, extremely nice.

>> Yeah, that's great. Thanks, Dean. Anyone else?

>> Recording in progress.

>> This is -- I'm sorry if I jumped in front of somebody. But just briefly since I'm already starting. I have been to Australia about three or four times. Freemantle and Perth Area. It was a great time. I've got to know some Aboriginal folks, just brief conversations. And, you know, they shared with me their history, just briefly because I wasn't -- you know, that was my first time meeting somebody that was Aboriginal. And that was really maybe an hour conversation. But overall, I'd love to go. Like Nate said, that would be awesome to visit Australia again.

>> Yeah. Maybe we will take one more comment. All right. I saw from the chat Darren would love to go to Australia. And I think a lot of us, you know, feel that way. And one of the things I will put myself in that camp. And one of the things I will be talking about today was, you know, the plan for myself was to go to Australia and I have virtually been to Australia, I would say, physically not yet. And we'll talk about that in a little bit. So, what I will all be talking about today is the original plan and a modified Sabbatical plan for Australia. Talking about also acquired brain injury in Australia which is going to really be the focus of this presentation. The Sabbatical actually involved a number of different activities. And this was, you know, one of the key activities I did over the course of this semester. I'll be talking about long-term peer government programs in Australia, services and advocacy, research and training, and recommendations for collaborations. And, you know, one of the things I would say as an overall kind of background to the presentation is that this is a country that in many ways parallel some of the challenges, some of the experiences we have in the area of acquired brain injury compared to the United States but also it has some different approaches. And I think things that we can perhaps, you know, kind of borrow from and draw from in terms of their approaches to meeting the needs of people with this type of disability. And likewise, I think, you know, we have some things we can share with Australians as far as some of the best practice approaches we have come about. So, I'll be talking all about that today. So, the Sabbatical plan was originally going to be in the fall of 2020 and it was going to be two months in Australia. And we had a number of in-person collaborations with colleagues from Griffith University. There is a research institute called the Menzies Research Institute as part of Griffith University. And it is an institute that in some ways kind of does some similar things to the Interwork Institute where there's a focus on community-based rehabilitation, there's also different forms of research, biomedical research, community-based research with different kinds of therapies, different kinds of support approaches.

So, a whole variety of areas. And one of the research areas that they look at is an area of acquired brain injury. And that is how I initially developed my relationships with these colleagues at Griffith University. So, it seemed like kind of a natural place to go. And one of the things we had planned to do was to do a qualitative research study with adult siblings of people with acquired brain injury throughout Queensland. And this builds on a lot of the research I've done over the last 20 years or so. And also, the collaborators I have have likewise done research on siblings and other family members of people with acquired brain injuries. So, we thought, you know, let's kind of pair these two areas. Now, obviously with COVID-19, that kind of stopped all forms of travel so we had to regroup and rethink, you know, what might be possible. So, the Sabbatical was changed to spring of 2021 and into an entirely online experience. So, what we did during the Sabbatical was to continue the planning and the development of the adult sibling study with the idea that we will now transition to doing this online.

And then in addition to that, the presentation I'm doing today is one of the key areas of work I did, you know, during the Sabbatical which is to do a comprehensive narrative review on how Australia approaches the needs of people with acquired brain injury. And it somewhat came from necessity because we weren't able to do some of the things we have planned to do on-site in Australia. But also, it was for I think to give myself as a researcher, as somebody also interested in policy in the area of acquired brain injury to have a better idea about how can we better support people with this disability. And one of the things that I've done in the number of different articles and also that I do in my advocacy work is to look at how can we better support this population, especially on a long-term basis in the community. We really here in the United States lack services and funding to really meet the basic needs of so many people with this type of disability. And knowing a little bit about how Australia approached this area and some of the innovations that they've done over the last 10 years especially, I thought it'd be, you know, I think helpful to really learn more about, you know, this particular country and how they have done things so I can take that back to work that I do here in California and also throughout the United States.

One of the other two narrative reviews that I worked on in addition to this one was to do a paper talking about how can the United States and Australia collaborate in better meeting the needs of caregivers of veterans impacted by traumatic brain injury. So, Australia and the United States have partnered with Operation Enduring Freedom, Operation Iraqi Freedom and because of that, you know, we have many individuals returning back with traumatic brain injury, both in Australia and also in the United States. And the paper basically talks about how both countries have tried to approach the needs of family caregivers so when their family member comes back, how can we support those family caregivers, how can we train them to be caregivers, how can we financially support their needs in all these different areas. And we talked about just some of the pluses, some of the shortcomings of both countries. And then the paper ends essentially with a review of how both countries can collaborate.

So, the reason I mentioned that other narrative review, in addition to what I'll be talking about today is that the overall purpose of this Sabbatical was to learn about how Australia responds to acquired brain injury and to provide, you know, myself rehabilitation counselors throughout the United States with the ideas on how can we better address the needs of this disability through collaboration, through international partnership. So, that's the essential backdrop and background as we think about this. So, one question you might be thinking is why do I have this interest in Australia. And I mentioned that this is a country that has a longstanding history of partnership with the United States. It does a lot of innovations in the area of acquired brain injury. but I think just from a personal point of view, it's a country I've had a longstanding fascination with and I have always wanted to visit, have always wanted to learn more about it. So, you know, in becoming an academic and looking at ways I can learn about what other countries are doing in the area of rehabilitation counseling, Australia has always been one of those countries that I have sought out partnerships, collaborations with at any time that I could just because of this kind of intrinsic interest on learning more about this country.

I mentioned we have common approaches to acquired brain injury and rehabilitation counseling training. One of the things I'll mention a little bit later today is that Australia is one of the few countries outside the United States that has academic degrees in rehabilitation counseling. And in many ways, the training model to rehabilitation counseling is based on the American model. And if you look at the CVs of a lot of academics in Australia, some of them have been trained in the United States. And we also have some rehabilitation counseling, academics who are from the United States, trained in the United States but now work as professors in Australia, so, you know, we have this unique kind of partnership and collaboration. Myself, I am a member of the Australian -- of the Rehabilitation Counselling Association of Australasia which hopefully I'm pronouncing that correctly. And I joined that organization because, again, I wanted to partner with Australia, learn more about their rehabilitation counseling systems, ways to supporting people with disabilities, and I think through a professional association I thought it was an excellent way to learn more about what professionals in that country are doing. And so, I joined that organization last year. I had to make a special appeal to their board of directors to join as a non-Australian. And thankfully, they allowed me to join. And I think it will be an excellent way to again learn more about what they do. I've published seven articles in the Australian journal of rehabilitation counseling which is a primary academic journal in Australia for rehabilitation counseling. Two years ago, we had two students who did internship training at Griffith University and that was the first of our formal types of collaborations and, you know, we've talked about having some of their students come to SDSU, and hopefully, we'll have also more of our students go to Griffith University. And then I also served as a doctoral reader of four dissertations from Griffith University.

So, to kind of give you a little bit of further background in terms of collaborations. And one thing I didn't mention at the start is that I planned to talk probably to like around, you know, 1:10, 1:15 or so. And at that point, you know, we'll open this up for any questions, any comments you might have. And so, I'm really very much interested in kind of hearing your thoughts on what I talked about today. Especially at the end, I'll be talking about a number of different recommendations I'll be making for collaboration. So, in terms of this idea of looking at acquired brain injury from an international perspective, I've done two previous articles with this type of focus. And I did these articles with two graduate students from rehabilitation counseling at SDSU. So, Sophie Foster in 2019. We published a paper that looked at brain injury from the perspective of the United Kingdom. And then with Nicole Fullerton who did an internship in Ireland, we did a paper that did the same thing where we talked about acquired brain injury in the Republic of Ireland. And from those two experiences, they were very illuminating to me to see how countries with different health care systems, economic systems, some differences in political systems, how, again, they did things in some ways different, some ways the same, some ways better, some ways not as good. And I think having that international frame of reference is very helpful when we think about, you know, program design, policy development, advocacy, all those kinds of things. So, this paper kind of fits that tradition of looking at brain injury from that international point of view.

With my Griffith University colleagues, I published two papers. One in 2018 where we looked at a pediatric sample of individuals with acquired brain injury in Queensland. And then in 2015, I did a paper with the Griffith colleague where we looked at adult siblings based in the United States. So, it was a foundation for that plan, the original plan I had to go, you know, go to Brisbane, go to Queensland and do interviews with adult siblings building on these two particular areas of scholarship. And then back in 2007 -- I see that Karen has access on this call, on our session today. She and Dr. Nan Jing Hampton co-authored a special edition of Rehabilitation Education and looked at international rehabilitation from a number of different countries and continents. So, one of those was to look at Australia. And I had the good fortune to work with colleagues from Griffith University, Flinders University, and the University of Sydney where we did a comparative review of disability employment policy and rehabilitation practice in Australia that mostly focused on Australia but at the end, I wrote -- the part of the paper that I wrote looked at what do we -- knowing what we know about Australia, how do we connect to what we do in the United States, what are our common challenges. What kind of common approaches do we have? How can we collaborate? And I would say that this 2007 paper was very instrumental in really I think further solidifying my interest in Australia but also giving me some ideas on what I can propose for collaboration in this paper.

So, Australia is an interesting place geographically. It is the largest island/continent/region in the world. You know, I think sometimes people refer to it as a continent, sometimes refer to it as an island, a very large island but it is its own geographical entity. And it is very large. It's over 7 million square kilometers, a size fairly similar to the geographical space of the United States but the key difference is in terms of population. So, you know, I have this precise data on population because obviously population is always changing. So, as of February 24th, 2021 at 12:25 a.m. the population of the United States was 330,101,467, and compared to Australia, at that same time, Australia had a population of 25,752,853. So, the US population is 12.8 times larger than the Australian population. So, very different obviously in terms of the population, where they live, the access to basic services and supports. And I didn't mention this but I have submitted this presentation in the form of a paper to Rehabilitation Research, Policy, and Education. So, I got the first review back and I talked about rural regions in Australia and the editor or the reviewer corrected me and said I should use the term rural and remote. So, later on, when I talk about some of these issues with rural settings in Australia, I use the term rural and remote so meaning that a large portion of the country are rural settings but they're remote from any large population center. You might be thousands of kilometers away from a major city because the major cities in Australia are primarily on the east coast with some of the major population centers on the west coast. And whereas like if you look at Ramona, for example, here in San Diego County, you can probably refer to that as the rural setting but it's not remote, it's really not that far to get from Ramona to San Diego, as an example.

So, most of the population lives in the cities in Australia. There are, in terms of their states and territories in Australia, so New South Wales, Victoria, Queensland, South Australia, Western Australia, and Tasmania. And then there are two territories, the North -- it looks like somebody's audio is on so if you can mute yourself. Thank you. So, we have the Northern and the Australian Capital territories. And kind of building on this whole idea of collaboration, both countries are close political, economic, and military partners. There's a whole number of military -- Nelson, it looks like your audio -- all right. Thanks. And so -- hey, Nelson, I think your audio is on. I can hear it in the background. So, there's a whole range of different partnerships. And also, economically, Australia and the United States are major economic partners. We sell billions of dollars of products within Australia and likewise, Australia has many exports and imports with the United States. So, there's a lot of key collaborations and partnerships to build on that I think serve as a foundation for some of the things that I'll be talking about today. When we think about acquired brain injury in Australia and we compare it to the United States, I think one of the things we can establish is that the experience with acquired brain injury in terms of the number of people living with this type of disability is fairly consistent in terms of numbers and demographics.

So, I'm not going to read these like in detail but one of the things that I have in the paper is any time I talk about the number of individuals with acquired brain injury in Australia, and I also talk about hospitalizations, and I try to be as specific as possible because one of the problems we have with demographics, more so in Australia is that some of the information is not really kept up to date. So, I may be talking about, you know, information from 2008, 2009, etc. So, I try to give the populations at that point because the population has changed quite a bit in Australia, that has also changed quite a bit in the United States over those periods. But generally, if we look at 2016, there was over 66,000 TBIs in Australia so we have a rate of around 275 per 400,000 individuals. And during that same year, the rate was 333 in the United States. So, a pretty similar amount of impact of traumatic brain injury. And then in 2018, Australia made an estimation that there is approximately 1.5 persons with a head injury, stroke, or other types of acquired brain injury. And the way that they did this is that there is an agency in Australia called the Australian Bureau of Statistics. And what they basically do are annual surveys of a range of different kinds of health and social indicators. And they do this by surveys. So, in the United States, US Census Bureau does the same type of thing with the American Community Survey. So, when we look at that 2018 number, that is based on self-report. It's not verified by any kind of, you know formal diagnosis or anything like that. So, we're making an estimation. But I think you can say in a country of 25 million individuals, that's a pretty sizable impact. If at least -- if you have individuals who are answering like a phone call during these surveys saying that they have somebody that has this type of injury. Again, the final conclusion that we would make is that this is a pretty big issue for the country to deal with.

And then if we look at estimations from the ABS survey, the Australian Bureau of Statistics, and the American Community Survey, if we look at overall the percentage of the population that probably has some form of cognitive disability over the period of 2008 to 2016, around 4.8% of the US population has been impacted by some form of cognitive disability, and during the same period, 5.8% of Australians had some form of ABI. Not a perfect comparison because in the American Community Survey they don't specifically measure for acquired brain injury, they have a larger category, generic category of cognitive impairment and cognitive disability. But I think overall, you know, we can conclude that it's a fairly similar type of impact. And then if we look specifically at traumatic brain injury, this is what I was saying about the lack of up-to-date data. So, in terms of hospitalizations for traumatic brain injury in Australia, the most recent data that they have available is 2004 to 2005, and there were 14,190 hospitalizations due to the principal diagnosis of TBI. And then additional 8520 counts of TBI due to other causes. And like the United States, the leading cause of traumatic brain injury are falls at 42%. And we see this also in the United States. We see falls is the leading cause of TBI across the world in many countries. And the reason for that is the aging of the population, primarily that's the reason for that. As we get older, we lose balance, we have a greater chance of falling and hitting our head. And, you know, we see this in Australia, we see this in the United States. And if we look at comparable hospitalization data in the United States, it's around 2.5 million TBIs. And if we look at this as a percentage of the population, and the reason I'm looking at this to look at the comparative impact on hospitalizations. So, in the US, .79% of the population was hospitalized due to TBI. In Australia, if we look at 2004, 2005, it's also under 1%, at .11%. And then likewise with strokes. So, similar numbers we see. In Australia in 2017, 38,000 strokes which was .5% of the population in 2017. And a comparable number to what we see in the United States of .29% which is really outdated but that's the most recent that the US reports from 1999.

So, and I don't want to get too much in the weeds on these numbers but I'm trying to make a point like that basically if we're looking at collaboration between both countries, and this is a disability that has a pretty similar kind of impact. You know, it's not like, you know, one country is so dramatically impacted, much more so by acquired brain injury. This is a similar impact and I think it's a good foundation for thinking about collaborative relationships with Australians in the area of acquired brain injury.

So, when we look at long-term care, what I'm looking at for long-term care is two different dimensions. You know, one is with health care and the other will be with long-term community supports. You know, so supports, for example, to be able to live in your own home, or supports to have kids management, or supports basically to have a range of different kinds of -- you know, to meet a number of different kind of, you know, community-based needs a person may have. So, in Australia, like most of the westernized world, they have publicly funded health care. And so, in Australia, they provide health care to all Australian citizens, also to New Zealand citizens, permanent residents of Australia, persons from countries with reciprocal health care agreements with Australia. And this is a pretty broad generalization but largely the federal government provides the bulk of the funding. However, states and territories also do provide funding for health care in Australia. And sometimes states and territories will supplement different areas of health care that are not covered by the Australian health care system. And then Australia also requires or motivates, tries to motivate its citizens to have additional private health insurance and does require recipient cost and out-of-pocket spending. But I think overall, we can establish that the system of health care in Australia is much more established, much more comprehensive universally than we have in the United States. So, if we look at the US system of health care, as many of you know on this call today, you know, we have a very disparate system. We have a range of different kind of private health insurances. We also have public health care for different groups, primarily Medicaid and Medicare. And we have recently tried to expand and, you know, we provide with health care with the 2010 Patient Protection and Affordable Care Act, also known as Obamacare where the US provides subsidies for US citizens to purchase health care through private insurance along with expanding Medicaid health insurance. And interestingly, if we look at how often people with acquired brain injury have access to health care, the numbers are actually fairly similar. So, in 2014, in the US, there is a per capita rate of 1101.7 hospitalizations per person. In Australia, that number was 932.5 per person, so a pretty comparable number. With stroke it's a little more -- it's higher in terms of Australian citizens compared to US citizens with access to health care. So, the stroke in Australia 624 hospitalizations per person compared to the US 371.1 hospitalizations per person. Now, I think one of the things we can observe here is that while the numbers are fairly similar, is the experience with the health care similar? What is the quality of health care? What is the quality of the coverage? What is the experience of outpatient and extended health care after having treatment for acute for acquired brain injury? Those are questions that, you know, I really couldn't find any good answers for. And later on, when I talk about areas for collaboration, I think that is an area of research that might be helpful to further examine, you know, given how different our health care systems are and given the fact that in the US, you know, we're still evolving with our health care systems and that might be something that would be helpful to better understand.

So, in Australia, when we look at long-term care for people with disabilities in general, the term schemes is used. You'll see schemes in a number of different areas. And it basically refers to a cost containment insurance model. So, I first want to talk about the systems, you know, here in the United States. When we look at long-term care for people with acquired brain injury, it is a very I would say fragmented system. You know, the reality for many people with brain injury in the US is that where you live in terms of the state that you live in but also in terms of the local community, it could present a major consequence for the quality of life that you will have and the kind of access that you will have to long-term care to be able to live on your own and pursue your goals and, you know, maybe not have to depend on family to the same extent that others might have to. So, a couple of indications of this. Only 26 states currently in the US have any kind of designated state revenue for ABI services. Five of those states have lack of designated source of funding. And these trust funds or these designated sources of funding have declined in many states. In some cases, the trust funds or the designated sources of funding may be the only form of financial assistance for people with ABI. And a common source of funding would be like, you know, motor vehicle violations, speeding tickets, DUI arrests and so on that they may be designated or a portion that could be designated to ABI services.

And then another major area of disparity we see in the United States is with Medicare waiver programs, specifically for people with acquired brain injuries. So, Medicaid waivers are basically where you instead of looking traditionally at Medicaid where they may pay for inpatient care like in a nursing home or other kind of inpatient facility, that you waive that common purpose and you waive it to be able to use for community-based services instead. And there's a number of different rules that go with this. You have to demonstrate that the individual would have a level of care that would be, you know, basically equivalent to somebody that would require institutional placements. But, you know, the bottom line here is that we only have 15 states that have designated funding for people with acquired brain injury or traumatic brain injury. And the highest areas of spending for the 15 states that do have these programs are your ability to live in your own home, payment for residential rehabilitation, and day rehabilitation. So, those kinds of areas that really deal with your ability to live on your own are the primary areas we're looking at.

Now comparatively in Australia, they have shifted to looking at more of a centralized model of providing long-term care across states and territories for a wide variety of different types of disability areas. And the overall area of disability policies is overseen by the Productivity Commission. It's an independent advisory group that guides how the federal government should address environmental, social, and economic needs. And for the reading that I've done on Australia, it appears that the Productivity Commission that has a pretty strong influence on the federal government. You know, I think compared to sometimes, you know, we may see that we have commissions and advisory councils and so on and I think you have to question how much like influence do they really have in the end. But in Australia, it appears that the Productivity Commission actually has quite a bit of influence. And I want to share with you a quote back in 2010 when the Commission came out seeking this kind of impact for these kinds of changes that we need to see in the system. This came from Brain Injury Australia which is a national advocacy organization in Australia, it's similar to what we may see with the Brain Injury Association of America. And so, what they stated back at that time was what is needed as a national framework of service structure. This should set minimum standards of treatment and services in each state and territory to ensure consistency and access to appropriate medical, rehabilitation, and community services. And it's really the same kind of language we talk about in the US where, you know, we have this vast type of fragmentation among, you know, services and funding across states. So, back in 2010, advocates in the brain injury area were recognizing the same thing was happening in Australia. And basically, the disability or the Productivity Commission found that there was a lot of dissatisfaction with how services were provided. And the Productivity Commission's recommendation was to create the national disability insurance scheme that was passing a law in March of 2013. And, you know, when you read about long-term care in Australia, this has had a major impact on disability supports in Australia. That the NDIS has been -- it's probably one of the most significant areas of disability policy in Australia's history. So, it's talked about, not only in the area of acquired brain injury but it's talked about basically with every disability group that requires long-term care support. And essentially, it's a non-means-tested program open to all Australian citizens, permanent residents from New Zealand, or citizens with protected special category visas. It's based on an insurance model where recipients receive an annual amount of funding with the National Disability Insurance Agency which is an agency that was created for the NDIS to administer the NDIS funding. And professionals from the NDIA determine what are reasonable and necessary supports after they're doing an evaluation of a person who applies for funding. So, those can be people with permanent and significant intellectual, physical, sensory, cognitive, or psychosocial disability including ABI. And when I first read this and when I wrote my first version of the manuscript that I sent to Rehabilitation, Research, Policy, and Education, I think I was overly glowing with my admiration of this approach because of, you know -- because of the writing I've done here in the US and the kind of advocacy I've tried to do here in the US where I talk about the lack of services and funding we have in the US around the area of acquired brain injury. And one of the reviewers, and I think the reviewer was based in Australia, said, you know, essentially you're being overly complimentary to the system. And you need to look more critically at the system. That there actually have been quite a few problems when trying to implement this system. So, when doing the revision, I went back to do some additional reading and, you know, realized there actually are some problems that they have encountered so far. So, let's talk about some of those.

One is that the government recognized there was a lot of complaints about the NDIS and they did a comprehensive review, it resulted in 29 different recommendations. So, they talked about problems with how flexible the plans would be. They talked about finding better ways to deal with the NDIA staff. And one of the issues that I learned more about dealing with the NDIA staff was that you had individuals who weren't trained in disability, that they were overly bureaucratic, that they didn't have a human service or counseling approach to working with individuals. And, you know, I think we've seen some of that here in the US when people talk about dealing with social security administration or different kinds of agencies. So, basically, it has staff who are really difficult to work with and that really didn't have a lot of empathy for their situations. And then basically kind of demystifying the NDIS planning process, you know, here in the US, you know, we've talked about things like person-centered planning, trying to make it much more, you know, consumer-directed and much more in the control of the person with the disability and their family. So, then likewise I started recognizing some of those issues in Australia. They also recognized that not all the funding is being used and it's being used for -- not being used for a number of problems. They found that in 2019/2020, there was 1.6 billion of unused funds. And they have budgeted in 2020, 2021 year 24.1 billion so a pretty large percentage of funding was not being used. And then looking at like why weren't they using the funding, what are the problems with NDIS. One of the biggest problems they are seeing is that they have a lack of direct care staff. You know, another problem we see it here in the US but I think even more pronounced in Australia, there is a lack of workers to fill up positions. And they especially have this problem in rural and remote regions. So, you might be a person with a disability living at the outback somewhere, you know, like in central Australia, thousands of kilometers or miles away from a major city, and you may not have anybody to hire. Even though you have NDIS funding, you may have nobody to hire for these positions. And then also disability advocates are nervous about what government leaders are talking about for the future of NDIS. And there is of late proposed NDIS legislative set of changes that talked about actually removing people with acquired brain injury from NDIS funding, and also removing people with fetal alcohol syndrome. And the government has indicated that was not, you know, it wasn't under any kind of serious consideration, it was just like one of many different possible, you know, ideas for the future. But that obviously and understandably, you know, made people in the ABI community nervous about, would they continue to have funding under this program.

So, I want to share with you a quote from a story that talks about problems with the NDIS. And this is from a person named Marcella Spicer, she lives in Queensland, she's trained as a social worker and then ironically, she had a specialty of working with individuals with acquired brain injury and then she had, I believe, a car accident and she has a lifelong acquired brain injury. And so, she applied for NDIS funding and she talked about -- she made the following quote in relation to the challenges that many people are finding with the NDIS. So, she stated, "I couldn't help but ponder how on earth participants who don't know how to navigate these systems are supposed to cope. I came to the undeniable conclusion that the NDIS is counting on this, counting on participants not accessing their funding to its fullest extent by putting up as many barriers as possible knowing that most people will just give up because it's too hard." So, my reason for getting into all the details of the problems with the NDIS is not to say that this is not like a workable solution and we shouldn't try anything like this in the US. I think it's really to have more of a realistic perspective that when we try to have major programmatic changes like this, there's going to be some problems with implementation, there's going to be challenges with this. And I think, you know, Australia is really trying to confront these problems and trying to proactively, you know, deal with the shortcomings on, you know, remote and rural access to services and difficulties dealing with staff who are overseeing this program, and so on. In the end, I think it's a programmatic approach that we should consider in the United States. And one of the values of collaboration, I'll talk about this later, is that we have a chance to observe some of the things that are working for Australia and some of the things that are not working.

So, that if we think about program design or something similar to what the NDIS is doing, it gives us a better sense about how to kind of maybe go about, you know, providing a program like this. And the other thing that the Productivity Commission came up with after they had sought all of their feedback was the recommendation of the National Injury Insurance Scheme. So, it's another kind of insurance program. And basically, it's looking at a different form of no-fault insurance coverage for Australians throughout different states and territories. So, it's designed to provide lifetime financial support, to fund services in multiple areas of life activity like employment and education. But it also looks at health care, acute care services, rehabilitation services associated with catastrophic injuries. And states can make people eligible based on workplace accidents, medical treatment accidents, or general accidents. And it will eventually be much more tailored to the different needs and preferences of individual Australian states and territories. You know, compared to the NDIS, it's based on more of a centralized uniform approach across the entire country. And the only state that currently has a formal NIIS program is Queensland and they have only made this available to this point to individuals from car accidents. So, if you have a car accident, and it results in a lifelong acquired brain injury, as brain injury is one of the qualified disabilities for this program, you would have lifetime coverage and then likely you would be supported from the NIIS rather than the NDIS. And in talking to different individuals in Australia it wasn't really clear how exactly that determination would be made but essentially you wouldn't be covered by both programs where it would be one program or the other program. And in Queensland, the entire program is funded from an additional tax when you pay your motor vehicle registration, so there's no funding from the federal government like you have with the NDIS. So, then when thinking about specialized services, Australia's government, the federal government has a major role in funding services, however, local and state governments are tasked with creating the actual programs and services in acquired brain injury. And I've put a couple on the screen to kind of give you a sense about what's available. Like Queensland health is a program that provides community integration, ABI education, peer-led skill-building activities, they have a research program, community interlink which is in the State of Victoria. It helps cover behavioral management therapy and neuropsychological assessments, professional peer consultation. So, if you look at all the different ABI programs in Australia, they all provide something different. In some ways, they are similar to some of the programs we may see in the United States but they really kind of are tailored to different needs across different states and local communities. And I think the NDIS, the expectation is that with dedicated federal funding from the NDIS, we're likely to see more specialized acquired brain injury programs throughout Australia because now that there is a dedicated funding source to support the existence of these programs. It's another reason why I think in the US if we have something like the NDIS, we could create more programs than we currently have.

Like in California as, you know, a comparison, there's only five programs that are funded from the State of California in the area of acquired brain injury. And if we have, you know, more comprehensive federally-based funding across states in the US, we likely would see many more than five, you know, acquired brain injury programs in California. So, it's something for us to really to consider. And I think as we, you know, evaluate what happens in Australia, one of the areas of evaluation will be how many new programs in acquired brain injury are created, how effective are they, how well do they meet needs, etc. So, like the US, Australia also has some generic programs. They have the overall disability common -- they have disability rights covered from the Disability Discrimination Act of 1992, very similar to the Americans with Disabilities Act of 1990. And Australians with a physical, intellectual, or psychiatric condition that have disabilities that present a barrier to working can receive a disability support pension, which is very similar to social security disability funding or supplemental security income funding. And then also like Medicaid programs we have in the US, Australian carers of frail seniors or persons with severe disability or illness can receive payment for their caregiving.

So, in this area of the paper, I talked about common challenges that the US and Australia have. And one of those is that this issue about providing services in rural and remote settings. You know, so thinking back to what I mentioned about the geography of Australia, you know, many more Australians are living down on the coast. And we have vast areas of the country where nobody is living. So, you know, rural i.e. rural and remote. Whereas the rural settings in the United States are much closer to geographical centers. So, there's some different levels of intensity in terms of rural supports but in Australia, it's really pronounced. And as one example there's New South Wales rural and remote residence where the acquired brain injury need to be transported to major cities like Sydney for level one trauma care followed up by admission for some in acute care, rehab programs before discharge back to the world in the remote setting. So, the consequence for individuals with brain injuries and their families is that they may be thousands of miles apart. And if we want, you know, caregivers and family members to visit the person in the acute care center, it's going to be much more difficult to do. And if the hospital is trying to have the person placed back in their home community, it's much harder to coordinate that kind of exchange from the acute care center back into the community setting. So, it really creates problems in terms of making that, you know, that type of integration back home. The second challenge we see is with indigenous populations. And in Australia, there's a lot of writing, not only in the area of disability but just in general, there's a lot of awareness and a lot of programs and legislation around the needs of Aboriginal and Torres Strait Islanders. So, in 2016, there were 649,711 Aboriginal and Torres Strait Islanders living in Australia. And the research indicates that the indigenous populations in Australia have a much higher chance of having a traumatic brain injury compared to the general population, and greater exposure to violence also, greater issues of substance abuse appear to be higher risk factors for traumatic brain injury in Australia. And likewise, you know, we see in the US issues with higher chances of having a TBI, greater chances of violence, significant issues with substance abuse with American Indians and Alaskan Natives. So, this is an area I think of common challenge in both countries and one of those areas where there may be some room for collaboration. Then the third area of shared concern regards the long-term neurological effects of head injuries in contact sports. And in Australia, we have Australian rules football, rugby league, and rugby union. And those are much like, you know, American football and basketball, the major sports that we have in the US. Those are the major sports that we have in Australia. And Australia has recently begun to recognize the chances of long-term neurological injury and the possibility of chronic traumatic encephalopathy. And in 2018, the University of Sydney opened their first brain bank. You know, in the US, there's been a brain bank at Boston University, Dr. Mellow, who is now associated with the University of California, Davis has another area where he does CT evaluations in former athletes. So, Australia is now recognizing this fact. And they are also trying to manage neurological injury through concussion management protocols in contact sports. So, I'm going to stop the sharing. I'm going to go back and I want to show you a video from Australia that talks about how they are trying to come to terms with what's going on. Just one second there. Okay.

>> Former Australian -- for the first time, a former Australian rules player who's been diagnosed with the degenerative brain disease CTE, Graham Polly Farmer is the latest athlete to be identified with the deadly condition that's already been found in several former rugby league players.

>> Graham Polly Farmer was quite simply one of the greatest AFL players. The Geelong ruckman died last year of Alzheimer's. Now researchers in Sydney had analyzed his brain concluding he had CTE, chronic traumatic encephalopathy caused by repeated knocks to his head.

>> What we really need to focus on is the fact that this disease is here in Australian rules football.

>> His son in a statement said, "I've got memories of dad lying on the couch with a bucket and vomiting after games." And it didn't just happen a few times. They were the bad old days when it came to managing head knocks.

>> You know, in my day, you've got knocked out even on the day. You felt pretty good at halftime if it was done in the first half, and you felt pretty good at halftime, you keep going back on.

>> CTE was diagnosed in three former rugby league players, including Canterbury star and coach Steve Folks.

>> We're not advocating for a nanny state solution here but we just want to understand the risk, work out how we can sensibly modify the risk.

>> Former Essendon and Geelong ruckman John Burns believes he has CTE and has joined the class action against the AFL.

>> When your brain is not normal, and it's not so much the depression side of things, it's something in your brain is trying to get out, and you can't function with it properly so you do something stupid.

>> And to the parents of school-aged children involved in contact sports, the medical experts had this message. Headgear may protect against knocks to the skull but it does nothing to stop brain injury.

>> You get a bump or something and they get up and they feel not quite right. If in doubt, sit it out, just come off the field first and just get yourself assessed. You don't need to get back up and keep running.

>> If you're trying to lose belly fat.

>> All right. That's not part of the presentation. All right. So, again, you know, common challenges. We see this across the board. And I think it's one of the pillars I would say of looking at areas of collaboration. You know, we've got similar, you know, incidents and prevalence of acquired brain injury, we have similarities and not similar to our support approaches for this type of disability. And we had these common areas of challenge. So, one further pillar of looking at collaboration is looking at the infrastructure around research and training that we have in Australia. And Australia, despite being a relatively small country has pretty high research capability. In 2018, there were 43 universities that had approximately over 1.5 million students. Australia's universities are well-known for areas of engineering, medical and health sciences, psychology and cognitive sciences. And I think more specifically if we're looking at areas of collaboration, a number of Australian universities have disability units or research units that are dedicated to the area of disability.

So, I want to show you some of those to give you a sense of what they're trying to do. So, Griffith University has the Hopkins Center, they also have the Menzies Health Institute that I mentioned before. The University of Melbourne has the Melbourne Disability Institute. The University of Newcastle has the Disability Research Network. The University of Sydney has the Center for Disability, Research, and Policy. And with some of the things we have talked about today, these institutes are trying to address these areas. The University of Sydney, as we mentioned, has a brain bank now to further evaluate CTE and other forms of neurological injury from contact sports. NDIS, many of these different research institutes are trying to evaluate like how well the NDIS is working. And like the Griffith University Menzies Health Institute has done a number of surveys with people with disabilities who are trying to access the funding from this service to find out, you know, how easy is it to access the funding, how well do you feel like empowered in trying to access these programs. And all these different areas of evaluation. So, these institutes really are going to play a major role in the implementation of the NDIS. And I think, you know, really present potential partners for people in the US to target and to look at, you know, ways that we can work together. I mentioned before that, you know, Australia is one of the few countries outside the US that has kind of formal academic degrees in rehabilitation counseling. So, in Australia, there is Griffith University, Flinders University, La Trobe University, and the University of Sydney who have either undergraduate and/or Master's degrees in rehabilitation counseling. There's two different accredited -- there's somewhat like accreditation agencies but there are also professional associations that sort of have like a dual purpose. We have the Australian Society of Rehabilitation Counsellors, and then the RCA, the Rehabilitation Counseling Association of - that's a long one. I'm totally mispronouncing that word. So, I would say RCA it's a broader area outside of just Australia. But they provide accreditation standards for programs, they also have codes of ethics, they sponsor different trainings, they have different journals that they oversee. And one of the things that I think is common here in the US and also in Australia is that no program in Australia features the specialization in acquired brain injury or cognitive disabilities.

In the US, I did a paper with Theresa Braunwald, who's a graduate of our program. Three years ago, we did a paper where we looked at our cognitive disability specialization at SDSU. As part of that, we looked at programs around the US and we only found four programs that had any kind of specialization in ABI or cognitive disabilities. The codes of ethics and the professional -- areas of professional competencies for both organizations in Australia don't have any required knowledge or skill for ABI that its graduates need to attain. And I think like if we look at collectively across the US and here -- in the US and also in Australia, you know, the problem is that you have many graduates who are coming out of the programs with really no kind of specialized knowledge in acquired brain injury. So, even though they may have a Master's degree in rehabilitation counseling, they may not really have any kind of knowledge or training, you know, specifically on how to work well with this population. So, when we think about areas for collaboration, I think that is another area we could consider. And that takes us to the conclusion, looking at how can we collaborate.

So, one is that I think with epidemiology, we need to in both countries have a better way of knowing how many people are actually impacted by brain injury. You know, we try to do population surveys, hospital registries. But maybe there are some different, you know, methods we can use to better track how many individuals actually have, you know, this kind of disability. And the consequence for that is that if we're trying to make requests for funding for policies, knowing how many people are actually impacted by these disabilities, it really makes a difference to make the case to policymakers and lawmakers on the pervasiveness of acquired brain injury. The second thing we should look at is health care. You know, given that Australia has a much more of an established system with universal health care, we need to look at how does health care differently impact people in the US and Australia with acquired brain injury. How well do they have -- how well are their needs met? What are their experiences with acute care, with long-term care, with outpatient care? And that can be an area of comparative research and policy development. We need to look at long-term support programs around the area of acquired brain injury. So, Australia, as we talked about has established the NDIS and the NIIS. Their forms of providing care are now fundamentally changed. You know, before the development of the NDIS in particular, Australia was in many ways like the United States where many of its long-term care support programs for people with acquired brain injury were specific to states and to territories. But with the development of this program, we need to look at how well does this work, can we really implement something like this potentially in the United States. So, we need further discussion, further collaboration about how do we meet the needs of people with this disability based on different kinds of models. Number four, we should look at ABI program development. Both countries have different ways of providing employment supports, independent living, caregiving supports, other services to enhance the quality of life. We should compare like what we do in both countries and develop best practice approaches to share those ideas and, again, this is another key area of collaboration that could improve services in both countries. Number five, prevention strategies. We've talked about the fact that ABI is a pervasive disability in both Australia and the United States, we need to look at public health campaigns to reduce ABI risk due to factors like alcohol and substance abuse. And if we look at different populations, I think we need to collectively, you know, place special attention on the needs of indigenous populations. And again, look at what works, what doesn't work. And I think we really could enhance what we're doing in both countries. Number five, sports-related TBI. The US definitely has more of a long-standing history that's dating back to Dr. Bennet's models work with former NFL and college football players. But, you know, since that time, as we talked about Australia is now looking at this as an issue in their own sports culture. And we need to, again, compare notes, look at creating different ways of evaluating CTE and other neurological risks. We need to look at prevention strategies in contact sports, things like concussion management protocols, the developments of protective headgear, other ways that we can better support athletes in these sports in both countries. Number seven, we should look at large forms of cross-national ABI research. As I mentioned, Australia has a high research capability and many of us in major in universities have disability institutes that are really primed to do research across all the different areas we're talking about here. And I think, you know, if we can seek out collaborations in these areas with the infrastructure that Australia and the US both have to do research. Number eight, curriculum and accreditation development. Now, as I've mentioned, both countries really struggle with a lack of required training in the area of acquired brain injury. And again, through discussions, collaborations, talking about strategies, we need to look at how can accreditation and training be better addressed in both countries. And number nine and the final recommendation is that we should look at student and faculty exchanges. I think given the fact that we have these common needs around acquired brain injury, we have a similar training model in Australia and the United States around rehabilitation counseling training. I think it's really a primary to look at international exchanges of faculty and with students. You know, here at SDSU, we have a long history of doing those types of collaborations and I think they definitely have enhanced the faculty, they have enhanced the student experience. And I don't think it's really the case that a lot of other universities, you know, specifically rehabilitation counseling programs in the universities across the US have those kinds of experiences. So, Australia really presents an opportunity to further have these exchanges and really expand our awareness about what's going on in another country. And then, you know, create that foundation to talk about things like, you know, sports-related CTE, the needs of indigenous populations with brain injuries, health care for people with acquired brain injury, long-term care for people with acquired brain injury.

Again, Australia is a unique country to be able to look at these kinds of issues. And that is the end of my slides. So, I'm going to end with the share screen. And I want to encourage you just if you have questions or comments just to voice them. Or you can send the chat in. And, you know, we can just have a discussion. And so, any questions or thoughts on anything we talked about today?

>> Hi, Chuck. Thank you so much for this really informative presentation. I have to first start off disclosing, I don't know all that much about TBI or research and clinical practice, certainly, my background is much more in the developmental disabilities and autism spectrum for cognitive disabilities. But I'm just now curious with this pandemic and this new aspect of remote treatment and services that we've all kind of been delving into, I wonder if you've got any sense of maybe some optimism about some new kinds of service delivery, especially to address some of those rural and remote areas with what we've kind of learned through tele forms of services and interactions during this time. And I guess extra interesting phenomenon for you to be having to do this Sabbatical tele as well. So, I just was curious if you have any other commentary on that, and is there any form of optimism we can think of in this state or especially those remote where, gosh, what you shared was, yeah, so many challenges.

>> You know, I haven't seen a lot of that written specifically about Australia. I do know that there are services like we see in the US where, you know, the use of telemedicine, telehealth is something that is one attempt to try to meet some of those needs. And, you know, it's something that I think in terms of future collaboration, especially with -- I think here in the US we have a long-standing history, especially in the military and veteran community of using telehealth approaches to see like, you know, what are they using in Australia, you know, what's working for them, what's not working, you know, for them and vice versa for here in the US. You know, but again, specifically, I have not seen a lot written about Australia, I suspect that some is written in those areas. I think one of the problems we have in the US and I think, I would suspect is likewise an issue in Australia in terms of remote and rural areas is that technology needs and expertise you have to be able to implement those kinds of supports. I think, you know, some of those regions, they won't have access to high-speed internet, they won't have access to computers. You may have individuals who have limited expertise -- you know, familiarity with using their computer to implement the telehealth approach. And in some of those -- you know, if you look at things like neuropsychological assessment and some other forms of therapies and supports, you often need to have at least a paraprofessional or somebody with some level of medical training in that community to do some of the hands-on like areas of assessment or interventions that may be directed with somebody with a higher level of training thousands of miles away. And thinking of those rural and remote settings, they likely have a bigger problem with that than we have in the US in our rural regions because they're so much more remote than we have here in the US but it's something I plan to further look at. And I think it's an interesting question to look at. Yeah. Any other thoughts or questions? But thank you, Mary.

>> I have one, Chuck. Actually, I have a couple. I was just curious as to why they would eliminate the fetal alcohol syndrome from being funded. I mean, that is a huge area and we don't really see that, you know, even just thinking about our children systems, school systems that don't get to see that a child has that diagnosis. And if you look at all the learning issues that come from that or sensory issues that come from that, which technically is a brain injury in utero. I was just curious as to why they wouldn't fund that. And then, you know, in talking about -- I was glad you hit the sports thing. I was just wondering if their education starts at a younger age in terms of concussion. Like here in the United States, we've started that at the teen level, you know, for soccer and such. I was wondering if you were able to see any of the data for that or relative to that and for public awareness that kind of thing.

>> Yeah, those are great questions. You know, with the possible elimination of people with brain injuries and fetal alcohol syndrome, I wasn't able to find any reasons for it. I think -- my understanding of this, it was a leaked report, it's like a memo basically kind of listing these are some possible things we could do with the NDIS rather than like a comprehensive, you know, report that had data and had reasons for why they were making these decisions. I mean, I suspect there may be a perception that these are high-cost areas of disability. So, I think, essentially it was like kind of a list of things they could do without any kind of further analysis to pass that. And in terms of like education about concussions early on and prevention strategies, I'm not sure. I wasn't able to find anything really comprehensive on that. Again, I'm totally speculating here but I suspect that we probably are further along in the US on that than they are in Australia. Because they have just more recently addressed, you know, the possibility of CTE in their major professions sports. And, you know, I think in Australian society, just from an outsider looking at kind of the culture of sports and mass funding and things like that, I think in some ways, there may be more of a barrier to kind of admitting if you're hurt and seeking help than taking yourself out of games. That's definitely an issue we see with contact sports in the US but I suspect it may be even more of a barrier in Australia. So, I would think that they may have further to go in that area.

>> Okay. Thank you.

>> Sure. Thanks. Any other thoughts or questions? And maybe from some of the faculty members on this call, some of our students on the call. Would you have any interest in going to Australia? Or once we're past COVID-19 and we're looking at creating exchanges with Griffith University because I've had those discussions with our faculty members and I think that that is something that they would be interested in doing. But what would you think it would be like doing that? Please, I have thousands of students.

>> Yeah, I think that would be super cool. That's going to be along the lines of my question that I was going to ask. It was like how do you feel like the process like of integrating -- because I know you said that like the way that our program is set you don't get to learn this stuff or you're not -- as a student, I'm not as exposed to acquired brain injuries and learning as much into details as I think we should. And I think that advocating for something like that would be a great way to get more exposure to this area.

>> Yeah. Yeah, I think in general, you know, going to another country, and I've done some traveling, I don't think -- Dave, you've done probably more traveling than me based on some of our discussions. But I think just in general, you know, kind of outside of thinking about acquired brain injury or rehabilitation counseling, that going to another country and spending some time somewhere else is incredibly illuminating to see like just like different cultures, different ways that different people interact, different ways that things that are important to other people may not be important to us and vice versa. But then if we think more specifically in the area of acquired brain injury, being able to spend some time with individuals with that disability and their family caregivers and those professionals in those countries, there's really no better way to really get an in-depth understanding. And, you know, I mentioned at the start of the presentation, we've had the student that I wrote the paper with, in Ireland had spent her entire semester at an Irish-based brain injury program. And, you know, it's one thing to read about what they do there but another thing to spend time, that kind of extended time with the people with brain injuries and their family members. And I think like when she was writing the paper with me, she had a level of insight and perspective that she wouldn't have had by just reading about it. So, there is, I think, that element of spending time at another place like that. You really can't beat that. There's really no better approach. So, I think, you know, for the students here today and for our faculty members, you know, again, once we get past COVID-19, there will be opportunities to go to Australia, not only at Griffith. I've had some discussions with faculty members at the University of Sydney, I think that is another place that could be a possibility. I think other places throughout the country, they would likely be helping too. So, it's just a matter of kind of talking to me and getting that process started. When we did have the two students who went to Griffith University in 2019, it took about a year of planning to get that established. There's a lot of meetings with people at SDSU and with Griffith to get them approve that, you know, by SDSU to look at things like visas, to look at money for traveling. It took a lot of leg work to get that off the ground. But it is possible to do.

>> I mean, just I'll jump on that because I coordinated several trips with students to China and Hong Kong and Ireland and the Netherlands where I actually took a whole group of students there for a much shorter time, you know, we were -- when we did Ireland and the Netherlands trip, it was for a week in each country. And I think there is -- for the students that went on their own like the students who went to Spain and students who went to Australia. I mean, they had to do a lot of the leg work themselves. And so, it is and has to be very student-directed. We will help and we will make -- help you make all the connections but there's a lot of leg work that students have to do. There is some funding through the graduate students' association. So, you know, there's different connections that we can help with. But it does, as Chuck was saying, I think it's so eye-opening, particularly when you're there for a short time, you think, wow, everything is great and then you don't really even understand the whole context at that point but it does give you some of the questions to ask and then that's the way that people learn more about it is then you start digging a little deeper. Kind of like what happened with you and the article saying, oh, yeah, these things are great. And then they said, "Oh, yeah. Dig a little deeper." But that's the really exciting part, you know. That's what's really interesting to find out what's really below the surface and what the PR catalogs say, right. It's a great experience, it absolutely -- I've never had anybody say that they regretted, you know, getting outside of their comfort zone and really trying out, you know, meeting people from other countries, finding out their experiences. It's just so eye-opening and such a wonderful growth experience. I can't recommend it highly enough.

>> Yeah. Thanks, Janet. Great points. And you've done probably more traveling -- maybe not as much as Fred but -- I think that Fred is on this call too but --

>> Yeah, I'm a million-mile traveler.

>> Yeah.

>> Chuck, I had one more question I was curious about. So, regarding your perspective on how the United States views Australians handling of acquired brain injuries but how did Australians or your colleagues that you work with view how our system is over here?

>> Yes, it's a great question. You know, in terms of anything written, I haven't seen any kind of articles beyond like the one I mentioned in 2007 where we did kind of our review about employment policy and rehabilitation practices, just in general, not specifically with brain injury but just across the different disability areas between Australia and the United States. You know, I don't have a good sense of that. I mean, I have some anecdotal discussions, I've talked to people over the years in Australia. I think there are some views that we have a more kind of established comprehensive approach to vocational rehabilitation than they have. We've done more research in the area of vocational rehabilitation. In Australia, they don't have like a department of rehab or they don't have a state, federal vocational rehabilitation system. The federal government funds private and public agencies to provide rehabilitation services but these are community-based rehabilitation provider agencies, it's not like kind of a state-level federal system to provide VR. So, I think there are some feelings that we do, you know, those things effectively. But I think the question you raised is something that can be further looked at in terms of future writing and, you know, when I eventually -- I didn't mention this but eventually I plan to go there, maybe in a year or two years. We'll see like when it's safe to travel again. And that's one of the things I want to get a deeper level of understanding about how do they perceive like what we do in the United States along brain injury.

>> Hey, Chuck, I have one more question. And it's regarding the training for, you know, in our program, we have the cognitive disability certificate for rehabilitation counselors. But in the outside of that, I think it's called the Brain Injury Association of America, they have CBIS training where any professionals are -- I don't know if it's specific professionals can get trained to work with people with brain injury. So, you know, the discrepancy between the hands-on care that somebody gets within the community, a lot of those people from my understanding have never heard of that type of training, even though it's out there. Is that really accessible to them or only accessible to medical professionals? Because I know that medical professionals have access to getting that training?

>> Yeah. My understanding of that -- it's CBIS, right, I think.

>> Yeah, CBIS, C-B-I-S.

>> That's basically open to any kind of professional. You don't have to -- it's not like for people with medical training. And what you do have to demonstrate is you have to show you have so many hours of direct service time with people with brain injuries and there's some other qualified areas. But it basically is open to any kind of professional. And then the question is like would it be accessible to somebody in Australia. I think it probably would be. I've never seen anything looking at that criterion for that you have to be based in the United States. But that's an interesting thing to think about. And actually, I'll show that with colleagues in Australia for thinking about, you know, looking for more formalized training in the area of brain injury.

>> Yeah, do they have a program within their community programs that certifies some of their workers? No.

>> I've never seen that. And like I was mentioning with the NDIS, the people that are administering programs like that, they are like just people off the street or people that have no disability training whatsoever who are, you know, doing plan development with people around NDIS plans and they don't know how to do an interview, they don't have the Americans with Disabilities training. They're really, you know, they're kind of bureaucrats, they don't really have any human service training. So, just on the larger scale, that's a problem, I think.

>> That happens here too.

>> Yes, it does. In social security administration, I think in particular. I've seen that. But that's -- yeah. I think any time we can look at opportunities for more training, more specialized training, you know, we need to look at that and, again, I'll share that with them. I think it's a good idea.

>> I have a question.

>> Oh, sorry. Go ahead. Who was the one back over? I was just going to say, you know, as far as if you went ahead in the direction of any kind of interdisciplinary training because I know I have connections with assistive technology providers. Australia has their own sister organization of RESNA which is what we have here for North America, ARATA is the one for Australia, and so, I know that there's a lot of collaboration that happens but I'm curious as to how the brain injury discipline interacts or interfaces with the assistive technology area. So, that might be something to consider.

>> I think I'll look at. Yeah.

>> I had a question.

>> Yeah.

>> I know that you were, of course, more focused on post-acute care treatment and long-term care and outcomes. But the moment you mentioned rural and remote, and then defined remote, and I was thinking, wow, it would seem like the more remote you are and the more numbers of people in those remote areas, the poorer the outcomes are going to be for injury or a stroke just because of what we've learned in even the last decade or five years about immediate care and reversal, for example of stroke, types of stroke. You know, the timeframe, the clock is ticking, the golden hour of getting that person into traumatic diagnosis and care. Did you learn anything about anything -- it would be more medical and neurological but did you learn anything about, not just prevention but the acute care treatment to improve the long-term outcomes? That's what we're trying to do.

>> Right. Yeah, well, the closest thing I saw was when, you know, there's been some writing that talks about how difficult it is to get people to an acute care center like unless they got the first stroke. But I think what you're talking about happens where you lose that precious time to get that intervention, you've got that window basically, you know, every minute that goes past not being, you know, seen by medical professionals and you know, that are trained to deal with stroke, that you lose more and more brain tissue. So, I think the reality is that if you live in those rural and remote settings, your chances of having a long-term disability, they just naturally increase, you know, just because of the difficulties of transportation and then like I was saying earlier about when the person is actually in that center, being able to have the support of family members and being able to connect with medical professionals back in your home community, that makes it so much more difficult, which also comprehends long-term outcomes. So, but I think -- it's one of those areas that I want to learn more about. I think like, you know, what Karen mentioned what Mary has mentioned, you know, which many of you guys have talked about in terms of areas for further examination, this is an area I'd like to learn more about as well. And, you know, that if I'm able to go to Australia at some point, this is an area I think it'd be helpful for me to learn more about like how do people in those rural and remote settings like how did they deal with things like a neurological illness like a stroke. And if they don't have that kind of access to care, you know, what happens to these individuals? Are they more likely to die? You know, are they more likely to be severely compromised because of their stroke. But I think it's something that it'd be interesting for me to look at deeper. Okay. >> Second quick question. Did anybody use the terminology with you of using "American protocols versus European protocols" for some treatment of various injuries and/or diseases and conditions?

>> No, I never came across that. I've never had a discussion about that. Yeah, it's an interesting question. I don't know.

>> Okay. I came across that in the last few years with a patient in America, a young man who had a brain tumor. And Hong Kong was giving -- he was getting different consultations from Hong Kong. And they were giving different recommendations for treatment than what the doctors in America were. And Hong Kong said, "We do not use the American protocol. We use European."

>> Interesting. Yeah. Well, everyone, it looks like we're out of time. I don't want to keep you any further. I do appreciate joining me today and, you know, learning a little bit more about Australia and acquired brain injury and I really view this like the start, at least for me. And I think maybe for many, you know, with our program about further learning about how Australia, you know, deals with the area of acquired brain injury. And hopefully, this would be the foundation for, you know, future work for myself, for our students, for our professors, our colleagues to further collaborate with individuals in Australia. And then if you're interested in having the CRC units for this presentation, just send me an email and then I'll send you, you know, what you need to do in order to get the units. And actually, you know, originally I was told there was 1.5 units but it's going to actually be 2.5 units. So, you get units in different categories and so you kind of get more bang for the buck here which is great. But again, have a great day. Thanks for joining me today. And that's it.

>> Oh, it's a wonderful presentation. Wonderful research.

>> Thank you. All right. Bye, bye, everyone. Thank you.

>> Bye.

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