GOVERNMENT OF
WESTERN AUSTRALIA

Climate Health WA Inquiry

Inquiry into the impacts of climate change on health in Western Australia

Inquiry Lead:
Dr Tarun Weeramanthri

Witnesses:

Dr Liz Hanna
Public Health Association of Australia (PHAA) and World Federation of Public Health Associations

Ms Hannah Pierce
President, PHAA, WA branch

Thursday, 3 October 2019, 11.15 am

Recorded at the State Administrative Tribunal; transcript produced by Epiq Australia Pty Ltd, Perth

HEARING COMMENCED

DR WEERAMANTHRI: Ms Pierce, Dr Hanna, I would like to thank you both for your interest in the Inquiry and for your appearance at today's hearing, both in person and virtually. The purpose of this hearing is to assist me in gathering evidence for the Climate Health WA Inquiry into the impacts of climate change on health in Western Australia. My name is Tarun Weeramanthri and I've been appointed by the Chief Health Officer to undertake the Inquiry. Beside me is Dr Sarah Joyce, the Inquiry's Project Manager. If everyone could please be aware that the use of mobile phones and other recording devices is not permitted in this room, so please make sure that your phone is on silent or switched off.

This hearing is a formal procedure convened under section 231 of the *Public Health Act 2016*. While you are not being asked to give your evidence under oath or affirmation, it is important you understand that there are penalties under the Act for knowingly providing a response or information that is false or misleading. This is a public hearing and a transcript of your evidence will be made for the public record. If you wish to make a confidential statement during today's proceedings, you should request that that part of your evidence be taken in private. You have previously been provided with the Inquiry's terms of reference and information on giving evidence to the Inquiry. Before we begin, do you, Hannah, have any – Ms Pierce, have any questions about today's hearing?

MS PIERCE: No.

DR WEERAMANTHRI: Dr Hanna?

DR HANNA: No.

DR WEERAMANTHRI: Thank you. I would like to state for the record that I'm a longstanding subscribed member of the Public Health Association of Australia, have received State and National Awards from the Association and I'm Chair of the Conference Advisory Committee for the Public Health Prevention Conference to be held in Perth in 2020. This latter position is unpaid. Earlier this year I was an invited speaker at the Public Health Prevention Conference in Melbourne, and PHAA covered my travel and accommodation costs. For the transcript, could I ask each of you to state your name and the capacity in which you are here today? And I also ask that throughout the hearing you briefly state your name prior to speaking.

MS PIERCE: Hannah Pierce, I'm the President of the Public Health Association Australia, WA Branch.

DR WEERAMANTHRI: Dr Hanna, for the record, if you don't mind?

DR HANNA: Yes. Dr Liz Hanna, speaking here on behalf of the World Federation of Public Health Associations, plus, I've been called in to assist the PHA and to speak with you regarding their submission.

DR WEERAMANTHRI: Thank you. So we'll actually make sure that we record that. Ms Pierce is appearing here as president of the WA branch and Dr Hanna's here representing the National Association and also the World Federation of Public Health Associations. Is that correct?

DR HANNA: Correct.

DR WEERAMANTHRI: Great. So, Ms Pierce, would you like to make a brief opening statement?

MS PIERCE: Yes, I will. I'd like to thank you, Professor Weeramanthri, for giving the Public Health Association of Australia the opportunity to appear as witnesses for this Inquiry. As the leading national peak body for public health representation and advocacy, the Public Health Association seeks to have better health outcomes through knowledge and evidence-based policy. We are very supportive of the WA Government holding this Inquiry into climate health. Action to ensure a safe climate is a critical and urgent public health priority, requiring advocacy to ensure a safe environment and a just, equitable and ecologically-sustainable society. We would like to note that any costs incurred by holding this Inquiry are vastly outweighed by the cost climate change will have and is already having on governments, the community and individuals.

We are a member-based organisation and we draw on the expertise of our members when contributing to policy development. So while I'm here today to represent the WA branch of the Public Health Association and the Branch Presidents, we also have present Dr Liz Hanna, a member of the Public Health Association and leading expert in climate and health. So given her expertise in the area, Liz will be taking the lead on answering the questions you have for us today, so I will now hand over to Liz to give a brief statement.

DR HANNA: Shall I start?

DR WEERAMANTHRI: Yes, please.

DR HANNA: Okay. Liz Hanna. Although I was not part of the writing team for the PHA submission, despite being a previous Chair of the Ecology and Environmental Health Group, and remain a committee member, which I have done for about 30 years now. I was also Founding President of the Climate and Health Alliance, and I understand you also received a submission from that group. The reason that I did not contribute, although the World Federation did receive an invitation, and as I chaired that Environmental Health Group, those activities have been preoccupying me, but also knowing that PHA and the Climate and Health Alliance were both making submissions and recognising that a lot of the input would be covered in both those. But I'm very happy to present today. So by way of a background and to introduce myself, I'm first at the forefront of

climate change and human health research adaptation for nearly two decades. Tony McMichael recruited me to the ANU to convene the National Climate Change and Adaptation Research Network for Human Health, which was part of the NCCARF[1] family, and that was back in 2008. During that time, I worked with all the climate change and human health research groups at every university group across Australia, as we strived to attract research grants and conduct primary research into the health risks and adaptation options for climate change, as it affected human health in Australia.

You may have encountered our state of the science policy series that I edited for the Australian Pacific Journal of Public Health and the discussion papers that we developed. And if you've not had access to those, I'm happy to forward you links to those. My focus spans urban health, rural health air pollution including allergens, water and food security, vector-borne diseases, although I'm certainly no expert on this, bush fires and mental health. My major research projects were quite broad, but very much predominating in heat, which drew in my physiological background from my first career, which was in clinical health in intensive care unit. So whilst at ANU, I was contracted by the Australian Federal and several State Governments to lead climate change and health vulnerability assessments, and also internationally, such as the Pacific Islands. I've also supervised numerous PhDs on climate change and human health and examined several others, including some from Western Australia.

So lastly, I've conducted primary research examining the trends and health risks across Australia's tropical north, spanning from Broome through to Cairns. So with that aside, I'd like to congratulate you and your team for embarking on this, as well as taking the approach to canvas the wisdom and experience from across Australia as Western Australia moves forward in developing this. And I also noticed that it has not been without criticism from your opposition and others who would prefer the finances to be found elsewhere, but I certainly endorse Hannah's comments that investment in health protection in this manner will reap massive benefits in terms of cost saving. So that was my opening statement. What I do have also that I can add is responses to the specific questions that were forwarded to me, and I could run through those before the questions, if you'd like. How would you like to proceed?

DR WEERAMANTHRI: I'd prefer to – I'll ask the questions and then come to you for the answers, if that's okay.

DR HANNA: Yes, certainly.

DR WEERAMANTHRI: So before we go to the, you know – some of the questions which we foreshadowed with you prior to this session, I will just ask a follow-up question to your introduction, Dr Hanna, which is, obviously you've had a longstanding interest in this area.

[1] National Climate Change Adaptation Research Facility

DR HANNA: Yes.

DR WEERAMANTHRI: My study of the area has been much more recent, related to this inquiry. But when I look at the literature, it seems that the basic science, the basic, you know, health impacts of climate change, how they're described hasn't changed that much in the last 10 years, though some of the causal pathways are possibly better explained now. Is that a fair assessment that the links have been known about for some time?

DR HANNA: The initial work was done largely by Professor Tony McMichael prior to us conducting any formal research in this area. And that was based on understanding the health pathways and the relationship between climate in human health, and an understanding of what Australia's climate and climate-related health risks might be. With the adaptation research network that we were funded and hosted as a new – as part of the NCCARF banner, that was part – and the NHMRC started a deliberate program of funding climate change and human health research projects, some directly through NHMRC, and NCCARF actually funded some additional ones. And so ultimately, there was $3 million donated by NHMRC and $3 million came across from NCAR, to make a pool of $6 million.

Sadly, only half of that was actually allocated to projects funded by the NHMRC, which caused, you know, major consternation amongst the research groups, and then human health – and then from 2012, there were no further funds allocated to any research group across Australia to specifically examine the impacts, threats and adaptation options from climate change affecting human health. This also was the source of massive consternation and not only that, but it also served to diminish our expertise, as we were all forced to stop taking in new students, which meant that there was a pause and a halt in training the next generation of researchers in this space. It also blocked the advancement of knowledge. So in answer to your question, I'd say a lot of that came out in a flurry in the initial two years, and then there's been some stalling.

We've had some ongoing studies that have been conducted, most of those through the ARC, and one or two others that were not allowed to mention the word climate change. And so there's been a definite hiatus. We know that, just with the science and as the data has unfolded, many of the climate predictions have been rolling through, and we also know that climate change is actually accelerating faster than the initial prediction. So we're getting more evidence of the impact that it's having. Sadly, Australia is lagging now behind the world in terms of measuring and monitoring the actual health impacts that it's having upon our society. Whereas once upon a time, certainly the group under Tony McMichael were world leaders, because it was the largest research group in the world specifically looking at climate change in human health, and without the funding and with Tony's death, alas that unit pretty much folded. So there's been a hiatus. So to summarise, we got to that point. There's been a smattering of ongoing research since, but in essence, it's very much stalled, which we

think is a great shame when we realise that this is the biggest game in town in terms of human well-being and health.

DR WEERAMANTHRI: Okay, thank you. So we'll pick up some of those research issues later on in the inquiry. It's certainly been raised in some of the written submissions.

DR HANNA: There's also - - -

DR WEERAMANTHRI: Yes. So we'll - - -

DR HANNA: Just on that point, there was an article that Donna Green wrote in *Nature Climatic Change* that highlighted this, and that was published a few years ago in *Nature Climatic Change*[2], and Donna Green was the lead author, and I was given that paper to review. But I was not an author in that paper.

DR WEERAMANTHRI: Okay, thank you. And so, you know, they're clearly things that are within the scope of the WA Inquiry which relate to national issues, which will - - -

DR HANNA: Yes.

DR WEERAMANTHRI: - - - you know, intersect at some points. And so we'll think about how to handle that in the final report. So let me go on to the next question, which is – I might ask first to Ms Pierce and then to you, Dr Hanna – which is, what do you think, either from your impressions or from data, is the level of public awareness of the links between climate change and health, and public support for greater action from the health sector? And I might ask you to speak from a Western Australian perspective first, Ms Pierce, and then hand over to Dr Hanna from a national or international perspective.

MS PIERCE: I won't be able to draw on any data, but I can speak as a Public Health Association member and the level of support within the Association. It's definitely growing as an issue and we have members speaking to us quite often about it. It comes up in many conversations, in terms of being discussed in relevant submissions and policy documents that we create in preparation of events, including conferences, and we're hosting an event next week on the issue, and have had a really good turnout from that. But I will pass it over to Dr Hanna to expand.

DR HANNA: Okay. So it's Liz again, and I'll continue. It's difficult to have – because we don't actually have real data on what the general attitude is. We know that organisations like the Australia Institute recently published their survey on national interest in – public interest in

[2] Green D, Pitman AJ, Barnett A, Doherty PC. 'Advancing Australia's role in climate change and health research', *Nature Climate Change*. 2017; 7 (doi:10.1038/nclimate3182): 103–6.

climate change.[3] And we know that other groups like The Essential Report and CSIRO also used to do some annual reports. They've waned, they've buried over the years. I think the last most recent one is the Australia Institute, which cites something like 70 per cent of the Australian population do believe, and possibly 60 per cent or more would argue that they recognise that climate change is not only happening, but that it's actually anthropogenic. The thing that waves our arms in the air, I'd have to admit, is the results of the last federal election, which would possibly indicate that maybe that's not necessarily the case, it's not foremost in the mindset of Australians.

So what the expectation of the public to human health – or Health Department – the health sector response, I would argue that although it may not be front of mind, the general attitude, of course, in Australia is that people think we have a fine healthcare system. They expect to have a fine healthcare system. They would therefore, even though – it's like public health, even though they don't actually see it happening, they just expect it to be happening in the background. And that when there is a health need, that they – and it's always they, in brackets, "They", inverted commas I mean, would be on top of it and would be there to protect their health. So as I said, I would imagine that even though we don't have the data, that the general Australian public would be expecting the health sector to be on top of this and to be preparing for it and building their response.

DR WEERAMANTHRI: Thank you. Dr Hanna, is there any international data on this issue?

DR HANNA: Specific data on the expectation of the general public on the health sector response?

DR WEERAMANTHRI: Yes. And on the level of awareness of the health climates links.

DR HANNA: Yes, yes. Australia is – we were doing well some decades ago, and then when there was rampant anti-climate rhetoric from the politicians, and indeed the media, that widespread belief went down. So we are lagging behind our other country partners. And, of course, that pattern is repeated in most other fossil fuel-exporting countries, because it's a deliberate act to befuddle the public's minds to make them challenge or doubt whether climate change is (a) real; or (b) how soon it's happening; or (c) whether it's going to harm us at all, or it's got something to do with our activity. Certainly the Europeans, and even the Brits, are very much on board, but of course, they're not fossil fuel-exporters. And, of course, you know, the Asian countries are very much on board.

[3] See Merzian R, Quicke A, Bennett E, Campbell R, Swann T. *Climate of the Nation 2019. Tracking Australia's attitudes towards climate change and energy*. Canberra: The Australia Institute; 2019 September, p. 36. Available from: https://www.tai.org.au/sites/default/files/Climate%20of%20the%20Nation%202019%20%5BWEB%5D.pdf.

What we had seen internationally is that once it starts happening in, "My own backyard", people then start believing in it, because they can see it on the ground. And there was a big uptick with Victoria and the millennial drought and the bushfires. Whereas when Sydney and New South Wales were having lots of rain and they didn't see it, their level of belief was not as high. So it's very much related to that. I've also been part of the most recent publication, which was part of The Lancet series. And that's when we were writing – or we were tasked with writing Australia's contribution to The Lancet climate change and human health series, and we recently published that – or probably January this year, I think, maybe, in the medical journal of Australia. And one of my tasks in contributing to that was actually comparing Australia's research output on climate change in human health and comparing that to the rest of the world. And indeed, it showed exactly as I mentioned before. We had the world – because it was an emerging issue, there wasn't a lot happening. There was a flurry when it first came to realisation, and then with the investment that Australia had into climate change in human health research, there was a flurry of research output and advancement of knowledge, and then that slowed, and we've subsequently been falling behind the rest of the world.

Similarly, the same could be said for mention of climate change in human health in political documents, and also in the media. And so again, I'd refer you to that article in the *Medical Journal of Australia*, and Ying Zhang was the lead author in that, but you've probably got access to that anyway.[4] But that's also – it shows the evidence of the fact that Australia has been lagging the rest of the world in terms of research output, focus from our political documents, and the third being media publications and media attention.

DR WEERAMANTHRI: Thank you. So we do have access to that paper, so again, just for the record, The Lancet Countdown is an international collaboration documenting what different countries are doing in the climate and health space. There's a specific Australian group of people working on an Australian report that comes out annually, the second of which is due to come out in the next month or so. And we're hoping to have one of the future hearings, have as a witness Professor Tony Capon, who is one of the lead authors on the Australian report. And hopefully just after that, that comes out, so towards the end of November. So we'll look at those issues you've raised and that report in more detail with Professor Capon. So we'll move to the next question. Ms Pierce or Dr Hanna, can you describe the concept of co-benefits? What does that mean? And outline what co-benefits might occur as a result of mitigation and adaptation actions.

MS PIERCE: Dr Hanna, I'm happy for you to start with that.

[4] See Zhang Y, Beggs P, Hanna EG, Bambrick H, Berry LH, Linnenluecke MK, et al. 'The MJA–Lancet Countdown on health and climate change: Australian policy inaction threatens lives', *Medical Journal of Australia*. 2018; 209 (11): e1- .e21. doi: 10.5694/mja18.00789.

DR HANNA: Yes, okay, then, I'm happy to. So in simple terms, the concept of co-benefits is that if you do X with the purposes of trying to unleash positive outcomes for health, it will also – that activity, that strategy, will also deliver a secondary benefit. So that'll be, sort of, synergistic positives. The classic example that we often refer to is to heavily promote cycling, primarily to reduce emissions, but the secondary benefit of bikes, and of course, that includes promoting physical and mental health as well as community cohesion, safety and certainly, in the long term, reduce health costs. And of course, it extends life expectancy. Once you do reach a critical mass of getting people onto bicycles and out of their tin boxes, you find that accidents reduce. So the initial shift across, when there are drivers who are antagonistic to bicycles and you put more bicycles on roads and infrastructure is not there, there will be a short period of increased traffic accidents where cyclists are knocked off cars, either by cars not being aware and very rarely by intent. And so the countries that have heavy utilisation of bicycles, they find that those figures dramatically drop, but they also have, over the years, developed massive infrastructure. And, of course, this is – you know, wonderful examples in Europe, but also places like Korea. And it's also a very cheap option for governments to promote health and reduce emissions. So it's sort of the postcard example that we use when describing co-benefits.

DR WEERAMANTHRI: Thank you. So most of the examples of co-benefits that I've seen relate to the adaptation space. So what you've said, you know, increased active transport, decreases emissions but also improves people's health. Has there been much thought about the benefits of mitigation efforts, efforts to reduce carbon emissions in the health sector?

DR HANNA: Hannah first and then myself, or - - -

MS PIERCE: No, you can go, Liz.

DR HANNA: Right. Yes, there has, and you will have noticed in the submission from the Climate and Health Alliance, they would have, and they did, put a good deal of effort in terms of the Health Care Without Harm funded program called Global Green and Healthy Hospitals, which might add, is not restricted to hospitals, it includes clinics and such. And they've got an enormous amount of material now freely available. And what they're finding, of course, is the actual benefits that happen once hospitals start mitigating severely to reduce their carbon emissions and their footprint, which, of course, can be very large. It's 25 per cent of the UK's government emissions, is the health sector. Ours, CHA here quote seven per cent, and I doubt that that is accurate.

There has been a recent report that came out September 10, from Health Care Without Harm, and that's entitled Healthcare's Footprint, I think. And I can forward that to you if you don't have access to that. And again, that's a global summary of healthcare contribution to climate change. And now as far as the – and of course, they've been able to measure the reduction in emissions, and we

know that the reduction in emissions does actually have a direct positive health impact. And the thing that's made it very popular with hospital wards is that not only does it do that first thing, which is first do no harm, so the health sector should not be contributing to this problem, but it also, in reducing their waste and transport and water usage and electricity usage and all that, can actually reduce the hospital budget. And it's been shown on numerous occasions, that you can check up through their website, that it does this without compromising patient safety or the quality of patient care.

Other programs, and particularly the research that we did when I was President of CAHA, was actively having a look and just measuring the direct impacts of Hunter Valley Coal on the health budget and then extrapolated that to Australia. And it says it's in the billions.[5] So it's difficult in the absence of having, again, the research funding to be able to do that, in that Australia does not have a bevy of accurate and recent data to be able to provide you those definitive answers. Other than the fact that the little bit that we do know, it's very, very positive. And, of course, it's, you know, sort of the – not biological plausibility, but the plausibility stands firm given that we do know that most public health expenditure from strategies returns multiple benefits, just in health dollars alone, whether that be DALYs[6] saved or extended life or whatever. And so the actual benefit, whether it's a one in three or a one in 100 in terms of cost savings for dollar spent, we expect it to be huge.

DR WEERAMANTHRI: Okay, thank you. So there are potentially cost savings, so money could be re-invested as a result of savings from mitigation and adaptation actions. Thank you. I'll just clarify, from my reading, the seven per cent figure comes from a paper that was the first paper of its kind trying to estimate the contribution of the health sector to Australia's emissions compared to other sectors. And that came up with seven per cent of all Australia's emissions are from the health sector.

DR HANNA: Yes.

DR WEERAMANTHRI: But the 25 per cent figure is the contribution of the health sector to all public sector emissions. So the health sector is a big part of the public sector, and so it's understandable in Western Australia, it's the biggest State Government department, et cetera, and has a large footprint. And so it's conceivable that it could contribute 25 per cent of public sector emissions and seven per cent of all emissions. So just clarifying that point.

DR HANNA: Yes. And that's a point that's well made. But I would still argue that I would actually would suspect – and again, single

[5] Dr Hanna subsequently advised the health costs are $2.6 billion per year. See: Zhang Y, Beggs P, Hanna EG, Bambrick H, Berry LH, Linnenluecke MK, et al. 'The MJA–Lancet Countdown on health and climate change: Australian policy inaction threatens lives', *Medical Journal of Australia*. 2018; 209 (11): e1- .e21. doi: 10.5694/mja18.00789.

[6] Disability-adjusted life years

study and some time ago – I would expect that if we were able to repeat that, we would find it's certainly nowhere near the 25 per cent, because as you correctly point out, that's of public expenditure, not total – public emissions.

DR WEERAMANTHRI: Okay, thank you. So we've got about 15 minutes left, and I've got three questions, so maybe we can just spend a few minutes on each of them. In the health system we have, obviously, clinicians and public health professionals and a range of other people. But just sticking to the roles of clinicians and public health professionals, what are their respective roles? How could they work together, either in mitigation or adaptation?

MS PIERCE: Dr Liz, I'll ask you to start with that.

DR HANNA: Right. There's a range of roles. The first one, as we said, the health sector should be leading by example, and showing the rest of the world and the rest of society that yes, it is possible to reduce your emissions. It also, because the health sector is non-political, and we don't have a vested interest other than keeping people healthy and safe, the role of the health sector as advocates is huge, and that's part of the reason – the underpinning as to why we set up the Climate and Health Alliance, and it's obviously one of the reasons why the Public Health Association and others are really stepping up to the plate to put the health sector voice forward in terms of we really do need to reduce this, because we are a trusted, valued and a, sort of, non-biased voice in terms of having nothing to gain by taking anything, because it should not be perceived as a political thing.

And so advocacy from our professional sitting, as well as individually at home, is another role for the health sector. Another one, of course, is our responsibility to provide health services. And so it's an important thing for the health sector and health departments to invest in building the resilience of the health sector, so that all aspects are able to continue providing services as they are needed. And so stepping backwards from that, obviously, there's a role for all states, all jurisdictions, to conduct quite extensive health impact assessments, specifically for the nature of their population and the various demographics [vulnerable sub-groups and populations] but also their climate, and the likely climatic impacts that will be heading their way.

Western Australia was pretty much leading Australia with the initial report by Jeff Spickett and Helen Brown and Diane Katscherian, and many states actually followed this, but that was some years ago now. And I haven't seen an update, but I could well have missed it. But it's an important thing to – and, I think, led by the State Government and the Health Department to conduct it, or take the lead on it, incorporating all the CSIRO projections, incorporating – much like the study that Neville Nicholls and Margaret Loughnan did, the pair from Monash, and what they were doing - this was a heat study – and that was – they overlaid the temperature across the major metropolitan regions, and then they located the SES vulnerability LDAs and hotspots to identify a map of

hyper-vulnerability to things like heat. And that study ought be done pretty much across the state, I would argue.

No doubt the State has access to low-lying areas and sea level rise, because the literature is increasingly showing that we need to start planning for retreat from the coastal regions for those that are vulnerable. And so that's – and there's all of those as far as the health impact assessment. The State also should have responsibility for ensuring that the health services can continue to function through slow creeping climate change, as well as with the disasters that you know that are going to happen. So the West is going to have – you've got Cyclone Alley up near Broome, and you know that some of your tropical cyclones come down and duck underneath Cape Leeuwin. And so building codes need to be able to withstand the increase in velocity of winds, if we're going to see more category four and five.

The low-lying areas that are subject to either coastal or riverine flooding, because clearly, as you will recall, Cairns Hospital having to evacuate, whether it was Yasi or Debbie, whichever cyclone was barrelling straight towards Cairns, it's inappropriate, clearly, to have a hospital that should be ramping up to provide services when it, itself, is vulnerable to catastrophe when we know these things [climatic disasters] are going to increase. I mean, that's a more dramatic thing, but it's certainly making sure that in the fire-prone areas, that the areas that are going to be drawn upon and in demand when fires and heat waves and storms come barrelling through. So the health sector needs to run through all of those.

And as far as the practitioners are concerned, I think it's very, very important for it to get into the curriculum of all the mob coming through. I was trying to do that and had some success in Victoria when I was teaching undergrads down there. But, of course, there was great resistance. But we also need to have modules to upskill the existing workforce. And again, relevant to what their patient service, client service, is. Interesting things that come to mind, of course, are providing advice, such as heat is a massive issue for Western Australia and will be increasingly so, "Do you or do you not exercise? At what point do you stop exercising?" Making sure that everyone [knows] – so we do the health promotion, and so that practitioner to client can provide that health education, but also to be leading health promotion campaign. And I'd argue that even schoolkids need to be able to recognise signs and symptoms of heat stress and to be able to differentiate, when is it an emergency, call an ambulance, or when it's just have a drink, rest and sit down. There's also the things [risks] of certain medications that we know, particularly a lot of the cardiac ones, that will reduce your physiological response to cope with the heat. And, of course, they can be detrimental during heat wave. So that's - - -

DR WEERAMANTHRI: We might just pause you there, because we will be able to explore heat with some other witnesses. So I might just ask a couple of questions, because I think you and Ms Pierce are particularly well-placed to answer, if that's - - -

DR HANNA: Yes, certainly.

DR WEERAMANTHRI: So the first one is, what can WA learn from other jurisdictions in Australia and New Zealand? Which other states or territories are doing this well and what can we learn?

MS PIERCE: Yes, Liz, you go.

DR HANNA: Okay. I'd argue that none of them are doing it particularly well, because we've had this long process of resistance to climate change. And I'd argue that you could possibly get some better ideas internationally. There's certainly a lot of interest in moving forward in this. Some of the health departments that you'd be familiar actively have things on their website. But, of course, not everyone in the community, and particularly the most vulnerable groups, are unlikely to go and check out a Health Department website. So one of the things that is important also is to put the scan further afield, and you'll find important things like massive advertising campaigns that are funded, whether it be nationally or by the State, in terms of really getting the message out so that people are well protected and they can assess their own level of risk, and then know what's the smart move in terms of protecting themselves and their family and helping out each other.

Interesting things – I mean, there's some good stuff that's happening in terms of messaging that goes out, but, you know, there's been some appalling things such as the Victorian Government spent quite a bit of time just replicating the Bureau's message. Well, people in the health sector can tell, because the Bureau is very, very good in telling us that a heat wave is coming, a heat wave is coming, a heat wave is coming, and it's, sort of, a wasted effort for the DHS in Victoria to then start putting out alerts to their health agencies. And that's less than ideal when more specific [health] advice would be better.

DR WEERAMANTHRI: Thank you. So last question, you mentioned in your submission from PHAA some suggested changes to public health legislation. So my question is, what role can modern public health legislation play in addressing climate change impacts on health?

MS PIERCE: Well, I can start. So our submission referred to a report by a new medical student, and by Dr Peter Tait, who's the co-convenor of PHAA, the Ecology & Environmental Special Interest Group [SIG], they looked at public health Acts around Australia and what opportunities there are for Chief Health Officers to use those Acts to help mitigate impacts of climate on health. So it looked at the 2016 *Public Health Act*, because it's quite a recent report, and I believe the report and the associated letter in the Australian and New Zealand Public Health Journal are both open access, but if not, we can provide them.

It did note that WA already does have some available powers with the Public Health Officer, so ensuring environmental health, appointing Environmental Health Officers, monitoring air and water quality, among some. And there are opportunities for action, including monitoring and publicising local links between temperature and air policy, and the health impacts that they have, quantifying the cost to the healthcare system, strengthening the link between public health and other relevant departments, including energy, and monitoring and reporting on the industries that have an impact on climate. I believe Dr Peter Tait would be happy to speak with you if you'd like further information on that report, but Liz will probably be able to expand on that.

DR HANNA: Yes, thanks, Hannah. Yes, so my response was going to be pretty much to defer to Peter Tait, who's unavailable at the moment, but I'm sure would be very happy. Because I'm still on the committee for the Environmental Health SIG for the PHAA, Peter's been pushing this forward even beyond the publication of that paper. And we've pulled in some of the other current and recent past members of the SIG who have been Directors of Environmental Health for the various states around Australia. You know, so Roscoe Taylor, Peter Sainsbury, Linda Selvey, and of course, you're probably familiar with Jim Dodds over your way. I don't think we've been speaking to Xavier Schobben from NT. But specifically because of their expertise in understanding not only the Act, but what changes might – what threats might come or how it might be best used to roll forward with this. And so Peter's been – and I've been party, but I've been deferring to these senior public servants with their leading positions. And so perhaps I'd suggest encouraging that group, through Peter, to engage in a specific conversation with him in terms of how this might move forward, because again, everyone's interested. Some of them are not necessarily in their roles anymore, some might have retired. But still, it's an important area, and I think the best answer is to come from those bureaucrats.

DR WEERAMANTHRI: Thank you. And we'll close it there. I'd like to make a final statement, which is firstly to thank you, Ms Pierce, and yourself, Dr Hanna, for your attendance and you input to this hearing today. A transcript of this hearing will be sent to both of you so that you can correct minor factual errors before it is placed on the public record. If you could please return the transcript within 10 working days of the date of the covering letter or email, otherwise it will be deemed to be correct. While you cannot amend your evidence, if you would like to explain particular points in more detail or present further information, you can provide this as an addition to your submission to the Inquiry when you return the transcript. Once again, thank you both very much for your evidence.

MS PIERCE: Thank you.

DR HANNA: Okay, thank you. And those articles that both Hannah and I mentioned, do you have access to those, or is there anything you'd like us to forward to you?

DR WEERAMANTHRI: We probably have access to most of them. We'll check the transcript and we'll get back to you if we need some help. Thank you very much for the offer.

DR HANNA: Okay, then. Thank you.

DR WEERAMANTHRI: Thank you. Take care. Thanks a lot.

HEARING CONCLUDED