Well, kia ora koutou katoa. Nau mai haere mai ki te Manatū Hauora. Welcome back. Thanks very much for being here for the briefing this afternoon. I'm joined today by Fepulea'i Margie Apa who, you may know, is the Chief Executive of Counties Manukau, DHB, and she's also the lead for the Auckland Metro Region for the COVID-19 vaccination program. I've also got with me here Shane Hunter, who's Deputy Director-General for Data and Digital here at the Ministry of Health. He's going to make some comments about our information systems that are in place and are being built to support the rollout of the COVID-19 vaccination program, and obviously he'll be able to take any questions on that area.

As we signalled in the advisory, we'd like to do things a bit differently today. It's an opportunity for you as the media to ask us some in-depth questions and get a real sense for the program, both where we've come from and where it's heading. I'm going to start with a bit of the overview and update, including a global update. Unfortunately, we were unable to get a sign language interpreter here today, but there will be a transcript available on the ministry website tomorrow.

We've also got a bit of a package for you to pick up on the way out, which has got our latest vaccine research insights around acceptance and hesitancy around the population, and just how that's tracking over time. So I haven't even seen that myself but you'll be getting it at the same time as me. So that will be available for you on the way out.

Just a bit of a global update with vaccination. Of 220 economies and countries around the globe, 194 have started vaccination programs. And of the 26 who haven't started, 7 have actually received vaccines and are due to start. And another 5 will be receiving vaccines in the next five days. And interestingly, over 733 million doses of vaccines have been administered now around the world. A total of 14 vaccines have been through a formal approval process in one or other country or jurisdiction. And countries have secured 11.2 billion doses of vaccine, and the projection is that 21 billion doses of vaccine, of one or other vaccine, will be produced this year.

But we also know the global rollout of COVID-19 vaccines was never going to be straightforward. And I think we've seen this illustrated over the last few weeks, with issues around both the supply of and concerns around safety with the AstraZeneca vaccine. It's one of the four in our portfolio. But was, of course, seeing the impact of that close to home with the need to pivot the approach in Australia to where the medicines advisors have said to restrict the AstraZeneca vaccine used to people aged over 50 just in recent weeks.

And we've seen other jurisdictions, like Denmark, make changes as well. In fact, they've stopped using the AstraZeneca vaccine for them in the meantime. Likewise, the-- and I understand correct pronunciation is Janssen vaccine-- one of the four we have and there's a release that's come out today on that from Medsafe. You might have seen that they've paused approval process on that for two or three weeks, while more information is made available about the pause in the vaccine program or use of the Janssen vaccine in the US and other countries at the moment.

So our priority, of course, continues to remain on making sure our population has access to at least one highly effective, safe vaccine-- the one we're rolling out now-- but we still have the other three in our portfolio, and are looking to make sure we have backup options. There has been some global delays in vaccine access, and we've seen both the talk about and the imposition of some restrictions on exports, particularly out of Europe. That hasn't been a problem for us and we have no indication it will be a problem for us in terms of our Pfizer Vaccine.

We have scheduled weekly arrivals here. We have around 420,000 doses now in our freezers, and another 80,000 doses scheduled to arrive next week, and regular drops scheduled between now and the end of June. We have less detail about the amounts that will be coming from July onwards. But we do have a strong commitment from Pfizer to make sure we get all our vaccine this year.

We've been watching what other countries have been doing. Israel, we've spoken to directly and about their experience around the use of invitation systems and booking systems, and Shane will talk a little bit more about that. We've talked directly with the UK about the models they've used. And with Pfizer they've actually used just a hospital-based model. Of course, they're also using the AstraZeneca Vaccine which has got less challenges around the logistics. The US we've also been speaking with, and Shane can talk to that about the use of booking systems and also making use of large scale events.

I've talked a little bit about Australia, and we obviously continue to work closely and swap information with them. I guess another observation I would make, is we've talked about the 194 countries and jurisdictions that have started vaccinating. The ones that are further advanced, are the ones that have got significant extent outbreaks happening. And not surprisingly, they started earlier because they did so under emergency regulations.

If you think about the countries that our response is often compared with, or jurisdictions I might say, Taiwan started vaccinating on the 22nd of March when it received its first drop of vaccine earlier that month. 127,000 AstraZeneca doses. So likewise, South Korea has got AstraZeneca vaccine but they are sourcing all their vaccine through the COVAX Facility at the moment, and that has had supply issues. We also are obviously working closely with Australia and at a similar pace and pattern of rollout here as with Australia.

Our progress here in New Zealand is continuing though. And just to give a sense of the scale-up that's happening. Last Thursday was when we had 100,000 doses administered. By the end of today, a week later, it will be 150,000 doses. So about six weeks to get to that first 100,000 but already another 50,000 just a week later, and you would have seen the plans the minister spoke to yesterday from DHB, is that by the end of June there will be over a million doses having been administered here in New Zealand.

We continue to work with our four vaccine suppliers, and are confident in our supply of Pfizer and that we will have options on these other vaccines as well. Including, when the evidence emerges for the ability to vaccinate under 16, so we're keeping a close eye on that. And Margie will talk a little bit more about the Auckland region shortly. But even just around the country, in the Midland region, a new community hub opened yesterday with capacity to vaccinate 500 people a day. Baypark and Tauranga has been secured as a large-scale vaccination site as well, able to vaccinate 1,000 people a day. So DHB's really are scaling up their efforts.

The NZDF, the defense force, is halfway through the second doses of vaccinations with nearly all their workers having received the first dose, and will have completed their workforce by the end of this month with the two doses. There are specific efforts around equity to ensure that our Māori and Pasifika populations have good access right from the start, and Margie will talk a bit about how that's working in the Northern region.

And we've got really strong systems in place for ongoing monitoring of safety, and Shane to refer to the system we put in place right at the start to monitor for adverse events. And finally, just a reflection on our effort here inside the ministry. There are over 200 people now in the ministry working on this program. And of course dedicated teams across all the district health boards. We have Ministry of Health and wider Health Sector Staff, and there are people from right across the public sector contributing to the effort. From internal affairs, EMSD, defense, Waka Kotahi, IMBI, WorkSafe, NZ Stats, and Inland Revenue, and people from the private sector here as well.

I did say finally, but I just want to comment on general practice because there's been a lot of interest in the role that general practice will play. When we first set up the program, because of the nature of the Pfizer vaccine, we focused on general practice hubs because of the logistics around the distribution of this vaccine. With the ability now to use the minus 20 degree storage for up to two weeks, we are now looking at adding in wider, more dispersed use of general practice, and that planning for that is underway.

There are three things that we need to make sure are in place. First, the logistics to be able to distribute the vaccine. Second, that the training is in place and the workforce is in place in general practice to do that. And some practices may just not have the physical capacity to do that, just as not every general practice has been able to do the nasopharyngeal swabbing for COVID over the last year. And the third thing is making sure that the information systems were in place, and particular integration between the patient-management systems and the COVID-19 immunization register.

So we're working with general practice at the moment, and I had a teleconference-- regular Zoom meeting actually-- on Tuesday morning with general practice leaders where we discussed this. I spoke to Sam Murton chair of the college, today, about how we develop up the protocols for using a more dispersed model in general practice. And that will take some weeks to get tested and in place. But it will be particularly important as we roll out to older people and people with pre-existing conditions who have a strong connection with general practice. So I'll hand over to Margie to talk just a little bit more about the Northern region rollout.

Sure. Thank you, Ashley. Kia ora koutou. All district health boards are in the throes of planning, setting up sites, engaging with providers to scale up our efforts. And I'll talk more about the northern region and the approaches we've taken. Our goals are to set up enough points where our communities can access vaccination, those who want it, and make it as easy as possible for them to get in a safe environment, and as close to home as we can possibly make it.

In the Auckland region, if I take that as an example, we work very closely together as a northern region, that picks up the three Metro Auckland DHBs and Northland. And it's important that we work together-- and you will see this collaboration in different ways across the country-- because we all want to be able to make the best use of all of our available workforce.

If I take one of the sites in Highbrook. It's the first super vaccination site we set up on the 8th of March. It employs about 55 to 60 people and we have drawn on resources from across, not just Auckland counties and Waitemata DHBs, but also involving our local Whanau Ora providers, and they're all working together there as a team. They are scaling up to aiming to be able to do 1,000 a day. We're at about 800 a day now. So by the end of April the northern region aims to have at least 22 to 23 sites open to our community. That includes 16 large primary care settings, two super vaccination sites that can do up to 1,000 people a day, and local vaccination sites that can do between 300 to 500, that are aiming to be located in settings that are accessible.

And if I take a couple of our first ones that we opened last week, as an example, in Ōtara we were pleased to open a Pacific provider lead collaboration targeted at Pacific communities in the middle of Ōtara opened up. And they are now doing about 250 vaccinations a day. And Manurewa Marae, which is a fantastic environment. The marae is a really important part of the Manurewa community. They offer not just health care, but lots of social services and community programs. And they have been able now to set up a local vaccination site for that community. And on their first day they were able to vaccinate as part of the test run Kaumata and Kuia from the local community as part of their site.

So we are working on scaling up. We are working to plan and we've worked quite closely with the Ministry to make sure that we are able to offer certainty on what scaling up looks like for us as a city. So that we are well-prepared when we open to our general population from July onwards. That we are able to offer certainty that people will be able to get their appointments done with they book.

I'd also just like to comment on primary care. We've been doing lots of engagement with primary care at a local/regional level. Earlier this week, we had a Zoom with almost over 200 primary care colleagues to talk them through and get their ideas on our plans for the city. Our idea was that we would like general practice to be a really important player. And I think we can work through some of those logistic challenges. And we certainly look forward to having more primary care engagements available to, again, support our community.

These are huge logistical exercises. If I take setting up a vaccination site. We had about three or four weeks before we opened Highbrook-- and I want to pay some credit to the teams who are doing the back-office work. Finding sites that can take the kinds of volume of people that we want to take, and also able to provide the kinds of spaces where we can offer clinical teams being able to provide good supervision, parking, which is a premium in places like Auckland, and offer an experience for people going through those sites. It's really important to us.

And so we take a lot of care, and working with our providers and communities, to find the right sites that can handle the logistics, cope with the volume of people, but also be safe and accessible to communities and the surrounding sites. So we've been really, really pleased to be able to have the kind of collaboration across providers to help us staff those sites. But we are also recruiting. You will have seen that the northern region, and I'm sure other district health boards as well, are out there recruiting for staff. Anyone in our community who wants to be supported to train and join our more than 1,200 vaccinators. In the last two weeks we've got 250 applications. So we're really pleased to see great interest from our community. We want to grow that workforce so that we are able to sustain these vaccination sites over the coming months, however long it takes to get our community involved.

Thanks, Margie. Shane.

Yeah, kia ora koutou everybody. I thought I'd start my brief overview of what we've done around technology. And then explain a little bit about why we're doing the national booking system now as opposed to, I guess, the questions that are asked us, why we don't have one in place. We focused primarily, initially, on our COVID immunization register so that was in place from December last year. We were given a challenge last year when we had indications that a vaccine was coming, to have a vaccine register in place by December. And we've iterated or improved that vaccine register, as we have done with contact tracing and are national contact tracing since then.

The next thing for us was inventory management and distribution, or logistics support. So we've had that system in place since February and we've been iterating since then on that. The third thing that we focused on was around what I call vaccine safety monitoring. Which is really working with an organization that existed in the health system already, which is the Center of Adverse Reactions Monitoring and didn't need them, but really strengthen those systems so that they could scale if we were to have significant-- not that we're expecting them-- but significant numbers of adverse reactions. A lot that's been focusing on digitizing and modernizing the platform that they had in place.

And then the fourth thing that we've been working on is our national booking system. The reason that we left that to last is because the focus, initially, was on cohorts of people that were able to be managed using local booking systems through the DHBs and other organizations. Now, we've put our attention to the national booking system. That will be in place by the end of May. We are starting to work with a North Island and South Island DHB on co-designing that in terms of making sure that its operation is sound, so that we can actually then roll that out across the country.

So that's a end of May target date for a national booking system. The national booking system's roll was to allow people to preregister and then to actually allow them to book an appointment that suits their time. That system allows you to book for your first and second dose, and it allows you to actually have your second dose in a different location to your first dose, if it doesn't work for you to go back to the same location. So as Margie mentioned before, we're trying to make it easy for people to have access to vaccination. So that's an important part of that.

The COVID immunization register is really the single most important source of truth of who's been vaccinated, where they've been vaccinated, when they've been vaccinated, what dose that they've had, what batch they've had. So if we ever had to do anything like a recall, then that's the place where we know all the information about who's been registered-- who's been vaccinated, sorry. The booking system is simply an add-on to our COVID immunization.

The other thing I guess I'd like to make a point on is this is of significant scale. I mean we did a lot of work around the national contact tracing system pretty quickly last year. And as you might have heard Ashley mention, we iterated that, or improved, that system 21 times. That's the modern way of doing it. This whole program is at a scale much bigger than we anticipated, and certainly larger than what we had to do last year. And I'd like to pay credit to the people that have actually been working on those systems relentlessly since last year to be frank. And good support and good co-working with our district health boards, primary care, win the community. So I'll leave it at that, and I can take questions when people need them.

Thanks, Shane. Let's open it up for questions, please.

Just one of the things with the booking system. But that coincides with group three. So are you going to have enough time I suppose, to sort of make sure you fix any bugs in the system before it's open to a much larger cohort?

Yes. So by end of May we anticipate but if there are any bugs or anything to be sorted out it'll be sorted out ready for that. So it's going in place in anticipation of ramping up and then being absolutely ready for scale.

Can I just ask sort of for an update on the change of regulations for those who are on regulated vaccinators. Can you perhaps outline what is exactly need to happen in that space and perhaps some timeframes for that as well?

Yeah, so Tim's working very hard on this. And we know the district health boards, particularly in the northern region, are very keen to have access to that workforce. There are a couple of things that need to be done. One is changing the regulations. So at the moment only registered practitioners, and a whole range of those, are able to be accredited vaccinators. And in fact, the Director of Public Health, Dr. Caroline McElnay, has approved the number of professions that can, who are registered, who can now vaccinate.

So we need to change the regulations to make sure it's lawful, that this unregulated workforce is able to be trained and under supervision to vaccinate. So the regulatory work is happening. In parallel, they will need some additional background training, rather than just doing the two-hour, or in addition to the two-hour Pfizer specific manual. And so we've been developing a program up with the provider to develop up that program, make sure that they can have access to that additional training as well. And the aim is to have the teams working furiously, the amnesty, if they're all completed by the end of this month. So less than two weeks away.

And so by the start of May they will be able to start training and then be deployed from May onwards. So there's a lot of interest. The other thing we just want to do is get this right again. Because this is a legacy for this workforce. It means that they can have access to training and upskilling, and if we are able to change the regulations and get the training in place, then we can enable and empower that workforce to be able to do this into the future.

With the booking system that you were talking about, how flexible is it going to be. Because let's say I book and then have a sick kid, I want to change the location or I'm away from work Can you do that and will a lot of people will be able to access it and make changes all at the same time?

Well, certainly in terms of how many people will be able to use the system simultaneously. We will ensure that it's got sufficient capacity to deal with what we anticipate will be significant load. In terms of flexibility, absolutely. One of the things that we've learned from overseas is that you've got to provide people with the experience, and that is right from essentially registering, through booking, through getting the vaccination itself. And that includes the flexibility to change certain things will pop up. And the system has to do it. Absolutely it will.

And it will be easy to, say, marry up if you cancel your first one or the second one, or vice versa.

Yes, the system will track all of that sort of stuff. Yes.

Is anything else of this scale? I just can't think of an app or a booking system where you would have that volume of people. I mean have you looked at other examples?

We've spent a lot of time looking at what people have done overseas. We've had a number of conversations with people in other jurisdictions. That's been very enlightening to be frank.

Can you give us an example?

Well, we've talked to the people in Israel. We've talked to people in the UK. We talked to people in the US. And we've got partners that have basically done a lot of discovery work for us as well. Yeah, I mean it's on a scale as Ashley mentioned before, that just the sheer volume of vaccinations that have been given so far is huge. But then IT these days, technically can scale. It comes down to the people on the physical logistics in many instances that govern things.

But certainly, and that's one of the reasons that we are working very closely with our DHB colleagues, is to make sure that the system does cater for all the different circumstances that come up. Because people don't always do what you think they're going to do and we have to anticipate, but then also we have to learn. And hence, we have very rapid turnaround cycles on things. So if we find that something's not right, we can generally fix it pretty quickly.

Because it would be the biggest in New Zealand, wouldn't it?

Well, I don't know, actually. I mean, if I think about New Zealand, for example, when they do their campaigns. That'd be pretty epic.

It would still be a fraction of the population of the existing platform, wouldn't it?

Well, I think of other things like the electoral commission and registering people for voting every three years. So we've had a really good discussion with them. They've offered to succumb one of their people in. They've also got access to 25,000 people who are happy to support the three weeks of work around an election every three years. So they're going to provide us with access to that group of people, so that we can enroll them. And there will be opportunities. And this is a bit of a plug. If people want to help or want to know what they can do, I guess the first thing is inform yourselves about the vaccine and encourage others.

The second is have a look at when to expect that your opportunity will arise. And I should say you won't have to have booked to have the vaccine at the time. Once we open it up to the wider population, there will be plenty of provision for walk-in. But the third thing is that once we scale up to those, and DHBs are doing those large scale events, we will need volunteers to help there, and so there will be an opportunity. And we will make sure there is a way that people can register their interest.

Do you think that you're communicating with GPs potentially too late? There are a number of GPs who aren't sure now if they're willing to participate in the rollout of the vaccine because they said there just hasn't been clear information around what the expectations of the GPs. What do you say to them?

Well, I think they just to go to the point of there are some GP's to say they don't want to be involved. I get an overwhelming sense that general practice does want to be involved. We have been talking and working with general practice leaders, and Margie talked about the work that's happened in the northern region to date, but one of the things I would say is that what GPs have been asking for is certainty about how they will be involved and when.

And so my team has worked on a communication that's going out from me in the next hour or two, to say here is how general practice is involved at the moment and that, for example, through delivery through general practice hubs. Here's how general practice is engaged in designing the next stage, and in a month's time this is what we anticipate general practice's role will be. And then in six months time, is we move into the business as usual long-term arrangements for the program, this is what general practice will like.

I think what they've been asking for is just more certainty and clarity around what their role will be. And I do say that has been evolving so the ability to use a more distributed model of general practice has only really come on the table in the last couple of weeks. And so we're now working on that.

I would just encourage general practitioners to also talk to their member organizations. Primary health care organizations have been discussing with DHBs at both the national and the regional local level, how we can work together and plan. And as these really important variables become clearer in our planning we can be more firmer. Including funding models and how we work with larger groups or practices. So I'd certainly encourage general practitioners to talk to their primary health care organization, or their a membership organization who has been involved.

So what date for a clinic in South Auckland and Manurewa for example, what date could they expect to have the vaccine and be able to vaccinate their patients?

Now that you mention, you've got 16 general practice hubs coming online.

We've got 16 private care, and we're just in the last stages of confirming the contracts and the funding models to be able to support them. Other DHBs will have similar models. Certainly I think, Capital Coast has already started because a lot of their community sites are actually delivered by primary care organizations. So it will vary around the country.

Some of you talked about the volume and capacity if we're using the booking system. What are you working towards there? Are you expecting thousands to be on the system same time, tens of thousands? What's the capacity there?

I don't know the answer to that. What I can tell you is the platforms that we use can scale pretty quickly to deal with volume. We're anticipating thousands of people wanting to access the system potentially in one time. Where we can they partners to make sure we can handle load. We absolutely be on the conservative sites, will allow for pretty significant volumes, yes.

So you're confident that it won't be 1st of July or beginning of July, beginning of the public rollout. Thousands will strain that website, and it'll crash.

Well, no. I'm very confident that out partners will be able to deal with the sort of volumes that we're anticipating that will get.

Is the data going to be handled , kept on shore? Or are you using offshore services like Amazon Web Services?

We're using the same-- it's all based around the same platform that we've had since contact tracing and outbound screening, which was planned by Australian locator data.

Can I just ask what IT systems you're going to be using to keep track of vaccine stocks?

We have a-- that was one of the systems I mentioned was our inventory and-- well, distribution and inventory management system. So we have a system that deals with-- once the product arrives in the country it gets recorded in that system, and then where it goes. That's all recorded in the system and tracked. So if we needed to, for example, recall something back, for whatever reason, then we will know where it's gone. We would need to get it from or and if it's been administered then we would know, too. So essentially those systems link up.

Dr. Bloomfield, New Zealand , a lot of New Zealanders live in quite rural areas, obviously. And [INAUDIBLE] the vaccine somewhere. Presumably [INAUDIBLE] country [INAUDIBLE]. How-- what's going to be the next moment [INAUDIBLE]? How's the distributed are you going to be in places like the West Coast? Because quite often people live quite far away from the hospital.

Look, what I could say is that DHBs have already started actually delivering that. So I think about Southern DHB. That started already out in some of the more remote communities.

I would say for people that they would-- should expect it will be where they would normally access health care services, and/or at a local community sort of set up. So part of the model is-- in one of the models that we've developed is that sort of mobile team to go out and set up a bit like they've done for swabbing. When we've needed to do-- to scale up swabbing around the country then we've had teams go out into often quite remote rural areas, onto Māori town hall schools. And so it'll be the same approach.

Usually Māori are the last people to get [INAUDIBLE], the long tail being a particular [INAUDIBLE]--

Yeah. We discussed this this morning as a group with the chief executives. We had an hour discussing the vaccination program and the [INAUDIBLE]. Yeah, this is-- we are adamant that that's not going to be this long tail that they-- that is done right from early on as well, not just as a-- later.

I mean, it's one of the menu of options that we want to make available. So we've got a lot of experience of setting up pop-up mobile testing units, and that's a completely different service but a similar concept. And we would want to focus those units at populations that we might not normally get on easily, but we want to get them. And in rural areas-- [INAUDIBLE] counties has a rural area in [INAUDIBLE] if you go down to Port Waikato, they believe that they're pretty rural as well.

So all those options are DHBs that we would want to make available to our communities at the right time in the campaign.

[INTERPOSING VOICES]

Sorry, just [INAUDIBLE]. Is that part of this time in going out to those rural areas and the fact that the balance of the vaccines only come later in the year. So [INAUDIBLE] go out and sort of knock off those communities and tick them off before the bulk of [INAUDIBLE] comes out [INAUDIBLE]?

So the comment I would make is the sequencing framework, which is pretty broad about the groups and the prioritization of the vaccine, particularly to the end of June, as you've said, when the supply is relatively constrained, but they're not sharp lines between the sequences between the groups. And so, in fact this is exactly what we discussed this morning. If someone is taking a mobile vaccination clinic out into a rural setting to get the older people and it's quite a small place, then it would make sense for them to do as many people as possible while they're there even if according to the sequencing framework they might not be able to start until July.

So I think one of the things I would say is you will see DHBs using these models right from early on, not just waiting until after they have done the bulk of them.

Can you just run us back, refamiliarize us with a view of the headline focus. Once this really scales up and gets going, how many vaccinators do we want to have? How many [INAUDIBLE] sort of need to be around as far as [INAUDIBLE]?

So I'll make two comments there, and the numbers that I sort of have got in my head. The first is that we're in this first scale up now and that is moving from a few thousand doses a day up to between 12,000 and 15,000 doses a day, and that's the trajectory right now. Then it levels off as we go through to the end of June. The next step is up to sort of 50,000 to 60,000 a day as the vaccine supplies come in.

The second comment I would make is that as we found, if you look at the testing when we've had outbreaks, in Auckland for example, there's a lot of focus on the pop up in the big community testing centers. But still between 60% and 70% of the tests done every day were done through general practice in urgent care. And we will see the same, and I think this is the point general practice is making if you think about childhood immunization, 80% to 85% of childhood immunizations are done routinely through general practice, deriving additional efforts put on to get the other groups in the population who might not be captured by the general practice.

So I think my sense is that as we go into that large scale up, a lot of the bulk of the vaccination will still be done through general practice, other primary care settings, the community clinics, that are being set up to do, say 1,000 a day. But then there will also be I think, some larger scale events that each DHB depending on size will want to run, and they may be the sort of 10,000 to 20,000 people in a day.

Can I just reinforce that all DHBs are really committed to taking an equity approach to access. So we're not going to wait for the groups that were traditionally we might find some time into the campaign haven't access to vaccination, Māori, Pacific, older people, people from communities who may not speak English, or speak English as a second language. Our aim is to make those options available and get access to those communities earlier in our campaigns and that's certainly the way that we're planning to set up some, particularly for rural communities out there. So you're going to have those district health boards, we have large rural populations. They are very much at the forefront of their minds, making it really existent for those communities early in their campaigns, rather than waiting.

[INAUDIBLE] that you were looking to recruit volunteers. Can you explain the roles they're doing and when they come into the picture?

So not at the moment but it's a nod towards the future, particularly during these large scale events. So you can imagine trying to do 10,000 or 20,000 people a day in Eden Park, you would want volunteers to do those roles around in the parking, sort of pointing people in the right direction, helping with taking details and so on.

They won't be doing any sort of health roles?

No, we've got our vaccination teams that'll be focused on that.

[INAUDIBLE] was wondering, yesterday, we got the data from the DHBs and we're very excited to deliver by the end of June. Which is about a million doses. How is it going to work at that point? Because that would imply that most of group three wouldn't have gotten doses, because one or two need about a million doses right? So how does the framework work once you open it up for group four and most of group three hasn't been done? Do you allow the bookings for group three first before you get to group four? I understand it's not hard and fast but how do you juggle those two?

So two things there, the sequencing framework of course is about when those groups start. I think you asked the question yesterday and so we're not expecting of course, and we won't have the vaccine to all of group three, by the time July rolls around. But that starts through June, through the middle of May, and on it goes.

But DHBs, the second point is DHBs will have models of delivery that are explicitly designed to make sure they are getting those people in group three because they absolutely want to get people over 65 and those people with pre-existing conditions. And as I've said, that's why we are looking at the small disperse model of general practice because you can imagine there's quite a strong connection between those groups and their general practice. They are more likely to want to go into the general practice they know with a doctor they know, or a nurse they know. Whereas when you get into group four and it's those of us who perhaps don't go to the doctor as frequently as others, we're more likely to just sort of find, oh look there's a pop up there on the weekend. I'll just go and I'll take the newspaper and sit and wait and take my chances and get my vaccination

[INTERPOSING VOICES]

--statement [INAUDIBLE].

Well, just going to say on a day-to-day basis in a site, we may find that we get through a particular group earlier and quicker. And so we will pull those groups earlier and that's very much dependent on where each DHB is in its campaign. But we're generally following the sequencing program.

In your opening statement you mentioned that there's a bit of uncertainty in terms of Pfizer's delivery schedule post July, which is the big ramp up. Can you speak a bit about that uncertainty? I know that's in the future but--

Yeah there's no uncer-- we feel very confident. And I think their track record today is very good, that they will deliver. But what we don't have is, we know till the end of June exactly how many doses are arriving each week and pretty much what day they're arriving. But we don't just have that detailed yet from July. But in fact what I can say is the prime minister spoke to the global head of Pfizer a few weeks ago to get an assurance about the fact that we would get all our doses, and by the fourth quarter actually. So we're confident we will get the doses. We just don't have the detailed numbers yet.

So negotiation's underway right now to kind of nail that down?

It's not so much a negotiation, it's just getting the confirmation of the delivery schedules.

Dr. Bloomfield, we've preordered that Johnson & Johnson vaccine haven't we? So what's the impact of Medsafe asking for more information about it? Does that potentially slow down the rollout of our vaccination program here?

We've got advance purchase agreements on the Janssen vaccine, which was made by Johnson & Johnson, as well as AstraZeneca and Novavax. We have the option though, around when we want to take delivery of their vaccine. At the moment we have two million doses of the Janssen vaccine and the indication is that they will be able to deliver that in the third quarter of this year. And so there's still time as we go through that approval process again. I think the fact that we're, in a sense, taking our time to make sure we're rolling out the program in a measured and safe way means that even with this emerging information we are able then to take a good look at what other countries find, and what they do, and what their response is around this vaccine.

What I would say is though that just the information that's coming up to date around the Janssen vaccine is again, a very rare event that of course needs to be balanced up against what the benefits are of that vaccine. And again just to go back to one of my earlier comments about uncertainty, we haven't had this same problem yet with the Pfizer vaccine. That doesn't mean that as more and more vaccinations are given around the world with really good safety monitoring that things won't pop up. And that's why we've got our process in place. If we need to, if something comes up, we will of course respond to that. If it means the program needs to be paused we will do that. So you will see us responding. But it just does go to show the nature of this program not just here, but also around the globe as there is a lot of uncertainty

From what Justin was asking about the numbers starting in May with group three, but with the numbers that [INAUDIBLE] 1 million [INAUDIBLE] the end of June and given that there's basically half a million people in group one and two. I'm in group three, should I realistically expect my first jab at the start of May?

People will start to get invited. If in group three, they will start to get invited as per the schedule. And as I said there will be some overlap between them. So some people will-- there will be many-- There's sort of three groups of people. There are those who are chomping at the bit the very first day to get their vaccine, then there are those who are ready to go. They want to have it, and they will make a booking and maybe a few weeks down the track.

[INAUDIBLE] at the start of May we wouldn't be thoroughly through group one and two, but we're starting with group three, given the numbers that you would need.

Yeah, and each DHB will have a plan about how they make sure that they are getting right through and that people from group one and two have got every opportunity to have the vaccine, as at the Enroll Center group, there are three.

So if I take an example in Otara and Motunui and [INAUDIBLE], we have started to vaccinate very small groups of people from group three, Kuia, Kaumatua from the community, partly to help us test the flow of the process, but also to start getting out to our communities that their own local Kaumatua, Kuia elders are actually getting into the program, and to start building up the confidence of our community to come in. So what each DHB will take, a tentative approach, depending on the local population demographic at the sites and with the locations.

Dr. Bloomfield, I have a numbers question, not surprisingly. If you have over 1.2 million doses through June, which is on this [INAUDIBLE] map and you then have 7.2 million doses for the rest of the year. That means from July 1 to December 31 you have to deliver out 280,000 doses a week. Is that realistic and will this begin to do that on average?

That is definitely the plan. So at the moment, we're doing that first scale up and then the next plans you will see coming from DHBs. So there's no risk for them. They've just got the plans in around to the end of June and now the planning continues. And in fact, this is where a lot of the work around the booking system is to support this, as their needs go up. It is a mammoth effort. And it will require not just the approaches and places we've got in place now, but that wider use of general practice, possibly other places like pharmacy we still have to look at. But also though just goes up to a whole new scale, yes.

And you two are still confident that we can deliver more than a million vaccines a month and that everyone who wants a vaccine will be able to get it by the end of the year?

That is absolutely the plan. And I mean I'm really confident that the health system will be able to deliver that. Day in, day out they deliver an enormous amount of care. And last year we vaccinated more people in the space of a couple of short months, more people with the flu vaccine than had happened in any prior year, and that was in the middle of a pandemic. So yep, the health system has got an amazing ability to deliver these sorts of programs

[INTERPOSING VOICES]

Let me go back to the booking system. Who's actually building it and when did that start?

Well, we're working with Ascensia, is who we're working with to configure the system. I can't tell you the exact date that they started but it would be in the last probably six weeks

What makes you confident that you're going to be to build a system that [INAUDIBLE] on such a short build time?

Well the way I would describe it is configuring a system that's been used elsewhere. So it's not a built from scratch scenario. If we were building from scratch, geez, we would be struggling. But we're effectively using our configurable booking platform that integrates them with our core.

And so you're using that in [INAUDIBLE] health system which can be used in other countries

It's used in other countries but not here in New Zealand.

Is this part of the National immunization solution or is this a short-term gap before we move [INAUDIBLE] Salesforce?

No this I guess, the Salesforce platform is the CIR that is, so we're extending what we've been using. So this is a plug-in to that platform. Is it part of the National immunization solution? We'll have to wait and see. I think at the moment we need to focus purely on what we've got on hand, which is the COVID-19 vaccination program. It could become part of the future solution, it may not.

We are taking a legacy approach though here, same as with the National Contact Tracing solution. Well now our public health units are saying, can you extend that to be the contact tracing system for all communicable diseases? So that's very much part of the thinking. The CIR is absolutely the future core of the future [INAUDIBLE] immunization system solution.

[INAUDIBLE] normal procurement system? Or did go through [INAUDIBLE]?

Well, it's been through a procurement process yes.

The normal procurement process?

It's been through a procurement process yes.

The normal one or the one where--

[INAUDIBLE]

Normal under the circumstances. It's been through procurement, yes. We've had it independently managed through procurement process.

It didn't go through [INAUDIBLE] or anything like that.

It went through a closed hindering process.

[INAUDIBLE] obviously, rightly or wrongly, a lot of people feel like they pay when they go to the GP. [INAUDIBLE] even if it's for [INAUDIBLE] alongside vaccination. Obviously you don't have control [INAUDIBLE] GPs. Would you be pretty upset if you heard about GPs charging in any way [INAUDIBLE]?

And I would be, and I don't expect to be upset, because general practice knows very well. And in fact, part of the negotiation that has been ongoing is just finalized and getting approved in the next day or two, of the price that will be paid to general practice for being part of the program for delivering vaccination. Takes into account the extra work that we know is required for this vaccine as opposed to other vaccines. And when people go for a currently publicly funded vaccine, usually it's childhood vaccination, there is no charge there. And there is a fee already agreed with primary care that covers every part of that visit.

Did you say you're using pharmacies more [INAUDIBLE]?

It's still an option, but it's not one we're actively working on within general practice as the first priority. We might look at pharmacy. And one of the reasons for that is also a reminder that we have other vaccination programs in full swing, as well the flu vaccination program started today. So general practice and pharmacy, actually yesterday, are key to delivering flu vaccine over this next period of time alongside COVID. We've still got our catch up campaign on MMR, which is underway, and there's still base childhood vaccination programs.

[INAUDIBLE] will we have a staff. That's not--

For this point in time. And also focusing on just, I guess I've talked about this is crawl, walk, run. So at the moment I think we're moving from the crawl to the walk. And we're expecting every type of site or provider you bring on as a whole new design process. And every site that comes on goes through a safety accreditation process. So again, our approach is making sure it's measured, it's safe. We're just stepping away into this in a really thoughtful way.

And of course, not all pharmacies are set up to manage the flow that we want to see happen from consenting processes being undertaken rigorously through to vaccination and the recovery time. So anyone who's been on to a retail pharmacy particularly when they're not [INAUDIBLE] for that process. Some might be.

Can you talk a little bit on your vaccine programs, could run on level four [INAUDIBLE]?

That would be a challenge. We're certain that we're not also-- we have contingency planning in place, but we're not planning to be doing this on level four. And I think this is that they have a parallel task. And a key task for the health care in the wider public service is to keep the virus out of the country. And so we can-- I mean we're in a privileged position, had one, day in, day out to make sure we are on a level one. We plan to stay.

What basic contingencies [INAUDIBLE] if you're in level four would you be able to speed up the [INAUDIBLE]?

Yeah. Well, we wouldn't be using a number in, did you say in over 7 days?

[INAUDIBLE]

Yeah. What we have done contingency planning for is what's a more likely scenario. In New Zealand we have an outbreak. And so we we've had advice on and have done, and are doing contingency planning for ring vaccination. If we get an outbreak in a community, then we would deploy the vaccine differently to help ring vaccinate in that particular location.

[INAUDIBLE] outbreak in Nelson [INAUDIBLE] Nelson to vaccinate [INAUDIBLE].

Yeah that's right. We would speed up and we would use DHBs and other staff from around the country to help scale up the vaccination at a point in time in that setting.

Is there an overall cost to New Zealand's vaccine rollout? Or is it in the budget--

[INTERPOSING VOICES]

Of course at the moment it does but I think everyone would agree that it's a good investment at this point in time, given the nature of the pandemic. Look I think the initial envelope for that was set aside, for the vaccine advanced purchases was up to a billion dollars. Not all of that has been used but I would imagine that the cost of all the rollout right across the country will be probably half that again. And over time we'll be able to--

So we should expect this to cost around one half billion dollars?

Yeah I would have thought that that's well, we haven't spent all of that on the vaccines. And of course we may not spend it all in this year because we might be able to defer our options on some of those vaccines. And we've got advice being developed about how we manage the whole vaccine portfolio, it's hundreds of millions of dollars, somewhere between $1 billion and $2 billion, I would have thought will be the total cost of the vaccination program.

Just on what's going to GPs over the next couple of days, can you just say [INAUDIBLE] exactly what that looks like? Is that sort of a letter of expectation of sorts or--

Yeah, well a letter of the expectations that they can have on us. So it's giving them certainty. No this is more a communication now to say look here's where we are. And just wanting to sit out really clearly this is how general practice is currently involved. This is what we are working towards for a month to six weeks time and then this is what we are anticipating the role for general practice will be later in the year as we get right through the program and out the other side. And just confirming around who the key liaison person will be in the team here in the ministry, how we are engaging with the college and PHAs on an ongoing basis, and in confirmation around the payment, it being agreed as well. So we're hoping to print that information.

And do you expect that soon, tomorrow since it's Thursday? Tomorrow, Friday?

Before the end of the week, yes, definitely.

So purchase agreements with the various vaccines allow us to say Pfizer tweaks the vaccine to account for the South African or different variants that we can get the newer kind or then that we're not stuck with the old one?

Exactly. So hence there's flexibility or, we've got good relationships with all four, I'd have to say. Our teams have done an excellent job and what we've part of, it is making sure we have got flexibility. If we don't need, for example, all the doses of one or more of these vaccines this year, and of course the evidence is emerging about the role of new variants and the effectiveness of different vaccines against those variants, then obviously if Pfizer or AstraZeneca or another one is tweaking their vaccine to take that into account. Then our approach would be to figure out the delivery of that vaccine if we needed to use it, till it was-- it hit those changes made.

Just on the immunization register, who's been using it to date and what have they been using it for?

Well, it's been used everywhere the vaccine has been given. It's the new COVID-19 immunization register, has been used and at the moment it communicates in one direction with general practice. So it provides information to general practice, if the patient is registered with a GP, is vaccinated, part of that enabling general practice to be more involved is making sure it works the other way as well. So did you want to comment?

Yeah. So anyone that's been vaccinated to date is recorded on that system. And we have a collection of general practices actually mentioned, which just says your patient who's enrolled in your practice has been vaccinated. I've spoken to GPs, it's been very helpful to know. And they're comforted by the fact that they do know if patients are being vaccinated.

So will employers for example be able to access that to see if workers have been immunized? Who can see who hasn't been immunized?

So we at the moment, we have a different database if you like, for the border workers. And we're putting a connection into that system from the CIR so that they will know which of these workers have been vaccinated. So we don't provide them with direct access to the CIR we provide them access to the information that they provide us.

Will individuals have access to their own records in the CIR?

They're the same team, absolutely yes. So we're working on that at the moment we would expect to have that out in the realm about the June time frame. We call it the consumer channel. So the expectation is that people will be able to access their vaccination details.

But that's private health information. So no, employers won't be able to access those only health providers or individuals there [INAUDIBLE].

In what way would people be able to prove that they've had vaccine? [INAUDIBLE].

At the moment it's a card given to record the vaccination. And my understanding is that's pretty much what every country is doing. I was reading in the US about-- encourage people, once you've got your card to photograph it as well, both sides I imagine. Haven't seen one. So you've got a digital record of it. I think we're looking at seeing if we can add that functionality to the NZ COVID Tracer app as an option as well

So I had a look at that today. So all that'll happen is if you have the NZ COVID Tracer app you'll be able to essentially have a look at your record and you'll have to create a login and effectively be authenticated but yes, that's one way.

[INAUDIBLE]

Yeah, so it's-- everything is ultimately linked to your NHI. That's right, yeah.

Is there a plan to expand the border worker database beyond MIQ to have all of the border workers?

Yes it already is. So at the moment it is available to all employers who-- more than 500 I gather, who employ people deployed at the border. That has always been the case. They have to provide the data to populate the register. And of course from the 27 it's compulsory for them to use that register.

Will the CIR be used in [INAUDIBLE] future for other vaccination campaigns for citizens unrelated to COVID?

Yes, so the CIR is essentially the beginning of the creation of our national immunization solution, as we call it. So essentially, we were already embarking on a national immunization solution-- and essentially we opted to use the-- and it is, as she mentioned before, we want to leave a legacy where we can, if we've made an investment in something to support COVID then is it something that we can extend to broader use in the health system because we--

Just to be clear, the CIR will live on [INAUDIBLE] booking system. I'm not sure what the value of that contract is. What do we think the [INAUDIBLE]?

Oh, look, I won't get into the details but all I can say is we're not spending $38 million on Salesforce and IWS. That $38 million encompasses a lot more than just the technology. This is a people and technology game and I have to say, our spend on the technology versus the rest of it is very small. So I won't go into the details here, but I can tell you that that is not all on that technology.

Can we cheekily look at that and ask you your impression of it before you--

What you mean my time?

No, the information about the--

Information pic? Why don't we hand it around now and it can be like an exam. You can have 10 minutes to read your papers before we start if you like. I imagine you have other things to go and do, but--

[INAUDIBLE] to take away.

Oh, yes. We'll hand them out now. You can if you want to grab one but I'm also happy to answer any questions.

One more kind of on the science [INAUDIBLE] around the two weeks. Obviously, it's not exactly two weeks for that [INAUDIBLE].

I'm sorry, three weeks for the second dose, yes.

How far out does it stop being [INAUDIBLE].

The key thing is at least three weeks. Actually beyond that it doesn't really matter if it goes. And in fact, you'll have seen in the UK they made the decision not to give people the second dose on time so they could give more people the first dose. And they've had, I think, up to 12 weeks between doses.

[INAUDIBLE]

Yeah. It's just minimum of three weeks.

[INAUDIBLE]

Yeah. But what we'll encourage people to do is have it at around three weeks after the first dose because that's what-- it's the regime that was used during the trials and where the evidence is.

Who's providing transport [INAUDIBLE]?

Pace, I think it is.

Pace, I think, is. They went through a tender process. And so Pace is doing-- actually there's two of them there's the distribution from the main center in Auckland out and that's usually overnight flights. It goes out on-- don't know who's doing that, and then yes Pace is used to get it out to the actual vaccination sites.

Also [INAUDIBLE]. Why does it only go to 8 million doses rather than [INAUDIBLE]?

It is the current eligible population actually. So the current eligible population is 3.9 million, so over 16, so that's the difference there. But of course our hope will be that in the next few months there'll be evidence at least for that 12 to 15 age group and we can add that age group into, and we've got enough of the Pfizer vaccine to do that.

[INAUDIBLE]

Which is, definitely take the vaccine. So this is the group here saying, no doubt about it, as soon as I'm off it, I'll take it. Actually, that's a huge increase, which is quite remarkable

What do you [INAUDIBLE]?

Confidence in our program.

Do you find it quite hard to tell people basically that [INAUDIBLE].

Yeah. Yeah. So there are two concerns that come up very frequently, one is that-- well not very frequently. Two of the concerns people raise is that the vaccines were developed really quickly and therefore how do we know they're safe? To which the answer is, we put them through a really rigorous process here and I'm very confident in that process. And the other part of the answer is actually the technology behind them, including the mRNA technology. MRNA technology is 10 years old. It just had never been used to scale up to produce a vaccine like this one.

I was just going to say actually the degree of global collaboration of the science community has helped us move a little faster.

And I guess the second question people have is, we don't know what the long term effects might be. And of course that's a question to ask but we also do know that because the technologies behind these vaccines are ones that have in most cases been used for previous vaccines. We know and we can trend. And I think we can take comfort from the fact that vaccines proved to be safe and effective over time, very safe and effective at the time. And as I said in my opening comments 733 million doses of different vaccines have now been administered around the world and it helps New Zealanders be reassured about this.

What do you make of these [INAUDIBLE] likely to take a vaccine remaining steady? It's not going down, but it's also not going up.

Yeah. It's around 70% I think in all service. That's the people who say definitely or probably would take it. You know what I think will happen, and we have seen this around the border work force as well, is you'll get a group and it's about 70% to 80% who straightaway do turn up. And then it just requires a bit more effort to get that next group, and we see this with childhood immunization. But again the group that is absolutely not going to have it because they fundamentally oppose it is generally quite small. I think at the moment it's about 10% of people saying definitely won't have it. I fully expect based on previous experience that will drop away again further.

Do you see that trend just sort of word of mouth, something as simple as that when someone says to someone else, hey look it's not that bad?

It's word of mouth and people looking around and seeing what others are doing around them. We're all quite susceptible to peer pressure, which is in this case not a bad thing.

Do you have any more doubts about the 20% unlikely to have it, in terms of whether they're concentrated in a particular region?

I don't--

We talk about with herd immunity [INAUDIBLE] threshold in a community that [INAUDIBLE].

I don't have any particular regional breakdown of this but we do know from our childhood immunization rates and sort of refusal rates, they do vary a little bit by region. But it's probably more to do with variation and between different ethnic groups rather than regional groups and groupings per se. I think the other important thing here is if we think about our modern Pacifica populations, that are quite young populations. So around a third of Mati are under 16. And so that's something for us to consider and why we need to have absolutely high rates amongst our over 16 population, to make sure we are protecting our young people and children as well.

[INAUDIBLE]

Not at all, that's how the system runs at the moment for childhood immunizations. Often for screening tests as well, we call it opportunistic screening or vaccination, and I fully expect that will play a role as well. It's definitely not unethical. I think in fact the obligation is on practitioners to make sure people are given the opportunity of turning up for another service.

This chart [INAUDIBLE] is illustrative [INAUDIBLE] a little bit more definite than [INAUDIBLE].

It's illustrative and quite definite. Yeah I mean that's designed to, we've got certainty up to the end of June. And this is what we're projecting based on what we believe we have to deliver after June, that's the trajectory it will be on.

And the 9.4% of people who say they definitely will not take the vaccine [INAUDIBLE]. That's quite a bit higher, about double the size of in my understanding the percentage of the population who regularly refuse things like the MMR vaccine for their children.

Yes.

Why do you think there's that difference between COVID-19 vaccines on one hand and the other vaccines we used to have on the other?

So I mean two comments. The first is I do think that will decline over time. I think that will get down to a much smaller percentage. And it will be different reasons for that people might realize that if they want to travel overseas, or they've waited for a year, and seen that actually their grandkids had the vaccine, it's fine. And what's more they're protected and safe from the vaccine, but I think the difference is often people will act differently for their children than they do for themselves, as a first thing.

And secondly there is probably just that high level of uncertainty that people think about, well, I'll just wait and see what the longer term impacts might be. And of course we're fortunate here in New Zealand because at the moment we're safe and protected because of our border arrangements. But of course, as we want to open up the border that will change. And then I think people's perception of the importance of vaccination may also change too.

In terms of addressing that perception of the vaccine, are you specifically doing anything around social media or speaking to the community, especially around sharing fake news and making sure that there is alternative information available for those people?

Yeah, look, there's a lot of information out there now and from next week you will see that start to really scale up as well. So we want to be really sure that every New Zealander is getting the right information and good quality information through a whole range of channels. So that's going to start scaling up again from next week.

Have you been speaking to the likes of Facebook, for example, sharing the YouTube videos about vaccines and sharing that false information perhaps taking that down all sorts of information that have been shared around groups?

We haven't been talking to Facebook but I dare say I think social media platforms, including Facebook, are being quite responsible in this regard as the first point I would make. And also I think that the better response is for us to make sure our information is out there across all those media and saturating the market as it were, so that people have got easy access. Maybe one more question. Or two, or three. I shouldn't have said that. One more sweep of the room.

So these figures are at 70% of people who want a vaccine, they say that they need more information, that they want more information. Does that number kind of surprise you, that it's so high?

It doesn't. All our surveys show that people have a real thirst for information here. And that's part of the reason why we're continuing to develop and they will with this big scale up from next week. It's just to make sure we are providing information.

And it seems to be around adverse reactions.

Yes.

As an example, the Medsafe put out yesterday some new information on adverse reactions. And they said there were three serious adverse reactions in the last few weeks. Can you talk about that?

Yeah. I think they're now doing a weekly update, Medsafe, of the latest data on adverse reactions. And the first publication was two Wednesdays ago. And it talked about these three adverse reactions. So these were allergic type reactions, none of which required significant-- nothing where a person required hospitalization or had any long term issues. So they were dealt with. And one of them was actually on investigation, felt to be not related to the vaccine but related to food.

So that would be like if you [INAUDIBLE] bad rash or something like that.

Yeah. So if someone's going to have that true anaphylactic reaction with swelling of the face and so on, it happens very quickly, almost always within minutes. And that's why people wait for that 20 minutes. For some people it's a bit delayed. It may be more as you say, a rash or some other allergic reaction. But it's those more immediate, more significant, allergic reactions that would be classified as serious. But not serious in the sense that anyone is getting long term or lasting problem.

When you talk about the scaling up, is that those TV ads [INAUDIBLE] or is that something else that's still to come?

It will involve TV ads and advertising through a range of other very important equally important media.

So that this sort of major chunk of our, the major, the major chunk of our public information campaign, that public rollout.

The part for the public rollout and I think it will include booklets out in people's letterboxes, that will include yep, TV ads, radio ads, all the social media channels. It will include videos of champions of people, people that the New Zealanders will know to point them towards where they can find good information.

Who are some of those champions?

You've got me there but watch out for next week. Maybe this is a good topic for the briefing next week. Actually the next week or two.

Do you have a figure in mind as to what will be needed to achieve some herd immunity? [INAUDIBLE].

We've moved our language away to population immunity.

Population immunity?

Not yet, not yet, I don't think, but again, if you think about the fact that our eligible population is around 75% of New Zealand's population, we would want to be getting as many people in the eligible population vaccinated as possible, and that's absolutely our aspiration. And if you talk to most I mean, I've talked to Professor Sir David Skegg who's chairing the new committee about this, as we were briefing for him coming into the role, and he has exactly the same view actually. Our target should be to vaccinate as many people as possible in New Zealand to protect them as individuals, but also to protect us as a community.

You are working towards some sort of number, then? [INAUDIBLE].

Honestly as many people as possible. I mean, even when we have childhood immunization targets 95%, our aspiration is still to get 100% of children vaccinated because that will protect them, and we would aspire to get as many people as possible. If it's 100% well then, I'll feel like my work on this is done. That would be fantastic.

One of the serious reactions reported this week, the severe immune response, what characterizes that? What should we be looking out for? And is there any type of person who might be predisposed towards that, like with allergic reactions?

I don't have the details of that one but it would have been more immediate anaphylactic type reaction, I would think. Yes there are two groups of people who may be at increased risk. The first would be people who may have had an allergic reaction to another vaccine, because they have a number of components in them. So it might be a reaction to one of the components. Their general practitioner would know that. And these are the sorts of people who would almost certainly have an EpiPen, and be able to act if they'd had a serious allergic reaction before.

Then there is another group which is people who tend to have allergies, they may be food allergies or other allergies, and they would be at an increased risk. But that's not a contraindication to them having the vaccine. Thanks very much. Really appreciate your time.