Record of the Immunisation Advisory Committee Meeting held on 1 April 2022

Immunisation Advisory Committee records are published in accordance with the Terms of Reference for the Pharmacology and Therapeutics Advisory Committee (PTAC) Specialist Advisory Committees 2021.

Note that this document is not necessarily a complete record of the Immunisation Advisory Committee meeting; only the relevant portions of the meeting record relating to Immunisation Advisory Committee discussions about an Application or Pharmac staff proposal that contain a recommendation are generally published.

The Immunisation Advisory Committee may:

(a) recommend that a pharmaceutical be listed by Pharmac on the Pharmaceutical Schedule and the priority it gives to such a listing;

(b) defer a final recommendation, and give reasons for the deferral (such as the supply of further information) and what is required before further review; or

(c) recommend that Pharmac decline to list a pharmaceutical on the Pharmaceutical Schedule.

Advisory Committees make recommendations, including priority, within their therapeutic groups of interest.

The record of this Advisory Committee meeting will be reviewed by PTAC at an upcoming meeting.

Specialist Advisory Committees and PTAC may differ in the advice they provide to Pharmac, including recommendations' priority, due to the committees' different, if complementary, roles, expertise, experience, and perspectives.

Pharmac is not bound to follow the recommendations made below. Applications are prioritised by Pharmac against other funding options and progressed accordingly. The relative priority of any one funding choice is dependent on a number of factors, including (but not limited to) the recommendation of PTAC and/or Specialist Advisory Committees, the mix of other applications being assessed, the amount of funding available, the success of commercial negotiations and/or the availability of clinical data.

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1. Attendance

Present
Stephen Munn (Chair)
Stuart Dalziel
Sean Hanna (part of meeting)
Lance Jennings
Osman Mansoor
Michael Tatley
Nikki Turner
Tony Walls
Elizabeth Wilson

Apologies:
Giles Newton-Howes
Karen Hoare
Edwin Reynolds

2. Summary of recommendations

2.1. The following recommendation summary is an order of the discussions held at the meeting.

Pharmaceutical and Indication	Recommendation
• PCV13 vaccine; Use in childhood immunisation programme with 2+1 dosing schedule for children under 5 years of age	High Priority

3. The role of Specialist Advisory Committees and records of meetings

3.1. This meeting record of the Immunisation Advisory Committee is published in accordance with the Terms of Reference for the Pharmacology and Therapeutics Advisory Committee (PTAC) and Specialist Advisory Committees 2021, available on the Pharmac website at https://pharmac.govt.nz/assets/2021-Specialist-Advisory-Committee-Terms-of-Reference.pdf. The Terms of Reference describe, *inter alia*, the establishment, activities, considerations, advice, and the publication of such advice of Specialist Advisory Committees and PTAC.

3.2. Conflicts of Interest are described and managed in accordance with section 7.2 of the PTAC Terms of Reference.

3.3. The Immunisation Advisory Committee is a Specialist Advisory Committee of PTAC. The Immunisation Advisory Committee and PTAC and other Specialist Advisory Committees have complementary roles, expertise, experience, and perspectives. The Immunisation Advisory Committee and other Specialist Advisory Committees may therefore, at times, make recommendations for treatments for immunisation that differ from PTAC's, including the priority assigned to recommendations, when considering the same evidence. Likewise, PTAC may, at times, make recommendations for treatments for immunisation that differ from the Immunisation Advisory Committee's, or Specialist Advisory Committees may make recommendations that differ from other Specialist Advisory Committees'.

Pharmac considers the recommendations provided by both the Immunisation Advisory Committee and PTAC and any other relevant Specialist Advisory Committees when assessing applications for treatments for immunisation.

4. Pneumococcal vaccines

Application

4.1. The Committee considered correspondence from a supplier of pneumococcal conjugate vaccine responding to the Committee's August 2021 recommendation that a 13 valent pneumococcal vaccine (PCV13) should replace 10 valent pneumococcal vaccine (PCV10) in the Childhood Immunisation Schedule.

Recommendation

4.2. The Committee reiterated and confirmed its August 2021 recommendation that PCV13 vaccine be listed in the Pharmaceutical Schedule with a 2+1 dosing schedule for children under 5 years of age, with a high priority within the context of vaccines and immunisation.

Discussion

4.3. The Committee considered correspondence from a supplier of pneumococcal conjugate vaccine in relation to the Committee's August 2021 recommendation that a 13 valent pneumococcal vaccine should be included in the Childhood Immunisation Schedule in place of the 10 valent pneumococcal vaccine currently listed. The Committee noted that it had considered a report from ESR detailing recent trends in Invasive Pneumococcal Disease (IPD) at its August 2021 meeting. The Committee noted that PTAC had considered some of the supplier correspondence and supporting unpublished data at its February 2022 meeting. The Committee noted that PTAC had considered that while there is not yet New Zealand data suggesting that PCV10 and PCV13 are not equivalent at preventing IPD, the accumulating evidence of the international emergence of serotype 19A cannot be ignored.

4.4. The Committee noted an updated report from ESR on the epidemiology of invasive pneumococcal disease (IPD) in New Zealand. The Committee noted that the report presented data recorded on EpiSurv up to 15 March 2022 and included the immunisation status of notified cases of IPD that were eligible for vaccination with a pneumococcal conjugate vaccine (PCV).

4.5. The Committee noted from the updated ESR report that IPD incidence rates for 5-64 year olds have remained relatively stable, and the incidence for 2-4 year olds and 65 or older were slightly higher in 2021 than the end of 2020. For children aged under 2 years, after a slight decrease in the 2020 rate, the incidence of IPD in 2021 was the highest reported since 2009. The Committee noted that the incidence for serotype 19A for children under 2 years has steadily increased since 2017.

4.6. The Committee noted that in 2021 there were 41 cases reported with *S. pneumonia* serotypes included in PCV13 but not also in PCV10, of which 38 were serotype 19A. Of the 38 serotype 19A cases, 26 had received only PCV10 doses (96.2% of these were fully vaccinated or on schedule). In comparison, two 19A cases had received only PCV13 doses (both were fully vaccinated). Of the 7 who received a combination of PCV10/PCV13, all had received PCV10 as their most recent dose prior to diagnosis.

4.7. The Committee noted that ESR reported that there were 8 deaths in children under 5 in 2020-2021, 7 of which were Māori or Pacific peoples. Serotype 19A accounted for 3 of the 8 deaths in children under 5, and all three of these deaths were Pacific children. One child had received 3 doses of PCV13 and a booster dose of PCV10, one received 2 doses of PCV10 on schedule, and one received 3 doses of PCV10.

4.8. The Committee noted that at its August 2021 meeting it reviewed the international discussion in the literature about the population health effects of changing pneumococcal conjugate vaccines used in national immunisation schedules around the world.

4.9. The Committee considered further new evidence summarised below:

- Anglemyer et al. 2021 (Clin Inf Dis 2021;doi:10.1093/cid/ciab766). An analysis that outlined changes in IPD epidemiology over time and related this to changes in the pneumococcal vaccines included in the National Immunisation Programme. The analysis concluded that, considering the increasing prevalence of serotype 19A, the steadily increasing antimicrobial resistance of 19A cases, and the WHO recommendations for the use of PCV13, it is time to reconsider New Zealand's choice of PCV.
- Izurieta et al. 2022 (Clin Inf Dis 2022;doi:10.1093/cid/ciac188). Journal correspondence in reply to Anglemyer et al. (2021), which considered that many 2-4 year olds would likely have had a mixed PCV10/PCV13 schedule, but the actual vaccines received by 19A cases were not reported. The correspondence identifies the goal of PCV programmes as reducing the incidence of serious pneumococcal disease, and recommend taking a holistic view to the dynamic pathogenic pneumococcal environment when considering the national PCV programme.
- Anglemyer et al. 2022 (Clin Inf Dis 2022;doi:10.1093/cid/ciac189), Journal correspondence in reply to Izurieta et al. (2022), which noted that rates of IPD and 19A have continued to increase in New Zealand among children under 2 years in 2021, now the highest since IPD became notifiable in 2009. The correspondence considered that the unpublished data on paediatric admissions with pneumonia and otitis media suffer from limitations and uncertainty with microbiological diagnosis for these conditions, so proven IPD as an endpoint would be preferred for evaluating vaccine impact. The correspondence described the disproportionate burden of IPD on Māori and Pacific children under 2 years of age.

- Paynter et al. 2022; *A retrospective cohort study investigating the comparative effectiveness of pneumococcal vaccines against otitis media and pneumonia in New Zealand* (unpublished). A retrospective cohort study investigating the comparative effectiveness of pneumococcal vaccines against otitis media and pneumonia in New Zealand. The study reported that PCV10 was associated with a reduced risk for otitis media (OM) compared with PCV7 (adjusted HR 0.89, 95% CI 0.82-0.97). PCV10 and PCV13 were associated with an equivalent reduction in risk of bacterial pneumonia (adjusted HR 1.68, 95% CI 0.99-2.85). PCV13 was associated with a marginally higher risk of OM than PCV10 in children up to 18 years of age (adjusted HR 1.31 CI 95% 1.09-1.57).
- Petousis-Harris et al. 2022; *Effectiveness of pneumococcal conjugate vaccines – A cohort study of New Zealand children born between 2006 and 2016* (unpublished). A retrospective national cohort study which aimed to estimate the effectiveness of PCVs against clinically suspected IPD with a broadened definition in addition to OM and pneumonia hospitalisations in children under 6 years of age. The study reported vaccine efficacy (VE) against clinically suspected IPD (CSIPD) in a fully adjusted model of 48% (CI 95% 42-53), VE against OM hospitalisation of 35% (CI 95% 34-37), VE against all cause pneumonia of 36% (CI 95% 34-38), and VE against bacterial pneumonia of 47% (95% CI 39-54).
- Petousis-Harris et al. 2022; *Spike in invasive pneumococcal disease in NZ during COVID-19 – possible contributing factors* (unpublished). A draft manuscript outlining factors that may have contributed to the increased 19A cases observed in New Zealand infants in 2021. The report considers that a number of factors specific to the New Zealand situation may have contributed to the sudden spike in serotype 19A cases seen in New Zealand. These factors include: low vaccine coverage of high risk children, the change in the PCV schedule from three to two primary doses, the impact of pandemic restrictions on nasopharyngeal carriage, and exposure to viral pathogens such as RSV.
- Danino et al. 2021 (Clin Inf Dis 2021;doi:10.1093/cid/ciab1014). A prospective cohort study from Israel that concluded that reductions in pneumococcal disease in Israel during the COVID-19 pandemic were strongly associated with decreases in specific respiratory viruses, including RSV and influenza.
- WHO February 2019 position paper on pneumococcal vaccines in children under 5 years of age (Wkly epidemiol rec. 2019;94:85-104). The WHO position supported either a 2+1 or 3+0 dosing schedule, but considered that 2+1 is preferred when programmatically feasible, as higher antibody levels are induced in the second year of life, which may be important in maintaining herd immunity. The position considered there is at present insufficient evidence of a difference in the net impact of PCV10 and PCV13 on overall disease burden, but PCV13 may have additional benefit in settings where disease attributable to serotypes 19A or 6C is significant. The choice of vaccine to be used in a country should be based on various factors, including prevalence of vaccine serotypes and antimicrobial resistance patterns.

4.10. The Committee considered that it was important to take a holistic view of all the pneumococcal disease health impacts rather than focusing solely on the changes in the counts of cases caused by serotype 19A. The Committee considered that there continues to be an increase not only in serotype 19A cases but also in total IPD in children under 2 years of age. The Committee considered that while it was empirically uncertain whether increasing prevalence of 19A carriage was leading to the increases in overall IPD burden, serotype 19A is known to be an invasive

pneumococcal strain. Furthermore, the Committee considered that 19A carries a significant risk of antimicrobial resistance and contributes to a majority of penicillin resistant cases of pneumococcal disease.

4.11. The Committee noted a Cochrane Review of PCVs in the prevention of acute otitis media (AOM) in children (Fortanier et al. Cochrane Database of Systematic Reviews 2019;5:DOI:10.1002/14651858.CD001480.pub5), which concluded that effects of PCV7 and PCV10 on all cause AOM in healthy, low risk infants is uncertain and modest at best.

4.12. The Committee noted a review article (Berman-Rosa et al. Pediatrics 2020;145(4):e20190377), which reported that most studies reviewed that examined PCV10 reported moderate to minimal direct protection against AOM. The authors considered that although PCV10 is marketed and sold under the presumption that it affords superior protection against non-typeable *Haemophilus influenzae* (NTHi) associated AOM, this has yet to be objectively established.

4.13. The Committee noted that recent data about the incidence of IPD and serotype 19A cases was not available for its August 2021 meeting when it considered ESR's report on pneumococcal threshold monitoring. The Committee considered that the subsequent new 2021 data reinforce the trend that the rise in 19A cases is associated with an increase in the overall burden of disease. The Committee considered that Māori and Pacific children are disproportionately affected by the increased burden of disease.

4.14. The Committee considered that it is well established that damage from upper respiratory tract viral infections can lead to invasion by commensals such as meningococci and pneumococci. The Committee considered that this was illustrated by the higher IPD case numbers in children under 2 years of age in 2021 when RSV circulated, compared with 2020 when there were very low levels of circulating respiratory viruses. The Committee considered that while RSV circulation may have been a contributing factor to increasing IPD, the highest burden of RSV is in children under 2 years of age and noted that increased cases due to 19A were also seen in children 2 to 4 years of age.

4.15. The Committee discussed in general terms what it considered the added value of higher PCV valency, where it considered that while higher valency vaccines will never cover all serotypes, the serotypes sit along a carriage/virulency spectrum and a key goal of immunisation should be to protect against virulent/invasive serotypes.

4.16. The Committee considered that, having reviewed the correspondence, the evidence supported the August 2021 recommendation that PCV13 vaccine be listed in the Pharmaceutical Schedule with a 2+1 dosing schedule for children under 5 years of age.