

The Evolving Role of Pharmacists as Vaccinators in Denmark and New Zealand

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Background

- Despite established recommendations, adult vaccination rates largely fall below target levels^{1,2}
 - For example, influenza vaccination coverage rates (VCRs) among older adults are below World Health Organization targets of 75% in most countries³; in 2022, only 48.2% of individuals ≥65 years in the European Union were vaccinated against influenza⁴
- Two of the primary barriers to adult vaccination are accessibility and cost⁵
- Expanding locations where vaccines can be administered and the types of providers who can administer vaccines with no out-of-pocket costs to consumers can address these primary barriers and improve vaccine uptake^{6–8}
- As of 2024, pharmacists in 44 countries were authorized to administer vaccines⁹
 - In Denmark, a government policy was implemented in 2015 allowing pharmacists to administer the influenza vaccine to certain at-risk groups, including older adults (aged ≥65 years), with no out-of-pocket costs¹⁰
 - In New Zealand, pharmacists were authorized to provide the influenza vaccine to at-risk groups in 2012, but government funding for pharmacy-based vaccination with no out-of-pocket costs was not implemented until 2017¹¹

Objective

- This study aimed to examine trends in pharmacist-administered influenza vaccination in Denmark (2009–2019) and New Zealand (2015–2021) following policy changes in each country expanding access and public funding for pharmacy-administered vaccination

Methods

Denmark

- Study data were obtained from the Danish Vaccination Register¹²
- An interrupted time series analysis was conducted using national surveillance data to evaluate changes in influenza VCRs following the 2015 policy that authorized pharmacist vaccination for adults ≥65 years and certain at-risk groups
- Data included an 11-year time series (2009–2019) of annual influenza VCRs among adults ≥65 years
- Sensitivity analyses were conducted to assess potential confounding

New Zealand

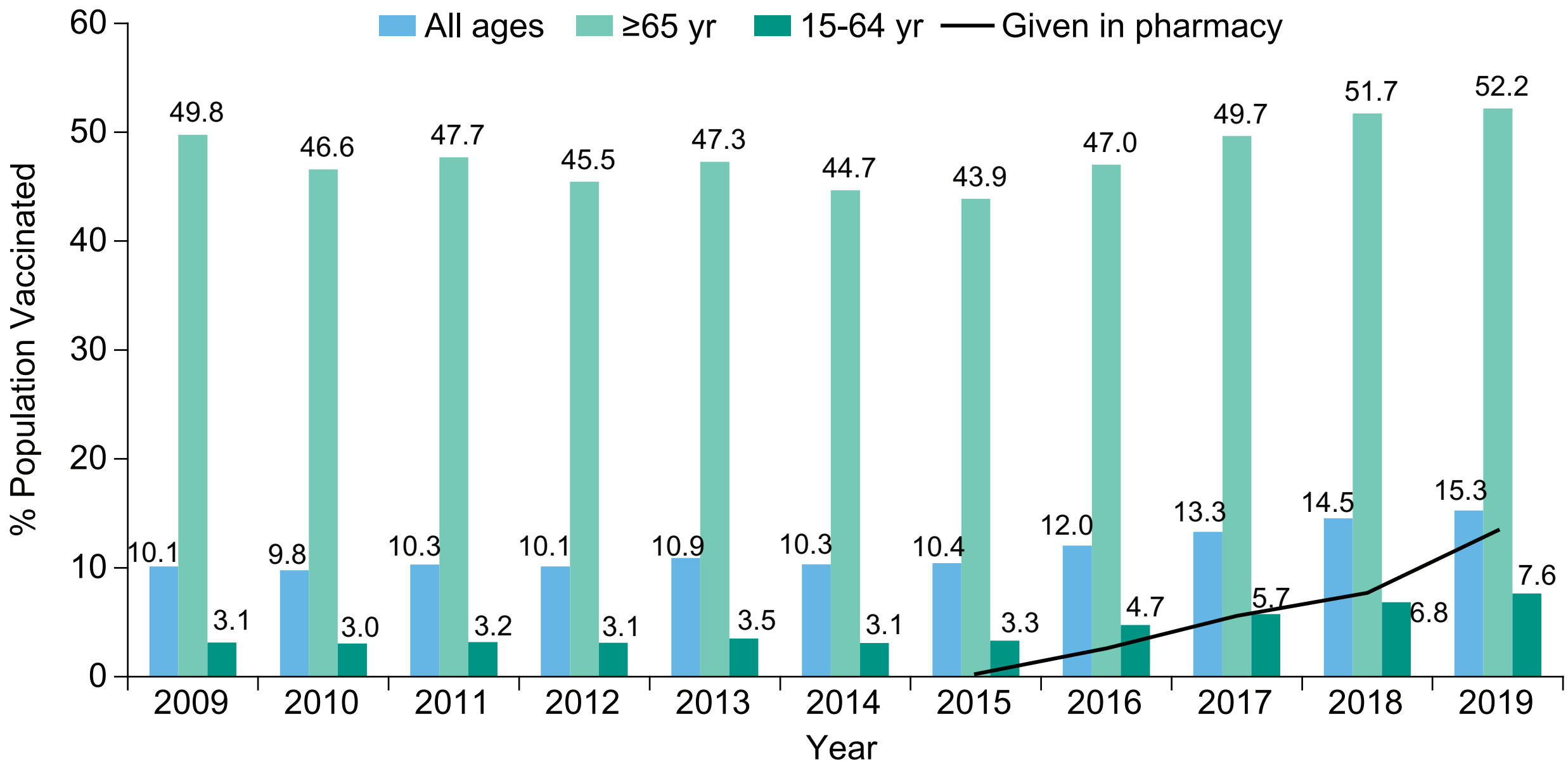
- Study data were obtained from the Aotearoa Immunisation Register (AIR) of New Zealand¹³
- National immunization data (2015–2021) were retrospectively analyzed to assess trends surrounding the funding policy change in 2017 that eliminated influenza vaccination out-of-pocket costs to adults ≥65 years, adults <65 years with high-risk conditions, and pregnant women
- Outcomes included the absolute number of vaccines administered by physicians, nurses, and pharmacists from 2015 to 2021, and the percentage administered by each provider type

Results

Denmark

- Among all individuals ≥15 years in Denmark, the percentage of influenza vaccinations administered by pharmacists increased from 0.3% in 2015 to 13.4% in 2019
- Among older adults (≥65 years), influenza VCRs declined from 49.8% in 2009 to 43.9% in 2015, before increasing to 52.2% by 2019
- Modeling showed the trend after the 2015 policy change was significant for older adults, with annual mean VCR increases of 2.13 percentage points ($P<0.001$)
- Sensitivity analysis results supported these findings and revealed greater changes in older adults compared to younger cohorts

Figure 1. National influenza vaccination coverage by age group in Denmark from 2009 to 2019



The black line indicates the proportion of all influenza vaccine doses that were administered in a pharmacy, which were as follows: 0.3% in 2015, 2.6% in 2016, 5.6% in 2017, 7.7% in 2018, and 13.4% in 2019. The total number of doses of influenza vaccine administered to older adults (≥65 years) rose from 447,984 in 2009 to 603,731 in 2019.

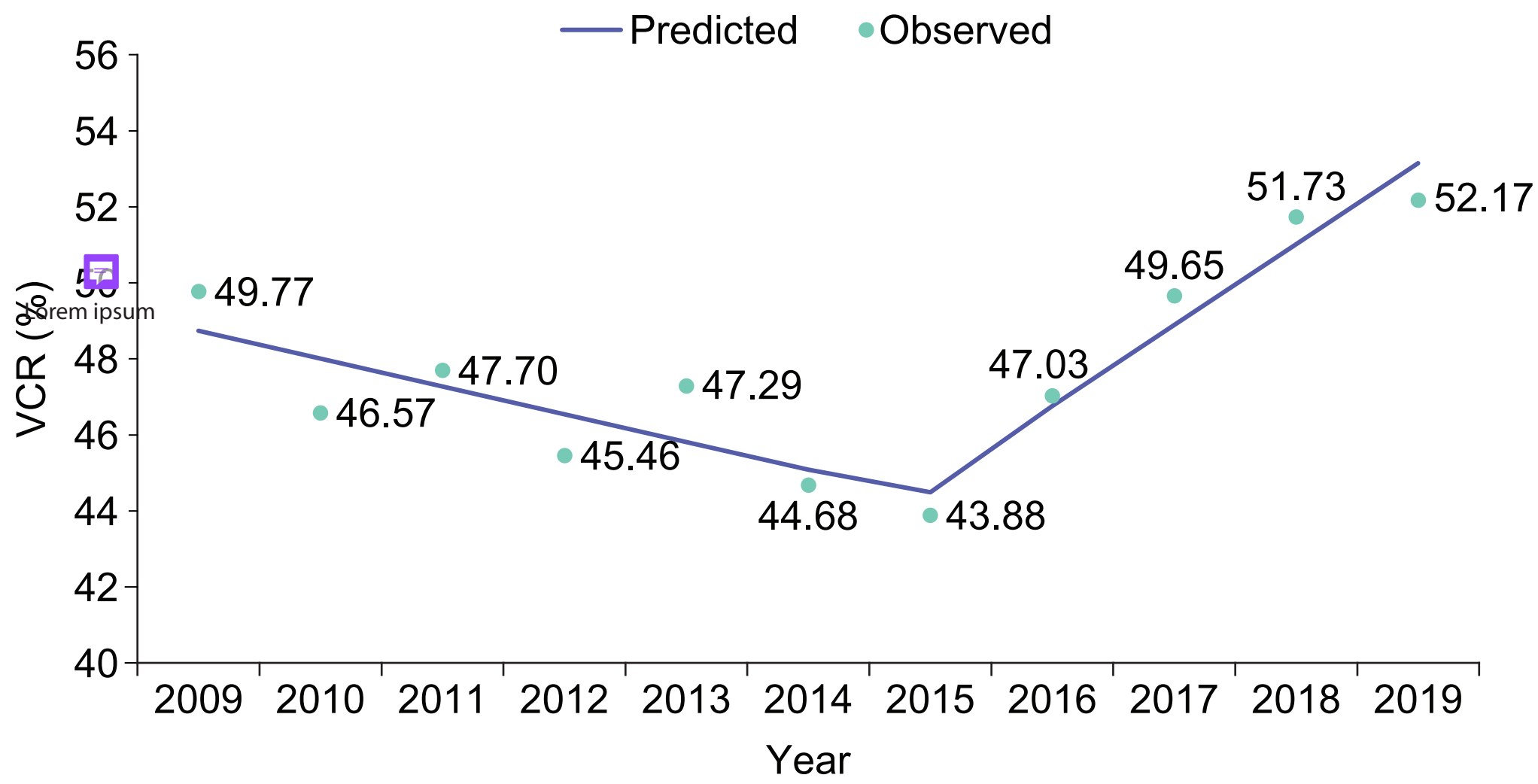
Funding

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Figure 2. Observed and modeled national influenza vaccination coverage in adults aged ≥65 years in Denmark from 2009 to 2019

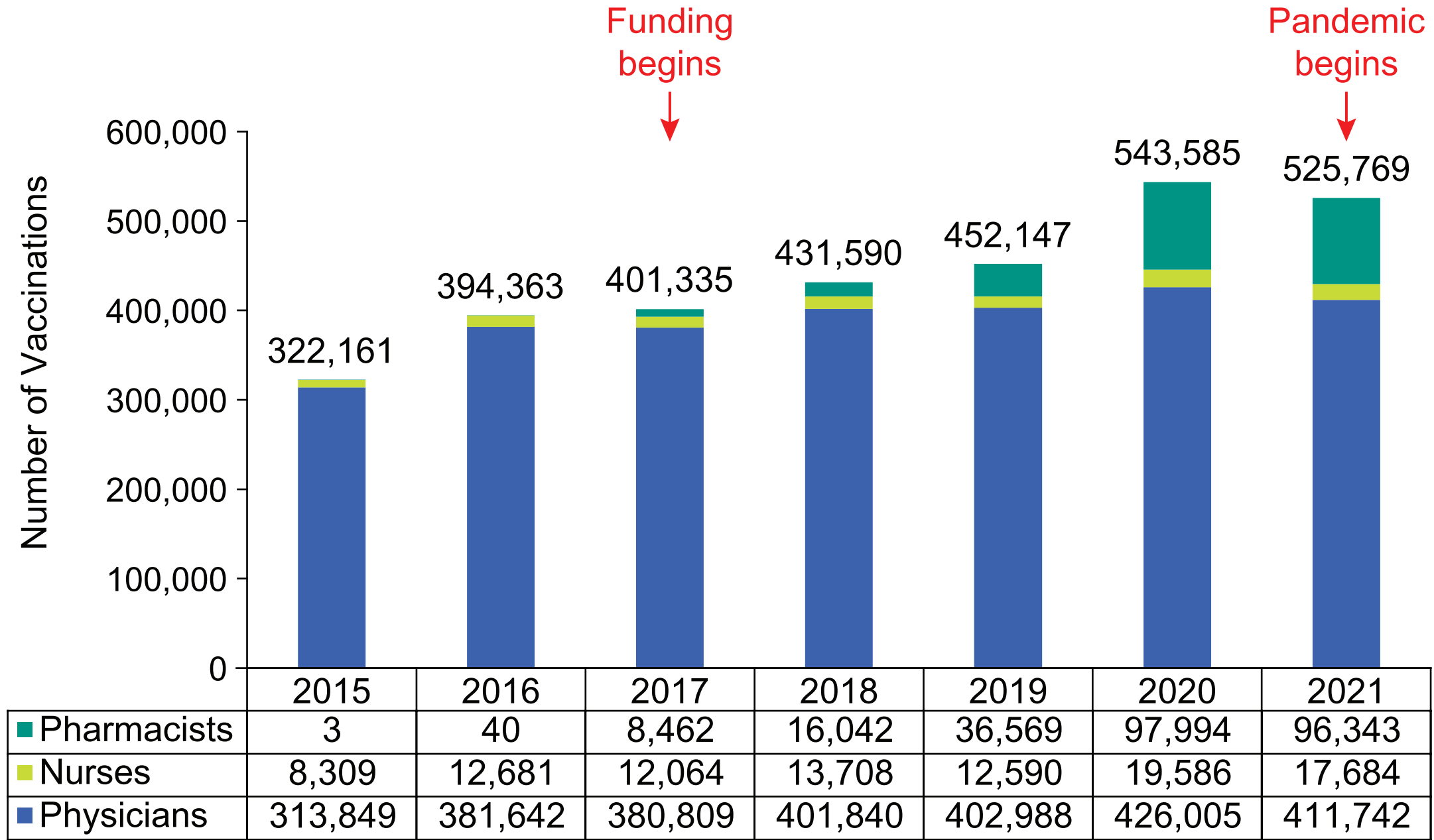


VCR, vaccination coverage rate.
This figure shows the observed VCRs and estimated trend line for VCRs, derived from an interrupted time series model of national vaccine surveillance data in adults ≥65 years. VCR values indicate the percent of populations vaccinated. The vertical dashed gray line for 2015 indicates the year in which Denmark introduced a national policy authorizing influenza vaccine to be administered by certified pharmacists. Predicted VCRs were as follows: 48.74% in 2009, 48.01% in 2010, 47.27% in 2011, 46.54% in 2012, 45.81% in 2013, 45.08% in 2014, 44.49% in 2015, 46.76% in 2016, 48.89% in 2017, 51.02% in 2018, and 53.15% in 2019.

New Zealand

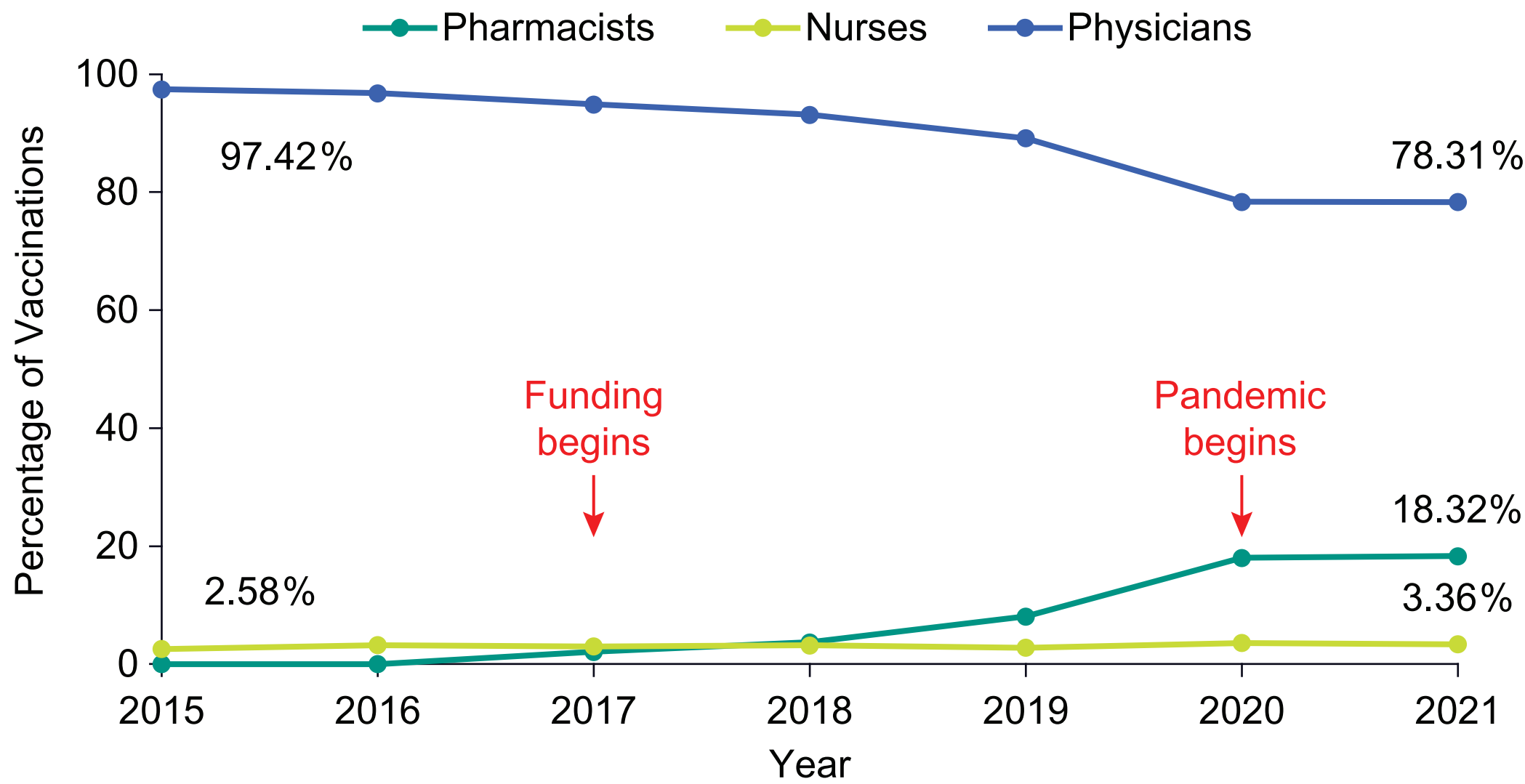
- In New Zealand, the total number of pharmacist-administered influenza vaccinations to older adults steadily increased from 8,462 in 2017 (when funding began) to 96,343 in 2021
- The percentage of vaccinations administered by pharmacists grew from 2.1% to 18.3% over this period

Figure 3. Number of influenza vaccinations administered over time in New Zealand from 2015 to 2021



The figure shows influenza vaccinations administered to adults aged ≥65 years from 2015 to 2021 by physicians, nurses, and pharmacists as the number of vaccinations. The total number of vaccinations each year is shown above the bars.

Figure 4. Percentage of vaccinations administered by provider over time in New Zealand from 2015 to 2021



The figure shows influenza vaccinations administered to adults aged ≥65 years from 2015 to 2021 by physicians, nurses, and pharmacists as the percentage of all vaccinations.

Limitations

- Possible underreporting of vaccinations may have influenced our findings in both studies
- ### Denmark
- Our analysis (2009–2019) only captured the first few years after the 2015 policy change
 - Study analyses did not evaluate individual-level variables, which may have provided further insight into factors associated with pharmacy vaccination
- ### New Zealand
- Factors other than funding policy changes (eg, the COVID-19 pandemic) may have influenced vaccination numbers
 - Funding changes may have increased data reporting of vaccinations rather than vaccination events themselves; our methods could not distinguish between the two

Conclusions

- Public funding should be paired with policies that expand pharmacists' scope of practice to ensure that patients can access vaccination without cost barriers
- Policies expanding pharmacist-administered vaccination were associated with increased influenza vaccine uptake in adults ≥65 years of age in Denmark and New Zealand
- These findings demonstrate that pharmacist-administered vaccination could be an effective strategy to improve adult vaccination rates across different geographies

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