



Office for Health
Improvement
& Disparities

Atlas of health variation in head and neck cancer in England

Human papillomavirus

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7. Human papillomavirus vaccinations

Adolescent females in England have been offered the human papillomavirus (HPV) vaccine since 2008 (as part of the [HPV immunisation programme](#)) to reduce cervical cancer incidence by preventing infection with the highest risk types of HPV (types 16 and 18).⁷⁷ The vaccine currently used through the programme, Gardasil 9, offers extended protection against 9 HPV types: 6, 11, 16, 18, 31, 33, 45, 52, 58.⁷⁸ The HPV vaccine is most effective prior to exposure to viruses therefore the vaccination programme prioritises adolescents prior to sexual activity. However, eligible individuals (i.e. up to the age of 25) can continue to benefit after the start of sexual activity if they have not been exposed to high-risk HPV types, or if they have contracted some high-risk HPV types but not others.⁴⁷ This effect is important given that circulating levels of HPV infection are now much lower than they were when the programme started.⁴⁹

From September 2019, males aged 12 to 13 years became eligible for HPV immunisation to offer direct protection against HPV related cancers including oropharyngeal cancer, to reduce the overall burden of HPV related cancers including cervical cancer sooner than the female-only programme and to add resilience to the UK vaccination programme.⁷⁹

A targeted vaccination programme was introduced for gay, bisexual and other men who have sex with men (GBMSM) in April 2018, this programme aimed to extend protection against HPV as this group were unlikely to benefit from herd immunity generated by the existing girls programme and offer protection against HPV infection, HPV associated cancers and genital warts.⁸⁰ Dosage changes were subsequently announced in June 2023.⁸¹

- a 1 dose schedule for the routine adolescent programme and GBMSM programme for eligible individuals less than 25 years of age
- a 2 dose schedule for the GBMSM programme for eligible individuals from the age of 25 years (0, 6 to 24 months)
- a 3 dose schedule for eligible individuals who are immunosuppressed and those known to be living with HIV, including those on antiretroviral therapy (0, 1, 4 to 6 month schedule)⁴⁷

The HPV vaccination programme in the academic year 2019 to 2020 was disrupted by the COVID-19 pandemic. Only 8 of the 150 local authorities had fully completed, and 116 partially completed, the vaccination programme in their area by March 2020 when educational establishments were temporarily closed due to lockdown. Catch-up plans were implemented but only 64.7% of 13 to 14 year old females had completed both doses of the vaccine by the end of the academic year.⁷⁹ Prior to the pandemic, HPV vaccine uptake in

females was stable with 83.9% of females completing a 2-dose HPV schedule by school year 9 in the academic year 2018 to 2019, compared with 83.8% in the academic year 2017 to 2018, 83.1% in the academic year 2016 to 2017 and 85.1% in the academic year 2015 to 2016.⁷⁹ Extensive work has been, and continues to be, undertaken, to improve uptake through catch-up efforts for those cohorts who missed out on the offer of vaccination through the adolescent programme at the allotted time.^{79 82}

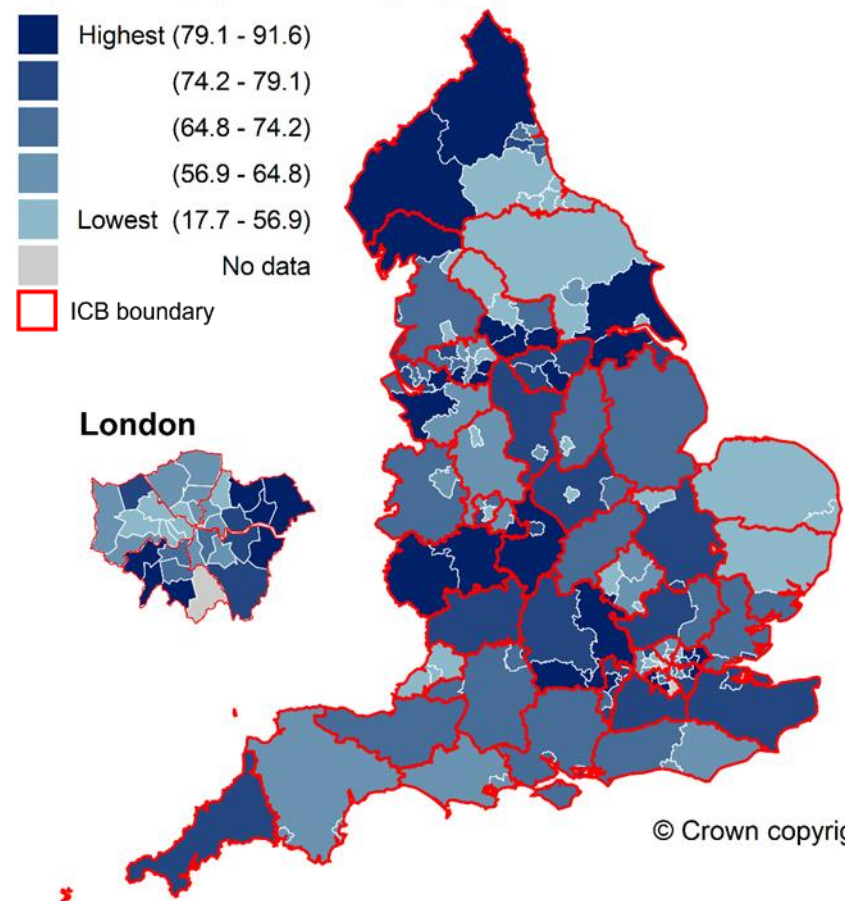
There is currently no definitive data from which to estimate the impact of the HPV vaccination programme on the incidence of head and neck cancer in future. Given the latency of disease onset it is likely that any impact will not be observed for 30 to 40 years.⁸³

7.1: Variation in percentage of HPV vaccination coverage for two doses in 13 to 14 year old females

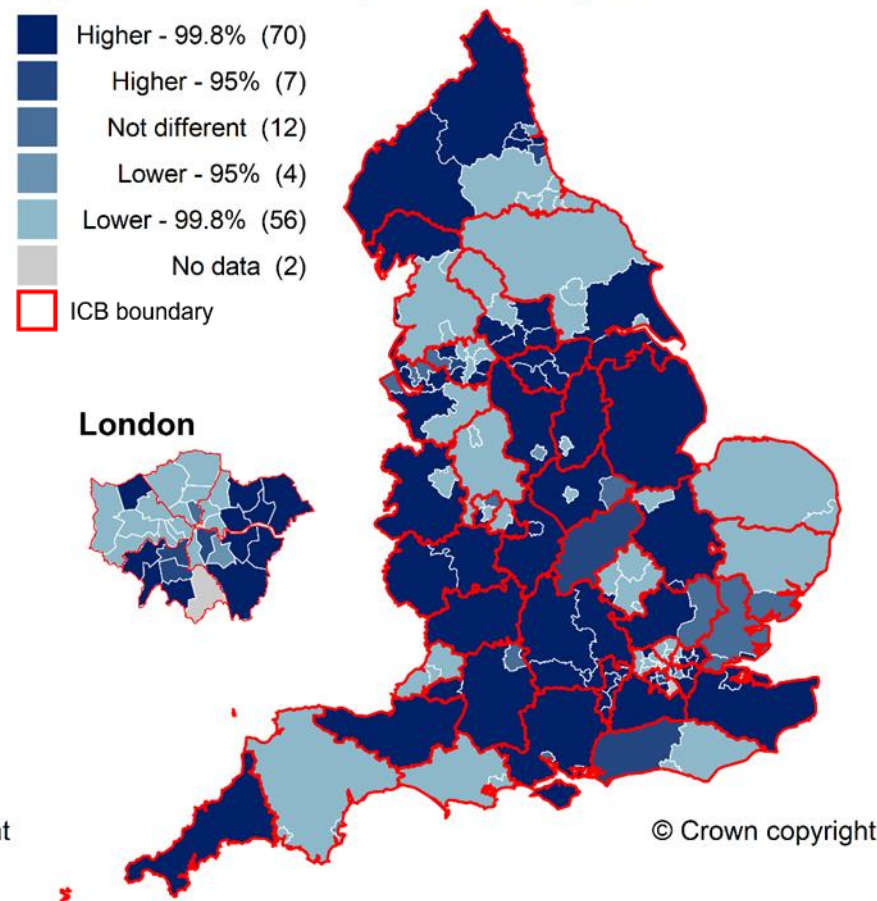
Map 7.1: Variation in percentage of HPV vaccination coverage for two doses in 13 to 14 year old females by UTLA (academic year 2021 to 2022)

Optimum value: high

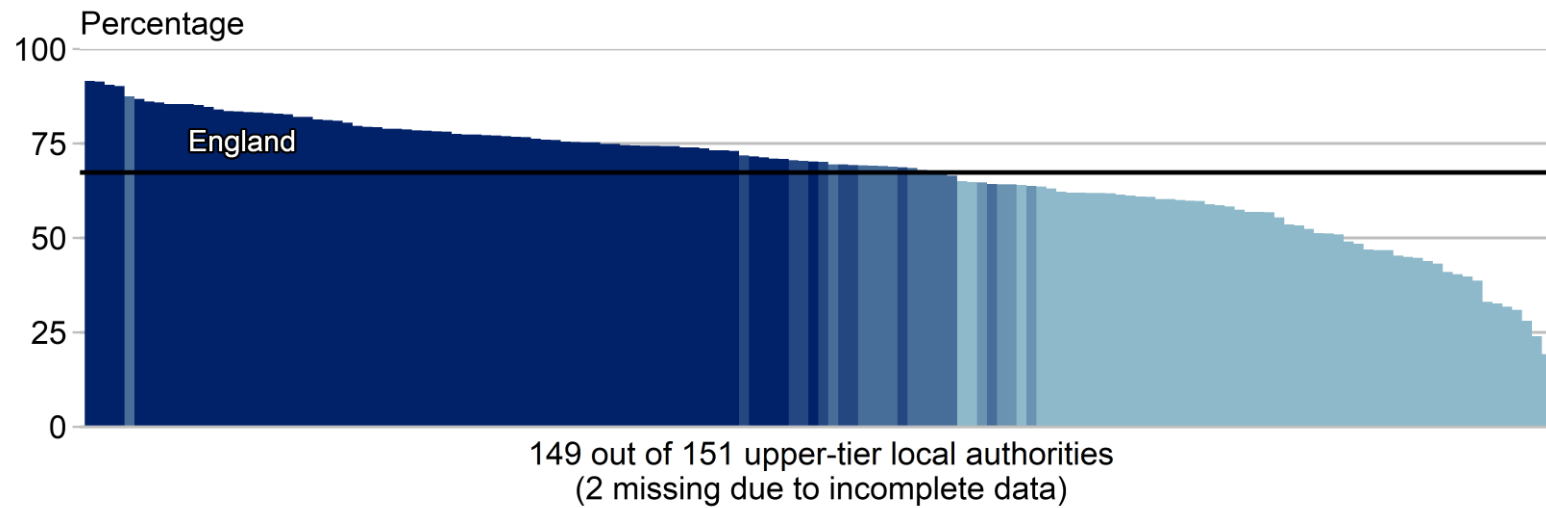
Equal-sized quintiles of geographies



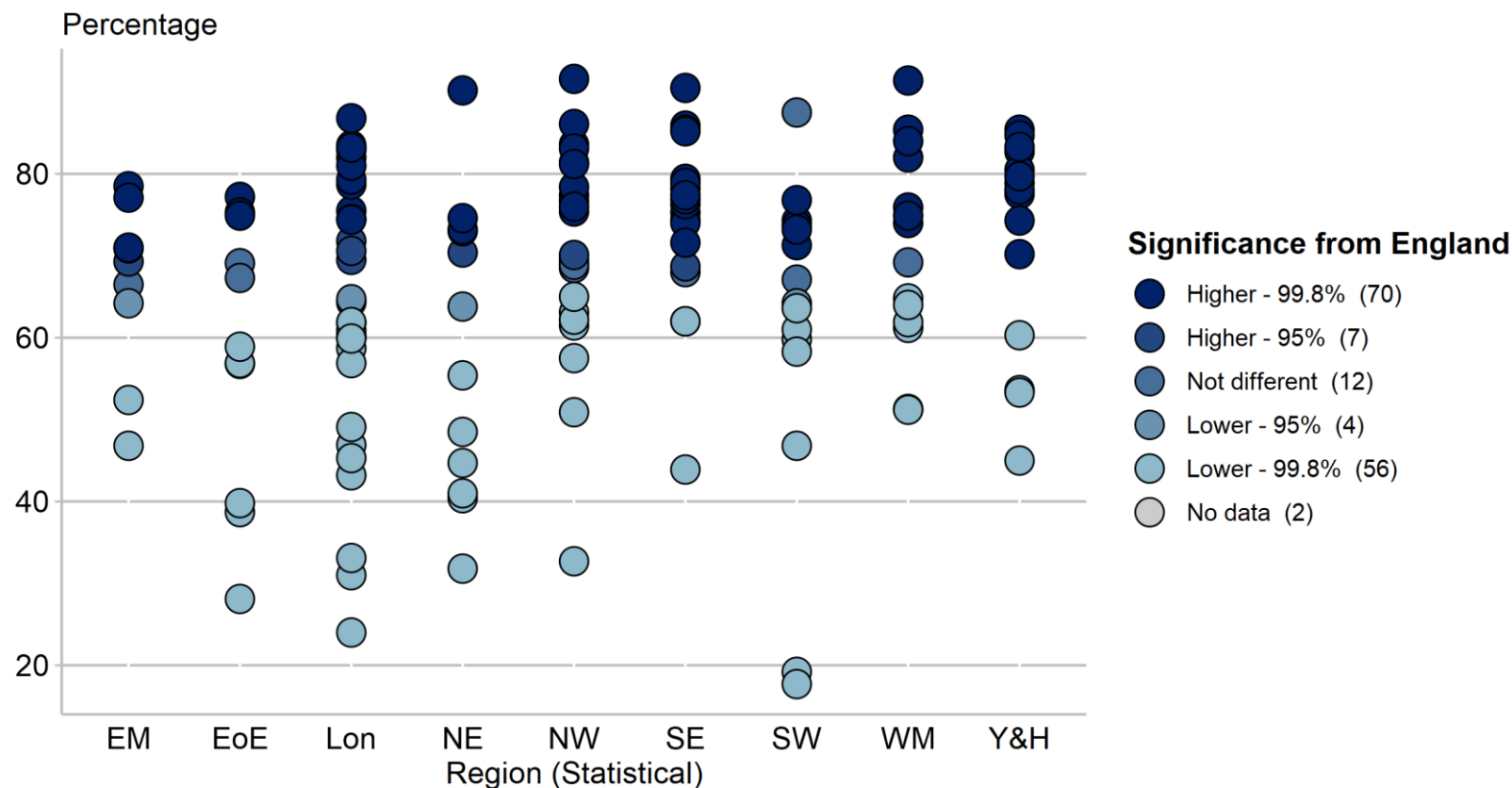
Significance level compared with England



Bar chart 7.1: Variation in percentage of HPV vaccination coverage for two doses in 13 to 14 year old females by UTLA (academic year 2021 to 2022)



Regional dot plot 7.1: Variation in percentage of HPV vaccination coverage for two doses in 13 to 14 year old females by UTLA and region (academic year 2021 to 2022)



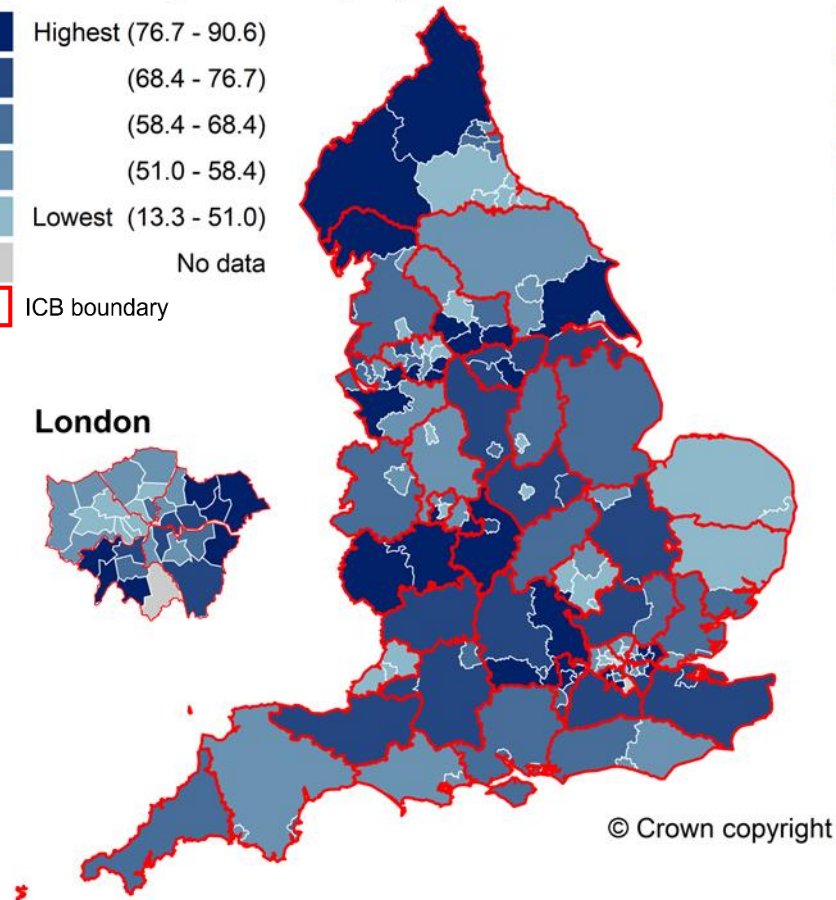
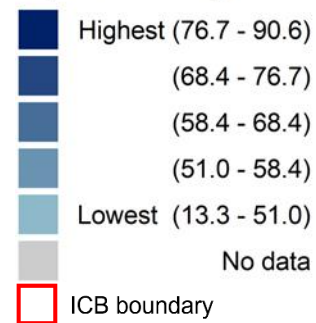
The maps, column chart and regional dot plot display data for the academic period 2021 to 2022, during which upper tier local authorities (UTLA) values ranged from 17.7% to 91.6%, which is a 5.2-fold difference between UTLAs. The England value for the academic period 2021 to 2022 was 67.3%. Of the 151 UTLAs (2020 UTLA configuration), 77 were statistically significantly higher than the England value (7 at the 95% confidence level and 70 at the 99.8% confidence level), 60 were statistically significantly lower than the England value (4 at the 95% confidence level and 56 at the 99.8% confidence level) and 2 were missing due to incomplete data. The data showing the values for all UTLAs is available in the [head and neck cancer atlas data file](#).

7.2: Variation in percentage of HPV vaccination coverage for two doses in 13 to 14 year old males

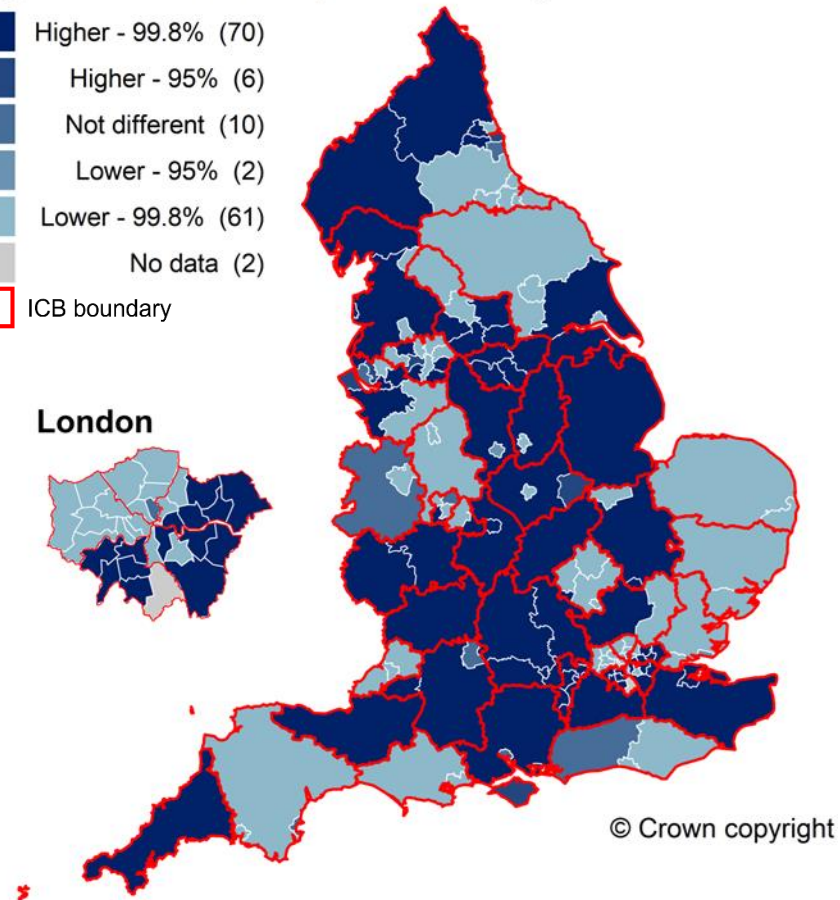
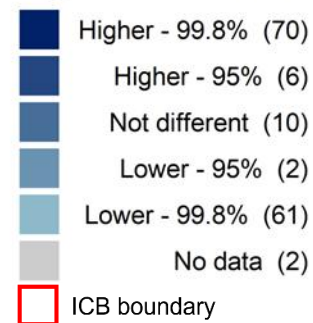
Map 7.2: Variation in percentage of HPV vaccination coverage for two doses in 13 to 14 year old males by UTLA (academic year 2021 to 2022)

Optimum value: high

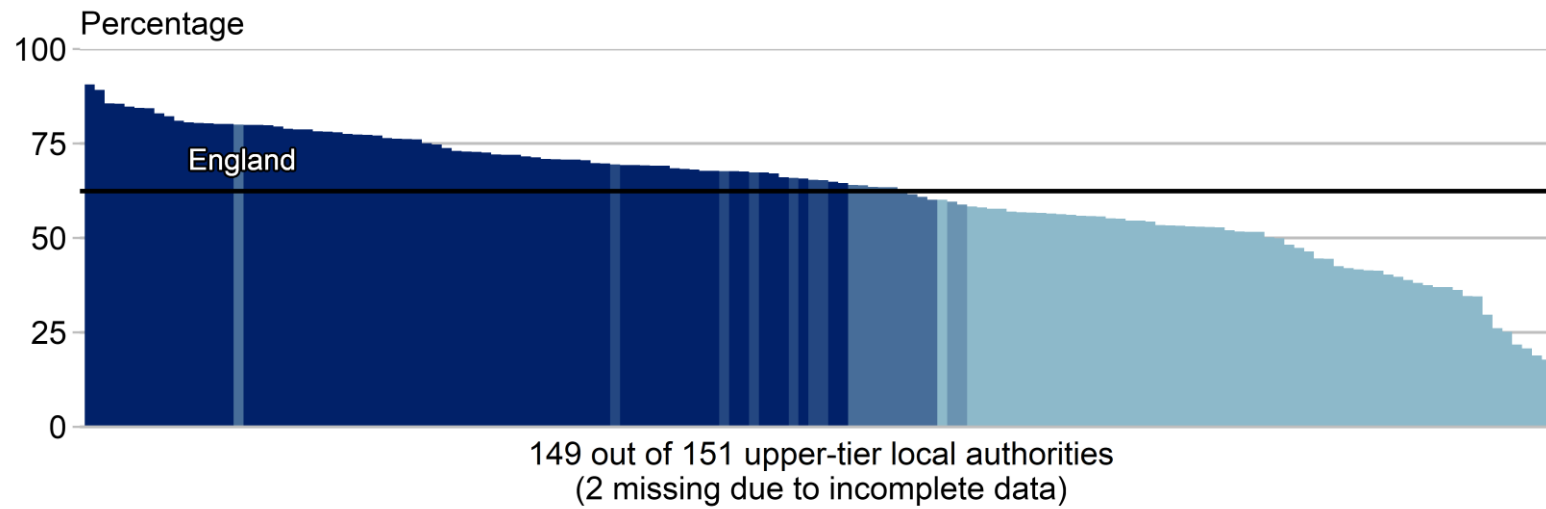
Equal-sized quintiles of geographies



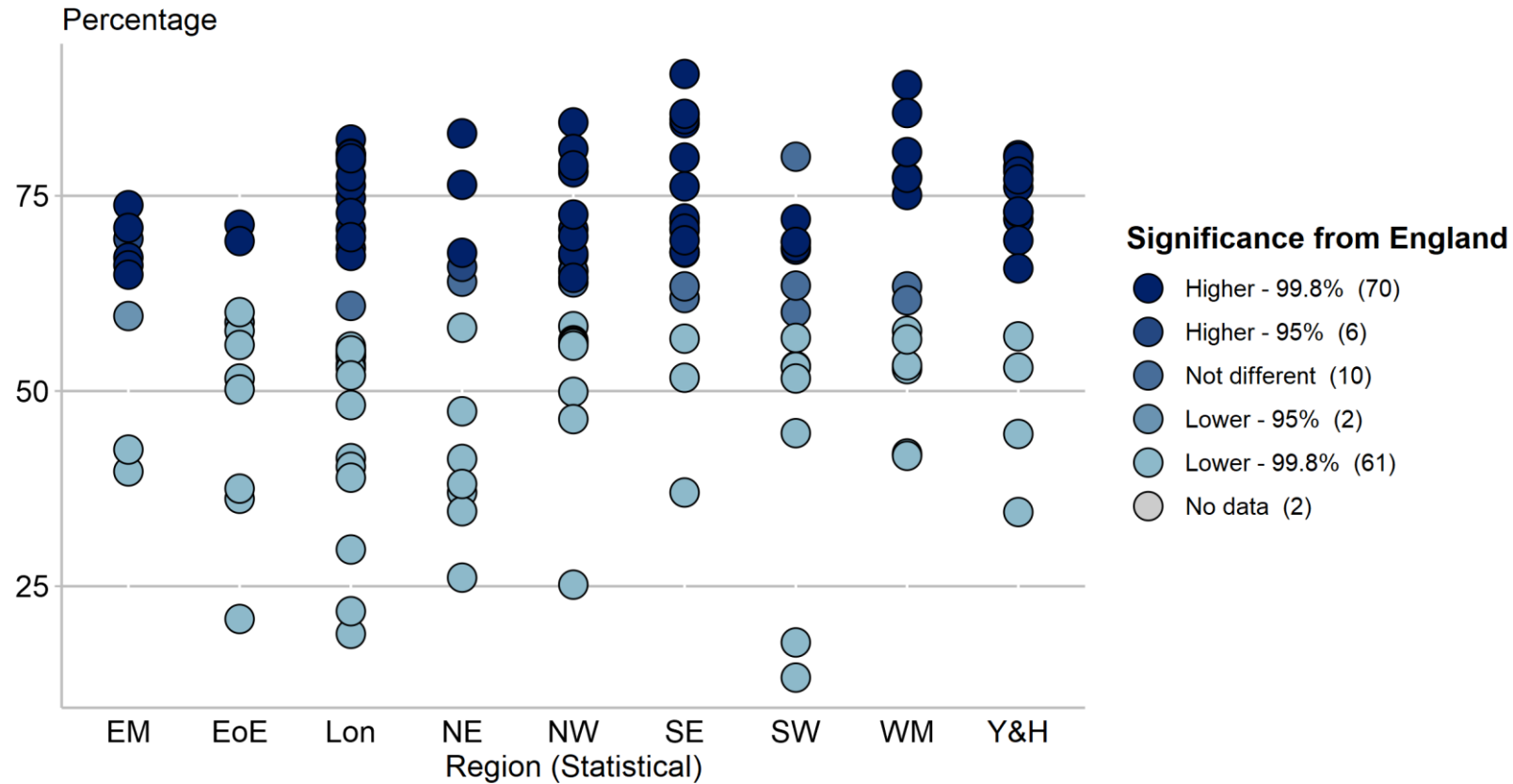
Significance level compared with England



Bar chart 7.2: Variation in percentage of HPV vaccination coverage for two doses in 13 to 14 year old males by UTLA (academic year 2021 to 2022)



Regional dot plot 7.2: Variation in percentage of HPV vaccination coverage for two doses in 13 to 14 year old males by UTLA and region (academic year 2021 to 2022)



The maps, column chart and regional dot plot display data for the academic period 2021 to 2022, during which UTLA values ranged from 13.3% to 90.6%, which is a 6.8-fold difference between UTLAs. The England value for the academic period 2021 to 2022 was 62.4%.

Of the 151 UTLAs (2020 UTLA configuration), 76 were statistically significantly higher than the England value (6 at the 95% confidence level and 70 at the 99.8% confidence level), 63 were statistically significantly lower than the England value (2 at the 95% confidence level and 61 at the 99.8% confidence level) and 2 were missing due to incomplete data. The data showing the values for all UTLAs is available in the [head and neck cancer atlas data file](#).

Reasons for variation in HPV vaccine coverage in females and males aged 13 to 14 years

There is substantial geographical variation in HPV vaccine coverage in both males and females by UTLA but the reasons for this are variable and reflect a complex array of factors that vary by geography and by population.

Possible reasons for variation in HPV vaccine coverage may include: ^{84 85}

- population factors such as:
 - socio-demographic characteristics
 - vaccine hesitancy due to lack of information⁸⁴ and consent⁸⁵
 - attendance rates in schools
- health system factors such as:
 - known barriers to health service access and utilisation that extend beyond HPV vaccination⁸⁶
 - consent procedures for adolescent vaccination⁸⁷
 - recovery of services post COVID-19 pandemic
 - variation in local programme delivery

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