Original Paper

# Social Media Insights Into the Human Papillomavirus Vaccination Catch-Up Campaign for Young Adults in the Netherlands, 2023-2024: Qualitative Study

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## Abstract

**Background:** Human papillomavirus (HPV) vaccination prevents HPV-related cancers, but its uptake remains suboptimal. In the Netherlands, a catch-up campaign invited individuals aged 18 to 27 years for an additional cost-free opportunity to initiate or complete their HPV vaccination in 2023-2024, which led to 24% of the invited population getting vaccinated. As young adults increasingly seek health information online, understanding online questions, concerns, and misinformation in response to the campaign may help improve future vaccination efforts. In addition to the overall evaluation of the vaccination campaign, we piloted online social listening processes to generate an insight report for the Public Health Service (PHS) Amsterdam.

**Objective:** This study piloted online social listening processes at PHS Amsterdam to identify actionable insights into questions, concerns, and misinformation surrounding the HPV vaccination catch-up campaign among young adults.

**Methods:** Following an inventory of potential platforms and data sources, a retrospective online social listening analysis was conducted across Instagram, Facebook, and X (formerly Twitter), using data from PHS Amsterdam, the National Institute for Public Health and the Environment, the Dutch public broadcasting foundation, and LINDA.meiden from January 1, 2023, to June 1, 2024. Publicly available posts, comments, and engagement concerning HPV vaccination were manually collected and inductively coded. Themes were assessed for risk based on expected potential harm and observed reach and were used to develop recommendations.

**Results:** A total of 821 posts and 5157 comments were collected and analyzed. Ten recurring themes were identified across varying risk levels. Two themes were classified as high risk: an information gap regarding HPV vaccination effectiveness and concerns about the transparency regarding HPV vaccine side effects. Three themes were classified as medium risk: questioning HPV vaccine effectiveness, reduced general vaccine trust following COVID-19, and accessibility issues related to vaccination locations and service times. Two themes were classified as neutral risk: questions regarding campaign eligibility criteria and calls for broader HPV prevention measures. Finally, 3 low-risk themes concerned questions regarding HPV vaccine brand specifics, campaign choices, and scheduling HPV appointments. Comments also referred to subsequent information sources, including reliable sources, false narratives, and misinformation. Recommendations focused on addressing questions

and information gaps (ie, improving risk perception and providing more detailed HPV vaccine information), improving communication, and reducing practical barriers to vaccination.

**Conclusions:** Manual social listening across selected online sources provided actionable insights into the public discourse during the HPV vaccination catch-up campaign. Results mostly reflected questions, concerns, and information gaps. Although some themes were critical of HPV vaccination, false narratives and misinformation did not dominate the discourse. Recommendations aim to reduce practical barriers and address information needs. This pilot showed that online social listening can be effectively implemented even with limited resources.

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**Keywords:** human papillomavirus vaccination; public health; public health surveillance; infodemiology; social media; communication; social listening

# Introduction

Human papillomavirus (HPV) vaccination was introduced in 2010 for girls and in 2022 for boys as part of the national immunization program implemented by the National Institute for Public Health and the Environment (Rijksinstituut voor Volksgezondheid en Milieu [RIVM]) in the Netherlands. To increase HPV vaccination uptake and maximize immunity to prevent HPV-related cancers later in life, the RIVM launched a catch-up campaign in 2023-2024. This campaign offered people aged 18 to 27 years (born 1996-2003) an additional opportunity to receive free HPV vaccination, including those who had not been previously vaccinated and those who wanted to complete their vaccination series. The campaign resulted in 24% of the invited population getting vaccinated [1] and was followed by a clear increase in overall routine HPV vaccination rates in 2025, with coverage reaching 63% among girls born in 2013 and 59% among boys [2].

Willingness to get vaccinated is influenced by trust in sources of information and the quantity and quality of information available about HPV vaccination [3,4]. To improve future uptake, it is crucial to learn about the factors that influence participation in the HPV vaccination campaign in the Netherlands. Health information–seeking behavior is increasingly moving to online spaces, especially among young adults [5]. In addition to epidemiological analyses, and as a supplement to the overall evaluation of the vaccination campaign, we piloted online social listening processes to generate an insight report for the Public Health Service (PHS) Amsterdam to gain insight into the questions, concerns, and overall discourse in online media. These insights offer the opportunity to address the campaign's limitations, fill information gaps, address misinformation regarding HPV vaccination, and inform future vaccination campaigns and their planned evaluations. This study therefore served as a pilot for online social listening processes at PHS Amsterdam [6,7], applied to the HPV vaccination catch-up campaign for young adults in 2023-2024.

# Methods

## Aim and Objective

This study aimed to implement online social listening at PHS Amsterdam based on international guidance and methodology [6,8,9] to generate insights into the online public discourse regarding the 2023-2024 HPV vaccination catch-up campaign. Using this approach, the study addressed the following research question: "How was the 2023-2024 HPV vaccination catch-up campaign for young adults in the Netherlands received online?" The generated insights were summarized in an insights report intended for internal use at PHS Amsterdam, with an edited version provided in Multimedia Appendix 1.

## Design

For the data collection, we identified potential online platforms (social media platforms and social listening tools) and information sources relevant to the campaign's intended audience (young adults aged 18-27 years) in collaboration with researchers, program managers, and the social media team of PHS Amsterdam (Table 1). We included platforms for analysis according to 3 criteria. First, the platform had to be freely accessible. Second, because the study was conducted within the time frame of an internship and several platforms were not accessible, we applied a pragmatic approach by limiting the analysis to a small number of available digital platforms. Third, the platforms needed to be predominantly used by the target demographic. This resulted in the inclusion of 3 platforms: Instagram, Facebook, and X (formerly Twitter). Within these selected platforms, 4 information sources were selected for review: PHS Amsterdam and RIVM were included because of their direct involvement in the HPV vaccination catch-up campaign, while the Dutch public broadcasting foundation (Nederlandse Omroep Stichting [NOS]) and LINDA.meiden were chosen to ensure the largest reach of freely accessible mainstream media targeting the Dutch population as a whole (NOS; >95% of the Dutch population [10]) and the specific population of interest (LINDA.meiden [11]), respectively.

**Table 1.** Key characteristics of social media platforms, social listening tools, and information sources assessed for online social listening of the 2023-2024 HPV vaccination catch-up campaign in the Netherlands.

| | Description | Intended audience | Considerations |
|---|---|---|---|
| Social media platforms | | | |
| X (formerly Twitter)[a] | Microblogging platform for sharing updates, news, and discussions | Age group with the highest number of users is 25-34 years (followed by 35-49 years) | • Directly accessible (+)[b]<br>• Extensive data (+)<br>• Easy searching (+)<br>• Unavailability of data because of private accounts (–)[c] |
| Facebook (Meta)[a] | Large social media platform for connecting, sharing, and networking | Age group with the highest number of users is 25-34 years (followed by 18-24 years) | • Directly accessible (+)<br>• Extensive data (+)<br>• Easy searching (+)<br>• Unavailability of information in private groups (–)<br>• No option to select conversations from the Netherlands (–) |
| Instagram (Meta)[a] | Visual platform for sharing photos, videos, and stories | Age group with the highest number of users is 18-24 years (followed by 25-34 years) | • Directly accessible (+)<br>• Extensive data (+)<br>• Easy searching (+) |
| Threads (Meta) | Text-based social media platform by Instagram for public conversations | Age group with the highest number of users is 15-25 years | • Directly accessible (+)<br>• Extensive data (+)<br>• Easy searching (+)<br>• Unavailability of data because of private accounts (–) |
| Bluesky | Decentralized social network aiming to offer user control and transparency | Age group with the highest number of users is 18-24 years | • Directly accessible (+)<br>• Extensive data (+)<br>• Easy searching (+) |
| Mastodon | Decentralized, open-source social network with community-driven servers | Age group with the highest number of users is 25-34 years | • Only posts from the last 48 hours are visible (–)<br>• No option to select conversations from the Netherlands (–) |
| Telegram | Messaging app with encrypted chats, channels, and large group features | Age group with the highest number of users is 25-34 years | • You can only message people you know (–)<br>• Not wide range and very person-specific (–) |
| TikTok | Short-form video platform known for trends, entertainment, and creativity | Age group with the highest number of users is 10-19 years (followed by 20-29 years) | • Directly accessible (+)<br>• Extensive data (+)<br>• Not accessible for Dutch governmental organizations (–)<br>• Limited options to analyze video content (–) |
| YouTube | Video-sharing platform for content creators, streaming, and entertainment | Age group with the highest number of users is 25-34 years | • Directly accessible (+)<br>• No new posts on HPV[d] (–)<br>• Limited options to analyze video content (–) |
| Social listening tools | | | |
| Awario | Real-time social listening tool for brand monitoring and competitor analysis | N/A[e] | • Tool to easily stay informed of all the developments within the specified search term (+)<br>• Paid subscription necessary (–)<br>• Only information about the prior 2 months (–) |
| Citibeats | AI-powered platform analyzing social data to detect trends and public opinion | N/A | • Follows trends (+)<br>• Shows the progression of the trends over time (+)<br>• Paid subscription necessary (–)<br>• Only information about the prior 3 months (–) |
| Coosto | Social media management and monitoring tool for businesses | N/A | • Directly accessible (+)<br>• Extensive data (+)<br>• Easy searching (+)<br>• Paid subscription necessary (–) |
| CrowdTangle | Meta-owned tool for tracking content performance across social media | N/A | • Access needs to be granted (–) |
| Google Alerts, Google Trends | Free tools to monitor and track search trends and mentions | N/A | • Option to receive alerts when a specific term is being used online (+)<br>• Provides a quick overview (+)<br>• Not applicable for retrospective research (–) |
| Junkipedia | Tool for tracking and analyzing misinformation across digital platforms | N/A | • Access needs to be granted (–) |
| TalkWalker | Comprehensive social listening platform with analytics and sentiment analysis | N/A | • Directly accessible (+)<br>• Easy searching (+)<br>• Paid subscription necessary posts history (–) |

| | Description | Intended audience | Considerations |
|---|---|---|---|
| Information sources | | | |
| NOS[a] | The Dutch public broadcasting foundation, a reliable source of national public media in the areas of news, sports, and events | Whole population of the Netherlands | • Discussion possibility (+)<br>• Extensive data (+)<br>• Easy searching (+)<br>• High trust level (+) |
| LINDA.meiden[a] | Dutch lifestyle magazine for young women, covering fashion, beauty, and personal stories | Dutch women aged between 18 and 25 years | • Fits target audience (+)<br>• Directly accessible (+)<br>• Extensive online data (+)<br>• Easy searching (+) |
| Algemeen Dagblad | Dutch newspaper covering news, sports, and entertainment | Whole population of the Netherlands | • Accessible to a broad audience (+)<br>• High readership and second largest paid newspaper in the Netherlands (+)<br>• Paid subscription necessary to read some articles and comments (–) |
| De Volkskrant | Dutch newspaper known for in-depth reporting and progressive views | Whole population of the Netherlands | • High credibility (+)<br>• Balanced reporting (+)<br>• Paid subscription necessary to read some articles and comments (–) |
| NRC, Nieuwe Rotterdamsche Courant | Dutch newspaper focusing on foreign affairs, politics, economics, opinions, and the arts | Age group with the highest number of users is <35 years | • High quality journalism (+)<br>• Paid subscription necessary to read some articles and comments (–) |
| Nu.nl | Dutch news website offering concise, up-to-date news | Age group with highest number of readers is >55 years | • Discussion possibility (+)<br>• Popular news app (+)<br>• High online engagement (+)<br>• Few articles about HPV (–) |
| RTL Nieuws | Dutch commercial news broadcaster delivering national and international news | Dutch people aged between 20 and 49 years | • Broad range of information (+)<br>• Visually oriented and well suited for sharing on social media (+)<br>• No comment section available (–) |
| Telegraaf | The largest Dutch newspaper, known for its tabloid-style reporting and entertainment content | Whole population of the Netherlands | • Broad range of information (+)<br>• Highest readership in the Netherlands (+)<br>• No comment section available (–)<br>• More prone to sensationalism due to tabloid-style journalism (–) |
| Public Health Services[a] | 25 Public Health Services | Whole population of the Netherlands | • Broad information based on scientific research (+)<br>• Hands-on experience with the intended audience for HPV vaccination (+)<br>• Trusted public health source (+)<br>• Broad range of information based on scientific research (+) |
| National Public Health Institute[a] | The Dutch National Institute for Public Health and the Environment, responsible for public health policies | Whole population of the Netherlands | • Highly credible source (+)<br>• Central authority on public health in the Netherlands (+) |
| De Twijfeltelefoon (Doubt telephone) | Dutch helpline offering advice on health-related doubts, such as vaccinations | Whole population of the Netherlands | • Gives insights into the doubts about various medical topics (+)<br>• Data are not publicly available (–) |
| Nederlandse Vereniging Kritisch Prikken | The Dutch Association for Critical Vaccination, promoting vaccine skepticism and personal choice | Whole population of the Netherlands | • Broad information based on research (+)<br>• Gives insight into vaccine-critical narratives (+)<br>• No discussion possibility (–) |
| Stichting Vaccinvrij | Dutch organization opposing vaccinations and advocating for informed choice | Dutch people who are doubting or looking for information about vaccination | • Broad range of information based on research (+)<br>• Valuable for identifying antivaccine discourse (+)<br>• No comment section available (–) |

[a]Included.
[b](+): advantage.
[c](–): disadvantage.
[d]HPV: human papillomavirus.
[e]N/A: not applicable.

## Data Collection

The social listening period spanned from January 1, 2023, to June 1, 2024. All publicly available posts focusing on HPV vaccination, as well as recorded engagement and comments posted by "netizens" (ie, people engaging or commenting online) in response to content about HPV vaccination or the catch-up campaign, were manually collected retrospectively from the selected profiles on the selected platforms. Key content characteristics were collected to prepare for quantitative and qualitative content analysis, using a data collection sheet designed for this purpose (Multimedia Appendix 2). Overarching themes were identified and assigned by 2 researchers (EEMWvdW and JIvH) using an independent and iterative process of inductive coding. The 2 researchers subsequently reviewed and validated the preliminary themes, followed by interpretation and consensus building through discussions with a third researcher (TSB) to resolve any potential disagreements.

## Risk Assessment

For each identified theme, the negative potential impact on the campaign's intended audience regarding vaccine acceptance was assessed using a risk assessment matrix (Table 2). High risk can lead to potential HPV vaccine refusal and/or pose a negative threat to the campaign and is pervasive with a wide reach. Medium risk can lead to potential HPV vaccine hesitancy and/or pose a negative threat to the catch-up campaign but has moderate reach and dissemination. Third, low risk can be concerning but poses a low risk to HPV vaccination and/or the catch-up campaign and has limited reach and dissemination. Finally, neutral risk has no influence on either vaccination or the catch-up campaign. Based on the identified themes, recommendations for action to address questions, concerns, and misinformation were developed through consensus building among the 3 researchers (EEMWvdW, JIvH, and TSB).

All identified themes were assessed according to the risk matrix presented in Table 2, which was developed based on international guidance and methodology [6,8,9].

**Table 2.** Risk assessment matrix.

| Risk level | Classification |
|---|---|
| High risk | May lead to vaccine refusals and affect catch-up campaign compliance; wide reach and pervasive |
| Medium risk | Potential to trigger vaccine hesitancy and affect catch-up campaign compliance; moderate reach and modest dissemination |
| Low risk | Concerning, but poses low risk to catch-up campaign compliance; limited reach and limited dissemination |
| Neutral risk | No influence on catch-up campaign compliance |

## Ethical Considerations

This study was exempt from the Dutch Medical Research Involving Human Subjects Act; approval from the Medical Research Ethics Committee was not required. The processed data (posts and comments) originated from publicly accessible platforms and were lawfully processed in the public interest according to the General Data Protection Regulation (GDPR) [12].

# Results

A total of 821 posts and 5157 comments were included and analyzed in the study. NOS, LINDA.meiden, RIVM, and PHS Amsterdam posted HPV vaccination–related content during the social listening period on Facebook (n=434; 52.9%; range 0-47 posts per source), Instagram (n=353; 43%; range 0-44 posts per source), and X (n=8; 1%; range 0-7 posts per source); no local PHS posted on X. Engagement (ie, comments, likes, and shares) was highest for posts from sources with a national audience (NOS, followed by LINDA.meiden and RIVM) compared with content from local PHS, with RIVM posts receiving the most shares. Further details on the review process and results are provided in Multimedia Appendices 1 and 2.

Ten recurring themes were identified and assessed according to their risk to the HPV vaccination catch-up campaign, with recommended actions for each theme (summarized in Table 3). First, netizens questioned whether HPV vaccination was the most effective and safe way to prevent HPV infection and HPV-related cancers; some considered other measures, such as condom use and a healthy lifestyle, to be more effective for protecting their health than vaccination. Second, netizens expressed concerns about a lack of transparency regarding the side effects of the HPV vaccine. Third, netizens questioned whether the vaccine was less effective under certain circumstances, such as having had sex, receiving the vaccine at an older age, or already having HPV. Fourth, netizens' trust in vaccines had decreased since the COVID-19 pandemic and the associated vaccination policies, contributing to increased skepticism toward vaccines in general. Fifth, access barriers were identified: getting an HPV vaccination was perceived as inconvenient because vaccination locations were not considered easy to reach and their opening hours overlapped with work and school hours. Sixth, some netizens did not understand why the HPV vaccination catch-up campaign was only for people born between 1996 and 2003 and requested that the HPV vaccination be free of charge for every age group. Seventh, a petition was initiated to lower the age for cervical screening from 30 years to 25 years and to increase the screening frequency to more often than every 5 years; the petition also raised awareness of HPV vaccination, as both vaccination and cervical screening contribute to the prevention of cervical cancer. Eighth, netizens had questions about the brand of

HPV vaccine being used (Gardasil-9) and the type of vaccine (virus-like particle). Ninth, netizens questioned the choice of a Muslim girl as the face of the campaign, particularly in the context of preventing a sexually transmitted infection. Tenth, it was unclear to netizens how to plan or reschedule an appointment for HPV vaccination with PHS Amsterdam.

Recommendations for action include closing information voids by clarifying HPV transmission routes and primary prevention measures and by providing more information about the vaccine (type, brand, and safety profile) used in the campaign. Netizens expressed interest in preventing cervical cancer outside the scope of the vaccination campaign through cervical screening and vaccinating different age cohorts. Furthermore, access barriers were identified that could be addressed by the public health system.

Of note, netizens also referred to subsequent information sources in their comments, including reliable sources (public health institutes), false narratives, and sources of misinformation. For the HPV vaccine specifically, netizens referred to dismissed and ongoing lawsuits against governments and pharmaceutical companies and expressed support for those seeking legal assistance. Regarding vaccination in general, netizens referred to the American antivaccine propaganda film "Vaxxed: From Cover-Up to Catastrophe," alleging a cover-up by the Centers for Disease Control and Prevention of a supposed link between the measles, mumps, and rubella vaccine and autism, and to the Dutch Association for Critical Vaccination (Nederlandse Vereniging Kritisch Prikken), which promotes vaccine skepticism and personal choice.

**Table 3.** Themes and recommended actions from the integrated insights analysis of the 2023-2024 HPV vaccination catch-up campaign in the Netherlands[a].

| Theme | Risk level | Theme summary—insight | Recommendation for action |
|---|---|---|---|
| 1 | High risk | Information void: lack of understanding that vaccination is an effective and safe way to prevent HPV[b] infection and HPV-related cancers; other measures, such as condom use and lifestyle changes, were perceived as more effective for protecting health | • Improve netizens' risk perception of HPV by clarifying the HPV transmission route, ensuring that people understand that a healthy lifestyle, condom use, or limiting the number of sexual partners does not guarantee protection from infection<br>• Explain primary prevention measures so that netizens can make well-considered choices regarding HPV vaccination |
| 2 | High risk | Concerns about transparency regarding HPV vaccine side effects | • Provide a vaccine safety profile on the website of the National Public Health Institute<br>• Do not simply state that "there are no side effects;" instead, point people to the evidence base of this statement and to credible sources that register vaccine side effects (ie, the Netherlands Pharmacovigilance Center Lareb and the Medicines Evaluation Board) |
| 3 | Medium risk | HPV vaccine effectiveness is questioned under certain circumstances | • Provide detailed information about for whom and when the HPV vaccine can be beneficial |
| 4 | Medium risk | Reduced general trust in vaccines after the COVID-19 pandemic | • Provide in-depth information about the background of vaccine policy (ie, the recommendation from the independent Health Council Gezondheidsraad) |
| 5 | Medium risk | Inconvenient vaccination locations and opening hours for HPV vaccination services | • Lift the access barriers by doing the following:<br>• Rescheduling an appointment and providing instructions for reaching the PHS for planning an appointment (for vaccination)<br>• Offering more time slots for vaccination outside school or work hours<br>• Providing vaccinations at accessible locations, preferably locations that are also easier to reach by public transportation |
| 6 | Neutral risk | Netizens do not understand why the HPV vaccination catch-up campaign was limited to people born between 1996 and 2003 and want free HPV vaccination for all age groups | • Provide clarification on the intended audience for the HPV vaccination catch-up campaign<br>• Provide clarification on how the costs of an HPV vaccination are determined<br>• Provide information and advice for people outside the population of interest in the campaign |
| 7 | Neutral risk | Netizens are advocating for cervical screening to start before the age of 30 years and to occur more frequently than every 5 years | • Put HPV vaccination in the context of broader cervical cancer prevention measures, such as cervical screening (Pap smear) |
| 8 | Low risk | Netizens have questions about the brand and type of HPV vaccine being used | • Clarify the brand (Gardasil 9) and type of HPV vaccine (virus-like particle) used in the campaign<br>• Refer to the product information for the brand (Gardasil 9) and manufacturer (Merck), the package leaflet, and regulatory information from the Dutch Medicines Evaluation Board (College ter Beoordeling van Geneesmiddelen) and the European Medicines Agency |

| Theme | Risk level | Theme summary—insight | Recommendation for action |
|---|---|---|---|
| 9 | Low risk | Netizens do not understand why the campaign chose a Muslim girl as the face of the campaign | • Ensure culturally and religiously sensitive and visually appropriate communication regarding sexual and reproductive health<br>• Provide clear instructions on how to schedule an appointment through the website and ensure that prominent, easily accessible links to the scheduling page are available |
| 10 | Low risk | It is unclear to netizens how to plan or reschedule an appointment for HPV vaccination with PHS[c] Amsterdam | |

[a]Themes with identical risk levels were not prioritized relative to one another.
[b]HPV: human papillomavirus.
[c]PHS: Public Health Service.

# Discussion

## Main Results

Online social listening identified 10 actionable insights for PHS Amsterdam regarding the 2023-2024 HPV vaccination catch-up campaign based on >800 posts and >5000 comments. Public concerns related to vaccine effectiveness, safety, and transparency, with many questioning the vaccine's reliability and potential side effects. Reduced trust in vaccination after the COVID-19 pandemic enhanced HPV vaccination skepticism. Information voids were identified as questions surfaced, particularly about why the campaign was limited to young adults born between 1996 and 2003, which vaccine brand and type were being used, and representation in campaign materials. Access barriers were identified, including inconvenient locations and scheduling difficulties. In addition, netizens expressed a desire for earlier and more frequent cervical screening in the wider context of preventing HPV-related cancers. The identified themes align with previous research indicating that willingness to vaccinate is shaped not only by available information itself but also by trust in its information sources [3].

These insights highlight the need for in-depth information and transparent communication to support informed health choices. Social listening proved valuable for identifying information gaps, recurring questions, and concerns surrounding the HPV vaccination catch-up campaign. Although it cannot establish causal links between online discourse and vaccination uptake, social listening provides insight into factors such as mistrust in health authorities and exposure to misinformation, which are key determinants of vaccine hesitancy [3]. By addressing these factors, social listening can help strengthen trust in health institutions and potentially increase willingness to vaccinate [8].

## Limitations

This work was an innovative pilot study and, as such, was subject to several challenges and limitations. Although the data sources were selected based on predefined criteria, this procedure was led by pragmatism and limited resources, which may have influenced the representativeness of the results. For example, the inclusion of LINDA.meiden as a source likely led to an overrepresentation of women in the dataset. Furthermore, because the data were collected exclusively from digital platforms, the study predominantly captured the perspectives of netizens. By focusing on written texts, contributions from individuals with limited literacy skills may also have been overlooked. Despite limited resources, valuable communication lessons have been learned for future work, including data source selection and the design of data collection tools.

## Conclusions

This project demonstrated that manual data collection from a selection of online data sources can yield valuable insights. The use of specialized social listening tools could enhance data collection and analysis, offering a more comprehensive understanding of public sentiment and emerging narratives around vaccination campaigns. Ongoing social listening research on vaccine-preventable diseases at PHS Amsterdam builds on this project by using tools to analyze social media data, exploring more data sources (both online and offline), and seeking to innovate and evaluate the reporting format. Implementation and evaluation of the methods are currently ongoing through case studies, including the response to an expected measles outbreak in Amsterdam [13] and the implementation of respiratory syncytial virus immunization for babies as part of the National Immunization Program.

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### Generative AI Use

The authors declare that no AI tools, including generative AI or AI-assisted technologies, were used in the preparation, writing, or editing of this manuscript.

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## Authors' Contributions

EEMWvdW and JIvH contributed to the study design, data acquisition, data analysis, data interpretation, and manuscript writing. CL contributed to data interpretation and provided critical revisions for important intellectual content. KMCB contributed to the study design, method development, data interpretation, and manuscript writing. TSB initiated and led the project and contributed to its conception and design, data analysis and interpretation, and manuscript writing. All authors critically reviewed and approved the final manuscript.

## Conflicts of Interest

None declared.

## Multimedia Appendix 1

Human papillomavirus (HPV) vaccination insights report: questions, concerns, misinformation, and recommendations; uptake on the HPV vaccination catch-up campaign 2023-2024.
[PDF File (Adobe File), 704 KB-Multimedia Appendix 1]

## Multimedia Appendix 2

Data collection overview.
[XLSX File (Microsoft Excel File), 411 KB-Multimedia Appendix 2]

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## Abbreviations

**GDPR:** General Data Protection Regulation
**HPV:** human papillomavirus
**NOS:** Nederlandse Omroep Stichting
**PHS:** Public Health Service
**RIVM:** Rijksinstituut voor Volksgezondheid en Milieu

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