

Framing the future of the HPV vaccination

Causes and consequences of the vaccination policy change in Germany

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Abstract

Objective: In June 2018, Germany changed its HPV vaccination policy. Boys were included in the state-financed immunization, while before only girls were offered the vaccination. The aim of this study was to examine the causes and consequences of this policy change regarding message framing.

Methods: Six important actors in the HPV vaccination discourse were analyzed using different theoretical approaches. The change in framing by the selected organizations over time was analyzed looking at informational documents. Afterwards, the social worlds of the actors were constructed using Clarke's social worlds/arenas framework. Finally, Kingdon's agenda setting framework was used to examine the policy dynamics leading to the policy change.

Results: It was found that the convergence of the problem, policy and politics stream following Kingdon caused the policy change, which in turn led to a change in the HPV vaccination framing. The social worlds of crucial actors aligned, and the feminization of the HPV vaccination in informational material decreased. Further, HPV was less framed as an individual risk and as sexually transmittable.

Conclusion: A consequence of the policy change is the reframing of the HPV vaccination. If successful, the reframing can increase the low vaccination rate, that primarily caused the policy change.

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1. Introduction to the research problem

In June 2018 Germany changed its human papillomavirus (HPV) vaccination policy. Thereby, it became the second European country that offers the vaccination against the extremely common virus infection not only to girls, but also to boys for free. The subject of this thesis is the investigation of reasons for policy change and the resulting consequences.

HPV is a sexually transmittable infection (STI) and responsible for almost 100% of all cases of cervical cancer (WHO, 2019). At least 14 of the over 100 known types of HPV are high-risk types that can cause cervical cancer, but the infection also causes genital warts and is linked to other, less frequent genital cancers that are found in women and men (WHO, 2019). The HPV vaccination has proven to be safe and efficient in preventing precursors of genital cancers and genital warts in females as well as in males. However, based on the fact that the most common HPV-related disease is cervical cancer, the WHO only recommends to vaccinate girls aged 9-14 years old with two or three doses of HPV immunization (depending on the age of the children and whether they have been sexually active) (WHO, 2019).

Since the HPV vaccination was first licensed in 2006, more than 80 countries introduced the vaccination in their national immunization programs (Gallagher, LaMontagne, & Watson-Jones, 2018). The burden of cervical cancer is especially high in developing countries, where 85% of all new cervical cancer cases occur (Gallagher et al., 2018, p. 4763). The countries that implemented the vaccine for either only girls or girls and boys, however, are mainly high-income and upper-middle-income countries (Gallagher et al., 2018).

Despite the broad implementation and availability of the HPV vaccine in Europe, it currently experiences decreasing (or constantly low) vaccination rates (Karafillakis et al., 2019). The rates indicate a growing vaccine hesitancy, as well as distrust and skepticism among the population concerning the safety of the HPV vaccine. Especially through social media, the anti-vaccination movement is spreading conspiratorial information and negative rumors about vaccine safety, in which the HPV vaccination is linked to other illnesses. This false information causes anxiety-reactions and therefore decreases the HPV vaccination confidence among the possible recipients or respective parents (Karafillakis et al., 2019, p. 8). This shows that in order to eradicate HPV and HPV-related diseases, the mere availability of the HPV vaccination is not enough to foster vaccine uptake. People must additionally be informed and motivated to get the vaccination. That also implies that information material strongly shapes the narrative surrounding HPV and that communication strategies are crucial to ensure public trust in the HPV vaccine.

At this point, vaccination framing can play an important role. Previous research has shown that the way in which a message is constructed and conveyed to the recipient of the message can be effective in influencing health behaviors (Cartmell et al., 2018; Nan, 2012). Nan (2012) found an interaction effect between the message framing and the motivational orientation of individuals on the HPV vaccination intentions and risk-perceptions related to the vaccine among young adults in the USA. Loss frames are found to be more persuasive for avoidance-oriented people, whereas both gain and loss frames are equally persuasive for approach-oriented individuals. Cartmell et al. (2018) explored HPV vaccination messaging strategies in the USA using key-informant interviews. It was found that the feminization of HPV is responsible for the misconception that boys are not subject to HPV infections. Since the vaccination is framed as cervical cancer prevention for girls, boys are less concerned about HPV (Cartmell et al., 2018, p. 6). These are two examples of the existing body of research concerned with the framing of HPV vaccination campaigns. Both examine the influence of different HPV vaccination framing facets on the perceived importance of the vaccination and intentions to receive the vaccination, however in different contexts and for different groups.

This research is concerned with the German HPV context, where the HPV vaccination was first introduced for girls in 2007. Due to the absence of a central immunization registry, the first study that collected countrywide HPV coverage data was published in 2013 (Deleré, Böhmer, Walter, & Wichmann, 2013) and came to the conclusion that Germany has a low HPV vaccination-coverage (Deleré et al., 2013, p. 1706). The German “Arzneimittel-Atlas” provides annual data concerning the consumption of pharmaceutical products. The consumption of the HPV vaccine peaked in 2008, shortly after the introduction of the vaccination in Germany, and shows hardly any increase after an early collapse in 2009 (IGES, 2014; RKI, 2018a). The decline is associated with the manifesto published by 13 German public health experts and scientists that criticized the German “Permanent Vaccination Commission” (STIKO) for the vaccination recommendation for HPV in 2008. Also two deaths in young women were falsely ascribed to the HPV vaccination during that time (Deleré et al., 2013, p. 1709).

In 2014, Austria was the first European country that implemented a gender-neutral HPV vaccination policy and started offering the vaccination to girls and boys for free in order to fight the extremely low vaccination rate in the country (Lindén & Busse, 2017, p. 203). Four years later, in June 2018, also the German HPV vaccination policy changed. The German STIKO extended its recommendation of the HPV vaccination to boys at the age of 9 to 14, while before only girls of that age were recommended to get the vaccination (RKI, 2018b). On the basis of the change in recommendation by the STIKO, the Joint Federal Committee (G-BA) made the

decision to include the HPV vaccination of boys in the vaccination directive (G-BA, 2018). This means that the costs of the HPV vaccination for boys at the recommended age are now also covered by the state-financed public health insurance.

However, to my best knowledge, little is known about the specific reasons and implications of the change in the HPV vaccination policy with regard to the accompanying framing of the vaccination in Germany. Therefore, the causes and consequences of the HPV vaccination policy change are examined closely in this study. The analysis is carried out in the light of message framing that is used in the information and promotion material for and against the HPV vaccine by the different organizations over time. Thus, one goal of the study is to see how the HPV vaccination is framed before and after the policy change. Special attention is paid to the aspect of feminized framing and the target group on which the material is focused. Based on this analysis, the causes for the policy change are examined using different theoretical frameworks. Ultimately, the goal of this research is to fill the knowledge gap and to answer the following exploratory research question:

RQ: What are the causes and consequences of the policy frame change concerning the vaccination recommendation for HPV in Germany in June 2018?

The question is answered in the context of the HPV vaccine “as an example of a gendering of current public health” (Lindén & Busse, 2017, p. 191). For instance, the studies of Mishra and Graham (2012) and Rail et al. (2018) showed that especially the framing of the HPV vaccination as a “girls’ vaccine” has neglected the scientific facts in vaccination campaigns in Canada. Different risks are associated with the infection for men and women, however in the discourse it is disregarded that both women and men are equally subjected to HPV. The framing of HPV as a “girls’ issue” can therefore be misleading for the public.

To conclusively answer the main research question, the framing of the HPV vaccination in Germany is closely examined. The first descriptive sub-question of this study thus reads as follows:

RQ(A): How is the HPV vaccination framed by different organizations before and after the policy change in Germany in June 2018

It is analyzed how different actors framed the HPV vaccination in informational material that was published in Germany before and after the decision of the STIKO to recommend the

HPV vaccination for girls and boys in June 2018. After examining the change in framing over time, the foundation is laid out to derive the causes for the policy change. To this end, the second sub-question is answered:

RQ(B): What led to the policy frame change concerning the vaccination recommendation for HPV in Germany in June 2018?

To find an answer to the question, Adele Clarke's social worlds/arenas approach is used (Clarke, 1991; Clarke, 2003). Following Clarke (1991; 2003), the approach captures the organized action of individuals, groups, and formal organizations. The social worlds may be composed of several individual actors and organizations that have a common aim and ideology, in this case the framing of the HPV vaccination. In the social arenas, which represent the bigger picture, the individual actors together represent their social world (Clarke, 2003). The framework was used in the article by Lindén and Busse (2017) to analyze the Austrian vaccination discourse by looking at different actors. Their respective construction of the social worlds is examined to argue that during the discursive shift in the Austrian vaccination arena, the social worlds of two major actors merged. This approach is also used to investigate the German HPV vaccination arena. To make the study more insightful, the framework of Clarke is combined with John Kingdon's agenda setting framework (Kingdon, 1984). The social worlds as proposed by Clarke are grouped into the three streams (the problem, politics and policies stream) for policy adoption proposed by Kingdon, which provides clarity to a convoluted series of processes and creates a context for understanding the evolution of a national policy.

This analysis helps to not only get an idea of the framing of the HPV vaccination by different stakeholders in the German HPV vaccination discourse over time, but to also create deeper insights in the social worlds and the contextual involvement of the organizations using Clarke's framework. Moreover, with the help of Kingdon's agenda setting theory it is pointed out at what point a "window of opportunity" for policy change opened. Kingdon's framework seeks to explain how an issue is prioritized on the policy agenda of decision-makers, so that it will be considered a pressuring problem that has to be decided on. A policy change follows the opening of such a window (Kingdon, 1984).

It can be established that the HPV vaccination has proven to be safe, efficient and cost-effective in preventing genital warts, penile and oral cancers as well as over 70% of cervical cancer (Gallagher et al., 2018, p. 4761). However, despite the availability of the vaccine, about

1540 women die of cervical cancer in Germany every year (Zentrum für Krebsregisterdaten, n.d.). By contributing to the understanding of the causes and consequences of the changed HPV vaccination policy and the role of the corresponding HPV vaccination framing in the German case, the societal relevance of the study is given. With special attention paid to the aspect of a feminized framing of HPV and the HPV vaccination, the thesis further seeks to contribute to an in-depth understanding of how gendered framing in public health is influencing health outcomes for the whole society.

Moreover, by combining the theoretical frameworks of Clarke (1991) and Kingdon's (1984), this thesis contributes to the scientific body of research on HPV vaccination policies. The case study can help to gain apprehension about how different actors in Germany make sense of the HPV vaccination as well as about the underlying policy dynamics and framing factors that potentially influence vaccine uptake.

2. Theory section

The analysis is carried out in the light of message framing, which is the underlying concept that is used to combine Clarke's social worlds/arenas approach with Kingdon's agenda setting framework. Frames in this analysis are defined as the abstractions that structure the meaning of messages. All organizations that are studied within Clarke's and Kingdon's theoretical concepts necessarily convey their messages in a specific way and therefore unavoidably make use of some type of framing. The analysis is thus driven by the assumption that message framing plays a crucial role in the HPV vaccination debate and actual vaccination uptake.

The framing that is used in the information material for (or against) the HPV vaccination by the different organizations (before and after the policy change) is studied to analyze if and how the framing changed over time. Moreover, two different theoretical approaches are used to capture the change in the HPV vaccination policy in June 2018 in Germany. Clarke's social worlds/arenas framework (1991; 2003) is applied to closely examine important actors in the vaccination discourse and to capture the German HPV vaccination arena. Moreover, the organizations within the arena are grouped into the problem, politics and policy stream as proposed in Kingdon's agenda setting framework (1984) that seeks to explain policy adoption. As follows, in order to investigate the policy change, the organizations examined within the framework of Clarke are classified in accordance with Kingdon's three streams and thus combined.

This combination provides a comprehensive picture of the HPV vaccination policy change in Germany, since the focus is set on the actors and the respective framing as well as on the policy adoption process. In this section, empirical findings from the existing body of research are at first discussed to further derive hypotheses that are tested in this study.

2.1 The concept of framing

In one of the leading social science books about the HPV vaccination called “Three Shots at Prevention” (Wailoo, Livingston, Epstein, & Arnowitz, 2010), it is stated that framing is at the heart of the HPV vaccination debate. It is further described as means of controlling uncertainties and prioritizing some concerns over others (Wailoo et al., 2010, p. 296). In the existing body of research several different framing facets have been examined in connection with the HPV vaccination. The findings from these studies are discussed subsequently.

2.1.1 Feminized framing

The vaccination against HPV is often understood as “girls-only” or “cervical cancer vaccination”. Daley et al. (2017) reviewed “The feminization of HPV” in the approval, marketing and implementation process of the HPV vaccines in the USA. According to the study, the feminization resulted from an over-identification of HPV as a female-specific disease. This misconception led to a reduced protection from HPV-related illnesses in males, where especially men who have sex with men (MSM) are at an increased risk of anal cancers (Daley et al., 2017, p. 143). Also Rail et al. (2018) stated that the marketing of the HPV vaccine as a “womens’ issue” led to the implementation or recommendation exclusively for girls in many countries. They examined the HPV vaccination discourse in Canada and the impact that the discourse exerts on girls, their parents and professionals. In the study, a “morally laden, gendered, heteronormative and factually misleading” (Rail et al., 2018, p. 622) framing of the HPV vaccination in the Canadian campaigns was found.

Already in 2012, Nan (2012) observed gender differences in intentions and worries about the vaccination in the USA. Men were found to show a lower intention to get vaccinated while they were at the same time less concerned about the safety of the HPV vaccine. Nan (2012) further mentioned that to the extent that HPV is understood and framed as an issue for women, differences in the perceived importance and response to (the threat of) an infection might occur (Nan, 2012, p. 12).

Despite the free availability of the vaccine for girls in Germany, the HPV vaccination rate for girls in Germany is with under 50% comparably low in an international comparison

(RKI, 2018b). From this vaccination rate it is a long way to herd immunity, for which a majority of the population has to be vaccinated. Herd immunity is an indirect form of protection from which non-vaccinated individuals can profit when a large percentage of the population is vaccinated. Lehtinen et al. (2018) demonstrated that the gender-neutral immunization of young adults against HPV has significant effects on the whole population and enforces overall protection against a number of high-risk HPV types (Lehtinen et al., 2018, p. 957).

Based on previous research it can be assumed that also in Germany a feminized HPV vaccination framing is found in most of the informational material. With the decision to also include boys in the vaccination schedule, the feminized vaccination framing is expected to decrease in order to “normalize” HPV (Daley et al., 2017, p. 142) and increase overall health in both girls and boys. This leads to the following hypotheses:

H1(a): The HPV vaccination framing in Germany before the change in policy mainly targeted girls as the vaccine recipients.

H1(b): The HPV vaccination framing in Germany after the policy change targets both girls and boys.

2.1.2 Individualized or collective risk responsibility

Another crucial aspect in the communication of the HPV vaccination to the public is the aspect of individualized or collectivized risk. The public discourse and framing of the HPV vaccine has often focused on the protection of the individual girl from damage while constructing “girls at risk” (Wailoo et al., 2010, p. 298), instead of stressing the importance of the vaccination for the whole population. Due to this creation of acute endangerment, the responsibility of parents and parental decision-making were often at the core of the debate. Not the public good and universal immunization have been emphasized, but the individual choices and risks.

Amongst others, the research of Wailoo et al. (2010) and Rail et al. (2018) examined implications of the individualized risk focus in the framing of the HPV vaccination. A possible powerful implication of individualized risk responsibility framing is the misconception that HPV only affects girls that actively have to protect themselves from an infection. This individualized communication about the HPV vaccination marginalized important aspects like the fact that males are not only transmitting the infectious disease but are also subjected to HPV. Male risks for cancer as well as genital warts that occur in women and men in connection with an infection were made invisible. Additionally, it was pointed out that based on this

misconception, parental decision making takes place (Rail et al., 2018, p. 630; Wailoo et al., 2010, p. 298). Lindén and Busse (2017) found that in the Austrian HPV vaccination discourse, the collective responsibility for the population was emphasized. Health authorities repeatedly accentuated the public good that the HPV vaccination serves, which sets the Austrian case apart from debates in other countries (Lindén & Busse, 2017, p. 206).

Only recently, in June 2018, German health authorities followed the Austrian example and decided to regularly include boys in the HPV vaccination schedule. It can be assumed that before the policy change, an individual risk responsibility focus is predominant in the German HPV vaccination debate and therefore also in the information material. After the policy change, the HPV vaccination is expected to be framed as a collective responsibility to increase overall public health in Germany. The following hypotheses are proposed:

H2(a): The HPV vaccination framing in Germany before the policy change mainly focused on the individual risk responsibility.

H2(b): The HPV vaccination framing in Germany after the policy change mainly emphasizes a collective responsibility to get vaccinated against HPV.

2.1.3 STI framing

Next to the feminization and the allocation of risk, also the aspect of sexuality plays a role in the HPV vaccination debate. In the USA, the sexuality of young girls was even found to be at the core of the debate around HPV (Wailoo et al., 2010, p. 266). The study of Yang and Pittman (2017) pointed out that the STI framing of the HPV vaccination influenced intentions to disclose an infection and most importantly also the intentions of young adults to get vaccinated. Participants who perceived shame in connection to an HPV infection were least likely to disclose an infection when HPV is portrayed as most common STI in the United States (Yang & Pittman, 2017, p. 993). When it comes to Germany, Stökl (2010) found that there is no debate about the fostering of promiscuity in young girls through the HPV vaccination. She further pointed out that there was no debate about sexuality in Germany and Austria in as result of the introduction of the HPV vaccine (Stökl, 2010, p. 266). These assumptions yield in the following hypothesis for this study:

H3: The HPV vaccination framing in Germany before and after the policy change continuously mentions HPV as STI.

2.2 Clarke's social worlds/arenas framework

According to Clarke (2008), the social worlds/arenas framework seeks to analyze the environment of organizations by addressing the complexities of human social organization (Clarke, 2008, p. 113). Different from other organizational theories, the social worlds/arenas theory is social constructionist. These theories put emphasis on the socially constructed nature of societies, and the active creation of social worlds within these societies. Clarke proposes the social world/arenas theory as a useful alternative to previous studies of the organizational environment, that do not do justice to the various social processes that occur between and among them (Clarke, 2008, p. 117).

Within Clarke's theoretical framework, social worlds and arenas are studied. Social worlds share the same commitment and ideologies, and are composed of a number of organizations that can be formal or an organized action of individuals/groups (Clarke, 2008, p. 117). All social worlds share the collective participation in the same arena, in this case the HPV vaccination arena. The arena is assumed to be formed across multiple social worlds, that can be different in their power positions.

When transferring Clarke's approach to this research, it is constructivist insofar as it asks for the structure of the German HPV vaccination arena while acknowledging the context of the German case study. As opposed to other organizational theories, the analysis of social arenas permits the researcher to study relations without prior assumptions about the nature of the relationship within, between and across the social worlds (Clarke, 1991, p. 138). An additional strength of Clarke's approach is that "silence" in data will not be erased but addressed. The silence of an actor about certain topic in relation to the power position can be a revealing discursive position that must be analyzed (Lindén & Busse, 2017, p. 195). This is also of interest in this study, since the existing body of research shows that male risks have been concealed and males have often been made invisible in the HPV vaccination discourse (Lindén & Busse, 2017, p. 192). Clarke's framework therefore complements to the investigation of framing, since the silence in framing material can be addressed in the construction of the social worlds.

Following the example presented in the article "Two Shots for Children" by Lindén and Busse (2017), the German HPV vaccination arena is analyzed in this study to find out how different organizations negotiated and framed the vaccination and thus constructed their social worlds. Lindén and Busse (2017) found that the social worlds of the Austrian Cancer Aid and the Health Ministry merged with the decision of the Ministry to implement a national HPV vaccination program for boys and girls. After this merger, the discourse moved away from girls

to children as the vaccine recipients, while the public health focus shifted from the emphasis on individual girls that have the responsibility to vaccinate, to the emphasis of a collective responsibility of the population to achieve herd immunity (Lindén & Busse, 2017, p. 205).

Clarke's framework is adopted in this study to examine the organizational environment in which the change in the vaccination recommendation occurred, and therefore helps to derive the causes of the policy change. The social worlds are primarily studied without hypothesizing about the processes that occur within the arena and among the social worlds. To gain additional insights about the emerging opportunity for policy change that occurred in the HPV vaccination arena in Germany, the social worlds are grouped into the three streams (the problem, politics and policies stream) proposed by Kingdon (1984).

2.3 Kingdon's agenda setting framework

Kingdon's agenda setting model aims to analyze agenda setting and policy formation. Following the framework, the agenda setting process must have also preceded the policy change in Germany in June 2018. The Kingdon model can be very useful to analyze influential factors in the making of a new, updated German HPV vaccination policy. In his framework, Kingdon introduces three process streams, the problem, politics and the policies stream that help to understand the agenda setting process and therefore the dynamics that make a topic a priority, especially in political decision-making. Following the framework, the convergence of the three streams leads to a window of opportunity for the adoption of a new policy, or in the case of Germany to an adjusted, changed policy.

The *problem stream* refers to the identification of a situation as problematic. The problem must gain decision-makers attention, it therefore needs to be a pressuring issue to gain the attention in order to potentially become a policy. To identify a problem, indicators are needed that measure change in the system (Kingdon, 1984, p. 97). The vaccination rate could be such an indicator in this study. Hereby the interpretation of the actors is crucial for the identification of a problem.

The *policy stream* comprises the ideas within a policy community. The policy community is made up of experts and technocrats connected by a topic (Kingdon, 1984, p. 123) who transform, combine or discard their ideas. The policy stream sheds light on the practical or technical side of feasible and acceptable range of alternatives to solve the problem. It examines the way in which proposed solutions are formulated and politically acceptable (Kingdon, 1984, p. 123). Here also the normative acceptability of the possible policies for the public are anticipated.

The *politics stream* assesses political events such as elections or a change in public opinion. These events have an impact on the prioritization of topics for decision-makers. It is completely detached from the other streams (Kingdon, 1984, p. 152) and composed of the power distribution of the organized interests, the political parties and the government.

Previous studies made use of the Kingdon model to understand how the problem, politics and policy stream interact to make a topic a priority for governments as decision makers (Colombini et al., 2016; Jackson-Lee, Barr, & Randall, 2016). Jackson-Lee et al. (2016) used the model to explore opportunities for a policy change to make influenza vaccinations mandatory for health care workers in Ontario, USA. They found that the perceived importance of the problem was not high enough and that political opposition made a change in policy unlikely (Jackson-Lee et al., 2016, p. 522). A different study by Colombini et al. (2016) was not conducted in the context of vaccinations, but in the context of public health. They applied the Kingdon model to analyze how a policy opportunity emerged for gender-based discrimination to become a health issue in the Nepali context in 2010. What is appealing about this study is that it incorporated framing in the Kingdon model to illustrate the importance of framing to understand how policy issues emerge and are discussed. This incorporation can also be of interest for this research, since framing is assumed to be significant for the negotiations around HPV.

It can even be argued that a policy change is inseparable from a change in framing. In policymaking, political problems are defined, and solutions are designed. This process of defining the problem always incorporates a particular view of the social reality, and therefore a change in policy must derive from a change in the underlying assumptions, the framing of the problem, which makes a different solution more favorable (Colombini et al., 2016, p. 495). Kingdon's theory is therefore used in this research to gain additional insights regarding the causes for the policy change, bearing in mind the importance of framing in the political context of policy making. Following Kingdon and his set of streams, it is proposed that:

H4: The policy frame change in Germany in June 2018 occurred due to the convergence of the problem, politics and policies stream and the corresponding opening of a policy window.

2.4 Hypotheses

The causes and consequences of the policy change with regard to the role of framing are studied with the help of theories provided by Clarke (1991; 2003; 2008) and Kingdon (1984). It is assumed that the message framing of organizations in the HPV vaccination arena has a significant impact on vaccine uptake. The mechanisms that are expected to be found in the HPV vaccination discourse are summarized in this section.

The framing of the HPV immunization is presupposed to target mainly girls before the policy change, while the focus shifted after June 2018 to boys and girls as the target group. This implies that a decrease in feminized framing of the HPV vaccination is expected (H1). As in the Austria case studied by Lindén and Busse (2017), the framing is assumed to shift from a focus on the individual risk responsibility before the policy change to a collective risk responsibility to combat the HPV infection and the consequences - genital warts and cancer in women and men - after the policy change (H2). Hereby, a continuous framing of HPV as a STI is expected to be found in the information material (H3). Generally, the policy frame change is presumed to be a result of the convergence of the three streams proposed by Kingdon (H4).

The combination of the theoretical frameworks is expected to draw a clear picture not only of the actors and their power position when debating about and framing the HPV vaccination (H1 to H3 help to answer sub-question A), but also of the underlying policy dynamics that paved the way for a changed policy (H4 helps to answer sub-question B).

3. Data, documents and methods

To answer the research questions and the associated sub-questions, a situational analysis of the German HPV vaccination arena was conducted. The methodological approach is qualitative and involved a content analysis of informational documents published by different organizations. The causes for the policy change and the consequences in terms of message framing, as well as the corresponding implications were analyzed, interpreted and discussed.

Following Maxwell (2009), the data collection method is the means to answering the research question rather than an actual operationalization of the research question. He argues that rather than translating the research question, a good data collection requires creativity to get insights and the data that helps to answer the research question (Maxwell, 2009, p. 236).

The data used in this study included qualitative data like information material used for HPV vaccination promotion, which incorporates patient brochures, flyers, posters and videoclips from the different organizations. Besides, other organizational documents, reports on scientific findings and background information regarding the debate about the HPV

vaccination were gathered via narrative review. The sampling falls into the category of purposive sampling, in which the organizations and documents were deliberately selected to adequately capture the heterogeneity (Maxwell, 2009, p. 235) of the HPV vaccination arena.

3.1 The selection of relevant actors

In order to answer the research question, a variety of organizations were selected that are stakeholders in the debate about the HPV vaccination in Germany. These stakeholders are characterized by their involvement in promoting or combating the HPV vaccination in various forms, and thus their collective participation in the HPV vaccination arena. Their selection is described in detail in this section.

The vaccination committee STIKO has its head office at the Robert Koch Institute (RKI), which is the central institution of the Federal Government in the field of disease surveillance and prevention. The STIKO as well as the RKI are organizations working in the portfolio of the German Health Ministry (BMG), and therefore important stakeholder in the vaccination discourse. Since the STIKO publishes its recommendations through the RKI and due to the fact that the RKI and the STIKO do not publish their own information material for the public, these actors were bundled under the BMG in this study. Informational material on behalf of and with the support of the BMG is published through the Federal Centre for Health Education (BZgA), another higher federal authority within the portfolio of the BMG with the objective to improve health education. Therefore, the documents published by the BZgA were of special interest for the framing analysis.

When looking at the history of the HPV vaccination in Germany, an important point to consider is the publication of 13 German scientists in 2008, that urged the German STIKO to review the vaccination recommendation for HPV (Le Ker, 2009). The publication is referred to as “manifesto”, that pleaded for a re-evaluation of the vaccination and against a framing as a “vaccination against cancer”, because cervical cancer develops very slowly and only the effect against cancer pre-stages was proven (Le Ker, 2009). As a result of the publication, the vaccination rate in Germany dropped significantly (Deleré et al., 2013, p. 1709; IGES, 2014, p. 17). The director of the German Medical Chamber and the Nobel Prize Laureate in Medicine Prof. Dr. Harald zur Hausen argued about effects and benefits of the vaccination in a correspondence (Le Ker, 2009). Due to the significance of the manifesto, the German Medical Chamber, which is the self-administration of physicians in Germany, was one of the actors included in this study. It essentially contributed to the discussion about the HPV vaccine in Germany. The position of Prof. Dr. zur Hausen was represented in this study by the project

group Zervita, an initiative for awareness campaigns against cervical cancer in Germany. Zervita bundles representatives of 20 medical societies, medical professional associations and cancer organizations, amongst others of the German Cancer Research Center for which zur Hausen is working, the Professional Association of Gynecologists and the German Cancer Aid (ZERVITA, n.d.).

While Zervita bundles the perspective of the gynecologists and female health, the German Society for Urology (DGU) was included in this study due to the focus of the organization on boys and men from a medical professional perspective. Furthermore, to adequately capture the picture of the HPV vaccination arena, also the Lesbian and Gay Association in Germany (LSVD) was included in the study. As stated earlier, Germany only recommended to vaccinate girls until June 2018, but way earlier there was scientific evidence that HPV also poses health risks to boys (Block et al., 2006). Through herd immunity, many heterosexual boys could still profit from girls being vaccinated. MSM however are excluded from the effect of herd immunity and thus in a more vulnerable position. Therefore, the position of the LSVD was of interest for the construction of the HPV vaccination arena and included in the analysis. To complete the picture, also the rising vaccine hesitancy and distrust in vaccine safety was not disregarded. This distrust is fostered by the anti-vaccination movement, that exerts a big influence on possible vaccine recipients and parents. The growing movement spreads their messages especially online and via social media (Karafillakis et al., 2019, p. 8). The tool SimilarWeb was used to compare the three highest-ranking websites with anti-vaccination content that resulted from a search for the term “Impfungen” and “impfen”, which translates to “vaccination” and “vaccinate”, on the 1st of June 2019. The website “Impfkritik.de” ranked highest in the comparison of website traffic statistics. It was chosen due to the high outreach of the website and the fact that it appeared also as a result of a neutral search term.

The reasons for the policy change were investigated without elaborating on the position of vaccine manufacturers like Sanofi Pasteur. This is mainly due to the fact that direct-to-consumer marketing for vaccinations is not allowed in Germany without approval by competent authorities (Lindén, 2017, p. 108). Despite the pharmaceutical industry being a considerable stakeholder in the HPV vaccination discourse, the aim of this study was to examine policy change independently of commercial business, so the perspective of the manufacturers was negligible.

The actors under examination therefore included a variety of organizations that structure their social world through the commitments they make. The position of the state, different

medical professional associations and social institutions and movements was represented. The complete list of organizations that were part of this study reads as follows:

1. Organizations (BZgA, RKI, STIKO) in the portfolio of the German Health Ministry (BMG)
2. The project group Zervita
3. The German Society of Urology (DGU)
4. The German Medical Chamber
5. The Lesbian and Gay Association in Germany (LSVD)
6. Impfkritik.de

The actors are different in size and power position but share the collective participation in the HPV vaccination discourse. They were chosen for their great variety in responsibilities and target groups. Some actors contributed to the scientific debate, whereas other actors shaped the public opinion.

3.2 Data collection

To answer sub-question A, freely accessible informational material was retrieved from the website of the respective organizations to analyze the framing of the HPV vaccination. To collect the documents, a search was conducted on the websites of the organizations using the term “HPV”. If no material exclusively about HPV was available, all informational documents were scanned from the title and description. When a thematic relation to HPV could be considered (e.g. in information material for children in puberty and information material about STI’s or cervical cancer) it was searched for the term “HPV” in these documents. In case the organization offers an online archive, the same search was also conducted in the archive. The retrieved documents consist of information material that varies in size and includes patient brochures, flyers, posters and videoclips that were uploaded on YouTube. Only documents that cover the HPV vaccination were included in the study, since the framing of the vaccination was at the heart of the research. For the analysis of the framing it was specifically looked for material that aims to inform possible vaccine recipient and parents, summarily the public. Therefore, information material for professionals was not included in the analysis of the framing material.

Table 1 below presents the number of promotional documents that were collected for each actor through this method. In the tables, a division was made between documents published before and after the policy change by each organization, in order to facilitate a

comparison. 37 documents were analyzed in total. A complete list of the documents retrieved for each actor can be found in the Appendix A.

The DGU published the most extensive informational material regarding the HPV vaccine with 16 documents in total. Out of all organizations, Zervita published the most documents before the policy change (eight documents in total). The DGU published the most documents after the policy change (14 documents in total). For the German Medical Chamber, as well as for the LSVD, no information material for the HPV vaccination could be retrieved. The documents published by the four remaining actors range from 2009 to 2019 and were downloaded from the respective websites of the organizations if possible. For the anti-vaccination website Impfkritik.de, no documents could be found that were published after the change in policy.

Table 1

Organizations and number of documents included in the framing analysis (Retrieved on June 1st, 2019)

Organizations		Selected documents		
		Before June 2018	After June 2018	Total
1	Bundeszentrale für gesundheitliche Aufklärung (BZgA)	1	6	7
2	Project group Zervita	8	2	10
3	German Society of Urology (DGU)	2	14	16
4	German Medical Chamber	0	0	0
5	Lesbian and Gay Association in Germany (LSVD)	0	0	0
6	Impfkritik.de	4	0	4
	Total	15	22	37

Building up on the document and content analysis to answer sub-question A, 15 additional documents were gathered to answer sub-question B. A complete list of the documents can be found in Appendix B. The documents were incorporated in the analysis of the organizations' social worlds in order to investigate the HPV vaccination arena. This additional data includes press statements, resolutions and internet documents (websites) put out by the organizations, as well as studies and newspaper articles that were deliberately selected using purposive sampling to back-up information, construct the social worlds and finally address the causes for the policy change. This was especially of interest for the actors that do not or only rarely publish their own information material for the HPV vaccination, like the German Medical Chamber and the LSVD. With the help of the additional documents, the commitment of the actors and their position in the arena could be evaluated.

3.3 Operationalization

The variable of framing was operationalized as a nominal variable. Moreover, the framing of the HPV vaccination as found in the informational material was classified by means of three categories:

1. Feminized framing of the HPV vaccination (or not)
2. Individualized risk responsibility or the collectivized risk responsibility framing of the HPV vaccination
3. STI framing of the HPV vaccination (or not)

A document was categorized as feminized when the HPV information in the document was directed only at the female population or rather the possible female vaccine recipient. If the information referred to the HPV vaccination as a vaccine for “all children”, without pointing out only cervical cancer as consequence of an infection with HPV, it was not categorized as feminized. Additionally, it was analyzed whether the respective document predominantly emphasized the individual decision of the recipient to get the HPV vaccination or the aspect of herd immunity, and therefore the collective responsibility. Lastly, it was examined whether the information material mentioned that HPV is sexually transmittable. A codebook that specifies the criteria you that were used to decide about the classification of the documents can be found in Appendix C.

3.4 Data analysis

The data in this research was analyzed using two types of strategies, namely “categorizing strategies” and “connecting strategies” (Maxwell, 2009, pp. 236–238). Both strategies supplement each other and were combined in this study. At first, the documents were categorized in order to facilitate a comparison. Afterwards, it was aimed for an understanding of the context and the relationship between actors with the help of connecting strategies. The detailed application of these strategies is outlined below.

To answer sub-question A, the change in HPV vaccination framing in the informational material of the selected actors was analyzed over time. More specifically, it was examined how the HPV vaccination was framed by the organizations before and after the change in recommendation by the German STIKO in June 2018. The promotional or information material of the chosen organizations before June 2018 was reviewed and compared to the available information material of the organizations after June 2018. Hereby, the data was rearranged into

categories through coding, in order to facilitate a comparison. The categories (feminized framing (or not), individual or collective risk responsibility framing and STI framing (or not)) were derived from existing theory, and suitable to evaluate the framing in the German HPV vaccination arena. Based on this examination, conclusions were deduced about the influence framing can exert.

To answer sub-question B, connecting strategies were applied. This means that, different from categorizing strategies like coding, attention was paid to the specific context of the data. It was analyzed how the organizations form their social worlds, and along with that the HPV vaccination arena. This helps to extract conclusions about the HPV vaccination policy frame change in June 2018.

The social worlds of the actors before and after the policy change were constructed by means of narrative analysis. With this method, insights could be created about how the organizational commitment and how they position themselves in the discourse about the HPV vaccination over time. The narrative analysis also helped to also learn about the influence that the selected actors exerted that did not publish any informational material for the public (the German Medical Chamber and the LSVD). Through the subsequent incorporation of the social worlds in the three process streams, the development towards the policy change and the consequences of it were evaluated. It was examined to what extent each organization contributed to the different streams, and thus to the opening of a policy window. Hereby, historical events connected to the HPV vaccination arena were independently categorized as falling primarily into either the problem, politics, or policies stream. Through this analysis of the social worlds and the following translation of the worlds into the Kingdon framework, the policy change became assessable.

Overall, conclusions about the policy change were based on three different approaches, that complement each other and create a comprehensive picture of the policy change in Germany. The first part was the analysis of the change in framing that was found in the informational material over time. Secondly, the social worlds of the selected organizations were constructed. Lastly, the examination of the window of opportunity for policy change was carried out, that opens when the three streams converge. This combination of data analysis methods helped to gather information about the causes and consequences of the HPV vaccination policy frame change.

4. Analysis

In the following part, the analysis was conducted in order to answer the two sub-questions. To arrive at meaningful conclusions about the change in framing and the German HPV vaccination policy change, the hypotheses were tested successively.

4.1 The HPV vaccination framing in Germany

The first sub-question asked for the HPV vaccination framing by different organizations before and after the policy change in Germany, and reads as follows:

RQ(A): How is the HPV vaccination framed by different organizations before and after the policy change in Germany in June 2018?

To answer the question, the informational material for the HPV vaccination by the selected actors was analyzed. Only for 4 out of the 6 selected actors that are included in the study, suitable information material could be retrieved for the analysis. The German Medical Chamber and the LSVD did not publish informational material. The material includes brochures, flyers, poster and videoclips. For each actor, a table was created that lists the type of document, the target group it is directed at (based on the information given by the organizations) and the framing facets that were found in the document. These tables can be found in the appendix (Appendix D to Appendix G). A summary of the framing facets that were found in the documents of each actor is displayed in Table 2 below.

Table 2

Framing facets in the HPV informational material in Germany before and after the policy change

Actor	Feminized framing rather than gender-neutral framing or framing for “boys-only”		Individualized risk responsibility rather than collective risk responsibility framing		STI framing	
	Before June 2018	After June 2018	Before June 2018	After June 2018	Before June 2018	After June 2018
BZgA	1 out of 1	1 out of 6	1 out of 1	5 out of 6	1 out of 1	3 out of 6
ZERVITA	8 out of 8	0 out of 2	6 out of 8	2 out of 2	6 out of 8	2 out of 2
DGU	0 out of 2	0 out of 14	2 out of 2	4 out of 14	2 out of 2	4 out of 14
Impfkritik.de	3 out of 4	-	4 out of 4	-	0 out of 4	-
Total	12 out of 15	1 put of 22	13 out of 15	11 out of 22	9 out of 15	9 out of 22

The number of articles is indicated out of the total number of documents available from the organization. In the table, a distinction was made between documents that were published before the policy change in June 2018 and after the policy change by the respective actor. The results were analyzed subsequently.

4.1.1 Feminized framing in the information material

In the feminized framing hypotheses, it was assumed that:

H1(a): The HPV vaccination framing in Germany before the change in policy mainly targeted girls as the vaccine recipients.

H1(b): The HPV vaccination framing in Germany after the policy change targets both girls and boys equally.

In the first two columns of Table 2, the feminized framing as found in the information material of the different organizations is listed. Before June 2018, 12 out of 15 total documents that could be retrieved from the websites make use of a feminized framing of the HPV vaccination. This means that the information material was found to be largely directed at females, exclusively speaks about females as suffering from the consequences of an HPV infection and speaks of females as the possible vaccine recipients.

The only available document by the BZgA that was available online and published before the policy change advertises the HPV vaccination within an information brochure directed at females in puberty, and only mentions cervical cancer as a consequence of HPV (BZgA, 2010, p. 62). Similarly, all eight documents by the project group Zervita make use of a feminized framing while focusing exclusively on girls as possible vaccine recipients and cervical cancer as the only consequence of an infection with HPV. Whereas the documents published by Zervita aim to inform different target groups (parents, teachers, women and teenage girls) mainly about HPV as cervical cancer prevention, the DGU published two flyers that address teenage boys and also mention the possible consequences of an HPV infection for males (DGU, 2014b). It is the only actor that continuously framed the HPV vaccination as a vaccination for boys and girls, even though at that time, the HPV vaccination for boys was not financed through the national insurance system. 3 out of 4 documents of the anti-vaccination website Impfkritik.de make use of a feminized framing. The documents hereby only focus on parents as target group of the information material and extensively make use of the word “daughter”. In the documents it is stated that the “suspected diagnosis of cervical cancer” (Roll,

2007, p. 4) leads to an endangerment of the sexual self-determination of women. A further explanation for this argument is not given. Women, daughters in particular, are constructed to be the “guinea pig” of the HPV vaccination, that is not sufficiently tested (Tolzin, 2007a). The validity of studies that prove the efficiency of the HPV vaccination is questioned and at the same time the pharmaceutical industry and the producers of the HPV vaccine are discredited repeatedly (Roll, 2007, p. 4, 2007; Tolzin, 2007b, 2014).

We can therefore accept hypothesis H1(a). The HPV vaccination framing in Germany mainly targeted girls with a feminized framing of the HPV vaccine before the policy change.

After the policy change, only 1 out of 22 published documents makes use of a feminized framing. The document is a poster directed only at females and was published by the BZgA (BZgA, 2018d). It must however be noted that the BZgA also published a corresponding poster for boys (BZgA, 2018e). In the aftermath of the policy change, Zervita added a flyer for boys with the title “Also boys check it out” (ZERVITA, 2018) to their information material. The flyer picks up the misconceptions around HPV and tries to correct the view that the vaccination is only important for girls: “You think the HPV vaccine or “cervical cancer vaccine” only affects girls? No way!” (ZERVITA, 2018). The DGU published 14 documents in total after the policy change. They were issued in the course of a themed week around HPV in November 2018. The documents were retrieved from the especially created website “hpv-portal.de”, that informs parents about the importance of the vaccination for boys. In eight videoclips, different aspects of the vaccination are examined. Most of the videos, however, only record a very low number of clicks (under 200 views). Particularly significant is the poster campaign and a short corresponding videoclip (DGU, 2018b) published in the course of the themed week. The three posters each show a slang word for penis on a pastel-colored background, with the additional statement: “Without vaccination, boys are defenseless against genital warts and HPV cancer.” (DGU, 2018k, DGU, 2018l, DGU, 2018m). The corresponding videoclip shows 1 minute and 14 seconds of women saying colloquial synonyms for “penis” (DGU, 2018b). Aim of the campaign was to draw attention to the HPV vaccination for boys. To avoid a social media ban through the algorithm, the campaign avoids words like penis or genitals (Schwegler, 2018).

As follows, also hypothesis H1(b) can be accepted. The HPV vaccination framing in Germany after the policy change targets both girls and boys.

4.1.2 Individualized and collectivized risk responsibility framing in the information material

Concerning the risk responsibility framing in the HPV vaccination material, it was expected that:

H2(a): The HPV vaccination framing in Germany before the policy change mainly focused on the individual risk responsibility.

H2(b): The HPV vaccination framing in Germany after the policy change mainly emphasizes a collective responsibility to get vaccinated against HPV.

The risk responsibility framing as found in the documents is depicted in the columns three and four in Table 2. Before the policy change, 13 out of 15 documents make use of an individualized framing.

In 2008, Zervita first published a provocative educational film in which a girl dies in manifold ways, for example by falling from a ladder, being overrun by a train or in a bicycle crash. The video was republished in 2017 and illustrates the construction of the individual girls' responsibility to refrain from the "risky behavior" of not being vaccinated. In the clip, the number of deaths is counted on a clock and rises fast until it stops at 1700. Afterwards, a teenage girl advises the viewer: "One cannot escape death. But in one case, there is something you can do against it. Per year, nearly 1700 women in Germany die from cervical cancer. Take it in your own hands, inform yourself now." (ZERVITA, 2017b). Conversely, in two brochures of the project group Zervita, it is mentioned that "with regard to complete protection of the population, it could make sense to vaccinate all sexually active persons against HPV" (Deutsche Krebsgesellschaft e.V., 2009a, p. 10; ZERVITA, 2011, p. 39). These are the only documents that shed light on the possible collective responsibility to combat HPV infections. It is also noteworthy that especially the documents by Impfkritik.de stress the individual parental risk responsibility to protect the children, particularly daughters. The risks depicted in the documents are however not the consequences of an infection with HPV, but the possible side effects of the vaccine (Tolzin, 2007b). This shows that a highly individualized risk was constructed around the HPV vaccination, in which parents have to decide what is right or wrong for their child. As follows, hypothesis H2(a) can be accepted: the HPV vaccination framing in Germany before the policy change mainly focused on the individual risk responsibility.

Column four of Table 2 shows the risk responsibility framing after the policy change. In total, 11 out of 22 documents make use of an individualized rather than a collectivized risk

responsibility framing. 5 out of the 6 documents by the BZgA talk about lowering the individual risk to get an infection, and both documents by Zervita construct the individual at risk. Hereby, especially a recently published videoclip by Zervita (2019) is remarkable. In the clip, the protagonist “Hakan” embodies the HPV virus and follows people that he infects. The background music in the video creates tension and constructs every young adult to be at risk of being infected and pursued by the virus. “Hakan” states that the HPV vaccination for girls already made it more difficult for the virus to spread, “and now they also want to take the boys away from [him]... but luckily they do not know that much about [him] yet” (ZERVITA, 2019). The only exceptional material to this mainly individualized framing was found in the documents published by the DGU. Only 4 out of 14 documents by the HPV vaccination campaign from the DGU make use of an individualized type of framing. In the videoclips, and also on the especially designed website “hpv-portal.de”, it is repeatedly stated that the more people know about HPV and the HPV vaccination, the better the chances to reduce infections nationwide (DGU, 2018i).

Still, hypothesis H2(b) cannot be accepted in this form. The HPV vaccination framing in Germany after the policy change does not mainly emphasize a collective responsibility to get vaccinated against HPV. However, compared to the data before the policy change, we can see that the framing of HPV and the HPV vaccination as a collective responsibility increased.

4.1.3 STI framing in the information material

With regard to the framing of HPV as sexually transmittable in the information material, the following hypothesis was derived:

H3: The HPV vaccination framing in Germany before and after the policy change continuously mentions HPV as STI.

In the columns five and six of Table 2, the STI framing by the selected actors is documented. In 9 out of 15 analyzed documents, HPV was communicated as sexually transmittable. Zervita mostly used an STI framing of HPV and the HPV vaccination (6 out of 8 documents). However, in two documents, it was only focused on the aspect of cervical cancer prevention. In one flyer for teenage girls (ZERVITA, 2016b) and in the videoclip that counts the deaths of women due to cervical cancer (ZERVITA, 2017b, also see 4.1.3), the fact that HPV is sexually transmittable is not mentioned. What is outstanding is that no document published by the anti-vaccination site Impfkritik.de mentions the fact that HPV is sexually

transmittable. Instead, the assertion is made that the virus does not bear the responsibility for HPV-related diseases such as cervical cancer (Tolzin, 2007a), and that the immune system should be strengthened by a nutrition that is rich in vital substances (Tolzin, 2014).

After the policy change, 9 out of 22 analyzed documents frame HPV as STI. The BZgA only refrains from the STI framing of HPV on posters that advertise the HPV vaccination (BZgA, 2018c, BZgA, 2018d, BZgA, 2018e). The documents of the DGU are the decisive factor for the proportional reduction of the STI framing found. In six short videoclips that highlight different aspects of the HPV vaccination, sexuality and the transmission of HPV is not mentioned. Likewise, on the posters of the DGU, no STI framing was found. More strikingly is that also on the website “hpv-portal.de” by the DGU, no information can be found on HPV as STI. It is mentioned that “HP viruses are transmitted from person to person via direct skin and mucosal contact“ (DGU, 2018i), however the aspect of sexuality is not found.

Hypothesis H3 can therefore not be accepted. The HPV vaccination framing in Germany before and after the policy change only inconsistently mentions HPV as STI.

4.1.4 Answer to sub-question A

Based on this analysis, sub-question A can conclusively be answered. Before the policy change, HPV and the HPV vaccination were predominantly framed as a feminine issue. Most of the actors made use of a feminized framing. Besides, the HPV vaccination was mostly communicated to fall into the individual risk prevention responsibility. For the most part, girls were constructed to be at risk of an infection and the consequence cervical cancer. Hereby HPV was not consistently mentioned to be sexually transmittable.

After the policy change, the use of a feminized framing decreased massively. Many organizations published additional documents in order to equalize the information material and to also inform boys about the consequences. Hereby some organizations (Zervita and the DGU) published information material exclusively for boys in order to add to the feminized material, while other organizations (the BZgA) published joint brochures in which boys and girls are equally addressed (BZgA, 2018a). In half of the documents published after the policy change, the risk responsibility is still assigned to the individual. However, the framing of the HPV vaccination as a collective responsibility increased proportionally after the policy change.

Another remarkable finding is that different from what was expected, after the policy change, the STI framing of HPV decreased. Stökl (2010, p. 266) found that there has not been a debate about promiscuity and sexual lifestyle surrounding the topic of HPV in the German-speaking world. Still, non-disclosure of the sexual aspect of HPV seems to be preferred by

organizations when communicating to parents about the vaccination of young children starting at the age of nine. None of the examined posters mentioned HPV as STI, which indicates that other aspects of HPV were prioritized over the sexual transmissibility when only a short message can be conveyed, as it is the typical case for posters. The analysis further indicated that the marketing of the HPV vaccination is rather difficult, firstly due to the shame associated with a rather delicate topic like genital warts and STI's, and secondly due to the fact that parents are confronted with the sexuality of their young children.

4.2 The HPV vaccination policy frame change

In the second step, the reasons that led to the policy change were thematized. To this end, the following sub-question was answered:

RQ(B): What led to the policy frame change concerning the vaccination recommendation for HPV in Germany in June 2018?

According to Kingdon (1984, p. 75) it is important to determine the importance and involvement of the actors in the policy process before discussing the process itself. This is where Clarkes' social arenas substantially complements Kingdon's agenda setting framework. To understand the influence that the actors exert in the agenda setting process, the analysis of the information material is supplemented with an analysis of the social worlds of the selected actors within the HPV vaccination arena. For this purpose, additional documents like press releases, resolutions and internet documents (websites) put out by the organizations, as well as studies and newspaper articles were gathered using purposive sampling to adequately capture the context of the HPV vaccination policy change. The list of additional documents used in this part of the analysis can be found in Appendix B.

4.2.1 The social worlds of the selected organizations

The discursive position taken by the organizations constitutes their respective social world. Organizations within the same social world share the same perspective and commitment, and therefore construct their social world in a similar way. The social world of each actor included in the study was examined subsequently. The analysis was carried out looking at the organizational commitment, the power position and the perspective of the organization in the HPV vaccination discourse. Besides, attention was paid to two factors that were helpful in

explaining the policy change. Firstly, the interactions between the different social worlds and secondly the discursive shifts in the positions of the actors.

4.2.1.1 The Germany Health Ministry (BMG)

The social world of the BMG contains different organizations like the RKI, the STIKO and the BZgA, since all of them are operating as federal authorities within the portfolio of the BMG. They share the same commitment, which is to further develop the quality of the healthcare system and to strengthen the interests of patients while ensuring economic efficiency (BMG, n.d.). The STIKO is responsible to decide which immunizations are relevant for the public and individual health protection. These recommended vaccinations are free of charge for people eligible to the statutory health insurance in Germany. This implies that in the debate around HPV, the social world of the BMG is in a powerful formal decision-making position.

The BZgA carries out prevention and health promotion tasks at the federal level, therefore the framing material of the BZgA was used to conduct the analysis of information material in the previous section. From the first introduction of the HPV vaccination in the national immunization schedule by the STIKO in 2007 until the policy change in 2018, only one information brochure for teenage girls mentions the HPV vaccination (BZgA, 2010). No information material solely about HPV has been published by the BZgA. Following Clarke (1991), this silence in the data should not go unnoticed but be addressed. The STIKO recommendation for the HPV vaccination has been controversially debated in the German news coverage (Deleré et al., 2013, p. 1709). The BMG and consequently all associated organizations have been heavily criticized for the recommendation, for example by vaccine skeptical organizations like Impfkritik.de. Especially the manifesto, in which 13 German scientists urged the STIKO to review the vaccination recommendation in 2008 led to doubts about the vaccination safety and to a decline in the vaccination rate (Deleré et al., 2013; Le Ker, 2009). It must be noted that the general discussion about the (un)safety of the HPV vaccination has long been at the forefront of discussions, not the question of the efficiency of the HPV vaccination also for boys. This hesitant start of the HPV vaccination in Germany can help to explain the silence in information material by the BZgA.

In 2018 a model-based study published by the RKI found “that the extent of the effect of additional vaccination of boys depends to a large extent on the vaccination rate in girls” (Damm, Horn, Scholz, Greiner, & Mikolajczyk, 2018, p. 26). Further, all HPV-associated cancers were included in the study, different from the previous modelling that only included cases of cervical cancer. No explanation has been given for the fact that the vaccination was

introduced first and foremost only for girls, a silent discursive position of the BMG is found regarding the reasons. However, the low vaccination rate in girls made it justifiable to also include boys in the vaccination schedule, both from an epidemiological as well as from an economical point of view (Damm et al., 2018, p. 26).

Also, the current Federal Health Minister Jens Spahn of the conservative party CDU repeatedly stressed the importance of the HPV vaccine. In the beginning of 2019, several German ministries proclaimed the "National Decade Against Cancer" (BMBF, 2019), and in an interview Spahn stated: "The HPV vaccination protects against cervical cancer and that is why I am promoting the vaccination of all young people in Germany and the eradication of this virus." (Rhein-Nekar-Zeitung, 2019). What is striking here is that the Health Minister, despite the policy change and scientific findings that show that also boys are subjected to HPV-associated cancers, only mentions the protection from cervical cancer. After the policy change, the BZgA launched a new information campaign for girls, boys, parents and physicians (BZgA, 2018f).

For the perspective of the BMG and the constitution of the social worlds it can be derived that the debate about the safety of the vaccine and subsequently the low vaccination rate posed a problem to the commitment of overall public health. At first, the strategy to vaccinate only girls was found to be more cost-efficient than the implementation of the HPV vaccination for girls and boys (Horn et al., 2012, p. 70). However, the low vaccination rate in girls could not ensure herd immunity (Damm et al., 2018, p. 26). Boys could not sufficiently profit from the protected girls. This is especially true for MSM, that were systematically excluded from the protection. This explains the discursive change in the social world of the BMG that could also be observed in the informational material. Bearing in mind the comparably low vaccination rates in Germany after the publication of the manifesto (IGES, 2014; RKI, 2018b, p. 17), the second modelling study concluded that "considering the full spectrum of HPV-associated cancers, [...] the additional vaccination of boys from a public health perspective is a useful complement to the existing vaccination recommendation" (Damm et al., 2018, p. 27). The social world of the BMG therefore shifted towards the support of the HPV vaccination for all children to maximize health benefits.

4.2.1.2 The project group Zervita

The project group Zervita represents a different social world than the BMG. Zervita draws together the interests of 20 organizations (ZERVITA, n.d.), amongst others of the German Cancer Research Center, for which Prof. Dr. zur Hausen was working. He received the

Nobel Prize for his discovery that cervical cancer is caused by viral infections. The commitment of Zervita is to develop information material in order to educate about of cervical cancer (ZERVITA, n.d.). Compared to the BMG, Zervita represents a less powerful social world with no formal decision-making power, that is fostering an alternative HPV vaccination discourse.

Already shortly after the introduction of the HPV vaccination in Germany in 2007, zur Hausen advocated to also include boys in the vaccination schedule for HPV. In an interview in 2009 he stresses his duty as a physician to emphasize that cancer precursors and cancer can be prevented on a large scale (Bördlein, 2009, p. 12).

Despite the extensive use of a feminized framing by Zervita before the policy change (see Table 2), it is the only actor included in this study that mentioned the aspect of herd immunity in information material published before the policy change (see Table 2 and Deutsche Krebsgesellschaft e.V., 2009a, p. 10; ZERVITA, 2011, p. 39). Due to more recent knowledge about the prevention of other HPV-related cancer types (e.g. penile, anal and oral cancer), Zervita demanded in 2017 that based on health advantages that can be created for the whole population, the STIKO recommendation should also include boys. Especially the importance of the vaccination for MSM is stressed. In the request, it is further mentioned that already for a long time there have been demands and initiatives for the vaccination of boys against HPV (ZERVITA, 2017c). The DGU is mentioned as an exemplary organization, which indicates that the two actors share the same commitments, and that the social world of the actors align. The social world of the DGU is discussed subsequently.

The focus of the social world of Zervita is set on the prevention of HPV-related cancers, especially cervical cancer. Since the additional vaccination of boys can help to facilitate a better protection from cancer, it follows that authorities like the STIKO must extend the HPV vaccination also to boys. The public pressure exerted by the social world of Zervita, that bundles the interest of scientific specialist societies, professional associations and cancer organizations, helps to explain the policy change.

4.2.1.3 The German Society of Urology (DGU)

The DGU is a German scientific specialist society in the field of urology, and therefore committed to the field of men's health care. Like Zervita, the DGU does not have any formal decision-making power.

The DGU already started to advocate the HPV vaccination for boys in their information material in 2014 (DGU, 2014a, DGU, 2014b). In a press release from 2016, it is stated that the current practice recommended by the STIKO is “in the opinion of the [DGU] [...] no longer up

to date.” (DGU, 2016). It is further mentioned that vaccinating only girls to achieve herd immunity does not consider the different sexual experiences that people make, which especially speaks to MSM. After the vaccination policy change, the DGU started a themed week around the HPV vaccination and created a lot of content to put emphasis on the importance of the HPV vaccination for boys (DGU, 2018i).

The perspective of the DGU in the HPV vaccination arena is therefore similar to the perspective of Zervita. Both organizations share a social world that demands and later supports the expansion of the STIKO recommendation to boys. Additionally, the role of physicians has proven to be an important aspect in fostering the vaccine uptake (Deleré et al., 2013, p. 1709). The support of urologist can therefore help to explain the policy change.

4.2.1.4 The German Medical Chamber

The German Medical Chamber is committed to represent the professional-political interests of physicians. In the HPV vaccination arena, it has no formal decision-making power.

Following the publication of the manifesto in 2008, the executive director of the German Medical Chamber, Dr. Jonnitz, and Prof. Dr. zur Hausen (who is represented by the social world of Zervita, see section 4.2.2) disputed about the effects and benefits of the HPV vaccination. In 2009, Jonnitz criticized the framing of the HPV vaccine as cancer-vaccination to be a great scandal that makes “healing promises without healing” and exerts “moral pressure with potential victims” (Le Ker, 2009). The vaccination was further disapproved as only partially efficient, since the HPV vaccination covers only the most common types of HPV. Jonnitz expressed his concern about the credibility of the medical profession through the hasty introduction of vaccination (Le Ker, 2009). This gives an impression of the debate around the HPV vaccination in Germany shortly after the introduction and helps to explain the insecurity in the public the corresponding low vaccination rate.

In a statement in 2018, the Medical Chamber commented on the amendment of the vaccination recommendation (Bundesärztekammer, 2018). In the statement, the German Medical Chamber “welcomes the fact that all young people aged between 9 and 14 are entitled to get the HPV vaccination.” (Bundesärztekammer, 2018, p. 2) Also the fact that intersexual persons are no longer excluded from the protection is pointed out positively. Furthermore, it is suggested to examine whether homosexual men under the age of 45 should retroactively be entitled to get vaccinated against HPV. This would follow the example set by the United Kingdom, that introduced such an additional program due to the increased risk for cancer that MSM are exposed to (Bundesärztekammer, 2018, p. 2).

With regard to the construction of the social world, this illustrates the disagreement also amongst physicians about the acceptance of the vaccination after the introduction. The director of the Medical Chamber takes a skeptical perspective in order not to lose the trust of the patients in case the HPV vaccination cannot live up to its promises. However, no further documents were found that show the continuing skepticism among the Medical Chamber and Jonnitz. The fact that the Medical Chamber welcomes the expansion of the recommendation shows that this lack of trust in the vaccination is no longer debated, a discursive shift towards the acceptance of the HPV vaccination in the social world of the German Medical Chamber can be observed here, that helps to explain the policy change.

4.2.1.5 The Lesbian and Gay Association in Germany (LSVD)

The LSVD is committed to foster the public acceptance of a gay and lesbian way of life, and to achieve equal rights and participation for the gay community. The LSVD has no formal decision-making power in the HPV vaccination arena.

Already in 2010, the LSVD called for the vaccination against HPV to also be approved for MSM and HIV-infected individuals (LSVD, 2010). An update of the STIKO recommendation regarding male adolescents and men from risk groups is demanded. MSM and people infected with the HI-virus belong to this risk-group. It is stated that they “must not be forgotten in research and prophylaxis against HPV” (LSVD, 2010, p. 1). The organization further pushed for an state-financed HPV vaccination also for boys, since the vaccination is most effective before the first sexual contact (LSVD, 2010, p. 2). With the commitment to push for equality and stand up against homophobia also in public health, the LSVD was the first organization included in this study that publicly demanded the vaccination for boys and especially for risk groups.

The LSVD therefore shares the same perspective and social world as Zervita and the DGU, that also demanded to include boys in the vaccination schedule and pointed out its importance for MSM way before the policy change. However, the LSVD made further claims that have not yet been met. Still, the consensus among stakeholders concerning the HPV vaccination for boys might have contributed to the policy change.

4.2.1.6 Impfkritik.de

The organization Impfkritik.de is a self-appointed network for vaccination education and committed to inform factually and independently from the industry. It has no formal decision-making power.

The creator of the website Hans Tolzin, who also wrote three of the four informational documents analyzed in this study (see Appendix G), has no medical qualification. He considers homosexuality a disease, doubts the existence of HIV and considers Ebola to be invented by the pharmaceutical industry (MedScape, 2019). The network generally rejects all vaccinations, with regard to HPV it is stated that the virus does not cause cervical cancer (Tolzin, 2007a, 2014).

The social world of Impfkritik.de is therefore constructed differently than the other social worlds in the HPV vaccination arena. The perspective of Impfkritik.de rejects the consensus among scientists and is built up around fear and distrust in authorities, not on scientific facts. The information material downplays the risks that arise with an HPV infection. Hereby the pharmaceutical industry is repeatedly accused of placing economic goals above human welfare (see e.g. Tolzin, 2007a). The arguments made are not weighted or put in perspective. Impfkritik.de is part of a growing anti-vaccination movement that significantly decreases the confidence in vaccines recommended by the STIKO (MedScape, 2019) and poses a problem to public health authorities.

4.2.1.7 Conclusion about the social worlds

After the analysis of the social worlds of the actors, several conclusions can be drawn. In the aftermath of the first introduction of the HPV vaccination for girls in Germany, very different discursive positions in the social worlds of the organizations were found. The BMG was prone to criticism and did not back the introduction of the HPV vaccination with an information campaign. While Zervita supported the introduction, the director of the Medical Chamber incited a debate about the usefulness of the vaccine. After the debate calmed down, the DGU started to mention the HPV vaccination for boys in information material, a position that the LSVD had already taken in 2010. While an increasing demand for the HPV vaccination for boys was found in most of the organizations, the LSVD also stressed the importance of the vaccine for a specific group of people at risk, that were marginalized for the most part of the debate. Impfkritik.de continuously opposed the HPV vaccination for all target groups.

However, over time, the social worlds of the BMG, Zervita, the DGU, the Medical Chamber and the LSVD aligned. All advocated or supported the introduction of the HPV vaccine also for boys. Particularly important here is the BMG, the only actor included in the study that has a formal decision-making power. The ministry changed its position and declared the usefulness of the vaccination also for boys, based on modelling studies conducted by other organizations in its portfolio. Only the social world of Impfkritik.de opposes the merged social

worlds of the other organizations. An illustration of the social worlds before and after the policy change can be found in the appendix (Appendix H; Appendix I).

4.2.2 The convergence of the problem, politics and policy stream

After the examination of the social worlds of each organization, their contribution to the opening of a window of opportunity for policy change is analyzed following Kingdon (1984). Regarding the reasons for the policy change it was assumed that:

H4: The policy frame change in Germany in June 2018 occurred due to the convergence of the problem, politics and policies stream and the corresponding opening of a policy window.

To this end, substantial historical events around the HPV vaccination were categorized into the three streams for policy adoption. Table 3 below shows the evolution of the problem, policy and politics stream over three periods of time that were considered separately based on the knowledge gained about the debate in the previous steps of the analysis.

The first column in Table 3 depicts the three streams in the first time period of the HPV vaccination in Germany from 2006 to 2010, in which a policy window opened that led to the introduction of the vaccination in 2007. In order to fight the pressing issue of around 1500 deaths of women per year due to cervical cancer in Germany (Zentrum für Krebsregisterdaten, n.d.), the vaccine was first and foremost introduced for girls. The vaccination thus offered a technically feasible solution to the problem. Organizations like Zervita became active and promoted the HPV vaccination program for girls with the publication of feminized promotion information material in the aftermath of the introduction (see Table 2). Other organizations like Impfkritik.de generally opposed the introduction of the vaccination. The publication of the manifesto and the following dispute between the director of the Medical Chamber Dr. Jonnitz and Prof. Dr. zur Hausen at the end of the first period led to a controversy about the (un)safety of the vaccination that was at the forefront of discussions. Therefore, the question of an additional recommendation for boys that was advocated by zur Hausen was not at the core of the debate. This implies that also the claim of the LSVD that MSM should be vaccinated due to the increased risk of anal carcinoma did not get attention and was overshadowed by the general debate about the vaccine safety.

Column two in Table 3 shows the three streams for policy adaption in the second time period of the HPV vaccination in Germany, ranging from 2010 to 2016. It is argued that in this

second period, a policy window for the introduction of the HPV vaccination also for boys opened for the first time. The vaccination rate did not recover from the first setback after the publication of the manifesto against the STIKO recommendation. This posed a problem to public health, since the vaccination could not develop its efficacy. Additionally, the European Medical Agency again reviewed the HPV vaccination and approved it as safe for boys and girls (EMA, 2016). A feasible and acceptable solution to the problem was therefore available. At last, also political events like the HPV vaccination recommendation for boys of the federal Saxon Vaccination Commission (Krebsinformationsdienst, 2013) and the introduction of the HPV vaccination for boys and girls in the neighboring country Austria (Lindén & Busse, 2017, p. 189) lead to the convergence of the three streams. Austria's HPV vaccination policy is considered important here due to the cultural proximity of the countries. Stökl found that next to the fact that both countries are German-speaking, they also share the same public debates about HPV (Stökl, 2010, p. 267). Following the convergence, a policy window opened that would have allowed for policy adaptation. However, during the second time period of the HPV vaccination in Germany, the debate about the vaccination and the vaccine safety came to a standstill. In total, only five informational documents were published by the selected organizations from 2010 to 2015 (see Appendix D to Appendix G). This indicates that the perception of the problems' magnitude at that time was not large and pressuring enough to gain decision-makers attention.

In the third time period of the HPV vaccination in Germany dating from 2016 to 2019, the HPV vaccination policy change occurred. It led to the inclusion of boys into the national immunization schedule, and therefore to a vaccination free of charge for all children. Different from the previous two time periods, expert organizations like the DGU and Zervita increasingly demanded the extension of the STIKO recommendation (DGU, 2016; ZERVITA, 2017c), which created pressure for public health authorities like the BMG. The claim of the organizations was supported by an increasing body of studies that confirm the positive effects of the vaccination for girls and boys (see e.g. Arbyn, Xu, Simoens, & Martin-Hirsch, 2018). Additionally, a model-based study published by the RKI (Damm et al., 2018) proved the cost-effectiveness of the HPV vaccination for boys (due to the low vaccination rate in girls) and thus made the vaccination of boys a politically acceptable solution. Moreover, this was in line with the politics of the German government and the current Federal Health Minister Spahn. The current German government has recognized the general problem of low vaccination rates, and the current coalition agreement of the ruling parties states: "We will take further measures to achieve the necessary vaccination rates to protect the population." (BPA, 2018, p. 101).

Table 3

Windows of opportunity for HPV vaccination policy change in Germany

	2006-2009	2010-2015	2016-2018
Problem stream (perception of a pressuring problem that needs to be addressed)	About 1,540 women die of cervical cancer in Germany every year	Constantly low HPV vaccination rate in Germany	Constantly low HPV vaccination rate in Germany Public pressure for decision-makers (through growing calls for an extension of the STIKO recommendation)
Policy stream (technically feasible solutions to the problem available)	Availability of the HPV vaccination for girls	European Medical Agency again reviews and approves HPV vaccine for girls and boys	Increasing number of studies shows confirm the positive effects of the vaccine for girls and boys Evidence of cost effectiveness of the HPV vaccination also for boys
Politics stream (events promoting or inhibiting political action)	Heightened media attention after the criticism of the introduction of vaccination by 13 scientists (also referred to as “manifesto”) Re-evaluation of the HPV vaccine safety	Austria introduces HPV vaccination also for boys Saxony is the first federal state in Germany to additionally advocate a vaccination of boys	Commitment to higher vaccination rates in the coalition agreement of the current German government

The convergence of the streams in the third time period of the HPV vaccination in Germany led to the extension of the recommendation by the STIKO. Hypothesis H4 can therefore be accepted. The policy change occurred after the opening of a policy window that resulted from the convergence of the problem, policy and politics stream.

4.2.3 Answer to the second sub-question B

The second part of the analysis drew a clear picture not only of the social worlds of important stakeholders in the HPV vaccination arena, but also of the agenda setting process in the broader historical context. Finally, a state-financed HPV vaccination program for boys was adopted. Figure 1 illustrates how the selected actors contributed to the three process streams.

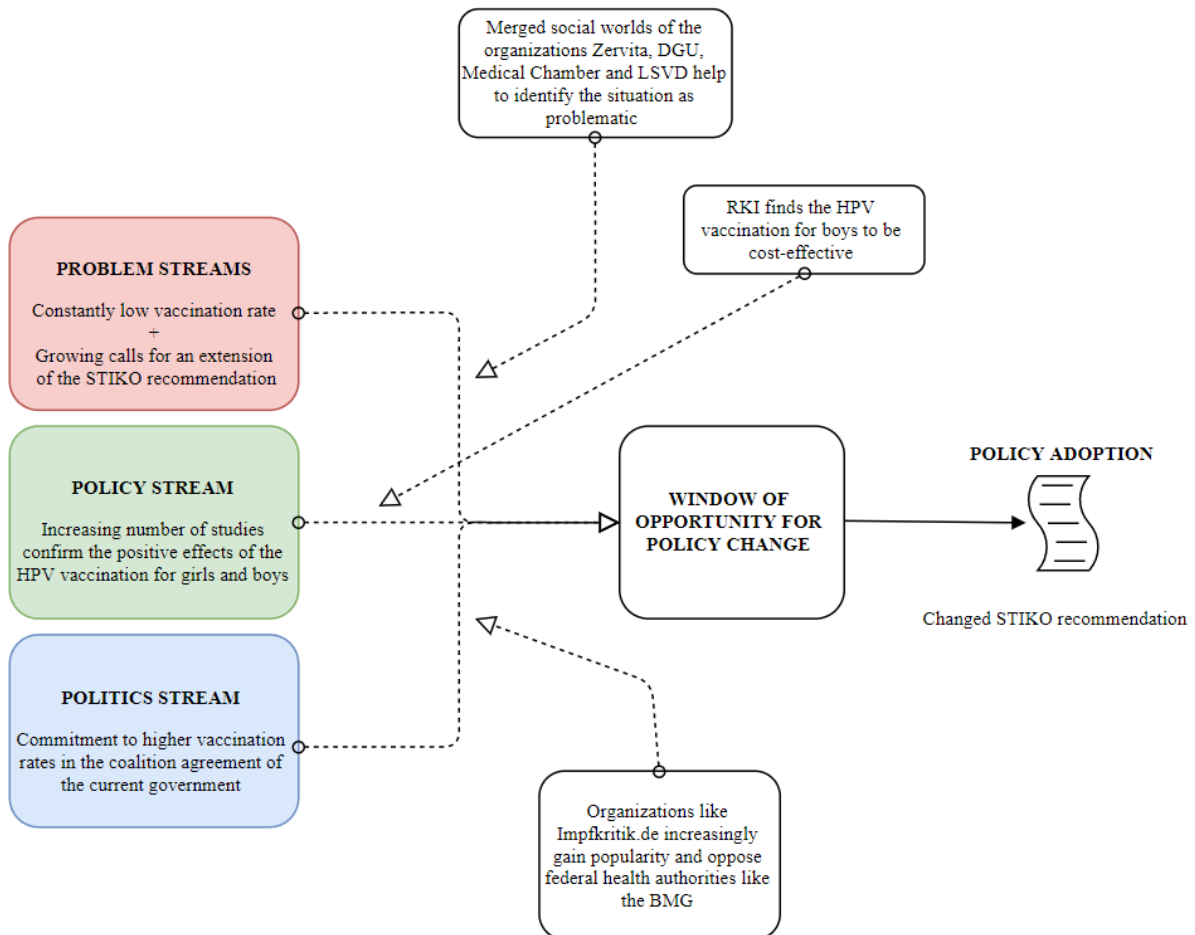


Figure 1

Illustration of the convergence of streams and the role of the selected actors in the policy adoption process

With regard to sub-question B it can be said that amongst others the convergence of the three streams led to the policy frame change. Additionally, it can be argued that the policy change occurred due to the alignment of the social worlds of crucial actors in the HPV vaccination arena. Especially the BMG hereby proved to be an important actor due to its formal decision-making power and its commitment to increase the vaccination rates. After the cost-effectiveness of the vaccination also for boys was proven (Damm et al., 2018), the program became also politically acceptable and economically justifiable. Organizations like Zervita and

the DGU pushed for the vaccination extension and thereby helped to put the topic on the agenda of the BMG. They thus played an important role in the policy change. What is noteworthy is that also Impfkritik.de contributed to the policy change, however in a rather indirect way. The increasing popularity of vaccine-skeptical networks poses a problem to public health authorities, who are committed to foster vaccination rates. To counteract the vaccine hesitancy, decision-makers are urged to address the problem and decide on it.

5. Discussion and conclusion

By systematically assessing the HPV vaccination policy frame change through the lens of different theoretical frameworks, new insights about the causes and consequences could be created.

It was found that the causes of the policy change have different roots. They evolve around the fact that the low vaccination rate is not suitable to combat cervical cancer and other HPV-related forms of cancer. The low vaccine uptake in Germany is partly caused by the manifesto of 13 German scientists, that fostered uncertainty about the benefits of the HPV vaccination.

Before the policy change, mainly feminized framing was used by the different organizations to inform about the vaccination. However, boys not only sexually transmit the infection, but are also subjected to genital warts and different types of cancer that result from an infection with HPV. The assumption that boys can also benefit from the vaccination of girls played a significant role in the economic modelling of the cost effectiveness of the HPV vaccine in Germany. It is important to note here that this implies that from the beginning on, MSM were systematically left unconsidered by public health authorities with decision-making power.

The application of Clarke's social worlds theory and Kingdon's agenda setting framework has shown that the policy change was ultimately caused by a convergence on different levels. Firstly, the convergence of the positions of the different stakeholders promoted the policy change. Secondly the convergence of the three different streams for policy adoption opened a window of opportunity for policy change. This policy window indicates that all prerequisites for the adoption of a new or changed policy are met. Organized interest groups like Zervita and the DGU played an important role in demanding an extension of the recommendation. Through their united social world, they helped to identify the situation of the low vaccination rate paired with the exclusion of boys from the protection as problematic. A technically feasible solution to the problem was hereby available. Over a longer period of time, an increasing number of studies showed the effectiveness of the HPV vaccination. It has proven

to be safe and cost-effective in preventing genital warts and precursors of different types of cancer in women and men. The model-based study of the RKI that indicated the cost-effectiveness of the vaccination for all children made the vaccination program also politically acceptable. When the policy change occurred in Germany in 2018, other countries already offered the vaccination for boys and girls and made positive experiences. First and foremost, the Austrian case is of interest here. Despite the different vaccination systems, both countries are having the same debates. The cultural proximity and the fact that both countries are German-speaking might have helped Germany to profit from the Austrian experience with a changed HPV vaccination. Lastly, the fact that the rate is far from the ideal case of herd immunity (for which around 85% of the population have to be vaccinated) has been recognized as problematic by the German government and other organizations with decision making power, for example the BMG, whose social world merged with the position of the organized interest groups like Zervita and the DGU. Vaccine-skeptical organizations like Impfkritik.de represent the antagonist in the HPV vaccination debate that must be combatted.

Regarding the consequences of the policy frame change, a discursive shift in the HPV vaccination arena could be observed. The construction of the social worlds has shown that before the policy change, the position of the different actors increasingly merged towards the common position that boys should also be included in the vaccine directive. Only the vaccine-skeptical organization Impfkritik.de consequently opposes this consensus. After the policy change, the HPV vaccination is reframed and advertised differently by the selected organizations. The analysis of the information material has shown that the use of a feminized framing decreased after the policy change. At the same time the framing of the vaccination as a collective responsibility increased. Still, individualized risk framing is widely used. This sets the German case apart from the finding of Lindén and Busse (2017) in the Austrian HPV vaccination arena. Moreover, the framing of HPV as a STI decreased. This could be caused by the fact that the communication of the importance of the HPV vaccination is problematic on different dimensions. The target group of the vaccination is between 9 and 14 years old, and therefore not too young to be excluded from the information and decision process about whether or not to get vaccinated, and on the other hand not old enough to get the vaccination without the consent of a parent or legal guardian. This makes the marketing of the HPV vaccination very difficult.

It can be concluded that the main consequence of the policy frame change is the possibility to reframe the vaccination. Misconceptions can be corrected and the use and safety of the vaccine for girls and boys can be emphasized. Hereby the vaccination rate can be

increased. This is however only possible if vaccine-skeptical networks do not gain more popularity. They do not structure their social world around facts, which makes them immune to correction (e.g. through studies that prove the efficiency of the vaccine). A future challenge will be withstanding the vaccine opponents with helpful information material. Furthermore, an important consequence is that the policy change can help to equally distribute the responsibility to contribute to the public good of healthcare. Before, girls were constructed as responsible for the prevention of HPV. With the equal assignment of responsibility, also equal protection can be fostered. With the regular vaccination of boys, MSM are no longer systematically excluded from the benefits of the vaccination.

The results of the study helped to gain apprehension about the policy change. However, several limitations must be noted. The analysis of the information material shows tendencies in the HPV vaccination framing. The framing is however also strongly dependent from the type of information material that was retrieved. No poster analyzed in the course of this study framed HPV as STI. Due to the fact that posters in general do not contain as much information as a flyer, a different focus of the vaccination might have been prioritized over the fact that it is sexually transmittable. Besides, only documents that could be retrieved online were included in the study. Some actors might not have archived some informational documents that were published. In general, also the selected actors only represent an abstraction of the HPV vaccination discourse. There are several more actors that might be worth examining in detail. Especially for the analysis of the Kingdon streams, a closer examination of the political sphere and the media could be revealing to perform. Suggestions to further research therefore include a closer examination of the political actors and their involvement in shaping the construction of the vaccine. Also, research should be conducted to find out which information material is more successful in fostering vaccination uptake: gendered information separately for girls and boys, or joint information material that informs in a more gender-neutral manner. After the policy change, both alternatives could be found in the material of the organizations.

Despite the limitations, the results still give a detailed overview of different aspects of the policy change in Germany. The information material might only show general tendencies in the vaccination framing of actors. However, the analysis of the complete social world of all selected actors counteracts this limitation. Besides, the study shows how the framing by different stakeholders shapes the development of policies and therefore possibly also public health outcomes. Lastly, the combination of the two different frameworks builds a bridge between rationalist and constructivist theories that complement each other and shed light on different aspects of the HPV vaccination policy.

During the next years it will be interesting to follow the developments in the framing of the vaccination and the evolution of the immunization rate in Germany. Apart from that, the policy itself also leaves room for development and improvement. Despite the knowledge that MSM are disproportionately at risk of developing anal carcinomas, Germany has still not implemented a vaccination program for MSM. This is a shortcoming of the policy that needs to be fixed in order offer equal protection and increase overall public health.

References

- Arbyn, M., Xu, L., Simoons, C., & Martin-Hirsch, P. P. (2018). Prophylactic vaccination against human papillomaviruses to prevent cervical cancer and its precursors. *The Cochrane Database of Systematic Reviews*, 5, CD009069. <https://doi.org/10.1002/14651858.CD009069.pub3>
- Block, S. L., Nolan, T., Sattler, C., Barr, E., Giacoletti, K. E. D., Marchant, C. D., . . . Reisinger, K. S. (2006). Comparison of the immunogenicity and reactogenicity of a prophylactic quadrivalent human papillomavirus (types 6, 11, 16, and 18) L1 virus-like particle vaccine in male and female adolescents and young adult women. *Pediatrics*, 118(5), 2135–2145. <https://doi.org/10.1542/peds.2006-0461>
- BMBF. (2019). *Nationale Dekade gegen Krebs ausgerufen*. Retrieved from <https://www.dekade-gegen-krebs.de/de/nationale-dekade-gegen-krebs-ausgerufen-1789.html>
- BMG. (n.d.). Aufgaben und Organisation des Bundesministeriums für Gesundheit. Retrieved from <https://www.bundesgesundheitsministerium.de/ministerium/aufgaben-und-organisation/aufgaben.html>
- Bördlein, I. (2009). Interview mit Prof. Dr. med. Harald zur Hausen, Medizin-Nobelpreisträger 2008: Es ist meine Pflicht, die Impfung zu empfehlen. *Deutsches Ärzteblatt*, pp. 12–13. Retrieved from <https://www.aerzteblatt.de/archiv/62882>
- BPA. (2018). *Ein neuer Aufbruch für Europa. Eine neue Dynamik für Deutschland. Ein neuer Zusammenhalt für unser Land.: Koalitionsvertrag zwischen CDU, CSU und SPD*. 19. Legislaturperiode. Retrieved from <https://www.bundesregierung.de/resource/blob/975226/847984/5b8bc23590d4cb2892b31c987ad672b7/2018-03-14-koalitionsvertrag-data.pdf?download=1>
- Bundesärztekammer. (2018). *Stellungnahme der Bundesärztekammer: zum Beschlussentwurf des Gemeinsamen Bundesausschusses über eine Änderung der Schutzimpfungs-Richtlinie (SI-RL): Umsetzung der STIKO-Empfehlung der HPV-Impfung für Jungen im Alter von 9 bis 14 Jahren*. Retrieved from https://www.bundesaerztekammer.de/fileadmin/user_upload/downloads/pdf-Ordner/QS/HPV-Impfung.pdf
- BZgA. (n.d.). sex 'n' tipps: Körper und Gesundheit. Retrieved from <https://www.bzga.de/infomaterialien/suchergebnisse/sex-n-tipps-koerper-und-gesundheit/>
- BZgA. (2010). Mädchensache(n): Alles über Freundschaft, Liebe, das erste Mal, Lust und Frust, Sex und Aids. Retrieved from <https://www.bzga.de/infomaterialien/archiv/maedchensachen/>
- BZgA. (2018a). HPV - Sich vor Gebärmutterhalskrebs und anderen Krebsarten schützen. | Feigwarzen - Erkennen. Behandeln. Sich schützen. Retrieved from <https://www.bzga.de/infomaterialien/suchergebnisse/hpv-sich-vor-gebaermutterhalskrebs-und-anderen-krebsarten-schuetzen-feigwarzen-erkennen-behand/>
- BZgA. (2018b). HPV-Impfung: Schützen Sie Ihre Kinder vor Gebärmutterhalskrebs und anderen Krebsarten. Retrieved from <https://www.bzga.de/infomaterialien/suchergebnisse/hpv-elternbroschuere/>

- BZgA. (2018c). *HPV-Wartezimmerplakat für Eltern*. Retrieved from <https://www.bzga.de/infomaterialien/suchergebnisse/wartezimmerplakat-zum-thema-hpv-impfung-fuer-eltern-von-toechtern-im-empfohlenen-impfalter/>
- BZgA. (2018d). *HPV-Wartezimmerplakat für junge Frauen*. Retrieved from <https://www.bzga.de/infomaterialien/suchergebnisse/wartezimmerplakat-zum-thema-hpv-impfung-fuer-junge-frauen-bis-zum-18-geburtstag/>
- BZgA. (2018e). *HPV-Wartezimmerplakat für junge Männer*. Retrieved from <https://www.bzga.de/infomaterialien/suchergebnisse/hpv-wartezimmerplakat-fuer-junge-maenner/>
- BZgA. (2018f). Pressemitteilung - Junge Menschen vor Gebärmutterhalskrebs und anderen Krebsarten schützen: Informationen der BZgA für Eltern, Jugendliche und Arztpraxen zur HPV-Impfung. Retrieved from <https://www.bzga.de/presse/pressemitteilungen/2018-10-30-junge-menschen-vor-gebaermutterhalskrebs-und-anderen-krebsarten-schuetzen/>
- Cartmell, K. B., Mzik, C. R., Sundstrom, B. L., Luque, J. S., White, A., & Young-Pierce, J. (2018). HPV Vaccination Communication Messages, Messengers, and Messaging Strategies. *Journal of Cancer Education : the Official Journal of the American Association for Cancer Education*. Advance online publication. <https://doi.org/10.1007/s13187-018-1405-x>
- Clarke, A. (1991). Social worlds/arenas theory as organizational theory. *Social Organization and Social Process: Essays in Honor of Anselm Strauss*.
- Clarke, A. E. (2003). Situational Analyses: Grounded Theory Mapping After the Postmodern Turn. *Symbolic Interaction*, 26(4), 553–576. <https://doi.org/10.1525/si.2003.26.4.553>
- Clarke, B. R. (Ed.). (2008). *Linear models: The theory and application of analysis of variance*. *Wiley Series in Probability and Statistics*. Hoboken, N.J: Wiley.
- Colombini, M., Mayhew, S. H., Hawkins, B., Bista, M., Joshi, S. K., Schei, B., & Watts, C. (2016). Agenda setting and framing of gender-based violence in Nepal: How it became a health issue. *Health Policy and Planning*, 31(4), 493–503. <https://doi.org/10.1093/heapol/czv091>
- Daley, E. M., Vamos, C. A., Thompson, E. L., Zimet, G. D., Rosberger, Z., Merrell, L., & Kline, N. S. (2017). The feminization of HPV: How science, politics, economics and gender norms shaped U.S. HPV vaccine implementation. *Papillomavirus Research (Amsterdam, Netherlands)*, 3, 142–148. <https://doi.org/10.1016/j.pvr.2017.04.004>
- Damm, O., Horn, J., Scholz, S., Greiner, W., & Mikolajczyk, R. (2018). Modellierung der langfristigen epidemiologischen und gesundheitsökonomischen Auswirkungen der Impfung von Jungen gegen humane Papillomviren (HPV) in Deutschland: Abschlussbericht. Retrieved from https://www.rki.de/DE/Content/Infekt/Impfen/ImpfungenAZ/HPV/Modellierung_HPVImpfung_Jungen.pdf?__blob=publicationFile
- Deleré, Y., Böhmer, M. M., Walter, D., & Wichmann, O. (2013). HPV vaccination coverage among women aged 18-20 years in Germany three years after recommendation of HPV vaccination for adolescent girls: Results from a cross-sectional survey. *Human Vaccines & Immunotherapeutics*, 9(8), 1706–1711. <https://doi.org/10.4161/hv.24904>
- Deutsche Krebsgesellschaft e.V. (2009a). Schneller als das Virus: Informationen für Eltern zur Impfung gegen Gebärmutterhalskrebs. Retrieved from

- http://www.zervita.de/share/Flyer_Broschueren/HPV-Impfung_Broschuere-Eltern_Mai09.pdf
- Deutsche Krebsgesellschaft e.V. (2009b). Schneller als das Virus: Informationen für Lehrer zur Impfung gegen Gebärmutterhalskrebs. Retrieved from http://www.zervita.de/share/Flyer_Broschueren/HPV-Impfung_Broschuere-Lehrer_Mai09.pdf
- Deutsche Krebsgesellschaft e.V. (2009c). Schneller als das Virus: Informationen zur Impfung gegen Gebärmutterhalskrebs. Retrieved from http://www.zervita.de/share/Flyer_Broschueren/teens.pdf
- DGU. (2014a). *Gut zu wissen...: Infos für Jungen*. Retrieved from https://www.jungensprechstunde.de/fileadmin/MDB/Jungensprechstunde/pdf/leporello_s_web.pdf
- DGU. (2014b). *Gut zu wissen...: Infos für Jungen und junge Männer*. Retrieved from https://www.jungensprechstunde.de/fileadmin/MDB/Jungensprechstunde/pdf/leporello_xl_web.pdf
- DGU. (2016). *Urologen empfehlen: Die HPV-Impfung für Jungen*. Düsseldorf. Retrieved from <https://www.urologenportal.de/pressebereich/pressemitteilungen/presse-aktuell/presse-archiv/pressemitteilungen-aus-dem-jahr-2016/urologen-empfehlen-die-hpv-impfung-fuer-jungen-23062016.html>
- DGU. (2018a). *HPV Themenwoche Einführung Prof. Dr. med. Christian Wülfing*. Retrieved from <https://www.youtube.com/watch?v=9T-ZclEs1vM>
- DGU. (2018b). *HPV Themenwochenfilm 2018! HPV - Portal*. Retrieved from <https://www.youtube.com/watch?v=dkAapdfCnYE>
- DGU. (2018c). *HPV Themenwochen-Interview mit Dr. h.c. mult. Harald zur Hausen: HPV - Portal*. Retrieved from <https://www.youtube.com/watch?v=ZvNdvWqw5Vo>
- DGU. (2018d). *HPV Themenwochen-Interview mit Dr. med. Heike Kramer: HPV - Portal*. Retrieved from <https://www.youtube.com/watch?v=L8JMkaLRVYc>
- DGU. (2018e). *HPV Themenwochen-Interview mit Dr. med. Lohmann: HPV - Portal*. Retrieved from <https://www.youtube.com/watch?v=28N-Zx9evDg>
- DGU. (2018f). *HPV Themenwochen-Interview mit Herr Prof. Dr. med. Peter Schneede: HPV - Portal*. Retrieved from <https://www.youtube.com/watch?v=T-WByEawdoo>
- DGU. (2018g). *HPV Themenwochen-Interview mit Prof. med. Oliver Hakenberg: HPV - Portal*. Retrieved from https://www.youtube.com/watch?time_continue=14&v=wojw894hK8w
- DGU. (2018h). *HPV Themenwochen-Interview mit Stephan Caspary: HPV - Portal*. Retrieved from <https://www.youtube.com/watch?v=7bcggeIaj2w>
- DGU. (2018i). HPV - Urologische Themenwoche: Der einzige Schutz vor HPV: eine Impfung. Retrieved from <https://www.hpv-portal.de/>
- DGU. (2018j). *Mein Sohn ist sicher. Dank der HPV-Impfung.: Jetzt auch für Jungen: die HPV-Impfung*. Retrieved from https://www.urologenportal.de/fileadmin/MDB/PDF/Presse/HPV_Flyer_web.pdf
- DGU. (2018k). *Pimmel: Ohne Impfung sind Jungs schutzlos vor Genitalwarzen und HPV-Krebs*. Retrieved from <https://www.hpv-portal.de/>

- DGU. (2018l). *Pipimann: Ohne Impfung sind Jungs schutzlos vor Genitalwarzen und HPV-Krebs*. Retrieved from <https://www.hpv-portal.de/>
- DGU. (2018m). *Schniedel: Ohne Impfung sind Jungs schutzlos vor Genitalwarzen und HPV-Krebs*. Retrieved from <https://www.hpv-portal.de/>
- DGU. (2019). *Starke Infos für Jungen: Jungensprechstunde*. Retrieved from https://www.jungensprechstunde.de/fileadmin/JBS/pdf/Neu_Jungs-Broschuere_Urologen.pdf
- EMA. (2016). *Human papillomavirus vaccines - Cervarix, Gardasil, Gardasil 9, Silgard*. Retrieved from <https://www.ema.europa.eu/en/medicines/human/referrals/human-papillomavirus-vaccines-cervarix-gardasil-gardasil-9-silgard>
- Gallagher, K. E., LaMontagne, D. S., & Watson-Jones, D. (2018). Status of HPV vaccine introduction and barriers to country uptake. *Vaccine*, 36(32), 4761–4767. <https://doi.org/10.1016/j.vaccine.2018.02.003>
- G-BA. (2018). Beschluss des Gemeinsamen Bundesausschusses über eine Änderung der Schutzimpfungs-Richtlinie (SI-RL): Umsetzung der STIKO-Empfehlung der HPV-Impfung für Jungen im Alter von 9 bis 14 Jahren. Retrieved from https://www.g-ba.de/downloads/39-261-3502/2018-09-20_SI-RL_Umsetzung-STIKO-Empfehlung_HPVImpfung_Jungen_BAnz.pdf
- Horn, J., Damm, O., Kretzschmar, M., Deleré, Y., Wichmann, O., Kaufmann, A. M., . . . Mikolajczyk, R. (2012). Langfristige epidemiologische und ökonomische Auswirkungen der HPV-Impfung in Deutschland: Überarbeiteter Abschlussbericht. Retrieved from https://www.rki.de/DE/Content/Infekt/Impfen/Forschungsprojekte/abgeschlossene_Projekte/HPV-Impfung/Abschlussbericht.pdf?__blob=publicationFile
- IGES. (2014). *Arzneimittel-Atlas 2014: Für einen realistischen Blick auf den Arzneimittel-Markt*.
- Jackson-Lee, A., Barr, N. G., & Randall, G. E. (2016). Mandating influenza vaccinations for health care workers: Analysing opportunities for policy change using Kingdon's agenda setting framework. *BMC Health Services Research*, 16(1), 522. <https://doi.org/10.1186/s12913-016-1772-0>
- Karafillakis, E., Simas, C., Jarrett, C., Verger, P., Peretti-Watel, P., Dib, F., . . . Larson, H. (2019). HPV vaccination in a context of public mistrust and uncertainty: A systematic literature review of determinants of HPV vaccine hesitancy in Europe. *Human Vaccines & Immunotherapeutics*, 1–13. <https://doi.org/10.1080/21645515.2018.1564436>
- Kingdon, J. W. (1984). *Agendas, alternatives, and public policies: [includes a new epilogue: Health care reform in the Clinton and Obama administrations]* (Updated 2. ed.). *Longman classics in political science*. Boston, Mass.: Longman Pearson.
- Krebsinformationsdienst. (2013). *Sachsen erweitert Impfeempfehlung: HPV-Impfung auch für Jungen*. Retrieved from <https://www.krebsinformationsdienst.de/aktuelles/2013/news4.php>
- Le Ker, H. (2009). Heftiger Disput zwischen Nobelpreisträger und Ärztekammer-Chef: Krebs-Impfung. Retrieved from <https://www.spiegel.de/wissenschaft/mensch/krebsimpfung-heftiger-disput-zwischen-nobelpreistraeger-und-aerztekammer-chef-a-636343.html>
- Lehtinen, M., Söderlund-Strand, A., Vänskä, S., Luostarinen, T., Eriksson, T., Natunen, K., . . . Garnett, G. (2018). Impact of gender-neutral or girls-only vaccination against

- human papillomavirus-Results of a community-randomized clinical trial (I). *International Journal of Cancer*, 142(5), 949–958. <https://doi.org/10.1002/ijc.31119>
- Lindén, L. (2017). You Will Protect Your Daughter, Right? In E. Johnson (Ed.), *Gendering Drugs: Feminist Studies of Pharmaceuticals* (pp. 107–126). Cham: Springer International Publishing.
- Lindén, L., & Busse, S. (2017). Two Shots for Children. In E. Johnson (Ed.), *Gendering Drugs: Feminist Studies of Pharmaceuticals* (pp. 189–209). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-51487-1_9
- LSVD. (2010). *Gleiche Rechte: Wir wollen das volle Programm!* Berlin. Retrieved from <https://www.lsvd.de/ziele/buergerrechte.html>
- Maxwell, J. (2009). Designing a Qualitative Study. In D. J. Rog & L. Bickman (Eds.), *The SAGE handbook of applied social research methods* (2nd ed., pp. 214–253). Los Angeles, London: SAGE. <https://doi.org/10.4135/9781483348858.n7>
- MedScape. (2019). Impfkritische Seiten: Soziale Medien erweisen sich als Fake-News-Schleuder. Retrieved from <https://deutsch.medscape.com/artikelansicht/4907730>
- Mishra, A., & Graham, J. E. (2012). Risk, choice and the ‘girl vaccine’: Unpacking human papillomavirus (HPV) immunisation. *Health, Risk & Society*, 14(1), 57–69. <https://doi.org/10.1080/13698575.2011.641524>
- Nan, X. (2012). Communicating to young adults about HPV vaccination: Consideration of message framing, motivation, and gender. *Health Communication*, 27(1), 10–18. <https://doi.org/10.1080/10410236.2011.567447>
- Rail, G., Molino, L., Fusco, C., Norman, M. E., Petherick, L., Polzer, J., . . . Bryson, M. (2018). HPV vaccination discourses and the construction of "at-risk" girls. *Canadian Journal of Public Health = Revue Canadienne De Sante Publique*, 109(5-6), 622–632. <https://doi.org/10.17269/s41997-018-0108-8>
- Rhein-Nekar-Zeitung. (2019). Gesundheitsminister Jens Spahn: "Wir wollen den Krebs besiegen, indem wir ihn beherrschen". Retrieved from https://www.rnz.de/politik/hintergrund_artikel,-gesundheitsminister-jens-spahn-wir-wollen-den-krebs-besiegen-indem-wir-ihn-beherrschen-_arid,418050.html
- RKI. (2018a). Epidemiologisches Bulletin: Aktuelles aus der KV-Impfsurveillance – Impfquoten ausgewählter Schutzimpfungen in Deutschland. Retrieved from https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2018/Ausgaben/01_18.pdf?__blob=publicationFile
- RKI. (2018b). Epidemiologisches Bulletin: Wissenschaftliche Begründung für die Empfehlung der HPV-Impfung für Jungen im Alter von 9 bis 14 Jahren. Retrieved from https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2018/Ausgaben/26_18.pdf?__blob=publicationFile
- Roll, A. (2007). *Über die Humanität von Papilloma-Viren: Wirkungen und Nebenwirkungen sowie Nutzen der HPV-Impfung*. Retrieved from Impfkritik.de website: <https://www.impfkritik.de/upload/pdf/HPV/HPV-Humanitaet.pdf>
- Schwegler, P. (2018). Diese Kampagne lotst schamhafte Jungs zum Impfen: Tank Tank kreierte für Urologen. Retrieved from https://www.wuv.de/agenturen/diese_kampagne_lotst_schamhafte_jungs_zum_impfen

- Stökl, A. (2010). Public Discourses and Policymaking: The HPV Vaccination from the European Perspective. In K. Wailoo, J. Livingston, S. Epstein, & R. A. Arnowitz (Eds.), *Three Shots at Prevention: The HPV Vaccine and the Politics of Medicine's Simple Solutions*. Baltimore, MD: Johns Hopkins University Press.
- Tolzin, H. U. P. (2007a). Die HPV-Impfung ist echt "uncool"! Der "Stuttgarter Elternstammtisch Impfen und Kindergesundheit" informiert. Retrieved from <https://www.impfkritik.de/upload/pdf/HPV/HPV-Flugblatt.pdf>
- Tolzin, H. U. P. (2007b). *Nur eines ist sicher – die Nebenwirkungen: Der neue Krebsimpfstoff* (impf-report No. 26). Retrieved from Impfkritik.de website: <https://www.impf-report.de/zeitschrift/archiv/impf-report026.html>
- Tolzin, H. U. P. (2014). HPV-Impfung: Ein Merkblatt für Eltern. Retrieved from <https://www.impf-report.de/upload/pdf/Infoblatt/HPV-Merkblatt.pdf>
- Wailoo, K., Livingston, J., Epstein, S., & Arnowitz, R. A. (Eds.). (2010). *Three Shots at Prevention: The HPV Vaccine and the Politics of Medicine's Simple Solutions*. Baltimore, MD: Johns Hopkins University Press. Retrieved from <http://gbv.ebib.com/patron/FullRecord.aspx?p=4398353>
- WHO. (2019). Human papillomavirus (HPV) and cervical cancer. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/human-papillomavirus-%28hpv%29-and-cervical-cancer>
- Yang, J. Z., & Pittman, M. M. (2017). The Silver Lining of Shame: Framing HPV to Influence Vaccination Intentions. *Health Communication*, 32(8), 987–994. <https://doi.org/10.1080/10410236.2016.1196420>
- Zentrum für Krebsregisterdaten. (n.d.). Gebärmutterhalskrebs (Zervixkarzinom). Retrieved from <https://www.krebsdaten.de/Krebs/DE/Content/Krebsarten/Gebaermutterhalskrebs/gebaermutterhalskrebs.html>
- ZERVITA. (n.d.). Was ist ZERVITA: Die Projektgruppe. Retrieved from <http://www.zervita.de/zervita/was-ist-zervita/projektgruppe-zervita.php>
- ZERVITA. (2011). Gebärmutterhalskrebs: Vorbeugen – Erkennen – Behandeln. Retrieved from http://www.zervita.de/share/Flyer_Broschueren/Zervita_Broschuere_A2_52Seiten.pdf
- ZERVITA. (2016a). Gebärmutterhalskrebs - Früherkennung & Impfung: ZERVITA klärt über Gebärmutterhalskrebs und Humane Papillomviren auf. Retrieved from http://www.zervita.de/share/Flyer/web_Zervita_Publikumsflyer_20160211.pdf
- ZERVITA. (2016b). Schneller als das Virus: Informationen zur HPV-Impfung - Ein wichtiger Schutz gegen Gebärmutterhalskrebs. Retrieved from http://www.zervita.de/share/Flyer/web_Zervita_Maedchenflyer.pdf
- ZERVITA. (2017a). *HPV Impfung Strichmaennchenfilm DKH*: Zervita e.V. Retrieved from <https://www.youtube.com/watch?v=ilqvQxWC-IE>
- ZERVITA. (2017b). *Julia informier Dich*: Zervita e.V. Retrieved from <https://www.youtube.com/watch?v=EZv0KcAqcp0>
- ZERVITA. (2017c). *ZERVITA fordert die HPV-Impfung für Jungen: ZERVITA fordert die HPV-Impfung auch für Jungen*. Retrieved from

<http://www.zervita.de/zervita/aktuelles/news.php/meldung/88/zervita-fordert-die-hpv-impfung-fuer-jungen>

ZERVITA. (2018). Auch Jungs checken da: Informationen zur HPV-Impfung für Jungen.
Retrieved from http://www.zervita.de/share/Flyer/web_Flyer_Jugend_20181206V2.pdf

ZERVITA. (2019). *Hakan goes viral*: Zervita e.V. Retrieved from
https://www.youtube.com/watch?time_continue=17&v=a2uAFadDMM4

Appendix

Appendix A

List of documents consulted in the framing analysis for each organization

1. BMG

- BZgA. (n.d.). sex 'n' tipps: Körper und Gesundheit. Retrieved from <https://www.bzga.de/infomaterialien/suchergebnisse/sex-n-tipps-koerper-und-gesundheit/>
- BZgA. (2010). Mädchensache(n): Alles über Freundschaft, Liebe, das erste Mal, Lust und Frust, Sex und Aids. Retrieved from <https://www.bzga.de/infomaterialien/archiv/maedchensachen/>
- BZgA. (2018a). HPV - Sich vor Gebärmutterhalskrebs und anderen Krebsarten schützen. | Feigwarzen - Erkennen. Behandeln. Sich schützen. Retrieved from <https://www.bzga.de/infomaterialien/suchergebnisse/hpv-sich-vor-gebaermutterhalskrebs-und-anderen-krebsarten-schuetzen-feigwarzen-erkennen-behand/>
- BZgA. (2018b). HPV-Impfung: Schützen Sie Ihre Kinder vor Gebärmutterhalskrebs und anderen Krebsarten. Retrieved from <https://www.bzga.de/infomaterialien/suchergebnisse/hpv-elternbroschuere/>
- BZgA. (2018c). *HPV-Wartezimmerplakat für Eltern*. Retrieved from <https://www.bzga.de/infomaterialien/suchergebnisse/wartezimmerplakat-zum-thema-hpv-impfung-fuer-eltern-von-toechtern-im-empfohlenen-impfalter/>
- BZgA. (2018d). *HPV-Wartezimmerplakat für junge Frauen*. Retrieved from <https://www.bzga.de/infomaterialien/suchergebnisse/wartezimmerplakat-zum-thema-hpv-impfung-fuer-junge-frauen-bis-zum-18-geburtstag/>
- BZgA. (2018e). *HPV-Wartezimmerplakat für junge Männer*. Retrieved from <https://www.bzga.de/infomaterialien/suchergebnisse/hpv-wartezimmerplakat-fuer-junge-maenner/>

2. Zervita

- Deutsche Krebsgesellschaft e.V. (2009a). Schneller als das Virus: Informationen für Eltern zur Impfung gegen Gebärmutterhalskrebs. Retrieved from http://www.zervita.de/share/Flyer_Broschueren/HPV-Impfung_Broschuere-Eltern_Mai09.pdf
- Deutsche Krebsgesellschaft e.V. (2009b). Schneller als das Virus: Informationen für Lehrer zur Impfung gegen Gebärmutterhalskrebs. Retrieved from http://www.zervita.de/share/Flyer_Broschueren/HPV-Impfung_Broschuere-Lehrer_Mai09.pdf
- Deutsche Krebsgesellschaft e.V. (2009c). Schneller als das Virus: Informationen zur Impfung gegen Gebärmutterhalskrebs. Retrieved from http://www.zervita.de/share/Flyer_Broschueren/teens.pdf

- ZERVITA. (2011). Gebärmutterhalskrebs: Vorbeugen – Erkennen – Behandeln. Retrieved from http://www.zervita.de/share/Flyer_Broschueren/Zervita_Broschuere_A2_52Seiten.pdf
- ZERVITA. (2016a). Gebärmutterhalskrebs - Früherkennung & Impfung: ZERVITA klärt über Gebärmutterhalskrebs und Humane Papillomviren auf. Retrieved from http://www.zervita.de/share/Flyer/web_Zervita_Publikumsflyer_20160211.pdf
- ZERVITA. (2016b). Schneller als das Virus: Informationen zur HPV-Impfung - Ein wichtiger Schutz gegen Gebärmutterhalskrebs. Retrieved from http://www.zervita.de/share/Flyer/web_Zervita_Maedchenflyer.pdf
- ZERVITA. (2017a). *HPV Impfung Strichmaennchenfilm DKH*: Zervita e.V. Retrieved from <https://www.youtube.com/watch?v=ilqvQxWC-IE>
- ZERVITA. (2017b). *Julia informier Dich*: Zervita e.V. Retrieved from <https://www.youtube.com/watch?v=EZv0KcAqcp0>
- ZERVITA. (2018). Auch Jungs checken da: Informationen zur HPV-Impfung für Jungen. Retrieved from http://www.zervita.de/share/Flyer/web_Flyer_Jugend_20181206V2.pdf
- ZERVITA. (2019). *Hakan goes viral*: Zervita e.V. Retrieved from https://www.youtube.com/watch?time_continue=17&v=a2uAFadDMM4

3. DGU

- DGU. (2014a). *Gut zu wissen...: Infos für Jungen*. Retrieved from https://www.jungensprechstunde.de/fileadmin/MDB/Jungensprechstunde/pdf/leporello_s_web.pdf
- DGU. (2014b). *Gut zu wissen...: Infos für Jungen und junge Männer*. Retrieved from https://www.jungensprechstunde.de/fileadmin/MDB/Jungensprechstunde/pdf/leporello_xl_web.pdf
- DGU. (2018a). *HPV Themenwoche Einführung Prof. Dr. med. Christian Wülfing*. Retrieved from <https://www.youtube.com/watch?v=9T-ZclEs1vM>
- DGU. (2018b). *HPV Themenwochenfilm 2018! HPV - Portal*. Retrieved from <https://www.youtube.com/watch?v=dkAapdfCnYE>
- DGU. (2018c). *HPV Themenwochen-Interview mit Dr. h.c. mult. Harald zur Hausen*: HPV - Portal. Retrieved from <https://www.youtube.com/watch?v=ZvNdvWqw5Vo>
- DGU. (2018d). *HPV Themenwochen-Interview mit Dr. med. Heike Kramer*: HPV - Portal. Retrieved from <https://www.youtube.com/watch?v=L8JMkaLRVYc>
- DGU. (2018e). *HPV Themenwochen-Interview mit Dr. med. Lohmann*: HPV - Portal. Retrieved from <https://www.youtube.com/watch?v=28N-Zx9evDg>
- DGU. (2018f). *HPV Themenwochen-Interview mit Herr Prof. Dr. med. Peter Schneede*: HPV - Portal. Retrieved from <https://www.youtube.com/watch?v=T-WByEawdoo>
- DGU. (2018g). *HPV Themenwochen-Interview mit Prof. med. Oliver Hakenberg*: HPV - Portal. Retrieved from https://www.youtube.com/watch?time_continue=14&v=wojw894hK8w
- DGU. (2018h). *HPV Themenwochen-Interview mit Stephan Caspary*: HPV - Portal. Retrieved from <https://www.youtube.com/watch?v=7bcggeIaj2w>

- DGU. (2018i). HPV - Urologische Themenwoche: Der einzige Schutz vor HPV: eine Impfung. Retrieved from <https://www.hpv-portal.de/>
- DGU. (2018j). *Mein Sohn ist sicher. Dank der HPV-Impfung.: Jetzt auch für Jungen: die HPV-Impfung.* Retrieved from https://www.urologenportal.de/fileadmin/MDB/PDF/Presse/HPV_Flyer_web.pdf
- DGU. (2018k). *Pimmel: Ohne Impfung sind Jungs schutzlos vor Genitalwarzen und HPV-Krebs.* Retrieved from <https://www.hpv-portal.de/>
- DGU. (2018l). *Pipimann: Ohne Impfung sind Jungs schutzlos vor Genitalwarzen und HPV-Krebs.* Retrieved from <https://www.hpv-portal.de/>
- DGU. (2018m). *Schniedel: Ohne Impfung sind Jungs schutzlos vor Genitalwarzen und HPV-Krebs.* Retrieved from <https://www.hpv-portal.de/>
- DGU. (2019). *Starke Infos für Jungen: Jungensprechstunde.* Retrieved from https://www.jungensprechstunde.de/fileadmin/JBS/pdf/Neu_Jungs-Broschuere_Urologen.pdf

4. Impfkritik.de

- Roll, A. (2007). *Über die Humanität von Papilloma-Viren: Wirkungen und Nebenwirkungen sowie Nutzen der HPV-Impfung.* Retrieved from Impfkritik.de website: <https://www.impfkritik.de/upload/pdf/HPV/HPV-Humanitaet.pdf>
- Tolzin, H. U. P. (2007a). Die HPV-Impfung ist echt "uncool"! Der "Stuttgarter Elternstammtisch Impfen und Kindergesundheit" informiert. Retrieved from <https://www.impfkritik.de/upload/pdf/HPV/HPV-Flugblatt.pdf>
- Tolzin, H. U. P. (2007b). *Nur eines ist sicher – die Nebenwirkungen: Der neue Krebsimpfstoff* (impf-report No. 26). Retrieved from Impfkritik.de website: <https://www.impf-report.de/zeitschrift/archiv/impf-report026.html>
- Tolzin, H. U. P. (2014). HPV-Impfung: Ein Merkblatt für Eltern. Retrieved from <https://www.impf-report.de/upload/pdf/Infoblatt/HPV-Merkblatt.pdf>

Appendix B

List of additional documents consulted in the analysis of the social worlds for each organization

1. BMG

- BMBF. (2019). *Nationale Dekade gegen Krebs ausgerufen*. Retrieved from <https://www.dekade-gegen-krebs.de/de/nationale-dekade-gegen-krebs-ausgerufen-1789.html>
- BMG. (n.d.). Aufgaben und Organisation des Bundesministeriums für Gesundheit. Retrieved from <https://www.bundesgesundheitsministerium.de/ministerium/aufgaben-und-organisation/aufgaben.html>
- Damm, O., Horn, J., Scholz, S., Greiner, W., & Mikolajczyk, R. (2018). Modellierung der langfristigen epidemiologischen und gesundheitsökonomischen Auswirkungen der Impfung von Jungen gegen humane Papillomviren (HPV) in Deutschland: Abschlussbericht. Retrieved from https://www.rki.de/DE/Content/Infekt/Impfen/ImpfungenAZ/HPV/Modellierung_HPVImpfung_Jungen.pdf?__blob=publicationFile
- Horn, J., Damm, O., Kretzschmar, M., Deleré, Y., Wichmann, O., Kaufmann, A. M., . . . Mikolajczyk, R. (2012). Langfristige epidemiologische und ökonomische Auswirkungen der HPV-Impfung in Deutschland: Überarbeiteter Abschlussbericht. Retrieved from https://www.rki.de/DE/Content/Infekt/Impfen/Forschungsprojekte/abgeschlossene_Projekt_e/HPV-Impfung/Abschlussbericht.pdf?__blob=publicationFile
- Le Ker, H. (2009). Heftiger Disput zwischen Nobelpreisträger und Ärztekammer-Chef: Krebs-Impfung. Retrieved from <https://www.spiegel.de/wissenschaft/mensch/krebs-impfung-heftiger-disput-zwischen-nobelpreistraeger-und-aerztekammer-chef-a-636343.html>
- Rhein-Nekar-Zeitung. (2019). Gesundheitsminister Jens Spahn: "Wir wollen den Krebs besiegen, indem wir ihn beherrschen". Retrieved from https://www.rnz.de/politik/hintergrund_artikel,-gesundheitsminister-jens-spahn-wir-wollen-den-krebs-besiegen-indem-wir-ihn-beherrschen-_arid,418050.html
- RKI. (2018). Epidemiologisches Bulletin: Wissenschaftliche Begründung für die Empfehlung der HPV-Impfung für Jungen im Alter von 9 bis 14 Jahren. Retrieved from https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2018/Ausgaben/26_18.pdf?__blob=publicationFile

2. Zervita

- Bördlein, I. (2009). Interview mit Prof. Dr. med. Harald zur Hausen, Medizin-Nobelpreisträger 2008: Es ist meine Pflicht, die Impfung zu empfehlen. *Deutsches Ärzteblatt*, pp. 12–13. Retrieved from <https://www.aerzteblatt.de/archiv/62882>
- ZERVITA. (n.d.). Was ist ZERVITA: Die Projektgruppe. Retrieved from <http://www.zervita.de/zervita/was-ist-zervita/projektgruppe-zervita.php>

ZERVITA. (2017). *ZERVITA fordert die HPV-Impfung für Jungen: ZERVITA fordert die HPV-Impfung auch für Jungen*. Retrieved from <http://www.zervita.de/zervita/aktuelles/news.php/meldung/88/zervita-fordert-die-hpv-impfung-fuer-jungen>

3. DGU

DGU. (2016). *Urologen empfehlen: Die HPV-Impfung für Jungen*. Düsseldorf. Retrieved from <https://www.urologenportal.de/pressebereich/pressemitteilungen/presse-aktuell/presse-archiv/pressemitteilungen-aus-dem-jahr-2016/urologen-empfehlen-die-hpv-impfung-fuer-jungen-23062016.html>

DGU. (2018). HPV - Urologische Themenwoche: Der einzige Schutz vor HPV: eine Impfung. Retrieved from <https://www.hpv-portal.de/>

4. Medical Chamber

Bundesärztekammer. (2018). *Stellungnahme der Bundesärztekammer: zum Beschlussentwurf des Gemeinsamen Bundesausschusses über eine Änderung der Schutzimpfungs-Richtlinie (SI-RL): Umsetzung der STIKO-Empfehlung der HPV-Impfung für Jungen im Alter von 9 bis 14 Jahren*. Retrieved from

https://www.bundesaerztekammer.de/fileadmin/user_upload/downloads/pdf-Ordner/QS/HPV-Impfung.pdf

Le Ker, H. (2009). Heftiger Disput zwischen Nobelpreisträger und Ärztekammer-Chef: Krebs-Impfung. Retrieved from <https://www.spiegel.de/wissenschaft/mensch/krebs-impfung-heftiger-disput-zwischen-nobelpreistraeger-und-aerztekammer-chef-a-636343.html>

5. LSVD

LSVD. (2010). *Gleiche Rechte: Wir wollen das volle Programm!* Berlin. Retrieved from <https://www.lsvd.de/ziele/buergerrechte.html>

6. Impfkritik.de

MedScape. (2019). Impfkritische Seiten: Soziale Medien erweisen sich als Fake-News-Schleuder. Retrieved from <https://deutsch.medscape.com/artikelansicht/4907730>

Appendix C
Codebook for the framing analysis

At least one inclusion criterium must be present in the information material in order to be classified as a framing facet.

Framing facet	Definition	Attributes	Inclusion Criteria	Fictional example
Feminized framing	Examination of the target group of the information. Feminized framing refers to the framing in the material clearly being directed at the female population.	Feminized framing	<p>Only girls are depicted in the material (e.g. on photos)</p> <p>Use of typical ‘feminine colors’ (e.g. pink)</p> <p>Use of ‘feminine motives’ (e.g. butterflies)</p> <p>The HPV vaccination is mentioned as girls’ vaccine</p> <p>Focus on cervical cancer as consequence of an HPV infection</p>	“Around 1500 women die each year from cervical cancer. Girls can protect themselves through the HPV vaccination.”
		No feminized framing	<p>Girls and boys are equally depicted in the information material</p> <p>Only boys are depicted in the material</p> <p>The HPV vaccination is mentioned as vaccine for girls and boys</p> <p>Focus on consequences for girls and boys are mentioned (e.g. genital warts, different forms of cancer (cervical, penile, anal, oral types))</p> <p>Focus on consequences for boys (e.g. penile cancer)</p>	“The HPV vaccination offers effective protection from genital warts and HPV-related cancers for girls and boys”
Individualized vs collectivized framing	Examination of the responsibility that is assigned	Individualized framing	Use of language that directly talks to the possible vaccine recipient or parents	“You can protect yourself from HPV by getting vaccinated.”

	in the documents. Refers to the framing in the material emphasizing the individual protection and risk or the collective responsibility to eradicate HPV.		about individual risks and consequences of HPV Pointing out the fact that the individual can protect herself or himself from an infection	
		Collectivized framing	Use of language that implies that HPV is a collective problem (e.g. ‘we’, ‘together’) Pointing out herd immunity to protect everyone from an infection	“We can contain HPV by vaccinating all sexually active people.”
STI framing	Examination of the aspect of sexuality as found in the information material. Refers to HPV being framed as sexually transmissible or not.	STI framing	Mentioning that HPV is transmitted through sexual intercourse and a common STI	“HPV is a common sexually transmittable infection that causes genital warts and different forms of cancer.”
		No STI framing	Not mentioning that HPV is transmitted through sexual intercourse and a common STI	“HPV is a virus infection that causes genital warts and different forms of cancer.”

Appendix D

Framing in the documents of the BZgA

Number	Document	Target group	Framing of HPV and the HPV vaccination
Before June 2018			
1	Brochure (BZgA, 2010)	Teenage girls	Gendered framing STI framing Stressing the individual responsibility
After June 2018			
2	Brochure (BZgA, 2018a)	Teenagers/ young adults	No gendered framing STI framing Stressing the individual responsibility
3	Brochure (BZgA, 2018b)	Parents (but mothers as the primary target group)	No gendered framing STI framing Stressing the individual responsibility
4	Poster (BZgA, 2018c)	Parents	No gendered framing No STI framing Stressing the individual responsibility
5	Poster (BZgA, 2018d)	Teenage girls	Gendered framing No STI framing Stressing the individual responsibility
6	Poster (BZgA, 2018e)	Teenage boys	No gendered framing No STI framing Stressing the collective responsibility
7	Brochure (BZgA, n.d.)	Teenagers/ young adults	Gendered framing STI framing Stressing the individual responsibility

Appendix E

Framing in the documents of Zervita

Number	Document	Target group	Framing of HPV and the HPV vaccination
Before June 2018			
1	Brochure (Deutsche Krebsgesellschaft e.V., 2009a)	Parents	Gendered framing STI framing Stressing the individual responsibility
2	Brochure (Deutsche Krebsgesellschaft e.V., 2009b)	Teachers	Gendered framing STI framing Stressing the collective responsibility
3	Brochure (Deutsche Krebsgesellschaft e.V., 2009c)	Teenage girls	Gendered framing STI framing Stressing the individual responsibility
4	Brochure (ZERVITA, 2011)	Women	Gendered framing STI framing Stressing the collective responsibility

5	Flyer (ZERVITA, 2016a)	Women	Gendered framing STI framing Stressing the individual responsibility
6	Flyer (ZERVITA, 2016b)	Teenage girls	Gendered framing No STI framing Stressing the individual responsibility
7	Videoclip (ZERVITA, 2017a)	Girls under 15	Gendered framing STI framing Stressing the individual responsibility
8	Videoclip (ZERVITA, 2017b)	Teenage girls	Gendered framing No STI framing Stressing the individual responsibility
After June 2018			
9	Flyer (ZERVITA, 2018)	Teenage boys	No gendered framing STI framing Stressing the individual responsibility
10	Videoclip (ZERVITA, 2019)	Teenagers/ young adults	No gendered framing STI framing Stressing the individual responsibility

Appendix F

Framing in the documents of the DGU

Number	Document	Target group	Framing of HPV and the HPV vaccination
Before June 2018			
1	Flyer (DGU, 2014a)	Teenage boys	No gendered framing STI framing Stressing the individual responsibility
2	Flyer (DGU, 2014b)	Teenage boys	No gendered framing STI framing Stressing the individual responsibility
After June 2018			
3	Videoclip (DGU, 2018a)	Parents and teenage boys	No gendered framing No STI framing Stressing the collective responsibility
4	Videoclip (DGU, 2018b)	Parents and teenage boys	No gendered framing No STI framing Stressing the individual responsibility
5	Videoclip (DGU, 2018c)	Parents and teenage boys	No gendered framing STI framing Stressing the collective responsibility
6	Videoclip (DGU, 2018d)	Parents and teenage boys	No gendered framing No STI framing

			Stressing the individual responsibility
7	Videoclip (DGU, 2018e)	Teenage boys	No gendered framing No STI framing Stressing the individual responsibility
8	Videoclip (DGU, 2018f)	Teenage boys	No gendered framing No STI framing Stressing the individual responsibility
9	Videoclip (DGU, 2018g)	Parents	No gendered framing STI framing Stressing the collective responsibility
10	Videoclip (DGU, 2018h)	Parents and teenagers/ young adults	No gendered framing No STI framing Stressing the collective responsibility
11	Website (DGU, 2018i)	Parents	No gendered framing No STI framing Stressing the collective responsibility
12	Flyer (DGU, 2018j)	Parents	No gendered framing STI framing Stressing the collective responsibility
13	Poster (DGU, 2018k)	Parents and teenage boys	No gendered framing No STI framing Stressing the collective responsibility
14	Poster (DGU, 2018l)	Parents and teenage boys	No gendered framing No STI framing Stressing the collective responsibility
15	Poster (DGU, 2018m)	Parents and teenage boys	No gendered framing No STI framing Stressing the collective responsibility
16	Brochure (DGU, 2019)	Parents and teenage boys	No gendered framing STI framing Stressing the individual responsibility

Appendix G

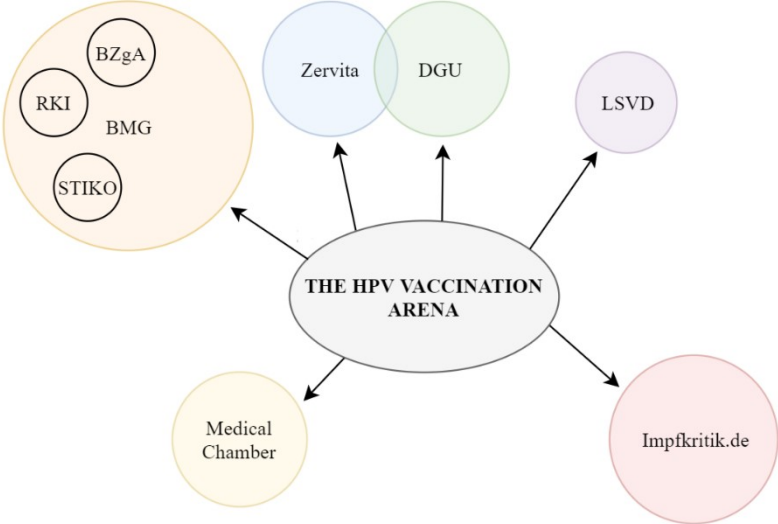
Framing in the documents of the Impfkritik.de

Number	Document	Target group	Framing of HPV and the HPV vaccination
Before June 2018			

1	Article (Roll, 2007)	Parents and possible vaccine recipients	No gendered framing No STI framing Stressing the individual responsibility
2	Article (Tolzin, 2007a)	Parents	Gendered framing No STI framing Stressing the individual responsibility
3	Flyer (Tolzin, 2007b)	Parents	Gendered framing No STI framing Stressing the individual responsibility
4	Flyer (Tolzin, 2014)	Parents	Gendered framing No STI framing Stressing the individual responsibility

Appendix H

Illustration of the social worlds before the policy change



Appendix I

Illustration of the social worlds before the policy change

