

# ONCE AGAIN? - HOW AN UPCOMING VACCINATION DEBATE IS PORTRAYED IN (SWEDISH) MEDIA

## 1 Introduction and purpose

Different kinds of vaccinations are lively discussed in media. This is not a new situation, but has been intensified with break-outs of pandemics or unexpected side effects of vaccinations, such as the swine flu vaccination (Lundgren, 2013). The starting point of this project is the vaccination against human papillomavirus (HPV) that can cause cervical cancer. This vaccination is today a part of the vaccination programme in Sweden and is offered for free to all Swedish girls. Since media is an important way for lay people to receive information on these matters it is important to have the competence to understand media reports when making decisions. Media reports are different compared to many textbooks used in school, since textbooks usually are well structured and objective. The purpose with this study is to investigate how an upcoming debate concerning vaccinations against human papilloma virus (HPV) was depicted in the six largest newspapers in Sweden during 2014-2015. This study is a part of a larger project where argumentation and decision-making related to HPV vaccinations are investigated.

## 2 Theoretical framework

The ability to use knowledge in and about science as an active citizen has been richly emphasized (e.g., van Eijck and Roth, 2010). Commonly, this knowledge is expressed as scientific literacy (Roberts, 2007) and is in line with the writings in the Swedish (and many other countries) curricula in which the importance of using scientific knowledge as a tool in students' life, supporting decision-making in different situations, is emphasized. The capacity to follow and evaluate discussions about science in media is often emphasized and reported as a deficit in the scientific literacy among students (Jarman & McClune, 2010).

This study focuses on media reports in the risk society (Beck, 1992), since side effects from vaccinations are risks both for the society and the individual. Beck (1992) discusses the contemporary society from a risk perspective and states that civilization today has to face many different types of risk. He defines risk as a "systematic way of dealing with hazards and insecurities induced and introduced by modernization itself" (Beck, 1992, p. 21.) When making assessments of risks, which are recognized as a difficult operation, different types of experts are central.

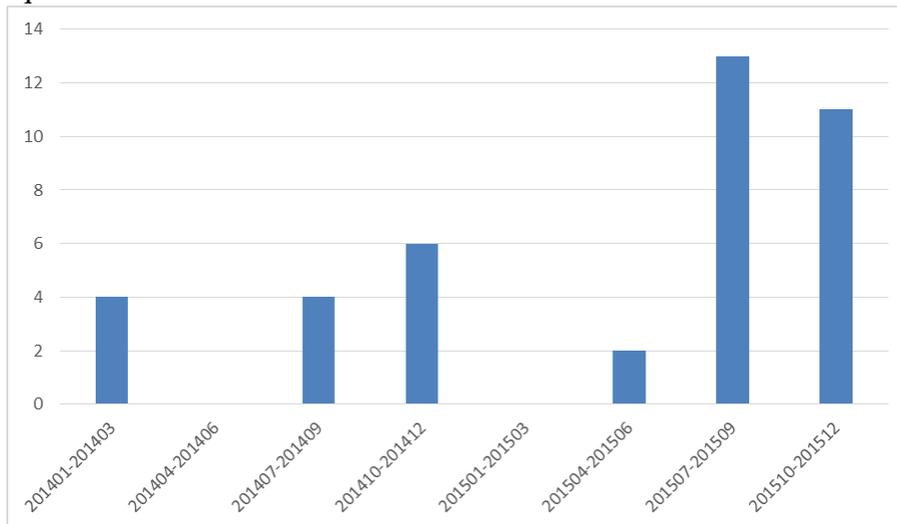
When media reports on scientific issues, such as the vaccination issue, some aspects are highlighted on the behalf of others. It is, for example, not possible for media to describe the whole research process such as the review process (León, 2008). However, this review process is important to valid research results, but may vary in time depending on the issue.

## 3 Research methods

A qualitative content analysis (Hsieh & Shannon, 2005) was conducted on the six largest daily newspapers in Sweden: Aftonbladet, Dagens Nyheter, Expressen, Göteborgsposten, Svenska Dagbladet and Sydsvenskan. Articles from a period of 24 months, from 1st of January 2014 to 31th of December 2015, were accessed through the database Mediearkivet using the search line "Gardasil OR hpv". The list of articles found were reduced following three exclusion criteria (Bohlin & Höst, 2014): 1) the article was an identical copy of another article, 2) the article comprised less than 35 words, 3) the story of the article was unrelated to hpv vaccine as a vaccine to prevent cervix cancer. The database search retrieved 71 articles, of which 40 articles remained after the refinement process.

## 4 Results

The distribution of the 40 articles over the 24 months is shown in figure 1. There is a peak in the reports concerning HPV and the vaccine Gardasil in the autumn of 2015. This may be explained by the fact that in July 2015 it was decided that European Medical Agency (EMA) should investigate the suspected connection between Gardasil and the side effects POTS (Postural Orthostatic Tachycardia Syndrome) and CRPS (Complex Regional Pain Syndrome). In November 2015 EMA (2015) released the report that concluded that there is no evidence to support a connection. In media, these two occasions are reflected in the peaks of the third and fourth quarter of 2015.



**Figure 1:** Distribution of articles (n=40) over 24 months

From the 40 investigated articles, 90 different statements were extracted. The statements were sentences, or parts of sentences, that contained information about HPV, the vaccine, or related issues. The categorisation of the statements resulted in seven qualitatively different categories. The categories were *facts*, *scientific knowledge*, *medical knowledge*, *risks*, *worry and alarm*, *economy and individual versus society*. The categories and a short description of each category are presented in Table 1. Each article could contain several statements and hence end up in more than one category.

**Table 1:** Categories, number of statements and descriptions of each category.

Category	Description
Facts n=13	Statements that build on facts. For example, number of vaccinations made, rules for vaccinations, or number of reported side effects.
Scientific knowledge n=7	Statements that demand some kind of understanding of scientific knowledge and how it is produced. For instance, what is possible to describe, causal correlations and possible lack of scientific evidence.
Medical knowledge n=27	Statements concerning scientific medical information. For example, which vaccines that target a specific disease or which side effects that have been reported.
Risks n=15	Statements about risk. Risk can be mentioned explicitly or implicit as when pros and cons are elaborated upon. Here are also statements that mention security and that more investigations are

	needed included.
Worry and alarm n=21	Statements including peoples' worry and alarm.
Economy n=6	Statements concerning economical aspects of vaccinations.
Individual versus society n=1	Statements where the individual's respective society's best interests are weighed against each other.

#### 4 Discussion and conclusion

The results illustrate the great variety of statements in the newspapers connected to the HPV vaccination. Statements including medical knowledge and worry and alarm are the two most common in the news articles. However, these two categories are fundamentally different; the statements including medical knowledge are often strict with references to authorities, such as doctors and researchers, while the worry and alarm statements are build by mainly emotional arguments that become a part of how media presents a problem. On the one hand, this way of using emotional argument can be seen as irrelevant to scientific problems. On the other hand, emotional arguments can broaden the perspectives when discussing the subject. In addition, the worries and alarms are interesting from an educational perspective, since these can be critically analysed and discussed in science education, which have been asked for by many scholars (e.g. Christensen, 2009; Kolstø, 2006).

The risk category, containing 15 statements, can be related to Beck's (1992) risk society, where he states that individuals have to assess risks in their everyday life. Several of the analysed articles emphasise the importance of more research about the vaccination.

Concerning the HPV vaccination and possible side effects caused by it, the newspapers mainly describe that there is a lack of scientific evidence if the vaccination can cause any side effects or not. The risk estimation will from this perspective be hard, especially for a layperson. In summary, our analysis demonstrates the richness of different viewpoints that are reported in media regarding HPV vaccination. The results illustrate how different viewpoints and arguments, which not always are explicit in school textbooks, can be discovered in newspapers. This diversity gives possibilities to use newspapers as one source in science education.

We believe that our methodology and results can be used in two different ways. Firstly, they can be used in further research to categorize and analyse different kind of texts related to risks and uncertain knowledge. We do not claim that our seven categories will be the only possible and cover all kind of texts. However, it will be a guide for this kind of content analysis within science education. Secondly, they can contribute as material for discussions about risks and uncertainty. Newspaper articles can be a good introduction to SSI since our results demonstrate the width of content and claims connected to risks, such as economical, scientific and societal concerns. In this way, students can use our categorization to analyse the content in own found articles. This would meet the demand from Jarman & McClune (2010) and Norris et al. (2003), asking for media literacy among students.

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