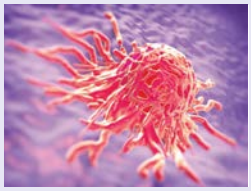
What has been the Impact of the HPV Vaccine in the Fight against Cervical Cancer?



In the United Kingdom, 3,000 new cases of cervical cancer are reported annually, making it the twelfth most common cancer for women[1]. If caught early, it can typically be treated and cured with radiotherapy, surgery or a combination of the two. However, if detected in the later stages chances of survival become poor, with only around a 5% survival rate after five years for stage 4 patients.

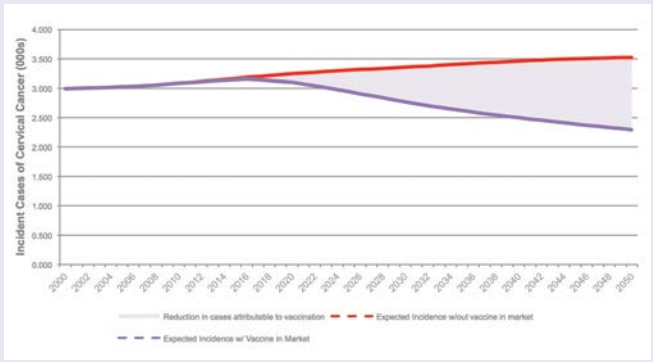
Unlike other cancer tumour types, a vaccine is now available to prevent the development of cervical cancer, so creating the potential to notably impact the number of new cases that develop in the future. The Human Papilloma Virus (HPV) vaccination for the prevention of cervical cancer has been offered as a routine vaccination in the United Kingdom since 2008, typically for all girls aged 12 to 13.

The introduction of bivalent Cervarix (GlaxoSmithKline) protected against HPV types 16 and 18. This eventually changed to quadrivalent Gardasil (Merck) because of the additional benefit of protecting against HPV types 6 and 11. In 2013/14, Northern Ireland saw the greatest uptake in the United Kingdom and Wales the least, with an average of 91% across the country receiving at least one dose.[2]

Impact in the UK

The predicted impact of the introduction of the HPV vaccine to the cervical cancer population in the United Kingdom is displayed in the Figure 1. This is achieved through comparing this data to further predictions made of the incidence level for those women without the vaccine in market. Due to the largest cohort of cervical cancer patients being women between the ages of 25-40, it is expected that there will be an anticipated decline in cases over the next 15 years when the girls who received the vaccine, enter this age bracket.

Figure 1. Expected impact in cervical cancer incidence due to HPV immunisation (UK)



Source: Epiomic Database

There is a clear correlation between decreasing incidence of Cervical Cancer patients and the HPV vaccination, which could look to increase even further if the change to Gardasil-9 is also taken into consideration.

Variation in Markets

Although the majority of developed markets have added HPV vaccination to the national schedule, the impact must not be presumed to be synonymous with the United Kingdom. This is due to the vast difference in the practices and polices countries adopt when administering a vaccine. In Europe alone there is significant variation from country to country and so by extension significant difference in uptake and impact of a vaccine programme. Factors such as whether a recipient is expected to cover the cost of the vaccine themselves can greatly affects the success of its overall uptake, particularly impacting the coverage of the varying level of lower socioeconomic groups in each country.[3]

Perhaps the variable with the potential to have the most substantial influence on uptake is the method of which each government chooses to administer the vaccine. Across the majority of Europe a"given on-demand" method has been given preference. In comparison, the United Kingdom has chosen to set up a systematic school based programme which has resulted in a significantly higher coverage of the target population, thereby increasing the chances of a greater impact to its cervical cancer population.

The disparity in the uptake of the HPV vaccine continues further when also considering cases outside of Europe such as Japan. The decision in 2013 by the Japanese government to suspend its recommendation of the vaccine over health concerns has consequently resulted in a sudden drop in the number of girls in Japan receiving immunisation. The result being a prediction that the number of cases of cervical cancer will once again begin to increase as the impact of adverse public opinion and no government support becomes apparent.

Lessons Learned

When analysing a disease area like cervical cancer, it is important to take in consideration the differences in market conditions and not assume that the trend of a vaccination program will yield the same results.

The impact of the HPV vaccine has been very dependent on a number of factors, with political will and administration policy in particular having the potential to wield significant influence over the vaccine's uptake. Impact thereby cannot be generalised, for the success of vaccination programmes are extremely localised.

1 Cancer Research UK, http://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/cervical-cancer#heading-Zero, Accessed January 2017

2 Public Health England. Human Papillomavirus (HPV) Vaccine Coverage in England, 2008/09 to 2013/14. A review of the full six years of the three-dose schedule. 2015:1-39

3 http://www.ecca.info/fileadmin/user_upload/HPV_Vaccination/ECCA_HPV_Vaccination_April_2009.pdf (accessed 12/01/17)

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