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研究課題名（和文）Attitudes Towards and Acceptance of HPV Vaccine in Japanese Mothers of Adolescents living in the UK and Australia

研究課題名（英文）Attitudes towards and acceptance of HPV vaccine in Japanese mothers of adolescents living in the UK and Australia

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研究成果の概要（和文）：本研究の目的はHPVワクチンの接種率が高い英国とオーストラリアに住む思春期の娘を持つ日本人の保護者のHPVワクチンに対する受入れの検討及びHPVワクチン接種の「積極的勧奨の中止」により子宮頸がんの超過的な罹患数及び超過死亡数の定量化である。父親ではなく母親のワクチンへの安全性への考えや思いが接種の決定要因であることが明らかになった。また「積極的勧奨の中止」によりこれからの50年間で55,800～63,700人が超過罹患し、9,300～10,800人が超過死亡すると推定された。しかし、「積極的勧奨」の再開などの諸政策を実施すれば超過死亡の80%の命を救うこともできると推定される。

研究成果の学術的意義や社会的意義

The results suggest interventions focusing on mothers are important to help increase HPV vaccine confidence and acceptability. The impact analysis shows that swift restoration of coverage, including catch-up vaccination, could mitigate most of the damage caused by suspension of recommendations.

研究成果の概要（英文）：HPV vaccine confidence decreased in Japan after unfounded reports on vaccine safety appeared in the media. This study aimed to evaluate HPV vaccine acceptance in Japanese parents of adolescent girls living in the UK and Australia. A secondary aim was to quantify the impact of suspension of proactive recommendations for the HPV vaccine in Japan to date. The most important factor for deciding whether to vaccinate a daughter against HPV was the opinion of the mother, regardless of whether the father had a bio/medical background or not. Regarding the impact of suspension of proactive recommendations for the HPV vaccine, we found around 55,800-63,700 preventable cases and 9,300-10,800 preventable deaths from cervical cancer will occur over the next 50 years compared to if uptake has remained high. However, swift recovery of uptake in 2020 resulting in 70% coverage for 12yr old girls and 50% uptake in catch-up cohorts aged 13-20yrs with HPV9 could prevent around 80% of these deaths.

研究分野：Cancer epidemiology, public health

キーワード：HPV vaccine vaccine hesitancy cervical cancer Policy1-Cervix model impact analysis

様式 C - 19、F - 19 - 1、Z - 19、CK - 19 (共通)

1. 研究開始当初の背景

While there is robust evidence to suggest HPV vaccines are safe and effective, conveying the immense depth of scientific knowledge that supports the remarkable safety, efficacy and effectiveness of the HPV vaccines can be difficult. This is particularly the case in this age of social media, alternative facts and fake news, where unscientific, anti-vaccination claims travel quickly and can no longer be ignored. Events in Japan, Columbia, Denmark and Ireland have illustrated the vulnerability of HPV vaccine uptake to perceptions of risk.

2. 研究の目的

Study Aim (1): To investigate whether Japanese parents of adolescents living in the UK and Australia are vaccinating their children against HPV and to what extent the situation in Japan influenced their decision.

Study Aim (2): Funding for human papillomavirus (HPV) vaccination in Japan began in 2010 for girls aged 12–16 years, with three-dose coverage initially reaching more than 70%. On June 14, 2013, 2 months after formal inclusion in Japan's national immunisation programme, proactive recommendations for the HPV vaccine were suspended following reports of adverse events since found to be unrelated to vaccination, but which were extensively covered in the media. Vaccine coverage subsequently dropped to less than 1% and has remained this low to date. We aimed to quantify the impact of this vaccine hesitancy crisis, and the potential health gains if coverage can be restored.

3. 研究の方法

Methods (1) Due to the sensitivity of the subject, it was difficult to obtain cooperation for the project from international schools in the UK and Australia. Instead e-mail exchanges took place with five sets of parents, two in the UK, two in Australia and one who had just returned from the UK to Japan.

Methods (2)

The Policy1-Cervix modelling platform was used and adapted for Japan using data on HPV prevalence, screening practices and coverage, and cervical cancer incidence and mortality. We evaluated the expected number of cervical cancer cases and deaths over the lifetime of cohorts born from 1994 to 2007 in the context of the vaccine hesitancy crisis. We assessed a range of recovery scenarios from 2020 onwards, including a scenario in which routine coverage is restored to 70%, with 50% catch-up coverage for the missed cohorts (aged 13–20 years in 2020). To estimate the impact of the vaccine crisis to date, we also modelled a counterfactual scenario in which 70% coverage had been maintained in 12-year-olds from 2013 onwards.

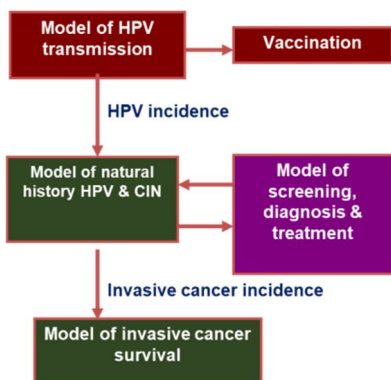


Figure 1. Policy 1-Cervix Model

4. 研究成果

Result (1): The deciding factor for HPV vaccination in all cases was whether the mother thought the vaccine was safe or not, regardless of the father's medical background or opinion. The results are significant as they show interventions focusing on mothers of adolescent girls are important to help increase HPV vaccine confidence and acceptability.

Table 1. Parental characteristics and child's HPV vaccine immunization status

Parent Group	Nationality	Residence	Medical Background	HPV Vaccine Acceptance	Child vaccinated
1. Mother	Japanese	Australia	Yes	Yes	Yes
1. Father	Australian	Australia	No	Yes	
2. Mother	Japanese	Australia	No	Yes	Yes
2. Father	Japanese	Australia	Yes	No	
3. Mother	Japanese	UK	No	No	No
3. Father	British	UK	No	Yes	
4. Mother	Japanese	UK	Yes	No	No
4. Father	Japanese	UK	Yes	No	
5. Mother	Japanese	Japan	No	No	No
5. Father	British	Japan	Yes	Yes	

Result (2): The vaccine crisis from 2013 to 2019 is predicted to result in an additional 24 600–27 300 cases and 5000–5700 deaths over the lifetime of cohorts born between 1994 and 2007, compared with if coverage had remained at around 70% since 2013. However, restoration of coverage in 2020, including catch-up vaccination for missed cohorts, could prevent 14 800–16 200 of these cases and 3000–3400 of these deaths. If coverage is not restored in 2020, an additional 3400–3800 cases and 700–800 deaths will occur over the lifetime of individuals who are 12 years old in 2020 alone. If the crisis continues, 9300–10 800 preventable deaths due to cervical cancer will occur in the next 50 years (2020–69). In conclusion, the HPV vaccine crisis to date is estimated to result in around 5000 deaths from cervical cancer in Japan. Many of these deaths could still be prevented if vaccination coverage with extended catch-up can be rapidly restored.

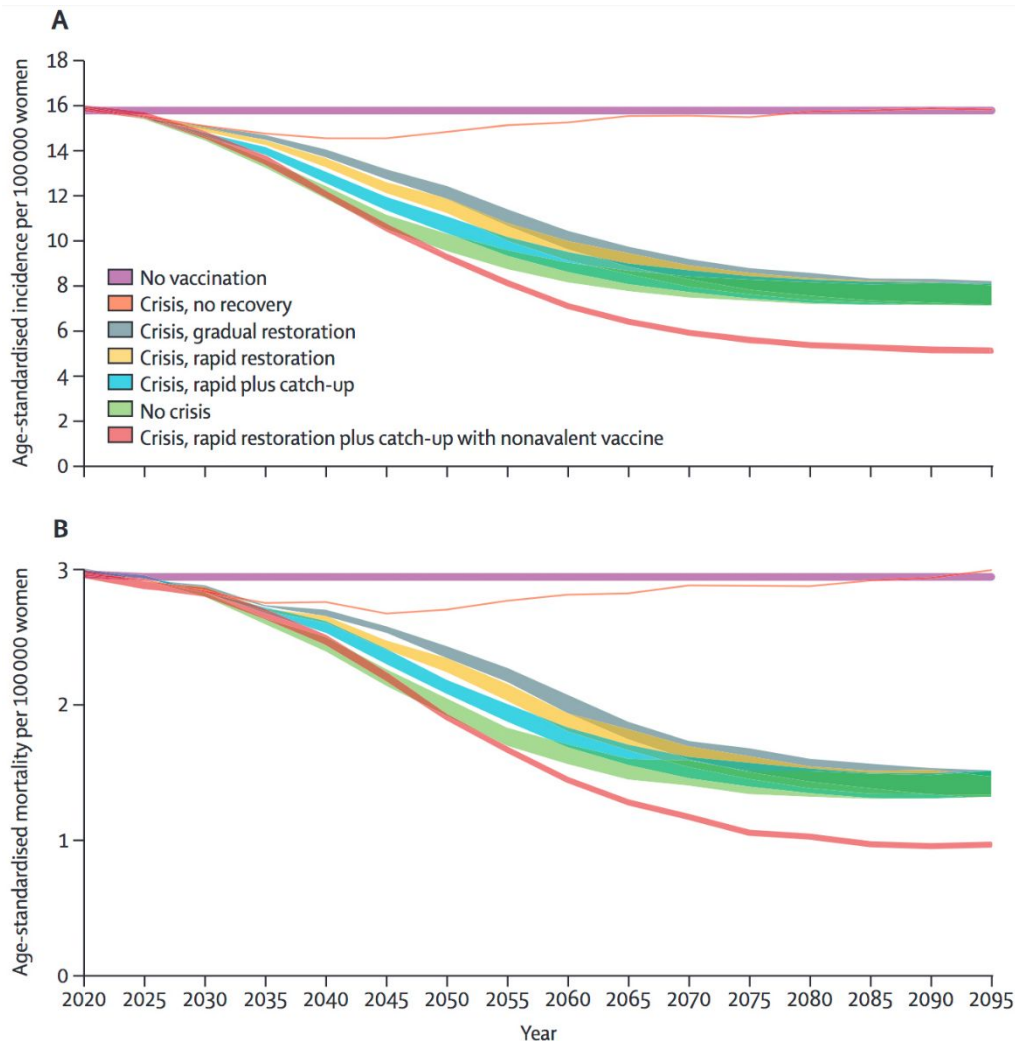


Figure 1 Impact of the vaccine crisis and potential recovery scenarios from 2020 to 2095 on age-standardised cervical cancer incidence (A) and cervical cancer mortality (B).

5 . 主な発表論文等

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6 . 研究組織

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