Title: Grassroots HPV Vaccine Education in Phnom Penh, Cambodia: A personal reflection

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How much do the Cambodian school girls and teachers know about HPV and the vaccine? A Japanese medical student, who then fell in love with the country and the loveliness of the people there, embarked on a field study to evaluate the circumstances, and at the same time, conducted awareness classes about HPV and HPV vaccine for the school-aged girls.

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ABSTRACT.

In March 2023, I embarked on a field study in Phnom Penh, Cambodia's capital, with the goal of conducting awareness classes about HPV and HPV vaccine for the school girls, while simultaneously evaluating the girls' and teachers' understanding of the issue. This endeavor was driven from my current research interest in Japan and also the right time the Cambodian government was planning to introduce a routined school-based vaccination program from mid-2023.

I visited two primary schools, and concerningly, more than half of the teachers had never heard of HPV or HPV vaccine. Furthermore, the students demonstrated limited knowledge of HPV or the vaccine to the extent that they struggled to comprehend the questionnaire. However, after I delivered a 15-minute lecture about HPV and the vaccine, it was encouraging to note an increase in the number of students expressing an intention to get vaccinated.

It became clear that until now, health education, including sexual health, has not been sufficiently implemented in primary schools, and thus, knowledge about HPV has not been provided by teachers sufficiently. Therefore, expanding this type of educational intervention to deliver reliable information is necessary, prioritizing teachers and parents as targets, since the intention of teachers and parents is considered to have a significant influence on the vaccination of children. A world free of cervical cancer can only be achieved through continuous education and awareness initiatives especially at the grassroots level, such as I practiced in Cambodia, to facilitate informed decision-making.

Key Words: Cambodia; HPV Vaccine; Medical Student; Public Health

THE EXPERIENCE

In March 2023, I embarked on a field study in Phnom Penh, Cambodia's capital. The study's primary objective was to enhance awareness about the HPV vaccine among school-aged girls and to assess how this awareness affects their willingness to be vaccinated. This initiative was especially pertinent given the Cambodian government's plan to introduce a school-based vaccination program targeting nine-year-old girls within the year's end, which indeed started from October 2023.[1] However, my interactions with a local pediatrician in Cambodia highlighted a significant gap in public awareness of the HPV vaccine. Indeed, a pilot vaccination program was trialed in primary schools in two provinces in 2017; a recent study indicates that a substantial number of girls, 61% and 72%, respectively, in the two surveyed provinces, were unaware of the health implications associated with HPV infections.[2] These figures underscore a serious knowledge gap in the crucial role the HPV vaccine plays in preventing HPV infection and its related health complications.

The situation in Cambodia mirrors my experiences in Japan, where the HPV vaccine has recently become more accessible after a hiatus in government endorsement from 2013 to 2022.[3] I myself finally got a catch-up vaccination at the age of 21 in 2022. As there were suspected serious reports of adverse events following HPV vaccination in Japan in 2013, when I was at the target age of routine vaccination, the whole country including me, was in distrust of the vaccine. I have strongly wished I had been informed of HPV vaccine with reliable information early on in my decision to get vaccinated. Since then, I have been engaged in research and awareness efforts regarding the HPV vaccine issue in Japan.[3-7] Therefore, in Cambodia, I felt a sense of the need to address this issue considering my own experience.

For the field study, I coordinated with a local pediatrician to schedule meetings with primary school principals, whose school he routinely visits to deliver health promotion classes, aiming to conduct awareness classes for the school girls, while simultaneously evaluating the girls' and teachers' understanding of the HPV vaccine. I visited two primary schools for my study: Koh Dach Primary School (KDPS) and Childrens' Basic Education School of Salvation Centre Cambodia (SCC-CBE School), based on our connections and their accessibility. The former is a public school on Silk Island, a 10-minute-ferry-ride from central Phnom Penh, and the latter is a small English-teaching private school. First, I disseminated a questionnaire in the Khmer language, referring to the pilot study,[2] among the teachers to gauge their knowledge of the HPV vaccine and their willingness to recommend it to students. I also assembled the school girls in a classroom, distributing a similar questionnaire to assess their understanding and potential acceptance of the HPV vaccine. (Fig 1, 2) Written informed consent was obtained before the survey. Overall, 7 teachers and 43 girls (age 10-14) at KDPS, and 3 teachers and 2 girls (age 10-16) at SCC-CBE School participated in the study. The results revealed a concerning fact: more

than half of the teachers had never heard of HPV or HPV vaccine. Furthermore, the students demonstrated limited knowledge of HPV or the vaccine to the extent that they struggled to comprehend the questionnaire. While our results corroborate the findings of a previous report regarding specific knowledge gaps,[2] they also extend the understanding of this issue by revealing even the low awareness levels prevalent among both teachers and students, highlighting the unique contributions of this initiative.

Of note, the ultimate decision regarding whether to get vaccination should be left to the individual. Educating Cambodian girls about the HPV vaccine and elevating their understanding can facilitate positive health decisions based on comprehensive and well-informed grounds.[8] Therefore, subsequently, I delivered a 15-minute lecture to the girls, employing a handwritten poster in the Khmer language (Fig 3). The presentation delineated four key points: firstly, HPV is a virus causing a myriad of cancers; secondly, cervical cancer is estimated to be the second most common cancer among Cambodian women;[9] thirdly, there exists an approved and effective vaccine to prevent HPV infection; and lastly, this vaccine is to be introduced in schools by mid-2023. Post-lecture, the students completed another questionnaire, enabling me to examine shifts in their understanding and intentions to get vaccinated. Though the questionnaire responses indicated that only a few students gained a comprehensive understanding of HPV and its vaccine, it was encouraging to note an increase in the number of students expressing an intention to get vaccinated.

While the government decided to introduce routine vaccination by the end of the year and subsequently started the program in October 2023,[1] it became clear that until now, health education, including sexual health, has not been sufficiently implemented in primary schools,[10] and thus, knowledge about HPV has not been provided by teachers sufficiently. Particularly, female sexuality is considered taboo due to conservative Khmer values.[11] Moreover, considering the difficulty of children of the target age group to properly understand the issue, as seen by the result of the post-lecture questionnaire, the intention of teachers and parents is considered to have a significant influence on the vaccination of children. In a previous awareness research conducted in Phnom Penh, only 1% of the teachers correctly answered HPV as the cause of cervical cancer.[12] In contrast, though more than around half of the teachers were unaware of the issue, since this questionnaire was asked an open-ended question, asking “Do you know HPV?”, the result might have been underestimated, meaning not many teachers understand sufficiently about HPV and the relationship with cervical cancer. Therefore, expanding this type of educational intervention to deliver reliable information is necessary, prioritizing teachers and parents as targets.

In fact, it has been reported that teachers with higher levels of knowledge tend to be more willing to recommend vaccinations to their students.[13] On the other hand, though I did not have the opportunity to

approach the parents this time, as indicated by the fact that when pilot vaccination was administered, more than half of the girls in the two provinces (54% and 64%, respectively) consulted with their parents about the vaccination,[2] providing parents with reliable information about the vaccine would be of good significance.

Through this experience, I have learned the significance of considering the targets' cultural contexts and cognitive habits when striving to raise awareness, and this would also be the case in Japan. A world free of cervical cancer can only be achieved through continuous education and awareness initiatives especially at the grassroots level, facilitating informed decision-making.

I would never forget the loveliness of the children I met in Cambodia (Fig 4, 5). Childrens' big smiles are a treasure for me and the world, and I will never stop my endeavors.

SUMMARY - ACCELERATING TRANSLATION

カンボジアの首都プノンペンにおける草の根 HPV ワクチン啓発： 情報に基づいた意思決定に向けて

2023 年 3 月、私はカンボジアの首都プノンペンで、女子生徒を対象に HPV と HPV ワクチンに関する啓発授業を実施し、同時に女子生徒と教師の HPV ワクチンに関する認知度や接種意向を評価することを目的とした現地調査に赴いた。これは私自身が HPV ワクチンキャッチアップ接種世代の当事者であることから現在日本で HPV ワクチンに関する研究や発信を行っていることに加え、カンボジア政府が 2023 年半ばから小学校における HPV ワクチンの定期接種化を計画していたため、啓発には絶好のタイミングでもあると考えたからだ。

私は 2 つの小学校を訪問したが、懸念すべきことに、半数以上の教師が HPV や HPV ワクチンについて聞いたことがなかったようだった。さらに、生徒たちは HPV やワクチンについての知識が乏しく、アンケート内容を理解するのに苦労していたほどであった。そのワクチンの存在を知らない以上、接種意向についてもほとんどの人が有していなかった。一方で私が HPV や HPV ワクチンについて 15 分間の授業を行った後、同様に行った調査ではワクチン接種の意向を示す生徒が増えたのは心強い事実であった。

今回の結果から、カンボジアでの小学校ではセクシュアル・ヘルスを含む健康教育が十分に実施されてこなかったため、HPV やそのワクチンに関する知識が学校教育で十分に提供されてこなかったことが明らかになった。したがって、信頼できる HPV ワクチンに関する情報を提供するためにこのような教育的介入を拡大することが必要であり、教師や保護者の意向が子どものワクチン接種に大きな影響を与えると考えられるこ

とから、彼らを優先的にターゲットとする必要があると考えられた。子宮頸がんのない世界は、私がカンボジアで実践したような草の根レベルでの継続的な教育と啓発活動により十分な情報に基づいた意思決定を促進することで初めて達成できる。私はカンボジアで出会った子供たちの笑顔が忘れられず、これからも世界中で子供たちの笑顔を守るためにもこのような挑戦を続けていきたいと強く願う。

REFERENCES.

1. World Health Organization. Life-saving HPV vaccine introduced nationwide into routine immunization schedule to prevent cervical cancer in Cambodia 2023 [Available from: https://www.who.int/cambodia/news/detail/06-10-2023-life-saving-hpv-vaccine-introduced-nationwide-into-routine-immunization-schedule-to-prevent-cervical-cancer-in-cambodia

2. Garon J, Wuddhika IV, Sreenivasan N, Wannemuehler K, Vutthikol Y, Chhorvann C, et al. Community-based household assessment of human papillomavirus (HPV) vaccination coverage and acceptability - HPV vaccine demonstration program, Cambodia - 2017. Vaccine. 2019;37(9):1202-8.

3. Namba M, Kaneda Y, Kawasaki C, Shrestha R, Tanimoto T. Underlying background of the current trend of increasing HPV vaccination coverage in Japan. Glob Health Med. 2023;5(4):255-6.

4. Namba M, Kaneda Y, Kotera Y. Breaking down the stigma: Reviving the HPV vaccination trust in Japan. Qjm. 2023.

5. Kaneda Y, Namba M, Gyeltshen T. A call for bridging gender gap in HPV vaccination policies in Japan. Health Science Reports. 2023;6(7):e1421.

6. Kaneda Y, Namba M. Potential Risk of Overlooking Biased Reporting of Vaccination against Novel Coronavirus Disease 2019: Lessons from Japan's Experience with the Human Papillomavirus Vaccine. JMA journal. 2023.

7. Namba M, Kaneda Y, Iida M. Stagnation or safety? Reassessment of the human papillomavirus vaccination dosing regimen in Japan. Therapeutic Advances in Vaccine and Immunotherapy, 2023.[in press]

8. Rani U, Darabaner E, Seserman M, Bednarczyk RA, Shaw J. Public Education Interventions and Uptake of Human Papillomavirus Vaccine: A Systematic Review. Journal of Public Health Management and Practice. 2022;28(1).

9. World Health Organization. Cambodia 2021 [Available from: https://gco.iarc.fr/today/data/factsheets/populations/116-cambodia-fact-sheets.pdf.

10. Voice of America. Education Ministry to Incorporate Mental Health, Sex Education into Curriculum 2020 [Available from: https://www.voacambodia.com/a/education-ministry-to-incorporate-mental-health-sex-education-into-curriculum-/5638955.html#:~:text=The%20Ministry%20of%20Education%20said%20it%20will%20roll,and%20more%20comprehensive%20than%20the%20existing%20biology%20class.

11. Lopez JR, Mukaire PE, Mataya RH. Characteristics of youth sexual and reproductive health and risky behaviors in two rural provinces of Cambodia. Reprod Health. 2015;12:83.

12. Soeung SC, Komagata T, Darapheack C, Kikuchi S, Obara H, Haruyama R, et al. Knowledge and practice for cervical cancer among female primary school teachers in Phnom Penh, Cambodia: A cross-sectional phone-based survey. GHM Open. 2022;2(1):25-30.

13. Masika MM, Ogembo JG, Chabeda SV, Wamai RG, Mugo N. Knowledge on HPV Vaccine and Cervical Cancer Facilitates Vaccine Acceptability among School Teachers in Kitui County, Kenya. PLOS ONE. 2015;10(8):e0135563.

1 **FIGURES AND TABLES.**

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3 **Figure 1.** Students Answering a Questionnaire in Koh Dach Primary School

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Figure 2. Students Answering a Questionnaire in Childrens' Basic Education School of Salvation Centre Cambodia

Figure 3. Handwritten Poster Employed in the Lecture in the Khmer language

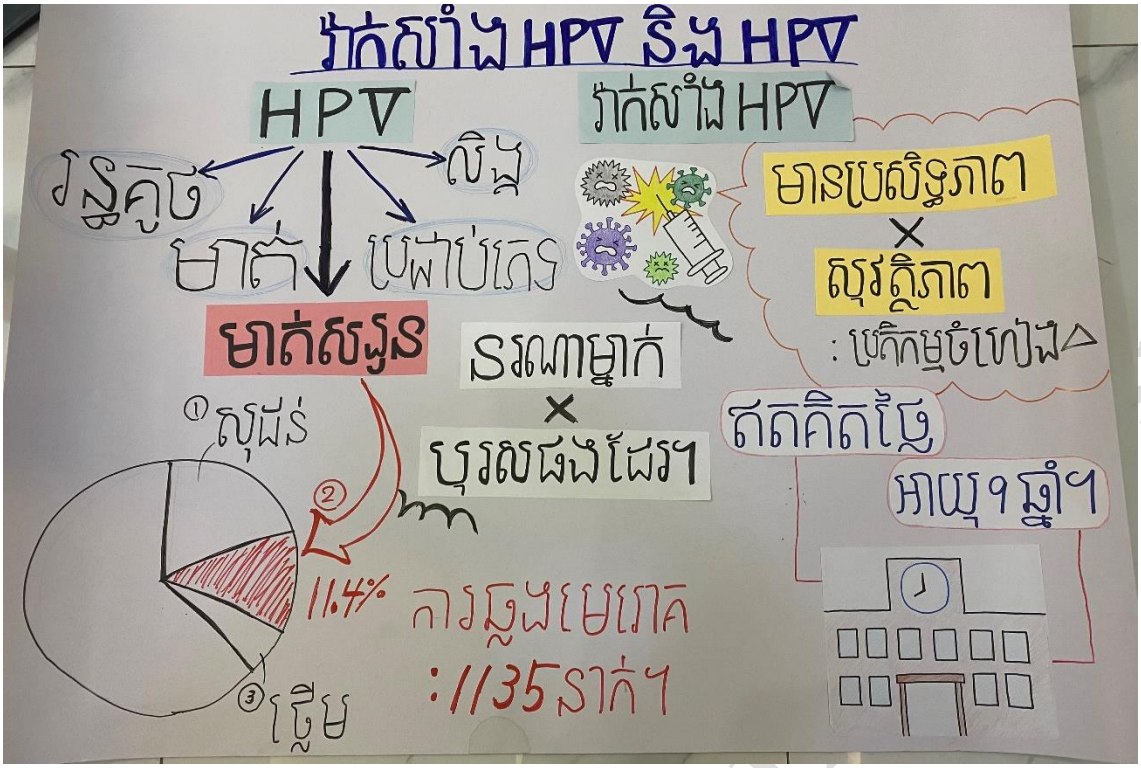

Figure 4. Cambodian Childrens' Big Smiles

Figure 5. Students Altogether in a Classroom Including Me