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Short Communication

Enhancing Vaccination Coverage: A Critical Analysis of the Case of Lebanon

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Introduction

Vaccination has emerged as an indispensable tool in the realm of public health, effectively mimicking the interaction between pathogens and the immune system. This prophylactic intervention has resulted in a substantial decline in the incidence of vaccine-preventable diseases, yielding remarkable achievements across the globe. The impact of vaccines on diseases such as smallpox, diphtheria, polio, measles, Haemophilus Influenzae Type b (Hib), and pneumococcal infections is testament to their efficacy in safeguarding public health.

Historical Success Stories

1) Smallpox Eradication: The mandatory smallpox vaccination in Britain and select U.S. states during the 1840s and 1850s culminated in the global eradication of smallpox in 1980.

2) Diphtheria: At the dawn of the 20th century, there were 1 million annual global cases of diphtheria, with 50,000-60,000 deaths. The vaccine reduced cases by over 90% [1].

3) Polio: The pioneering work of Jonas Salk and Albert Sabin led to the near-eradication of polio, curbing widespread outbreaks that plagued the U.S. and Western Europe in the mid-20th century [1].

4) Measles: The introduction of the measles vaccine resulted in a dramatic reduction in global deaths, from over 2 million annually to approximately 100,000 [2].

5) Hib: The Hib vaccine, introduced in developed nations during the 1990s, significantly decreased Hib-related illnesses such as pneumonia and meningitis [1].

6) Pneumococcal Vaccine: Introduced in the U.S. in 2000, it reduced the risk of invasive pneumococcal infections in both-vaccinated and unvaccinated individuals [3].

Persisting Challenges

Despite the undeniable successes in the history of vaccination, challenges persist, particularly in achieving optimal vaccination coverage. An illustrative example emerges from Lebanon, where a notable surge in communicable diseases, including measles and mumps, has been observed in the last decades. Lebanon grappled with two significant measles outbreaks during 2013-2014 and 2018-2019, along with a mumps outbreak in 2014-2015 [4]. A thorough examination of these outbreaks underscores the predominant role of inadequate vaccination among children as a driving factor. Unfortunately, the vital lessons drawn from these outbreaks have not been effectively incorporated into policy and practice. Substantiating this assertion is the observable decline in the administration of vaccination doses within the public sector, with a substantial 20% reduction documented between February and April 2020. Notably, this decline was most pronounced for the Oral Polio Vaccine (OPV) and measles vaccines, with the sharpest declines observed between October 2019 and March 2020 [5]. Furthermore, an additional study conducted in 2019 to assess vaccination coverage among Lebanese residents reveals the persistence of suboptimal vaccination rates. Irrespective of nationality, the data underscores that national-level vaccination coverage for the recommended final vaccine dose fell below the desired 95% threshold among surveyed children aged 12-59 months [6]. Several factors contribute to this phenomenon [6,7]:

1) Undereducation of Parents: A lack of awareness about the importance of vaccination.

2) Financial Barriers: Inability to afford vaccination fees.

3) Awareness Gap: Insufficient dissemination of information about vaccines.

4) Access Issues: Limited availability of vaccines.

5) Miscommunication: Communication breakdowns between healthcare providers and patients.

6) Fear of Side Effects: Concerns regarding vaccine side effects.

7) Immunity Misconception: The misconception that existing immunity is sufficient.

8) Misconceptions Regarding Vaccine Quality: Fears of expired or poorly stored vaccines, and unfounded beliefs that vaccination may trigger diseases like autism and diabetes.

Proposed Solutions

To ameliorate vaccination coverage and address these challenges, the following solutions are essential:

1) Vaccination Campaigns: Conduct targeted vaccination campaigns to raise awareness and enhance vaccine uptake. A study in Lebanon demonstrated a substantial increase in fully updated vaccination calendars among children following a focused campaign [8].

2) Education: Develop comprehensive education programs to disseminate accurate information about vaccine safety and efficacy.

Conclusion

Vaccination has been an unparalleled success story in the field of public health, eradicating or significantly reducing the incidence of many deadly diseases. However, challenges persist, and the case of Lebanon serves as a stark reminder that under-vaccination can have dire consequences. To ensure the continued success of vaccination programs worldwide, proactive measures, such as vaccination campaigns and education initiatives, must be employed to enhance awareness and access to vaccines. These efforts will not only protect individuals but also contribute to the well-being of entire communities and populations.

Acknowledgments

None.

Conflicts of Interest

None.

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