

Original Article

Proposed Marketing Strategy for Dengue Vaccine (Qdenga) by PT. BF Product

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Received Date: 01 August 2024 Revised Date: 21 August 2024 Accepted Date: 24 August 2024 Published Date: 29 August 2024

Abstract: Indonesia, as a tropical country with a large population, faces significant challenges in controlling the spread of dengue fever transmitted by *Aedes aegypti* and *Aedes albopictus* mosquitoes. With the annual increase in cases and mortality rates due to dengue fever, preventive efforts are being made through the use of the dengue vaccine, Qdenga. Given that this vaccine has been recently launched, there is a need to raise public awareness and acceptance of vaccination. This study aims to propose an effective marketing strategy for PT. BF's Qdenga vaccine. Data were collected using a survey with 390 respondents. Data analysis was conducted using the STP (Segmentation, Targeting, Positioning) method, the marketing mix 4P (Product, Price, Place, Promotion), PESTLE analysis, and SWOT analysis integrated into the TOWS matrix to generate appropriate marketing strategy recommendations. Based on the analysis, 16.7% of respondents were unaware of the Qdenga vaccine, while the majority were aware of dengue fever; however, there remains a knowledge gap regarding the dengue vaccine. Additionally, 73.8% of respondents preferred to see promotions on social media, suggesting collaboration with healthcare professionals to enhance trust in the vaccine. Recommendations include collaborating with influencers and healthcare professionals to enhance health promotion, creating engaging social media content, and partnering with the government to incorporate the vaccine into government programs.

Keywords: Marketing Strategy, Dengue Fever, Qdenga Vaccine.

I. INTRODUCTION

Dengue fever, a serious public health problem in tropical and subtropical countries, is the world's most quickly growing mosquito-borne viral illness, with a 30-fold rise in infected cases over the previous five decades. Dengue fever is a disease transmitted by *Aedes* mosquitoes, namely *Aedes Aegypti* and *Aedes albopictus*. Dengue is caused by the dengue virus (DENV), which has four serotypes (DENV-1, DENV-2, DENV-3, and DENV-4) (Suwantika et al., 2020). According to WHO, around 20,000 deaths occur worldwide due to dengue fever, and 3.8 billion people in 128 countries are at risk of dengue infection (Hossain et al., 2021). Nearly half of the global population resides in nations where dengue fever is prevalent. Specifically, approximately 75% of those worldwide who face the risk of dengue infection are situated in the Asia-Pacific area (Suwantika et al., 2020). In Indonesia, dengue cases can be found in almost all cities and districts. However, in general, the incidence of dengue is high in urban areas with high population density. In 2021, there were 73,518 cases with 705 deaths; in 2022, there were 131,265 cases with 1,183 deaths; in the period January to July 2023, there were 42,690 cases with 317 deaths. The data shows that there is an increase in dengue cases, with an increasing number of deaths from 2021 to 2022 (Supanji, 2023).

With the implementation of the Global Strategy for Dengue Prevention and Control 2012–2022, as well as A Road Map for Neglected Tropical Diseases (NTDs) 2021–2030, WHO is devoted to combating dengue. In the NTDs Roadmap 2012–2030, the target is to reduce dengue mortality from 0.80% (2020) to 0% in 2030. The three actions taken to achieve this target are developing vaccines as preventive measures for at-risk populations, increasing the effectiveness of evidence-based vector control strategies and collaborating with the environmental sector to reduce mosquito habitat (Kemenkes RI, 2022).

Currently, there is a prevention innovation using the dengue vaccine, the QDENGGA vaccine, which has a distribution licence from the Badan Pengawasan Obat dan Makanan (BPOM) in 2022. The age range and the amount of transmission have a significant impact on the efficacy of the vaccine. This vaccine indicates preventing dengue infection caused by all types of dengue viruses at the age of 6–45 years. The vaccine is administered by subcutaneous injection twice at 0 and 3 months and can be given without initial screening (Kemenkes RI, 2022). The importance of the Dengue vaccine lies in its ability to protect against the dengue virus, which can cause severe dengue fever and death. The dengue vaccine named Qdenga is the second dengue vaccine that has been approved by BPOM for distribution after Dengvaxia. Qdenga vaccine is a Live Attenuated Tetravalent Dengue Vaccine (TDV). In preventing dengue fever, the efficacy of this vaccine is 80.2%, and to prevent hospitalization due to dengue virus is 95.4%. Based on clinical studies, the Qdenga vaccine is safe for ages 6–45 years; for ages



under 6 years, the vaccine efficacy is lower than the 6-45 year age group, then for ages over 45 years, there is no efficacy data for that age group so it cannot be confirmed. The vaccine is given in 2 doses with a 3-month interval between doses (BPOM, 2022).

However, there are several challenges faced by the dengue vaccine in Indonesia, namely public acceptance of the vaccine itself. Although this vaccine is proven safe and effective, there are still many people who hesitate to vaccinate because of the many hoaxes circulating in the community. Another challenge is that dengue fever vaccination is still not included in the national immunization program in Indonesia. This vaccine can be obtained at several hospitals or clinics, but the government has not covered the vaccine in health insurance.

So, a strong marketing strategy is needed to increase brand awareness of the Qdenga vaccine. Effective marketing strategies significantly influence how companies employing strong marketing tactics can readily capture consumers' attention. In order to increase their sales, these companies consistently create innovative marketing plans to promote their products. A successful marketing strategy integrates product, price, distribution, and promotion tailored to a specific consumer segment. These strategies encompass extensive advertising, sales promotions, public relations, direct sales, personal selling, events, and experiences (Pandagre et al., 2021).

This study proposes a strategic marketing plan for PT BF to increase the uptake of the Qdenga vaccine in Indonesia. By surveying 390 respondents, the study aims to analyze the current situation regarding awareness and perception of the Qdenga vaccine and identify effective marketing strategies. The findings will guide the creation of targeted social media campaigns, educational initiatives, and outreach programs to increase Qdenga vaccine uptake.

II. LITERATURE REVIEW

A) Marketing Strategy

A strategy is a way to take advantage of possibilities as they come up and deal with problems in a proactive manner. A marketing strategy, according to Kotler (1997:75), is a reasoned plan that directs a business unit toward accomplishing its marketing goals. It acts as either an implicit or explicit statement of the strategies a brand or product line uses to achieve its objectives (Haslindah et al., 2021).

B) Marketing Mix "4P"

It is an essential part of a business's marketing plan that the business may manage and include to get the desired reaction from the marketplace (Kotler & Armstrong, 2018).

1. Product

A product is an object or service that is offered for sale in order to satisfy consumer expectations and is available for contemplation, purchase, use, or consumption. The products include things that are materials, services, individuals, places, businesses, and concepts (Kotler & Armstrong, 2018). A product is a worthwhile offering made by a marketing company to satisfy the requirements and preferences of the target market (Marc Lim, 2023).

2. Price

The sole element of the marketing mix that brings in money is the price that the client must pay to purchase the goods, as determined by the marketing organization (Marc Lim, 2023). Pricing has a big impact on consumer behavior; products at higher prices tend to sell fewer units, whereas goods priced below the market rate are expected to sell in larger quantities (Sadiq et al., 2020).

3. Place

A key element of the marketing mix is place. In order to guarantee that the good is accessible and available to the target market, the advertising organization's intermediates and distribution activities must be included. Location is a huge opportunity for marketing companies to create an edge in competition that is hard for rivals to copy (Marc Lim, 2023)

4. Promotion

Promotion is used to inform customers about the company's operations. It is an important factor that affects a marketing program's success (Yunus et al., 2020). It includes the tactics and tools that advertising companies use to inform, persuade, and recollect their intended consumers in order to entice them to try and purchase their goods. In the end, this boosts sales and awareness of the brand (Marc Lim, 2023).

C) Market Segmentation

One strategic marketing tactic used in the industry is STP (Segmentation, Targeting, and Positioning). STP makes it easier to analyze crucial tactics for each product in the market and helps determine how well a company's marketing efforts have to compete in the market and how well those efforts are aligned with the larger context of the market. According to the STP technique, various groups make up the larger market, all with somewhat similar traits but different needs and wants (Kalam, 2020).

1. Segmenting

Creating a customized marketing mix for each consumer in a subgroup according to their attributes is known as segmentation. A few factors to take into account are geography, demography, principles, opinions, advantages, and conduct. A company divides up its product line according to psychographic (interests, values, attitudes), geographic (country, state, region), demographic (age, gender, education), and behavioral (brand commitment, medium usage, buy intent) characteristics (Kalam, 2020).

2. Targeting

Businesses must balance their resources and talents against the allure of different segments in order to effectively target the right audience (Kalam, 2020).

3. Positioning

Positioning is a subtly effective tactic to create a perception in customers' thoughts. It comprises continuous design and marketing initiatives geared at molding a particular product to fit the intended requirements of the intended market (Kalam, 2020).

D) SWOT Analysis

An essential analytical technique for assessing a company's internal and external conditions is the SWOT analysis. It covers the company's prospects, challenges, vulnerabilities, and strengths. Outside forces cause opportunities and threats, whereas the company's internal components are its strengths and weaknesses. Reacting to competition from other businesses providing comparable products and services is where the SWOT analysis comes in. Businesses can understand where they stand in the market by analyzing their internal strengths and shortcomings. In contrast, businesses can identify market trends, policy changes, or industry breakthroughs that may have an impact on their performance by looking at external possibilities and dangers (Purnomo et al., 2024).

E) TOWS Matrix

The TOWS analysis approach is a strategic analysis technique that entails a methodical and thorough evaluation of the internal and external elements that impact an enterprise's growth potential and competitive standing. Weaknesses and strengths are internal elements; possibilities and dangers are external factors. The TOWS matrix offers four fundamental tactics. According to Kulshrestha (2017), four quadrants are formed, each with a distinct strategic situation:

- SO situation: This scenario pertains to circumstances where strengths dominate opportunities and the surrounding environment. It is feasible for this condition to have both diverse and robust development.
- WO situation: Although there are more flaws in this situation, there is also more potential given the surroundings. Utilizing those chances while minimizing or strengthening internal shortcomings should be part of the plan.
- ST situation: The source of difficulties in growth and development is unfavorable external conditions (threat dominance). Strategies should use major internal strengths to try to overcome threats from the environment.
- WT situation: There are no prospects for advancement in this situation. It has little chance of changing, and it functions in an unfriendly environment. It lacks strong points that make it resilient to attacks.

III. RESULTS AND DISCUSSION

A) Consumer Analysis

In this segment, we will analyze Consumer Analysis to look at customer insights, knowledge, and perceptions of the Qdenga vaccine. This was conducted by distributing a questionnaire over a period of more than two weeks, resulting in 390 respondents. The survey in this study was disseminated via E-mail, WhatsApp, X, and Instagram. The collected data provides comprehensive insights into consumer views and expectations, which will subsequently be used to inform more effective marketing strategies and product development.

a. Respondent Profile

This research consisted of 390 respondents aged 17-45 years, with the majority being in the 26-45 years age group, which is in line with the target decision of using the Qdenga vaccine. Most respondents worked in the public or private sector, earned more than IDR4,000,000, and had a bachelor's degree or equivalent educational background. Although most respondents were aware of the Qdenga vaccine, many had not been vaccinated.

b. Respondent's Knowledge of Dengue Fever

In general, healthcare practitioners are the main source of information about dengue fever, and their responses indicate a high level of understanding of the issue. They were knowledgeable about the dangers associated with dengue fever, such as its capacity to result in fatality, the main factors that contribute to dengue fever, and the significance of people's involvement in dealing with dengue fever.

c. Respondent's Knowledge of Dengue Vaccine

Respondents' knowledge of the dengue fever vaccination differs. Regarding the vaccine's ability to enhance immunity, 29% of respondents expressed disagreement, whereas 24.6% expressed agreement. Furthermore, the dengue fever vaccine does not have serious side effects 25.1% of respondents disagreed, and 23.1% agreed. Additionally, 26.7% disagreed on the necessity of the dengue vaccine as a preventive measure, while 25.1% agreed. Therefore, to reduce the understanding gap, further educational efforts are needed to inform the wider people about the benefits and side effects of the vaccine.

d. Social Media Behavior About Health Information

According to respondents' behavior on social media, 97.2% agreed that information on social media can increase health awareness, while 2.8% disagreed. Respondents indicated a preference for promotions via social media (73.8%) over direct promotions (26.2%). They primarily obtained information using platforms such as Instagram (31.8%), TikTok (28.5%), and YouTube (22.8%), with a preference for short video content (34.4%), live Q&A sessions (20%), followed by infographics (16.9%). Respondents also agreed that influencers play a role in their health decisions. However, 41.5% of respondents reported seeking information less than once a week. Therefore, collaboration with influencers to create engaging social media promotions is needed to increase respondent's interest in seeking health information.

e. Respondent's Attitude to Vaccine

According to the analysis of respondents' attitudes, most people are willing or intend to receive vaccination if health professionals or doctors suggest it and if a significant number of people have already been vaccinated. They also expressed willingness to vaccinate if they know that the benefits of the vaccine outweigh the risks. Furthermore, a significant majority of 60.8% of respondents expressed their willingness to receive vaccinations if they will/have children, while a notable 37.9% still remain uncertainty. This highlights the necessity for further information on the safety of vaccines and the importance of collaboration with healthcare professionals in health events to increase the trust of the participants.

B) STP Analysis

a. Segmentation

1. Demographic

- Age: Age group 6-45 years.
- Decision makers: Parents/guardians for children >18 years old.
- Income level: Middle to upper-income groups.

2. Geographic

- Region: Focus on high-incidence dengue areas such as West Java, East Java, and DKI Jakarta.

3. Psychographic

- Education Level: Higher education levels exhibit greater awareness and acceptance of health interventions.
- Health Consciousness: Refers to the extent to which individuals are aware of and care about their health.

4. Behavioral

- Health Information: Target individuals who actively seek health information on social media platforms.
- Readiness to Buy: Individuals are aware of dengue risks, and those who have previously experienced dengue or know someone who has.

b. Targeting

1. Primary target

- People 6-45 years: Recommended ages for the Qdenga vaccine for vaccine safety and efficacy.
- Parents of children: Primary decision-makers for health-related issues, especially for their children.
- Middle to upper-income people: Targeting individuals with higher levels of disposable income who possess the financial means to acquire the vaccine.

2. Secondary target

- Healthcare professionals: Doctors, nurses, midwives, and general practitioners.
- Educational Institutions: Schools and universities can facilitate vaccination campaigns and provide a controlled environment for mass vaccination efforts.
- Government: Government support and inclusion of Qdenga vaccines in national immunization programs.

3. Positioning

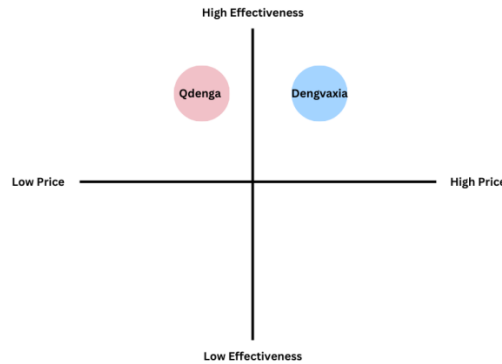


Fig. 1 Positioning Map

C) 4P Analysis

a. Product

Qdenga is a tetravalent vaccine for dengue that consists of live, weakened viruses. Each dose contains live attenuated dengue virus serotypes 1,2,3 and 4. 80% overall efficacy in preventing Virologically-confirmed Dengue (VCD) and 90.4% efficacy in preventing hospitalization due to VCD.

b. Price

The Qdenga vaccine has a price of IDR 735,000 per dose.

c. Place

Distribution and accessibility of the Qdenga vaccine are critical to reach a wide population. Distributed in hospitals and clinics, especially in higher dengue incidence rates; also, expanding the distribution to Primary Healthcare Centers (Puskesmas) can enhance accessibility to government, schools and universities.

d. Promotion

- Social media promotion
- Educational campaign
- Offline promotion
- Incentive programs

D) SWOT Analysis

a. Strengths

1. Vaccine Safety and Effectiveness (S1): The Qdenga vaccine has demonstrated an effectiveness rate of 80.2% in preventing virologically-confirmed dengue and 90.4% in preventing hospitalization due to dengue virus.
2. Regulatory Approval and Support (S2): The Qdenga vaccine has been approved by the Indonesian National Agency of Drug and Food Control (BPOM) for use in individuals aged 6-45 years (BPOM, 2022).
3. Convenient Administration (S3): The Qdenga vaccine requires only two doses, which are given three months apart.
4. Strong Company Reputation (S4): PT Bio Farma is a well-established state-owned enterprise with over 130 years of experience in vaccine production and distribution.

b. Weaknesses

1. High cost of Qdenga vaccine (W1): The Qdenga vaccine is priced at IDR 735,000 per dose. This high cost makes it unaffordable for a significant portion of the population, particularly those in lower-income.
2. Limited Promotion and Awareness (W2): PT. BF's promotion of the Qdenga vaccine has been limited, mainly focusing on corporations and related institutions, but it lacks a consistent and wide-reaching promotional campaign on social media platforms.
3. Not Included in National Immunization Program (W3): The exclusion of the vaccination from the national program also implies that it is less probable to be included in health insurance coverage.

c. Opportunities

1. Increasing Health Awareness (O1): There is a growing awareness and concern about health among the Indonesian population.
2. Government Support and Policy (O2): There is potential for the Qdenga vaccine to be incorporated into Indonesia's national immunization program. Government support and subsidies could significantly reduce costs to consumers and increase vaccination rates.
3. Market Potential (O3): The high incidence of dengue creates a large potential demand for effective preventive measures such as the Qdenga vaccine. The primary target age group for the Qdenga vaccine (6-45 years) aligns with

the demographics most affected by dengue, ensuring a large potential market (Kemenkes RI, 2022).

4. Collaboration with Influencers and Healthcare Professionals (O4): Collaboration between influencers and healthcare professionals can make respondents trust and create more engaging content to increase interest in vaccination.

d. Threats

1. Economic Barriers (T1): Economic disparities in Indonesia mean that a significant portion of the population may not have the disposable income to afford the vaccine, which can hinder widespread adoption and vaccination coverage.
2. Low Public Acceptance and Trust (T2): Public acceptance of the Qdenga vaccine was affected by hoaxes and misinformation (Leonardelli et al., 2023). Narratives on social media create fear and doubt among potential recipients. There is still a gap between respondents who agree and disagree regarding the dengue vaccine being a preventive measure to prevent exposure to dengue.
3. Cultural and Behavioral Barriers (T3): Cultural perceptions and traditional beliefs about vaccination can pose significant barriers. There is resistance to vaccination due to ingrained beliefs and practices that are difficult to change.

E) TOWS Matrix

After analyzing the strengths, weaknesses, opportunities, and threats identified through the SWOT analysis, the TOWS Matrix assists PT Bio Farma in developing integrated strategies aimed at enhancing the acceptance and distribution of the Qdenga vaccine, as well as addressing barriers that may hinder the effectiveness of vaccination campaigns.

Table. 1 TOWS Matrix

TOWS MATRIX	Strengths (S) 1. Vaccine Safety and Effectiveness (S1) 2. Regulatory Approval and Support (S2) 3. Convenient Administration (S3) 4. Strong Company Reputation (S4)	Weakness (W) 1. High cost of Qdenga vaccine (W1) 2. Limited promotion and awareness (W2) 3. Not included in National Immunization Program (W3)
Opportunity (O) 1. Increasing health awareness (O1) 2. Government support and policy (O2) 3. Market potential (O3) 4. Collaboration with influencers and healthcare professionals (O4) 5. Technological Advancement (O5)	1. Leverage High Efficacy and Safety with Increasing Health Awareness (S1, O1) 2. Utilize the company's reputation and government support to expand market reach (S4, O2, O3) 3. Enhance promotion through educational institutions and healthcare professionals (S1, O4) 3. Expand Digital Health Solutions and Telehealth Services (S3, O5)	1. Enhance Public Education and Address Misinformation through collaboration (W2, O1) 2. Increase affordability through government support and incorporating insurance coverage (W1, O2) 3. Collaborating with influencers and healthcare professionals to enhance promotion and awareness (W2, O4)
Threats (T) 1. Economic barriers (T1) 2. Low public acceptance and trust (T2) 3. Cultural and behavioral barriers (T3)	1. Utilizing the safety and efficacy of vaccines to overcome economic obstacles (S1, T1) 2. Leveraging regulatory approval to address low public acceptance and trust (S2, T2) 3. Address high cost with simplified dosage schedule and public health support (S3, T1) 4. Utilizing a strong company reputation to combat cultural and behavioral barriers (S4, T3)	1. Mitigate high costs and lack of insurance coverage through subsidies and partnerships (W3, T1). 2. Improving promotion to address low public acceptance and trust (W2, T2). 3. Enhancing inclusivity in the national program to address cultural and behavioral obstacles (W3, T3).

IV. CONCLUSION

This study analyzes the current awareness of the Qdenga vaccine and proposes marketing strategies for it. Despite 83.3% awareness, 45.9% have not been vaccinated, and there is a knowledge gap about the dengue vaccine. People prefer social media promotions on Instagram, TikTok, and YouTube with engaging content like short videos, Live Q&A, and infographics. Influencers and health professionals play an important role in increasing interest, but news about the Qdenga

vaccine is still scarce on social media. People are more likely to vaccinate if recommended by doctors and assured of the vaccine's safety. Proposed strategies include using influencers, collaborating with healthcare professionals, expanding social media presence, leveraging government support, and enhancing educational campaigns.

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