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Pudaman Initiative: Revolutionizing School Health Reporting with Technology

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Abstract : Dengue is the most prevalent and rapidly spreading vector-borne disease globally. In Indonesia, the Mosquito Nest Eradication (PSN) program is a key component of the School Health Effort (UKS), aimed at preventing Dengue Hemorrhagic Fever (DHF) in educational settings. However, the implementation of school-based mosquito cadres (PUDAMAN) remains limited at the junior and senior high school levels. Jakarta Provincial data reported a rise in dengue cases in South Jakarta between January and March 2024, with Pondok Labu sub-district recording nine cases and an incidence rate of 31.12. In response, the sub-district UKS coordinator conducted health promotion activities involving 85 students and teachers from eight junior high schools (March–April 2024). The intervention included dengue-related education, technology-based reporting, and hands-on training in advocacy, collaboration, and prevention. Evaluation using the Wilcoxon signed-rank test showed a statistically significant 50% increase in participant understanding ($p = 0.000$). These findings demonstrate that participatory health promotion strategies when integrated into school settings through digital tools and community engagement can effectively empower students in vector surveillance and strengthen early detection and prevention efforts in dengue-endemic areas.

Keywords : PUDAMAN, UKS, Dengue, Website, Health-Promotion.

SITUATION ANALYSIS

Dengue has become the most prevalent and swiftly expanding vector-borne disease globally. Out of the 3.5 billion people residing in dengue-endemic regions and at risk of contracting the disease, 1.3 billion live in dengue-endemic areas across 10 countries in the SEA Region, with around 70% of cases occurring in Asian countries (Harapan et al., 2019; WHO, 2021; WHO, 2023). The Indonesian Ministry of Health recorded 57,884 dengue fever cases in Indonesia up until September 2023, with an Incidence Rate (IR) of 21.06 per 100,000 population. The number of deaths reached 422, resulting in a Case Fatality Rate (CFR) of around 0.73%. The implementation of the Dengue Hemorrhagic Fever (DHF) control program in Indonesia for the period 2021-2025 is guided by the targets and indicators established in the 2020-2024 RPJMN for the Health Sector and the 2020-2024 Strategic Plan of the Ministry of

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Health, forming the foundation for the National Strategy for the Dengue Control Program 2021-2025 (Kemenkes RI,2023). These vector control guidelines are applied within communities and in strategic locations, such as educational institutions and workplaces (Sayono et al.,2019; Fitrianingsih et al.,2021; Sukesi et al.,2021). At schools are identified as significant sites for dengue fever transmission among students. The peak biting times for Aedes aegypti mosquitoes, which spread dengue fever, are between 8:00-10:00 and 15:00-17:00, coinciding with students' presence in schools (Susanto et al.,2018). Numerous areas within school environments, such as stagnant water in flower vases, water dispenser containers, bathroom sinks, open gutters, roofs on upper floors, and fish ponds without larva-eating fish, can serve as breeding grounds for these mosquitoes.

In many schools in urban area, students' knowledge and understanding of preventive measures for mosquito-borne diseases, particularly dengue fever, remain low. Despite the existence of the *Upaya Kesehatan Sekolah (UKS)* program from elementary to high school levels, proper implementation, especially regarding mosquito nest eradication (*Pemberantasan Sarang Nyamuk = PSN*) activities, is lacking. To combat dengue fever at schools, forming *Jumantik* school' cadres through the *UKS* program is an effective strategy (Kemenkes RI,2018). These cadres enable students to learn about and eliminate mosquito nests, transforming them into school mosquito larvae eradication experts. UKS activities aim to educate students on healthy living by promoting Clean and Healthy Living Behavior and enhancing student health through the Trias *UKS* implementation (Rubandiyah & Nugroho, 2018). Mosquito nest eradication activities should be conducted at least once a week to interrupt the life cycle of mosquito larvae. The Larvae Free Rate (*ABJ*) measures the success of *PSN* efforts, with a value of 95% or higher indicating that dengue fever transmission can be effectively prevented and transmission rates are likely to decrease (Kemenkes RI.,2023).

In the first quarter of January - March 2024, South Jakarta City ranked 3rd for the most Dengue Hemorrhagic Fever (DHF) cases in DKI Jakarta, with a total of 509 positive cases and an Incidence Rate (IR) of 21.35. Recorded data showed that Cilandak District had 44 cases with an IR of 19.35. Pondok Labu District recorded the highest number of cases, with 18 cases and an IR of 31.12, including 2 deaths, mostly affecting individuals aged 11-19 years (Puskesmas Kecamatan Cilandak,2023). An increase in cases was noted from 2023 to March 2024. Additionally, based on dengue case reports from school communities in South Jakarta's Cilandak District, a total of nine cases were recorded in the Pondok Labu sub-district. These included five cases from one junior high school and four cases from an elementary school.

Various outreach and education activities on dengue fever prevention have been conducted across target groups, from elementary school students to the general public. Similar activities have been shown to successfully enhance the knowledge of student participants. (Panjaitan et al.,2021; Muchtar et al.,2022; Irma et al.,2023). However, according to the *Puskesmas* program coordinator, *PSN* activities have only been implemented in one school by *UKS* mentor teachers and Youth Red Cross (PMR), with no targeted dengue prevention outreach or formation of junior high school-level mosquito larvae monitoring (*jumantik*) teams. School-based vector surveillance still lacks a dedicated reporting system to Puskesmas, with data merged into general area reports. Despite opportunities for tech-enabled health reporting, school dengue surveillance remains underdeveloped. To strengthen health education and realize the full potential of digital reporting, schools must embed continuous dengue prevention efforts, empower students to monitor their environments, establish jumantik teams, and streamline reporting mechanisms into routine school health activities. This ultimately leads to better health outcomes for students, more effective health management within schools, and stronger primary health care through direct referral of school-based reports.

SOLUTION AND TARGET

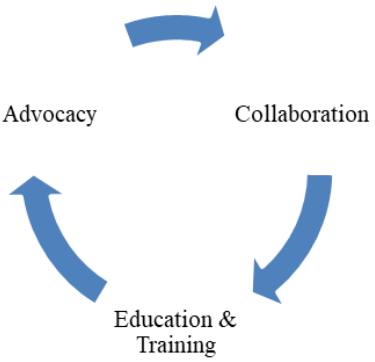
Given the existing challenges, it is essential to raise awareness and concern among adolescent students and UKS conselor's teachers in the Pondok Labu area about preventing dengue fever in their school environment. The initial target is Junior high school students, with the goal of forming a group of 8-10 students per-institution to serve as a kader jumantik sekolah, also known as PUDAMAN (*putra-putri duta jumantik sekolah* = school mosquito larvae ambassadors), Additionally, we interduce and enhance web-based technology literacy for sustainability used of educational media and reporting system as a PUDAMAN caders record activities. This activity took place from March to April 2024, the education scheduling followed the activity times provided by each school.

The initial challenge was designing a user-friendly, cost-free reporting website to avoid subscription burdens, alongside scheduling training activities for highly enthusiastic students selected as PUDAMAN cadres. These issues were resolved by securing funding for website development and coordinating training schedules for teachers and students, with implementation carried out according to a timeline jointly agreed upon by the school, Puskesmas, and our facilitation team. This ultimately leads to better health outcomes for

students, more effective health management within schools, and stronger primary health care through direct referral of school-based reports.

IMPLEMENTATION METHOD

Type of Service Activity: The PUDAMAN initiative primarily utilized training and advocacy as its core service activities. Additionally, mentoring may be considered a supportive layer, provided that ongoing guidance was offered by health center staff or senior cadres following the training sessions. Approach used: This intervention adopted a participatory health promotion approach by actively engaging students, teachers, and health center staff in collaborative training, monitoring, and digital reporting activities, culminating in evaluation through post-test analysis and system feedback Implementation Steps: This intervention was guided by a cyclical health promotion framework consisting of advocacy, collaboration, and education & training. The advocacy approach involved collaboration with school principals, UKS program officers, and PL Pustu leadership to build institutional support. This partnership facilitated the engagement of UKS teachers in each school as key implementers. Selected student ambassadors were empowered through a series of structured activities and educational sessions, including lectures, interactive Q&A discussions, and hands-on training. These sessions integrated science and technology by building students' capacity to use mobile web applications for digital reporting and mosquito larvae surveillance. The activity flow can be seen in Figure 1,



Picture 1. Cycle of Health Promotion approach

Community participation in each stages: 1) Advocacy. School principals, UKS program officers, and PL Pustu staff supported the program by approving activities and encouraging student involvement. Their role helped integrate dengue prevention into school routines. 2) Collaboration. UKS teachers, health center staff, and student ambassadors worked together to plan and carry out the activities. They shared responsibilities and made sure the program ran

smoothly in each school. 3) Education & Training. Students and teachers joined training sessions to learn how to identify mosquito larvae and use the e-PUDAMAN website. They practiced reporting and monitoring through hands-on activities. 4). Monitoring & Reporting. School jumantik cadres inspected school areas, took photos or videos, and uploaded their findings to the website. Health staff helped follow up when larvae were found. 5) Evaluation. Teachers, students, and health staff reviewed post-test results and gave feedback on the training and website. Their input helped improve the program for future use.

Data Collection Technique: A cross-sectional method was used to collect data from 85 students selected from 8 out of 11 junior high schools in the Pondok Labu sub-district. Student selection was coordinated with UKS teachers, based on criteria established by each school's health team. School inclusion was guided by dengue hemorrhagic fever (DHF) case data provided by the South Jakarta Health Service (*Sudinkes Jakrta Selatan*), referencing suspected patient records from each respective school. To assess changes in knowledge and understanding, a pre–post questionnaire was administered using Google Forms. The instrument consisted of 40 multiple-choice questions developed from the educational material delivered during the training sessions. This allowed for direct measurement of learning outcomes and supported evaluation of the intervention's effectiveness.

Data Analysis: The effectiveness of the health education activities was evaluated by comparing students' level of understanding before and after the intervention using a pre–post test design. Data distribution analysis indicated that the results were not normally distributed, thereby necessitating the use of the non-parametric Wilcoxon signed-rank test to assess the impact. At a significance level of $p < 0.05$, the analysis revealed a statistically significant improvement in post-test scores, confirming the positive effect of the intervention on student knowledge.

FINDINGS AND DELIVERABLES

The process starts with developing health promotion media, pretest and posttest questionnaires. The evaluation questionnaire is created in Google Forms format, ensuring easy access for students and simplifying the calculation of evaluation results. The pretest was conducted prior to providing counseling or educational presentations about practicing clean and healthy living behaviors, understanding dengue fever and its preventive measures, and implementing mosquito nest eradication through the *PSN 3-M* Plus programme. After completing the pretest and obtaining the results, students received educational presentations all

topics above. They were introduced to the concept of school Jumantik and were informed about the *PSN* activities that would be conducted at school, ultimately forming the PUDAMAN (school mosquito larvae ambassadors).

According to the characteristics of table 1 below, the majority of prospective PUDAMAN cadre students are 14-year-old girls in grade 2 of junior high school.

Table 1. Students Profile as PUDAMAN caders

Variabels		**n (%)**
Gender	Male	14 (16)
	Female	71 (84)
Age (yr)	12	3 (3.5)
	13	22 (25.9)
	14	45 (52.9)
	15	15 (17.6)
Class rank	7	29 (34)
	8	56 (66)

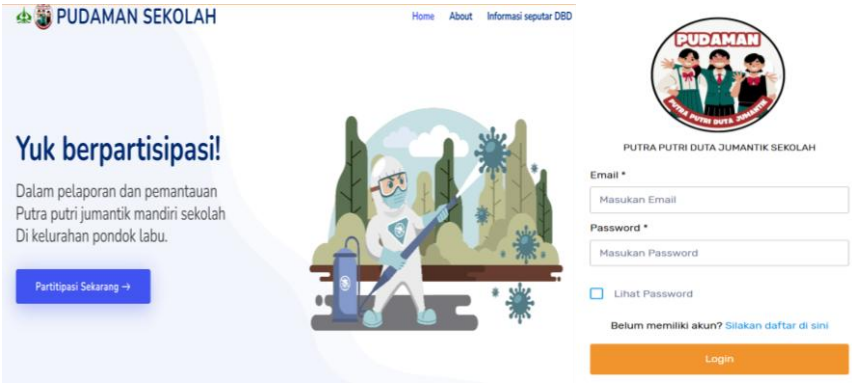
The students' pre-test insight scores on PSN were 52%, with an average score of 6 out of 10. This indicates that there are still gaps in level of knowledge understanding, particularly concerning how to check for mosquito larvae and vector life-cycle. Pictures 1, illustrate the educational and training activities provided to students. These activities were conducted over 14 days across 8 junior high schools, following the schedule provided by each school. Throughout the activities, students were accompanied by *UKS* teachers who will later serve as PUDAMAN mentor teachers, overseeing PSN activities in their respective schools.In this education session, it is also explained what is meant *by jumantik sekolah* and their role. Students are given the opportunity to learn by doing to eradicate mosquito nests and gain experience as *jumantik* cadres. These cadres are responsible for monitoring and carrying out PSN activities in the school environment. As a peer-counselor,they also should educate other students on dengue fever prevention using the *PSN-3M* approach.

Picture 2. During Activities Session at Schools with PUDAMAN caders

Empowering *jumantik* cadres in schools is an effective way to enhance students' awareness, motivation, and ability to practice dengue fever prevention behaviors as a Pudaman. Utilizing a two-way communication approach combined with skills training is more effective than a one-way dissemination of information. Peer education methods are particularly beneficial, as they significantly improve the knowledge, attitudes, and behaviors of other students. Then, encouraging them to participate in mosquito nest eradication both at school and at home.

This initiative aims to raise public awareness, starting from the smallest units like families and the school community, to independently eradicate mosquito nests. This activity is expected to foster environmentally conscious behavior and reduce dengue fever cases. Since Jakarta is still considered an endemic area for dengue fever, active participation from all levels of society is crucial. At the end, Pudaman play a crucial role in educating school-age children to be also aware of their environment. Furthermore, they can inspire family members and, ultimately, the broader community to adopt the one-house one-*jumantik* movement. (Kusumaratna et al., 2023, Koraag.,2024).

Next, students and teachers were introduced to the e-PUDAMAN website, which serves as a recording system for reporting DHF cases in the school environment. This allows for timely follow-up if mosquito larvae are found during monitoring. The school *jumantik*, who have been established as key players in implementing *PSN* activities, will document their efforts through photos or videos. These documents will then be uploaded to the website https://pudaman.page.gd/, serving as electronic reports of their activities.



Picture 3. *E-pudaman website and Log-in page*

Data uploaded by the school *jumantik* can be monitored and verified by the school on the website . By logging in with the registered email and password, the school can track students who have uploaded and reported the results of the *PSN*, as well as identify students who show symptoms of DHF, are suspected of having DHF, or have been confirmed with DHF at health

service facilities. The PUDAMAN dashboard could be seen below (Picture 2). Upload mosquito larvae findings at school as a report for PUDAMAN cadre monitoring in school water containers. If there is data on students who are ill due to Dengue fever, it can also be reported through the system also. These reports can be accessed by the school administrator or the local health center (puskesmas). Each school is only permitted to view its own data, while puskesmas staff can access reports from all schools within their respective PL Pustu coverage areas. In contrast, the sub-district-level puskesmas (puskesmas kecamatan) has access to view all reports submitted by schools across the entire sub-district.

Picture 4. Screenshots of the e-PUDAMAN dashboard

In addition, the platform also provides educational materials related to the prevention method and early signs and symptoms of diseases caused by Aedes aegypti mosquito bites and transmission source. When PUDAMAN cadres upload photos of larvae inspections, they can also revisit this information as part of a learning-by-doing process. The results are directly accessible to UKS mentor teachers and surveillance officers at the Puskesmas.

After the website orientation and educational sessions, students completed a post-test, which showed a marked improvement in their understanding across nearly all participants.

Table 2. Pre-Post Analysis of Education

	PreTest – Post Test of Education Intervention[a]
Z	-7.981[b]
Asymp.Sig. (2-tailed)	.000

Note: a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.

Picture 5. Students checking for puddles

Post-test scores revealed a 60% increase compared to pre-test scores, indicating a statistically significant improvement in student understanding following the educational and training sessions ($p < 0.05$). This suggests that the combination of structured instruction and hands-on engagement with the PUDAMAN website effectively enhanced knowledge retention and practical skills among participants. UKS teachers and students, alongside the PJ program from the local health center, demonstrated operational proficiency in using the digital platform. This was evidenced through their ability to navigate the website, conduct mosquito larvae inspections, and upload geo-tagged reports of breeding sites within school environments. Several schools successfully identified Aedes aegypti larvae during the training period, and these findings were systematically documented in e-PUDAMAN, including cadre attribution and environmental location. These outcomes affirm the website's accessibility and functionality, reinforcing its role as a user-friendly and scalable reporting tool (Salim, Satoto, & Daniel., 2024).

Beyond technical proficiency, the intervention fostered a culture of proactive surveillance and accountability within school communities. The integration of digital tools into school-based health activities not only streamlined reporting but also empowered students and educators to take ownership of vector control efforts. This aligns with broader public health goals of promoting PSN (*Pemberantasan Sarang Nyamuk*) activities, establishing school-based *jumantik cadres*, and ensuring timely data flow to local health authorities. The success of PUDAMAN highlights the potential of school-centered digital interventions to complement community-based models like the "One House, One Jumantik" movement, which mobilizes households through the Family Health Empowerment (PKK) group to monitor larvae at the domestic level (Widyanti & Al Hafis., 2024). While both initiatives differ in their operational settings home versus school they converge on the shared objective of enhancing Aedes larvae surveillance and reducing dengue transmission.

Comparable digital reporting systems have been piloted in Bantul, Yogyakarta, where jumantik cadres not students utilize web-based platforms to submit inspection data (Ellysmawati, Haryono, & Haryanti, 2023). These systems offer a fast, low-cost alternative to paper-based reporting and are accessible via mobile phones and laptops, making them practical for field use by sanitarians and community health workers (World Health Organization, 2025). However, the scope of child *jumantik* and UKS training remains largely confined to elementary school settings, limiting the reach and sustainability of youth-led surveillance efforts. Expanding such programs to include secondary schools and integrating digital literacy components could further strengthen the role of students in dengue prevention and health promotion (Ernawati et al., 2023; Salim & Prasetyo., 2024).

Overall, the PUDAMAN initiative demonstrates how school-based empowerment, peer-led education, and digital reporting can converge to create a robust, community-linked surveillance system. It highlights the potential of children not just as beneficiaries of health education, but as active contributors to public health outcomes. By embedding these practices into school routines and linking them with broader community movements, the intervention lays the groundwork for sustainable, technology-supported dengue prevention across generations.

CONCLUSION

In summary, the PUDAMAN initiative demonstrates how digital platforms, when paired with targeted training and stakeholder collaboration, can transform school communities into active agents of public health surveillance. Its success underscores the importance of context-sensitive design, user-friendly technology, and inclusive engagement strategies in scaling health interventions across educational settings.

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REFERENCES

Ellysmawati, A., Haryono, H., & Haryanti, S. (2023). Pemanfaatan Website “Pantik” (Pantau Jentik) Dalam Pelaporan Data Pemantauan Jentik Nyamuk Aedes Di Desa Donotirto

Kretek Bantul. Ruwa Jurai: Jurnal Kesehatan Lingkungan, 17(2), 100–104. https://doi.org/10.26630/rj.v17i2.3952.

Ernawati, K., Kurnianingsih, I., Nurmaya, N., Fathurahman, M., Rinaldy, M., Dwikhanza, K. F., … Wulansari, R. (2023). Educating dengue hemorrhagic fever to Jumantik Cadres using mobile application for mosquito nest eradication. Abdimas: Jurnal Pengabdian Masyarakat Universitas Merdeka Malang, 8(3), 411–419. https://doi.org/10.26905/abdimas.v8i3.9405

Ibrahim, E., Ishak, H., Manyullei, S., & Wahid, I. (2024). Effect of Little Jumantik Training on the Behaviour of Preventing Dengue Fever. Indian Journal of Entomology. https://doi.org/10.55446/IJE.2024.2411

Farich, A., Lipoeto, N. I., Bachtiar, H., & Hardisman, H. (2020). The Effects of Community Empowerment on Preventing Dengue Fever in Lampung Province, Indonesia. *Open Access Macedonian Journal of Medical Sciences*, 8(E), 194–197. https://doi.org/10.3889/oamjms.2020.4192

Fitrianingsih, N., Mulyani, S., & Suryaman, R. (2021). Upaya Pencegahan DBD Melalui Peningkatan Kualitas Pengetahuan Masyarakat Tentang Cara Penyebaran dan Pemberantasan Penyakit DBD. *Journal of Community Engagement in Health*, 4(1), 40-44. https://doi.org/10.30994/jceh.v4i1.108

Harapan, H., Michie, A., Mudatsir, M. et al. (2019). Epidemiology of dengue hemorrhagic fever in Indonesia: analysis of five decades data from the National Disease Surveillance. BMC Res Notes 12, 350 https://doi.org/10.1186/s13104-019-4379-9

Irma, Sabilu, Y., Kamrin, K., & Gunawan, E. (2023). Edukasi Pencegahan Demam Berdarah Dengue Dengan Program 3M Plus pada Siswa SMPN 2 Kendari. *Jurnal Pengabdian Meambo*,2(1),33-38.https://doi.org/10.56742/jpm.v2i1.56

Kementrian Kesehatan Republik Indonesia. (2018). *Buku KIE Kader Kesehatan Remaja*. Edited by S. Rohaeti, Linda Siti, Christanti, F. Marthatilova, and H.S. Zulaidah. Jakarta: Kementerian Kesehatan RI.

Kusumaratna, R. K., Alam, M. N. M., Supriyadi, A., & Suriyani, T. (2023). Peningkatan Kapasitas dan Penguatan Sistem Pelaporan Juru Pemantau Jentik Dalam Penerapan “1 Rumah 1 Jumantik” di Komunitas: Era Adaptasi Baru Covid-19. *Jurnal ABDINUS : Jurnal Pengabdian Nusantara*, 7(1), 204-218. https://doi.org/10.29407/ja.v7i1.18089

Kementerian Kesehatan RI. (2023). *Laporan Tahunan 2022 Demam Berdarah Dengue*. Jakarta: Direktorat Jenderal Pencegahan dan Pengendalian Penyakit Kementerian Kesehatan RI.

https://p2p.kemkes.go.id/wpcontent/uploads/2023/06/FINAL_6072023_Layout_DBD-1.pdf

Koraag M.E. (2024). Evaluation of one-house one-larvae observer program in controlling dengue hemorrhagic fever in Central Sulawesi. *International Journal of Public Health Science*, 13(1), 319-329. http://doi.org/10.11591/ijphs.v13i1.23122

Muchtar, F., Lestari, H., Effendy, D. S., Bahar, H., & Tosepu, R. (2022). Edukasi Pencegahan Demam Berdarah Dengue (DBD) pada Siswa SMA Negeri 3 Kendari. *Indonesia Berdaya*, 3(4), 1139-1146. https://doi.org/10.47679/ib.2022357

Nabilah SU., Ikawati YP., Yulita L,.et al (2023). Jumantik Cilik program in Sukoharjo: Community-based training at SD Negeri 02 Tegalsari. Proceedings of the National Seminar on Health Sciences. https://proceedings.ums.ac.id/semnasfik/article/view/2822

Panjaitan, J. S. (2021). Penyuluhan Pencegahan Penyakit Demam Berdarah Dengue (DBD) Pada Siswa/I Di SMA Negeri 1 Pangaribuan Medan. *Jurnal Visi Pengabdian Kepada Masyarakat*, 2(1), 49-57. https://doi.org/10.51622/pengabdian.v2i1.209

Puskesmas Kecamatan Cilandak. (2023). *Laporan Tahunan 2023*. Jakarta: Puskesmas Kecamatan Cilandak (*un-published*).

Pujiyanti, A., & Trapsilowati, W. (2022). Perspectives of The Community Regarding Electronic-Based Dengue Vector Surveillance in the COVID-19 Pandemic. Jurnal Promosi Kesehatan Indonesia, 18(1), 25-33. https://doi.org/10.14710/jpki.18.1.25-33

Rubandiyah, H. I., & Nugroho, E. (2018). Pembentukan kader jumantik sebagai upaya peningkatan pengetahuan siswa di sekolah dasar. *HIGEIA (Journal of Public Health Research and Development)*, 2(2), 216-226. Retrieved from http://journal.unnes.ac.id/sju/higeia/article/view/22498

Salim, M., Satoto, T. D., & Daniel, D. (2024). Digital health interventions in dengue surveillance to detect and predict outbreak: A scoping review. Open Public Health Journal, 17, e18749445283264. https://doi.org/10.2174/0118749445283264240116070726

Sugeng, S., Mulyana, D. I., Lestari, S., Rofik, M. A., Joharuddin Zakaria, M. O., Ependi, S., & Maharanisa, M. (2022). Implementasi Sistem Informasi Pelaporan Jumantik Berbasis Web pada Puskesmas Kelurahan Krukut Jakarta Barat. Jurnal Pendidikan Tambusai, 6(1), 4386–4398. https://doi.org/10.31004/jptam.v6i1.3548

Susanto, S., Hariyana, B., & Utami, A. (2018). Hubungan Faktor Lingkungan Institusi Pendidikan dan Perilaku Siswa dengan Kejadian Demam Berdarah Dengue Anak Usia 5-14 Tahun. *Jurnal Kedokteran Diponegoro (Diponegoro Medical Journal)*, 7(4); 1696-1706. https://doi.org/10.14710/dmj.v7i4.22263

Sayono, S., Widoyono, W., Sumanto, D., & Rokhani, R. (2019). Impact of Dengue Surveillance Workers on Community Participation and Satisfaction of Dengue Virus Control Measures in Semarang Municipality, Indonesia: A Policy Breakthrough in Public Health Action. *Osong public health and research perspectives*, 10(6), 376–384. https://doi.org/10.24171/j.phrp.2019.10.6.08

Sukesi, T. W., Satoto, T. B. T., Murhandarwati, E. H., & Padmawati, R. S. (2021). Effects of Health Education Based Intervention on Community's Perception, Healthy House, and Social Capital of Dengue in Endemic Area of Sleman Regency Indonesia. *Open Access Macedonian Journal of Medical Sciences*, 9(E), 428–436. https://doi.org/10.3889/oamjms.2021.6087

Widyanti, S., & Al Hafis, R. I. (2024). Implementasi Program Gerakan Satu Rumah Satu Juru Pemantau Jentik (JUMANTIK) Dalam Pengendalian Penyakit Demam Berdarah Dengue (DBD) Di Wilayah Kerja Puskesmas Payung Sekaki Kota Pekanbaru. Journal of Public Administration Review, 1(2), 1421-1434. https://journal.uir.ac.id/index.php/jpar/article/view/19922.

World Health Organization. (2021). Dengue in the South - East Asia. https://www.who.int/southeastasia/health-topics/dengue-and-severe-dengue.

World Health Organization. (2023). *Disease Outbreak News; Dengue – Global situation*. https://www.who.int/emergencies/disease-outbreak-news/item/2023-DON498.

World Health Organization. (2025, May 16). Indonesia and WHO ramp up dengue fight with smarter surveillance. WHO Indonesia. https://www.who.int/indonesia/news/detail/16-05-2025-indonesia-and-who-ramp-up-dengue-fight-with-smarter-surveillance.