The Use of Owner House ID Card to Increase Effectiveness of Monitoring Larva Visit by Jumantik

by Mochammad Choirul Hadi

The Use of Owner House ID Card to Increase Effectiveness of Monitoring Larva Visit by Jumantik

Mochammad Choirul Hadi[1], **Ni Made** Marwati[1], **I Gusti Ayu Made** Aryasih[1], **Dewa Ayu Agustini** Posmaningsih[1], **I Nyoman** Sujaya[1], **Anwar** Mallongi[2]

[1]Environmental Health Department, Polytechnic of Health Denpasar, Bali, Indonesia, [2]Lecturer of Environmental Health Department, Faculty of Public Health, Hasanuddin University, Makassar, Suoth Sulawesi Indonesia

ABSTRACT

Some of the factors causing the ineffectiveness of larval monitoring are the discipline of the officers, the complicating factors, the laxness of supervision, or perhaps even the high targets. This study aims to analyze the effectiveness of the use of ID numbers of residents and stickers to improve the monitoring of Larva Monitoring Officers (Jumantik). This research is an operational research with an analytical method designed to assist program managers in choosing one of the various alternative problem-solving health services with a specific purpose. From the results of the research was known the width of the range of home visits by the officer depends on the instructions they received from the supervisor. The use of the number of ID card or family as Personal Identification Number (PIN) from homeowner visited will "force" the officer to approach the homeowner. The "proximity" factor between officers and the homeowner accompanied by rational targeting is able to increase the number of home visits by the larva monitoring officer.

Keywords: identity; larva monitoring; home visits

INTRODUCTION

Larva monitoring officers (Jumantik) which are considered by the community as the "squad" leader who directly combats the vector of Dengue Hemorrhagic Fever (DHF). Various existing studies, which try to criticize the existence of officer already quite a lot. Sudiadnyana once highlighted the performance of officer in Tabanan regency which cannot be optimal because of less training from District Health Office.[1] Similarly, the public spotlight on the existence of this officer was recorded in mid-August 2012, the residents of West Denpasar asked about the activities of the officer. The residents asked why their settlement have not been visited by the officer for along time.[2]

Sali and Sudiadnyana also found the new officer problems who has to do face to face counseling, an officer not yet have to conduct counseling to a group of people.[3] Hadi's research found that there were still

Corresponding author:
Mochammad Choirul Hadi
choirulhadi514@gmail.com, anwar_envi@yahoo.com

some Community Health Center whose its officer cannot work optimally, with the output of larvae free is still below 95%. This is due to ineffective larvae monitoring activities because there were still officers worked under the target, as many as 30 homes/person/day. Some of the factors contributing to the above incidents were indiscipline, the complicating factors of visiting, lax supervision, or perhaps even the high targets.[2]

This study aims to analyze the effectiveness of the use of PIN and stickers to improve the monitoring of officer home visits in its contribution to reduce the morbidity rate of DHF in Denpasar, Bali, Indonesia.

MATERIALS AND METHOD

This research was a prospective study and an operational research with an analytical method designed to assist program managers in choosing one of the various alternative problem-solving health services with a specific purpose as suggested by M.E. Beatty, et al.[4]

As population research was all family that exists in Pedungan Village as the work area of Health Center IV South Denpasar 5,743 families spread in 14 sub-villages

(Balinese people call banjar), in every banjar taken 40 houses visited by larva monitoring officer (Jumantik) during the research or targeted as many as 560 families with quota sampling technique. As the unit of analysis is the number of home visits by 14 officers to monitor the mosquito larva.[5] The method is established by studying as Chitti Chansang has done.[6]

RESULTS

PIN assignment completion time

In the early phase, the officer was assigned to approach the 40 residents who live in their working area to become family promotion, which will be observed once a month by Officer home circumstances. As proof that family is willing to become family built, they are required to show the ID card number or family card to be installed on identity monitoring card. The ID number provided by family members mounted on the monitoring card is used as a PIN. Furthermore, the officer to identify the existence of water container inside and outside the house family target, as well as identify the presence of mosquito larvae in the landfill.

The assignments in phase I and phase II gave no time limit to officer to complete the approach activity to 40 families that will be promoted continuously with the result of completing the task of visit 2-6 days, while in phase III the officer gave the time limit, and they can finished within 2 days.

Number of home visits on the first day

The range of the number of home visits in phase I and phase II conducted by officer was similar, in the range of 6 - 20 houses, while in phase III the number of home visits reaches optimally (20-23 houses) because it has set the time they can use, in only two days. In stage III, the number of houses visited during the first-day visit can be high (285 houses).

Number of containers found

The number of containers found by the officer at the visited house in phase I up to stage III shows the addition, from 2,404 containers to 2,625 containers, or an increase of 221 containers. In phase I the average number of containers found in stage III by the officer increased from 172 to 188 containers or increased by 9.3%. This approach was in line with research conducted by Minhas and Sekhon.[7]

Identify larvae

The number of positive containers found mosquito larvae in the homes of residents at each stage there was a tendency more and more found. Especially in stage III when the students get involved in observing the presence of mosquito larvae in containers that exist in the house of the family that became the target of the officer. The emergence of the fact that the increasing number of positive larvae containers can be caused by the increased activity of mosquitoes during the third phase of the research (rainy season), or it may be due to the increasing number of observations made by officer together with the students who assist the research.

The Case of Dengue Hemorrhagic Fever

Based on the records at the Health Center during the year 2016 almost every month reported a case of DHF, except in January 2016. In February the cases began to appear and directly increased in March to May 2016. It appeared that most banjar high number of DHF patients were Karang Suwung, Pitik, and Ambengan. While the most frequent banjar dengue cases were at Karang Suwung, Pitik, and Pande.

Furthermore, from Figure, it appears that there were seven banjar (50%) with House Index (HI) above 5 or that have a Free Number of Larvae less than 95% ie Kaja, Dukuh Pesirahan, Geladag, Pitik, Begawan, Pande, and Puseh.
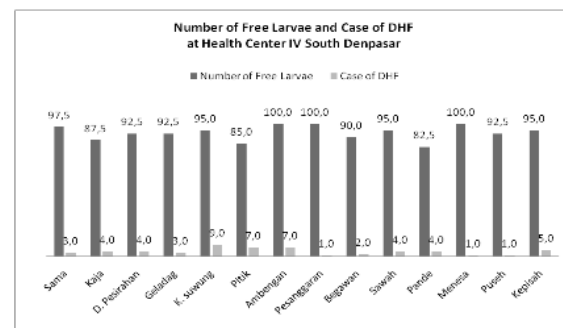

Figure 1

DISCUSSION

PIN assignment completion time

The acceleration of completion of tasks at each stage of the officer visit of the 40 houses assigned to them. In stage I They completed the targets charged to them on average four days. Some officer expressed their difficulties to meet the head of families to borrow an ID

card to be used as a PIN on a card that will be left at home visited. These constraints were the reason why they took so long to meet their targets, only 4 out of 14 people (28.6%) can complete the target visit within 2-6 days.

In stage II the officer finish their task on average within 3 days, one day faster than at stage I. Although the time span of completion of the task was the same, between 2 - 6 days, 8 out of 14 people officer (57, 1%) do the task within 3 days. Constraints faced by the officer in tasks in phase II this is a matter of time. During the execution of the task of stage II Balinese people are busy with the activities of holiday, so they worked at shorter time. In stage III, the assignment of completion of the 40th visit target of the house was determined by the researcher within two days, but they were given a choice of four days. It turns out that all officer succeeded in fulfilling the set target within two days.

Number of home visits on the first day

The number of houses visited on the first day in phase I and II was almost no different, but in phase III the number of houses visited on the first day increased to 60 houses (30%). In terms of range the number of home visits in phase I and phase II conducted by officer is similar, that is in the range of 6 - 20 houses, while in phase III the number of home visits reaches optimally (20-23 houses) they use, ie only two days.

In stage III, the number of houses visited during the first day visit can be high (285 houses) compared to phase I and phase II, since all officer are trying to meet the set time target. Within that time set by accompanied by a student every officer turns out they can meet the target to monitor larvae to the house of citizens as much as 20 houses in a day. This fact was in line with research conducted by Sandi about the significance of the influence of supervision on the performance of officer.[9]

Number of containers found

The number of containers found at the visited house in phase I up to stage III shows the addition, from 2,404 containers to 2,625 containers, or an increase of 221 containers. In phase I the average number of containers found in stage III by the officer increased from 172 to 188 containers or increased by 9.3%. The presence of students or third parties in the implementation of larva monitoring task has made officer want to work better.

This is in line with the conclusion of Sandi's research that sees the strong role of direct supervision in improving the performance of the officer.[9]

To compared to conditions elsewhere such as Cebu City, Philippines, in 2004 the Container Index (CI) is at 14.44 - 55.37.[10] In South India, in February 1998 the CI was there in the range of 4.02 - 13.73.[11] Five areas in Jakarta, in January 2007 the CI is in the range of 0.27 to 2.34.[12] In Semarang, Central Java, the CI in February 2008 in the range 0,11 – 0,14.[13] In Dire Dawa, East Ethiopia, in October 2014 reported CI is in the range 23,18 - 73,91. [14] CI in Pedungan village, Denpasar, can reach the lowest because of 2016 in the range of 0,0 - 4,6.

Free Figures and Cases of DHF

In Figures 1 and 2 obtained from the data collection of Phase III (dated 15, 16, 22 and 23 October 2016) found 50% of the Banjars in Pedungan Urban Village have Free Number of Larvae less than 95% of the Banjar: Kaja, Dukuh Pesirahan, Geladag, Pitik, Begawan, Pande, Puseh. And when connected between the ABJ with the number of cases of dengue, we see that there are two Banjars with the highest dengue cases appear in Banjar with high ABJ also, namely Karang Suwung and Ambengan. It can be explained that the working area of Aedes aegypti mosquitoes is not affected by the administration area. It could be that the patient had an infection from outside the village or there was a positive container missed by officer monitoring, as found by Andriyani in North Jakarta.[15].

Compared to other places, half of its territory Pedungan Village has reached free number of larva (ABJ) more than 95, such as Semarang City in Central Java in February 2008 there is no village which stated have ABJ more than 95. [16]. Semarang by 2013, the free rate of larvae reaches 55%.[17] This ABJ has not been used outside Indonesia, the size that is often used to see free larvae used Breteau Index (BI) beside Container Index (CI) and HI (House Index). BI in Pedungan Village is 0.0 - 17.5, while in other places like South India 0.29 - 33.87 (Tewari et al., 2004), in Cebu City, Philipine BI figures reached 50-230 in 2004 (Mahilum et al. 2005). This index is interpreted the greater the value of BI increasingly risky environment in the region, reversed with the number of free larvae the greater the value the better the environment.[18]

While Banjar Ambengan which has 1,015 families visited in 68 days, or 12 weeks, or three months. Thus the Ministry of Health's instructions for each family can be visited once every four months is possible to implement. [15]

In stage II which is carried out by requesting the Supervisor to provide stickers written down date to the field was able to control larva monitoring activities by the officer. The target number of visits agreed with officer and the gave officer the opportunity to measure themselves how much they could make a visit to the residents' house at that time.

In stage III when the researchers also sent 14 students to assist the officer in doing its duty to monitor the existence of larvae. Joint observation between officer and students resulted in a good cooperation synergy, as evidenced by the increasing number of containers that were successfully found as much as 9.3%. The key to the prevention of DHF is a strict monitoring of the results of officer's performance reporting that visits each home at least every three months. The results of the monitoring are processed into numbers in HI, CI, and BI formats, as well as the Freely Numeric Rate (ABJ) can be used as a tool to see the environmental quality of DHF threats. The best performance expected from the officer is the increasing ABJ and continues to decrease the Incidence Dengue Rate. [15],[19]

CONCLUSIONS

There were 14 people Officer at Health Center IV South Denpasar, Bali carrying out monitoring of larvae from house to house during their working hours (at 8:00 to 12:00 pm) of 6-23 houses in one day. In one-day event coordinator or supervisor capable of supervising the implementation of the monitoring officer against 5 of the 14 officer (35.7%) in their working area.The use of the ID card number or family numbers homeowners as PIN and stickers on a visit card capable "force" officer approach to home owners.

Ethical Clearance: Obtained from the Health Center and responden agreement

Confict of Interest: All author declare that there is no any conflict of interest within research and publication including the financial agency.

REFERENCES

1. Sudiadnyana, I. W. Eksistensi dan Progressivitas Juru Pemantau Jentik dalam Penanggulangan Penyakit Demam Berdarah Dengue. J. Skala Husada VI, 15–21 (2009).

2. Hadi, M. C., Rusminingsih, N. K., Marwati, N. M. & Rate, I. Peran Jumantik dalam Menurunkan Insidens Rate DBD di Denpasar. J. Skala Husada XII, 89–95 (2015).

3. Sali, I. W. Faktor Yang Mempengaruhi Kinerja Jumantik dalam Memantau Jentik A. aegypti di Kecamatan Denpasar Selatan Kota Denpasar tahun 2009. J. Skala Husada 8, 143–149 (2011).

4. Beatty, M. E. et al. Best practices in dengue surveillance: A report from the asia-pacific and americas dengue prevention boards. PLoS Negl. Trop. Dis. 4, (2010).

5. Densel, P. 4. Profil Puskesmas 4 Denpasar Selatan. (2016). at <http://puskesmas4densel.blogspot.co.id/>

6. Chansang, C. & Kittayapong, P. Application of mosquito sampling count and geospatial methods to improve dengue vector surveillance. Am. J. Trop. Med. Hyg. 77, 897–902 (2007).

7. Minhas, S. & Sekhon, H. Entomological Survey for Dengue Vector in an Institutional Campus to Determine Whether Potential of Dengue Outbreak Exixts. Int. J. Med. Appl. Sci. 2, 164–171 (2013).

8. I Wayan Sali, S. Peran Jumantik Kota Denpasar untuk Meningkatkan Partisipasi Masyarakat pada Pemberantasan Sarang Nyamuk. J. Skala Husada VIII, 94–99 (2011).

9. Ni Putu Desi Ary Sandhi, N. K. M. Pengaruh Faktor Motivasi Terhadap Kinerja Juru Pemantau Jentik Dalam Pelaksanaan Pemberantasan Sarang Nyamuk Di Kecamatan Denpasar Selatan Tahun 2013. Community Health (Bristol). I, 120–132 (2014).

10. Mahilum, M. M., Ludwig, M., Madon, M. B. & Becker, N. Evaluation of the present dengue situation and control strategies against Aedes aegypti in Cebu City, Philippines. J. vector Ecol. 30, 277–283 (2005).

11. Tewari, S. C. et al. Dengue vector prevalence and virus infection in a rural area in south India. Trop. Med. Int. Health 9, 499–507 (2004).

12. Shinta & Sukowati, S. Penggunaan Metode Survei Pupa Untuk Memprediksi Risiko Penularan Demam Berdarah Dengue Di Lima Wilayah Endemis Di Dki Jakarta the Using of Pupae Survey Method To Predict Transmission Risk of Dengue on Five Endemic Districts in Dki Jakarta. Media Litbangkes 23, 31–40 (2013).

13. Maftika Lutfiana, Tri Winarni, Zulmiati, L. N. Survei Jentik Sebagai Deteksi Dini Penyebaran Demam Berdarah Dengue (DBD) Berbasis Masyarakat. J. Ilm. Mhs. 2, 56–63 (2012).

14. Getachew, D., Tekie, H., Gebre-Michael, T., Balkew, M. & Mesfin, A. Breeding sites of aedes aegypti: Potential dengue vectors in dire Dawa, east Ethiopia. Interdiscip. Perspect. Infect. Dis. 2015, (2015).

15. Andriyani, P. D. The Role of Juru Pantau Jentik in Dengue Haemorrhagic Fever Early Warning System in Indonesia. J. Kesehat. Masy. Nusant. Volume 6, 243–248 (2012).

16. Maftika Lutfiana, Tri Winarni, Zulmiati, L. N. Survei Jentik Sebagai Deteksi Dini Penyebaran Demam Berdarah Dengue (Dbd) Berbasis Masyarakat. J. Ilm. Mhs. 2, 56–63 (2012).

17. Suningsih, D., Rahayu, A., Sari, D. P., Santoso, L. & Yuliawati, S. Analisis Kepadatan Nyamuk dan Persepsi Masyarakat terhadap Penggunaan Teknik Serangga Mandul. J. Kesehat. Masy. Andalas 10, 108–113 (2015).

18. Bowman, L. R., Runge-Ranzinger, S. & McCall, P. J. Assessing the Relationship between Vector Indices and Dengue Transmission: A Systematic Review of the Evidence. PLoS Negl. Trop. Dis. 8, (2014).

19. Stang Abdul Rahman, Amran Rahim and Anwar Mallongi. 2017. Forecasting of Dengue Disease Incident Risks Using Non-stationary Spatial of Geostatistics Model in Bone Regency Indonesia. J. Entomol.,14: 49-57.

The Use of Owner House ID Card to Increase Effectiveness of Monitoring Larva Visit by Jumantik

Geostatistics Model in Bone Regency
Indonesia", Journal of Entomology, 2016
Publication

9   Sheila B. Agha, David P. Tchouassi, Armanda   1%
    D. S. Bastos, Rosemary Sang. "Assessment of
    risk of dengue and yellow fever virus
    transmission in three major Kenyan cities based
    on Stegomyia indices", PLOS Neglected
    Tropical Diseases, 2017
    Publication

10 medicalworkshop.blogspot.com   1%
    Internet Source

11 repository.unhas.ac.id   1%
    Internet Source

12 Submitted to Universitas Airlangga   1%
    Student Paper

13 link.springer.com   1%
    Internet Source

14 Submitted to iGroup   1%
    Student Paper