

**UNIVERSITI SAINS MALAYSIA
GERAN PENYELIDIKAN UNIVERSITI PENYELIDIKAN
LAPORAN AKHIR**

**EFFECTIVENESS OF INTERACTIVE HEALTH PROMOTION
MADULE IN IMPROVING KNOWLEDGE ATTITUDE AND
PRACTICE ON LEPTOSPIROSIS AMONG TOWN SERVICE
WORKERS IN KELANTAN**

PENYELIDIK

PROF. MADYA DR. AZIAH DAUD

PENYELIDIK BERSAMA

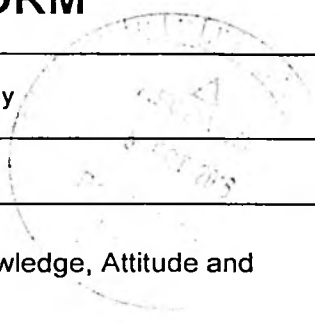
**ASSOC. PROF. DR. MOHAMED RUSLI ABDULLAH
ASSOC. PROF. DR. WAN MOHD ZAHIRUDDIN WAN MOHD
ASSOC. PROF. DR. NOR AZWANY YAACOB
ASSOC. PROF. DR. SITI ASMA' HASSAN
ASSOC. PROF. DR. NABILAH AWANG @ ISMAIL
DR. MOHD NAZRI SHAFEI
DR. MOHD NIKMAN AHMAD**

2016



RU GRANT FINAL REPORT FORM

Please email a softcopy of this report to rcmo@usm.my



A	PROJECT DETAILS
i	Title of Research: Effectiveness of Interactive Health Promotion Module in Improving Knowledge, Attitude and Practice on Leptospirosis Among Town Service Workers in Kelantan
ii	Account Number: 1001/PPSP/812131
iii	Name of Research Leader: Assoc. Prof. Dr Aziah Daud
iv	Name of Co-Researcher: <ol style="list-style-type: none"> 1. Assoc. Prof. Dr Mohamed Rusli Abdullah 2. Assoc. Prof. Dr Wan Mohd Zahiruddin Wan Mohd 3. Assoc. Prof. Dr Nor Azwany Yaacob 4. Assoc. Prof. Dr. Siti Asma' Hassan 5. Assoc. Prof. Dr. Nabilah Awang @ Ismail 6. Dr Mohd. Nazri Shafei 7. Dr Mohd. Nikman Ahmad
v	Duration of this research: <ol style="list-style-type: none"> a) Start Date : 1 December 2013 b) Completion Date : 31 August 2016 c) Duration : 33 months d) Revised Date (if any) :
B	ABSTRACT OF RESEARCH
	<p><i>(An abstract of between 100 and 200 words must be prepared in Bahasa Malaysia and in English. This abstract will be included in the Report of the Research and Innovation Section at a later date as a means of presenting the project findings of the researcher/s to the University and the community at large)</i></p> <p style="text-align: center;">- As Attached II -</p>

**PERPUSTAKAAN HAMDAN TAHIR
UNIVERSITI SAINS MALAYSIA**

C	BUDGET & EXPENDITURE																								
i	<p>Total Approved Budget : RM 199,547.50</p> <p style="text-align: right;"><u>Yearly Budget Distributed</u></p> <p style="text-align: right;">Year 1 : RM 105,857.50</p> <p style="text-align: right;">Year 2 : RM 93,690.00</p> <p style="text-align: right;">Year 3 : RM</p> <p>Total Expenditure : RM 199,547.07</p> <p>Balance : RM 0.43</p> <p>Percentage of Amount Spent (%) : 100 %</p> <p><i># Please attach final account statement (eStatement) to indicate the project expenditure</i></p>																								
ii	<p>Equipment Purchased Under Vot 35000</p> <table border="1" data-bbox="197 832 1372 1116"> <thead> <tr> <th data-bbox="197 832 267 890">No.</th> <th data-bbox="267 832 640 890">Name of Equipment</th> <th data-bbox="640 832 863 890">Amount (RM)</th> <th data-bbox="863 832 1159 890">Location</th> <th data-bbox="1159 832 1372 890">Status</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p><i># Please attach the Asset/Inventory Return Form (Borang Penyerahan Aset/Inventori) – Appendix 1</i></p>				No.	Name of Equipment	Amount (RM)	Location	Status																
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D	RESEARCH ACHIEVEMENTS																								
i	<p>Project Objectives (as stated/approved in the project proposal)</p> <table border="1" data-bbox="189 1323 1387 1823"> <thead> <tr> <th data-bbox="189 1323 278 1397">No.</th> <th data-bbox="278 1323 982 1397">Project Objectives</th> <th data-bbox="982 1323 1387 1397">Achievement</th> </tr> </thead> <tbody> <tr> <td data-bbox="189 1397 278 1453">1</td> <td data-bbox="278 1397 982 1453">To determine the seroprevalence of leptospirosis among town service workers in Kelantan</td> <td data-bbox="982 1397 1387 1453">100% Achieved</td> </tr> <tr> <td data-bbox="189 1453 278 1509">2</td> <td data-bbox="278 1453 982 1509">To determine the level of knowledge, attitude and practice on leptospirosis among town service workers in Kelantan</td> <td data-bbox="982 1453 1387 1509">100% Achieved</td> </tr> <tr> <td data-bbox="189 1509 278 1565">3</td> <td data-bbox="278 1509 982 1565">To determine the associated factors for leptospirosis among town service workers in Kelantan</td> <td data-bbox="982 1509 1387 1565">100% Achieved</td> </tr> <tr> <td data-bbox="189 1565 278 1651">4</td> <td data-bbox="278 1565 982 1651">To determine the effectiveness of the Leptospirosis Interactive Health Promotion Module (Knowledge Module) for town service workers in Kelantan</td> <td data-bbox="982 1565 1387 1651">100% Achieved</td> </tr> <tr> <td data-bbox="189 1651 278 1737">5</td> <td data-bbox="278 1651 982 1737">To determine the effectiveness of the Leptospirosis Interactive Health Promotion Module (Attitude Module) for town service workers in Kelantan</td> <td data-bbox="982 1651 1387 1737">100% Achieved</td> </tr> <tr> <td data-bbox="189 1737 278 1823">6</td> <td data-bbox="278 1737 982 1823">To determine the effectiveness of the Leptospirosis Interactive Health Promotion Module (Practice Module) for town service workers in Kelantan</td> <td data-bbox="982 1737 1387 1823">100% Achieved</td> </tr> </tbody> </table>				No.	Project Objectives	Achievement	1	To determine the seroprevalence of leptospirosis among town service workers in Kelantan	100% Achieved	2	To determine the level of knowledge, attitude and practice on leptospirosis among town service workers in Kelantan	100% Achieved	3	To determine the associated factors for leptospirosis among town service workers in Kelantan	100% Achieved	4	To determine the effectiveness of the Leptospirosis Interactive Health Promotion Module (Knowledge Module) for town service workers in Kelantan	100% Achieved	5	To determine the effectiveness of the Leptospirosis Interactive Health Promotion Module (Attitude Module) for town service workers in Kelantan	100% Achieved	6	To determine the effectiveness of the Leptospirosis Interactive Health Promotion Module (Practice Module) for town service workers in Kelantan	100% Achieved
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ii Research Output

a) Publications in ISI Web of Science/Scopus

No.	Publication (authors,title,journal,year,volume,pages,etc.)	Status of Publication (published/accepted/ under review)
1	Aziah BD, Mohd Ridzuan J, Zahiruddin WM, <i>The Development of a Leptospirosis Screening Index for Oil Palm Plantation Workers</i> , British Journal of Medical and Health Research (BJMHR), 2016;3(5) ISSN: 2394-2967	Published
2	J. Mohd Ridzuan, B.D. Aziah, W.M. Zahiruddin, <i>Study on Seroprevalence and Leptospiral Antibody Distribution among High-risk Planters in Malaysia</i> , Osong Public Health Res Perspect 2016; pISSN 2210-9099 eISSN 2233 -6052	Published
3	Mohd Ridzuan J, Aziah BD, Zahiruddin WM, <i>The Occupational Hazard Study for Leptospirosis among Agriculture Workers</i> , International Journal of Collaborative Research on Internal Medicine & Public Health, 2016, Vol. 8 no. 3	Published
4	Mohd Azimullah AZ, Aziah BD, Fauziah MN, <i>Characteristics, Geographical Pattern and Associated Factor of Leptospirosis in Kelantan 2014</i> , International Journal of Public Health and Clinical Sciences, ISSN 2289-7577, Vol. 3 : No. 4, 2016	Published
5	Mohd Ridzuan J, Aziah BD, Zahiruddin WM, <i>Work Environment-Related Risk Factors for Leptospirosis among Plantation Workers in Tropical Countries: Evidence from Malaysia</i> , The International Journal of Occupational and Environmental Medicine (IJOEM), 2016, Vol. 7, No 3	Published

b) Publications in Other Journals

No.	Publication (authors,title,journal,year,volume,pages,etc.)	Status of Publication (published/accepted/ under review)

c) Other Publications
(book,chapters in book,monograph,magazine,etc.)

No.	Publication (authors,title,journal,year,volume,pages,etc.)	Status of Publication (published/accepted/ under review)

d) Conference Proceeding

No.	Conference (conference name,date,place)	Title of Abstract/Article	Level (International/National)
1	7th National Public Health Conference 11 – 13 Nov 2013 Concorde Hotel, Shah Alam, Selangor	Occupational and Environmental Characteristics among Seropositive Town Service Workers for Leptospirosis in Kelantan, Malaysia	National
2	20th National Conference on Medical and Health Sciences 12 – 14 September 2015 USM Kubang Kerian, Kelantan	The Rise of Lepospirosis in Kelantan 2014 : Characteristics, Geographical Pattern and Associated Factors	National
3	1st International Conference of Environmental and Occupational Health (ICEOH 2014) 7 – 9 April 2014 Putrajaya Marriott Hotel, Putrajaya	The Outcome of Leptospirosis among febrile cases in Northeastern hospitals Malaysia	International
4	4th Asia Pacific Conference on Public Health 7 – 9 September 2015 Kuantan, Malaysia	Evaluation of Environmental Exposure and Leptospirosis: Oil Palm Plantation Workers	International
5	1st Annual International Conference on Public Health 13 – 14 May 2015 Colombo, Sri Lanka	Work Environment Risk Factors Towards Leptospirosis among Oil Palm Plantation Workers in Malaysia : Preliminary Results,	International
6	2nd International Conference on Advances in Medical Science (ICAMS 14 – 16 April 2015 Concorde, Kuala Lumpur	a. Leptospirosis among Oil Palm Plantation Workers in Malaysia Socio-Demographic and Occupational Risks (Preliminary Results) b. Serological Survey of Leptospiral Antibody Distribution among Agricultural Workers in Melaka and Johor	International

Please attach a full copy of the publication/proceeding listed above

iii Other Research Ouput/Impact From This Project
(patent, products, awards, copyright, external grant, networking, etc.)

Networking:

1. Municipal Council
2. Institute For Medical Research (IMR)
3. National Public Health Lab

E HUMAN CAPITAL DEVELOPMENT**a) Graduated Human Capital**

Student	Nationality (No.)		Name
	National	International	
PhD	✓		1. Mohamad Azfar Zainuddin 2.
MSc			1. 2.
Undergraduate			1. 2.

b) On-going Human Capital

Student	Nationality (No.)		Name
	National	International	
PhD			1. 2.
MSc			1. 2.
Undergraduate			1. 2.

c) Others Human Capital

Student	Nationality (No.)		Name
	National	International	
Post Doctoral Fellow			1. 2.
Research Officer	✓		1. Kartini binti Daud 2.
Research Assistant			1. 2.
Others (.....)			1. 2.

F COMPREHENSIVE TECHNICAL REPORT

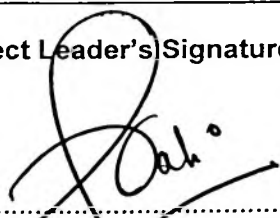
Applicants are required to prepare a comprehensive technical report explaining the project. The following format should be used (this report must be attached separately):

- Introduction
- Objectives
- Methods
- Results
- Discussion
- Conclusion and Suggestion
- Acknowledgements
- References

- As Attached III -

G	PROBLEMS/CONSTRAINTS/CHALLENGES IF ANY
	<p><i>(Please provide issues arising from the project and how they were resolved)</i></p>
H	RECOMMENDATION
	<p><i>(Please provide recommendations that can be used to improve the delivery of information, grant management, guidelines and policy, etc.)</i></p> <ol style="list-style-type: none"> 1. This study could be used for prevention and control of leptospirosis in occupational risk group and town service workers in particular 2. To conduct a study of Leptospirosis Interactive Health Promotion Module (LIHPM) for health promotion or education program in high risk for leptospiral infection town service workers. 3. To conduct a study to be performed on the possible reservoirs animals and possible leptospires contaminated water and soil in the environment around the workplace and to a greater extend the residential area of seropositive subjects.. 4. To control the local Leptospira serovar strains endemic to Malaysia. For example, the findings from future studies in this area can be used for prevention and control of leptospirosis as better understanding realization on how pathogenic Leptospira spp. interact with environment and with their animal hosts to cause the disease. 5. To suggest for further research on leptospirosis among other high risk occupations such as farmers, veterinarians and slaughterhouse workers as the findings will provide a wider picture on leptospirosis among occupational risk groups in Malaysia.

Project Leader's Signature:



.....
Name : PROF. MADYA DR. AZIAH DAUD
Project Leader
Effectiveness of Interactive Health Promotion
Date Module In Improving Knowledge, Attitude and Practice
On Leptospirosis Among Town Service Workers In Kelantan
1001 / PPSP / 812131

08/09/2016

I

COMMENTS, IF ANY/ENDORSEMENT BY PTJ'S RESEARCH COMMITTEE

Kemajuan cemerlang . out put cemerlang
jela mengenai Spinekitan , & abstrak prosedij
dan menyelia segij pelajar M.D .
Aperatwi utk tutup-



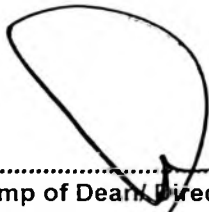
Signature and Stamp of Chairperson of PTJ's Evaluation Committee

PROFESOR (DR) ROSLINE HASSAN
Chairman Of Research committee
School Of Medical Sciences
Health Campus
Universiti Sains Malaysia
16150 Kubang Kerian, Kelantan.

Name :

Date :

22/5



Signature and Stamp of Dean/Director of PTJ

PROFESOR (DR) AHMAD SUKARI HALIM
Dean

Name :

Date :

Pusat Pengajaran Sains Perubatan
Kamp. Kesihatan
Universiti Sains Malaysia
16150 Kubang Kerian, Kelantan.



BORANG PENYERAHAN ASET / INVENTORI

A. BUTIR PENYELIDIK

1. NAMA PENYELIDIK : PROF MADYA DR AZIAH DAUD
 2. NO STAF : 0971 / 10
 3. PTJ : PUSAT PENGAJIAN SAINS PERUBATAN
 4. KOD PROJEK : 1001/PPSP/812131
 5. TARIKH TAMAT PENYELIDIKAN : 31 AUGUST 2016

B. MAKLUMAT ASET / INVENTORI

BIL	KETERANGAN ASET	NO HARTA	NO. SIRI	HARGA (RM)
1	TIADA PEMBELIAN	-	-	-

C. PERAKUAN PENYERAHAN

Saya dengan ini menyerahkan aset/ inventori seperti butiran B di atas kepada pihak Universiti:

.....
 (PROF MADYA DR AZIAH DAUD)

Tarikh: 08 September 2016

D. PERAKUAN PENERIMAAN

Saya telah memeriksa dan menyemak setiap alatan dan didapati :

- Lengkap
 Rosak
 Hilang : Nyatakan.....
 Lain-lain : Nyatakan

Diperakukan Oleh :

.....
 Tandatangan Nama :
 Pegawai Aset PTJ Tarikh :

***Nota :** Sesalinan borang yang telah lengkap perlulah dikemukakan kepada Unit Pengurusan Harta, Jabatan Bendahari dan Pejabat RCMO untuk tujuan rekod.

E. ABSTRACT OF RESEARCH

(An abstract of between 100 and 200 words must be prepared in Bahasa Malaysia and in English. This abstract will be included in the Annual Report of the Research and Innovation Section at a later date as a means of presenting the project findings of the researcher's to the University and the community at large)

Abstrak Penyelidikan

(Perlu disediakan di Antara 100 – 200 perkataan di dalam Bahasa Malaysia dan juga Bahasa Inggeris. Abstrak ini akan dimuatkan dalam Laporan Tahunan Bahagian Penyelidikan & Inovasi sebagai satu cara untuk menyampaikan dapatan projek tuan/puan kepada pihak Universiti & masyarakat luar)

ABSTRACT**INTRODUCTION**

Seroprevalence, risk factors and the effectiveness of Interactive Health Promotion Module in improving knowledge, attitude and practice on leptospirosis among town service workers in Kelantan. Leptospirosis is presumed to be the most widespread re-emerging zoonotic disease of global importance affecting humans especially in tropical, subtropical and temperate zones.

METHODS

This study aims to determine the seroprevalence, knowledge, attitude and practice (KAP) and risk factors for leptospirosis and the effectiveness of Leptospirosis Interactive Health Promotion Module (LIHPM) among town service workers in Kelantan. In Phase One, a cross sectional study was conducted among 321 town service workers who fulfilled the study criteria and were randomly selected from four districts in Kelantan. Interviewer guided sessions using a validated questionnaire which consists of socio-demographic, occupational, environmental and recreational history as well as KAP questions were done with the subjects. Blood sample was taken from each subject for enzyme-linked immunosorbent assay (ELISA) and microscopic agglutination test (MAT). In Phase Two, an intervention study was done involving 69 'high risk for leptospirosis seropositivity' subjects that were selected using Leptospirosis Risk Factor Checklist, in which 32 subjects from Kota Bharu Municipal Council were assigned in intervention group whereas 37 subjects from Tanah Merah, Kuala Krai and Gua Musang District Councils were assigned to control group. LIHPM was given to the intervention group while the control group received no intervention. The baseline KAP score was taken as the pre-intervention score while post-intervention KAP score was taken six weeks after intervention completion.

RESULTS

All respondents were Malay race, predominantly males with the mean age of 40.6 (SD 10.28) years old. The mean duration of employment was 12.1 (SD 9.62) years. The overall seroprevalence of leptospirosis was 25.5% and the predominant serovar identified was Sarawak (59.8%). In the KAP assessment, most of the workers had moderate score for Knowledge domain and unsatisfactory score for Practice domain whereas for Attitude domain, the percentage of those who had satisfactory score (52%) were slightly higher than those with unsatisfactory score (48%). Occupational factors (worked overtime, contact with animal while working and rats sighting at worksite) and environmental factor (live \leq 200 meters from river) were identified as risk factors for leptospirosis exposure whereas recognized protective factors in this study were workers with older age, wearing boots while working and washed hand with soap after work. Six weeks after intervention completion, there was a significant increase of KAP mean score in intervention group (mean difference in intervention group was 34.31 for Knowledge domain (95% CI: 25.52, 43.10; $p < 0.001$), 27.34 for Attitude domain (95% CI: 23.13, 31.55; $p < 0.001$) and 26.74 for Practice domain (95% CI: 22.56, 30.92; $p < 0.001$)) compared to control group which had no significant increase of KAP mean score.

CONCLUSION

The present study confirms that town service workers in Kelantan are high risk occupational group for leptospiral infection. There were a close association between leptospirosis seropositivity with socio-demographic, occupational and environmental factors. The workers' KAP were unsatisfactory that justify the intervention program using LIHPM, which was found to be effective in improving KAP on leptospirosis among town service workers in Kelantan.

KEYWORDS

leptospirosis, town service workers, seroprevalence, knowledge, attitude, practice, intervention

ABSTRAK

PENGENALAN

Seroprevalen, faktor-faktor risiko dan keberkesanan Modul Promosi Kesihatan Interaktif dalam meningkatkan pengetahuan, sikap dan amalan tentang leptospirosis di kalangan pekerja perkhidmatan perbandaran di Kelantan. Leptospirosis dianggap sebagai penyakit zoonotik yang mempunyai kepentingan global atas kesannya terhadap manusia telah muncul semula dan tersebar luas terutamanya dalam zon tropika, sub-tropika dan zon beriklim sederhana.

METODOLOGI

Kajian ini dilaksanakan untuk menentukan seroprevalen, pengetahuan, sikap dan amalan (PSA) dan faktor-faktor risiko berkaitan leptospirosis dan keberkesanan Modul Promosi Kesihatan Interaktif Leptospirosis (MPKIL) di kalangan pekerja perkhidmatan perbandaran di Kelantan. Dalam Fasa Satu, satu kajian hirisan lintang telah dijalankan di kalangan 321 pekerja perkhidmatan perbandaran yang memenuhi kriteria yang diperlukan yang telah dipilih secara rawak dari empat daerah di Kelantan. Sesi bimbingan penemuramah menggunakan borang soal selidik yang telah divalidasi dan mengandungi soalan-soalan sosiodemografi, sejarah pekerjaan, persekitaran dan rekreasi serta PSA telah diadakan bersama peserta. Sampel darah telah diambil dari setiap peserta untuk ujian makmal (ELISA dan MAT). Dalam Fasa Dua, satu kajian intervensi telah diadakan melibatkan 69 peserta 'berisiko tinggi untuk seropositif terhadap leptospirosis' yang telah dipilih menggunakan Senarai Semak Faktor Risiko Leptospirosis, di mana 32 peserta dari Majlis Perbandaran Kota Bharu telah diletakkan di dalam kumpulan intervensi manakala 37 peserta dari Majlis Daerah Tanah Merah, Kuala Krai dan Gua Musang telah diletakkan sebagai kumpulan kawalan. MPKIL telah diberikan kepada kumpulan intervensi manakala kumpulan kawalan tidak menerima sebarang intervensi. Markah PSA semasa Fasa Satu kajian diambil sebagai markah sebelum intervensi manakala markah PSA selepas intervensi diambil enam minggu selepas intervensi tamat.

KEPUTUSAN

Semua peserta adalah berbangsa Melayu, dengan kebanyakannya lelaki dengan min umur 40.6 (SD 10.28) tahun. Min tempoh pekerjaan adalah 12.1 (SD 9.62) tahun. Seroprevalen leptospirosis adalah 25.5% dan serovar yang paling banyak dikesan adalah Sarawak (59.8%). Dalam penilaian PSA, kebanyakan pekerja mempunyai domain Pengetahuan tahap sederhana tentang penyakit leptospirosis dan mendapat markah domain Amalan yang tidak memuaskan manakala bagi domain Sikap, peratusan peserta yang mendapat markah memuaskan (52%) tinggi sedikit berbanding mereka yang mendapat markah yang tidak memuaskan (48%). Faktor-faktor pekerjaan (bekerja lebih masa, sentuhan dengan haiwan semasa bekerja dan melihat tikus di tempat kerja) dan persekitaran (pekerja yang tinggal ≤ 200 meter dari sungai) telah dikenalpasti sebagai faktor-faktor risiko terhadap pendedahan kepada penyakit leptospirosis manakala faktor-faktor perlindungan terhadap leptospirosis yang telah dikenalpasti dalam kajian ini adalah golongan pekerja yang lebih berumur, memakai kasut but semasa bekerja dan membasuh tangan menggunakan sabun selepas bekerja. Enam minggu selepas tamatnya intervensi, terdapat peningkatan signifikan min markah PSA dalam kumpulan intervensi (perbezaan min dalam kumpulan intervensi adalah 34.31 bagi domain Pengetahuan (95% CI: 25.52, 43.10; $p < 0.001$), 27.34 bagi domain Sikap (95% CI: 23.13, 31.55; $p < 0.001$) dan 26.74 bagi domain Amalan (95% CI: 22.56, 30.92; $p < 0.001$)) berbanding kumpulan kawalan yang tiada peningkatan signifikan.

KESIMPULAN

Kajian ini mengesahkan bahawa pekerja perkhidmatan perbandaran adalah golongan pekerja yang berisiko tinggi mendapat jangkitan leptospirosis. Terdapat perkaitan rapat antara seropositif terhadap leptospirosis dan faktor-faktor sosiodemografi, pekerjaan dan persekitaran. Tahap PSA pekerja yang tidak memuaskan memberikan justifikasi pelaksanaan intervensi menggunakan MPKIL, di mana MPKIL telah dikenalpasti efektif dalam meningkatkan PSA terhadap penyakit leptospirosis di kalangan pekerja perkhidmatan perbandaran di Kelantan.

KATA KUNCI

leptospirosis, pekerja perkhidmatan perbandaran, seroprevalen, pengetahuan, sikap, amalan, intervensi

UNIVERSITI SAINS MALAYSIA
JABATAN BENDAHARI
KUMPULAN WANG UNIVERSITI PENYELIDIKAN (RU)
PENYATA PERBELANJAAN SEHINGGA 31 OGOS 2016

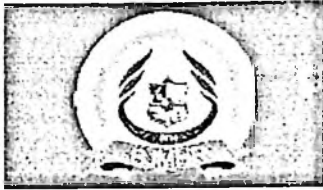
Jumlah Geran : RM 199,547.50 Ketua Projek : DR. AZIAH DAUD

Peruntukan DIS 2013 : 105,857.50
(Tahun 1) Tajuk Projek: EFFECTIVENESS OF INTERACTIVE HEALTH PROMOTION MODULE IN IMPROVING KNOWLEDGE, ATTITUDE AND PRACTICE ON LEPTOSPIROSIS AMONG TOWN SERVICE WORKERS IN KELANTAN

Peruntukan DIS 2014 : 93,690.00
(Tahun 2) Tempoh : 2 Tahun (01/12/2013-30/11/2015)
Lanjut tempoh : 9B (01/12/2015 - 31/08/2016)

No. Akaun : 1001/PPSP/812131

Kwgan	Akaun	PTJ	Projek	Peruntukan Projek	Perbelanjaan Terkumpul sehingga Tahun lalu	Peruntukan Semasa	Tanggungjawab Semasa	Bayaran Tahun Semasa	Belanja Tahun Semasa	Baki Projek
1001	11000	PPSP	812131	60,000.00	50,470.20	9,529.80	-	21,246.80	21,246.80	(11,717.00)
1001	14000	PPSP	812131	5,500.00	-	5,500.00	-	-	-	5,500.00
1001	15000	PPSP	812131	-	-	-	-	-	-	-
1001	21000	PPSP	812131	10,795.00	21,079.89	(10,284.89)	-	2,106.30	2,106.30	(12,391.19)
1001	22000	PPSP	812131	-	-	-	-	-	-	-
1001	23000	PPSP	812131	500.00	446.55	53.45	-	320.00	320.00	(266.55)
1001	24000	PPSP	812131	-	-	-	-	-	-	-
1001	25000	PPSP	812131	-	10.90	(10.90)	-	125.12	125.12	(136.02)
1001	26000	PPSP	812131	-	-	-	-	-	-	-
1001	27000	PPSP	812131	87,052.50	22,847.85	64,204.65	96.50	15,460.26	15,556.76	48,647.89
1001	28000	PPSP	812131	5,000.00	-	5,000.00	-	-	-	5,000.00
1001	29000	PPSP	812131	30,700.00	38,257.05	(7,557.05)	5,124.00	21,035.92	26,159.92	(33,716.97)
1001	32000	PPSP	812131	-	-	-	-	-	-	-
1001	35000	PPSP	812131	-	-	-	-	-	-	-
1001	52000	PPSP	812131	-	43.84	(43.84)	-	875.89	875.89	(919.73)
				199,547.50	133,156.28	66,391.22	5,220.50	61,170.29	66,390.79	0.43



The Development of a Leptospirosis Screening Index for Oil Palm Plantation Workers

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ABSTRACT

Leptospirosis, a potentially fatal bacterial infection, is endemic in tropical and sub-tropical countries. Agricultural workers are at greater risk because of their increased contact with the environment. This study aimed to develop a leptospirosis screening index for oil palm plantation workers. It involved 350 oil palm plantation workers in southern Malaysia using an interviewer-guided questionnaire and serological microscopic agglutination test (MAT) with cut-off titre for seropositive at $\geq 1:100$. A new 13-point screening index was developed based on six significant leptospirosis associated factors of 'fruit collector job', 'did not wear rubber glove PPE', 'working with the presence of hand wound', 'did not wash hands with soap after work before eating or drinking', 'presence of cows in the plantation' and 'presence of a landfill site in the plantation'. The screening index has good discriminatory power of 83.9 percent. The newly-developed evidence-based screening index will likely help identify which of the many Malaysian oil palm plantation workers are most at risk of leptospirosis infection.

Keywords: Leptospirosis, screening index, microscopic agglutination test, oil palm plantation workers

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ORIGINAL ARTICLE

Study on Seroprevalence and Leptospiral Antibody Distribution among High-risk Planters in Malaysia

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1. Introduction

Leptospirosis is a potentially fatal bacterial infection recognized as a zoonotic spirochetal disease. The disease is also considered as a re-emerging global public health issue of worldwide importance, especially in tropical and subtropical countries. The exact number of human cases in the world is not precisely known because of the lack of surveillance data worldwide [1]. Recent data have shown that Malaysia is an endemic country for leptospirosis, with an increased number of reported cases and outbreaks and a significant number of deaths over the past decade [2,3]. The prevalence of leptospirosis in Malaysia increased from 2004 to 2009, and the case fatality rate within that period varied from 1.8% to 7.6% [4].

Leptospirosis is transmitted to humans through skin or the mucous membrane coming into contact with water, moist soil, vegetation, or environmental surfaces

contaminated with the urine of an infected animal. Symptomatic leptospirosis usually manifests itself as a range of diseases from a flu-like illness to Weil's syndrome, with the case fatality rate ranging from 5% to 15%, and is characterized by jaundice, renal failure, and hemorrhage [5]. The past outbreaks of leptospirosis in developed countries were often related to recreational activities, whereas these outbreaks tended to be seasonal in nature, related to animal activities, and related to agricultural and occupational factors in developing countries [6,7]. A recent hospital-based study reported that the majority of leptospirosis cases in Malaysia were among agricultural workers [8].

The palm oil industry is the main agricultural sector in Malaysia, one of the world's main palm oil exporters, and it accounts for 77% of the total agricultural land and has become the fourth largest contributor to the Malaysian economy [9,10]. The available data show that the palm oil industry in Malaysia is a major sector of employment, with the industry supporting more than 1.4 million jobs and 468,056 people hired as field workers in plantations [10,11].

2. Materials and methods

2.1. Study design and population

A cross-sectional study was conducted in June 2014 involving 10 oil palm plantations in Melaka and Johor, which are southern states of Malaysia. The study was granted ethical approval by the Research and Ethics Committee (Human), School of Medical Sciences,

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The Occupational Hazard Study for Leptospirosis among Agriculture Workers

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Abstract

Introduction: Leptospirosis is a re-emerging zoonotic, occupational disease especially in tropical countries. Oil palm plantation workers are likely to be exposed to the leptospiral infection due to their manual work practices with frequent environment contact.

Objective: The aim of this study was to determine the seroprevalence of leptospirosis and to identify the work practices risk factors for leptospirosis infection among oil palm plantation workers in Malaysia.

Methods: This cross-sectional study involved 350 oil palm plantation workers in southern Malaysia using an interviewer-guided questionnaire. In addition, blood samples were taken for serological testing using a microscopic agglutination test conducted at the Institute of Medical Research; the cut-off titre for seropositive was $\geq 1:100$.

Results: The overall seroprevalence of leptospiral antibodies was 28.6%. The significant work practices risk factors found to be associated with seropositive leptospirosis were 'did not wear rubber glove PPE' (AOR: 5.25; 95% CI: 2.88, 9.56; $p < 0.001$), 'working with the presence of hand wound' (AOR: 3.13; 95% CI: 1.83, 5.36; $p < 0.001$), and 'did not wash hands with soap after work before eating or drinking' (AOR: 3.97; 95% CI: 2.25, 7.02; $p < 0.001$).

Conclusion: The high seroprevalence of leptospirosis shows that this group of workers are at high risk of *Leptospira* infection. The notable associated work practice factors provide a clear indication that awareness towards the risk of this disease is important and the infection can probably be prevented by stressing these modifiable factors through intervention programmes.

Keywords: Leptospirosis, risk factors, microscopic agglutination test, oil palm plantation workers

Introduction

Leptospirosis is a re-emerging, potentially fatal, zoonotic, occupational disease of worldwide importance, especially in tropical and subtropical countries. It is estimated that annually, the

CHARACTERISTICS, GEOGRAPHICAL PATTERN AND ASSOCIATED FACTOR OF LEPTOSPIROSIS IN KELANTAN 2014

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ABSTRACT

Introduction: Leptospirosis is a zoonotic disease largely attributed to climatic and environmental condition. The occurrence signifies the complex interaction between man, animal host and the environment whereby socioeconomic status, occupation, association with animals, recreational activity and climate are all connected with occurrence of leptospirosis. The aim of this study was to determine the sociodemographic characteristics, geographical pattern and associated factors of leptospirosis in Kelantan 2014.

Methods: This was a cross-sectional study done among leptospirosis cases in Kelantan 2014 based on E-notifikasi database from January 2014 to December 2014. Climate data were taken from National Meteorology Department. The data were analyzed using IBM SPSS 22 and Map Source Version 6 Software.

Results: There were 620 confirmed Leptospirosis cases in Kelantan. Majority was Malay (88.7%) and male (63.7%). The mean (SD) age was 33.2 (18.23) years with age range from 2 to 89 years old. Most were in low risk occupational group (61.3%). Multiple logistic regression analysis showed high risk occupation (adjusted OR: 1.671, 95% CI: 1.228, 2.273, $p=0.001$) and age (adjusted OR: 1.010, CI: 1.003, 1.018, $p= 0.008$) were the significant associated factors. In relation to rainfall, majority of the cases occur from August to December 2014 with rainfall range from 160.3 mm to 1092.6 mm. Most resided in settlement area (22.9%), followed by plantation (16.1%), rural area (14.4%) and paddy field (13.8%).

Conclusions: High risk occupation mostly agricultural workers and food handlers were associated with leptospirosis. Rainfall distribution and type of land were observed to influence number of leptospirosis cases in Kelantan. Combination of these multifactorial factors contributed to leptospirosis in Kelantan 2014.

Keywords: Leptospirosis, high risk occupation, rainfall distribution



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Work Environment-Related Risk Factors for Leptospirosis among Plantation Workers in Tropical Countries: Evidence from Malaysia

J Mohd Ridzuan, BD Aziah,
WM Zahiruddin

Abstract

Background: Leptospirosis is a zoonotic disease that is recognized as a re-emerging global public health issue, especially in tropical and subtropical countries. Malaysia, for example, has increasingly registered leptospirosis cases, outbreaks, and fatalities over the past decade. One of the major industries in the country is the palm oil sector, which employs numerous agricultural workers. These laborers are at a particularly high risk of contracting the disease.

Objective: To identify the work environment-related risk factors for leptospirosis infection among oil palm plantation workers in Malaysia.

Methods: A cross-sectional study involving 350 workers was conducted. The participants were interviewed and administered a microscopic agglutination test. Seropositivity was determined using a cut-off titer of $\geq 1:100$.

Results: 100 of 350 workers tested positive for leptospiral antibodies, hence, a seroprevalence of 28.6% (95% CI 23.8% to 33.3%). The workplace environment-related risk factors significantly associated with seropositive leptospirosis were the presence of cows in plantations (adjusted OR 4.78, 95% CI 2.76 to 8.26) and the presence of a landfill in plantations (adjusted OR 2.04, 95% CI 1.22 to 3.40).

Conclusion: Preventing leptospirosis incidence among oil palm plantation workers necessitates changes in policy on work environments. Identifying modifiable factors may also contribute to the reduction of the infection.

Keywords: Leptospirosis; Workplace; Risk factors; Agglutination tests; Agricultural workers' diseases

Introduction

Leptospirosis, a disease caused by spirochetes of the genus *Leptospira*, is a globally re-emerging bacterial

zoonotic disease that affects both humans and animals. It is transmitted to humans through contact between the skin or mucous membrane and water, moist soil, vegetation, or environmental surfaces that are

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Oral 46

OCCUPATIONAL AND ENVIRONMENTAL CHARACTERISTICS AMONG SEROPOSITIVE TOWN SERVICE WORKERS FOR LEPTOSPIROSIS IN KELANTAN, MALAYSIA

Mohamad Azfar Z¹, Aziah D¹, Mohd Nazri S¹,
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Leptospirosis is presumed to be the most widespread re-emerging zoonotic disease of global importance affecting humans in tropical, subtropical and temperate zones. This study was designed to determine the seroprevalence of leptospirosis among town service workers in Kelantan, Malaysia and to describe their occupational and environmental characteristics. A cross sectional study was conducted from January until March 2013 among 321 town service workers who fulfilled the inclusion and exclusion study criteria and were randomly selected from four districts in Kelantan. Workers were interviewed using a validated questionnaire which consists of socio-demographic, occupational and environmental history and venous blood was taken from each subject for microscopic agglutination test (MAT). Sixty nine out of 321 Malay respondents (21.5%) were seropositive for leptospirosis and the predominant pathogenic serovar identified was Sarawak (52.2%). Majority of the seropositive respondents were males (92.8%) with the mean of age of 37.1 (SD 9.78) years old. The mean duration of employment was 9.6 (SD 7.82) years and the 'Town Cleaner' job category recorded the highest seropositive subjects (53.6%). Noncompliance to use of personal protective equipment and unsatisfactory personal hygiene practice during or after work were high, 68.1% and 65.2% respectively. Among important known environmental factors that were associated with increased risk of leptospirosis infection studied were presence of rodents in house (81.2%), distance from house to river $\leq 200\text{m}$ (39.1%) and house area affected by flood (31.9%). In conclusion, occupational and environmental factors contribute to high seroprevalence of leptospirosis among town service workers in Kelantan, Malaysia.

The findings from this study could be used for planning of intervention program for these high risk populations.

Keywords: town service workers, leptospirosis, seroprevalence, occupational characteristics, environmental characteristics

Oral 47

IMPLEMENTATION OF WEB-BASED GEOGRAPHICAL INFORMATION SYSTEM (GIS) APPLICATION FOR MAPPING OF HEALTH FACILITIES, SERVICES AND PROVIDERS IN MALAYSIA

Hazrin H, Tahir A, Fadhli Y

Institute for Public Health, MOH

This study is to design, develop, create, deploy, test and deliver, together with documentation, help manual and training for web-based Geographic Information Systems (GIS) application of health facilities and services under Ministry of Health, Malaysia. The system is web-based mapping and navigation can be used with Internet search engines such as Internet Explorer and Mozilla Firefox. The development of web mapping system was programmed by using ArcGIS Server. Tools and GIS software functions will be simplified to allow the search and analysis process to be done easier. There are four modules in the system created. First module is 'view'; for displaying list of health facilities in the system. Second module is 'search'; for obtaining information on health facilities, services, providers and specialities. Third module is 'analysis'; for gathering geographic information of an area, get ratios facilities, services, and providers of services to the population, analysis of the buffer zone (buffer) to find coverage of a health facility for a certain distance and other geostatistical analysis. Last module is 'tools' for issuing the results of the analysis in the form of tables, graphs and maps that can be stored or printed. The system is controlled by the administrator whereby users are required to request to use this application. Web mapping can be expanded by using smartphones and tablets that supports Android, iOS and Windows. This system can also know the distribution of the disease in real time whereby appropriate users can update through online. Web mapping application enables users to use the GIS database to gather information on facilities, services and service providers without having to have an in depth knowledge in the field of GIS or using GIS software. This system can be used to assist stakeholders in the Ministry of Health in planning and developing facilities and services in Malaysia. It can reduce the use of human resources especially in monitoring and

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OP3: THE RISE OF LEPTOSPIROSIS IN KELANTAN 2014: CHARACTERISTICS, GEOGRAPHICAL PATTERN AND ASSOCIATED FACTORS

Mohd Azimullah Bin Abdullah @ Zakaria, Azlah Daud

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Introduction:

Leptospirosis is a zoonotic disease largely attributed to climate and environmental condition. The occurrence signifies the complex interaction between man, animal host and the environment whereby the socioeconomic status, occupation, association with animals, recreational activity, climate and rainfall are all connected with leptospirosis.

Objective:

To determine the sociodemographic characteristics, geographical pattern and associated factors of confirmed leptospirosis in Kelantan 2014.

Methods:

This was a cross-sectional study done among confirmed leptospirosis cases in Kelantan 2014 based on E-notifikasi database from January 2014 to December 2014. Data for rainfall and temperature changes in 2014 taken from the National Meteorology Department. The data were analyzed using IBM SPSS 22 and Map Source Version 6 Software.

Results:

There were 620 confirmed Leptospirosis cases in Kelantan in year 2014 distributed in all districts with 17 mortality. The majority were Malay (88.7%) and male (63.7%) outnumbered female cases (36.3%). The mean (SD) age was 33.2 (18.23) years with age ranged from 2 to 89 years old. Most were in the low risk occupational group. Logistic regression analysis showed that high risk occupation group and age were the significant associated factors. In relation to rainfall, the majority of the cases occurred from August to December 2014 with rainfall range from 160.3 mm to 1092.6 mm. Most resided in the settlement area (22.9%), followed by plantation (16.1%), rural area (14.4%) and paddy field (13.8%).

Conclusion:

The rise of leptospirosis in Kelantan in 2014 was unevenly distributed in all districts. High risk occupation mostly agricultural workers and food handlers were associated with leptospirosis. Rainfall distribution and type of land were observed to influence number of leptospirosis cases in Kelantan. The combination of the multifactorial factors contributed to the rise of leptospirosis in Kelantan 2014 thus require multisectorial control and prevention strategies to combat the disease.

OP4: STRATIFICATION OF DENGUE INDUCED ACUTE KIDNEY INJURY BY USING CONVENTIONAL, AKIN AND RIFLE DEFINITIONS: A COMPARATIVE ANALYSIS

Tauqeer Hussain Mallhi¹, Amer Hayat Khar Azmi Sariff¹, Azreen Syazril Adnan², Yus Habib Khan¹, Fauziah Jummaat³, Nurul Jannah Ambak², Siti Nur Farliza²

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- 3 Department of Obstetrics and Gynecology, School of Medical Sciences, Health Campus, Universiti Sains Malaysia, Kubang Kerian, Kelantan*

Introduction:

Acute kidney injury (AKI) during dengue infection has been stratified by several definitions resulting in variations in incidence and clinico-laboratory characteristics of AKI.

Objective:

To compare three commonly used definitions of AKI among dengue patients.

Methods:

It was a retrospective study involving a total of 413 dengue patients were defined and staged according to conventional definition (CD), AKIN and RIFLE criteria. All three definitions were compared by using Chi-square, student t test and one way ANOVA. Logistic regression was used to determine predictors of AKI.

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