



2nd ICHMS & 2nd LSC

PROCEEDING

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The 2nd International Conference of Medical and Health Sciences (ICMHS) and The 2nd Life Sciences Conference (LSC) 2016

*"Towards a Better Quality of Life
through Interdisciplinary Research"*

Yogyakarta, 9th-10th December 2016
The Alana Hotel and Convention Center

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**The 2nd International Conference of Medical & Health Sciences
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**Chair person of The 2nd International Conference of Medical and
Health Sciences and The 2nd Life Sciences Conference 2016**



Welcome to Jogja, sugeng rawuh!

For the second time, the Faculty of Medicine and Health Sciences Universitas Muhammadiyah Yogyakarta is going to conduct the 2nd International Conference of Medical and Health Sciences (ICMHS) this December in vibrant Yogyakarta, Indonesia. This year we are going to collaborate with the Life Sciences Society of Pakistan for their 2nd Life Sciences Conference (LSC) with Dr. Zahid Iqbal as the general secretary.

This year's conference theme "Towards a better quality of life through interdisciplinary research" will be celebrating an era of seamless interdisciplinary integration and collaboration in scientific innovations with the involvement of more extensive topics and disciplines in the conference. We aim to exhibit the products of that kind of approach in solving challenges, improving the quality of life, and creating sustainable developments. We are happy to announce that our conference is filled with Invited speakers from Pakistan, United States of America, Uni Emirates Arab, Malaysia and Indonesia. Presentations will be conducted in oral as well as poster that covers topics from medicine, public health, dentistry, pharmacy, biomedical to agriculture. To put more credibility to the conference we are collaborating with Isra Medical Journal and the Asian Journal of Agriculture and Biology to publish selected papers from the event. Other paper will be published in the ISBN Proceeding book.

The last but not least, enjoy the conference, start networking and sharing ideas, and let immerse yourself to the heritage cultural ambient of Jogja, sumonggo!

Yogyakarta, 1st December 2016

dr. Iman Permana, M.Kes, Ph.D.

**The 2nd International Conference of Medical & Health Sciences
and
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**Dean of Faculty of Medicine and Health Sciences,
Universitas Muhammadiyah Yogyakarta**



Assalamu'alaikum Wr. Wb.

Science, especially in the areas of health and life growing more rapidly. We need to work together in the research of various disciplines to the advancement of science and to provide benefits to human life.

After successfully organized international scientific meeting last year, the Faculty of Medical and Health Sciences Universitas Muhammadiyah Yogyakarta, held the second scientific meeting ICMHS along with "2nd Life Sciences Conference". In this second scientific meeting, FKIK UMY collaborates with various researchers, among others from Pakistan, Malaysia, and the United States. Taking the theme "Towards a better quality of life through interdisciplinary research" we hope to establish cooperation with various parties to be able to contribute ideas to the civilization of human life.

Finally, we congratulate the scientific meeting in the city of Yogyakarta Indonesia. Enjoy the beautiful city of Yogyakarta with priceless historical relics. We hope that this meeting can run smoothly and provide benefits to the advancement of knowledge.

Wassalamu'alaikum Wr. Wb.

Yogyakarta, 1st December 2016

dr. Ardi Pramono, M.Kes, Sp.An.

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and
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Rector of Universitas Muhammadiyah Yogyakarta



Assalaamu'alaikum Wr. Wb.

Ladies and Gentlemen,

Welcome to the 2nd International Conference on Medical and Health Science in conjunction with the 2nd Life Sciences Conference 2016

Welcome to Yogyakarta City of Tolerance

Our Faculty of Medicine and Health Sciences has been doing such international conference almost every year for the last ten years. This and other previous conferences are the things that supporting our vision as an excellence and Islamic university, a young and global university. We will always try to keep monitoring the development of science through sending more lecturers to do the sabbatical leave overseas, doing international research collaborations and also the international conference. Each department should do this strategy of internationalization so that each department has its own network. Faculty of medicine and health science is one of the most progressive units in implementing this strategy by inviting international experts on a regular basis. This program will certainly strengthen our vision.

International conference on medicine and health sciences is a smart choice to offer our lecturers access to the most recent development of the subjects. The participants will also gain the same knowledge and latest information on medicine and health sciences. As everyone knows that the development of science and technology are faster today compared to the previous period. Information technology, computer, and other development havefastened the transformation of medicine and health science into the different and more complex stage.

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Cellular technology, for instance, can be used for several functions including those that directly impacts our daily life. There is no long distance call anymore today because cellular phone can do everything we need to contact other people far from where we stand anytime anywhere. People will finally innovate cellular phone for the sake of personal health services. We will in the future using our simple cellular phone to detect our body temperature, blood pressure, even how much fat we have in our body and how much it is supposed to be. We may also be able to check the health of our body without leaving our house and order medicine without going into the drug store. Everything is almost possible as long as we think hard for the better of people in the future. Enjoy the conference and don't forget to visit our rich tourist destinations, mountains, beaches or caves (underground waterways).

Thank you

Wassalaamu'alaikum Wr. Wb.

Prof. Dr. Bambang Cipto, MA

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Keynote Speech

**by Head of Provincial Health Office Special Region of Yogyakarta
in International Conference
of Medical and Health Sciences and Life Sciences Conference**

The Alana Hotel and Convention Center, Yogyakarta, December 9-10, 2016

The honorable:

- Rector of Muhammadiyah University of Yogyakarta,
- The Dean of Medical and Health Sciences Muhammadiyah University of Yogyakarta,
- The chairman of organizing committee of the international conference of medical and health,
- Distinguished guests and colleagues.

Assalamu'alaikum Warahmatullahi Wabarakatuh,

First of all, we thank God for His blessings that today we may attend the International Conference of Medical Health Towards a Better Quality of Life Through Interdisciplinary Research in Yogyakarta.

My distinguished colleagues,

In Indonesia National Long Term Development Plan (2005-2024), the Indonesian Ministry of Health have determined a paradigm shift that have governed health services in health development plan. There has been a shift from Curative Health Services to Preventive and Promotive Health Services.

Recently, Indonesia suffers from a triple burden of diseases as health development challenges. The triple burden of diseases are: 1) the backlog of common infections, undernutrition, and maternal mortality; 2) the emerging challenges of non-communicable diseases (NCDs), such as cancer, diabetes, heart disease; and 3) mental illness, and the problems directly related to globalization, like pandemics and the health consequences of climate change.

Dear colleagues,

Here are some data that show several health problems in Indonesia:

1. Maternal mortality rate in 2015 is 4,809 cases, infant mortality rate in 2015 is 22,267 cases;
2. Regarding to children under the age of five, the national stunting rate is 37.2% which consists of 18% for very short dan 19.2% for short (Riskesdas 2013);

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3. HIV testing coverage is 14% dan antiretroviral (ARV) therapy coverage is 65.58% (Directorate General of Disease Control and Prevention Ministry of Health, 2015);
4. Tuberculosis (TB) notification rate in 2015 is 73.5% and tuberculosis treatment success rate is 72% (Directorate General of Disease Control and Prevention Ministry of Health, 2015).

Distinguished guests,

Indonesia Health Development Program in 2015-2019 strengths in improving human quality life through Health Indonesia Program with family approach. The Indonesian Ministry of Health issued The Minister of Health Regulation (Permenkes) No. 39 Year 2016 as a Guideline of Implementation of Health Indonesia Program with Family Approach. This program has 12 main indicators as markers of a family health status. Currently, many health programs have been implemented by Indonesian Ministry of Health, Provincial Health Offices, and District Health Offices. However, many health problems, some as mentioned above, still become health burdens. We may ask a question whether the programs that we conducted have answered the health problems we have in Indonesia.

It would be better if all health programs that we implement based on scientific health research, especially interdisciplinary research. The research should be related to detection, prevention, and treatment of diseases or problem solving for better health.

My dear colleagues,

Being a province with speciality, Special Region of Yogyakarta placed Traditional Medicine as one of the priority programs in Provincial Medium Term Development Plan (2017-2022). We still encounter many challenges in developing Traditional Medicine, especially in providing services which are based on scientific evidence.

Distinguished colleagues,

We look forward to results of interdisciplinary research which would support health problem solving, especially by developing traditional medicine in Yogyakarta. We believe that collaboration in interdisciplinary research would improve quality of human life.

Finally,

Thank you for your attention. We wish you a successful conference.

Wassalamu'alaikum Warahmatullahi Wabarakatuh,

On behalf of
the Head of Provincial Health Office
Special Region of Yogyakarta

Drg. Pembajun Setyaningastutie, M.Kes

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**SPEAKER OF
INTERNATIONAL CONFERENCE**

Zahid Iqbal

Al-Nafees Medical College Isra University Islamabad Campus Islamabad, Pakistan
"One Health Program for Public Health Benefit"

Prof. Dr. Abdul Khaliq

Professor, Department of Agronomy, University of Agriculture, Faisalabad
"Role of Agriculture in Poverty Alleviation of Rural Areas"

Fitri Arofati

Universitas Muhammadiyah Yogyakarta, Indonesia
"Continuing Professional Development of Practicing Nurses in Indonesia"

Tri Wahyuliati

Universitas Muhammadiyah Yogyakarta, Indonesia
"Diabetic Neuropathy - A Chance Towards A Better Treatment"

Mohammad Khalid Ashfaq

University of Mississippi, USA
"Natural Products –Use or Misuse"

Muhammad Mukhtar

American University of Ras Al Khaimah, United Arab Emirates
"Emerging Biotechnologies and Genomic Medicines in Human Health and Well-Being"

Muhammad Sasmito Djati

Brawijaya University Malang, Indonesia
"Herbal Medicine a Holistic Approach: in case of food supplement formulation of Sauropusandrogynus and Elephantopuscaberto modulate immune and hormonal system in pregnant Salmonella typhi infected mice"

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REVIEWER

1. Dr. Zahid Iqbal, Ph.D (Isra University, Islamabad, Pakistan)
2. Prof. Dr. Abdul Khaliq (University of Agriculture, Faisalabad)
3. Dr. Mohammad Khalid Ashfaq, DVM, DTVM, MS, Ph.D (University of Mississippi, USA)
4. Dr. Muhammad Mukhtar, Ph.D (American University of Ras Al Khaimah, United Arab Emirates)
5. Dr. Ir. Muhammad Sasmito Djati, MS. (Brawijaya University Malang, Indonesia)
6. Fitri Arofiati, S.Kep., Ns., MAN., Ph.D (Universitas Muhammadiyah Yogyakarta, Indonesia)
7. Dr. SN Nurul Makiyah, S.Si., M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
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15. Dr. Elsy Maria Rosa, M.Kep (Universitas Muhammadiyah Yogyakarta, Indonesia)
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19. Dra. Lilis Suryani, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
20. Drh. Tri Wulandari K, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
21. Dr. dr. Wiwik Kusumawati, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
22. Sabtanti Harimurti, S.Si., M.Sc., Ph.D., Apt. (Universitas Muhammadiyah Yogyakarta, Indonesia)

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**SPEAKER OF
INTERNATIONAL CONFERENCE**

ICMHS-O-1-11

Environmental Housing Characteristic of Pulmonary Tuberculosis Sufferers in Slum Area

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¹ Universitas Sriwijaya, Indonesia

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Abstract

Tuberculosis, or simply TB, is a deadly disease after HIV-AIDS. Slum area is a potential area which TB factor existing there. The aim of this study was to identify the characteristics of patients with pulmonary tuberculosis in the slums in the city of Palembang. Population study was all households living in slums area around Palembang. Study Sample was households that have household members TB Patient. Respondents were obtained through purposive sampling technique. The study was conducted by using cross sectional design with descriptive approach. Data collected through interviews using a structured questionnaire. The result is majority of TB patients did not have access to information from health personnel, result of study concluded that majority of respondents did not access information about Tuberculosis campaign and educating. Most of respondents had household with the characteristic as follow: house lighting less than 60 or 120 lux, house humidity less than 40% and or 50%, house temperature less than 20^oC and or 25^oC. TB sufferers with a household member who smoked were more than 60% than TB patients with household members who did not smoke. More tuberculosis sufferers were at a young age than older age then women TB sufferers were 3 times more than men, with a status not working, had an income of less than the city local minimum wages and low education. The Conclusion is Environmental factors provide a substantial contribution in the incidence of pulmonary tuberculosis, especially in slum area. Providing information through Information, Education and Communication to the families of TB patients are one of the possible interventions in preventing transmission of TB disease in household members.

Keywords: slum area, pulmonary tuberculosis, environmental housing

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INTRODUCTION

Tuberculosis, known as pulmonary TB is a deadly disease after HIV-AIDS. This disease became epidemic in the world. Indonesia is a country with the highest ranks fourth in the world with pulmonary tuberculosis after South Africa, China and India. In 2014, it was found 9.6 million new cases which 56% came from Southeast Asia.¹ Pulmonary tuberculosis is caused by the bacteria *Mycobacterium tuberculosis* that mostly attacks the lungs. Patients with pulmonary tuberculosis BTA (+) can pass on those around him, especially those in contact closely. Each patient pulmonary tuberculosis BTA (+) can infect 10-15 people per year. Power transmission from a patient with pulmonary tuberculosis BTA (+) is determined by many germs are expelled from the lungs.² Environmental conditions in homes that do not qualify as pulmonary tuberculosis disease transmission media. Environmental factors in the home were significantly associated with the incidence of lung tuberculosis was well ventilated room, room humidity, sunlight, and the density of occupancy.³

Pulmonary TB is a disease that is highly contagious. Transmission of the disease is through the medium of air. Family members who develop pulmonary TB disease is potentially infect other family members. Several previous studies revealed that environmental factors have a very strong relationship with the incidence of this disease. Meanwhile, slum area is densely populated with residential house physical environment that could potentially be a source of disease transmission pulmonary TB.⁴ Interaction knowledge attitudes and behavior and the environment is an important part of prevention efforts against this disease. The low number of TB patients in the region do not necessarily depict the actual conditions, this can be caused by health care facilities that have not dared to diagnose tuberculosis.⁵

Palembang is a metropolitan city which is the second biggest city in Sumatra and the population density has become the most populous city in the province of South Sumatra.⁶ Uneven population density makes some areas in Palembang becomes denser than other regions and eventually creating slums. The houses building in a slum area is semi-permanent buildings made of wood. Environmental condition in the slums is a condition that the risk factor in the spread of disease Pulmonary TB.^{3,7} Some studies stated that person who live with TB patient tended to have TB too.⁸

Palembang is a city with the highest pulmonary tuberculosis patients in South Sumatra.⁶ Data TB cure rate from 2013 to 2014 decreased by 6%, which means success in the treatment of patients with pulmonary TB decreased. Although the success rate of healing of pulmonary TB in Palembang meets the WHO standard is above 84%. In addition, the number of lung TB patient in 2014 also increased compared to the previous year.⁹

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MATERIALS AND METHODS

The population in this study is all households residing in the slums area in Palembang. The study was carried out in a slum area in the city of Palembang, namely the Village Seberang Ulu 1. Sub 1 is one of the villages included in the slums. The sample was members of households who live in the village of Seberang Ulu 1 Palembang. The inclusion and exclusion criteria in the selection of the sample were the following inclusion criteria: aged > 18 years, has been domiciled at least 5 years prior to the study, willing to become respondents. Exclusion criteria: suffering from other infectious diseases (malaria, dengue, etc.), reject to participate. This was descriptive study with survey among 100 respondents with a sampling technique using Simple Random Sampling. We measured variables with structure questionnaire to ask their characteristic such knowledge and attitude. Besides that, we measured characteristic of house by using some instruments such as: Lux meter to assess lighting, Hygro-termo meter to assess humidity and temperature and roll meter to length of house.

RESULTS

Respondents of this study TB patients aged ≤ 41 years in Slum Area more than 30% of TB patients aged > 41 years, with more female sex (75.0%), with the status of the job is unemployment (60,0%), have a monthly income under the Minimum Wages City Palembang as much as 85% and with less than high school education as much as 95.0%. Meanwhile, TB patients who do not have access to information of health personnel more than 40% of TB patients who have access to information from health professionals. The majority of TB patients within 1 km to health care facilities, with a standard deviation of 3.55 km, the closest distance of 0.02 km and the farthest distance of 15 km.

Table 1. Respondent Social Demography Characteristics

Variable	Categories	Percentages (%)
Age	≤ 41 years	65
	>41 years	35
Sex	Female	75
	Male	25
Occupation	Employment	40
	unemployment	60
Income	Under minimum regional wage	85
	Above minimum regional wage	15

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Variable	Categories	Percentages (%)
Education level	< High School	95
	>= High School	5
Health service information access	Yes	30
	No	70

The characteristics of people with TB by human factors/host is explained in Table 2. TB patients have had knowledge and a good attitude (55.0%). TB patients who do not have the habit to smoke more 2-fold compared to TB patients who have the habit of smoking. Nearly all TB patients (95.0%) had no history of HIV / AIDS or diabetes.

Table 2. Host Factors

Variables	Categories	Percentages (%)
Awareness adequacy	Good	55
	Not good	45
Attitude	Good	55
	Not good	45
Smoking Habits	Smoker	25
	Non-smoker	75
Disease history	Yes	5
	No	95

Table 3. describes the characteristics of people with TB by environmental factors. The living environment of TB patients who are not adequate is more than the living environment of TB patients. For lighting, TB patients with a place to stay that is not adequate (<60 Lux or> 120 Lux) more than 40% of TB patients to stay with lighting that is adequate (60 Lux to 120 Lux). In addition, for the humidity and temperature, TB patients with a place to stay that is unadequate humidity (<40% or> 50%) and temperature (<200C or> 250C) more 90% compared to TB patients with a place to stay that does not qualify humidity (40% to 50%) and temperature (200C-250C). However, patients with TB with residential density category are not adequate (≥ 4 m² / person) more than 70% of TB patients with dense residential density categories (<4 m² / person). For the presence of household members who smoke, people with TB have more household members who smoke three times more than people with TB who have household members who do not smoke.

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Table 3. Environmental Housing Characteristic of Respondents

Variables	Categories	Percentages (%)
Lighting	adequate (60-120 Lux)	30
	Not adequate (<60 Lux atau >120 Lux)	70
Humidity	Adequate (40%-50%)	5
	Not adequate (<40% atau >50%)	95
Temperature	Adequate (20°C-25°C)	5
	Not adequate (<20°C atau >25°C)	95
Density residential	Adequate (<4 m ² / orang)	15
	Not adequate (>=4 m ² / orang)	85
Smoking family members	Yes	80
	No	20

DISCUSSION

Some studies revealed that the possibility to be infected by tuberculosis increased significantly according to age. The highest incidence of pulmonary tuberculosis usually affects productive age.¹⁰ The highest risk population was under three year old age and on the contrary, the lowest was toddler to adolescent and the older the age is, the more risky to have tuberculosis. People with HIV are also at risk.¹¹

Research conducted in Palembang noted that people aged ≥ 41 years were at greater risk for developing TB than people aged <41 years. Pulmonary TB occur in men were more than women because men mostly have smoking habit so as to facilitate the spread of pulmonary tuberculosis. Someone's occupation also affects the family income that would have an impact on the pattern of daily life between the consumption of food, health care but it also will affect the ownership of the house (home construction). Head of the families who have incomes below the average minimum wage (UMR) will consume foods with nutrient levels that do not fit the needs of each family member so as to have the status of nutrition and nutrition the less that will make it easier for infectious diseases including pulmonary TB. A person's education level will affect the person's knowledge about adequate healthy house especially about health requirements and knowledge of pulmonary TB disease, so that someone will try to have a clean and healthy living behavior. In addition the level of one's education will also influence the type of work.

Host factor that is somebody's knowledge will determine their attitude to prevent and protect themselves not to have tuberculosis.¹² Some study proved that person's

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adequate information about tuberculosis will be in line with their attitude to prevent and protect from the disease. They all affect a person's behavior in order to avoid pulmonary TB.¹³ Besides that, Smoking is known to have a relationship with the increases other lung disease such as lung cancer, coronary heart disease, chronic bronchitis and bladder cancer and tuberculosis. Smoking increases 2.2 times the risk of developing pulmonary TB.¹⁴ Tuberculosis infection would be more develop as their smoking habits.

Reactivation of latent infection that lasts a long time mostly occurs in older people with TB. For those who are infected by TB bacilli possibility of developing into TB clinical increase in HIV / AIDS patients it is associated with abnormalities of the immune system of their, low birth weight and malnutrition, patients with chronic diseases such as chronic renal failure, cancer, silicosis, diabetes , post gastrectomy, as well as drug users. Adults with latent TB and HIV infection is likely to suffer clinical TB during their lifetime ranged from 10% to 60-80%.^{3, 15, 16} Besides HIV, diabetes also have a significant relationship to be a risk factor for TB. The prevalence of diabetics who also suffer from TB was 10.8%.¹⁵

The morning sun can inhibit the proliferation of germs of tuberculosis and other bacterial diseases.¹⁷ Outside of human body, *Mycobacterium tuberculosis* live well in a moist environment. TB germs can survive on a cool, damp, dark without sunlight until many years. TB germs when exposed to sunlight will die within 2 hours.¹⁸ Prasetyowati and Wahyuni (2009),¹⁸ revealed a high humidity is a good medium for bacteria pathogens, including tuberculosis. *Mycobacterium tuberculosis* is a mesophilic bacteria that thrives in the range of 250-400C, but will grow optimally at temperatures of 31⁰-37⁰C.^{18, 17} House condition is able to be one of the risk factors of pulmonary TB disease transmission. Roofs, walls and floors can be a proliferation of germs. The floors and walls that are difficult to be cleaned will cause a buildup of dust, so it will serve as a good medium for the proliferation of *Mycobacterium tuberculosis*.^{19, 18, 17}

The transmission rate of tuberculosis sufferers will be quite high, with an averages, a patient can transmit it to 2-3 people in the house. People who live in the house with a high level of residential density, easy-risk for contracting TB 2 times greater than those who stay at home with a low level of residential density.³ Residential density requirements for the entire house are usually expressed in m²/person. Minimum area per person is relative depending on the quality of the buildings and the facilities available. A simple house is extent of 10 m²/person at least.¹⁵ The existence of household members who smoke can affect the incidence of pulmonary TB in the population. *Mycobacterium* in a dormant state within the human body can be activated by the free radical compounds that enter and participate flowing in the bloodstream that one form is gas contained in cigarette smoke such as NO₂. Active *Mycobacterium tuberculosis* increases a person's chances of suffering from TB. ¹⁰

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CONCLUSION

Slum area is potential to have a greater prevalence of Tuberculosis as all the risk factor exist s in this area. Tuberculosis surveillance should be conducted maximally to control and prevent greater sufferers.

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