26es JNI 2025 TOURS
et la région Centre - Val de Loire VINCI
Journées Nationales d'infectiologie
du mercredi 11 juin 2025 au vendredi 13 juin 2025
Journée Nationale de Formation
des Paramédicaux en Infectiologie
Jeudi 12 juin 2025

Melioidosis

"A Neglected Topical Disease"

Sotharith BORY, MD., MSc.

Internist-Infectious Diseases Physician

Melioidosis?

TB?

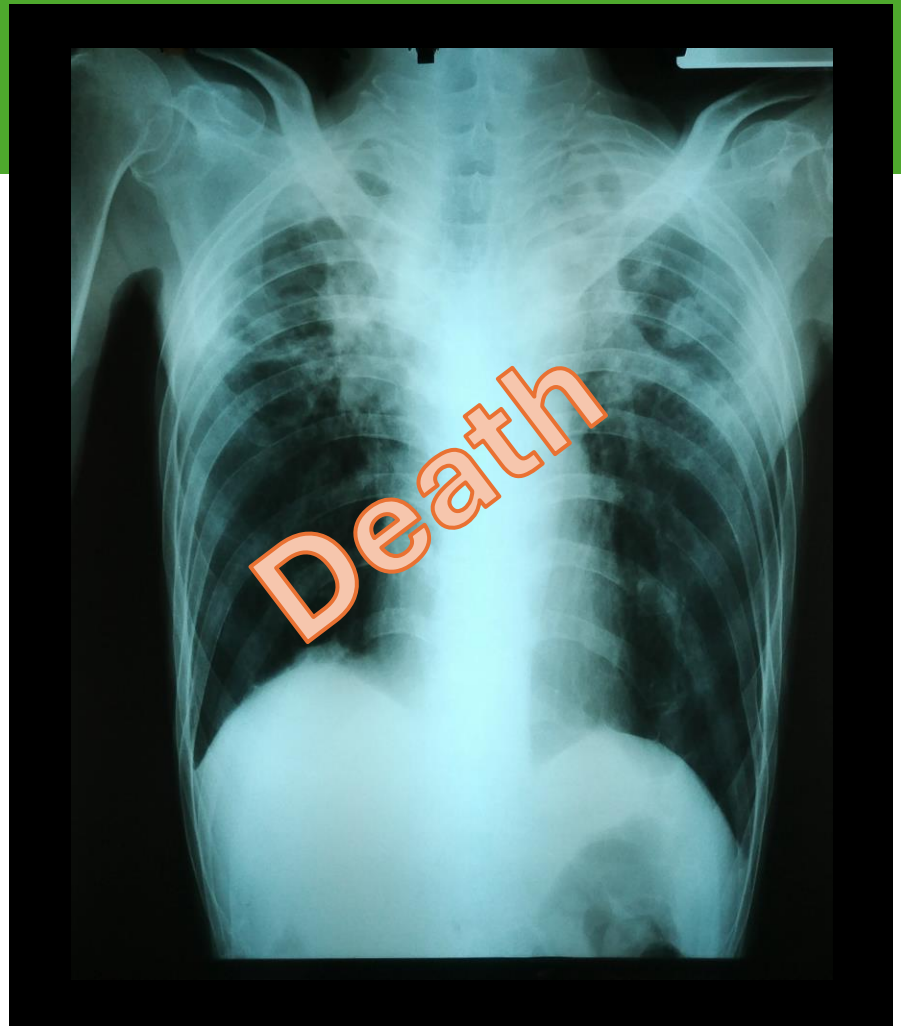
Cancer?

https://www.wikihow.com/Stop-Thinking-Out-Loud

Case 1: 58-year-old male rice farmer, diagnosed with “TB” on chest X-ray in provincial hospital. Wanted a second opinion – self referred to Phnom Penh.

* 1-month history of fever, cough, chest pain, difficulty in breathing, headache, and weight loss.
* AFB: negative
* Sputum culture and X-pert: negative

➔ **Blood culture: Burkholderia pseudomallei**



Case 2: 86 yo M, Ex-farmer from Kampong Chnang

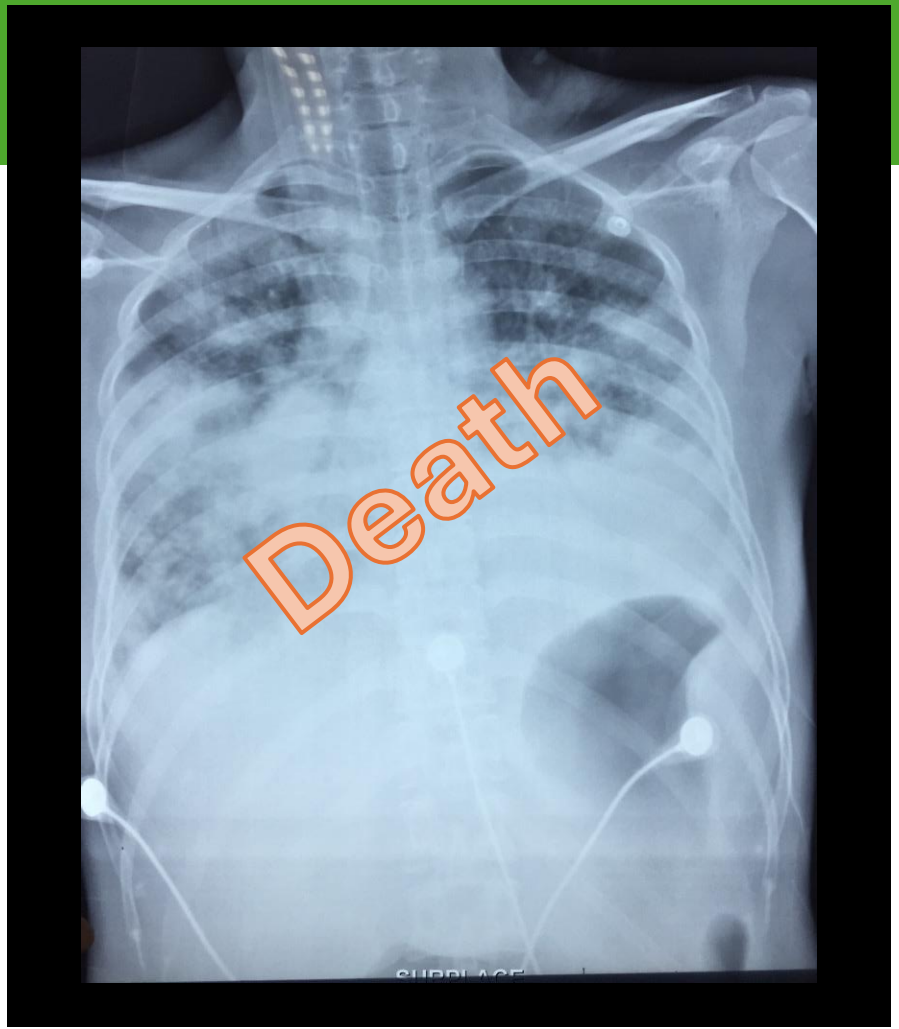
- 1 year history –fever with chills, cough with sputum, dyspnea
- > 6 months earlier, AFB negative, but CXR suggestive of TB ➔ Treated for TB (RHZE) 6 months but no clinical improvement. Condition worsened (worsening dyspnea, cough with yellow sputum) ➔ Calmette H

➔Sputum and Blood culture: B. pseudomallei

Case 3: 48 year old man, from Prey Veng province, prolonged fever with productive cough ➔ Treated with anti-TB drugs (RHZE) - finished 1 month before admitted to our hospital.

* Diabetic
- Sputum: AFB Negative
- Bacterial Culture: Negative
- Gene X-pert: Negative

➔Blood culture: B.pseudomallei



Case 4: 41 Year old female, hair-dresser from Thboung Khmom province,

* Presented to Calmette hospital with prolonged fever and chest-pain.

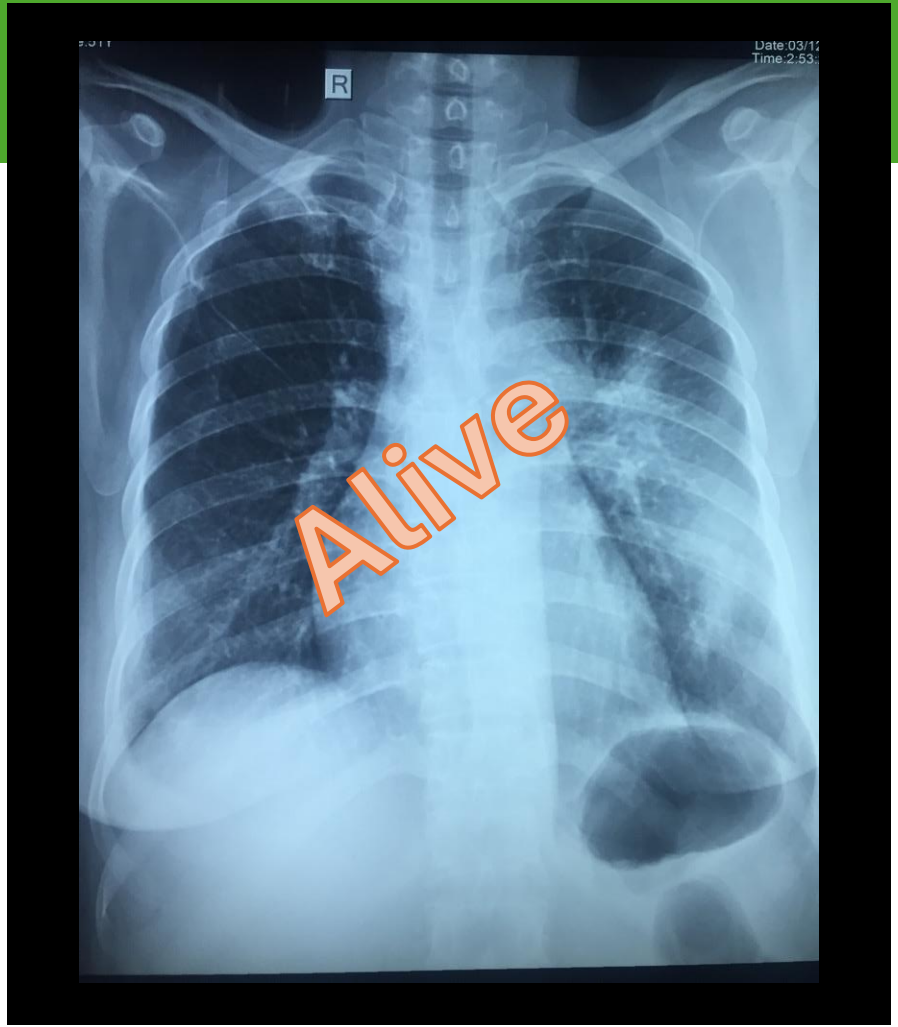
* Pulmonary tuberculosis:

- Treated July 2017 (RHZE- 6 mths) Smear (U/K)
- Treated March 2018 (8 mths), Smear (-)
- Diabetes: Unknown

*** Admitted with suspect of Bronchial tumor (non smoker)**

- Sputum: AFB: (-), Gene X pert: (-).
- Culture (Bacterio): Negative

➔**Blood culture: B. pseudomallei**



Case 5: 55 Year old female teacher from Svay Reang province,

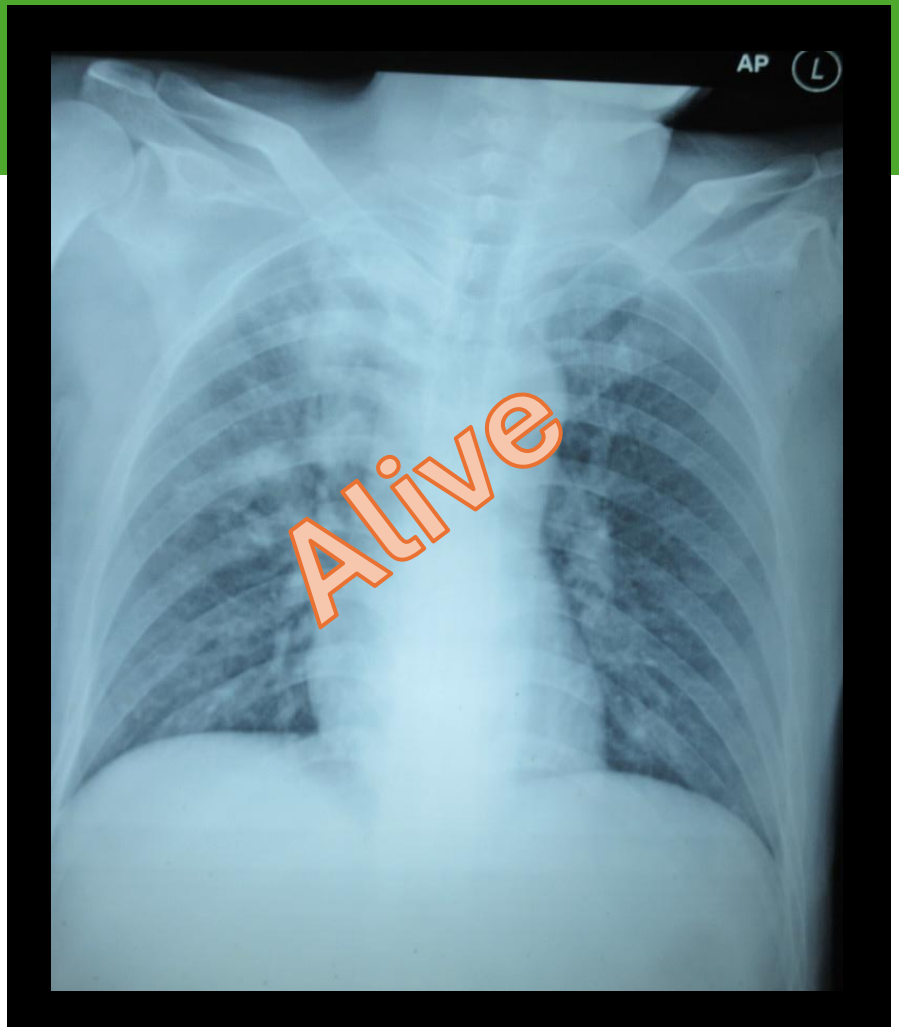
* Presented with fever and cough more than 2 months with weight loss.

- AFB Smear: negative

➔Sputum & Blood culture: Burkholderia pseudomallei

Case 6: 41 Year old male carpenter from Pursat province,
* Presented to Calmette hospital with prolonged fever and dyspnea
* Past medical history: Diabetes
* Pleural fluid: negative (culture and X-pert)

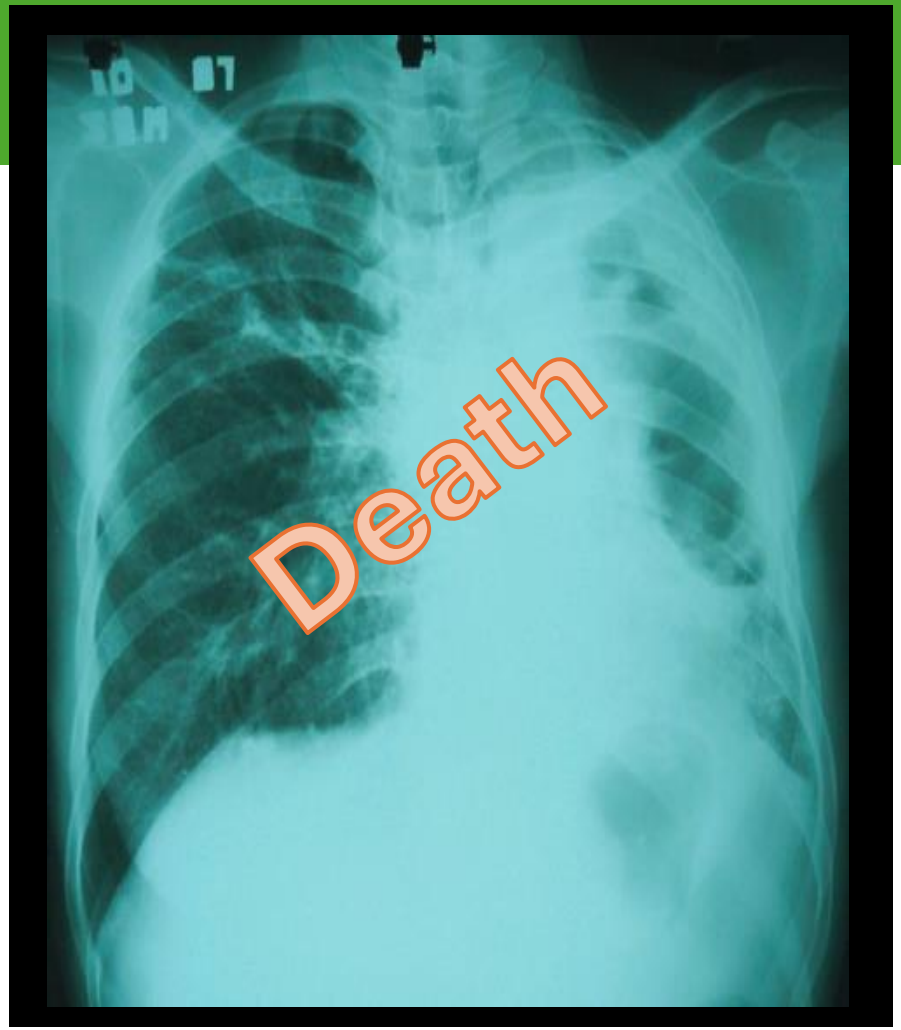
➔ **Blood culture: Burkholderia pseudomallei**



Case 7: 39 Year old male, motor taxi from Kompot province.

* Presented to Calmette hospital with prolonged fever and cough (more than 1 month) and weight loss
* Smear for AFB and Gene X pert from sputum: negative
* Sputum culture: not done

➔ **Blood culture: B. pseudomallei**



Case 8: a 49-year-old female presented with a productive cough, fevers and weight loss.

* More than 10 years ago - treated twice for pulmonary TB "national TB protocol" ➔ improved a little only and went home, but symptoms persisted
* Sputum AFB: (-)
* Gen X-pert: (+)

➔ Blood culture, sputum culture: B. pseudomallei

INT J TUBERC LUNG DIS 12(10):1209–1215

Tuberculosis mimicked by melioidosis

K. Vidyalakshmi,* M. Chakrapani,† B. Shrikala,* S. Damodar,† S. Lipika,* S. Vishal†
*Department of Microbiology, †Department of Medicine, Kasturba Medical College, Mangalore, India

Melioidosis should be ruled out in patients with suspected TB while instituting presumptive anti-tuberculosis treatment in areas where both diseases are prevalent.

Fever in a diabetic patient with high ESR and neutrophilic leucocytosis should raise suspicion of melioidosis, even if radiography or cytopathology is indicative of TB. The suspicion of *B. pseudomallei* should especially be raised when *Pseudomonas*-like isolates are resistant to aminoglycosides and/or colistin.

Rammaert *et al. BMC Infectious Diseases* 2011, **11**:126
http://www.biomedcentral.com/1471-2334/11/126

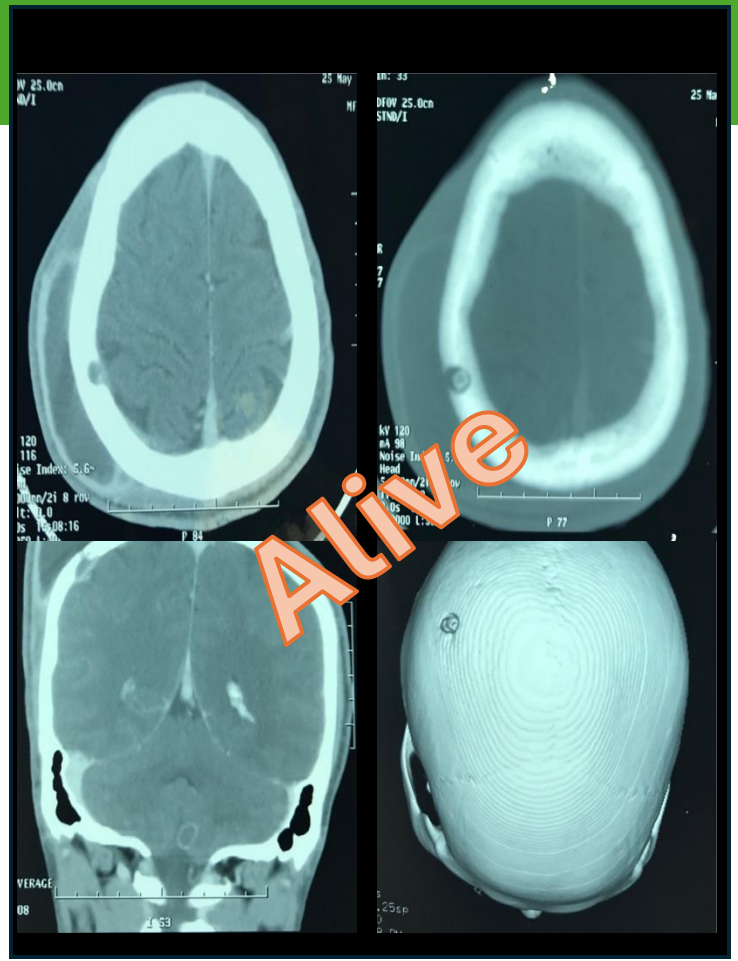
BMC Infectious Diseases

RESEARCH ARTICLE Open Access

Pulmonary melioidosis in Cambodia: A prospective study

Blandine Rammaert[1], Julien Beauté[1], Laurence Borand[1], Sopheak Hem[1], Philippe Buchy[1], Sophie Goyet[1], Rob Overtoom[2], Cécile Angebault[1], Vantha Te[3], Patrich Lorn Try[4], Charles Mayaud[5], Sirenda Vong[1*] and Bertrand Guillard[1]

We suggest, therefore, that **pulmonary melioidosis should be considered in every patient with TB-like chest X-rays** and negative AFB smears in Cambodia.



42 male, farmer from Kompong Chnaing province, **Scalp swelling**, tenderness with fever for about **4 months**.

Past medical history:

- Uncontrolled diabetes for 2 years
- No past history of head trauma

An operation was done on **day 2**

- Pus collection under the scalp
- The bone was affected ➔ culture

➔Both blood and pus culture (+) for B.P

75 male, rice farmer from Kompong cham province, came to Calmette Hospital for fever with rigors and dysuria for 1 month

Past medical history:

- Steroids using for the problem of joint pain
- No profile of diabetes before hospitalization

Result:

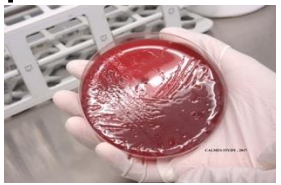
- Urine culture, Pus culture (+) B.P

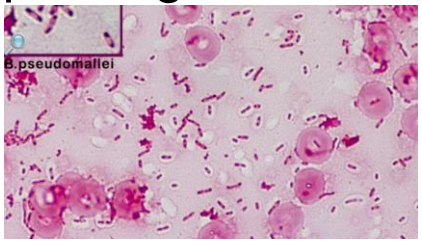
- Blood culture also (+) for B.P

MELIOIDOSE

What is Melioidosis?

- Infectious disease caused by the Gram-negative bacterium B. pseumallei.
- It is found in soil and water, particularity in tropical and subtropical regions.



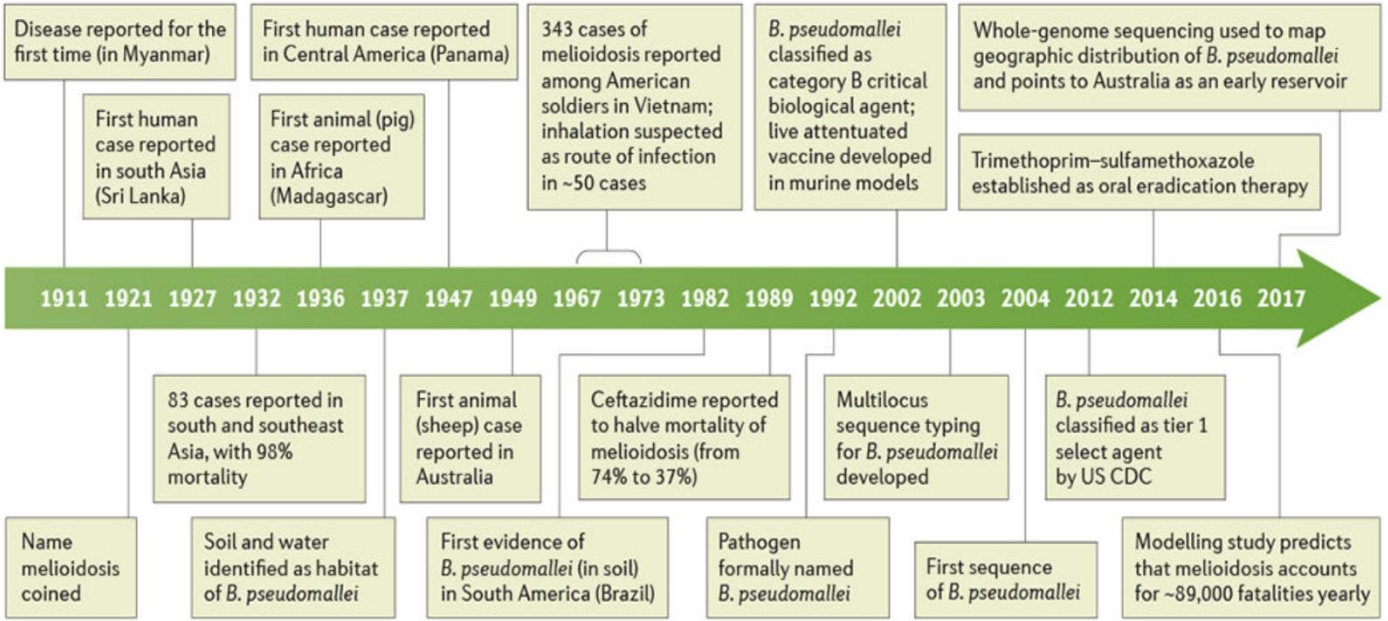


Transmision:

- Percutaneous inoculation (e.g., through skin abrasions)
- Inhalation
- Ingetion

Back to the history

- First described in **1911** by **Whitemore** and his assistance **Krishnaswami** in **Burma** (now known as Myanmar).
- The name melioidosis was later coined by **A.T. Stanton and W. Fletcher** in **1921.**

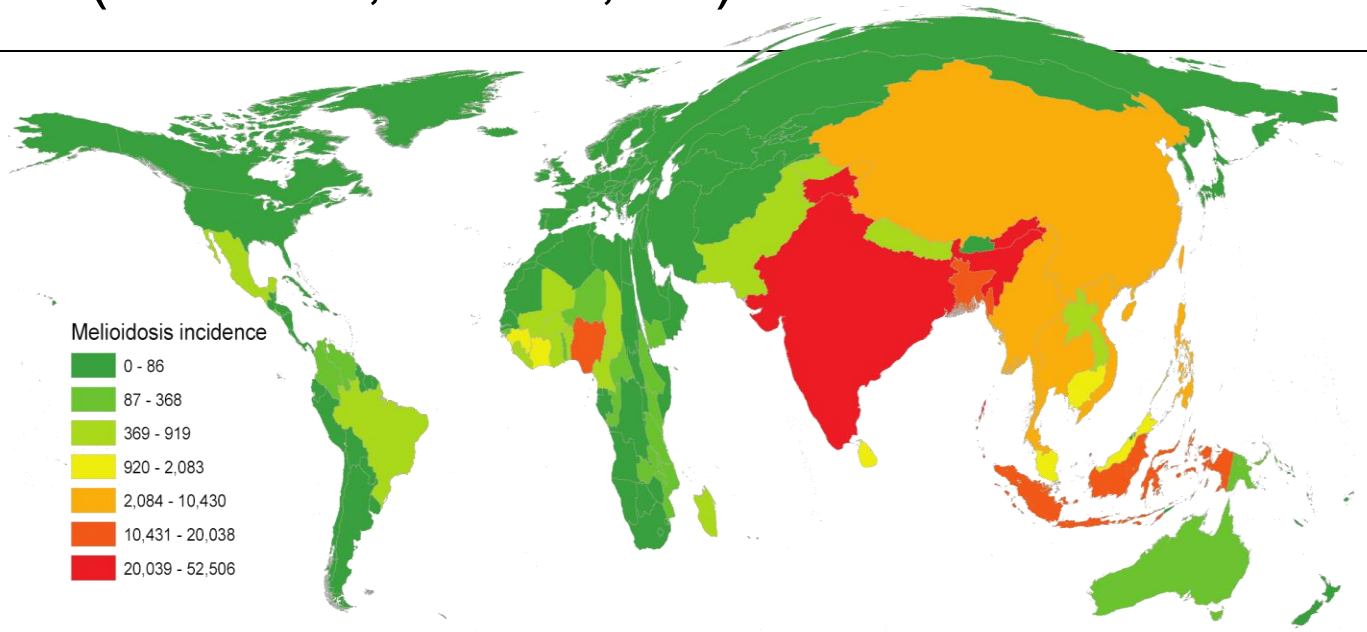


1. Wiersinga WJ et al., NEJM, 2012.

2. Wiersinga et al., *Nat Rev Dis Primers*. 2017

Predicted global distribution of *Burkholderia pseudomallei* and burden of melioidosis (Nature Microbiology, 2016)

Main Result: We estimate there to be **165,000** (95%CI 68,000-412,000) human melioidosis cases per year worldwide, of which **89,000** (95%CI 36,000-227,000) die.



Cartogram of the incidence as a proportion of national geographical area in 2015; **44% is in South Asia**

Nat Microbiol. 2016 January 1; 1(1): . doi:10.1038/nmicrobiol.2015.8.

Predicted global distribution of *Burkholderia pseudomallei* and burden of melioidosis

Direk Limmathurotsakul[1,2,3], Nick Golding[1], David AB Dance[4,5], Jane P Messina[6], David M Pigott[1], Catherine L Moyes[1], Dionne B Rolim[7], Eric Bertherat[8], Nicholas PJ Day[2,5], Sharon J Peacock[2,9,10], and Simon I Hay[1,11,12]

Disease	Predicted incidence	Predicted mortality	Predicted case fatality rate	Source of data
Tuberculosis	8,600,000	1,300,000	15%	WHO website
Malaria	219,000,000	660,000	0.3%	WHO website
2009 Pandemic Influenza A H1N1	N/A	284,000	N/A	LID 2012, 12(9)687-695
Melioidosis	165,000	89,000	54%	Nature Microbiology 2016
Leptospirosis	1,000,000	59,000	6%	PLoS NTD 2015
Severe Dengue	500,000	12,500	2.5%	WHO website

Countries (selected)	Predicted Incidence	Predicted Mortality	Predicted Mortality Rate
India	52,506	31,245	60%
Indonesia	20,038	10,224	51%
..	..	..	..
Thailand	7,572	2,838	38%
Myanmar	6,247	3,687	59%
Cambodia	2,038	1,149	56%
Lao PDR	420	260	62%

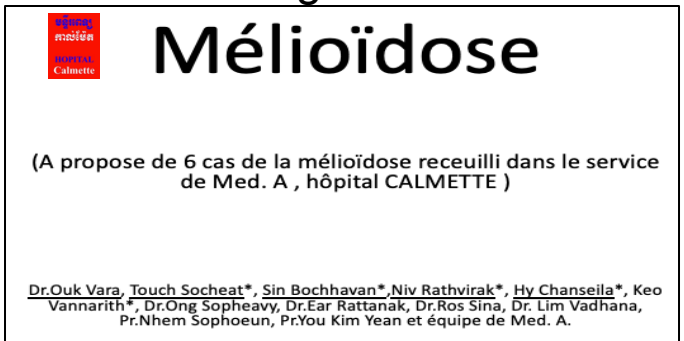
MELIOIDOSIS IN CAMBODIA

- First documented case **May 1928** – Russian residing in Bangkok visited Cambodia
- **1960** - **2 cases in animals** - Takeo and Pursat
- No further human reported cases **until 2005** – Angkor Hospital for Children, Siem Reap
- **In 2006**, Calmette Hospital diagnosed

this diseases on the diabetes patients

and this issue was presented as a talk

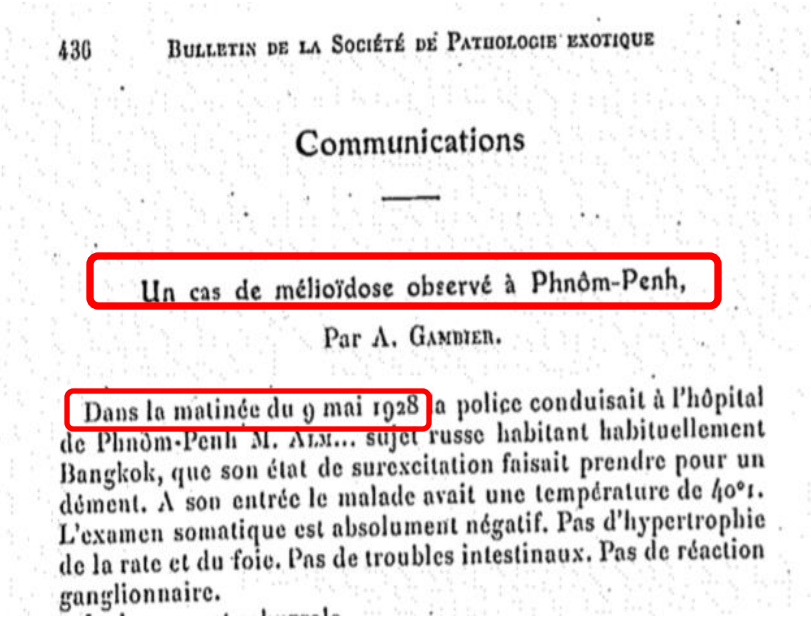
In the event of Cambodge Santé 2008.



Mélioïdose

(A propose de 6 cas de la mélioïdose receuilli dans le service de Med. A , hôpital CALMETTE)

Dr.Ouk Vara, Touch Socheat*, Sin Bochhavan*,Niv Rathvirak*, Hy Chanseila*, Keo Vannarith*, Dr.Ong Sopheavy, Dr.Ear Rattanak, Dr.Ros Sina, Dr. Lim Vadhana, Pr.Nhem Sophoeun, Pr.You Kim Yean et équipe de Med. A.



436 BULLETIN DE LA SOCIÉTÉ DE PATHOLOGIE EXOTIQUE

Communications

Un cas de mélioïdose observé à Phnôm-Penh,

Par A. GAMBIER.

Dans la matinée du 9 mai 1928 la police conduisait à l'hôpital de Phnôm-Penh M. ALM... sujet russe habitant habituellement Bangkok, que son état de surexcitation faisait prendre pour un dément. A son entrée le malade avait une température de 40°1. L'examen somatique est absolument négatif. Pas d'hypertrophie de la rate et du foie. Pas de troubles intestinaux. Pas de réaction ganglionnaire.

Am. J. Trop. Med. Hyg., 82(6), 2010, pp. 1106–1112
doi:10.4269/ajtmh.2010.10-0030

Emergence of Pediatric Melioidosis in Siem Reap, Cambodia

Yos Pagnarith, Varun Kumar, Janjira Thaipadungpanit, Vanaporn Wuthiekanun, Premjit Amornchai, Lina Sin, Nicholas P. Day, and Sharon J. Peacock*

Angkor Hospital for Children, Siem Reap, Cambodia; Mahidol-Oxford Tropical Medicine Research Unit, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand; Department of Microbiology and Immunology, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand; Center for Clinical Vaccinology and Tropical Medicine, Nuffield Department of Clinical Medicine, University of Oxford, Churchill Hospital, Oxford, United Kingdom; Department of Medicine, University of Cambridge, Addenbrooke's Hospital, Cambridge, United Kingdom

Transactions of the Royal Society of Tropical Medicine and Hygiene (2008) 102/S1, S21–S25

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available at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevierhealth.com/journals/trst

A first report of pulmonary melioidosis in Cambodia

Rob Overtoom[a,b]*, Virak Khieu[b], Sopheak Hem[b], Philippe Cavailler[b], Vantha Te[c], Sarin Chan[b], Phea Lau[c], Bertrand Guillard[b], Sirenda Vong[b]

[a]Swiss Red Cross, Takeo, Cambodia
[b]Institut Pasteur in Cami

Rammaert *et al. BMC Infectious Diseases* 2011, **11**:126
http://www.biomedcentral.com/1471-2334/11/126

BMC Infectious Diseases

Burkholderia pseudomalle Antibodies i Children, Cambodia

Vanaporn Wuthiekanun,* Ngoun Pheaktra,† Hor Putchhat,† Lina Sin,† Bun Sen,† Varun Kumar,† Sayan Langla,* Sharon J. Peacock,*‡ and Nicholas P. Day*‡

F1000Research

F1000Research 2015, 3:302 Last updated: 15 MAY 2015

CrossMark click for updates

RESEARCH NOTE

REVISED **Detection of *Burkholderia pseudomallei* in Sputum using Selective Enrichment Broth and Ashdown's Medium at Kampong Cham Provincial Hospital, Cambodia [v2; ref status: indexed, http://f1000r.es/5e9]**

Somary Nhem[1], Joanne Letchford[2], Chea Meas[1], Sovanndeth Thann[1], James C. McLaughlin[2], Ellen Jo Baron[3], T. Eoin West[4]

Melioidos Penh,

Erika Vlieghe, Lim Chun Kham, Chhun H Olivier Koole, Soph and Jar

We describe 58 adult patients 2007–2010). Diabetes wa of infections occurred dur n infection was present in 6 12% of all bloodstream i was 52% and associate tment.

RESEARCH ARTICLE Open Access

Pulmonary melioidosis in Cambodia: A prospective study

Blandine Rammaert[1], Julien Beauté[1], Laurence Borand[1], Sopheak Hem[1], Philippe Buchy[1], Sophie Goyet[1], Rob Overtoom[2], Cécile Angebault[1], Vantha Te[3], Patrich Lorn Try[4], Charles Mayaud[5], Sirenda Vong[1*] and Bertrand Guillard[1]

Pleuropulmonary melioidosis in a Cambodian refugee

Charles K. Chan,* MD
Robert H. Hyland,* MD, FRCP[C]
Wolf D. Leers,† MD, PhD, FRCP[C], Dip Bact
Michael A. Hutcheon,* MD, FRCP[C]
Dorothy Chang,‡ MSc

A 47-year-old Cambodian refugee presented with an acute respiratory illness that featured consolidation of the lower lobe of the left lung and

Melioidosis, a common disease in Southeast Asia, is caused by *Pseudomonas pseudomallei*.[1] We describe a patient from that endemic area who presented with acute pleuropulmonary melioidosis. The course of his illness illustrates the difficulties in microbiologic identification, the hazards of inadequate therapy, the ability of the organism to become resistant to many drugs, and the unusual involvement of the lower lobe of the left lung and adjacent pleura.

Positive soil samples for *B. pseudomallei*

40 samples collected from 10 rice fields along National Road 6 in Siem Riep during 2005-2006.

12 (30%) positive for *B. pseudomallei*

6 of 10 rice fields - at least 1 positive sample

- 1 rice field - positive for all 4 samples
- 3 fields - 2 positive samples
- 2 fields - 1 positive sample

Source: Vanaporn Wuthiekanun,[*] Ngoun Pheaktra,[†] Hor Putchhat,[†] Lina Sin,[†] Bun Sen,[†] Varun Kumar,[†] Sayan Langla,[*] Sharon J. Peacock,[*‡] and Nicholas P. Day[*‡] ***Burkholderia pseudomallei*** **Antibodies in Children, Cambodia** Emerg Infect Dis. 2008 February; 14(2): 301–303. doi: 10.3201/eid1402.070811

SRP study 2006 – 16% children positive antibodies

The proportion of children with detectable *B.pseudomallei* AB titers increased with age

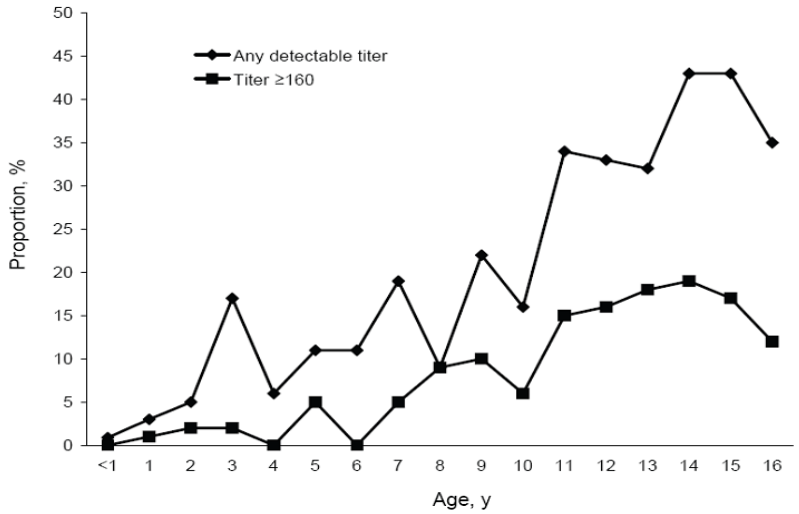


Figure. Indirect hemagglutination assay (IHA) titer for 968 children living in Siem Reap, Cambodia. The number of children tested in each year group is shown. None of the children was known to have melioidosis. The number of children by age group follows: <1 y, 106 children; 1 y, 98 children; 2 y, 93 children; 3 y, 54 children; 4 y, 50 children; 5 y, 62 children; 6 y, 55 children; 7 y, 57 children; 8 y, 44 children; 9 y, 49 children; 10 y, 50 children; 11 y, 41 children; 12 y, 49 children; 13 y, 66 children; 14 y, 54 children; 15 y, 23 children; 16 y, 17 children.

Burkholderia pseudomallei Antibodies in Children, Cambodia

Vanaporn Wuthiekanun,* Ngoun Pheaktra,† Hor Putchhat,† Lina Sin,† Bun Sen,† Varun Kumar,† Sayan Langla,* Sharon J. Peacock,*‡ and Nicholas P. Day*‡

Emerging Infectious Diseases • Vol. 14, No. 2, February 2008

Tropical Medicine and Infectious Disease

MDPI

Meeting Report

A Report from the Cambodia Training Event for Awareness of Melioidosis (C-TEAM), October 2017

Sotharith Bory [1], Frances Daily [2,*], Gaetan Khim [2], Joanne Letchford [2], Srun Sok [3], Hero Kol [4], Muy Seang Lak [4], Luciano Tuseo [5], Chan Vibol [5], Sopheap Oeng [2] and Paul Turner [6,7]

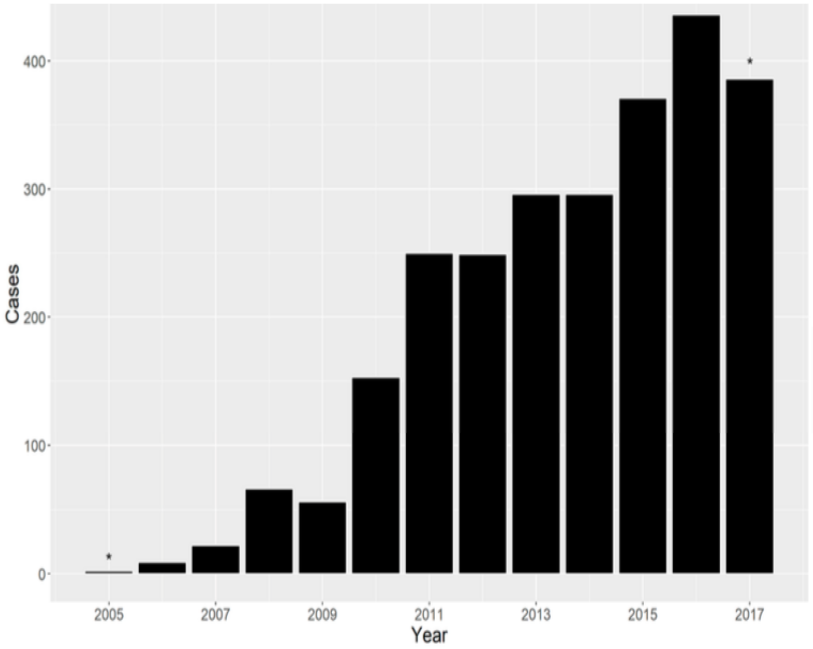


Figure 1. Annual numbers of confirmed melioidosis cases in Cambodia, October 2005–September 2017 (* incomplete years).

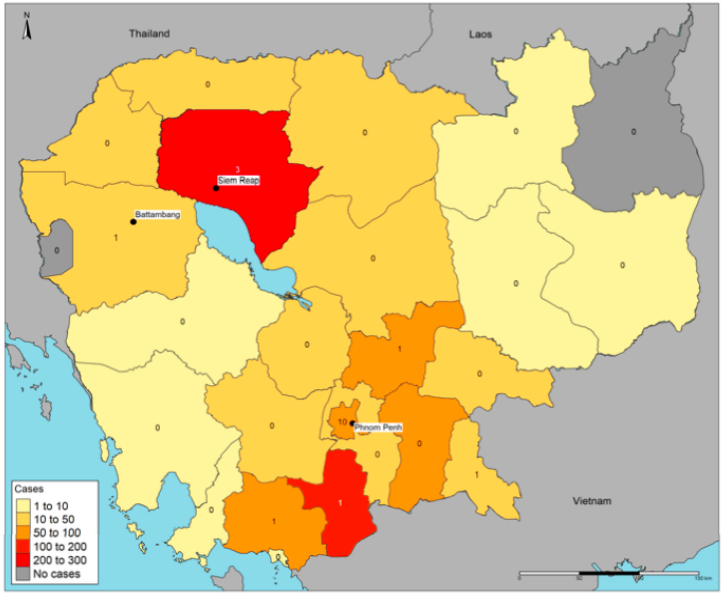
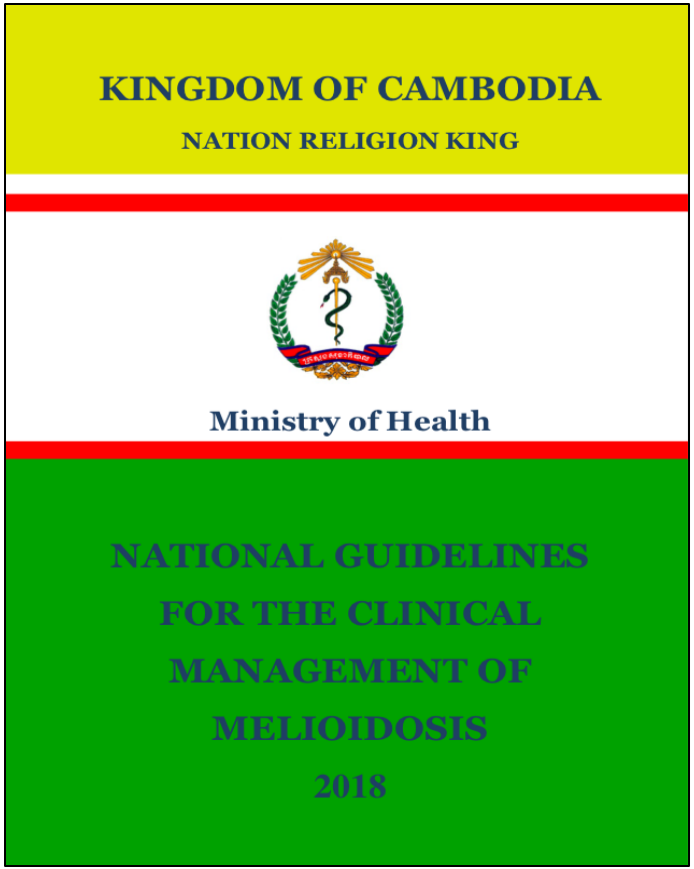


Figure 2. Geographic distribution of melioidosis cases in Cambodia, October 2005–September 2017. Province of residence was available in 889 confirmed cases. Shading represents the total number of culture-confirmed melioidosis cases per province. The numbers represent the count of participating microbiology laboratories per province; however, one was unable to contribute its culture confirmed cases prior to the meeting.

We have the answers here!



Conclusion

- Melioidosis has a high case fatality rate—up to 40% in some settings—especially when diagnosis and treatment are delayed. Chronic and relapsing forms also contribute to long-term disability and healthcare burden.

- Despite its impact, melioidosis has not been formally recognized as an NTD by the World Health Organization (WHO), leading to limited funding, research, and global surveillance efforts.

Mercie de votre Attention!