

Supplementary Information for: Role of diagnostics in epidemiology, management, surveillance, and control of leptospirosis

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Supplemental Table S1. MAT Panel Serovars

<u>Centers for Disease Control and Prevention</u>	<u>California Animal Health and Food Safety Laboratory at the University of California-Davis</u>	<u>National Veterinary Services Laboratories</u>
Serum source: Humans	Serum source: Companion Animals	Serum source: Agricultural Animals
Serovars:	Serovars:	Serovars:
<i>L. interrogans</i> serogroup Australis serovar Australis <i>L. interrogans</i> serogroup Australis serovar Bratislava <i>L. interrogans</i> serogroup Autumnalis serovar Autumnalis <i>L. borgpetersenii</i> serogroup Ballum serovar Ballum <i>L. interrogans</i> serogroup Bataviae serovar Bataviae <i>L. interrogans</i> serogroup Canicola serovar Canicola <i>L. weilii</i> serogroup Celledoni serovar Celledoni <i>L. kirschneri</i> serogroup Cynopteri serovar Cynopteri <i>L. interrogans</i> serogroup Djasiman serovar Djasiman <i>L. kirschneri</i> serogroup Grippotyphosa serovar Grippotyphosa <i>L. santarosai</i> serogroup Hebdomadis serovar Borincana <i>L. interrogans</i> serogroup Icterohaemorrhagiae serovar Icterohaemorrhagiae <i>L. interrogans</i> serogroup Icterohaemorrhagiae serovar Mankarso <i>L. borgpetersenii</i> serogroup Javanica serovar Javanica <i>L. santarosai</i> serogroup Mini serovar Georgia LT 117 <i>L. interrogans</i> serogroup Pomona serovar Pomona <i>L. interrogans</i> serogroup Pyrogenes serovar Pyrogenes <i>L. santarosai</i> serogroup Pyrogenes serovar Alexi <i>L. interrogans</i> serogroup Sejroe serovar Wolffi <i>L. borgpetersenii</i> serogroup Tarassovi serovar Tarassovi	<i>L. interrogans</i> serogroup Icterohaemorrhagiae serovar Icterohaemorrhagiae <i>L. interrogans</i> serogroup Canicola serovar Canicola <i>L. interrogans</i> serogroup Australis serovar Bratislava <i>L. interrogans</i> serogroup Pomona serovar Pomona <i>L. kirschneri</i> Serogroup Grippotyphosa serovar Grippotyphosa <i>L. interrogans</i> Serogroup Sejroe serovar Hardjo	 <u>Limited panel:</u> <i>L. interrogans</i> sg Australis sv Bratislava <i>L. interrogans</i> sg Canicola sv Canicola <i>L. interrogans</i> sg Grippotyphosa sv Grippotyphosa <i>L. interrogans</i> sg Icterohaemorrhagiae sv Copenhageni <i>L. interrogans</i> sg Pomona sv Pomona <i>L. interrogans</i> sg Sejroe sv Hardjo <u>Extended panel also includes:</u> <i>L. interrogans</i> sg Australis sv Australis <i>L. interrogans</i> sg Autumnalis sv Autumnalis <i>L. borgpetersenii</i> sg Ballum sv Ballum <i>L. interrogans</i> sg Bataviae sv Bataviae <i>L. kirschneri</i> sg Cynopteri sv Cynopteri <i>L. interrogans</i> sg Djasiman sv Djasiman <i>L. interrogans</i> sg Hebdomadis sv Hebdomadis <i>L. interrogans</i> sg Mini sv Szwajizak <i>L. interrogans</i> sg Pyrogenes sv Pyrogenes <i>L. borgpetersenii</i> sg Sejroe sv Sejroe <i>L. borgpetersenii</i> sg Tarassovi sv Tarassovi <i>L. tipperaryensis</i> sg Not Designated sv Room 22

Supplemental Table S2: Modified Faine's criteria (2012)*

Part A: Clinical data	<u>Score</u>
Headache	2
Fever	2
Temperature > 39°C	2
Conjunctival suffusion	4
Meningismus	4
Myalgia	4
Conjunctival suffusion + Meningismus + Myalgia	10
Jaundice	1
Albuminuria/Nitrogen retention	2
Hemoptysis/Dyspnea	2
Part B: Epidemiologic factors	
Rainfall	5
Contact with contaminated environment	4
Animal contact	1
Part C: Bacteriologic and laboratory findings	
Positive Culture and/or PCR	25
Serology	
One or more of the following:	15
IgM-ELISA	
Slide agglutination test	
Other serologic test	
MAT – single positive titer ≥ 400	
MAT – paired sera with four-fold rise in titer	25
Diagnosis	
Confirmed: Positive Culture and/or PCR	
Presumptive	
Total of Parts A and B	≥ 26
Total of Parts A, B, and C	≥ 25
Possible	20-24

*Adapted from reference [1].

Supplemental Table S3: Human Leptospirosis Case Definitions*

Suspect Case: Acute febrile illness ($\geq 38.5^{\circ}\text{C}$) and/or severe headache with:

- Myalgia
- Prostration and/or conjunctival suffusion, and
- History of exposure

Probable Case (clinical definition): Suspect case w/any **two** of the following:

- Calf tenderness
- Cough with or without hemoptysis
- Jaundice
- Hemorrhagic manifestations
- Meningeal irritation
- Anuria/oliguria and/or proteinuria
- Shortness of breath
- Cardiac arrhythmias
- Skin rash
- Abortion

Probable Case (laboratory definition): Suspect case with + rapid IgM test and/or any 3 of the following:

- Urinary findings: proteinuria, white blood cells, red blood cells
- Relative neutrophilia ($>80\%$) with lymphopenia
- Platelets $<100,000/\text{mm}^3$
- Elevated serum bilirubin ($>2\text{mg}\%$); liver enzymes moderately raised

Confirmed Case: Suspect or probable case with any one of the following:

- Isolation of leptospires from clinical specimens
- Positive PCR result
- Seroconversion from negative to positive or 4-fold rise in MAT titer
- MAT titer ≥ 400 in a single sample

*Adapted from reference [2].

References

1. Kumar, S.S. Indian guidelines for the diagnosis and management of human leptospirosis. In *India: Medicine Update*; Muruganathan, A., Ed.; The Association of Physicians of India: Mumbai, India; 2013; pp. 23–29.
2. WHO. *Informal Expert Consultation on Surveillance, Diagnosis and Risk Reduction of Leptospirosis. Chennai, India, 17–18 September 2009*; SEA-CD-217; World Health Organization – Regional Office for South-East Asia: New Delhi, India. Available online: <https://tinyurl.com/4kdnnsz7> (accessed on 03/23/2022).