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/ Bureau of Epidemiology, Department of Disease Control, Ministry of Public Health

2560(An outbreak investigation of *Streptococcus suis* infection,
Maewang District, Chiang Mai Province, Thailand, June 2017)

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: 3 2560 SRRT
3

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26 -7 2560 - :
2 26
-7 2560 3
1 60: 3 2
42 65 1 43
12560 529
34 20-26 2560 537
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Authors

Tanasit Wijitraphan, Attapong Inmoon 4-7 2560
Sanpatong hospital, Chiang Mai

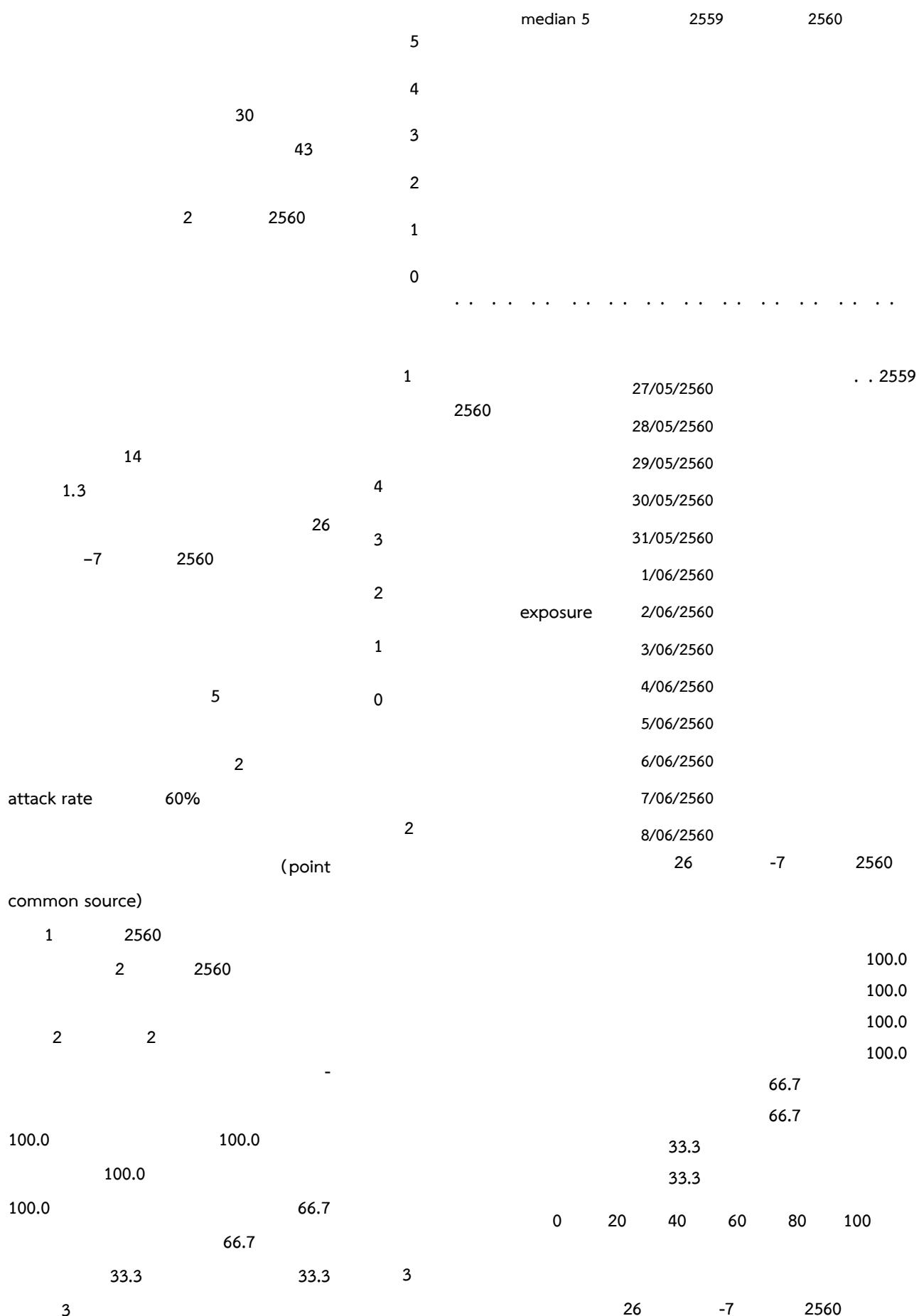
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E-mail: panda_tid@hotmail.com

			0.22		4
1.	(Descriptive study)	0.01			
1.1		0.78			0.17
	. . 2559-2560		0.07		0.01
1.2.			(6)		
	1-2				
2560		. . 2560			. . 2559
1.3.				. . 2560	
				5	
26	-7	2560	1	-31	2560
					6
					1
			3.29		
	(Suspected case)		1.2		
	1			1-2	2560
			3		
				2	42
	Meningitis, Septicemia, Streptococcal toxic shock			65	1
	syndrome (STSS), Arthritis, Myocarditis	Endocarditis	2		2560
					2
	(Probable case)				42
	Streptococcus group				
	(Biochemistry)		1	2560	
	(Confirmed case)				
	<i>S. suis</i> (5)				
2.	(Environmental study)		31	2560	12.00 .
				1	
3.	(Laboratory study)		2	2560	
			5	2560	
	multiplex PCR				65
	serotype				2
	<i>Streptococcus suis</i>		2560		
1.	(Descriptive study)				
1.1		1	-2		
2560	147	25			



2.	(Environmental study)	ceftriazone, Penicillin	Vancomycin
	3.2	serotype	
		(hemocultue)	
6	6	serotype	<i>Streptococcus</i>
		<i>suis</i>	multiplex PCR
	1		serotype 2

8	8	3	26	-7	2560
			31		2560
	12.00	.			
-					

attack rate (60%)
(SRRT)
(point common source)
1
2
1-3
Streptococcus suis
2-3

	ceftriazone, Penicillin	/	
Vancomycin	1.		
	multiplex		
PCR	serotype	serotype 2	
		2.	
1.			
	3.		
2.		4.	
	10		
	0		
3.		5.	
		-	
	1.		
1.		-	
2.		-	
3.		-	
4.		3.	
5.			
1.		4.	
2.	26	-7	2560
3.	3	1	attack rate
			60%
3.	2		

1
2
serotype 2
; 2550.
5.
" "
1. : 2552.
6.
506
Streptococcus suis
[. 2558].
http://www.boe.moph.go.th/boedb/d506_1/ds_wk2pdf.php?ds=82&yr=60
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; 2535.

An outbreak investigation of *Streptococcus suis* infection, Maewang District, Chiang Mai Province, Thailand, June 2017

Authors: Tanasit Wijitraphan, Attapong Inmoon

Sanpatong hostipal, Chiang Mai, Thailand

Abstract

Background: On 2 June 2017, three suspected *Streptococcus suis* infection patients were notified to SRRT Santopong, Chiang Mai Province. We investigated this event to confirm the diagnosis, confirm the outbreak, describe the epidemiology of the outbreak and implement control measures.

Methods: We conducted the descriptive study by reviewing medical records, interviewing patients at Sanpatong hospital and conducted the active case finding. The case definition was people who lived in Donpao Sub-district, Maewang District, Chiang Mai Province and had history of contact with pigs, ate raw pork or ate raw blood of pigs between 26 May – 7 June 2560. Environmental study were conducted by interviewing pork butcher's shops, pig slaughterhouse and pig farms and walking through survey for the surroundings. We collected some blood and cerebrospinal fluid for bacteria culture and PCR serotyping for *S.suis*.

Results: Three cases were confirmed *S. suis* outbreak. The attack rate was 60% from five exposure of eating raw minced beef and pork. All of patients had history of daily alcohol consumptions. Clinical presentations of all patients were fever, alteration of consciousness, confusion and myalgia. Environmental study showed the cases ate raw pork, which raised within the case's house. All of pork butcher's shops, pig slaughterhouse and pig farms had good standard. Laboratory study showed 3/3 blood/cerebrospinal fluid culture had *Streptococcus suis* and 2/2 multiplex PCR showed serotype 2.

Discussion and Conclusions: We confirmed the outbreak of *Streptococcus suis* infection at Maewang District, Chiang Mai Province between 26 May - 7 June 2017 which had 3 confirmed cases and one dead. Attack rate was 60 percent. This event was point common source from eating raw pork. The pathogen of this outbreak was *Streptococcus suis* serotype 2.

Keywords: Outbreak investigation, *Streptococcus suis*, Maewang, Chaing Mai

(Outbreak Verification Summary)

, , , , , ,
, , , ,
(Situation Awareness Team: SAT)
outbreak@health.moph.go.th

	34	20-26	2560					
				7				
1.	2			11/1	7			
		95				A	H3	7
							3	
	20	2560					Tamiflu	64
				6				
	5	1				8	2	
							A	H3
oseltamivir		Throat swab 1						7
	21	2560						
	13		oseltamivir					
Throat swab		1						
	A	H3						
				24				
	2560	24	25	2560	2.			
	48	26	2560	4	126			21
			18-29	2560	2560	08.30	.	
		778	21					
	5				15		3	
					1		2	
	27	2560			2	stool exam 1		blastocystis
				384		hominis	24	2560
	4	380			63	Ractal swab		
	28	2560		19	20			
								(SI-2)
	2560		rapid test 10		53	Coliform Bacteria		
				A	13	(24.53)	3

9	1	25	
2560			
12	40		
			Oseltamivir
chlorine shock			
3.		1.	
			ProMED-mail
	5	2560	24
			H5N6
	41		
			San Luis
			Pampanga
30	3.9	4.39	37,000
33			7
18		1	200,000
22			San Luis
151		32	Candaba
	33	Influenza A/H3	2560
Influenza B	Influenza A/H1N1		CIDRAP
		55.63	24
	30-34	Nueva Ecija	H5N6
	28		
		10	
	7	4	
3		2.	
1			
	21	2560	2-3
			A
		H1N1 pdm09	
			2-3
			A (H1N1) pdm09
		.	A (H3N2)

Reported cases of diseases under surveillance 506, 34th week

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Table 1 Reported cases of priority diseases under surveillance by compared to previous year in Thailand, 34th week 2017

Disease	2017				Case*	Mean**	Cumulative	
	Week 31	Week 32	Week 33	Week 34			(2012-2016)	2017
	Cases	Cases	Cases	Cases	4 week)	Cases	Cases	Deaths
Cholera	0	0	0	0	0	4	5	0
Influenza	7144	7775	7091	4007	26017	6697	85290	12
Meningococcal Meningitis	0	0	1	0	1	1	19	7
Measles	41	44	34	18	137	242	2396	2
Diphtheria	1	0	0	0	1	2	2	1
Pertussis	0	0	0	0	0	2	43	1
Pneumonia (Admitted)	5340	5110	4678	2903	18031	15719	156889	171
Leptospirosis	98	94	64	32	288	285	1767	36
Hand, foot and mouth disease	2093	1848	1419	691	6051	5571	52828	2
Total D.H.F.	1795	1620	1137	303	4855	11839	33271	48
:					:			
	"	(suspect)"	"		/	(confirm)"		
*	4	(4	1)				
**	4	, 4			4	5	15	(60)

TABLE 2 Reported Cases and Deaths of Diseases Under Surveillance by Province, Thailand, 34th Week 2017 (August 27-September 2, 2017)

(CHOLERA, HAND, FOOT AND MOUTH DISEASE (HFMD), FOOD POISONING, PNEUMONIA (ADMITTED), INFLUENZA, MENINGOCOCCAL MENINGITIS, ENCEPHALITIS, Malaria, Leptospirosis, Dengue, Chikungunya, and Typhoid fever)

REPORTING AREAS	CHOLERA				HFMD				FOOD POISONING				PNEUMONIA*				INFLUENZA				MENINGOCOCCAL*				ENCEPHALITIS			
	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D
Total	5	0	0	0	52828	2	691	0	74513	0	1010	0	156889	171	2903	1	85290	12	4007	0	19	7	0	0	0	575	8	
Northern Region	0	0	0	0	10634	0	222	0	17816	0	246	0	34528	85	581	0	17320	1	730	0	1	1	0	0	0	151	3	
ZONE 1	0	0	0	0	4856	0	108	0	10777	0	132	0	19437	64	291	0	9930	0	281	0	1	1	0	0	0	109	1	
Chiang Mai	0	0	0	0	1564	0	49	0	3229	0	27	0	7020	0	121	0	4814	0	157	0	0	0	0	0	0	36	0	
Lamphun	0	0	0	0	189	0	7	0	1211	0	33	0	518	0	19	0	972	0	22	0	0	0	0	0	0	1	0	
Lampang	0	0	0	0	773	0	8	0	1020	0	3	0	2047	0	15	0	1309	0	17	0	0	0	0	0	0	0	0	
Phrae	0	0	0	0	184	0	5	0	926	0	9	0	1416	0	22	0	184	0	2	0	0	0	0	0	0	1	0	
Nan	0	0	0	0	191	0	0	0	570	0	2	0	1591	1	2	0	606	0	8	0	0	0	0	0	0	6	0	
Phayao	0	0	0	0	376	0	14	0	941	0	7	0	1229	7	18	0	655	0	20	0	0	0	0	0	0	1	0	
Chiang Rai	0	0	0	0	1337	0	25	0	2363	0	50	0	4495	43	94	0	1325	0	55	0	0	0	0	0	0	57	1	
Mae Hong Son	0	0	0	0	242	0	0	0	517	0	1	0	1121	13	0	0	65	0	0	0	1	1	0	0	0	7	0	
ZONE 2	0	0	0	0	2732	0	76	0	4671	0	69	0	8560	1	183	0	4551	1	259	0	0	0	0	0	0	13	2	
Uttaradit	0	0	0	0	243	0	6	0	441	0	16	0	1739	1	71	0	1261	0	85	0	0	0	0	0	0	2	0	
Tak	0	0	0	0	350	0	3	0	660	0	1	0	1833	0	6	0	503	1	8	0	0	0	0	0	0	3	1	
Sukhothai	0	0	0	0	362	0	15	0	473	0	14	0	1129	0	20	0	637	0	35	0	0	0	0	0	0	0	0	
Phitsanulok	0	0	0	0	1112	0	46	0	1650	0	18	0	1906	0	48	0	1913	0	125	0	0	0	0	0	0	6	1	
Phetchabun	0	0	0	0	665	0	6	0	1447	0	20	0	1953	0	38	0	237	0	6	0	0	0	0	0	0	2	0	
ZONE 3	0	0	0	0	3307	0	43	0	2584	0	50	0	6865	21	120	0	2929	0	197	0	0	0	0	0	0	31	0	
Chai Nat	0	0	0	0	261	0	5	0	216	0	5	0	334	1	13	0	90	0	7	0	0	0	0	0	0	2	0	
Nakhon Sawan	0	0	0	0	1375	0	17	0	1001	0	29	0	1866	17	41	0	1595	0	135	0	0	0	0	0	0	2	0	
Uthai Thani	0	0	0	0	237	0	2	0	216	0	2	0	851	3	12	0	53	0	2	0	0	0	0	0	0	2	0	
Kamphaeng Phet	0	0	0	0	648	0	9	0	517	0	1	0	2875	0	41	0	828	0	24	0	0	0	0	0	0	24	0	
Phichit	0	0	0	0	786	0	10	0	634	0	13	0	939	0	13	0	363	0	29	0	0	0	0	0	0	1	0	
Central Region*	4	0	0	0	19638	1	192	0	18252	0	178	0	40112	44	480	0	40918	4	1739	0	6	1	0	0	0	134	1	
Bangkok	3	0	0	0	7429	0	97	0	3068	0	33	0	8088	17	134	0	23599	0	1171	0	4	1	0	0	0	61	0	
ZONE 4	1	0	0	0	3634	0	22	0	4768	0	56	0	9166	1	158	0	4237	3	232	0	0	0	0	0	0	6	0	
Nonthaburi	1	0	0	0	353	0	2	0	1744	0	18	0	923	1	13	0	675	0	19	0	0	0	0	0	0	0	0	
Pathum Thani	0	0	0	0	348	0	3	0	816	0	14	0	1812	0	43	0	804	1	48	0	0	0	0	0	0	3	0	
P.Nakhon S.Ayutthaya	0	0	0	0	783	0	6	0	912	0	18	0	1711	0	40	0	1420	2	71	0	0	0	0	0	0	0	0	
Ang Thong	0	0	0	0	365	0	6	0	118	0	3	0	1050	0	45	0	400	0	52	0	0	0	0	0	0	1	0	
Lop Buri	0	0	0	0	753	0	2	0	262	0	0	0	1829	0	4	0	527	0	3	0	0	0	0	0	0	0	0	
Sing Buri	0	0	0	0	153	0	3	0	267	0	2	0	510	0	13	0	189	0	39	0	0	0	0	0	0	0	0	
Saraburi	0	0	0	0	758	0	0	0	438	0	0	0	1196	0	0	0	186	0	0	0	0	0	0	0	0	2	0	
Nakhon Nayok	0	0	0	0	121	0	0	0	211	0	1	0	135	0	0	0	36	0	0	0	0	0	0	0	0	0	0	
ZONE 5	0	0	0	0	3223	0	34	0	4011	0	37	0	8930	10	72	0	4390	0	144	0	2	0	0	0	0	23	1	
Ratchaburi	0	0	0	0	497	0	0	0	721	0	0	0	988	0	0	0	462	0	0	0	0	0	0	0	0	2	0	
Kanchanaburi	0	0	0	0	428	0	0	0	650	0	1	0	1413	0	13	0	377	0	10	0	0	0	0	0	0	5	0	
Suphan Buri	0	0	0	0	559	0	0	0	719	0	0	0	1843	0	0	0	957	0	0	0	0	0	0	0	2	1		
Nakhon Pathom	0	0	0	0	629	0	5	0	519	0	5	0	1815	0	12	0	1228	0	53	0	2	0	0	0	0	2	0	
Samut Sakhon	0	0	0	0	365	0	8	0	107	0	0	0	235	0	0	0	212	0	8	0	0	0	0	0	0	0	0	
Samut Songkhram	0	0	0	0	51	0	0	0	192	0	12	0	312	0	7	0	152	0	13	0	0	0	0	0	0	0	0	
Phetchaburi	0	0	0	0	317	0	1	0	218	0	0	0	1007	9	0	0	390	0	6	0	0	0	0	0	0	10	0	
Prachuap Khiri Khan	0	0	0	0	377	0	20	0	885	0	19	0	1317	1	40	0	612	0	54	0	0	0	0	0	0	0	2	0
ZONE 6	0	0	0	0	5091	1	34	0	6189	0	47	0	13594	15	103	0	8602	1	185	0	0	0	0	0	0	42	0	
Samut Prakan	0	0	0	0	1045	0	0	0	1078	0	0	0	2298	1	0	0	1952	1	0	0	0	0	0	0	0	8	0	
Chon Buri	0	0	0	0	499	0	0	0	1024	0	1	0	1773	3	1	0	609	0	0	0	0	0	0	0	0	8	0	
Rayong	0	0	0	0	661	0	1	0	794	0	3	0	2703	3	20	0	3215	0	70	0	0	0	0	0	0	1	0	
Chanthaburi	0	0	0	0	1262	1	19	0	949	0	22	0	1942	2	39	0	1510	0	54	0	0	0	0	0	0	5	0	
Trat	0	0	0	0	371	0	0	0	295	0	0	0	681	0	0	0	219	0	0	0	0	0	0	0	0	0	0	
Chachoengsao	0	0	0	0	656	0	13	0	634	0	18	0	2472	1	40	0	717	0	50	0	0	0	0	0	0	13	0	
Prachin Buri	0	0	0	0	371	0	0	0	885	0	0	0	1282	5	0	0	247	0	0	0	0	0	0	0	0	4	0	
Sa Kaeo	0	0	0	0	226	0	1	0	530	0	3	0	443	0	3	0	133	0	11	0	0	0	0	0	0	3	0	

TABLE 2 Reported Cases and Deaths of Diseases Under Surveillance by Province, Thailand, 34th Week 2017 (August 20-26, 2017) (CHOLERA, HAND, FOOT AND MOUTH DISEASE (HFMD), FOOD POISONING, PNEUMONIA (ADMITTED), INFLUENZA, MENINGOCOCCAL MENINGITIS, ETC.)

Central Region*

"PNEUMONIA* = PNEUMONIA (ADMITTED)"

"MENINGOCOCCAL" = MENINGOCOCCAL MENINGITIS

" 0 " = No case

$$C \equiv C_{\alpha\beta}$$

Suspected, Probable Confirmed

TABLE 3 Reported Cases and Deaths of Suspected Dengue fever and Dengue Hemorrhagic fever Under Surveillance by Date of Onset, by Province, Thailand, 2017 (January 1-August 29, 2017)

REPORTING AREAS	2017												CASE RATE PER 100,000.00	CASE FATALITY (%)	POP. DEC 31, 2015		
	DENGUE HEMORRHAGIC FEVER- TOTAL (DHF+DSS)																
	JAN C	FEB C	MAR C	APR C	MAY C	JUN C	JUL C	AUG C	SEP C	OCT C	NOV C	DEC C	TOTAL C	D			
Total	3437	2477	2166	2111	3760	7023	8064	4233	0	0	0	0	33271	48	50.85	0.14	65,426,907
Northern Region	137	124	175	259	710	1697	2315	1258	0	0	0	0	6675	10	55.81	0.15	11,959,533
ZONE1	82	70	66	126	395	832	1167	616	0	0	0	0	3354	6	58.01	0.18	5,781,324
Chiang Mai	46	29	36	47	165	376	598	290	0	0	0	0	1587	5	98.17	0.32	1,703,263
Lamphun	3	2	5	7	19	22	69	53	0	0	0	0	180	0	44.34	0.00	405,927
Lampang	6	8	9	17	37	54	81	22	0	0	0	0	234	0	31.09	0.00	732,685
Phrae	1	3	3	2	8	11	11	5	0	0	0	0	44	0	9.71	0.00	453,213
Nan	12	9	2	15	69	76	71	23	0	0	0	0	277	0	57.84	0.00	478,890
Phayao	0	1	0	3	16	15	15	5	0	0	0	0	55	0	11.37	0.00	483,550
Chiang Rai	12	12	5	18	42	194	236	184	0	0	0	0	703	1	55.56	0.14	1,242,825
Mae Hong Son	2	6	6	17	39	84	86	34	0	0	0	0	274	0	104.99	0.00	260,971
ZONE2	30	28	59	70	238	618	759	425	0	0	0	0	2227	3	63.65	0.13	3,488,728
Uthai Thani	2	7	5	3	27	36	60	72	0	0	0	0	212	0	46.08	0.00	400,084
Tak	10	4	23	16	107	337	395	149	0	0	0	0	1041	2	179.80	0.19	578,968
Sukhothai	1	4	0	4	7	33	35	42	0	0	0	0	126	0	20.93	0.00	602,085
Phitsanulok	15	6	18	33	59	126	117	85	0	0	0	0	459	0	53.30	0.00	861,194
Phetchabun	2	7	13	14	38	86	152	77	0	0	0	0	389	1	39.04	0.26	996,397
ZONE3	29	30	57	75	84	284	431	237	0	0	0	0	1227	1	40.74	0.08	3,011,449
Chai Nat	4	4	7	12	7	37	42	20	0	0	0	0	133	0	40.06	0.00	331,968
Nakhon Savan	12	10	15	17	13	64	89	90	0	0	0	0	310	0	28.91	0.00	1,072,349
Uthai Thani	2	1	0	0	5	11	23	13	0	0	0	0	55	0	16.64	0.00	330,543
Kenphaeng Phet	4	9	21	26	24	89	145	31	0	0	0	0	349	0	47.82	0.00	729,839
Phidit	7	6	14	20	35	83	132	83	0	0	0	0	380	1	69.50	0.26	546,750
Central Region*	823	597	594	588	935	1973	2862	1561	0	0	0	0	9833	12	44.47	0.12	22,337,125
Bangkok	389	249	210	217	264	694	1250	738	0	0	0	0	4011	1	70.44	0.02	5,694,347
ZONE4	116	97	75	74	138	264	359	235	0	0	0	0	1358	5	26.01	0.37	5,221,125
Nonthaburi	41	31	15	13	45	98	104	87	0	0	0	0	434	3	36.66	0.69	1,183,791
Pathum Thani	18	21	24	21	26	34	39	25	0	0	0	0	208	0	19.19	0.00	1,084,154
Nakhon Si Ayutthaya	20	14	17	30	27	58	89	47	0	0	0	0	302	1	37.47	0.33	805,980
Ang Thong	9	5	2	3	11	21	50	31	0	0	0	0	132	0	46.58	0.00	283,371
Lop Buri	11	15	9	1	9	7	15	12	0	0	0	0	79	0	10.41	0.00	758,531
Sirirat	0	1	0	0	1	8	2	1	0	0	0	0	13	0	6.14	0.00	211,792
Saraburi	16	8	6	5	9	33	55	30	0	0	0	0	162	1	25.49	0.62	635,557
Nakhon Nayok	1	2	2	1	10	5	5	2	0	0	0	0	28	0	10.86	0.00	257,939
ZONE5	141	124	156	111	211	443	642	341	0	0	0	0	2169	3	41.63	0.14	5,209,561
Ratchaburi	16	5	8	7	14	41	60	6	0	0	0	0	157	0	18.24	0.00	830,549
Kanchanaburi	4	2	3	1	7	18	31	13	0	0	0	0	79	0	9.13	0.00	855,172
Suphan Buri	13	24	32	21	39	54	67	9	0	0	0	0	259	0	30.49	0.00	849,376
Nakhon Pathom	25	22	27	21	30	74	114	108	0	0	0	0	421	0	47.03	0.00	885,207
Samut Sakhon	12	17	19	10	30	71	92	60	0	0	0	0	311	2	57.73	0.64	538,671
Samut Songkram	4	1	3	6	1	4	11	15	0	0	0	0	45	0	23.16	0.00	194,283
Phetchaburi	45	32	48	25	59	121	214	88	0	0	0	0	632	0	132.66	0.00	476,391
Prachuap Khiri Khan	22	21	16	20	31	60	53	42	0	0	0	0	265	1	50.01	0.38	529,912
ZONE6	173	123	146	174	315	535	589	227	0	0	0	0	2262	3	38.47	0.13	5,880,124
Samut Prakan	57	32	51	30	33	77	134	56	0	0	0	0	470	0	37.00	0.00	1,270,420
Chon Buri	38	29	37	38	58	55	78	9	0	0	0	0	342	0	23.78	0.00	1,438,231
Rayong	30	22	21	37	72	87	99	46	0	0	0	0	414	1	60.73	0.24	681,696
Chanthaburi	6	21	14	24	41	54	58	36	0	0	0	0	254	0	48.00	0.00	529,194
Trat	6	2	2	4	8	18	12	4	0	0	0	0	56	0	24.66	0.00	227,083
Chachoengsao	16	7	6	16	17	50	80	38	0	0	0	0	230	1	32.94	0.43	698,190
Prachin Buri	19	4	7	11	36	77	79	23	0	0	0	0	256	0	53.25	0.00	480,755
Sa Kaeo	1	6	8	14	50	117	29	15	0	0	0	0	240	1	43.28	0.42	554,555

TABLE 3 Reported Cases and Deaths of Suspected Dengue fever and Dengue Hemorrhagic fever Under Surveillance by Date of Onset, by Province, Thailand, 2017 (January 1-August 29, 2017)

REPORTING AREAS	2017												CASE RATE/PER 10,000,000	CASE FATALITY (%)	POP. DEC 31, 2015		
	DENGUEHEMORRHAGICFEVER-TOTAL (D+DHF+DSS)																
	JAN C	FEB C	MAR C	APR C	MAY C	JUN C	JUL C	AUG C	SEP C	OCT C	NOV C	DEC C	TOTAL C	TOTAL D	POP. %		
NORTHEASTERN REGION	254	187	256	379	967	2071	1940	975	0	0	0	0	7029	2	32.12	0.03	21,880,646
ZONE 7	66	43	39	73	157	519	458	209	0	0	0	0	1564	0	30.97	0.00	5,049,920
Khon Kaen	12	4	7	13	36	94	92	42	0	0	0	0	300	0	16.72	0.00	1,794,032
Maha Sarakham	13	22	14	26	36	79	83	59	0	0	0	0	332	0	34.49	0.00	962,592
Roi Et	16	9	10	24	47	185	141	57	0	0	0	0	489	0	37.38	0.00	1,308,241
Kalasin	25	8	8	10	38	161	142	51	0	0	0	0	443	0	44.97	0.00	985,055
ZONE 8	52	34	54	102	286	428	324	186	0	0	0	0	1466	0	26.60	0.00	5,511,930
Burien	26	16	16	33	92	168	63	23	0	0	0	0	437	0	104.15	0.00	419,607
Nong Bua Lam Phu	1	1	2	8	19	16	37	20	0	0	0	0	104	0	20.41	0.00	509,469
Uthai Thani	5	2	5	12	19	48	62	32	0	0	0	0	185	0	11.76	0.00	1,572,726
Loei	7	8	9	13	51	73	72	40	0	0	0	0	273	0	42.88	0.00	636,666
Nong Khai	4	3	4	6	16	32	34	16	0	0	0	0	115	0	22.18	0.00	518,420
Si Sa Ket	5	3	14	18	67	69	41	43	0	0	0	0	260	0	22.79	0.00	1,140,673
Nakhon Phanom	4	1	4	12	22	22	15	12	0	0	0	0	92	0	12.88	0.00	714,369
ZONE 9	95	57	98	135	348	716	712	388	0	0	0	0	2549	1	37.83	0.04	6,737,604
Nakhon Ratchasima	38	25	43	45	164	336	384	206	0	0	0	0	1241	1	47.28	0.08	2,624,668
Buri Ram	9	10	5	19	49	92	108	73	0	0	0	0	365	0	23.07	0.00	1,581,955
Surin	34	19	42	66	123	213	164	68	0	0	0	0	729	0	52.32	0.00	1,393,330
Chaiyaphum	14	3	8	5	12	75	56	41	0	0	0	0	214	0	18.81	0.00	1,137,651
ZONE 10	41	53	65	69	176	408	446	192	0	0	0	0	1450	1	31.65	0.07	4,581,192
Si Sa Ket	22	11	20	7	43	147	146	98	0	0	0	0	494	0	33.67	0.00	1,467,006
Ubon Ratchathani	12	20	25	23	75	152	198	68	0	0	0	0	573	1	30.96	0.17	1,851,049
Yasothon	0	5	7	29	29	37	33	10	0	0	0	0	150	0	27.77	0.00	540,197
Amnat Charoen	3	5	2	2	12	36	38	3	0	0	0	0	101	0	26.87	0.00	375,881
Mukdahan	4	12	11	8	17	36	31	13	0	0	0	0	132	0	38.08	0.00	347,059
Southern Region	2223	1569	1141	885	1148	1282	947	439	0	0	0	0	9634	24	104.16	0.25	9,249,603
ZONE 11	404	445	423	433	604	721	531	276	0	0	0	0	3837	8	87.52	0.21	4,383,957
Nakhon Si Thammarat	233	271	216	209	277	287	247	137	0	0	0	0	1877	0	121.08	0.00	1,550,278
Krabi	15	27	42	36	56	60	66	31	0	0	0	0	333	1	72.48	0.30	459,456
Phang Nga	14	9	8	20	27	45	52	19	0	0	0	0	194	1	73.84	0.52	262,721
Phuket	35	34	36	38	85	144	78	21	0	0	0	0	471	2	123.14	0.42	382,485
Surat Thani	82	78	79	83	84	125	65	49	0	0	0	0	645	2	61.81	0.31	1,043,501
Ranong	10	11	18	23	29	27	13	11	0	0	0	0	142	0	77.89	0.00	182,313
Chumphon	15	15	24	24	46	33	10	8	0	0	0	0	175	2	34.78	1.14	503,203
ZONE 12	1819	1124	718	452	544	561	416	163	0	0	0	0	5797	16	119.14	0.28	4,865,646
Songkhla	887	518	341	202	245	252	168	56	0	0	0	0	2689	5	189.84	0.19	1,405,939
Satun	8	7	10	6	7	5	0	0	0	0	0	0	43	2	13.68	4.65	314,297
Trang	28	21	18	21	30	54	44	21	0	0	0	0	237	2	37.04	0.84	639,770
Phatthalung	194	151	119	101	111	97	92	36	0	0	0	0	901	0	172.75	0.00	521,570
Pattani	361	198	84	46	39	49	40	15	0	0	0	0	817	1	118.39	0.12	690,104
Yala	82	32	22	19	23	21	14	4	0	0	0	0	217	3	42.13	1.38	515,025
Narathiwat	269	202	124	57	89	83	58	31	0	0	0	0	913	3	117.21	0.33	778,941

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Central Region*

Suspected, Probable Confirmed

C=Cases

D=Deaths

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