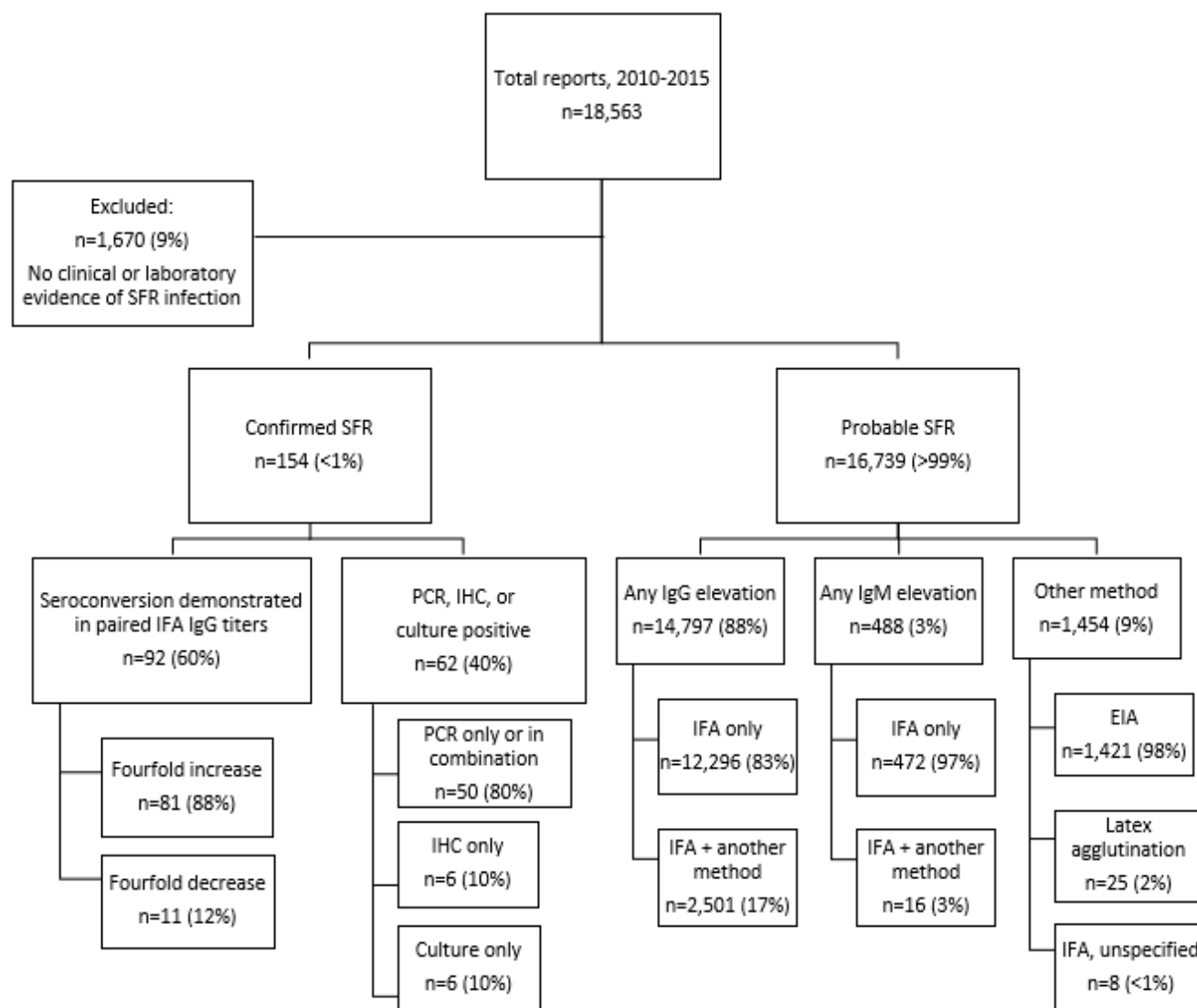


Spotted Fever Rickettsiosis in the United States

Summary of Supplemental Surveillance Data, 2010–2015

Figure 1. Summary of laboratory methods used to classify confirmed and probable SFR



Surveillance classification

- The majority of reports (>99%) during 2010-2015 met criteria for probable spotted fever rickettsioses (SFR); <1% meet criteria for confirmed SFR (Figure 1).
- Among confirmed reports, 60% demonstrated seroconversion of IgG titers between properly timed paired sample, and 40% were confirmed by PCR, IHC staining, or culture.
- Among probable SRF reports, 88% demonstrated elevated IgG via IFA (titer $\geq 1:64$) in at least one specimen, although the timing of the specimen collection relative to onset was not considered.
- Other methods including IgM IFA, EIA, and latex agglutination were used infrequently to support probable classification, independently of IgG IFA.

Notable clinical characteristics (n=18,563)

- Eschars were present in 2% of all reports; 21% of all reports required hospitalization, <1% died.
- Other rickettsial agents reported included *R. africae*, *R. typhi*, and *R. prowazekii* (<1% overall)

Laboratory characteristics of probable SFR

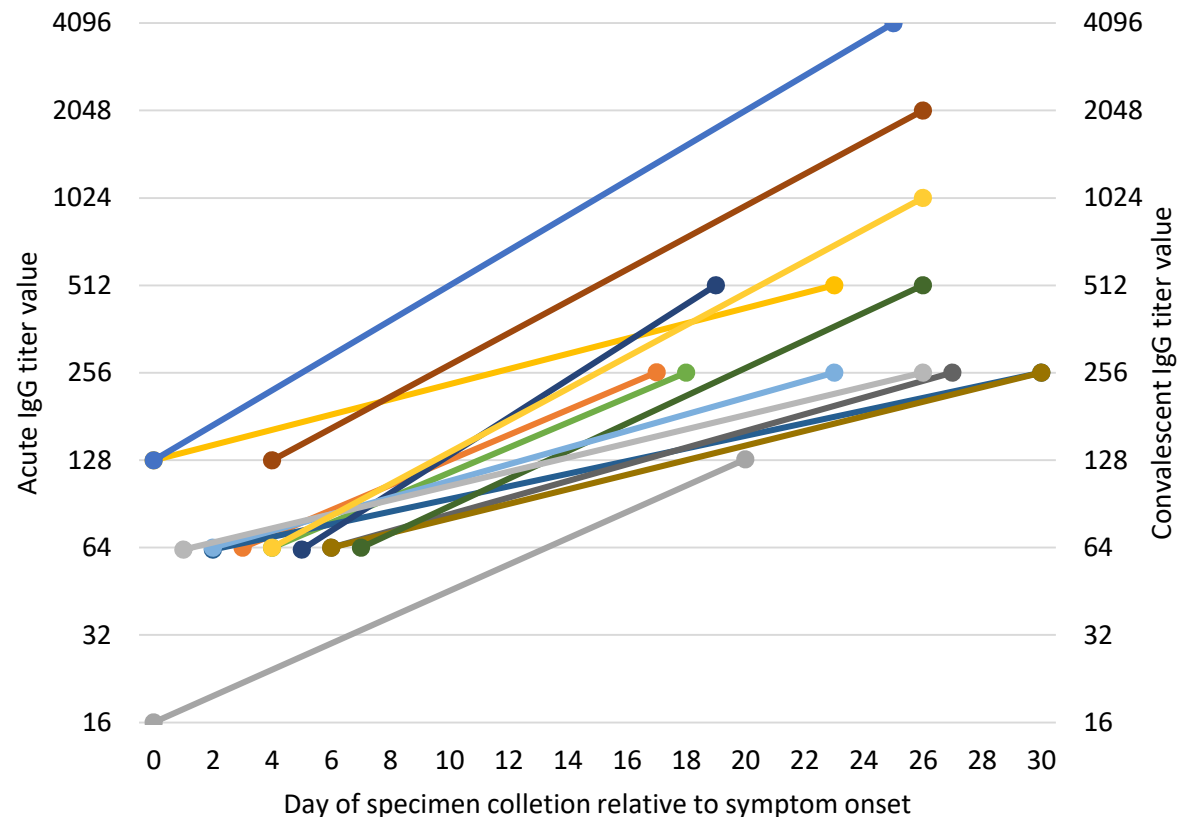
Table 1. Characteristics of first and second serum specimens collected from probable SFR cases

Characteristics of first specimen	n	%
Time from onset to first specimen collection (days)	16,739	
0-1	2,891	17.3
2-3	2,569	15.3
4-5	1,658	9.9
6-7	1,438	8.6
8+	4,394	26.3
Unknown/missing	3,789	22.6
Median (range) (days)	5 (0-1172)	
IFA IgG titer distribution	14,924	
<1:64	349	2.3
≥1:64 to <1:128	7,089	47.5
≥1:128 to <1:256	3,436	23.0
≥1:256 to <1:512	2,722	18.2
≥1:512	897	6.0
Titer not reported (but indicated positive)	431	2.9
Characteristics of paired specimens		
Time from first to second specimen collection (days)	1,806	
0-6	249	13.8
7-13	241	13.3
14-20	285	15.8
21-27	207	11.5
28+	824	45.6
Median (range)	24 (0-1447)	
IFA IgG seroconversion	1,498	
Any fourfold change demonstrated	288	19.2
Less than fourfold change demonstrated	1,210	80.8

- Most (87%) probable reports during 2010–2015 indicated IFA IgG was performed on an acute specimen, of which 2.4% were negative (<1:64).
- Nearly 73% of IFA IgG titer values ranged from ≥1:64 to <1:256.
- Of specimens collected for convalescent IFA IgG testing (n=1,498), 19% demonstrated a fourfold seroconversion but the timing of collection did not meet case confirmation criteria.

Laboratory characteristics of confirmed SFR

Figure 2. IgG IFA titer values in acute and convalescent serum specimens from selected cases with confirmed SFR, relative to day of symptom onset



- Timing of specimen collection relative to symptom onset is an important consideration when evaluating SFR classification.
- Accurate diagnosis of SFR using serologic methods requires paired serum specimens taken from the first week of illness and a second sample taken 2–4 weeks later.
- Most reports confirmed by serologic methods during 2010–2015 (78%) indicated an acute IFA IgG titer value ≥1:64 during first week of illness.

For more information, please contact:

- Kristen Nichols Heitman, Epidemiologist, Rickettsial Zoonoses Branch
 - Tel: (404)-718-4670; Email: KNicholsHeitman@cdc.gov
- Ally Binder, Epidemiologist, Rickettsial Zoonoses Branch
 - Tel: (404)-718-6446; Email: ABinder@cdc.gov