What is claimed is:

1. A multivalent pneumococcal vaccine composition, the composition comprising two or more capsular pneumococcal polysaccharide serotypes each individually conjugated to a carrier protein pneumococcal surface adhesion protein A (PsaA) or combination of PsaA and $CRM_{197}$ as ~~a~~ carrier proteins, wherein at least two capsular pneumococcal polysaccharide serotypes are conjugated to PsaA, wherein the pneumococcal vaccine composition further comprising one or more pharmaceutically acceptable excipient selected from the group consisting of diluent, buffer, preservative, stabilizer, adjuvant, and/or a lyophilization excipient.

2. The pneumococcal vaccine composition of claim 1 wherein the pneumococcal vaccine composition is a 10 valent, 13 valent, 14 valent, 15 valent, 17 valent, 18 valent, 19 valent, 20 valent, 22 valent, 23 valent, 24 valent or 25 valent pneumococcal vaccine composition.

3. The pneumococcal vaccine composition of claims 1 or 2 wherein each of the pneumococcal polysaccharides include one or more serotypes selected from 1, 2, 3, 4, 5, 6A, 6B, 6C, 7F, 8, 9N, 9V, 10A, 11A, 12F, 14, 15A, 15B, 15C, 16F, 17F, 18C, 19F, 19A, 20A, 20B, 22F, 23A, 23B, 23F, 24B, 24F, 31, 33F, 34, 35B, 35F, 38, 39 and 45.

4. The pneumococcal vaccine composition of any one of the preceding claims having a percent ratio of carrier protein to pneumococcal polysaccharide (protein/PS) of 0.5 to 2.0 protein/PS.

5. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition further comprises a pharmaceutically acceptable carrier.

6. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal polysaccharides comprise at least 10 pneumococcal polysaccharides, each pneumococcal polysaccharide selected from serotypes 1 , 2, 3, 4, 5, 6A, 6B, 6C, 7F, 8, 9N, 9V, 10A, 11 A, 12F, 14, 15A, 15B, 15C, 16F, 17F, 18C, 19F, 19A, 20A, 20B, 22F, 23A, 23B, 23F, 24B, 24F, 31 , 33F, 34, 35B, 35F, 38, 39 and 45 and the carrier proteins comprise PsaA, or a combination of PsaA and $CRM_{197}$.

7. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition comprises at least 14 pneumococcal polysaccharides.

8. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition comprises at least 17 pneumococcal polysaccharides.

9. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition comprises at least 19 pneumococcal polysaccharides.

10. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition comprises at least 20 pneumococcal polysaccharides.

11. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition comprises at least 22 pneumococcal polysaccharides.

12. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition comprises at least 24 pneumococcal polysaccharides.

13. The pneumococcal vaccine composition of any one of the preceding claims wherein each of the pneumococcal polysaccharides are selected from serotypes 1, 2, 3, 4, 5, 6A, 6B, 6C, 7F, 8, 9N, 9V, 10A, 11A, 12F, 14, 15A, 15B, 15C, 16F, 17F, 18C, 19F, 19A, 20A, 20B, 22F, 23A, 23B, 23F, 24B, 24F, 31 , 33F, 34, 35B, 35F, 38, 39 and 45, and the carrier protein is PsaA.

14. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 14 valent pneumococcal vaccine composition comprising pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6B, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F, wherein at least serotypes 3, and 6B are conjugated to PsaA and one or more serotypes 1, 4, 5, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F are conjugated to $CRM_{197}$.

15. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 14 valent pneumococcal vaccine composition comprising pneumococcal polysaccharides selected from serotypes 1 , 3, 4, 5, 6A, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F, wherein at least serotypes 3, and 6A are conjugated to PsaA and one or more serotypes 1 , 4, 5, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F are conjugated to $CRM_{197}$.

16. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 15 valent pneumococcal vaccine composition comprising pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V.14, 18C, 19A, 19F, 22F, 23F and 33F wherein at least serotypes 3, 6A and 6B are conjugated to PsaA and one or more serotypes 1 , 4, 5, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F are conjugated to $CRM_{197}$.

17. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 17 valent pneumococcal vaccine composition comprising pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 12F.14, 18C, 19A, 19F, 22F, 23F, 33F and 35B wherein at least serotypes 3, 6A and 6B are conjugated to PsaA and one or more serotypes 1 , 4, 5, 7F, 9V, 12F.14, 18C, 19A, 19F, 22F, 23F, 33F and 35B are conjugated to $CRM_{197}$.

18. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 20 valent pneumococcal vaccine composition comprising pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 1 1A, 12F, 14, 15B, 18C, 19A, 19F, 22F, 23F, 33F, 35B and 45 wherein at least serotypes 3, 6A and 6B are conjugated to PsaA and one or more serotypes 1, 4, 5, 7F, 9V, 1 1A, 12F, 14, 15B, 18C, 19A, 19F, 22F, 23F, 33F, 35B and 45 are conjugated to $CRM_{197}$.

19. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 22 valent pneumococcal vaccine comprising pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 10A, 12F, 14, 15A, 15B, 18C, 19A, 19F, 22F, 23F, 33F, 34, 35B, and 38 wherein at least serotypes 3, 6A and 6B are conjugated to PsaA and one or more serotypes 1, 4, 5, 7F, 9V, 10A, 12F, 14, 15A, 15B, 18C, 19A, 19F, 22F, 23F, 33F, 34, 35B and 38 are conjugated to $CRM_{197}$.

20. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 22 valent pneumococcal vaccine comprising pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 10A, 12F, 14, 15A, 15B, 18C, 19A, 19F, 22F, 23F, 33F, 34, 35B and 38 wherein serotypes 1, 3, 6A, 10A, 12F, 15A 15B, 22F, 34, 35B, 38 are conjugated to PsaA and serotypes 14, 5, 6B, 7F, 9V, 14, 18C, 19A, 19F, 23F and 33F are conjugated to $CRM_{197}$.

21. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 24 valent pneumococcal vaccine comprising pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6A, 6B, 7F, 8, 9V,

10A.12F, 14, 15A, 15B, 16F, 18C, 19A, 19F, 22F, 23F, 33F, 34, 35B and 38 wherein at least serotypes 3, 6A and 6B are conjugated to PsaA and one or more serotypes 1, 4, 5, 7F, 8, 9V, 10A, 12F, 14, 15A, 15B, 16F, 18C, 19A, 19F, 22F, 23F, 33F, 34, 35B and 38 are conjugated to $CRM_{197}$.

22. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 24 valent pneumococcal vaccine comprising pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6A, 6B, 7F, 8, 9V, 10A, 12F, 14, 15A, 15B, 16F 18C, 19A, 19F, 22F, 23F, 33F, 34, 35B and 38 wherein serotypes 1, 3, 6A, 8, 10A, 12F, 15A 15B, 16F 22F, 34, 35B, 38 are conjugated to PsaA and serotypes 14, 5, 6B, 7F, 9V, 14, 18C, 19A, 19F, 23F and 33F are conjugated to $CRM_{197}$.

23. A multivalent pneumococcal vaccine composition comprising pneumococcal polysaccharides of two or more serotypes and a carrier protein, wherein the serotypes are selected from 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19F, 19A and 22F and the carrier protein is PsaA; and wherein the pneumococcal vaccine composition further comprising one or more ~~a~~ pharmaceutically acceptable excipient selected from the group consisting of diluent, buffer, preservative, stabilizer, adjuvant, and/or a lyophilization excipient.

24. A multivalent pneumococcal vaccine composition comprising pneumococcal polysaccharides of two or more serotypes and a carrier protein, wherein the serotypes are selected from 1, 3, 4, 5, 6A, 6B, 7F, 9V, 10A, 12F, 14, 15A, 15B, 18C, 19F, 19A, 22F, 23F, 33F, 34, 35, 38 and 45, and the carrier protein is PsaA; and wherein the pneumococcal vaccine composition further comprising one or more ~~a~~ pharmaceutically acceptable excipient selected from the group consisting of diluent, buffer, preservative, stabilizer, adjuvant, and/or a lyophilization excipient.

25. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is formulated into a dosage unit.

26. The pneumococcal vaccine composition of any one of the preceding claims wherein the dosage unit comprises 0.1 µg to 50 µg of each pneumococcal polysaccharide, 0.1 µg to 10 µg, or 1 µg to 5 µg of each pneumococcal polysaccharide, wherein each pneumococcal polysaccharide is each individually conjugated to the carrier protein from 1 .5 µg to 5 µg of carrier protein.

27. The pneumococcal vaccine composition of any one of the preceding claims further comprising a pharmaceutically acceptable excipient selected from the group consisting of diluent, buffer, preservative, stabilizer, adjuvant, and/or a lyophilization excipient.

28. The pneumococcal vaccine composition of any one of the preceding claims wherein the dosage unit is supplied as a unit dose vial, a multiple dose vial, or a pre-filled syringe.

29. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a single 0.5 mL dose comprising:

2.2 to 4.4 µg of one or more pneumococcal polysaccharides;

1 µg to 10 µg of PsaA conjugated to each of the one or more pneumococcal polysaccharides;

1 µg to 10 µg of $CRM_{197}$ conjugated to each of the one or more pneumococcal polysaccharides;

0.2 mg to 1 mg of aluminum phosphate adjuvant; and

an excipient.

30. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 13 valent pneumococcal vaccine composition comprising:

pneumococcal polysaccharide selected from serotypes 1, 3, 4, 5, 6B, 7F, 9V, 14, 18C, 19A, 19F, 22F and 33F, each pneumococcal polysaccharide each individually conjugated to PsaA or combination of PsaA and $CRM_{197}$, wherein the pneumococcal vaccine composition is a 0.5 mL dose formulated as a sterile liquid comprising:

2.2 µg to 4.4 µg of each pneumococcal polysaccharide,

25 µg to 30 µg of the combination of PsaA and $CRM_{197}$, 0.125 mg of elemental aluminum as 0.5 mg aluminum phosphate,

sodium chloride, and

a L-histidine buffer.

31. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 14 valent pneumococcal vaccine composition comprising:

pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6B, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F, each pneumococcal polysaccharide each individually

conjugated to PsaA or combination of PsaA and $CRM_{197}$, wherein the pneumococcal vaccine composition is a 0.5 ml_ dose formulated as a sterile liquid comprising:

2.2 µg to 4.4 µg of each pneumococcal polysaccharide,

20 µg to 35 µg of the combination of PsaA and $CRM_{197}$, 0.125 mg of elemental aluminum as 0.5 mg aluminum phosphate,

sodium chloride, and

a L-histidine buffer.

32. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 14 valent pneumococcal vaccine composition comprising:

pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6A, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F, each pneumococcal polysaccharide each individually conjugated to PsaA or combination of PsaA and $CRM_{197}$,

wherein the pneumococcal vaccine composition is a 0.5 ml_ dose formulated as a sterile liquid comprising:

2.2 to 4.4 µg of each pneumococcal polysaccharide, 20 µg to 35 µg of the combination of PsaA and $CRM_{197}$, 0.125 mg of elemental aluminum as 0.5 mg aluminum phosphate,

sodium chloride, and

a L-histidine buffer.

33. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 15 valent pneumococcal vaccine composition comprising:

pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F wherein at least serotypes 3, 6A and 6B are conjugated to PsaA and one or more serotypes 1, 4, 5, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F are conjugated to $CRM_{197}$, wherein the pneumococcal vaccine composition is a 0.5 mL dose formulated as a sterile liquid comprising:

2.2 µg to 4.4 µg of each pneumococcal polysaccharide,

5 µg to 20 µg of PsaA;

20 µg to 40 µg of $CRM_{197}$,

0.125 mg of elemental aluminum as 0.5 mg aluminum phosphate,

sodium chloride, and

a L-histidine buffer.

34. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 17 valent pneumococcal vaccine composition comprising:

pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 12F.14, 18C, 19A, 19F, 22F, 23F, 33F and 35B wherein at least serotypes 3, 6A and 6B are conjugated to PsaA and one or more serotypes 1, 4, 5, 7F, 9V, 12F, 14, 18C, 19A, 19F, 22F, 23F, 33F and 35B are conjugated to $CRM_{197}$,

wherein the pneumococcal vaccine composition is a 0.5 mL dose formulated as a sterile liquid comprising:

2.2 µg to 4.4 µg of each pneumococcal polysaccharide,

5 µg to 20 µg of PsaA,

20 µg to 40 µg of $CRM_{197}$,

0.125 mg of elemental aluminum as 0.5 mg aluminum phosphate,

sodium chloride, and

a L-histidine buffer.

35. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 20 valent pneumococcal vaccine composition comprising:

pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 1 1A, 12F, 14, 15B, 18C, 19A, 19F, 22F, 23F, 33F, 35B and 45 wherein at least serotypes 3,

6A and 6B are conjugated to PsaA and one or more serotypes 1 , 4, 5, 7F, 9V, 1 1 A, 12F, 14, 15B, 18C, 19A, 19F, 22F, 23F, 33F, 35B and 45 are conjugated to $CRM_{197}$, wherein the pneumococcal vaccine composition is a 0.5 mL dose formulated as a sterile liquid comprising:

2.2 µg to 4.4 µg of each pneumococcal polysaccharide,

5 µg to 20 µg of PsaA,

20 µg to 50 µg of $CRM_{197}$,

0.125 mg of elemental aluminum as 0.5 mg aluminum phosphate,

sodium chloride, and

a L-histidine buffer.

36. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 22 valent pneumococcal vaccine composition comprising:

pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 10A, 12F, 14, 15A, 15B, 18C, 19A, 19F, 22F, 23F, 33F, 34, 35B and 38 wherein at least serotypes 3, 6A and 6B are conjugated to PsaA and one or more serotypes 1, 4, 5, 7F, 9V, 10A, 12F, 14, 15A, 15B, 18C, 19A, 19F, 22F, 23F, 33F, 34, 35B and 38 are conjugated to $CRM_{197}$, wherein the pneumococcal vaccine composition is a 0.5 mL dose formulated as a sterile liquid comprising:

2.2 µg to 4.4 µg of each pneumococcal polysaccharide,

5 µg to 20 µg of PsaA,

20 µg to 50 µg of $CRM_{197}$,

0.125 mg of elemental aluminum as 0.5 mg aluminum phosphate,

sodium chloride, and

a L-histidine buffer.

37. The pneumococcal vaccine composition of any one of the preceding claims wherein the pneumococcal vaccine composition is a 24 valent pneumococcal vaccine composition comprising:

pneumococcal polysaccharides selected from serotypes 1, 3, 4, 5, 6A, 6B, 7F, 8, 9V, 10A, 12F, 14, 15A, 15B, 16F, 18C, 19A, 19F, 22F, 23F, 33F, 34, 35B and 38 wherein at least serotypes 3, 6A and 6B are conjugated to PsaA and one or more serotypes 1, 4, 5, 7F, 8, 9V, 10A, 12F, 14, 15A, 15B, 16F, 18C, 19A, 19F, 22F, 23F, 33F and 35B are conjugated to $CRM_{197}$,

wherein the pneumococcal vaccine composition is a 0.5 ml dose formulated as a sterile liquid comprising:

2.2 µg to 4.4 µg of each pneumococcal polysaccharide,

5 µg to 20 µg of PsaA,

20 µg to 50 µg of $CRM_{197}$,

0.125 mg of elemental aluminum as 0.5 mg aluminum phosphate,

sodium chloride, and

a L-histidine buffer.

38. Use of the pneumococcal vaccine composition of any one of the preceding claims in the manufacture of a medicament for treating a disease mediated by streptococcus pneumoniae.

39. The use of claim 38 wherein the disease mediated by streptococcus pneumoniae is invasive pneumococcal disease (IPD).

40. The use of any one of claims 38-39 wherein the subject is a human.

41. The use of claim 40 wherein the human is an infant (less than 1 year of age), a toddler (12 months to 24 months of age), a young child (2 years to 5 years of age), an older child (5 years to 13 years of age), an adolescent (13 years to 18 years of age), an adult (18 years to 65 years of age), or an elder (more than 65 years of age).

42. The use according to claim 38 wherein an immunologically effective amount of the pneumococcal vaccine composition of any one of claims 1-37 induces an immune response to a S. pneumoniae capsular polysaccharide conjugate.

43. The use of claim 42 wherein the polysaccharide-protein conjugate is to be formulated into the pneumococcal vaccine composition with an adjuvant, an excipient, and a buffer.

44. The use of claim 43 wherein the adjuvant is aluminum phosphate.