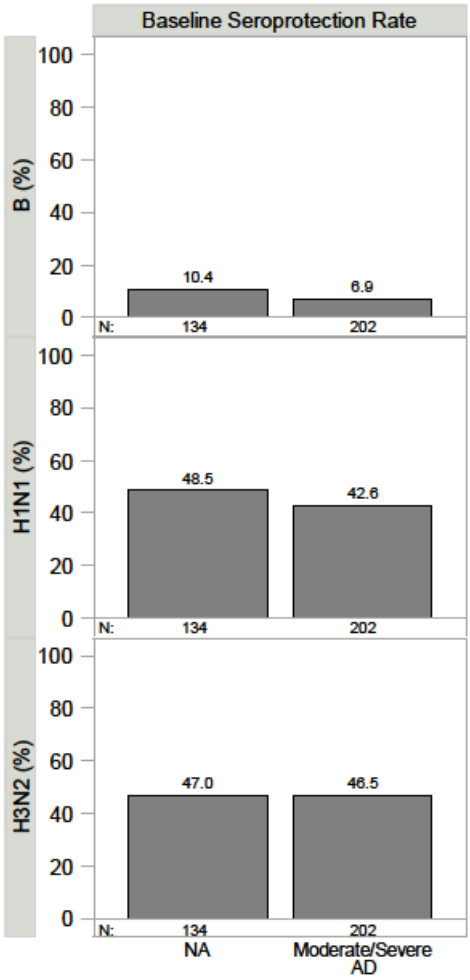
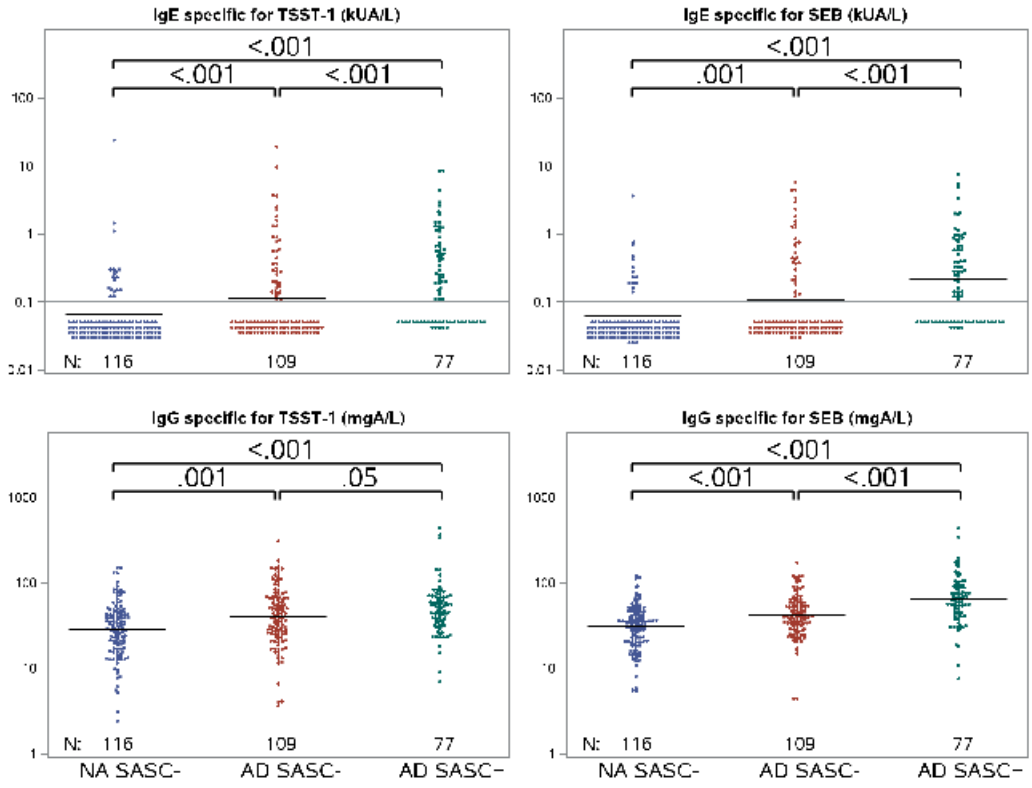
eFigure 1. Baseline Influenza B, H1N1 and H3N2 Seroprotection, by Diagnostic Group



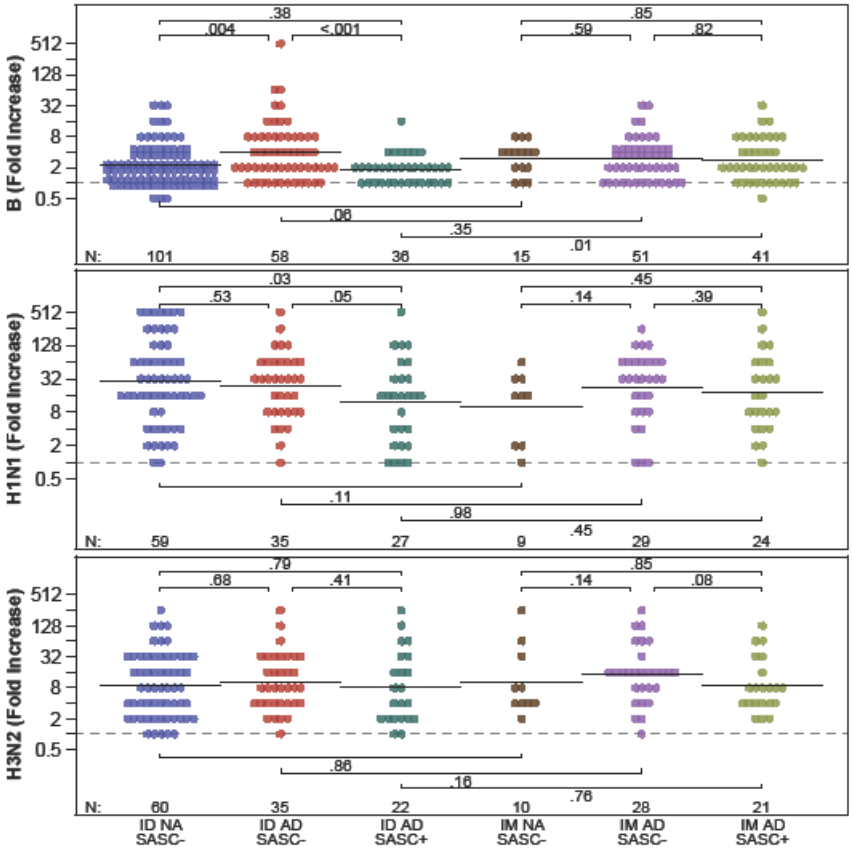
Note: NA=Non-Atopic; AD=Atopic Dermatitis.
Seroprotection is a hemagglutination-inhibition (HAI) antibody titer >= 1:40.

Figure E2. Baseline IgE- and IgG-specific for Staphylococcal enterotoxin B and Toxic Shock Staph Toxin-1, by Diagnostic Group and S. aureus Skin Colonization



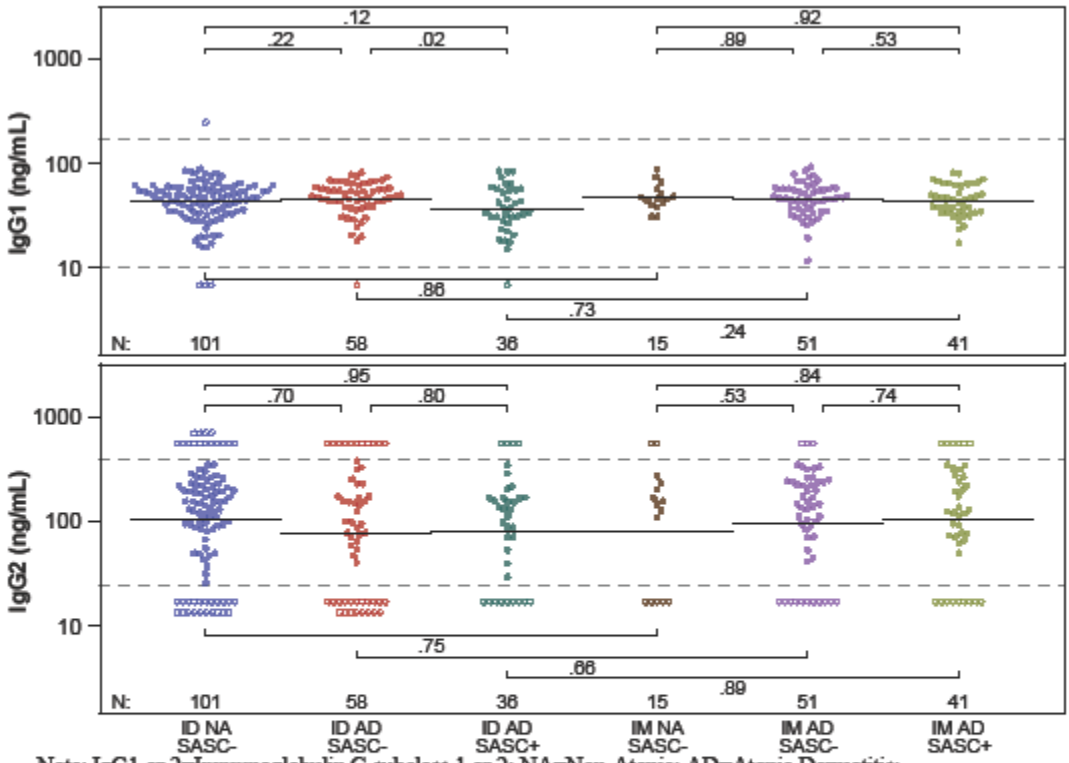
Note: NA=Non-Atopic; AD=Atopic Dermatitis; IgE=Immunoglobulin E; IgG=Immunoglobulin G; TSST-1=Toxic Shock Staph Toxin-1; SEB=Staphylococcal enterotoxin B; SASC= *S. aureus* Skin Colonization. For IgE, 1 kUA/L = 2.4 µg/L; for IgG, 1 mgA/L = 1 mg/L. If applicable, values below the reference line are left-censored at 0.1. Participants with a baseline influenza B hemagglutination-inhibition (HAI) antibody titer >= 1:40 are excluded from the analyses. Pairwise comparisons between diagnostic groups are based on left-censored regression models on the log (base 10) scale, adjusted for age and gender. Unadjusted geometric means are displayed.

Figure E3. Day 28 Post-vaccination Influenza B, H1N1 and H3N2 HAI Titer Fold Increase, by Vaccination Route, Diagnostic Group and *S. aureus* Skin Colonization



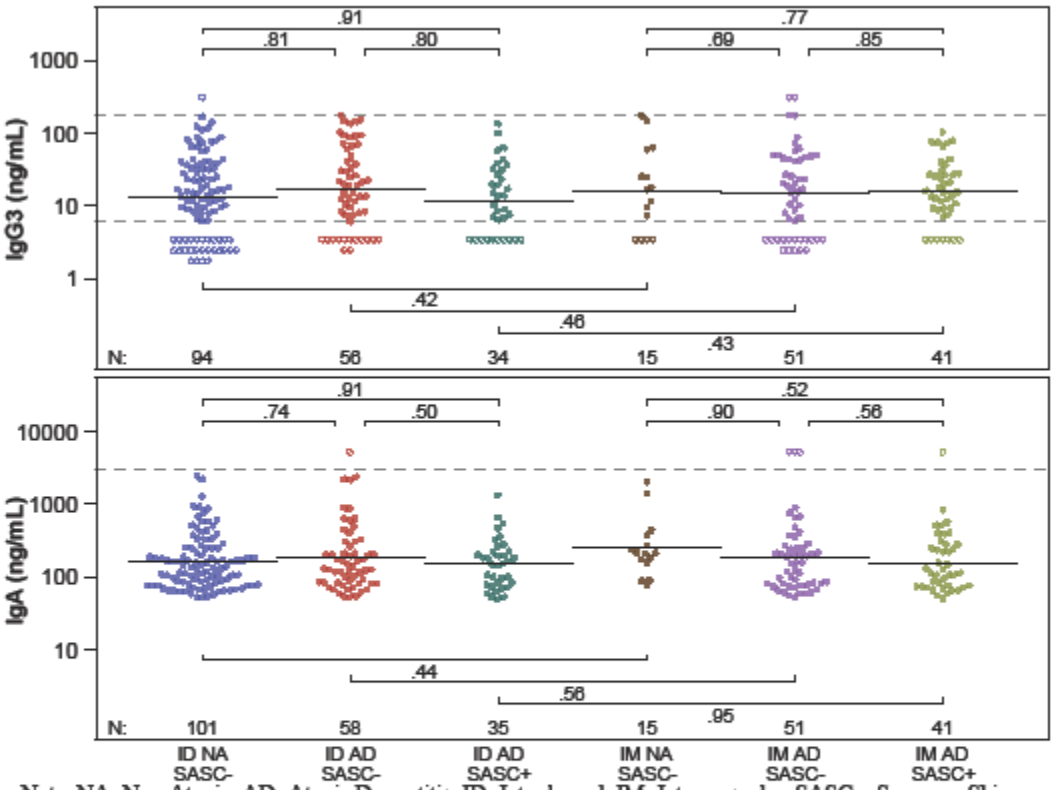
Note: NA=Non-Atopic; AD=Atopic Dermatitis; ID=Intradermal; IM=Intramuscular; SASC= *S. aureus* Skin Colonization. Fold increase is defined as the day 28 hemagglutination-inhibition (HAI) antibody titer divided by the baseline HAI antibody titer. HAI antibody titers of <1:10 have been imputed as 1:5 and HAI antibody titers of >=1:1280 have been imputed as 1:2560 for analyses prior to calculating the fold increase. Participants with a baseline HAI antibody titer >=1:40 are excluded from the analyses. A dotted line at 1 represents no change between baseline and day 28 HAI antibody titers. Pairwise comparisons are performed using a robust regression model of the $\log_2$ fold increase. No adjustments were made in comparisons. Unadjusted geometric means of fold increase by group are displayed.

Figure E4. Day 28 Post-vaccination Influenza B-Specific IgG1 and IgG2, by Vaccination Route, Diagnostic Group and *S. aureus* Skin Colonization



Note: IgG1 or 2=Immunoglobulin G subclass 1 or 2; NA=Non-Atopic; AD=Atopic Dermatitis; ID=Intradermal; IM=Intramuscular; SASC= *S. aureus* Skin Colonization. For IgG1 and IgG2, 10,000 ng/mL = 1 mg/dL. Dotted lines represent the lower limit of quantification (LLOQ) (IgG1: 10; IgG2: 24) and the upper limit of quantification (ULOQ) (IgG1: 170; IgG2: 380). Values below LLOQ or above ULOQ are imputed in analyses and are indicated by open circles at the top and bottom of the plot. All NA SASC+ participants (n=3) have been excluded from the analyses. Participants with a baseline influenza B hemagglutination-inhibition (HAI) titer >= 1:40 are excluded from the analysis. Multiple imputation was used for values outside of LLOQ and ULOQ. Pairwise comparisons between diagnostic groups are based on robust regression models of each imputation of $\log_{10}$ values, adjusting for age and gender. Unadjusted geometric means of day 28 values by group are displayed as solid horizontal lines.

Figure E5. Day 28 Post-vaccination Influenza B-Specific IgG3 and IgA, by Vaccination Route, Diagnostic Group and *S. aureus* Skin Colonization



Note: NA=Non-Atopic; AD=Atopic Dermatitis; ID=Intradermal; IM=Intramuscular; SASC= *S. aureus* Skin Colonization. For IgG3 and IgA, 10,000 ng/mL = 1 mg/dL. Dotted lines represent the lower limit of quantification (LLOQ) (IgG3: 6) and the upper limit of quantification (ULOQ) (IgG3: 180; IgA: 3000). Values below LLOQ or above ULOQ are imputed in analyses and are indicated by open circles at the top and bottom of the plot. All NA SASC+ participants (n=3) have been excluded from the analyses. Participants with a baseline influenza B hemagglutination-inhibition (HAI) titer >= 1:40 are excluded from the analysis. Multiple imputation was used for values outside of LLOQ and ULOQ. Pairwise comparisons between diagnostic groups are based on robust regression models of each imputation of $\log_{10}$ values, adjusting for age and gender. Unadjusted geometric means of day 28 values by group are displayed as solid horizontal lines.