## Stages of Testing for Primary Immunodeficiency

- History and physical examination
- CBC and differential
- Quantitative Immunoglobulin levels IgG, IgM, IgA
- Specific antibody responses (tetanus, diphtheria, pneumococcus) Lymphocyte surface markers CD3/CD4/CD8/CD19/CD56
  - Lymphocyte proliferation studies (mitogen/antigen stimulation or skin delayed type hypersensitivity)
  - Neutrophil oxidation burst (if indicated)
    - Response to pneumococcal vaccine (for ages 3 and up)
    - Primary Immunodeficiency gene sequencing panel
    - Complement screening CH50, specific complement components, AH50
    - Enzyme activity measurements (e.g., adenosine deaminase, purine nucleoside phosphorylase)
    - Phagocyte studies (e.g., surface glycoproteins, mobility, phagocytosis)
    - NK cytotoxicity studies
    - Neo antigen response to test antibody production
    - Other surface molecules for detailed immunophenotype (e.g., memory B cells, T/NK cell subpopulations)
    - Specific protein levels (e.g., SAP, Perforin, WASp)
    - Cytokine or other function receptor quantification
    - IgG subclass analysis
    - Genomic studies

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