

IDSA 2026 Guidelines on the use of vaccines for the prevention of seasonal COVID-19, Influenza, and RSV infections in immunocompromised patients

Supplemental material for COVID-19 section

Search Strategy

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IDSA Conflict of Interest

Search Strategy

To establish the basis for recommendations, the panel reviewed the best available evidence published in the 18–24 months since the evidence base for the last CDC recommendations for each vaccine (search start dates were June 2024 for COVID-19; August 2024 for RSV; and August 2023 for influenza and search end date was July 31, 2025). A rapid systematic literature review conducted by the Vaccine Integrity Project (VIP) provided evidence for vaccine effectiveness and serious adverse events [1], and a supplemental search within the same search limits provided evidence for exacerbations of immunocompromising or autoimmune conditions (see Supplemental Table 1). An updated search was conducted for the 2026-2027 season by VIP [2] (search start date was August 1, 2025 and end date was June 30, 2026).

Supplemental Table 1. IDSA Supplemental Search

A supplemental search was conducted for the additional outcome of ‘exacerbations of immunocompromising or autoimmune conditions.’ Searches were run individually for each specific population in PubMed. The timeframe for the searches was informed by the timeframe for the VIP searches (search start dates were June 2024 for COVID-19; August 2024 for RSV; and August 2023 for influenza and search end date was July 31, 2025). Title/abstract and full-text screening were done by a single reviewer using Excel. Staff completed a final review of included studies.

Inclusion Criteria: 1) reports data on exacerbations of immunocompromising or autoimmune conditions resulting from vaccination, 2) studies at least one U.S-licensed or emergency-authorized vaccine, 3) has a sample size ≥ 10

Exclusion Criteria: 1) studies on infection-based exacerbations, treating exacerbations, vaccine effectiveness, epidemiology, characterization of immune response, impact of dosing, comparison of vaccines, reports for other AEs (e.g., myocarditis/pericarditis), or exacerbations of non-IC conditions (e.g., alopecia)

PubMed Specific Populations Search Strategy

#	Descriptor	String
1	Vaccinations (flu, RSV, COVID-19	"covid 19 vaccines"[MeSH Major Topic] OR "Comirnaty"[Title/Abstract] OR "SPIKEVAX"[Title/Abstract] OR "MNEXSPIKE"[Title/Abstract] OR "Vaxzevria"[Title/Abstract] OR "Nuvaxovid"[Title/Abstract] OR "Covovax"[Title/Abstract] OR "NVX-CoV2373"[Title/Abstract] OR "COVID-19 vaccine"[Title/Abstract:~4] OR "covid 19 vaccines"[Title/Abstract:~4] OR "COVID-19 vaccination"[Title/Abstract:~4] OR "COVID-19 vaccinations"[Title/Abstract:~4] OR "COVID-19

		vaccinate"[Title/Abstract:~4] OR "COVID-19 vaccinated"[Title/Abstract:~4] OR "COVID-19 vaccinating"[Title/Abstract:~4] OR "COVID-19 immunization"[Title/Abstract:~4] OR "COVID-19 immunizations"[Title/Abstract:~4] OR "COVID-19 immunize"[Title/Abstract:~4] OR "COVID-19 immunized"[Title/Abstract:~4] OR "COVID-19 immunizing"[Title/Abstract:~4] OR "COVID-19 inoculation"[Title/Abstract:~4] OR "COVID-19 inoculations"[Title/Abstract:~4] OR "COVID-19 inoculate"[Title/Abstract:~4] OR "COVID-19 inoculated"[Title/Abstract:~4] OR "COVID-19 inoculating"[Title/Abstract:~4] OR "SARS-CoV-2 vaccine"[Title/Abstract:~4] OR "SARS-CoV-2 vaccines"[Title/Abstract:~4] OR "SARS-CoV-2 vaccination"[Title/Abstract:~4] OR "SARS-CoV-2 vaccinations"[Title/Abstract:~4] OR "SARS-CoV-2 vaccinate"[Title/Abstract:~4] OR "SARS-CoV-2 vaccinated"[Title/Abstract:~4] OR "SARS-CoV-2 vaccinating"[Title/Abstract:~4] OR "SARS-CoV-2 immunization"[Title/Abstract:~4] OR "SARS-CoV-2 immunizations"[Title/Abstract:~4] OR "SARS-CoV-2 immunize"[Title/Abstract:~4] OR "SARS-CoV-2 immunized"[Title/Abstract:~4] OR "SARS-CoV-2 immunizing"[Title/Abstract:~4] OR "SARS-CoV-2 inoculation"[Title/Abstract:~4] OR "SARS-CoV-2 inoculations"[Title/Abstract:~4] OR "SARS-CoV-2 inoculate"[Title/Abstract:~4] OR "SARS-CoV-2 inoculated"[Title/Abstract:~4] OR "SARS-CoV-2 inoculating"[Title/Abstract:~4] OR "Respiratory Syncytial Virus Vaccines"[MeSH Major Topic] OR "Abrysvo"[Title/Abstract] OR "Arexvy"[Title/Abstract] OR "MRESVIA"[Title/Abstract] OR "Beyfortus"[Title/Abstract] OR "nirsevimab"[Title/Abstract] OR "ENFLONIA"[Title/Abstract] OR "clesrovimab"[Title/Abstract] OR "Synagis"[Title/Abstract] OR "palivizumab"[Title/Abstract] OR "RSV vaccine"[Title/Abstract:~4] OR "RSV vaccines"[Title/Abstract:~4] OR "RSV vaccination"[Title/Abstract:~4] OR "RSV vaccinations"[Title/Abstract:~4] OR "RSV vaccinate"[Title/Abstract:~4] OR "RSV vaccinated"[Title/Abstract:~4] OR "RSV vaccinating"[Title/Abstract:~4] OR "RSV immunization"[Title/Abstract:~4] OR "RSV immunizations"[Title/Abstract:~4] OR "RSV immunize"[Title/Abstract:~4] OR "RSV immunized"[Title/Abstract:~4] OR "RSV immunizing"[Title/Abstract:~4] OR "RSV inoculation"[Title/Abstract:~4] OR "RSV inoculations"[Title/Abstract:~4] OR "RSV inoculate"[Title/Abstract:~4] OR "RSV inoculated"[Title/Abstract:~4] OR "RSV inoculating"[Title/Abstract:~4] OR "respiratory syncytial virus vaccine"[Title/Abstract:~4] OR "Respiratory Syncytial Virus Vaccines"[Title/Abstract:~4] OR "respiratory syncytial virus vaccination"[Title/Abstract:~4] OR "respiratory syncytial virus vaccinations"[Title/Abstract:~4] OR "respiratory syncytial virus vaccinate"[Title/Abstract:~4] OR "respiratory syncytial virus vaccinated"[Title/Abstract:~4] OR "respiratory syncytial virus vaccinating"[Title/Abstract:~4] OR "respiratory syncytial virus immunization"[Title/Abstract:~4] OR "respiratory syncytial virus immunizations"[Title/Abstract:~4] OR "respiratory syncytial virus immunize"[Title/Abstract:~4] OR "respiratory syncytial virus immunized"[Title/Abstract:~4] OR "respiratory syncytial virus immunizing"[Title/Abstract:~4] OR "respiratory syncytial virus inoculation"[Title/Abstract:~4] OR "respiratory syncytial virus inoculations"[Title/Abstract:~4] OR "respiratory syncytial virus inoculate"[Title/Abstract:~4] OR "respiratory syncytial virus inoculated"[Title/Abstract:~4]
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		OR "respiratory syncytial virus inoculating"[Title/Abstract:~4] OR "Influenza Vaccines"[MeSH Major Topic] OR "Fluzone"[Title/Abstract] OR "Afluria"[Title/Abstract] OR "Fluad"[Title/Abstract] OR "Flucelvax"[Title/Abstract] OR "FluMist"[Title/Abstract] OR "Flublok"[Title/Abstract] OR "Fluarix"[Title/Abstract] OR "Flulaval"[Title/Abstract] OR "Fluvirin"[Title/Abstract] OR "Agrimflu"[Title/Abstract] OR "Arepanrix"[Title/Abstract] OR "Audenz"[Title/Abstract] OR "Afluria"[Title/Abstract] OR "flu vaccine"[Title/Abstract:~4] OR "flu vaccines"[Title/Abstract:~4] OR "flu vaccination"[Title/Abstract:~4] OR "flu vaccinations"[Title/Abstract:~4] OR "flu vaccinate"[Title/Abstract:~4] OR "flu vaccinated"[Title/Abstract:~4] OR "flu vaccinating"[Title/Abstract:~4] OR "flu immunization"[Title/Abstract:~4] OR "flu immunizations"[Title/Abstract:~4] OR "flu immunize"[Title/Abstract:~4] OR "flu immunized"[Title/Abstract:~4] OR "flu immunizing"[Title/Abstract:~4] OR "flu inoculation"[Title/Abstract:~4] OR "flu inoculations"[Title/Abstract:~4] OR "flu inoculate"[Title/Abstract:~4] OR "flu inoculated"[Title/Abstract:~4] OR "flu inoculating"[Title/Abstract:~4] OR "influenza vaccine"[Title/Abstract:~4] OR "Influenza Vaccines"[Title/Abstract:~4] OR "influenza vaccination"[Title/Abstract:~4] OR "influenza vaccinations"[Title/Abstract:~4] OR "influenza vaccinate"[Title/Abstract:~4] OR "influenza vaccinated"[Title/Abstract:~4] OR "influenza vaccinating"[Title/Abstract:~4] OR "influenza immunization"[Title/Abstract:~4] OR "influenza immunizations"[Title/Abstract:~4] OR "influenza immunize"[Title/Abstract:~4] OR "influenza immunized"[Title/Abstract:~4] OR "influenza immunizing"[Title/Abstract:~4] OR "influenza inoculation"[Title/Abstract:~4] OR "influenza inoculations"[Title/Abstract:~4] OR "influenza inoculate"[Title/Abstract:~4] OR "influenza inoculated"[Title/Abstract:~4] OR "influenza inoculating"[Title/Abstract:~4]
2	Specific population(s)	See appendix 1
3	Date filter	2023/08/26:2025/09/22[pdat]
4	Language filter	English[lang]
5	Exclusion by publication type & additional exclusion terms (from VIP search with addition of guidelines or “narrative review” in title)	"case reports"[Publication Type] OR "clinical trial protocol"[Publication Type] OR "clinical trial, veterinary"[Publication Type] OR "Comment"[Publication Type] OR "Editorial"[Publication Type] OR "Guideline"[Publication Type] OR "letter"[Publication Type] OR "practice guideline"[Publication Type] OR "Published Erratum"[Publication Type] OR "modeling"[Title] OR "modelling"[Title] OR "mathematical model"[Title/Abstract] OR "simulation model"[Title/Abstract] OR "simulation"[Title] OR "cost-effectiveness"[Title] OR "costing"[Title] OR "cost analysis"[Title/Abstract] OR "economic evaluation"[Title/Abstract] OR "cost utility"[Title/Abstract] OR "microsimulation"[Title/Abstract] OR "markov model"[Title/Abstract] OR "agent-based model"[Title/Abstract] OR "macaque"[Title] OR "primate"[Title] OR "case report"[Title] OR "mouse model"[Title/Abstract] OR "murine"[Title/Abstract] OR "in vitro"[Title] OR "cell line"[Title/Abstract] OR "protein structure"[Title/Abstract] OR "molecular docking"[Title/Abstract] OR "molecular dynamics"[Title/Abstract] OR "animal model"[Title/Abstract] OR "rodent"[Title/Abstract] OR

		"bioinformatics"[Title/Abstract] OR "receptor binding"[Title/Abstract] OR "viral genome"[Title/Abstract] OR Guidelines[TI] OR "Narrative review"[TI]
Search		1 AND 2 AND 3 AND 4 NOT 5

Appendix 1. Specific population search strings

a. Solid Organ Transplant

"Tissue Transplantation"[MeSH Terms] OR "Organ Transplantation"[MeSH Terms] OR ("transplant"[Title/Abstract] AND ("kidney"[Title/Abstract] OR "liver"[Title/Abstract] OR "heart"[Title/Abstract] OR "lung"[Title/Abstract] OR "intestine"[Title/Abstract] OR "pancreas"[Title/Abstract] OR "multivisceral"[Title/Abstract] OR "organ"[Title/Abstract] OR "tissue"[Title/Abstract]))

b. HCT/CAR-T & JAK-STAT inhibitors

("Hematopoietic Stem Cell Transplantation"[MeSH Terms] OR "Bone Marrow Transplantation"[MeSH Terms] OR "immunotherapy, adoptive"[MeSH Terms] OR ("bone marrow transplant"[Title/Abstract] OR "bone marrow transplants"[Title/Abstract] OR "Bone Marrow Transplantation"[Title/Abstract] OR "bone marrow transplantations"[Title/Abstract] OR "stem cell transplant"[Title/Abstract] OR "stem cell transplants"[Title/Abstract] OR "stem cell transplantation"[Title/Abstract] OR "stem cell transplantations"[Title/Abstract] OR "car t"[Title/Abstract] OR "car t"[Title/Abstract] OR "cord blood transplant"[Title/Abstract] OR "cord blood transplants"[Title/Abstract] OR "cord blood transplantation"[Title/Abstract] OR "cord blood transplantations"[Title/Abstract] OR "Chimeric Antigen Receptor Therapy"[Title/Abstract] OR "Chimeric Antigen Receptor Therapies"[Title/Abstract])) AND ("janus kinase inhibitors"[MeSH Terms] OR "janus kinase inhibitors"[Pharmacological Action] OR ("Janus kinase-signal transducers and activators of transcription"[Title/Abstract] OR "janus kinase inhibitors"[Title/Abstract:~4] OR "Janus kinase inhibitor"[Title/Abstract:~4] OR "JAK inhibitor"[Title/Abstract:~4] OR "JAK inhibitors"[Title/Abstract:~4] OR "ruxolitinib"[Title/Abstract] OR "tofacitinib"[Title/Abstract] OR "baricitinib"[Title/Abstract] OR "itacitinib"[Title/Abstract] OR "Upadacitinib"[Title/Abstract] OR "filgotinib"[Title/Abstract] OR "abrocitinib"[Title/Abstract] OR "oclocitinib"[Title/Abstract] OR "fedratinib"[Title/Abstract] OR "pacritinib"[Title/Abstract] OR "decernotinib"[Title/Abstract] OR "ritlecinib"[Title/Abstract] OR "deucravacitinib"[Title/Abstract] OR "delgocitinib"[Title/Abstract] OR "peficitinib"[Title/Abstract]))

c. Hematologic Malignancies

"Leukemia"[MeSH Terms] OR "Lymphoma"[MeSH Terms] OR "Multiple Myeloma"[MeSH Terms] OR "leukemia"[Title/Abstract] OR "lymphoma"[Title/Abstract] OR "myeloma"[Title/Abstract] OR "hematologic malignancy"[Title/Abstract] OR "hematologic malignancies"[Title/Abstract] OR "hematologic malignant"[Title/Abstract:~4]

d. Solid Tumor Chemotherapy

"neoplasms/drug therapy"[MeSH Terms] OR ("solid tumor"[Title/Abstract] OR "Glioblastoma"[Title/Abstract] OR "Astrocytoma"[Title/Abstract] OR "Oligodendroglioma"[Title/Abstract] OR "Meningioma"[Title/Abstract] OR "Medulloepithelioma"[Title/Abstract] OR "Craniopharyngioma"[Title/Abstract] OR "oral cavity cancer"[Title/Abstract] OR "pharyngeal cancer"[Title/Abstract] OR "laryngeal cancer"[Title/Abstract] OR "salivary gland tumor"[Title/Abstract] OR "thyroid cancer"[Title/Abstract] OR "parathyroid cancer"[Title/Abstract] OR "lung cancer"[Title/Abstract] OR "mesothelioma"[Title/Abstract] OR "thymoma"[Title/Abstract] OR "esophageal cancer"[Title/Abstract] OR "gastric cancer"[Title/Abstract] OR "stomach

cancer"[Title/Abstract] OR "colorectal cancer"[Title/Abstract] OR "liver cancer"[Title/Abstract] OR "hepatocellular carcinoma"[Title/Abstract] OR "pancreatic cancer"[Title/Abstract] OR "gallbladder cancer"[Title/Abstract] OR "bile duct cancer"[Title/Abstract] OR "cholangiocarcinoma"[Title/Abstract] OR "kidney cancer"[Title/Abstract] OR "renal cell carcinoma"[Title/Abstract] OR "bladder cancer"[Title/Abstract] OR "prostate cancer"[Title/Abstract] OR "testicular cancer"[Title/Abstract] OR "penile cancer"[Title/Abstract] OR "breast cancer"[Title/Abstract] OR "ovarian cancer"[Title/Abstract] OR "endometrial cancer"[Title/Abstract] OR "cervical cancer"[Title/Abstract] OR "vulvar cancer"[Title/Abstract] OR "vaginal cancer"[Title/Abstract] OR "osteosarcoma"[Title/Abstract] OR "chondrosarcoma"[Title/Abstract] OR "Ewing sarcoma"[Title/Abstract] OR "soft tissue sarcomas"[Title/Abstract] OR "melanoma"[Title/Abstract] OR "basal cell carcinoma"[Title/Abstract] OR "squamous cell carcinoma"[Title/Abstract] OR "Merkel cell carcinoma"[Title/Abstract] OR "adrenal cancer"[Title/Abstract] OR "pituitary tumor*"[Title/Abstract] OR "neuroendocrine tumor*"[Title/Abstract]) AND ("Antineoplastic Agents"[MeSH Terms] OR "chemotherap*"[Title/Abstract] OR "anticancer therapy"[Title/Abstract] OR "anticancer therapies"[Title/Abstract] OR "antineoplastic agent"[Title/Abstract] OR "Antineoplastic Agents"[Title/Abstract] OR "anticancer drug"[Title/Abstract] OR "anticancer drugs"[Title/Abstract] OR "Altretamine"[Title/Abstract] OR "Bendamustine"[Title/Abstract] OR "Busulfan"[Title/Abstract] OR "Carmustine"[Title/Abstract] OR "Chlorambucil"[Title/Abstract] OR "Cyclophosphamide"[Title/Abstract] OR "Dacarbazine"[Title/Abstract] OR "Ifosfamide"[Title/Abstract] OR "Lomustine"[Title/Abstract] OR "Lurbinectedin"[Title/Abstract] OR "Mechlorethamine"[Title/Abstract] OR "Melphalan"[Title/Abstract] OR "Procarbazine"[Title/Abstract] OR "Streptozocin"[Title/Abstract] OR "Temozolomide"[Title/Abstract] OR "Thiotepa"[Title/Abstract] OR "Trabectedin"[Title/Abstract] OR "Methotrexate"[Title/Abstract] OR "Pemetrexed"[Title/Abstract] OR "Pralatrexate"[Title/Abstract] OR "Trimetrexate"[Title/Abstract] OR "Azathioprine"[Title/Abstract] OR "Cladribine"[Title/Abstract] OR "Fludarabine"[Title/Abstract] OR "Mercaptopurine"[Title/Abstract] OR "Thioguanine"[Title/Abstract] OR "Azacitidine"[Title/Abstract] OR "Capecitabine"[Title/Abstract] OR "Cytarabine"[Title/Abstract] OR "Decitabine"[Title/Abstract] OR "Floxuridine"[Title/Abstract] OR "Fluorouracil"[Title/Abstract] OR "Gemcitabine"[Title/Abstract] OR "Trifluridine"[Title/Abstract] OR "Tipiracil"[Title/Abstract] OR "Aldesleukin"[Title/Abstract] OR "denileukin diftitox"[Title/Abstract] OR "Interferon Gamma"[Title/Abstract] OR "Belinostat"[Title/Abstract] OR "Panobinostat"[Title/Abstract] OR "Romidepsin"[Title/Abstract] OR "Vorinostat"[Title/Abstract] OR "Abiraterone"[Title/Abstract] OR "Apalutamide"[Title/Abstract] OR "Bicalutamide"[Title/Abstract] OR "Cypoterone"[Title/Abstract] OR "Enzalutamide"[Title/Abstract] OR "Flutamide"[Title/Abstract] OR "Nilutamide"[Title/Abstract] OR "Anastrozole"[Title/Abstract] OR "Exemestane"[Title/Abstract] OR "Fulvestrant"[Title/Abstract] OR "Letrozole"[Title/Abstract] OR "Raloxifene"[Title/Abstract] OR "Tamoxifen"[Title/Abstract] OR "Toremifene"[Title/Abstract] OR "Degarelix"[Title/Abstract] OR "Goserelin"[Title/Abstract] OR "Histrelin"[Title/Abstract] OR "Leuprolide"[Title/Abstract] OR "Relugolix"[Title/Abstract] OR "Triptorelin"[Title/Abstract] OR "Lanreotide"[Title/Abstract] OR "Octreotide"[Title/Abstract] OR "Pasireotide"[Title/Abstract] OR "Carboplatin"[Title/Abstract] OR "Cisplatin"[Title/Abstract] OR "Oxaliplatin"[Title/Abstract] OR "Alemtuzumab"[Title/Abstract] OR "Amivantamab"[Title/Abstract] OR "Atezolizumab"[Title/Abstract] OR "Avelumab"[Title/Abstract] OR "Belantamab"[Title/Abstract] OR "Bevacizumab"[Title/Abstract] OR "Blinatumomab"[Title/Abstract] OR "Brentuximab"[Title/Abstract] OR "Cemiplimab"[Title/Abstract] OR "Cetuximab"[Title/Abstract] OR "Daratumumab"[Title/Abstract] OR "Dinutuximab"[Title/Abstract] OR "Dostarlimab"[Title/Abstract] OR "Durvalumab"[Title/Abstract] OR "Elotuzumab"[Title/Abstract] OR "Enfortumab"[Title/Abstract] OR "Gemtuzumab"[Title/Abstract] OR "inotuzumab ozogamicin"[Title/Abstract] OR "Ipilimumab"[Title/Abstract] OR "Margetuximab"[Title/Abstract] OR "Mogamulizumab"[Title/Abstract] OR "moxetumomab pasudotox"[Title/Abstract] OR "Naxitamab"[Title/Abstract] OR

"Necitumumab"[Title/Abstract] OR "Nivolumab"[Title/Abstract] OR "Ofatumumab"[Title/Abstract] OR "Olaratumab"[Title/Abstract] OR "Panitumumab"[Title/Abstract] OR "Pembrolizumab"[Title/Abstract] OR "Pertuzumab"[Title/Abstract] OR "polatuzumab vedotin"[Title/Abstract] OR "Ramucirumab"[Title/Abstract] OR "Rituximab"[Title/Abstract] OR "sacituzumab govitecan"[Title/Abstract] OR "Tafasitamab"[Title/Abstract] OR "Teclistamab"[Title/Abstract] OR "Tisotumab"[Title/Abstract] OR "Vedotin"[Title/Abstract] OR "Tositumomab"[Title/Abstract] OR "Trastuzumab"[Title/Abstract] OR "trastuzumab deruxtecan"[Title/Abstract] OR "trastuzumab emtansine"[Title/Abstract] OR "Tremelimumab"[Title/Abstract] OR "Abemaciclib"[Title/Abstract] OR "Acalabrutinib"[Title/Abstract] OR "Adagrasib"[Title/Abstract] OR "Afatinib"[Title/Abstract] OR "Alectinib"[Title/Abstract] OR "Alpelisib"[Title/Abstract] OR "Asciminib"[Title/Abstract] OR "Axitinib"[Title/Abstract] OR "Binimetinib"[Title/Abstract] OR "Bortezomib"[Title/Abstract] OR "Bosutinib"[Title/Abstract] OR "Brigatinib"[Title/Abstract] OR "Cabozantinib"[Title/Abstract] OR "Capivasertib"[Title/Abstract] OR "Capmatinib"[Title/Abstract] OR "Carfilzomib"[Title/Abstract] OR "Ceritinib"[Title/Abstract] OR "Cobimetinib"[Title/Abstract] OR "Copanlisib"[Title/Abstract] OR "Crizotinib"[Title/Abstract] OR "Dabrafenib"[Title/Abstract] OR "Dacomitinib"[Title/Abstract] OR "Dasatinib"[Title/Abstract] OR "Duvelisib"[Title/Abstract] OR "Enasidenib"[Title/Abstract] OR "Encorafenib"[Title/Abstract] OR "Ensartinib"[Title/Abstract] OR "Entrectinib"[Title/Abstract] OR "Erdafitinib"[Title/Abstract] OR "Erlotinib"[Title/Abstract] OR "Fedratinib"[Title/Abstract] OR "Fruquintinib"[Title/Abstract] OR "Futibatinib"[Title/Abstract] OR "Gefitinib"[Title/Abstract] OR "Gilteritinib"[Title/Abstract] OR "Glasdegib"[Title/Abstract] OR "Ibrutinib"[Title/Abstract] OR "Idelalisib"[Title/Abstract] OR "Imatinib"[Title/Abstract] OR "Infigratinib"[Title/Abstract] OR "Inavolisib"[Title/Abstract] OR "Ivosidenib"[Title/Abstract] OR "Ixazomib"[Title/Abstract] OR "Lapatinib"[Title/Abstract] OR "Larotrectinib"[Title/Abstract] OR "Lazertinib"[Title/Abstract] OR "Lenvatinib"[Title/Abstract] OR "Lorlatinib"[Title/Abstract] OR "Midostaurin"[Title/Abstract] OR "Mobocertinib"[Title/Abstract] OR "Momelotinib"[Title/Abstract] OR "Neratinib"[Title/Abstract] OR "Nilotinib"[Title/Abstract] OR "Niraparib"[Title/Abstract] OR "Olaparib"[Title/Abstract] OR "Olutasidenib"[Title/Abstract] OR "Osimertinib"[Title/Abstract] OR "Pacritinib"[Title/Abstract] OR "Palbociclib"[Title/Abstract] OR "Pazopanib"[Title/Abstract] OR "Pemigatinib"[Title/Abstract] OR "Pexidartinib"[Title/Abstract] OR "Pirtobrutinib"[Title/Abstract] OR "Ponatinib"[Title/Abstract] OR "Quizartinib"[Title/Abstract] OR "Regorafenib"[Title/Abstract] OR "Repotrectinib"[Title/Abstract] OR "Revumenib"[Title/Abstract] OR "Ribociclib"[Title/Abstract] OR "Ripretinib"[Title/Abstract] OR "Rucaparib"[Title/Abstract] OR "Ruxolitinib"[Title/Abstract] OR "Selumetinib"[Title/Abstract] OR "Sonidegib"[Title/Abstract] OR "Sorafenib"[Title/Abstract] OR "Sunitinib"[Title/Abstract] OR "Talazoparib"[Title/Abstract] OR "Tivozanib"[Title/Abstract] OR "Tovorafenib"[Title/Abstract] OR "Trametinib"[Title/Abstract] OR "Trilaciclib"[Title/Abstract] OR "Umbralisib"[Title/Abstract] OR "Vandetanib"[Title/Abstract] OR "Vemurafenib"[Title/Abstract] OR "Vismodegib"[Title/Abstract] OR "Zanubrutinib"[Title/Abstract] OR "Cabazitaxel"[Title/Abstract] OR "Docetaxel"[Title/Abstract] OR "Paclitaxel"[Title/Abstract] OR "Etoposide"[Title/Abstract] OR "Irinotecan"[Title/Abstract] OR "Teniposide"[Title/Abstract] OR "Topotecan"[Title/Abstract] OR "Vinblastine"[Title/Abstract] OR "Vincristine"[Title/Abstract] OR "Vinorelbine"[Title/Abstract] OR "Asparaginase"[Title/Abstract] OR "Pegaspargase"[Title/Abstract] OR "Belzutifan"[Title/Abstract] OR "Bexarotene"[Title/Abstract] OR "Cedazuridine"[Title/Abstract] OR "Eribulin"[Title/Abstract] OR "Everolimus"[Title/Abstract] OR "Hydroxyurea"[Title/Abstract] OR "Ixabepilone"[Title/Abstract] OR "Lenalidomide"[Title/Abstract] OR "Mitotane"[Title/Abstract] OR "Omacetaxine"[Title/Abstract] OR "Pomalidomide"[Title/Abstract] OR "Selinexor"[Title/Abstract] OR "Tagraxofusp"[Title/Abstract] OR "Tazemetostat"[Title/Abstract] OR "Tebentafusp"[Title/Abstract] OR "Telotristat"[Title/Abstract] OR "Temsilolimus"[Title/Abstract] OR "Thalidomide"[Title/Abstract] OR "Venetoclax"[Title/Abstract]))

e. Primary Immunodeficiency

"Primary Immunodeficiency Diseases"[MeSH Terms] OR "primary immunodeficiencies"[Title/Abstract] OR "primary immunodeficiency"[Title/Abstract] OR "primary immune disorders"[Title/Abstract] OR "primary immune disorder"[Title/Abstract] OR "primary immune disease"[Title/Abstract] OR "primary immune diseases"[Title/Abstract] OR "Ataxia Telangiectasia"[Title/Abstract] OR "Bloom Syndrome"[Title/Abstract] OR "Chediak-Higashi Syndrome"[Title/Abstract] OR "Hereditary Complement Deficiency Diseases"[Title/Abstract] OR "Hereditary Angioedemas"[Title/Abstract] OR "Hyper-IgM Immunodeficiency Syndrome"[Title/Abstract] OR "Job Syndrome"[Title/Abstract] OR "Leukocyte-Adhesion Deficiency Syndrome"[Title/Abstract] OR "Severe Combined Immunodeficiency"[Title/Abstract] OR "X-Linked Combined Immunodeficiency Diseases"[Title/Abstract] OR "Wiskott-Aldrich Syndrome"[Title/Abstract] OR "inborn errors of immunity"[Title/Abstract:~3]

f. Autoimmune on Immunosuppressants/Biologics

"autoimmune diseases/drug therapy"[MeSH Terms] OR ("autoimmune disease"[Title/Abstract] OR "autoimmune diseases"[Title/Abstract] OR "Autoimmune Polyendocrinopathies"[Title/Abstract] OR "autoimmune diabetes"[Title/Abstract] OR "Autoimmune hepatitis"[Title/Abstract] OR "Addison Disease"[Title/Abstract] OR "Anti-Glomerular Basement Membrane Disease"[Title/Abstract] OR "Anti-Neutrophil Cytoplasmic Antibody-Associated Vasculitis"[Title/Abstract] OR "Churg-Strauss Syndrome"[Title/Abstract] OR "Granulomatosis with Polyangiitis"[Title/Abstract] OR "Microscopic Polyangiitis"[Title/Abstract] OR "Antiphospholipid Syndrome"[Title/Abstract] OR "Juvenile Arthritis"[Title/Abstract] OR "Rheumatoid Arthritis"[Title/Abstract] OR "Felty Syndrome"[Title/Abstract] OR "Rheumatoid Vasculitis"[Title/Abstract] OR "Sjogren's Syndrome"[Title/Abstract] OR "Still's Disease"[Title/Abstract] OR "Anti-N-Methyl-D-Aspartate Receptor Encephalitis"[Title/Abstract] OR "Myasthenia Gravis"[Title/Abstract] OR "Myelin Oligodendrocyte Glycoprotein Antibody-Associated Disease"[Title/Abstract] OR "Polyradiculoneuropathy"[Title/Abstract] OR "Stiff-Person Syndrome"[Title/Abstract] OR "Uveomeningoencephalitic Syndrome"[Title/Abstract] OR "Autoimmune Hypophysitis"[Title/Abstract] OR "Autoimmune Lymphoproliferative Syndrome"[Title/Abstract] OR "Autoimmune Pancreatitis"[Title/Abstract] OR "Birdshot Chorioretinopathy"[Title/Abstract] OR "Dermatitis Herpetiformis"[Title/Abstract] OR "Glomerulonephritis"[Title/Abstract] OR "Graves Disease"[Title/Abstract] OR "Graves Ophthalmopathy"[Title/Abstract] OR "Immunoglobulin G4-Related Disease"[Title/Abstract] OR "Linear IgA Bullous Dermatitis"[Title/Abstract] OR "Lupus"[Title/Abstract] OR "Sympathetic Ophthalmia"[Title/Abstract] OR "Bullous Pemphigoid"[Title/Abstract] OR "Pemphigus"[Title/Abstract] OR "Thrombocytopenic Purpura"[Title/Abstract] OR "Autoimmune Thyroiditis"[Title/Abstract] OR "Hashimoto Disease"[Title/Abstract] OR "Postpartum Thyroiditis"[Title/Abstract] OR "Undifferentiated Connective Tissue Diseases"[Title/Abstract] OR "Multiple sclerosis"[Title/Abstract] OR "Diffuse cerebral sclerosis of schilder"[Title/Abstract] OR "Encephalomyelitis"[Title/Abstract] OR "Leukoencephalitis"[Title/Abstract] OR "Transverse myelitis"[Title/Abstract] OR "Neuromyelitis optica"[Title/Abstract] OR "Autoimmune neuritis"[Title/Abstract] OR "Giant cell arteritis"[Title/Abstract] OR "psoriasis"[Title/Abstract] OR "Crohn's"[Title/Abstract] OR "ulcerative colitis"[Title/Abstract] OR "inflammatory bowel disease"[Title/Abstract] OR "autoimmune anemia"[Title/Abstract:~4] OR "Diabetes Type 1"[Title/Abstract:~3]) AND ("Immunosuppressive Agents"[MeSH Terms] OR "Biological Products"[MeSH Terms] OR "interleukin inhibitor"[Title/Abstract:~3] OR "interleukin inhibitors"[Title/Abstract:~3] OR "Tumor necrosis factor inhibitor"[Title/Abstract] OR "tumor necrosis factor inhibitors"[Title/Abstract] OR "TNF inhibitor"[Title/Abstract] OR "TNF inhibitors"[Title/Abstract] OR "checkpoint inhibitor"[Title/Abstract] OR "checkpoint inhibitors"[Title/Abstract] OR "disease-modifying antirheumatic drugs"[Title/Abstract] OR "DMARD"[Title/Abstract] OR "DMARDs"[Title/Abstract] OR "biologic*"[Title/Abstract] OR "monoclonal antibody"[Title/Abstract] OR "monoclonal antibodies"[Title/Abstract] OR "immunosuppress*"[Title/Abstract] OR "immunotherap*"[Title/Abstract] OR "MTOR inhibitor"[Title/Abstract] OR "MTOR

inhibitors"[Title/Abstract] OR "steroids"[Title/Abstract] OR "corticosteroids"[Title/Abstract] OR "prednisone"[Title/Abstract] OR "prednisolone"[Title/Abstract] OR "methylprednisolone"[Title/Abstract] OR "dexamethasone"[Title/Abstract] OR "colchicine"[Title/Abstract] OR "Hydroxychloroquine"[Title/Abstract] OR "Sulfasalazine"[Title/Abstract] OR "leflunomide"[Title/Abstract] OR "cyclophosphamide"[Title/Abstract] OR "tacrolimus"[Title/Abstract] OR "dapsone"[Title/Abstract] OR "methotrexate"[Title/Abstract] OR "mycophenolate mofetil"[Title/Abstract] OR "Cellcept"[Title/Abstract] OR "Myfortic"[Title/Abstract] OR "azathioprine"[Title/Abstract] OR "anakinra"[Title/Abstract] OR "canakinumab"[Title/Abstract] OR "rilonacept"[Title/Abstract] OR "infliximab"[Title/Abstract] OR "adalimumab"[Title/Abstract] OR "golimumab"[Title/Abstract] OR "etanercept"[Title/Abstract] OR "certolizumab"[Title/Abstract] OR "tocilizumab"[Title/Abstract] OR "sarilumab"[Title/Abstract] OR "eculizumab"[Title/Abstract] OR "rituximab"[Title/Abstract] OR "belimumab"[Title/Abstract] OR "cyclosporine"[Title/Abstract] OR "abatacept"[Title/Abstract] OR "secukinumab"[Title/Abstract] OR "ixekizumab"[Title/Abstract] OR "brodalumab"[Title/Abstract] OR "guselkumab"[Title/Abstract] OR "mepolizumab"[Title/Abstract] OR "reslizumab"[Title/Abstract] OR "benralizumab"[Title/Abstract] OR "dupilumab"[Title/Abstract] OR "vedolizumab"[Title/Abstract] OR "tofacitinib"[Title/Abstract] OR "baricitinib"[Title/Abstract] OR "Upadacitinib"[Title/Abstract] OR "sirolimus"[Title/Abstract] OR "everolimus"[Title/Abstract] OR "thalidomide"[Title/Abstract] OR "lenalidomide"[Title/Abstract] OR "apremilast"[Title/Abstract] OR "nivolumab"[Title/Abstract] OR "pembrolizumab"[Title/Abstract] OR "atezolizumab"[Title/Abstract] OR "avelumab"[Title/Abstract] OR "ipilimumab"[Title/Abstract]))

g. HIV

"HIV Infections"[MeSH Terms] OR "Acquired Immunodeficiency Syndrome"[MeSH Terms] OR "HIV"[Title/Abstract] OR "AIDS"[Title/Abstract] OR "human immunodeficiency virus"[Title/Abstract] OR "Acquired Immunodeficiency Syndrome"[Title/Abstract]

Supplemental Table 2. Study Characteristics

Outcome: COVID-19 associated hospitalization (cohort)

Author, year of publication	Location, dates of data collection	Study design	Immunocompromised population	Intervention	Comparator	Results & Notes
Wilson 2025	USA September 12, 2023 through December 31, 2023; followed through January 26, 2024	Cohort	Adults ≥ 18 years; Individuals with cancer (based on the Deyo-Charlson comorbidity index cancer list case definition), primary immunodeficiency, human immunodeficiency virus (HIV), who have received an organ or a stem cell transplant, or who are taking drugs that suppress the immune response (within 365 days prior to index)	Vaccinated with any 2023-2024 COVID-19 vaccine	Unvaccinated with any 2023–2024 COVID-19 vaccine	474 out of 236490 vaccinated, immunocompromised patients experienced hospitalization with COVID-19 compared to 711 out of 236490 unvaccinated, immunocompromised matched controls. Vaccine effectiveness 46% (95% CI 39-52).
Zheng 2025	USA September 12, 2023, to February 20, 2024	Cohort	Immunocompromised conditions were defined using a simplified version of the Polinski et al. (2022) algorithm, including diagnoses of cancer, HIV, primary immunodeficiencies, solid organ or blood stem cell transplantation, and prescriptions for immunosuppressive medications	Vaccinated with mRNA-1273 XBB.1.5	Individuals who did not receive an updated 2023–2024 COVID-19 vaccine	312 out of 152208 vaccinated, immunocompromised individuals experienced COVID-19 associated hospitalization compared to 646 out of 152113 matched individuals who did not receive an updated COVID-19 vaccine. Vaccine effectiveness 52% (95% CI (43-59).

Outcome: COVID-19 associated hospitalization (test-negative case control)

Author, year of publication	Location, dates of data collection	Study design	Immunocompromised population	COVID-19 Vaccine Type	Case	Control	Results & Notes
Caffrey 2024	USA September 25, 2023 to January 31, 2024	Test-negative case control	Adults ≥ 18 years; Immunocompromised status was based on immunocompromising conditions in the year prior and immunosuppressive medications in the 90 days prior to the ARI episode, used diagnosis codes to identify solid	2023-2024 XBB. 1.5	Test-positive COVID-19	Test-negative COVID-19	1507 cases and 8915 controls. Vaccine effectiveness 33% (95% CI 16-47). Interval since last dose, days range: ≥ 14

			organ or hematopoietic stem cell transplantation and HIV/AIDS versus patient registries, required one inpatient or two outpatient diagnosis code for an immunocompromising condition (leukemia, lymphoma, congenital immunodeficiencies, asplenia/hyposplenia, HIV/AIDS, and organ transplant) in the year prior and any immunosuppressive medication (alkylating agents, antibiotics, antimetabolites, antimitotics, monoclonal antibodies, other, immune-modulating agents, TNF Alpha antagonist, and steroids) with an outpatient days supply or inpatient administration in the 90 days prior				Interval since last dose, days median (IQR): 52 (33-73).
Link-Gelles 2024	USA September 2023 to February 2024	Test-negative case control	Adults ≥ 18 years; Immunocompromising conditions: hematological malignancy, solid malignancy, transplant, rheumatologic/inflammatory disorders, other intrinsic immune condition or immunodeficiency	2023-2024 XBB.1.5	Test-positive COVID-19	Test-negative COVID-19	1392 cases and 13194 controls. Vaccine effectiveness 36% (95% CI 25-46). Interval since last dose, days range: 7-119 Interval since last dose, days (median IQR): 56 (32-81)
Nguyen 2025	Belgium, Germany, Italy, Spain October 2, 2023 to April 2, 2024	Test-negative case control	Adults ≥ 18 years; Immunodeficiency defined as human immunodeficiency virus (HIV) infections, immunodeficiencies and organ transplants, iatrogenic immunodeficiencies (systemic treatment of more than two weeks duration, in the three	2023-2024 XBB.1.5	Test-positive COVID-19	Test-negative COVID-19	72 cases and 206 controls. Vaccine effectiveness 56% (95% CI 22.5-75). Interval since last dose, days range: ≥ 14 Interval since last dose, days (median IQR): 58 (41-71)

			months preceding symptom onset, with any of the following: corticosteroid (≥ 20 mg prednisolone daily or equivalent), ciclosporin, tacrolimus, mycophenolate, methotrexate, azathioprine, tumor necrosis factor alpha (TNF- α) blockers and other biological or cytostatic drugs with immunosuppressive effect)				
Link-Gelles 2025 (MMWR)	USA September 2024 to January 2025	Test-negative case control	Adults ≥ 65 years, Immunocompromising conditions: hematological malignancy, solid malignancy, transplant, rheumatologic/inflammatory disorders, other intrinsic immune condition or immunodeficiency	2024-2025 JN.1/KP.2	Test-positive COVID-19	Test-negative COVID-19	598 cases and 7594 controls. Vaccine effectiveness 40% (CI 95% 21-54). Interval since last dose, days range: 7-119 Interval since last dose, days median (IQR): 53 (31-78)
Ma 2026	USA September 1, 2024, and April 30, 2025	Test-negative case control	Adult patients (aged ≥ 18 years); Immunocompromising conditions included active solid tumor or hematologic malignant neoplasm (defined as newly diagnosed malignant neoplasm or treatment within the past 6 months), solid organ transplant, hematopoietic cell transplant, HIV infection, congenital immunodeficiency syndrome, use of an immunosuppressive medication within the past 30 days, splenectomy, or another condition that causes moderate or severe immunosuppression	2024-2025 BNT162b2, mRNA-1273, NVX-CoV2373	Test-positive COVID-19	Test-negative COVID-19	453 cases and 1909 controls. Vaccine effectiveness 23.0 (-5.0 to 44.0). Median interval since dose among vaccinated cases: 79 (49-129) Median interval since dose among vaccinated controls: 105 (60-148)
Volkman 2026	Belgium, Germany, Italy, Spain	Test-negative case control	Adults aged ≥ 18 years; immunodeficiency including solid organ transplant, haematopoietic stem cell	2023-2024 BNT162b2 XBB	Test-positive COVID-19	Test-negative COVID-19	218 cases and 430 controls. Vaccine effectiveness 46.6% (95% CI -24.5 to 77.1).

	October 2023 to August 2024		transplantation, advanced or untreated HIV infection, iatrogenic immunodeficiencies, cancer				Median days since last vaccine dose among vaccinated patients: 144 (60-233) Median days since last dose among unvaccinated patients: 728 (534-872)
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Outcome: Critical illness

Author, year of publication	Location, dates of data collection	Study design	Immunocompromised population	COVID-19 Vaccine Type	Case	Control	Results & Notes
Link-Gelles 2025 (JON)	USA September 2023 to August 2024	Test-negative case control	Adults ≥ 18 years; Immunocompromising conditions: hematological malignancy, solid organ malignancy, transplant recipient, rheumatologic/ inflammatory disorder, HIV/AIDS, other intrinsic immune condition or immunodeficiency	2023-2024 XBB.1.5	Test-positive COVID-19	Test-negative COVID-19	627 cases and 30977 controls. Vaccine effectiveness 40% (95% CI 26-51). Interval since last dose, days range: 7-299 days

Outcome: COVID-19 related mortality

Author, year of publication	Location, dates of data collection	Study design	Immunocompromised population	Intervention	Comparator	Results & Notes
Payne 2025	USA September 17, 2023 to April 13, 2024	Cohort	Adults ≥ 18 years; Persons with end stage kidney disease (ESKD) with ≥ 1 immunocompromising condition (defined as at least two encounters with the appropriate ICD-10 code for one or more of the following conditions: hematologic malignancy, other intrinsic immune conditions or immunodeficiency, solid malignancy, transplant, or rheumatologic/ inflammatory disorders)	Received 2023-2024 COVID-19 vaccine	Did not receive 2023-2024 COVID-19 vaccine	27 out of 6575 vaccinated patients with end stage kidney disease (ESKD) with ≥ 1 immunocompromising condition experienced COVID-19 associated death compared to 339 out of 27501 unvaccinated patients with end stage kidney disease (ESKD) with ≥ 1 immunocompromising. Vaccine effectiveness 61% (95% CI 40-75).

Outcome: Medically-attended visits (hospitals admissions, ED visits, UC visits, office visits, telemedicine visits)

Author, year of publication	Location, dates of data collection	Study design	Immunocompromised population	Intervention	Comparator	Results & Notes
Wilson 2025	USA September 12, 2023 through December 31, 2023; followed through January 26, 2024	Cohort	Adults ≥ 18 years; Individuals with cancer (based on the Deyo-Charlson comorbidity index cancer list case definition), primary immunodeficiency, human immunodeficiency virus (HIV), who have received an organ or a stem cell transplant, or who are taking drugs that suppress the immune response (within 365 days prior to index)	Vaccinated with any 2023-2024 COVID-19 vaccine	Unvaccinated with any 2023–2024 COVID-19 vaccine	4583 out of 236490 vaccinated, immunocompromised patients experienced hospitalization with COVID-19 compared to 4685 out of 236490 unvaccinated, immunocompromised matched controls. Vaccine effectiveness 21% (95% CI 18-24).

Outcome: Medically-attended visits (hospital, ED, outpatient, or physician encounters)

Author, year of publication	Location, dates of data collection	Study design	Immunocompromised population	Intervention	Comparator	Results & Notes
Zheng 2025	USA September 12, 2023, to February 20, 2024	Cohort	Immunocompromised conditions were defined using a simplified version of the Polinski et al. (2022) algorithm, including diagnoses of cancer, HIV, primary immunodeficiencies, solid organ or blood stem cell transplantation, and prescriptions for immunosuppressive medications	Vaccinated with mRNA-1273 XBB.1.5	Individuals who did not receive an updated 2023–2024 COVID-19 vaccine	4123 out of 152208 vaccinated immunocompromised individuals experienced medically attended events compared to 4242 out of 152113 matched individuals who did not receive an updated COVID-19 vaccine. Vaccine effectiveness 24% (95% CI 20-27).

Outcome: Medically-attended visits (ED/UC visits)

Author, year of publication	Location, dates of data collection	Study design	Immunocompromised population	COVID-19 Vaccine Type	Case	Control	Results & Notes
Caffrey 2024	USA September 25, 2023 to January 31, 2024	Test-negative case control	Adults ≥ 18 years; Immunocompromised status was based on immunocompromising conditions in the year prior and immunosuppressive	BNT162b2 XBB	Test-positive COVID-19	Test-negative COVID-19	3236 cases and 18526 controls. Vaccine effectiveness 34% (95% CI 22-45).

			medications in the 90 days prior to the ARI episode, used diagnosis codes to identify solid organ or hematopoietic stem cell transplantation and HIV/AIDs versus patient registries, required one inpatient or two outpatient diagnosis code for an immunocompromising condition (leukemia, lymphoma, congenital immunodeficiencies, asplenia/hyposplenia, HIV/AIDS, and organ transplant) in the year prior and any immunosuppressive medication (alkylating agents, antibiotics, antimetabolites, antimitotics, monoclonal antibodies, other, immune-modulating agents, TNF Alpha antagonist, and steroids) with an outpatient days supply or inpatient administration in the 90 days prior				
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Outcome: Medically-attended visits (outpatient visits)

Author, year of publication	Location, dates of data collection	Study design	Immunocompromised population	COVID-19 Vaccine Type	Case	Control	Results & Notes
Caffrey 2024	USA September 25, 2023 to January 31, 2024	Test-negative case control	Adults ≥ 18 years; Immunocompromised status was based on immunocompromising conditions in the year prior and immunosuppressive medications in the 90 days prior to the ARI episode, used diagnosis codes to identify solid organ or hematopoietic stem cell transplantation and HIV/AIDs versus patient registries, required one inpatient or two	BNT162b2 XBB	Test-positive COVID-19	Test-negative COVID-19	977 cases and 7148 controls. Vaccine effectiveness 40% (95% CI 19-55).

			outpatient diagnosis code for an immunocompromising condition (leukemia, lymphoma, congenital immunodeficiencies, asplenia/hyposplenia, HIV/AIDS, and organ transplant) in the year prior and any immunosuppressive medication (alkylating agents, antibiotics, antimetabolites, antimitotics, monoclonal antibodies, other, immune-modulating agents, TNF Alpha antagonist, and steroids) with an outpatient days supply or inpatient administration in the 90 days prior				
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Outcome: Serious adverse events

Author, year of publication	Location, dates of data collection	Study design	Immunocompromised population	Exposure	Control	Results & Notes
Chen 2024	England January 12, 2020 to November 4, 2022	Self-controlled case series	People aged > 12 years; immunocompromised due to immunosuppressive drugs, organ transplants, dialysis or chemotherapy	COVID-19 vaccine	Individuals acted as their own controls	Found no significant increase in the incidence of any of the adverse events in the 1–28 days following a first, second or third dose of COVID-19 vaccine compared to the baseline period in immunocompromised people. Following a third dose of BNT162b2, we observed an increased risk of multiple sclerosis (2.67 [1.03–6.95]), arrhythmia (1.29 [1.12–1.47]) and atrial fibrillation (1.29 [1.11–1.50]) compared to baseline. In the analysis comparing risks of each outcome in immunocompromised people with the general population, only the risk

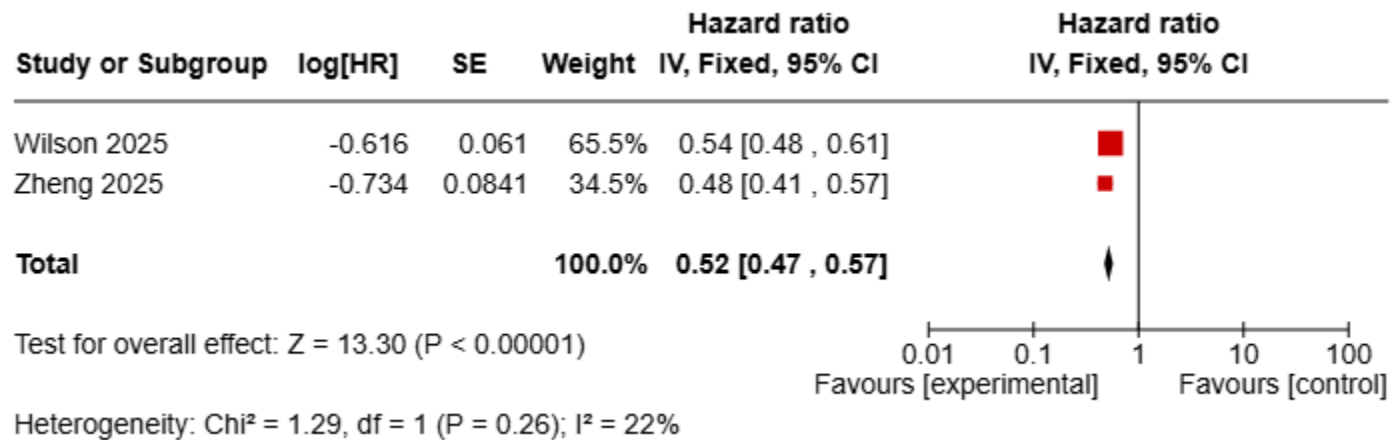
						of multiple sclerosis was significantly higher in immunocompromised people (relative IRR 2.56 [99%CI 1.08–6.11]); however, the Bonferroni-corrected p value was not significant at the 1% level (corrected p = 0.22).
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Outcome: Exacerbations of immunocompromising or autoimmune conditions

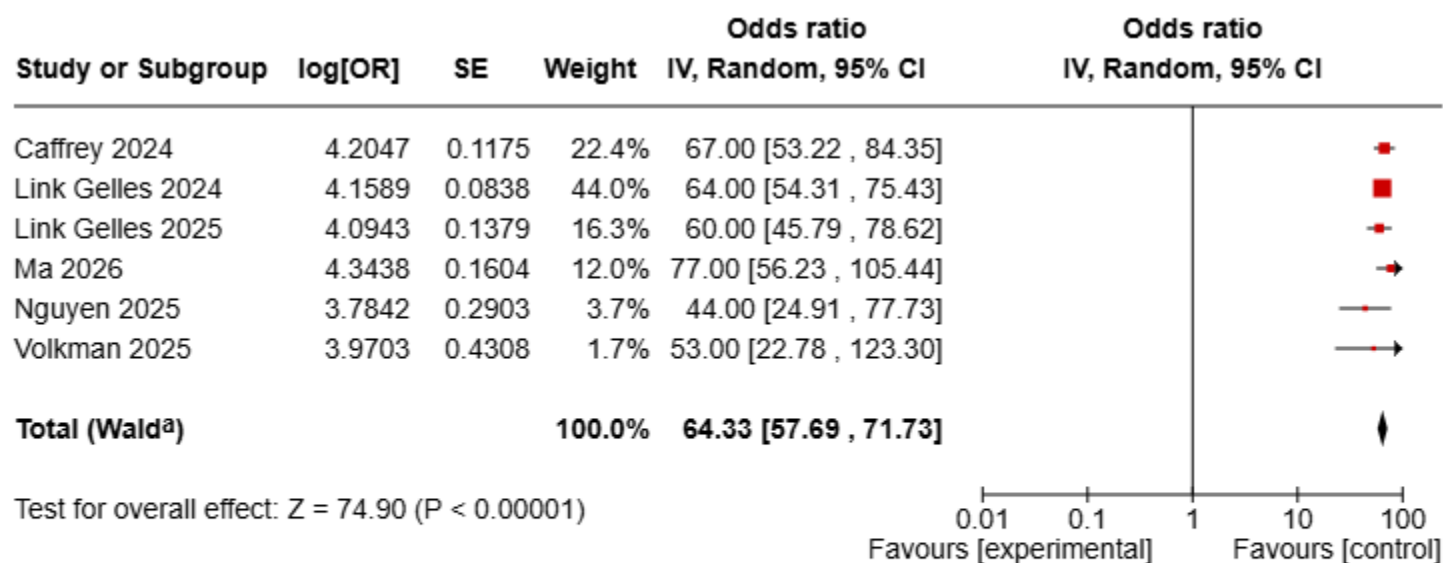
Author, year of publication	Location, dates of data collection	Study design	Immunocompromised population	Intervention	Comparator	Results & Notes
Ganelin-Cohen 2024	Israel 2019 to 2021	Retrospective	Multiple sclerosis patients	Early-onset multiple sclerosis COVID-19 vaccinated group for post-hoc analysis in early onset group	Adult-onset multiple sclerosis COVID-19 unvaccinated control group for post-hoc analysis in early onset group	BNT162b2 vaccine is generally safe in multiple sclerosis patients, with no association found between vaccination and new lesions in most patients; however, in the post-hoc analysis comparing vaccinated early-onset (n=14) vs. unvaccinated early-onset (n=9) groups, there was a significant increase in the number of patients with increased lesions among the vaccinated group (OR 7.11, 95% CI: 1.29-49.16; RR 3.62, 95% CI: 1.28-10.20).
Li 2024	China January 2020 to November 2022	Retrospective	Advanced cancer patients	COVID-19 vaccination	Without COVID-19 vaccination	Injection of COVID-19 vaccine (n=65) compared to unvaccinated patients (n=131) had no obvious effect on enzyme abnormality of cancer patients treated with immune checkpoint inhibitors (p=0.45). The disease control rate for vaccinated patients was significantly higher (P < .0001) than for those who were unvaccinated.
Rossier 2024	Switzerland January 2021 to March 2022	Retrospective	Inflammatory bowel disease patients	SARS-CoV-2 vaccination	Non-vaccinated	There was no difference between the flare incidence during the year 2021 between

						patients who received at least one SARS-CoV-2 vaccine (n=362) shot and those who did not (n=34): the overall incidence was 17% vs 21%, respectively (p = 0.3), corresponding to 1.8 flares per 100 person-months vs 2.6 flares per 100 person-months (p = 0.28) (overall absolute flare rate 1.8 (95% CI 1.5, 2.3), risk ratio 0.7, 95% CI (0.3, 1.3)).
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Supplemental Figure 1. Forest plot for effectiveness of COVID-19 vaccination against COVID-19-associated hospitalization (cohort studies)



Supplemental Figure 2. Forest plot for effectiveness of COVID-19 vaccination against COVID-19-associated hospitalization (test-negative case control studies)



Footnotes

^aCI calculated by Wald-type method.

^b Tau^2 calculated by Restricted Maximum-Likelihood method.

Supplemental Figure 3. Risk of Bias Assessment

		Risk of bias domains							
		D1	D2	D3	D4	D5	D6	D7	Overall
Study	Wilson 2025								
	Payne 2025								
	Zheng 2025								
	Caffrey 2024								
	Link-Gelles 2024								
	Nguyen 2025								
	Link-Gelles 2025 (MMWR)								
	Link-Gelles 2025 (JON)								
	Ma 2026								
	Volkman 2026								
	Chen 2024								
	Ganelin-Cohen 2024								
	Li 2024								
	Rossier 2024								
Domains: D1: Bias due to confounding. D2: Bias due to selection of participants. D3: Bias in classification of interventions. D4: Bias due to deviations from intended interventions. D5: Bias due to missing data. D6: Bias in measurement of outcomes. D7: Bias in selection of the reported result.									Judgement Serious Moderate Low

IDSA Conflict of Interest

Definitions

Affected Company:

An affected company is any commercial entity—including those involved in the development, manufacture, marketing, or distribution of pharmaceutical products, medical devices, diagnostics, or insurance services—that has, or is developing, a product, technology, or service that is directly related to the topic under consideration in the guideline.

- A non-profit organization is not considered a commercial entity, unless it engages in commercial activities or has financial interests that could be affected by the guideline topic.
- Governmental entities are not considered commercial entities. However, they may still present other types of potential conflicts, particularly intellectual or institutional conflicts, depending on the guideline context. IDSA will not consider governmental entities affected companies.

Related Products & Services:

For guidelines on RSV, influenza, and COVID-19 vaccination, companies should be considered affected if they have or are developing any product, technology, or service that could influence clinical decision-making or patient care related to these vaccines.

TABLE 1. RELATIONSHIPS PROHIBITED

1. Royalties, licensing fees, patents from any product or device related to the topic under consideration. This includes patents, the rights for which have been turned over to an institution but from which the individual benefits.
2. Serving as an officer, board of directors member or employee of any device, insurance, pharmaceutical or diagnostic product or commercial entity with a product or device related to the topic under consideration.
3. Representation of any commercial healthcare-related entity (with a product or device related to the topic under consideration) before FDA advisory committees or in any other interactions such an entity may have with FDA.
4. Any honoraria, gifts, or other payments (includes funds for travel/hotel) directly received from any relevant commercial healthcare-related entity (US and International). This includes participation in speakers bureaus labeled as promotional and/or when any associated presentation is content-restricted in any way, including, but not limited to, the requirement to use only company-provided material; paid for by any mechanism other than an unrestricted educational grant to a CME-approved (or other educational) entity; and/or product-specific.
5. Any activity not sponsored by the research arm of the company will NOT be allowed. For example, an advisory board sponsored by the marketing division, even if concentrating on “future research directions,” will NOT be allowed. In addition, consulting on post-research regulatory issues will NOT be allowed.

6. Stock or equity in any commercial healthcare-related entities (excludes diversified funds) related to the topic.
7. Advisory or consulting roles with an affected company will disqualify an individual from serving on the panel if: (a) Compensation is paid directly to the individual, regardless of the subject matter, or (b) The advisory or consulting work relates to the guideline topic, regardless of whether payment is made to the individual or their institution.
8. Serving as an investigator on a research study that is supported or sponsored by an affected company will disqualify an individual from serving on the panel if: (a) Compensation is paid directly to the individual, or (b) The research is related to the guideline topic, regardless of whether payment is made to the individual or their institution.

TABLE 2. RELATIONSHIPS ALLOWED

1. Advisory/consultancies with an affected company is allowed when the role is <i>unrelated</i> to the guideline topic and payment goes to the institution—not the individual. Exception, Chair(s)
2. Serving as an investigator on a research study that is supported or sponsored by an affected company is allowed if the study is <i>unrelated</i> to the guideline topic and payment goes to the institution—not the individual. If you are a panel chair and conduct research, IDSA will require a co-chair with no relationships.
3. Presentations at national or international meetings provided that: a. Presentations are non-promotional and there should be no involvement of industry in presentation content. There should be complete intellectual independence with regard to presentation content. b. There is NO direct payment by industry to an individual for his/her participation (any industry support of speaker expenses must be through a third-party organization (e.g., IDSA, ICAAC, ATS, etc.), institution, CME, or other educational provider. Exception, Chair(s)

1. Scott J, Abers MS, Marwah HK, et al. Updated Evidence for Covid-19, RSV, and Influenza Vaccines for 2025-2026. N Engl J Med **2025**.

2. Lipson RA, Senerth E, Watson MA, al. e. COVID-19 vaccine effectiveness and safety for the 2026-2027 respiratory season. JAMA **2026**.