# Table. Types of medical conditions and immunosuppressive therapy and associated levels of immunocompromise

| Type of immunosuppression | Example conditions (not an exhaustive list) | Specific therapies that may affect level of immunocompromise | Overall level immunocom |
|---|---|---|---|
| Inborn errors of immunity, including primary immunodeficiency | **Antibody (B-cell) immunodeficiencies: less severe**<br>• Selective IgA deficiency<br>• IgG subclass deficiency | No routine immunosuppressive therapies prescribed | Moderate |
| | **Antibody (B-cell) immunodeficiencies: severe**<br>• Common variable immunodeficiency<br>• X-linked agammaglobulinaemia | Some patients may proceed to stem cell transplant, which will increase this level of immunosuppression | Severe |
| | **T-cell or combined (T- and B-cell) immunodeficiencies: less** | Some patients may proceed to stem cell transplant, which will | Moderate |

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| | **severe**<br>• Incomplete DiGeorge syndrome<br>• Ataxia telangiectasia<br>• Hyper-IgE syndrome | increase this level of immunosuppression | |
| | **T-cell or combined (T- and B-cell) immunodeficiencies: severe**<br>• Severe combined immunodeficiency<br>• Complete DiGeorge syndrome | Some patients may proceed to stem cell transplant, which will increase this level of immunosuppression | Severe |
| | **Phagocytic and neutrophil disorders**<br>• Congenital neutropenia<br>• Cyclic neutropenia<br>• Chronic granulomatous disease | No routine immunosuppressive therapies prescribed, but antibiotic prophylaxis may be indicated | Moderate |
| | **Defects of innate immunity**<br>• IFNAR defect<br>• IFN gamma/IL-12 axis defect<br>• Toll-like receptor signalling pathway defects | No routine immunosuppressive therapies prescribed, but antibiotic prophylaxis may be indicated | Moderate<br>Susceptibilitie different path depends on s of innate imm See Defects c immunity: recommenda vaccination |
| | | No routine | Mild |

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| | **Complement deficiencies (primary)**<br>• C1, C2, C3, C5 or C6 deficiency<br>• Properdin, factor B, D or H, and mannan-binding lectin deficiencies | immunosuppressive therapies prescribed, but antibiotic prophylaxis may be indicated | However, spe<br>infection with<br>encapsulated<br>(eg *Streptocc*<br>*pneumoniae*,<br>*Haemophilus*<br>*Neisseria mer* |
| | **Complement deficiencies (secondary)** Secondary complement deficiencies due to prescribing complement inhibitors | May be treated with complement inhibitors (eg eculizumab, ravulizumab) | Mild<br><br>However, spe<br>infection with<br>encapsulated<br>(eg *Streptocc*<br>*pneumoniae*,<br>*Haemophilus*<br>*Neisseria mer* |
| Common autoimmune and inflammatory conditions | **Rheumatological**<br>• Rheumatoid arthritis<br>• Psoriatic arthritis<br>• Juvenile idiopathic arthritis<br>• Ankylosing spondylitis<br>• Systemic lupus erythematosus<br><br>**Dermatological**<br>• Severe atopic dermatitis<br>• Psoriasis<br><br>**Gastrointestinal** | No active treatment and disease in remission | Mild |
| | | Treated with selected or low-dose conventional immunosuppressive therapies:<br>• hydroxychloroquine<br>• sulfasalazine<br>• leflunomide<br>• methotrexate (≤25 mg/week)<br>• azathioprine (≤3 mg/kg/day)<br>• 6-mercaptopurine (≤1.5 mg/kg/day) | Generally mil<br>moderate, de<br>prescribed do<br>mechanism o<br>Table. Recom<br>timing of live<br>administratio<br>receiving<br>immunosuppr<br>therapies and<br>Recommende<br>live vaccine a<br>for people rec<br>corticosteroic<br>detail. |

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| | • Crohn's disease<br>• Ulcerative colitis<br><br>**Neurological**<br><br>• Multiple sclerosis | 1. Treated with selected biological therapies:<br><br>• anti-CGRP antibodies<br>• anti-RANK ligand antibodies<br>• anti-IgE antibodies<br>• IL-1, IL-5, IL-6, IL17, IL-23 inhibitors (eg anakinra, tocilizumab, mepolizumab)<br>• TNF inhibitors<br>• integrin inhibitors (eg natalizumab)<br>• IgE inhibitors (eg omalizumab) | |
| | | Treated with selected or high-dose immunosuppressive therapies:<br><br>• azathioprine (>3 mg/kg/day)<br>• 6-mercaptopurine (>1.5 mg/kg/day)<br>• methotrexate (>25 mg/week)<br>• mycophenolate<br>• calcineurin inhibitors<br>• cyclophosphamide | Severe: durin<br><3 months af<br>completion<br><br>Moderate: >3<br>after therapy |

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| | | 1. Treated with selected biological immunosuppressive therapies:<br>• T cell inhibitors (eg abatacept, basiliximab)<br>• agents targeting cellular markers (eg blinatumomab, daratumumab) | |
| | | Treated with high-dose corticosteroids: >20 mg/day (infants and children <10kg: >2 mg/kg/day) for >14 days | Severe during weeks after th completion |
| | | | Moderate: >4 therapy comp |
| | | Treated with B-cell depleting biological therapies (eg rituximab) | Severe: during <6 months af completion |
| | | | Moderate: >6 after therapy |
| | | Treated with small molecule targeted therapies JAK inhibitors (eg tofacitinib) | Mild<br>However, spe infection with viruses (eg he reactivation) |
| Oncological diagnoses | Haematological | Chronic malignancies not on active treatment and in cancer remission | Moderate |
| | | Treated with small molecule targeted therapies | Moderate |

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| | | • BCR-ABL inhibitors (eg imatinib)<br>• BTK inhibitors (eg ibrutinib) | |
| | | Treated with immunomodulatory drugs (eg thalidomide, lenalidomide, pomalidomide) | Severe: during relapsed/refra or multidrug r |
| | | | Moderate: du maintenance |
| | | Treated with B-cell and T-cell targeting biological therapies (eg rituximab, ofatumumab, alemtuzumab) or bispecific agents | Severe: first 6 after therapy |
| | | | Moderate: >6 after therapy |
| | | Treated with stem cell transplant or cellular therapies (eg HSCT, CAR-T therapy) | Severe: first 2 after therapy |
| | | | Moderate: >2 after therapy |
| | Solid tumours | Completed active therapy and in cancer remission | Mild |
| | | Treated with hormonal therapy | Mild |
| | | Treated with immune checkpoint inhibitors | Mild |
| | | Treated with certain small molecule targeted therapies<br>• ALK inhibitors | Mild |

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| | | (eg alectinib)<br>• CDK inhibitors (eg palbociclib, ribociclib) | |
| | | Treated with radiotherapy | Generally mil<br>be moderate<br>depending or<br>extent of radi |
| | | Treated with conventional chemotherapy | Severe: durin<br><3 months af<br>completion |
| | | | Moderate: >3<br>after therapy |
| Solid organ transplant | Before solid organ transplant | Multiple immunosuppressants may be prescribed to treat the underlying organ failure. | Moderate<br><br>See:<br>Table. Immun<br>potential of c<br>organ rejectio<br>Table. Immun<br>potential of c<br>(non-biologic<br>immunosupp<br>therapies;<br>Table. Immun<br>potential of s<br>molecule targ<br>therapies;<br>Table. Immun<br>potential of b<br>therapies;<br>Table. Immun<br>potential of<br>corticosteroi |
| | After solid organ transplant | Anti-rejection agents (such as mycophenolate, | Severe: first 1<br>after transpla |

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| | | mTOR inhibitors, calcineurin inhibitors, corticosteroids) may be prescribed with reduced dosing over time | Moderate: >1 after transpla |
| Asplenia or hyposplenia | Anatomical or functional asplenia or hyposplenia (eg congenital asplenia, sickle cell anaemia, splenectomy) | No routine immunosuppressive therapies prescribed, but antibiotic prophylaxis may be indicated | Moderate, ma risk of infecti specific bacte pathogens. |
| HIV infection | • Infants (<12 months): $CD4^+$ ≥1500 cells/µL<br>• Children (1–5 years): $CD4^+$ ≥1000 cells/µL<br>• Adults and children >5 years: $CD4^+$ ≥500 cells/µL | No routine immunosuppressive therapies prescribed, but highly active combination antiretroviral therapy prescribed (with or without agents to prevent opportunistic infections) | Mild |
| | • Infants (<12 months): $CD4^+$ 750–1499 cells/µL<br>• Children (1–5 years): $CD4^+$ 500–999 cells/µL<br>• Adults and children >5 years: $CD4^+$ 200–499 cells/µL | No routine immunosuppressive therapies prescribed, but highly active combination antiretroviral therapy prescribed (with or without agents to prevent opportunistic infections) | Moderate |
| | • Infants (<12 months): $CD4^+$ <750 cells/µL<br>• Children (1–5 years): $CD4^+$ <500 cells/µL<br>• Adults and children >5 years: | No routine immunosuppressive therapies prescribed, but highly active combination antiretroviral therapy prescribed (with or without agents to | Severe |

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| | $CD4^+$ <200 cells/µL | prevent opportunistic infections) | |

**Acronyms used:**

- ALK = anaplastic lymphoma kinase
- BTK = Bruton's tyrosine kinase
- CAR-T = chimeric antigen receptor modified T-cell
- CDK = cyclin-dependent kinase
- IFN = interferon
- IFNAR = interferon-alpha/beta receptor
- IL = interleukin
- HSCT = haematopoietic stem cell transplant
- JAK = Janus kinase
- mTOR = mammalian target of rapamycin
- RANK = receptor activator of nuclear factor kappa B
- TNF = tumour necrosis factor

## Page history

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**Related chapters:** Vaccination for people who are immunocompromised