Bone marrow transplant: pulmonary complications

- **Engraftment syndrome:**
  - Develops within 96 hrs of engraftment
  - Reported in 7–35% of HSCT recipients
  - Typically follows autologous HSCT, but also seen in allogeneic transplantation
  - Characterised by fever, erythematous rash, diarrhea, renal impairment, and diffuse pulmonary infiltrates
  - May be due to cytokines released by neutrophils
  - Treatment: cease GCSF, steroids decrease duration of syndrome
  - Prognosis: Mortality secondary to engraftment syndrome is around 25%

- **Idiopathic pneumonia syndrome:**
  - Diffuse pneumonia syndrome without infectious aetiology
  - Occurs in 10% of HSCT recipients (slightly more common in allogeneic than autologous)
  - Risk factors: age, malignancy, performance status, donor serology, high-dose chemotherapy, total body irradiation, acute GVHD, multiorgan failure
  - Prognosis: mortality greater than 70%
  - Treatment: supportive, corticosteroids commonly used

- **Diffuse alveolar haemorrhage:**
  - General criteria: widespread alveolar injury, multilobar infiltrate, symptoms and signs of pneumonia, abnormal pulmonary physiology, absence of infection, BAL showing progressively bloodier return
  - Pathogenesis: damage to endothelium by chemotherapy, +/− alveolitis due to acute GVHD
  - Risk factors: intensive chemotherapy, total body irradiation, older age, white blood cell count recovery, renal insufficiency
  - Treatment: high-dose methylprednisolone, steroids decrease duration of syndrome
  - Prognosis: mortality secondary to engraftment syndrome is around 25%

- **Boil:**
  - General: inflammatory disease of small airways
  - Risk factors: age, malignancy, performance status, donor serology, high-dose chemotherapy, total body irradiation, acute GVHD, multiorgan failure
  - Prognosis: mortality greater than 70%
  - Treatment: supportive, corticosteroids commonly used

- **Bronchiolitis obliterans:**
  - Inflammatory disease of small airways
  - Risk factors: allogeneic HSCT
  - Treatment: macrolides may slow progression
  - Prognosis: gradually worsens over months to years, mortality from respiratory failure