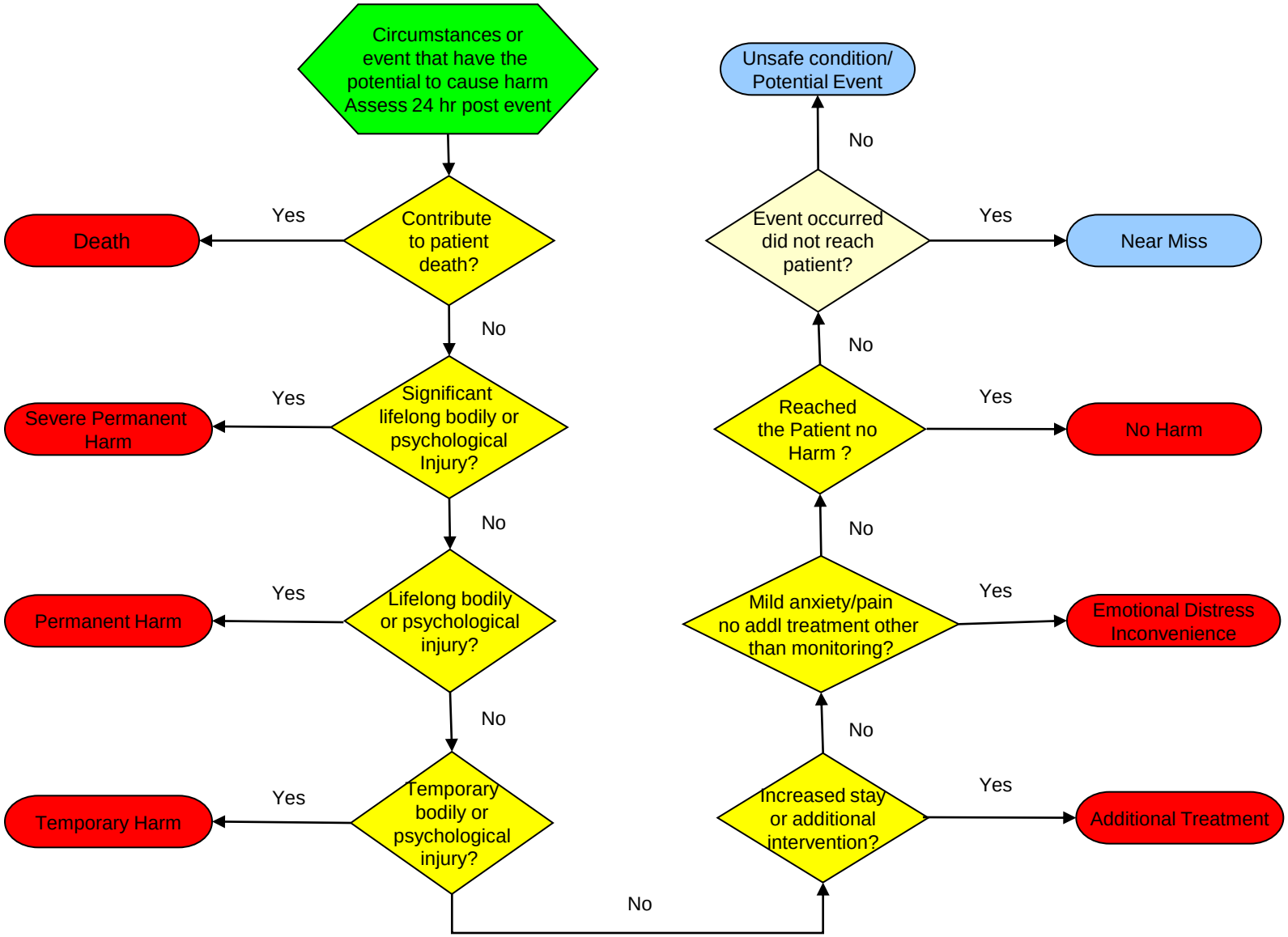Event Classification Algorithm