Consider the following requirements for inpatients at a hospital:

All patients admitted to the hospital are given a unique patient number. The patient's name, address, age, and sex are recorded. Private patients are allocated a private room, identified by the room number. Private rooms are of different types, e.g., standard, deluxe, palatial, etc. NHS patients are allocated a bed in a ward, beds being identified by the ward name and bed number. Wards are of different types, e.g., pediatric, cancer, etc, with a named sister in charge of each one. Each patient is allocated to a named consultant who supervises the medical care of the patient. The consultant decides on the treatments to be given to the patient. A treatment is any medical procedure performed on the patient. Each treatment is given a unique treatment number, and a description of the treatment and the date it is performed are recorded.

Design an E-R diagram for the above database.

Derive a corresponding relational scheme from your E-R diagram.

The E-R diagram must show attributes, keys, cardinalities, and constraints.

The relational scheme must be in third-normal form, with primary and foreign keys clearly indicated.

Patient

- **Attributes**:
    - **Patient_Number** (PK)
    - Name
    - Address
    - Age
    - Sex

Private Room

- **Attributes**:
    - **Room_Number** (PK)
    - Room_Type

Ward

- **Attributes**:
    - **Ward_Name** (PK)
    - Ward_Type
    - Sister_in_Charge

Bed

- **Attributes**:
    - **Bed_Number** (PK)

- **Ward_Name** (FK)

Consultant

- **Attributes:**
  - **Consultant_Name** (PK)

Treatment

- **Attributes:**
  - **Treatment_Number** (PK)
  - Description
  - Date
  - **Patient_Number** (FK)
  - **Consultant_Name** (FK)