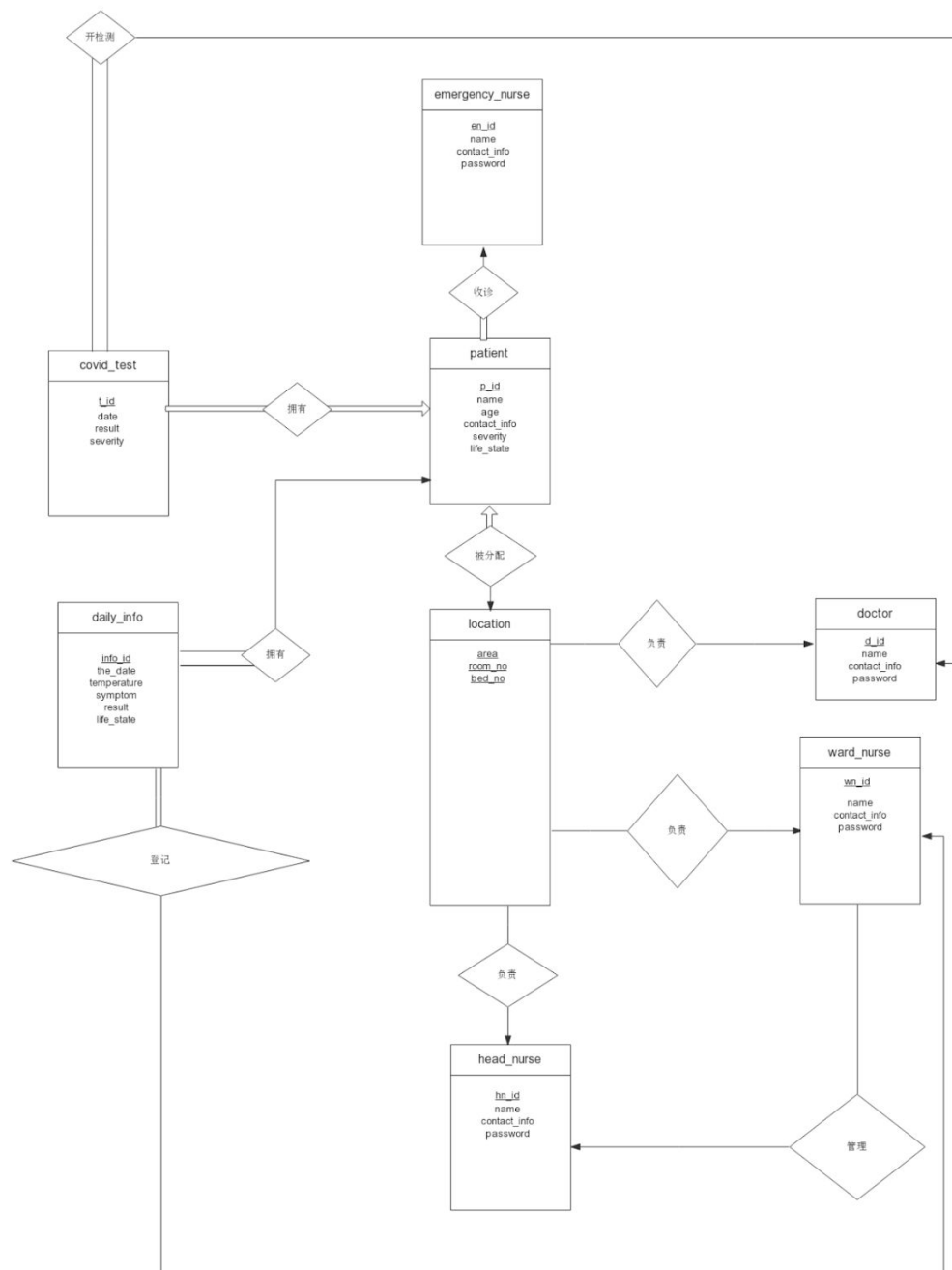# ER Diagram Description

Diagram 1: ER diagram of a certain hospital's information management system under COVID-19

From Diagram 1, we can see that the entity set includes patient, doctor and head_ nurse, ward_ nurse, emergency_ nurse, location, daily_ info, covid_ test。 There are the following relations and relation sets mentioned as below:

- There is an admission relationship between patient and emergency_nurse. Patient is total participation, emergency_ nurse is partial participation. Patient and emergency_ nurse is a many to one relationship.

- There is an assigned relationship between patient and location. Patient is total participation and the location is partial participation. The relationship between the patient and the location is one-to-one.
- There is an ownership relationship between patient and covid_ test. Patient is total participation and covid_ test is total participation. Patient and covid_ test is a one to many relationship.
- There is an ownership relationship between patient and daily_info. Patient is partial participation and covid_ test is total participation. Patient and daily_info is a one to many relationship.
- There is a responsible relationship between location and doctor. Location is partial participation and doctor is partial participation. Location and doctor are many to one.
- There is a responsible relationship between location and head_nurse. Location is partial participation and head_nurse is partial participation. Location and head_nurse are many to one.
- There is a responsible relationship between location and ward_nurse. Location is partial participation and ward_nurse is partial participation. Location and ward_nurse are many to one.
- There is a management relationship between ward_ nurse and head_ nurse. Ward_ nurse is partial participation, and head_ nurse is partial participation. Ward_ nurse and head_ nurse is a many to one relationship.
- There is a registration relationship between ward_ nurse and daily_ info. Ward_ nurse is partial participation, and daily_ Info is total participation. Ward_ nurse and daily_ Info is a one to many relationship.
- There is a test relationship between doctor and covid_test. Doctor is partial participation, and covid_test is total participation. Doctor and covid_ test is a one to many relationship.

Based on the above entity set and relationship set, we create the following schemas：
（underline: primary key, highlight: foreign key）
- patient(p_id, name, age, contact_info, severity, life_state, en_id)
- doctor(d_id, name, contact_info, password)
- head_nurse(hn_id, name, contact_info, password)
- ward_nurse(wn_id, name, contact_info, password)
- emergency_nurse(en_id, name, contact_info, password)
- location(area, room_no, bed_no, d_id, hn_id, wn_id, p_id)
- daily_info(info_id, the_date, temperature, symptom, result, life_state, p_id, wn_id)
- covid_test(t_id, date, result, severity, p_id, d_id)