CS 548/SOC 542—Spring 2016 Enterprise

Software Architecture and Design

Assignment Eleven—BPMN

Name:Junye Lu

In this assignment, I build a BPMN2 process diagram, called Visit.bpmn with namespace http://cs548.stevens.edu/clinic/bpmn/visit, that models the protocol for handling a patient visit to the clinic:

1. A patient that enters the clinic is registered at the front office. Registration is complicated enough that it was treated as a separate subprocess.
2. A junior clinician performs an initial examination and consultation. This will involve the gathering of some initial observations, including potentially measurements, which is treated as human task.
3. Depending on the results of the initial examination, the patient's case may be escalated to a follow-up review. In addition laboratory tests may be ordered as a broadcast signal event.
4. Once the follow-up procedures are completed, several decisions need to be made:

a. Order prescription pharmacies. The pharmacy should send a text message or email to the patient when the prescription is ready.

b. Refer to the regional hospital. The front office should arrange the referral for the patient, by sending a message to the hospital.

c. Return for a follow-up visit. A follow-up appointment should be scheduled by the front office, and the appointment information sent by text or email to the patient.

d. The data upload subprocess should be performed by the research department.

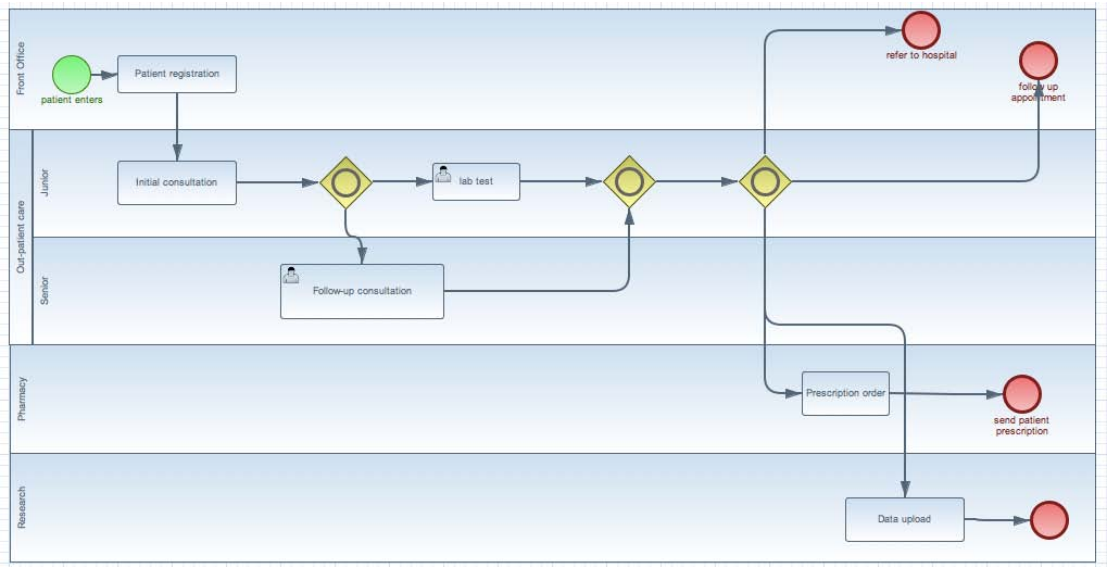

Figure 1. Main process

As I mentioned above, there are three subprocesses to be modeled:

1. Patient registration (front office).

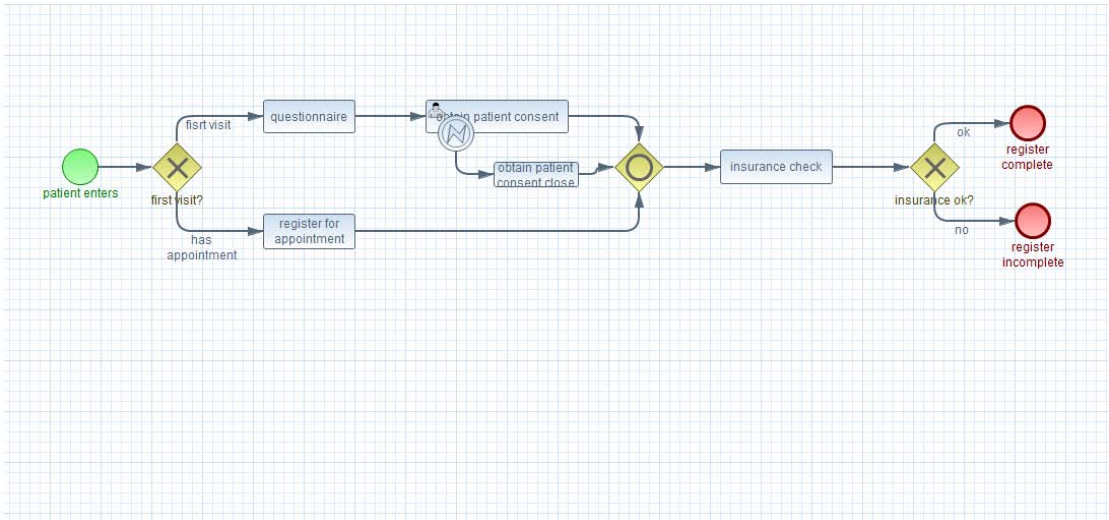

Figure 2. Patient registration.

In this subprocess, after the patient enters, the process will check whether the patient is the first time to visit. If so, then getting the patient's medical history though a questionnaire. Asking the patient if they are willing to have their data used "anonymously" for longitudinal studies. If the patients are willing, leading the patient through a protocol for obtaining their informed consent. At any point, the patient may decline to consent, in which case the protocol is terminated early with an error. For all patients, getting or confirming the patients' health insurance information.

2. Initial consultation (junior clinician).

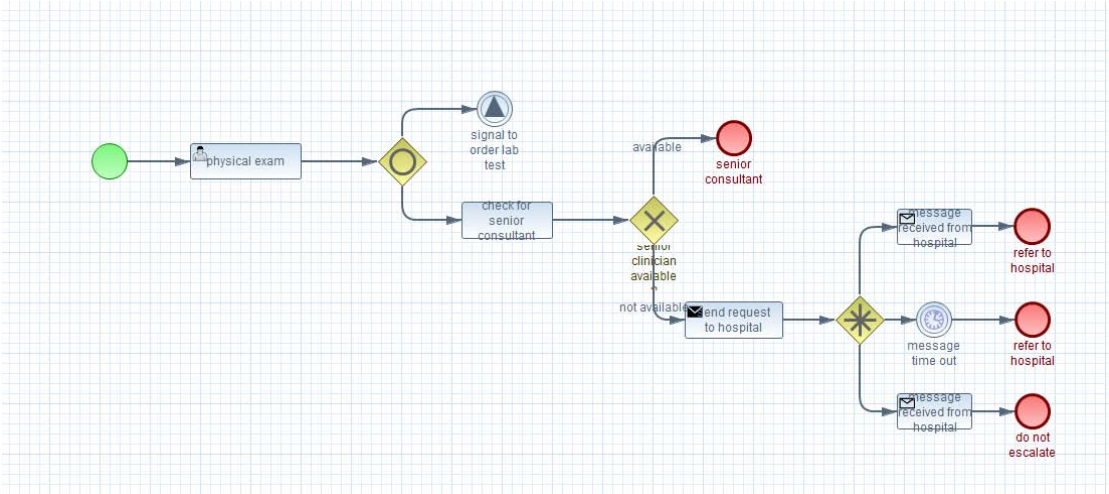

Figure 3. Initial consultation.

The initial consultation begins with a physical examination and patient interview, all of which you can treat as a single human task. After this, a decision may be made to request laboratory analysis of physical specimens (e.g. blood and urine) obtained from the patient. The decision also may be made to refer the case for senior guidance. You can handle these multiple decisions as an inclusive choice. If there is no senior clinician available (exclusive choice), then the escalation of this

case should be to the regional hospital. Escalation to the regional hospital will involve asynchronously sending a message to the hospital (e.g. via a secure Web service) with information about the case and a request for guidance on how to handle the case. The hospital response (sent via a separate message) may be to refer the patient to them for further treatment, or to treat the patient within the clinic (with a recommendation on treatment). If the clinic does not receive a timely response to the request for guidance, then the patient is referred to the hospital. Use a complex event to choose among these alternatives.

3. Data upload (research)

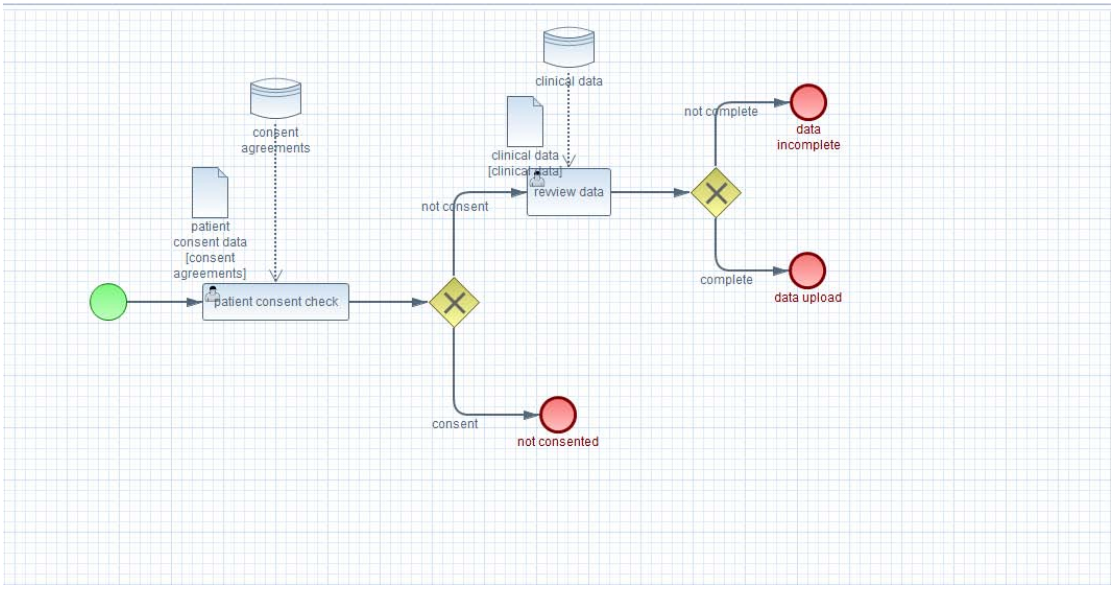

Figure 4. Data upload.

The data upload subprocess involves checking if the patient has provided informed consent, then reviewing the data for completeness. If both of these conditions are satisfied, a data upload message is sent to the data warehouse that collects this information from all participating sites. If the data for the visit is incomplete, this subprocess should end with an error event.