Background & task

The world has been gripped by a highly-contagious virus, and after struggling to treat infected patients for months, health systems around the world are now rolling out vaccines. Results from overseas show that these vaccines are highly effective, resulting in significantly lower (in the 90% lower range) serious

implications previously associated with the virus.

Dr Simon Say runs a vaccine clinic, and has been tasked with delivering the vaccine in the most effective way possible. His clinic has been provided a reliable supply of vaccines, and, as an early-impact vaccine clinic, is providing vaccines to walk-in patients. As government systems improve, Dr Say’s hospital system expects that the process will be scaled up to much larger sites, hence the importance of testing the process at a smaller location to identify where bottlenecks or process inefficiencies may arise. Dr Say recently completed an MBA to complement his clinical training, and is aware of the benefits that a well-understood, well-designed process can deliver. He intends to present the As-Is Business Process Model to the Hospital CEO in order to persuade her to give him approval to analyse, improve and redesign this process, and update training materials, before rolling it out to the largest vaccine delivery sites. To this end, Dr Says called upon you, the Business Analyst. He has asked you to his office to go over the current vaccination process. Over a 2-hour introductory meeting, he provided you with initial information and then ensured that you had access to key personnel in VAR, his clinic, allowing you to review existing written descriptions or models of how things happen at the clinic, to conduct a minimal amount of interviews to not interrupt current operations, and to observe the process in action. Dr Say has asked for a mid-level of detail, and as such, you can ignore some of the detail as circumstances of the Vaccination pathway for Vaccinees evolves in this early rollout stage. He wants to focus purely on the vaccination process itself, and has expressly excluded over related processes, such as the vaccine booking process, 2nd doses, parking, clinical advice pathways, language barriers pathways or clinical pathways. As a result, you have prepared the following process description of VAR’s Vaccination process.

The next step for you is to confirm your understanding of some aspects of the process as described below before you model this process in BPMN using Signavio for Dr Say’s discussion with the CEO. Please document any assumptions you have made within the BPMN model using the BPMN “text annotation” construct.

Vaccination process

The vaccination process starts when the person to be vaccinated (“vaccinee”) arrives. If the vaccinee is a member of staff, this will happen at the vaccine clinic location (within the hospital), and for all others, this happens at the hospital front door. For non-staff, they will be greeted by the hospital concierge and given directions to the COVID Vaccine Clinic which is near the front door. Once the Vaccinee arrives at the Vaccine Clinic, they will be greeted by the Clinic Concierge, who assesses their vaccine booking status and priority phase. If the patient is a hospital staff member, or a member of the Queensland Ambulance Service (QAS) or Queensland Police Service (QPS) on duty, they are prioritised through the queue for registration. This ensures that people in these services spend the minimum time in the queue. The Concierge provides Vaccinees with the government mandated consent process for them to complete, and awaits their response. Once handed in, the Concierge checks the paperwork and the Vaccinees’ answers. Vaccinees’ responses on the form may raise questions (for example, the person may have a chronic disease and the Concierge does not know what effect the vaccine will have on this), and if the Concierge cannot answer the questions or if the Vaccinee is asking a question above the authority of the Concierge to answer (for example, Vaccinee is requesting a vaccine for which they are not eligible), then the Concierge seeks advice from the senior Clinic Clinician. If the decision is that the Vaccinee is to proceed with vaccination, then they move to the next phase. If the Vaccinee is not to proceed with vaccination, then the Concierge informs the Vaccinee that he/she can now leave the clinic and monitor government announcements on eligibility for other vaccines. The Concierge also destroys the paper forms the Vaccinee had completed, and the process ends. Sometimes the Vaccinee did not complete all questions, and the Concierge will ask them to provide that information before proceeding, and in a very small number of cases, the Vaccinee does not complete the form before the clinic closes at 6pm, in which case the Concierge asks them to complete the form at home and return the next day. If there are no further questions, the Concierge will call the Vaccinees in to be registered by the administrative staff, utilising the standard processes as set out in the government software. The Administration Staff double-check certain items of information with the Vaccinee as they proceed through the process. If there are concerns regarding aspects of the registration process, then the Administration Staff seek the advice of the Senior Clinic Clinician. This may again result in the Vaccinees not being able to proceed with vaccination, at which point the same process is followed for the Vaccinee to leave the Vaccine Clinic, except that it is done by the Administration Staff. Once registration is complete, the Administration Staff checks that the Vaccinee has his/her vaccine receipt card, and if not provides them with one. The Vaccinee then joins the queue for vaccination and is given a Number Card. If the Vaccinee is a member of on-duty hospital staff/QPS/QAS, s/he is prioritised in this queue, by being directed to seating separate from other Vaccinees and given a purple-coloured Number Card. When identifying their next patient, Vaccination nurses first check the on-duty priority area, calling hospital staff/QPS/QAS on duty in to be vaccinated in order of their Number Card. Vaccination nurses then call non-hospital staff/QPS/QAS in, in order of their Number Cards. Vaccinees are invited to sit at a small table where the nurse has the necessary equipment and information. The nurse will then check the form to confirm which vaccine is to be administered, and to check for any complications. If there are concerns regarding aspects of the vaccination, then the Vaccination Nurse seeks the advice of the Senior Clinic Clinician. This may again result in the Vaccinee not being able to proceed with vaccination, with the process ending as before (except that it is done by the Vaccination Nurse). In all other cases, the Vaccination Nurse administers the vaccine to the Vaccinee in accordance with the processes mandated by the vaccine manufacturer. Key steps include taking the vaccine supply from the vaccine storage, extracting the recommended dose into a vaccine syringe, before covering the syringe and returning to the Vaccinee to administer the correct vaccine. The vaccine storage is centrally located to the vaccine administration area and easily accessible to the Vaccination Nurses. Once the vaccine is administered, the Vaccination Nurse signs the patient’s vaccine receipt card, then asks the patient if they would like to take a lollipop, and then escorts the Vaccinee to the Observation Area (also closeby). Though very rare, at any point after registration and before the vaccine is administered, the Vaccinee may realise that they had received the flu vaccine within the past 14 days (despite ticking the box earlier to say that they hadn’t). In these cases, when s/he informs the relevant Vaccination staff member, the Vaccinee’s registration and confirmation of receipt of vaccine must be reversed, and s/he is advised to return after the 14 days since the flu injection have passed to start the process again. The Observation Clinician informs Vaccinees that they are wait in that area to be observed for 15 minutes to ensure there is no immediate, significant adverse reaction to the vaccine. The Observation Clinician will then double-check the Vaccinees’ clinical history, and will ask those with adverse reactions in the past to wait for 30 minutes. If a Vaccinee has an adverse reaction, the Observation Clinician will bring them to the resuscitation area, make observations and provide necessary treatment, including calling in the Senior Clinic Clinician as required. If the reaction is very significant, the Vaccinee is brought to the Emergency department by the Observation Clinician, after ensuring another clinician can observe the remaining Vaccinees. After their 15 (or 30) minutes of observation, Vaccinees, if well, are invited to leave and are signed out by the Observation Clinician, and the process ends.