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SYDE 161

Team 7 – D06: System Diagram Team

Information Link Path #1:

Description:

Consider an increase in infection rate as the beginning of the information path, causing national lockdown restrictions to be tightened. The path beginning at the infection rate affects both the mask and vaccination subsystems' information links in a similar way. This results in a balancing feedback loop by reducing COVID-19 case numbers. In parallel, this causes an increase in manufacturing of masks at the manufacturing facilities, caused by a rise in their demand (instituting a connection to Mask Distribution, which are connected to Mask Usage predominantly by flows rather than information links). The public demand is also reinforced with the encouragement of mask wearing/vaccination culture. In addition, an increase in mask demand results in increased manufacturing, which makes for a reinforcing feedback loop. To increase manufacturing, the number of employees surges at production facilities, accelerating the rate of infection, thus creating a reinforcing feedback loop back to an increase in infection.

Reasoning:

1. First, the infection-rate-to-lockdown-restrictions link demonstrates that as COVID-19 cases rise, restrictions also tighten, which reduces infection rate as a result of physical distancing and stay-at-home measures. As physical distancing measures increase, virus transmission decreases.
2. We included the infection-rate-to-manufacturing link since higher infection rates increase the need for masks due to their protection against the coronavirus, which is the interest of public health.
3. The demand-to-manufacturing link is present to illustrate how mask companies will expedite production to meet demand to optimize revenue.
4. We included the demand-to-employee link since a higher demand in masks increases the number of present employees working at the manufacturing plants. This is important due to the inevitable reinforcing feedback loop, which occurs since increasing manufacturing employees also accelerates the infection rate. The by-product that is a higher infection is justified because infection can come from large clusters of people gathered.

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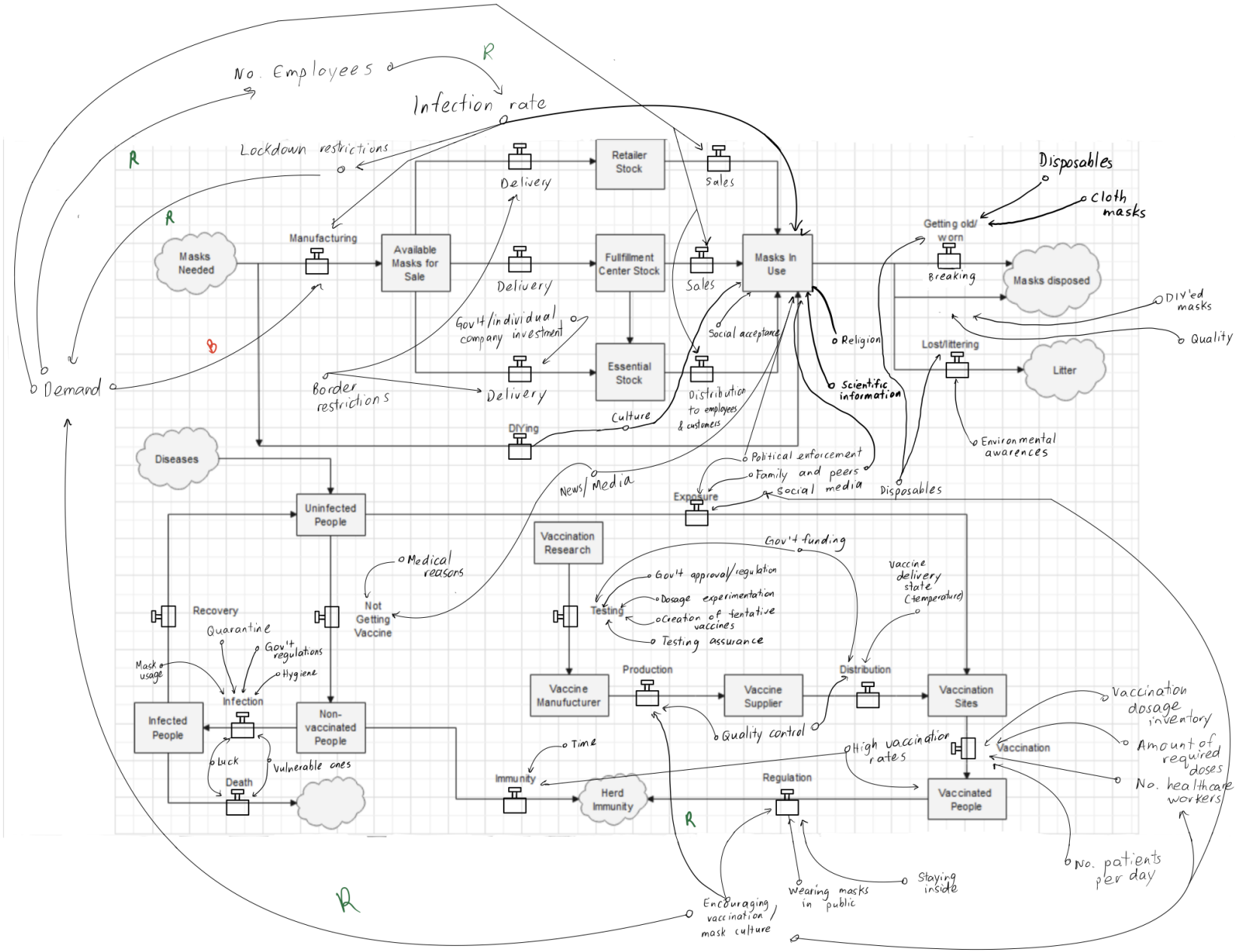
No. Employees
R
Infection rate
Lockdown restrictions
R
R
Masks Needed
Manufacturing
Available Masks for Sale
Delivery
Retailer Stock
Sales
Delivery
Fullfilment Center Stock
Sales
Masks In Use
Gov't/individual company investment
Delivery
Essential Stock
Distribution to employees & customers
Social acceptance
Religion
Scientific information
Border restrictions
B
Demand
DIYing
Culture
Disposables
Cloth masks
Getting old/ worn
Breaking
Masks disposed
DIY'ed masks
Quality
Lost/littering
Litter
Environmental awarences
Diseases
Uninfected People
News/ Media
Political enforcement
Family and peers
Social media
Exposure
Disposables
Vaccination Research
Gov't funding
Medical reasons
Not Getting Vaccine
Gov't approval/regulation
Dosage experimentation
Creation of tentative vaccines
Testing assurance
Testing
Vaccine delivery state (temperature)
Recovery
Quarantine
Gov't regulations
Hygiene
Mask usage
Infection
Infected People
Non-vaccinated People
Luck
Vulnerable ones
Death
Vaccine Manufacturer
Production
Vaccine Supplier
Distribution
Vaccination Sites
Quality control
Vaccination dosage inventory
Amount of required doses
No. healthcare workers
Vaccination
High vaccination rates
Time
Immunity
Herd Immunity
Regulation
Vaccinated People
No. patients per day
R
R
Encouraging vaccination / mask culture
Wearing masks in public
Staying inside