

437o Rapid Response of Large-Scale Influenza Vaccine Production for a Pandemic

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Our world is continually at risk of deadly disease pandemics and vaccines are our major defense. However, our health care system relies on just a small number of companies to make them resulting in several shortages due to problems with any of the major suppliers. These vaccines need to be made quickly and in large quantities in the event of these crises so manufacturing processes must be able to quickly ramp up the production if necessary. As a case study, the annual development and manufacturing of influenza vaccine was explored. New methods for vaccine development using reverse genetics and manufacturing using mammalian cell culture are discussed and shown to reduce the vaccine production time significantly. Cell culture using anchorage-independent cell lines are shown to be a feasible option for manufacturing the vaccine by being comparable economically to egg culture methods. A proposed distributed biologic manufacturing network allows for a quick ramp up of cell culture manufacturing capacity providing rapid response to a flu vaccine shortage or pandemic. Technical issues with the use of this manufacturing network are identified.