

**COVID-19 Vaccine Candidates: A Summary**<sup>1,2,3,4,5,6,7,8,9,10,11</sup>

| Vaccine                         | Dosing Schedule                            | Efficacy | Storage  | Distribution  |
|---------------------------------|--|----------|--|---|
| Pfizer/BioNTech<br>BNT162b2     | 2 doses, 21 days apart<br><br>IM injection | 95%      | <ul style="list-style-type: none"> <li>➤ -70°C</li> <li>➤ 3 storage options                             <ol style="list-style-type: none"> <li>1. Ultra-low temperature freezers – store vaccine up to 6 months                                     <ul style="list-style-type: none"> <li>▸ Transfer vaccine from shipping container to freezer in less than 10 minutes</li> </ul> </li> <li>2. Standard refrigerator – store vaccine at 2-8°C for up to 5 days undiluted</li> <li>3. Shipping container refilled with dry ice - store vaccine for up to 30 days                                     <ul style="list-style-type: none"> <li>▸ Replace dry ice within 24-hours of receipt</li> <li>▸ With each re-icing the shipping container maintains ultra-low temperature for 5 days when limited to 2 openings per day (60-90 seconds each time)</li> </ul> </li> </ol> </li> <li>➤ Cannot be re-frozen once thawed</li> </ul> | <ul style="list-style-type: none"> <li>➤ Estimate 50 million doses by the end of 2020 and 1.3 billion doses by end of 2021</li> <li>➤ Temperature-controlled thermal shipping containers that use dry ice to maintain temps -70° C +/- 10°C</li> <li>➤ Shipping containers have GPS-enabled thermal sensors to track location and temperature</li> <li>➤ “just-in-time” system to ship directly to points of use</li> <li>➤ Road and air modes of transportation – will get to destination in 1-2 days</li> </ul> |
| Moderna<br>mRNA-1273            | 2 doses, 28 days apart<br><br>IM injection | 94.1%    | <ul style="list-style-type: none"> <li>➤ -20°C</li> <li>➤ Store in standard freezers (-20°C) for 6 months</li> <li>➤ Store at standard refrigerated temperatures (2-8°C) for up to 30 days</li> <li>➤ Stable at room temperature for up to 12 hours</li> <li>➤ Stability allows for easy storage at most pharmacies, hospitals, or physicians’ offices</li> </ul>  | <ul style="list-style-type: none"> <li>➤ Estimate 20 million doses by end of 2020 and 50 million to 1 billion doses by end of 2021</li> <li>➤ Most pharmaceutical distribution companies have the capability to store and ship products at -20°C worldwide</li> <li>➤ Working with CDC, Operation Warp Speed and McKesson for distribution</li> </ul>   |
| AstraZeneca & Oxford – AZD-1222 | 2 doses, 30 days apart<br><br>IM injection | 70%      | <ul style="list-style-type: none"> <li>➤ Stored and handled at normal refrigerated temps (2-8° C) – stable for 6 months</li> </ul>   | <ul style="list-style-type: none"> <li>➤ Stability in standard refrigerators make for easy distribution</li> <li>➤ Broad and equitable access to vaccine</li> </ul>   |

This chart was created by PharmD Candidates Allison Gamelli and Amy Mataraza under the direction of Drs. Jacqueline Cleary and Jeffrey Fudin. It was first posted on PainDr.com 12/16/2020 as part of a blog posted entitled **An Updated Look at the COVID-19 Vaccine Candidates – Storage, Distribution, and Barriers to Access**. Available at <https://paindr.com/an-updated-look-at-the-covid-19-vaccine-candidates-storage-distribution-and-barriers-to-access/>