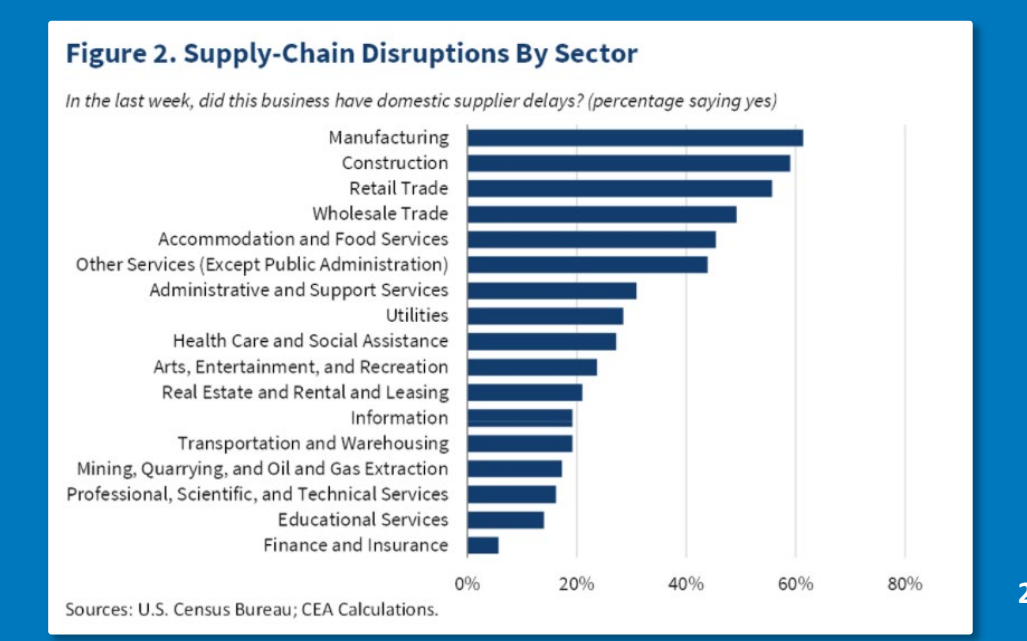
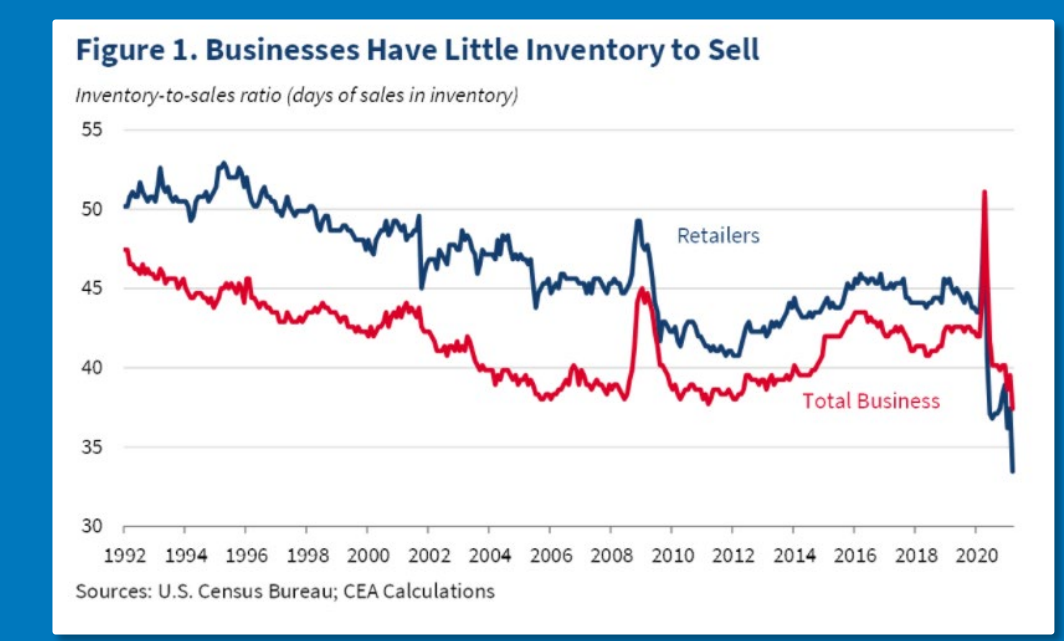


COVID-19 Test Kit Assembly

Jasmine Cline-Bailey, MHSA and Allison "Ali" Wang
 Beth Israel Deaconess Medical Center (BIDMC)

Background

During the first half of 2020, as the world went into lockdown, demand for most goods increased, carriers were canceled, manufacturing capacity was cut, and workers everywhere were displaced.



The COVID-19 Pandemic presented challenges not only in terms of clinical care and hospital capacity, but also supply chain and logistics processes. The global supply challenges impacted BIDMC's ability to quickly increase COVID-19 testing capacity for staff and patients.

Objective

In order to address the increased need for COVID-19 testing in the community and lack of testing resources at BIDMC, we rapidly developed an innovative alternative method of testing by:

1. Repurposing existing supplies from less highly requested test kits
2. Utilizing existing research facilities to create viral transport medium to preserve virus specimens after collection/sourcing alternative medium resources
3. Developing an assembly line process with redeployed staff to put together the new test kits

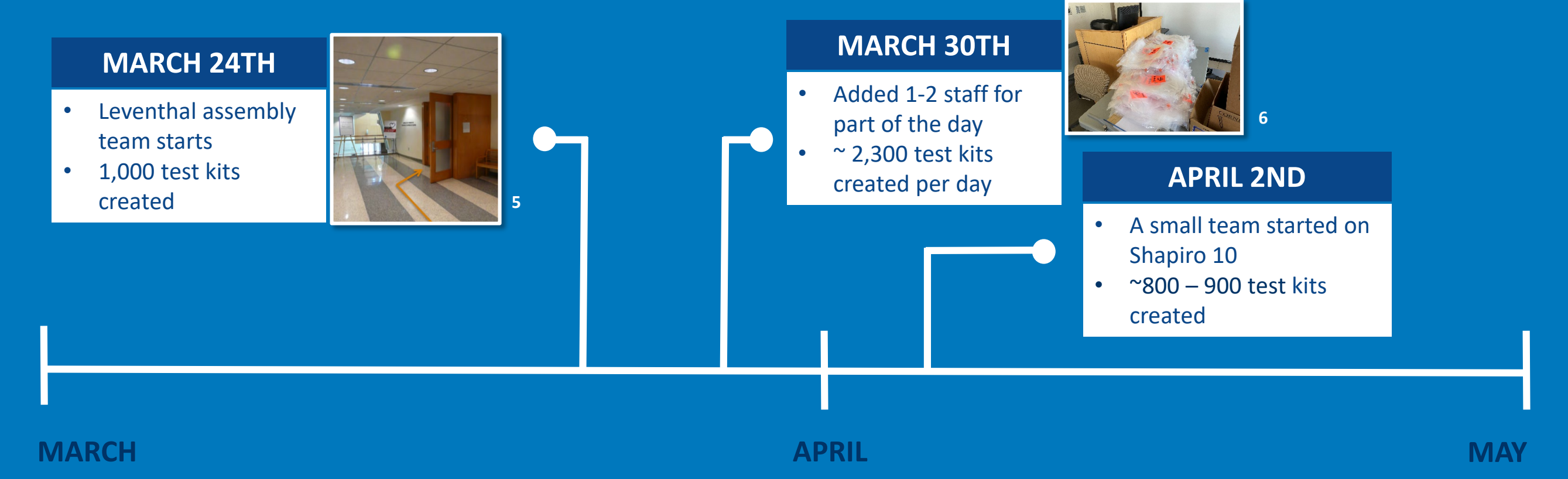


Process Overview

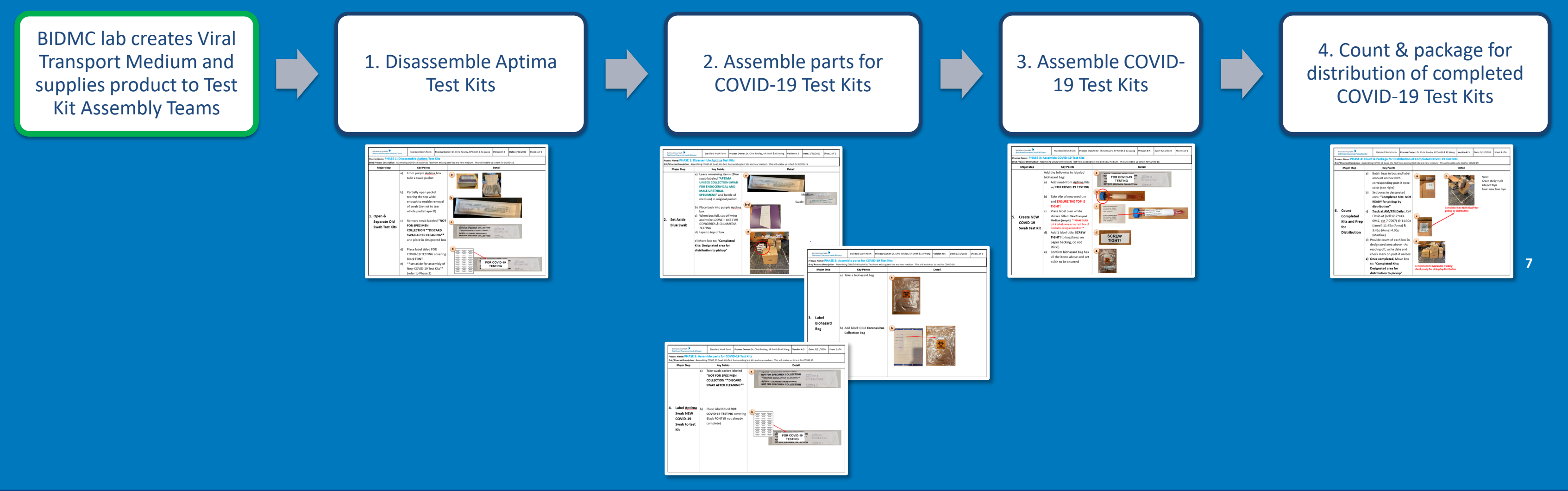
In an unused conference room, we set up an assembly line process where staff deconstructed existing test kits and assembled the new COVID-19 test kits.

We initially set up one assembly line process, and quickly realized there was a need to ramp up to two assembly lines in order to support the greater BILH system needs for increased capacity for COVID-19 testing.

Timeline:



Process Overview: Standard work documents clearly outline each step of the assembly process for staff.



Viral Transport Medium: Viral transport medium is a solution used to preserve virus specimens after collection so that they can be transported and analyzed in a laboratory at a later time.
Aptima Swab: A swabs used to perform high-quality vaginal NAA molecular tests.

For more information, contact:

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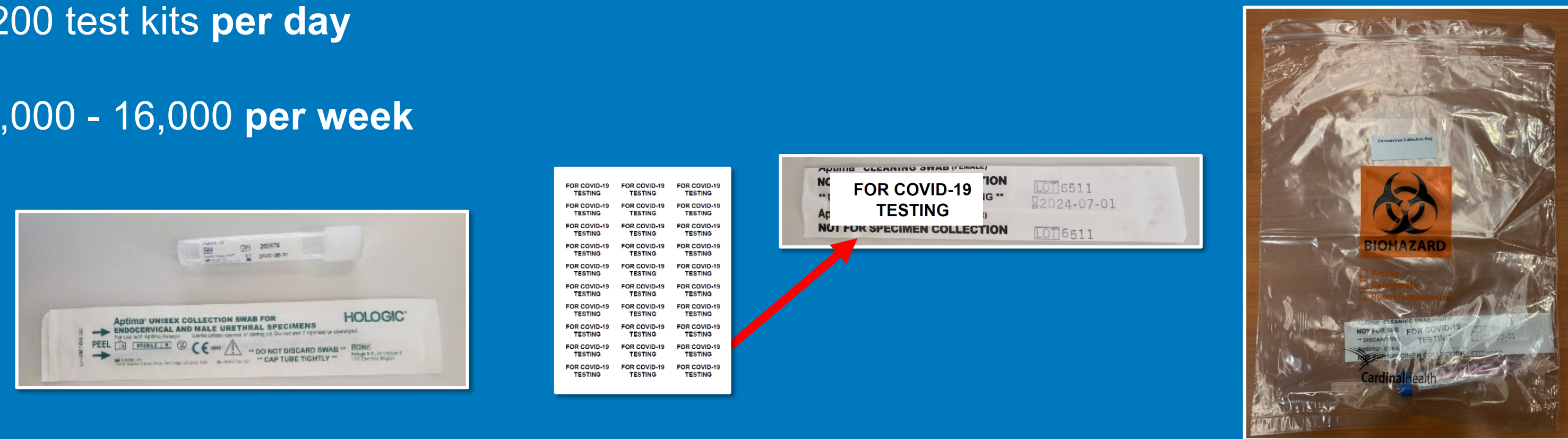
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Results

As a result of the COVID-19 Test Kit Assembly Teams efforts, BIDMC was able to produce:

- ~ 3,200 test kits **per day**
- ~ 15,000 - 16,000 **per week**



This work was not only critical to supporting BILH COVID-19 testing abilities, but also helped to keep a number of staff employed who would otherwise have not had work, further adding to the crisis of the pandemic.

The Team

Planning Team:

- Acevedo, Eric
- Cline-Bailey, Jasmine
- Fetahu, Flavio
- LaSalvia, Mary
- Minette, Christopher
- Moravick, Sarah
- Rowley, Christopher
- Previtera, Joseph
- Siepka, Thomas
- Smith, Kenneth P
- Wang, Allison

Assembly Team:

- Ballard, Jamel
- Cardoso, Claudia
- Cretel, Elizabeth
- Evora, Heldertino
- Fleury, Jean
- Franco, Natalie
- Horan, Juline
- King, Julie
- Magan, Cleonice
- Montesuma, Martine
- Rivera Salinas, Jessica
- Sands, Dorothy
- St Louis, Kanishah
- Vaquerano, Ernestina

Lessons Learned

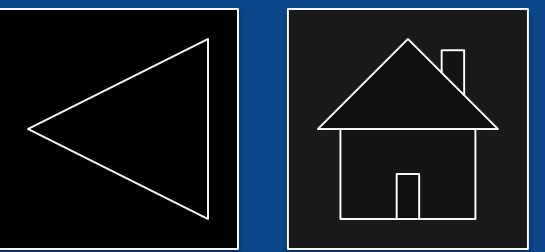
- Clear visual standardized work documents posted throughout the space allows any staff member to jump into the process without having to go through training.
- Consistent transparent tracking via a shared document helps to keep an accurate account of work complete and stakeholders informed
- It was vital to have a manager/liason to oversee staff and the assembly process (i.e., Time off, distribution pick-up times, supply restock, etc.)

Next Steps/Future Iterations

- Sourcing completed test kits as supplies became available
- Sending test kits to community hospitals
- Using 3D printed swabs to address supply gaps

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Figure Appendix

1. Businesses have little inventory to sell (Inventory-to-sales ratio)
2. Supply Chain distributions by sector
3. Aptima swab test kit
4. BIDMC assembles test kit box and viral transport medium
5. The Leventhal conference room at BIDMC
6. Test kits in Shapiro 10 conference room
7. Manager/assembly line standard work
8. Individual COVID-19 test kit components

*To see a larger version of the images included in this poster, please use the following link, https://bilh-my.sharepoint.com/:f/g/personal/jcline-b_bidmc_harvard_edu/EumZRSpe8EtFq3Q26LuF2zYB73WaG88fCryp8tzfk52L3w?e=XFEbQI

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