

## Covid-19 Pooled Testing Rack

Designed by Jimmy Crott<sup>a</sup> in collaboration with Chris Sedore<sup>b</sup> and Alex Simas<sup>a</sup>

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### Need

To reduce costs of COVID-19 screening, sample pooling will be widely utilized – especially in K-12 schools. Pooling of up to 10 swabs together into one 50 ml Falcon type tube has recently been validated for the dry nasal swab + PCR method. At testing sites, a rack is required to hold pooling tubes in fashion that will minimize the chance for corrupting the sample pools and, more importantly, to minimize the chance for infections passing between users.

### Design considerations

The rack should:

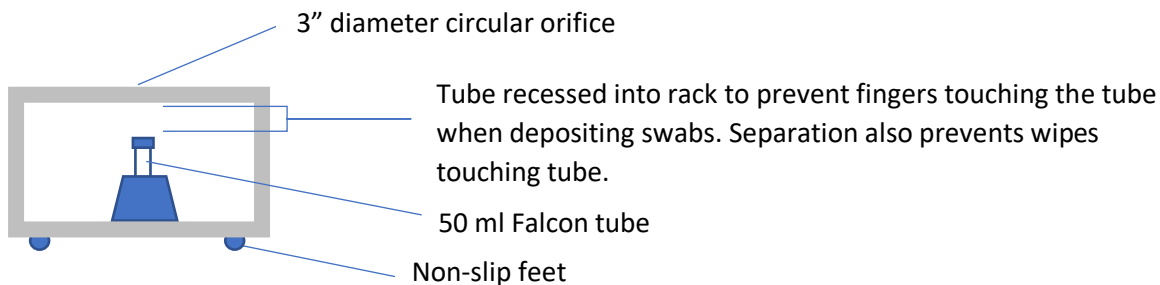
- have a sufficiently large footprint to prevent tipping
- have sufficient mass, and/or grip to prevent being knocked off a table/desk or similar surface
- be easy to lift and move by any operator
- be easy to sanitize and have no absorbent surfaces
- have no sharp edges or other hazards
- prevent contact of hands with the collection tube
- prevent contact of antimicrobial wipes (and the chemicals they contain) with the collection tube during cleaning.

### Design

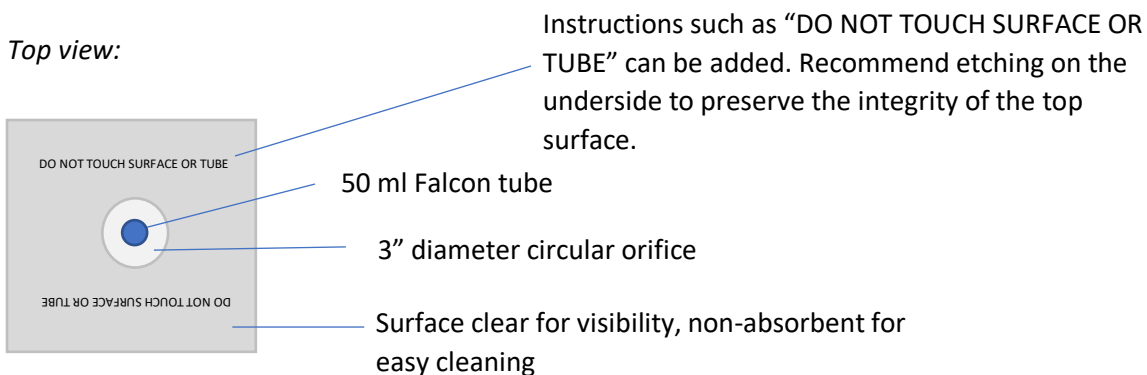
Dimensions: ~12" W x ~12" D x ~6.5" H

Material: Clear acrylic sheet (1/4 or 3/16 inch thickness). Can be made from 1 rectangular piece with 3 bends. Tube holder can be 3D printed (stl file [here](#)) or made from clear acrylic tube (~3.5" length and ~30 mm internal diameter). The latter will enable scanning of tube labels while the tube sits in the holder.

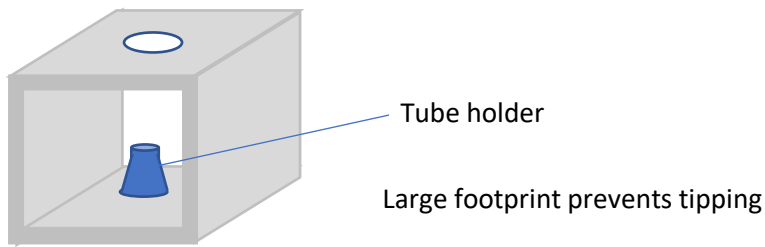
*Side view:*



*Top view:*



3D view:



### **Protocol**

- Sanitize the top surface of the rack by swabbing with an anti-microbial wipe.
- Insert Falcon tube and remove cap. Set cap down (top-side up) in the base of the rack.
- For administered swabbing; drop swabs into the tube through the top orifice in the rack taking care to not touch the tube or rack.
- For self-administered swabs; instruct subjects to drop swabs into the tube through the top orifice in the rack and to avoid touching the tube or rack. Sanitize the top surface between subjects.
- After desired number of swabs are collected (max 10), recap the tube and transfer the tube to shipping box.

### **Production**

One potential supplier for the Pooled Testing Rack is:

Altec Plastics Inc  
116 B St.  
South Boston, MA 02127  
617-269-1400  
<https://altecplastics.com/>  
Part#: PTR12126.5



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