**Irradiation by X-Ray**

Status: **Feasible and within our control**

Notes:

* Roughly 2 day irradiation time to reach sterilization dose mentioned in literature
* Several risks
	+ Equipment is owned by College of Vet Sci
		- De-risking step for this: Have reached out to the PI, who has indicated general support for this project
	+ Dosimetry to verify delivered dose?
		- De-risking step for this: confirm with dosimetry and 1-2 test runs. In final runs, may need to flip masks halfway through the irradiation
	+ Verification of efficacy of procedure?
		- (This appears to be one of the largest technical risks for the project, meaning, how do you know for sure that the irradiation has killed all viral pathogens present?)
	+ Responsibility and liability?
		- De-risking step for this: Will have to be handled by leadership/OGC/government
	+ Delivered dose greater than threshold dose for brittle transition for elastic material used in N95 straps
		- De-risking step for this: Re-attach new straps after irradiation (see [https://www.tidelandshealth.org/app/files/public/2799/sewinginstructions\_flier\_04057-1.pdf](https://nam01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.tidelandshealth.org%2Fapp%2Ffiles%2Fpublic%2F2799%2Fsewinginstructions_flier_04057-1.pdf&data=02%7C01%7Cjpb175%40PSU.EDU%7C701dd95ea7dc4f5051b008d7d181c57e%7C7cf48d453ddb4389a9c1c115526eb52e%7C0%7C1%7C637208227605127054&sdata=h6Oc93mDA8JI4KIAOItkncaG%2BmLueRQIR6LqlIuZRfo%3D&reserved=0) )
	+ Process throughput may be small – not sure how many masks can be irradiated with each batch before the bottom or middle mask receives too small of a dose
* Next steps
	+ Plan, setup, and perform test runs
	+ Workout funding, responsibility issues (investigate further)
* Yale and Memorial Sloan Kettering are also examining this
* Manufacturer is completely onboard and says this “will probably work” but cannot verify the efficacy and notes this was not the original intent of the machine

**Irradiation by Commercial Facility**

Status: **Feasible, but not within our control and may be better suited for other entities**

Notes:

* Not many commercial facilities in PA with sufficient source strengths to reach dose rates necessary for this irradiation
	+ Westinghouse facilities are likely insufficient
* Some facilities that do have needed source strengths are out of state, and are being investigated by others (i.e. Steris in NJ has been under consideration by Rutgers)

**PSU Radiation Science and Engineering Center**

Status: **Not feasible without large scale engineering efforts or new source purchases first**

Notes:

* See separate email
* Gamma Cell 220 is also a candidate, but sources have decayed too much. This would be an option if the Gamma Cell were new, but not now (dose rates too small).