Twitter Thread by Adam John Ritchie



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I was involved in getting the #oxfordvaccine @JennerInstitute manufacturing process and consortium up and running. Here is a thread of why there is an issue with doses, with some science and #sciencepolicy. The EU looks in the wrong to me.

To make the vaccine, you need to grow up a huge volume of cells, they make the vaccine, then the vaccine is purified. The manufacturing process is new. It relies on elements used before, but each new process has its own parameters.

That means each manufacturing site has to on board the exact process and get it running. Usually this takes many months, but is being done urgently for COVID.

When you book manufacturing capacity, you are booking the manufacturing slot. It might take 2 weeks to make a batch of vaccine. With a new process, you always get the same vaccine, but the yield can vary.

Maybe a good yield is a million doses per run (in reality, it depends on how big your cell culture is). But maybe the first few runs only yield 250 thousand doses.

It costs the same-it takes the same number of staff, same equipment etc regardless of how good the yield is. It also takes the same time. Projections on available doses tend to rely on best case scenarios. If each site gets maximum yield from each run, you get all those doses

It takes experience to get to maximum yields. The first manufacturing sites to join the consortium started this process almost a year ago working with us to supply the UK. They have worked through the kinks on their sites and are now producing top yields.

Sites with less experience are still getting to that stage. You can get high yields from the start, but usually you don't. This is normal, just not something that is so in the public eye.

It's like giving a brand new, very complicated recipe to a chef and asking them to make it in a new kitchen they've never seen before with new equipment. The first time everything takes a little longer.

After they've used the recipe a few times, they know when to turn the heat up, the best time to take the butter out of the fridge etc. The recipe doesn't change, but the ability to do it smoothly improves.

I've not seen the contract between AZ and Europe, but it strikes me that there is a fundamental misunderstanding of the science and manufacturing process in the public statements from the EU/EC.

No one can guarantee a yield in such a new process, only a projection on what might be achieved. Maybe they do understand that, but it's political to be making the statements they are?

The UK invested in the #oxfordvaccine and manufacturing very early on. We used that to get the process running at manufacturing partners for the UK. @AstraZeneca then took that over. If we hadn't done this, and the UK hadn't paid for it, there would be few doses today.

What we are seeing is predicable #vaccinenationalism. In my view the EU are behaving poorly, but in the interests of their people. If things were reversed I expect the UK would do similar. For the record, I'm pro-EU but unimpressed today.

#vaccinenationalism was always going to happen. Programmes for sharing the vaccine equitably are to be applauded but countries will mostly look after their own first (or look to gain soft power). It's naïve to think otherwise - we need practical solutions.

That's why we developed a process that is cheap and can be transferred to any manufacturer in the world. That way no one nation or region is making all the vaccine and holding all the cards.

It is the proudest achievement of my career that I contributed to achieving that. I'm delighted that @AstraZeneca have continued to expand that work to a huge network of manufacturing partners globally.

That our work with @SerumInstituteIndia and others back in March also means massive yields are being achieved there and will used across the globe.

This was achieved through work led by @sandyddouglas and our post-docs Carina Joe and Sofia Fedosyuk, plus @VMIC_UK and @BIA_UK. Lots of companies contributed resources and expertise to help drive this forward too.

In my view, each region has its own supply of vaccine to prevent one region trying to claim what was intended for somewhere else. It is a shame there has been yield issues in the EU supply, but why demand access to the UK supply?

It isn't a case of we're all in the same butcher shop on a first come first served basis. The UK and EU have their own butchers. The UK have paid their butcher, are leaving with their items and the EU is claiming them because their butcher didn't quite have enough.

There is a lesson in this. Manufacturing capacity is important. Countries have a choice on how they respond going forward. Having more flexible vaccine/drug manufacturing capacity so they can supply themselves is a good idea.

#vaccinenationalism disappears once we all have the ability to make vaccines. The more we rely on sharing between countries with their own interest, the harder it is to get the vaccine to everyone.

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