Twitter Thread by Nitin Arora #WearAMask

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I'm going to tag this as a little tutorial for @MichaelYeadon3 who keeps saying that there's no problem from the suppliers of medical 'gasses'

Most hospitals in the U.K. run their O2 supply from a Vacuum Insulated Evaporator (VIE)

https://t.co/Lu9ktGFSSm

1/n

This VIE is essentially a large thermos flask/ vacuum insulated cylinder at -180C
O2 is supplied from (typically) BOC in liquid form; when required, allowed to evaporate into gas, & supplied to hospital outlets.

Most hospitals have a VIE big enough to meet their needs

2/n

The problem is the pipes

Most ~12 bed ICUs have pipes that allow ~400L/min flow

This is Ok because most ventilators don't use >20l/min; giving useful buffer capacity

Modern non invasive ventilation systems- CPAP, NIV, and High flow nasal Oxygen (HFNO), however, need more
3/n

A typical patient on HFNO will have 60-80Lmin flow. If they're on 90% O2, that's 60L O2 for 1 patient

6 of these patients will come very close to triggering the O2 flow alarm for this 12 bed unit.

4/n

Aside from breaking walls and re engineering the O2 supply for the whole hospital there’s no easy way of solving this problem
5/n

The next question being asked is ‘can’t we use ‘oxygen bottles’

A typical F cylinder has 1360 litres Oxygen. And weighs 18KG.
That will last ~22 minutes for a patient on HFNO

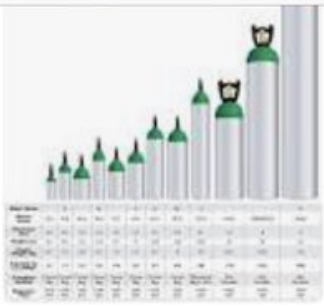
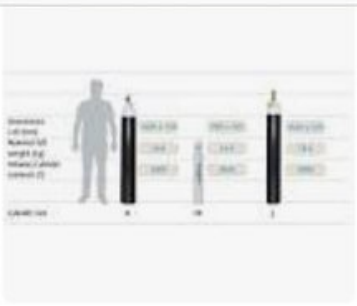
That’s 72 cylinders per patient per day.

That’s not how you can run a service.

6/n

13:17

AA oxygen cylinder sizes


Oxygen Cylinder, Medical Grade, Compressed Gas

- ZA (300 litres)
- D (340 litres)
- CD (460 litres)
- ZD (600 litres)
- E (680 litres)
- F (1360 litres)
- HX (2300 litres)
- G (3400 litres)

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Then you come to cost.

These 72 cylinders cost approx £2000. That's ~20x more than liquid O2 in a VIE.

Typical ICU tariff for a L2 patient is <£1500!

7/n

many hospitals (including mine) have had to plan around O2 supply (flow) and scatter patients- this leads to inefficiencies of dispersal if you have say 3-4 areas with 6-8 patients in them rather than one area with 30

Leads to problems with staffing and cover for safety

8/n

So what I've tried to explain is that when hospitals report they're running out of O2, the problem doesn't lie with suppliers of liquid O2. Don't ask them if there's a shortage.

The problem is infrastructure and old estate.

Please stop this misinformation.

9/n

TLDR: there isn't a problem with O2 supply from manufacturers. It's a problem with old estate and infrastructure in the hospital buildings

10/10

@iceman_ex @rupert_pearse @ShaunLintern @BBCHughPym @sbattrawden @charlot_summers @SepsisUK