Good oxygen housekeeping

Hospital level review

Increased numbers of COVID-19 admissions will increase oxygen demand in hospitals. This poses risk to oxygen supplies and potential increased fire risks.

**If demand through multiple wall outlets exceeds the maximum capacity, there is a risk of rapid drop in oxygen pipeline supply. This may risk failure or reduction in oxygen supplied to individual patients or ventilators.**

The steps below should help hospitals assess the risk of this occurring and take appropriate preventative steps. In addition, Hospitals should also separately consider the capacity of pipework to individual wards / units.

**STEP 1 (one-off actions):**DOCUMENT VIE MAXIMUM SUSTAINABLE OUTFLOW TOTAL. Ask your oxygen or medical engineering team for this information – it will not change unless major engineering work is undertaken: \_\_\_\_\_\_\_\_ litres / minute.

**STEP 2 (complete daily):**USE THE FOLLOWING GUIDE, OR LOCALLY AMENDED EQUIVALENT, TO CALCULATE YOUR HOSPITAL’S TOTAL OXYGEN DEMAND

|  |  |  |  |
| --- | --- | --- | --- |
| **Device Type** | **Number of devices (A)** | **Illustrative device consumption (l/min) (B)** | **Total flow (AxB)** |
| Face mask or nasal cannula O2 |  | 10 |  |
| High flow nasal oxygen (HFNO2) |  | 40 |  |
| High flow CPAP (wall CPAP devices, eg UCL Ventura or Pulmodyne) |  | 40 |  |
| Lower flow CPAP / NIV devices (eg NIPPV) |  | 20 |  |
| Anaesthetic machine |  | 15 |  |
| IPPV critical care ventilator |  | 15 |  |
| **TOTAL MAXIMUM POTENTIAL VIE DEMAND** |  |  |  |

Flow rates provided above are for illustrative purposes. These rates will vary depending on clinical usage and should be reviewed by Trust medical teams.

**IF THE TOTAL FLOW IS WITHIN 20% OF YOUR MAXIMUM VIE OUTFLOW, TAKE THE FOLLOWING STEPS:**

* Work with your local medical oxygen engineering team to evaluate the potential of improving the supply and flow of oxygen.
* Review flow rates being provided to patients to check that they are clinically appropriate and not delivering excessive oxygen.
* Advise all ward team leaders regarding oxygen alarms and who to contact in the event of alarm.
* Check appropriate oxygen cylinder supply is available in case of emergency.
* Contact the national ventilation procurement team via your critical care team if you would like to swap out high flow CPAP devices (eg UCL Ventura or Pulmodyne) for lower flow (eg NIPPV4).
* Discuss mutual aid and decompression of patients from your hospital to neighbouring hospitals.
* Ensure surge plans have appropriately considered oxygen availability issues, including maximum sustainable VIE outflow.

If you expect your total flow to increase, then assess your increased demand for oxygen. If it is approaching your maximum VIE outflow then take the steps outlined above in advance.

These steps help protect against Oxygen demand exceeding VIE maximum outflow – they do **not** protect against inadequate pipework issues which need to be considered separately.