BEST CLINICAL PRACTICES FOR USE OF OXYGEN CONCENTRATORS

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• Address the status quo; Biomedical technicians and engineers in fire fighting mode.
• 90% of a BMET time is spent repairing medical equipment.
• 90% of facilities do not have budgets (funds allocated) for medical equipment.
• No inventory (inaccurate inventory) of medical equipment.
• No (inconsistent) Maintenance schedules implemented for equipment; review of PPM needs not done.
Biomedical program plan:

What is practical?

- Ideal; what should a health facility strive to achieve in their biomedical plan implementation?
- What can we do with the resources available?

1. Consistent user training, user training means;
   - Training at installation, evaluation of the knowledge of users of the device, SOPs, quick user guides and continuous evaluation of the users by BMET/BME.
   - Note user training must not stop at installation. Why?
   - Can you tell the issue with equipment in Image A?
   - Know your audience; who can operate the device? Check country requirements.
   - Identify super users (train the trainers approach)
   - Target Medical CME time for user training
User training
2. Documentation

- O2 concentrator user guide (SOP for the room where concentrator is installed)
- O2 concentrator quick user guide on equipment; preinstalled at time of installation.

Hints: laminate documentation for longevity, use detachable hard copy service cards and quick user guides.

- O2 status check card – (work hours + oxygen percentage)
- User manual filed and accessible.
- Quick user videos shared with users
- Clinical guides for use of oxygen concentrator highlight recommended flows for various patients.
3. Consistent and intentional Planned preventive maintenance

- Manufacturers recommend 6 months for a BMET PPM of a concentrator.
- Practically for those working in busy facilities or departments like NICU, the concentrators accumulate to 1000 work hours in less than 2 months.
- Concentrators need to be turned off once every now and then.
- Concentrators in dusty environments should be opened and dusted using a blower at least monthly.
- PM after every 400 work hours (depends on facility and usage).
- Verify Oxygen % using an oxygen analyser at least monthly. >90% ideal. Above 87% ok. Less check filters first.
- Verify O2 flow using secondary flowmeter and pressure using pressure gauge. Some O2 analysers measure these values.
5. Disinfection

- Location of facility and type of disinfectant locally available and accessible.

- Disinfection procedures; consider disinfection methods used at the facility.

- How do you protect the equipment, patient and BMET from infection through the device?

- What alternative disinfection procedures are available?

- Disinfection guides on equipment (1/2 steps) and an infection control focus person is key.

- BMET rounds just like doctors to inspect equipment at start of the week in all departments.
4. Budgeting saves operating costs, increases equipment utilisation time

- What equipment are critical for use with Oxygen concentrators?
- Pulse oximeter is key. Donations and needs assessments should include pulse oximeters.
- For the needs assessment: Consider:
  a. Patients served (monthly number/volume and type of patients) and clinically trained personnel. The two factors above influence:
     1) Number of equipment existing and needed for the facility
     2) QTY of accessories consider number of nasal cannula/ non breathable masks
     3) QTY of spares; course filters, bacterial filters etc
     4) Items to protect equipment eg voltage stabilizers like AVS 30, appropriate top plugs
     5) Consider preplanning for spares.
Conclusion

Best clinical practices = Positive change of the status quo.

How can you be part of this change?