Redesigning an airway cart and efficient equipment checking system in Negative Pressure Resuscitation Room (NPRR) of Accident & Emergency (A&E) Department

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Introduction
During intubation in NPRR, it is not possible to gather airway equipment instantly since they are put in different places within the emergency trolley (e-trolley). Furthermore, routine checking on e-trolley in NPRR is a cumbersome work since it is time consuming.

Objectives
1. To redesign a more efficient way of putting airway equipment in NPRR
2. To create an efficient equipment checking system

Methodology
Adopted Deming cycle PDCA
Plan
1. Only pre-packed frequently used airway equipment together in order to use it instantly, but e-trolley has no extra space for them.
2. Equipment packaging with small-printing of expiry dates which is difficult to find. Printing on the packaging are all in English and delegation to supporting staffs is not possible.
Do
1. One solution is to move out e-trolley, and have all pre-packed items put into the wall-cabinet in NPRR.
2. One solution is to create an equipment list with photos, Chinese language and expiry dates for easy understanding.
Check
1. Putting into wall-cabinet is not efficient enough since it cannot be mobile like e-trolley.
2. Create an equipment list is preferred, but checking the list against small-printing on packaging is still not efficient enough.

Act

1. Now, pre-packed items are stored in a four-wheel transferable metal cart. The equipment are organized according to the sequence of intubation. That is from top to bottom, and left to right. For example, top left shelves with disposable infant, paediatric and adult ambu-bags; lower left shelves with all sizes of disposable adult and pediatric endotracheal tubes; top right shelves with disposable adult and paediatric laryngocope blades and handles; right lower shelves with other advanced airway equipment such as video-assisted laryngosope. Furthermore, all sizes of adult and peadiatric endotracheal tubes are individually packed with other complimentary airway equipment as one set.

2. An equipment checklist with photos, Chines language and expiry dates is created for delegation purpose. A color coding system is also implemented by having different color labels that represents different year of expiration, the number which has been written on the label represents month of expiration, this is an eye-catching and time saving system.

Result

This project has been introduced to nurses, supporting staffs and management in September 2017, they provide with positive feedback.

The airway cart has been setup. An efficient checking system has been developed. Periodic review will be done to enhance the cart and system on minimizing the risk during patient management journey.