Innovate Restraints by Continuous Quality Improvement Strategy

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Background:
Physical restraint was common method to prevent patient from falls, unexpected extubation, self-injury or agitation in intensive care unit. It is noteworthy care issues of how to maintain patient safety with appropriate restraint. In this case use the continuous quality improvement concept, using scientific methods and tools, develop “smile magnet hook gloves” we wish the gloves combine both convenience and safety, be a best assistive technology.

Purposes:
Restraint strap was modified by using continuously quality improvement strategies in order to promote patient’s safety.

Methods:
The concept of continuous quality improvement was used in this plan to modify “the smile magnet hook gloves”. Some items, such as gloves, the wrist restraint strap, double-opened zipper, magnet hook, and 5 belt, were used in this plan to produce one new tool.

Find a process to improve
• Zippers, fabrics and Velcro easily spoilage; hands edema can not be applied one-size gloves; two fixed rope wrist restraint belt in accordance with the appropriate length can not be easily adjusted; handling time-consuming, laborious, property damage, high.

Organize a team that know the process
• Discussioning with nurse and Head nurse, the establishment of improved group to discuss the process of improvement.

Clarify current knowledge of the process
• Smiling Glove One size,iron deformed after cleaning,Velcro sticking ability.

Understand causes of process variation
• Lack of multi-size, no distortion, reliable adhesive force of the gloves.

Select the process improvement
• Restraint strap combined with a magnetic clasp, fixed to the bed with magnet hook, big or small size of gloves, the zipper was double-open type in the fingers part, removable iron, three-dimensional cut back fingertips

Plan a change or test
• The Improvement of smile gloves

Do the change or test
• New clinical trials and manufacturing nurse satisfaction survey

Check the effects of the change or test
• The descriptive statistical analysis of mean, percentage data

Adapt or modify the change or test
• Based on satisfaction with the new version of amendments

Results:
There were six changes of the smile magnet hook gloves which commit three characters:
★ Six changes of the smile magnet hook gloves : (1) It magnet hook fixed to the bed; (2) Gloves and restraint strap synthesis as one ; (3) Gloves based on the size of patient's palm which can differentiate size ; (4) Three-dimensional cut back fingertips ; (5) Double-open type in the fingers part ; (6) The iron plate can be easily remove from the gloves.
★ Three characters 1)Safety: magnet hook was used to fasten on the bed for strengthen the restraint safety
2)Comfort: gloves and restraint strap were combined together to avoid glide from the hands.The gloves have different size to fit the patient's palm. The finger part of the gloves was constructed by 3D cutting which can fit the fingers having more space for stretching.
3)Stilling medical needs: the zipper in the finger part was double-open type,which can be easily opened and closed to check finger blood sugar and oxygen saturation.Also, the inplate can be easily removed from the gloves, which can let the gloves sterilizing properly and prolonging the using period.

Conclusions/Implications for Practice:
The smile magnet hook gloves can contribute patient’s safety and comfort. According to the data, there was significant increase in family's satisfaction from 61 points to 97 points. And, the same trend in nurse’s satisfaction was raised from 61 points to 97.5 points. The result is not only fit the medical needs, but also raise the satisfaction both of nurses and patients' family.