



臺北市立萬芳醫院 - 委託臺北醫學大學辦理

Taipei Municipal Wanfang Hospital (Managed by Taipei Medical University)

減少加護病房中儀器警報 誤報次數是否會改善護理 人員的警報疲勞？

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【Journal Club】



目錄

- 研究背景
- 搜尋文獻
- 研究結果
- 結論
- 參考文獻



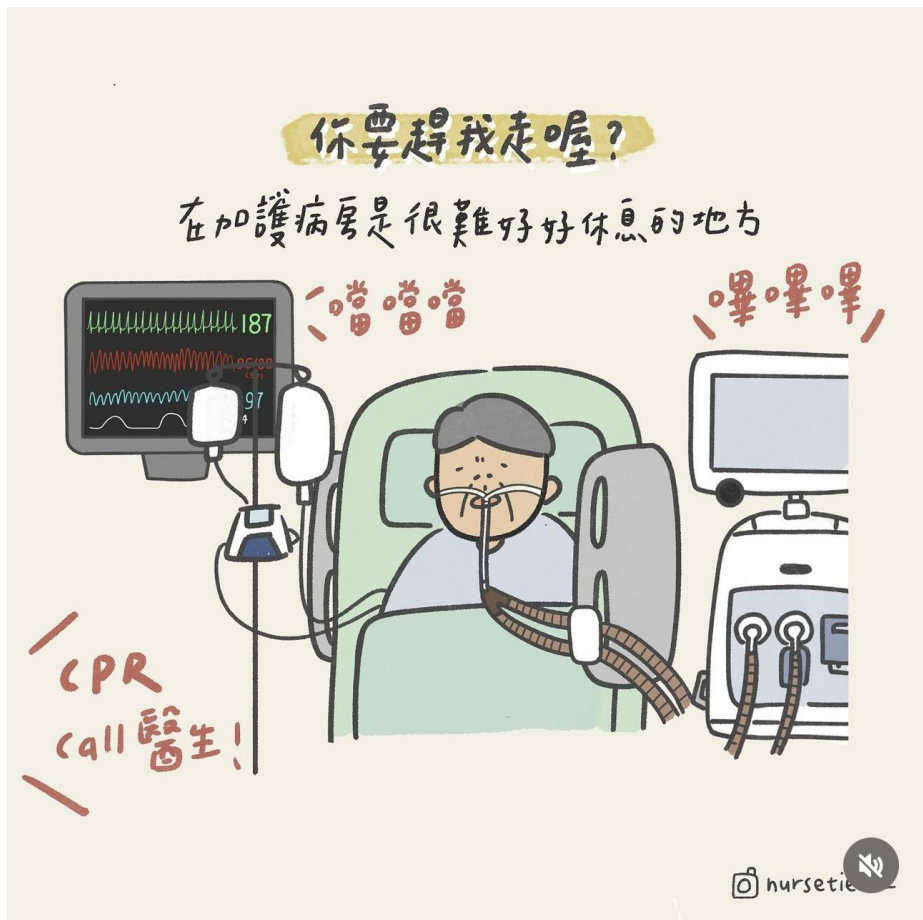


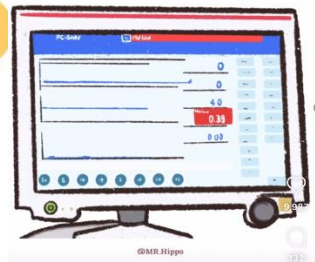
研究背景



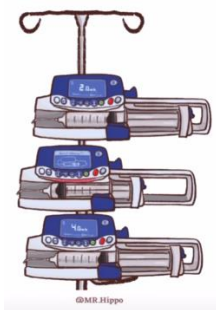
研究背景-主要問題

- 在加護病房內充斥著許多儀器設備，包含：生理監視器、呼吸器、點滴幫浦和灌食機(Feeding pump)等，當病人**生命徵象異常**或**儀器故障**時，其會透過**聲響**告知護理師。

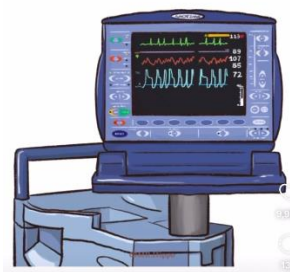




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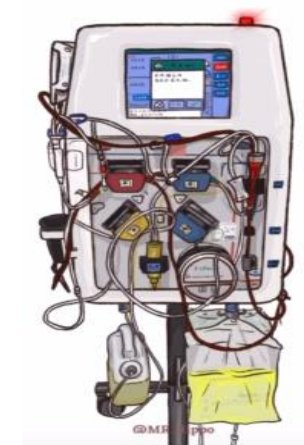
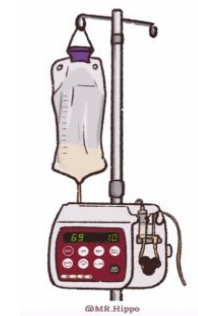
關於加護病房的聲音 大集合



關於加護病房的聲音
大集合

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@MR.HIPPO



儀器警報誤報

- 在治療過程中，當病人活動增加或進行護理行為時，會引起儀器測量誤差(如：量血壓時，SpO2 poor sensor)，進而產生儀器警報誤報，有文獻指出約有**85-99%的警報是錯誤的**或者是不具有臨床意義。



警報疲勞

- 據統計，每位重症病人每日平均產生的警報數量**高達150至400次**，導致護理師需花費35%的工作時間來處理異常警報，過多的警報不但**增加護理師的疲倦感及壓力**，也會使得護理師對於**警報的敏感度降低**，或是直接忽略警報，導致對重要警報的反應延遲或錯過，產生**警報疲乏**。

研究目的

- 當護理師發生警報疲乏時，除了會導致壓力增加亦會影響病人安全與照護品質。
- 因此本研究將以實證方式探討減少儀器警報誤報次數是否能改善護理人員的警報疲乏程度。





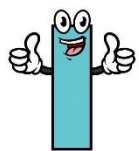
搜尋文獻



搜尋文獻



加護病房護理人員 or
Nursing staff in the intensive care unit(ICU)



減少儀器警報誤報次數 or
Reducing the frequency of false alarms in devices



未減少儀器警報誤報次數 or
No reduction in false alarms



警報疲乏 or Alarm Fatigue



搜尋文獻

資料庫

PubMed



Cochrane
Library



airiti Library
華藝線上圖書館

文獻時間

• 2019至2024年之間

研究種類

- 中、英文文獻
- 觀察性研究、隨機性研究、系統性回顧暨統合分析資料





搜尋結果



搜尋結果

作者(年份)	文章類型	儀器警報類型	介入措施	比較結果
Bi, J.,et al., (2020)	RCT (single-blind trial)	Electrocardiograph & pulse oximetry	儀器警報管理課程 施行時間為第1-4 週，訓練共6堂課， 每堂課持續30-45 分鐘，每週重複兩 次訓練。第5週至 第12週，培訓共 八堂課，每堂課持 續15分鐘。	在警報總數 下降 時 (150.91 v.s. 87.52)，比較護理 師對於警報的疲勞 程度，有顯著差異 (平均問卷分數 27.7 v.s. 20.57 , p value< 0.001)

Effects of monitor alarm management training on nurses' alarm fatigue: A randomised controlled trial

Time	Topic	Objective
Week 1	Establish a positive attitude and behaviours	To enhance nurses' awareness of alarm and acceptance of alarm management, and establish positive expectations, feelings, and attitudes.
Week 2-3	Guide subjective norms	The lecture of the senior nursing expert was designed to help nurses master the evidence-based alarm management knowledge, identify correct behavioural methods and increase subjective norms for alarm management behaviours.
Week 4	Enhance the perceived behavioural control	To know the obstacles in implementing alarm management behaviours, help nurses establish the belief of overcoming difficulties, master the methods of dealing with obstacles and improve the perceived behavioural control of alarm management.

措施著重於增加護理師對於警報管理的正面態度和知識，面對管理上遇到的障礙，幫助護理師建立克服困難的信念，並掌握障礙應對的方法，提升警報管理的認知行為。

搜尋結果

作者(年份)	文章類型	儀器警報類型	介入措施	比較結果
Li, B., et al., (2023)	Integrative review	Physiologic monitor <ul style="list-style-type: none">• SpO2 alarm• Heart rate alarm• Respiratory rate alarm• Arterial alarm	(1)Auxiliary screens-alarm notification (2)Algorithm optimization (3)Wearable device	智慧化警報管理可以有效減少警報誤報及護理師警報疲乏。

The effect of intelligent management interventions in intensive care units to reduce false alarms: An integrative review

Reference	Interventions
1	Stepwise Bundle implementation including alarm reviews, parameter/threshold adjustments, alarm customization, and notification adjustments.
2	The researchers implemented two forms of alerts to help users predict critical events: severity buckets and trends.
3	The hospital developed an alert escalation algorithm that sends high-priority alerts to nurses' alert notification pagers.
4	Nurses wearing a smartwatch-based wearable attention aid provided caring on simulated patients.
5	Introducing a technologically optimized alarm system and handheld devices for nurses, and optimizing alarm settings and workflows.

施行措施包含：(1)擬定Bundle並實施、(2)依據病人嚴重程度和趨勢，建立警報預測模式、(3)針對危急警報優先發送給護理師、(4)運用智慧型穿戴式裝置，協助護理師進行警報管理、(5)引入優化後的警報系統和改善工作流程、(6)使用IntelliVue® Alarm Advisor，進行警報客製化

... software for alarm limit violations was installed on all monitors and

... ing notification technology, establishing alarm logic, and modifying

搜尋結果(續)

作者(年份)	文章類型	儀器警報類型	介入措施	比較結果
Seifert, M. et al., (2021)	A quality improvement project	<ul style="list-style-type: none">• Physiologic monitor• Ventilator	Alarm management bundle	減少生理監測警報 誤報次數，發現未 減少護理人員的警 報疲勞程度。

Effect of bundle set interventions on physiologic alarms and alarm fatigue in an intensive care unit: A quality improvement project

Methods

Intervention

A 6-week retrospective review of the alarm data from the ICU provided a baseline for (1) alarm rates, (2) alarm types, and (3) alarm frequency. The top three problematic types of alarms that generated the highest number of alarms, as reported by the Phillips IntelliVue MX800 monitor, were arrhythmia, invasive blood pressure, and respiration. Arrhythmia alarms monitor for ventricular arrhythmia, atrial arrhythmia, asystole, pause beats, missed beats, and ST elevation. Invasive blood pressure and respiration alarms indicate blood pressure and respiration rates outside the units' current default alarm parameters.

An alarm management bundle was developed based on recommendations from the [American Association of Critical-Care Nurses \(AACN\) \(2013\) Alarm Management](#). The bundle consisted of (a) changing ECG electrodes daily, (b) properly prepping the skin for ECG electrodes with soap and water, and (c) tailoring alarm parameters to be patient-specific. These interventions have been found to reduce false alarms in previous studies ([Sendelbach et al., 2015](#); [Turmell et al., 2016](#)) and had the greatest potential to reduce alarms. At the end of the 6-week implementation period, the alarm data (rates, types, frequency) were reviewed and analysed.

- (a) 每天更換心電圖貼片
- (b) 在貼上心電圖前，使用肥皂和水清潔病人皮膚
- (c) 根據病人臨床情況自訂警報參數

搜尋結果(續)

作者(年份)	文章類型	儀器警報類型	介入措施	比較結果
Movahedi, A et al., (2023)	Qualitative research	<ul style="list-style-type: none">• Physiologic monitor• Ventilator• Syringe pump	<ul style="list-style-type: none">• Identifying the cause and taking timely actions• Personalized alarm settings• Reducing the number of unnecessary alarms	從護理人員訪談中也顯示降低儀器警報誤報次數能有效減少護理人員的警報疲乏。

研究結果

藉由文獻查證可知，為有效進行警報管理降低誤報發生率，可藉由下列措施：

- 建立護理師對於警報管理的正面態度和知識。
- 針對警報管理，可擬定Bundle計畫和施行。
- 依據病人個別性不同，制定客製化警報系統。
- 優化警報系統和改善工作流程。
- 運用智慧化穿戴設備和優先發送危急警報，使護理師可有效得知警報嚴重性。
- 運用儀器IntelliVue®，擬定客製化警報。
- 貼心電圖貼片前進行皮膚清潔，可降低警報誤報發生。





結 論



結論

多數文獻表示減少儀器警報誤報次數，可以改善護理人員警報疲乏程度，雖然僅有一篇文獻表示措施介入前後兩者之間無顯著的差異，但文獻中可知運用**多面向的管理**並**搭配智慧化裝置**，可以有效的降低儀器警報誤報次數外，亦可以減少護理人員的警報疲乏，進而保障病人安全與提升照護品質。



提 問 時 間



問題：

- 減少頻繁的錯誤警報，是否可以降低警報發生時護理師的警報疲乏？





參考資料



參考資料

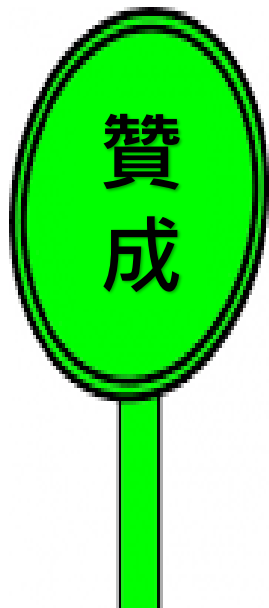
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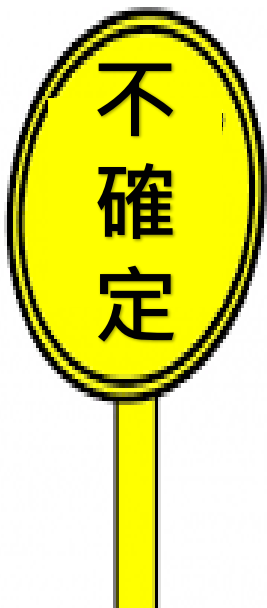
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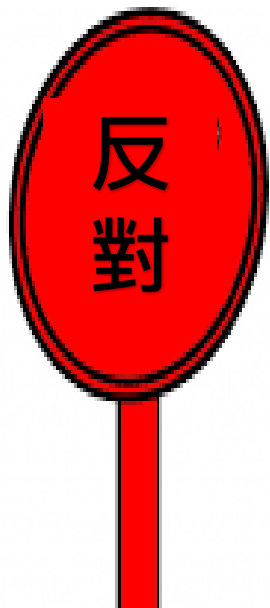
投票時間



14票



0票



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