

"Packaging" information about patient deterioration in terms of vital signs and the Early Warning Score facilitated nurses' communication with doctors

Andrews T, Waterman H. Packaging: a grounded theory of how to report physiological deterioration effectively. *J Adv Nurs* 2005;52:473–81.

Q How do nurses use vital signs and the Early Warning Score (EWS) to report physiological deterioration in patients to ensure successful referral to doctors?

DESIGN

Grounded theory.

SETTING

A surgical ward and a general medical ward in an inner city university teaching hospital in the UK.

PARTICIPANTS

30 nurses, 7 doctors, and 7 healthcare support workers.

METHODS

Participants were interviewed for 30–80 minutes with open ended questions that were modified using the process of theoretical sensitivity and theoretical sampling. Data were also collected from conversations with staff and observations of on-duty staff (3–8 h). Interviews were tape recorded, transcribed, and thematically coded. 83 conceptual categories and subcategories were generated and integrated by the process of constant comparison.

MAIN FINDINGS

Nurses ensured successful referral of patients to doctors by providing credible evidence about patients' physiological deterioration—*making credible*. This core category was conceptualised in 3 processes: *intuitive knowing*, *contextualising*, and *grabbing attention*. Nurses identified patients whose status had changed and needed medical attention by *intuitive knowing*. Patients' physiological deterioration was explained in the context of their medical diagnosis, rate of progression, and change in vital signs through a process called *contextualising*. This process enabled nurses to present credible information about deterioration in a persuasive way—*grabbing attention*—so that doctors would review a patient's condition.

Packaging deterioration was the way in which quantifiable evidence of deterioration was presented. Doctors used quantifiable evidence to judge how ill patients were and to prioritise care in terms of assessment and treatment. Vital signs provided a *convincing referral language* for nurses because they are unambiguous, concise medical terms that are understood by all hospital staff. Alternatively, nurses' use of subjective non-medical language to communicate deterioration sometimes made them seem inarticulate, prompting further clarification from doctors. The EWS quantified and packaged physiological deterioration of 5 vital signs (temperature, systolic blood pressure, heart rate, respiratory rate, and central nervous system status) in a precise and concise manner, thus providing the *ultimate packaging*. This empowered nurses and allowed them to

confidently present objective evidence to doctors, thus *making credible* their requests for referrals. In turn, it was easier for doctors to *contextualise* the information (in terms of importance of symptoms and severity of deterioration), make judgments on patients' conditions, and prioritise care, facilitating faster diagnosis and treatment.

CONCLUSION

"Packaging" information about patients' physiological deterioration in terms of vital signs and the Early Warning Score enabled nurses to effectively communicate this information to doctors.

Commentary

For positive patient outcomes in today's healthcare environment, excellent communication must occur between healthcare providers.

In the grounded theory study by Andrews and Waterman, the EWS promoted early intervention for deteriorating patients by providing an objective score based on vital signs that nurses could easily relay and doctors could easily understand. Acuity scoring systems such as the EWS are popular because they objectively communicate assessment findings, although their accuracy is dependent on sensitivity and user knowledge. However, they are not without drawbacks, such as inattention to detail, incorrect charting, calculation errors, and misinterpretation of scoring rules, all of which can result in inaccurate scores.¹ If nurses solely rely on the EWS (a tool with unclear diagnostic sensitivity) to identify patient deterioration,² it may lead to the omission of other key assessment parameters such as urine output, an early indicator of vascular compromise when subtle changes occur. Other EWS systems being implemented include indicators such as urine output in the past 4 hours, but have unknown sensitivity and specificity. Moreover, all EWSs, like all screening aids, have different predictive values as a function of the changing prevalence of critical event risks in different clinical environments. Variables such as length and quality of clinical experience among nurses, nurse–patient ratios, the nature of professional preparation and training, and the unit or organisational environment³ also need to be considered when planning ways of reducing delayed emergency intervention.

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1 Arts DG, Bosman RJ, de Jonge E, *et al*. Training in data definitions improves quality of intensive care data. *Crit Care* 2003;7:179–84.

2 Subbe CP, Davies RG, Williams E, *et al*. Effect of introducing the Modified Early Warning score on clinical outcomes, cardio-pulmonary arrests and intensive care utilisation in acute medical admissions. *Anaesthesia* 2003;58:797–82.

3 Tourangeau AE, Cranley LA, Jeffs L. Impact of nursing on hospital patient mortality: a focused review and related policy implications. *Qual Saf Health Care* 2006;15:4–8.

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