S4 Appendix: Full-text screening

Green: Fulfill inclusion, Red: Exclusion, Yellow: No information.

Abbreviations: EWS – early warning scores, ED – emergency department, MET – medical emergency team

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | **Inclusion criteria** |  |  |  | **Exclusion criteria** |  |  |  |  |
| **Title** | **Year**  **First author** | **Country** | **Identified through** | **Inclusion** | **Reason for exclusion** | **Acutely ill adult patients** | **Vital sign trends** | **Outreach to RRT, cardiac arrest, ICU-transfer or mortality** | **Readable language** | **Arrival ICU** | **< 100 patients** | **Study design** | **Only data on patients with specific condition or disease** | **No separate adult data** |
| Detecting dynamical changes in vital signs using switching Kalman filter [1] | 2017  Almeida | UK | Literature search |  | Not trend. Peer reviewed conference proceedings. |  |  |  |  |  |  | Cohort study |  |  |
| Variations in Vital Signs in the Last Days of Life in Patients With Advanced Cancer [2] | 2014  Bruera | USA | Recommended by expert |  | Patients with terminal cancer. |  |  |  |  |  |  | Cohort study |  |  |
| In-hospital mortality and morbidity of elderly medical patients can be predicted at admission by the Modified Early Warning Score: A prospective study [3] | 2009  Cei | Italy | Literature search |  | Not trend. |  |  |  |  |  |  | Cohort study |  |  |
| The impact of introducing medical emergency team system on the documentations of vital signs [4] | 2009  Chen J | Australia | Literature search |  | Not trend. |  |  |  |  |  |  | Cohort study |  |  |
| Dynamic and personalized risk forecast in step-down units: Implications for monitoring paradigms [5] | 2017  Chen L | USA | Literature search |  | Not trend.  Step-down unit patients. |  |  |  |  |  |  | Cohort study |  |  |
| Emergency department rapid response systems: The case for a standardized approach to deteriorating patients [6] | 2013 Considine | Australia  Narrative review | Literature search |  | Narrative review. |  |  |  |  |  |  | Narra-tive review. |  |  |
| The value of vital sign trends for detecting clinical deterioration on  the wards [7] | 2016  Churpek | USA | Literature search |  |  |  |  |  |  |  |  | Cohort study |  |  |
| Clinical Nurse Specialist-Driven Practice Change: Standardizing Vital Sign monitoring [8] | 2017  Derby | USA | Literature search |  | Not trend. |  |  |  |  |  |  | Cohort study |  |  |
| Correlation of the predictive ability of early warning metrics and mortality for cardiac arrest patients receiving in-hospital Advanced Cardiovascular Life Support [9] | 2016  DeVoe | USA | Literature search |  | Not trend.  Cardiac arrest patients. |  |  |  |  |  |  | Cohort study |  |  |
| Deaths within 48 hours of admission through the emergency department: Patient characteristics [10] | 2017 Eggeman | USA | Literature search |  | Abstract only. |  |  |  |  |  |  | Confer-ence abstract |  |  |
| Early detection of impending physiologic deterioration among patients who are not in intensive care: development of predictive models using data from an automated electronic medical record [11] | 2012  Escobar | USA | Literature search |  | Multiparameter risk stratification model.  Insufficient data. |  |  |  |  |  |  | Cohort study |  |  |
| Classifying Individuals Based on a Densely Captured Sequence of Vital Signs: An Example using Repeated Blood Pressure Measurements during Hemodialysis Treatment [12] | 2015  Goldstein | USA | Recommended by expert |  | Not trend. Hemodialysis patients. |  |  |  |  |  |  | Cohort study |  |  |
| Use of an admission early warning score to predict patient morbidity and mortality and treatment success [13] | 2008  Groarke | Ireland | Literature search |  | Trend in EWS. |  |  |  |  |  |  | Cohort study |  |  |
| Early identification and management of the unstable adult patient in the emergency department [14] | 2015  Hudson | Australia | Literature search |  | Not trend. |  |  |  |  |  |  | Cohort study |  |  |
| Who will be sicker in the morning? Changes in the Simple Clinical Score the day after admission and the subsequent outcomes of acutely ill unselected medical patients [15] | 2011  Kellett | Ireland | Citation tracking |  | Trend in Simple Clinical Score. |  |  |  |  |  |  | Cohort study |  |  |
| How to follow NEWS [16] | 2014  Kellett | Canada | Literature search |  | Trend in EWS. Same cohort as Kellett et al. [17] |  |  |  |  |  |  | Cohort study |  |  |
| Trends in weighted vital signs and the clinical course of 44,531 acutely ill medical patients while in hospital [17] | 2015  Kellett | Canada | Literature search |  |  |  |  |  |  |  |  | Cohort study |  |  |
| Changes and their prognostic implications in the abbreviated VitalPAC Early Warning Score (ViEWS) after admission to hospital of 18,827 surgical patients [18] | 2013  Kellett | Canada | Citation tracking |  | Trend in EWS. |  |  |  |  |  |  | Cohort study |  |  |
| Changes and their prognostic implications in the abbreviated Vitalpac™ early warning score (ViEWS) after admission to hospital of 18,853 acutely ill medical patients [19] | 2013  Kellett | Canada | Citation tracking |  | Trend in EWS. Same cohort as Kellett et al. [17] |  |  |  |  |  |  | Cohort study |  |  |
| Modified early warning score changes prior to cardiac arrest in general wards [20] | 2015 Kim | South Korea | Literature search |  | Trend in EWS in patients prior to cardiac arrest. |  |  |  |  |  |  | Cohort study |  |  |
| The association between vital signs and mortality in a retrospective cohort study of an unselected emergency department population [21] | 2016  Ljunggren | Sweden | Literature search |  | Not trend. |  |  |  |  |  |  | Cohort study |  |  |
| Medical Data Mining for Early Deterioration Warning in General Hospital Wards [22] | 2011  Mao | China | Citation tracking |  | Multiparameter risk stratification model. Insufficient data. |  |  |  |  |  |  | Cohort study |  |  |
| Outreach and Early Warning Systems (EWS) for the prevention of Intensive Care admission and death of critically ill adult patients on general hospital wards [23] | 2007  McGaughey | UK | Literature search |  | Not trend. |  |  |  |  |  |  | System-atic review |  |  |
| Trajectories of the averaged abbreviated Vitalpac early warning score (AbEWS) and clinical course of 44,531 consecutive admissions hospitalized for acute medical illness [24] | 2014  Murray | Ireland | Literature search |  | Trend in EWS. Same cohort as Kellett et al. [17] |  |  |  |  |  |  | Cohort study |  |  |
| Predicting all-cause readmissions using electronic health record data from the entire hospitalization: Model development and comparison [25] | 2016  Nguyen | USA | Literature search |  | Multiparameter model for 30-day readmission. Insufficient data. |  |  |  |  |  |  | Cohort study |  |  |
| A newly designed observation and response chart's effect upon adverse inpatient outcomes and rapid response team activity [26] | 2016  O’Connell | Australia | Literature search |  | Not trend. |  |  |  |  |  |  | Cohort study |  |  |
| Persistence of tachycardia and tachypnea are associated with mortality in normotensive emergency department patients admitted to the hospital [27] | 2015  Puskarich | USA | Literature search |  | Conference abstract of [28] |  |  |  |  |  |  | Confer-ence abstract |  |  |
| Association between persistent tachycardia and tachypnea and in-hospital mortality among non-hypotensive emergency department patients admitted to the hospital [28] | 2017  Puskarich | USA | Citation tracking |  | Normotensive ED patients. |  |  |  |  |  |  | Cohort study |  |  |
| Use of a patient information system to audit the introduction of modified early warning scoring [29] | 2005  Quarterman | UK | Citation tracking |  | Not trend. |  |  |  |  |  |  | Cohort study |  |  |
| Impact of introducing an electronic physiological surveillance system on hospital mortality [30] | 2015  Schmidt | UK | Literature search |  | Not trend. |  |  |  |  |  |  | Cohort study |  |  |
| Predictors of Second Medical Emergency Team Activation Within 24 Hours of Index Event [31] | 2017  Still | USA | Literature search |  | 24 h post MET activation |  |  |  |  |  |  | Cohort study |  |  |
| Not getting better means getting worse - Trends in Early Warning Scores suggest that there might only be a short time span to rescue those threatening to fall off a physiological cliff? [32] | 2013  Subbe | UK | Literature search |  | Editorial of [18] |  |  |  |  |  |  | Editorial |  |  |
| Early in-hospital clinical deterioration is not predicted by severity of illness, functional status, or comorbidity [33] | 2017  Wang | USA | Literature search |  | Trend in EWS. |  |  |  |  |  |  | Cohort study |  |  |
| Does adding risk-trends to survival models improve in-hospital mortality predictions? A cohort study [34] | 2011  Wong | Canada | Citation tracking |  | Not trend. |  |  |  |  |  |  | Cohort study |  |  |
| Early recognition of acutely deteriorating patients in non-intensive care units: Assessment of an innovative monitoring technology [35] | 2012  Zimlichman | USA | Literature search |  | Patients with acute respiratory condition |  |  |  |  |  |  | Cohort study |  |  |

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