

Safer and more efficient vital signs monitoring protocols to identify the deteriorating patients in the general hospital ward: an observational study

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Plain language summary

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Plain language summary

Patient recovery in hospital is tracked by measuring heart rate, blood pressure and other 'vital signs' and converting them into a score. These are 'observed' regularly by nursing staff so that deterioration can be spotted early. However, taking observations can disturb patients, and taking them too often causes extra work for staff. More frequent monitoring is recommended for higher scores, but evidence is lacking.

To work out how often patients should be monitored, we needed to know how likely it is for patients to become more unwell between observations. We analysed over 400,000 patient records from two hospitals to understand how scores change with time. We looked at three of the most serious risks for patients in hospital. These risks are dying, needing intensive care or having a cardiac arrest. We also looked at the risk that a patient's condition would deteriorate significantly before their measurements were taken again.

We identified early signs of deterioration and how changes in vital signs affected the risk of a patient's condition becoming worse. From this we calculated a maximum risk of deterioration. We then calculated different monitoring schedules that keep individual patients below this risk level. Some of those would consume less staff time than current National Health Service guidelines suggest.

We also watched staff record patients' vital signs. We learnt it takes about 5 minutes to take these measurements from each patient. This information helped us calculate how costs would change if patients' vital signs were taken more or less often.

We found that patients with a low overall score could have their vital signs monitored less often without being in danger of serious harm. This frees up nursing time so that patients with a higher score can be monitored more often. Importantly, this can be achieved without employing more staff.

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