Conditional outlier detection for clinical alerting

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Abstract. In this talk I present a new statistical outlier detection framework for detecting conditional outliers and its application to identification of unusual patient management decisions and clinical alerting. Our hypothesis is that patient-management decisions that are unusual with respect to past patients may be due to errors and that it is worthwhile to raise an alert if such a condition is encountered. The methodology was tested using data obtained from the electronic health records of 4,486 post-cardiac surgical patients and the opinion of a panel of experts. The results support that outlier-based alerting can lead to reasonably low false alert rates and that stronger outliers are correlated with higher alert rates.