

## Evaluation on the Use of a Portable Unit Versus the Laboratory for the Monitoring of International Normalized Ratio (INR) in Orally Anticoagulated Patients

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### Abstract

**Introduction:** Measuring the International Normalized Ratio (INR) through a laboratory requires venipuncture and takes about 1 hour for results to be available. A portable monitor (CoaguChek Plus System), which measures the INR using fingerstick samples, is evaluated in this study to determine its clinical significance in anticoagulated and non-anticoagulated individuals. The hospital's outpatient and inpatient laboratories were also compared in the study. **Materials and Methods:** Paired venous and capillary blood INRs were performed on anticoagulated patients using the monitor and the Singapore General Hospital (SGH) outpatient and inpatient laboratories (OPS and IPS labs). Paired INRs of control samples were also performed using the monitor and the IPS lab. **Results:** We plotted the difference in INR by the 2 methods (monitor and OPS lab,  $n = 91$ ) against their mean, and calculated the limits of agreement (95% of the difference would lie between -0.90 to 0.70). After a logarithmic transformation on the data, we found that for 95% of the cases, the OPS lab would differ from the monitor by 13% below to 14% above. There was also a marginal difference (95% limits of agreement of -0.14 to 0.10) when we compared the INR obtained from OPS and IPS laboratories ( $n = 43$ ). Our control sample ( $n = 19$ ) showed that the 95% confidence interval for the bias was -0.04 to 0.10. **Conclusion:** The monitor should be used with caution in patients with  $INR > 3$ . We suggest use of the monitor in situations where the non-anticoagulated state of a patient needs to be measured. There is a difference in INR measured by laboratories within the same institution.

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**Key words:** Anticoagulation, Fingerstick, INR, Monitoring, Portable Unit

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