

The clinical effectiveness and cost-effectiveness of point-of-care tests (CoaguChek system, INRatio2 PT/INR monitor and ProTime Microcoagulation system) for the self-monitoring of the coagulation status of people receiving long-term vitamin K antagonist therapy, compared with standard UK practice: systematic review and economic evaluation

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Plain English summary

The effectiveness of point-of-care tests for vitamin K antagonist therapy

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Plain English summary

People with clinical conditions such as atrial fibrillation (irregular heart rhythm) or heart valve disease are required to take lifelong blood-thinning drugs (warfarin or other vitamin K antagonists) known as oral anticoagulation therapy (OAT) to avoid the risks of blood clot (thromboembolism). Over- or underdosing of warfarin can result in serious side effects including bleeding or thromboembolic complications; therefore, treatment with warfarin requires frequent and regular monitoring. Self-monitoring, which is the use of a personal testing machine at home (i.e. point-of-care devices) to test the blood coagulation status (self-testing), or to test the coagulation status and manage the dose at the same time (self-management), is an option for warfarin monitoring. The use of point-of-care tests for self-monitoring may allow regular monitoring to prevent serious adverse events. This appraisal assessed the effects (clinical and economical) of self-monitoring using CoaguChek® S and XS, INRatio2® and ProTime® point-of-care devices, compared with standard clinic monitoring in people receiving long-term OAT. We found 26 trials (reported in 45 papers) in which 8763 patients receiving OAT were randomly assigned to self-monitoring or standard monitoring. Thromboembolic events were reduced in all patients performing self-monitoring. In people with artificial heart valves, self-monitoring almost halved the risk of thromboembolic events and all-cause mortality. There was greater reduction in thromboembolic events and all-cause mortality through self-management but not through self-testing. Self-monitoring with INRatio or CoaguChek XS was found to have $\approx 80\%$ chance of being cost-effective, compared with standard monitoring.

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