

M. Touleimat, D. Cirotteau, P. Lorillon, N. Borgnis Desbordes.
Brest University Hospital, Pharmacy and therapeutics committee, Brest, France.

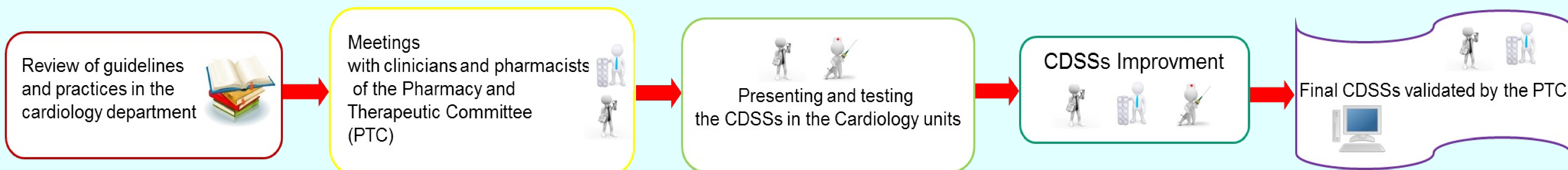
Contact: marie_touleimat@yahoo.fr

Backgrounds

Adverse drug events related to anticoagulants are common and clinically significant. Computerized physician order entry (CPOE) and clinical decision support systems (CDSSs) are widely viewed as crucial for reducing prescribing errors.

The purpose of our work is to make prescriptions safer and to promote good practises, by developing CDSSs focused on oral and injectable anticoagulants.

Materials and Methods



Results

9 CDSSs had already been validated by the Pharmacy and Therapeutics Committee (PTC) :

1. Vitamin K Antagonist (VKA),
2. Heparin sodium,
3. Heparin calcium,
4. Low Molecular Weight Heparins (LMWHs) in prophylactic treatment of deep-vein thrombosis and pulmonary embolism,
5. LMWHs in curative treatment of deep-vein thrombosis and pulmonary embolism,
6. LMWHs for acute coronary syndrome ST-segment elevation myocardial infarction,
7. LMWHs for acute coronary syndrome non-ST-segment elevation myocardial infarction,
8. LMWHs for cardiac arrhythmia,
9. Treatment of Heparin-induced thrombocytopenia.

Each CDSS provides :

- ✓ Information on the choice of a therapeutic strategy based on the indication and the clinical context.
- ✓ Usual doses and rates of administration.
- ✓ A dose calculation based on weight (heparins).
- ✓ Overrun alerts when the dose is exceeded.
- ✓ Regular laboratory tests at the recommended frequency.
- ✓ Protocols for dosage adjustments based on the biological values.
- ✓ Administration modalities for the nurses.

Since the implementation of the CDSSs on VKA, annual fluidione prescriptions have decreased by 17% and annual warfarin prescriptions have increased by 53% in accordance with the recommendation to prescribe warfarin as the first-line oral anticoagulant.

Conclusions

Development of CDSSs referred to by the CPOE system is a good way of disseminating PTC guidelines to all prescribers, pharmacists and nurses. CDSSs can assist clinicians in the management of patients requiring anticoagulant treatment by improving compliance with care standards. These CDSSs are updated following changes in guidelines and clinical practises. Other CDSS's focused on high-alert medicines will be introduced when computerized prescribing is implemented for the entire hospital.