PharmaCheck allows the screening of 20 high-risk situations in a targeted manner

PharmaCheck as a screening tool to intercept high-risk situations in internal medicine that could lead to adverse drug events

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Aim & objectives

To develop a screening tool to detect 20 high-risk situations
To assess its implementation in the routine of clinical pharmacy

Conclusion

PharmaCheck enhances clinical pharmacy service coverage
Contextualiszation of alerts by clinical pharmacist enhances their specificity

Provision of clinical pharmacy services in Geneva University Hospital

3 clinical pharmacists are involved in the Internal Medicine Division during medical rounds

Limitation of clinical pharmacist coverage

Each week medication review can only be offered for ~45/200 inpatients due to limited ressources

Electronic health records in Geneva University Hospital

Contain structured data (drug prescriptions, lab values, vital signs) and unstructured data (patient problems)

DPI-Data : hospital data lake

All electronic patient records are dumped into a data lake in real-time

Development and implementation of PharmaCheck

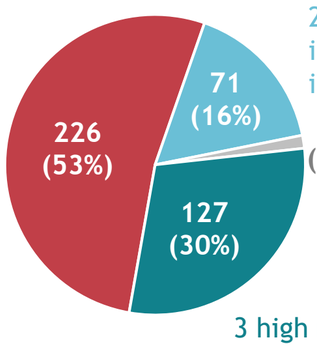
- **Development of a clinical rule-based system** linked to the hospital's data lake aggregating drug prescriptions, laboratory values, vital signs, and medical problems
- **Daily screening of 20 high-risk situations** potentially leading to adverse drug events
- **Wide covering** for all patients admitted in internal medicine Division
- **Alerts assessment and contextualization** by a clinical pharmacist
- **Treatment adjustment suggestion** to the prescriber (phonecall) if needed

7 months (february/august 2020)
5466 patients admitted

PharmaCheck screening

430 alerts, 387 patients
1.16 ± 0.46 alerts/patient

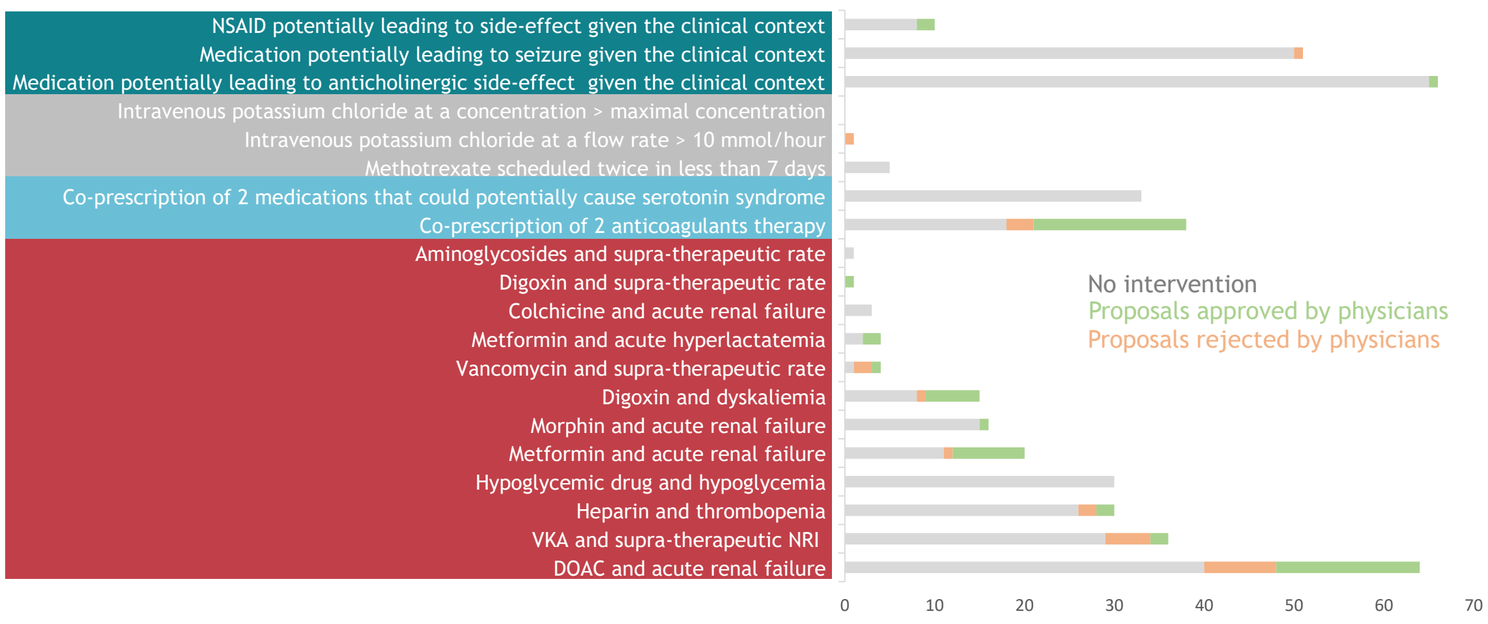
12 high risk situations involving drug prescriptions in presence of abnormal lab value



2 high risk situations involving drug-drug interaction

3 high risk situations involving inadequate administration mode

3 high risk situations involving medication contraindicated or to be used with caution amongst the clinical context



83 alerts led to a treatment adjustment suggestion (Predictive Positive Value = 19.3%)

59 treatment adjustment approved by physicians (Approval rate = 71.1%)

Absence of intervention was linked to :
- Clinical context not requiring intervention (but rather follow-up)
- Low alert specificity due to unstructured data triggering elements (poor data quality)

Proposals rejection was linked to :
- Acceptable benefit-risk balance (20 situations)
- Unknown reason (4 situations)

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