When logistics meet clinical data, anticipation replaces reaction !

DrugStock : Intelligent cockpit for real-time management of medicines shortages

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BACKROUND & IMPORTANCE

Drug shortages **have risen sharply** (+50% in 5 years in our hospital), yet existing IT systems remain **inadequate to effectively monitor and anticipate them**.

Develop a smart cockpit to anticipate and manage drug shortages, assessed through key logistical, financial, and time-based KPIs.
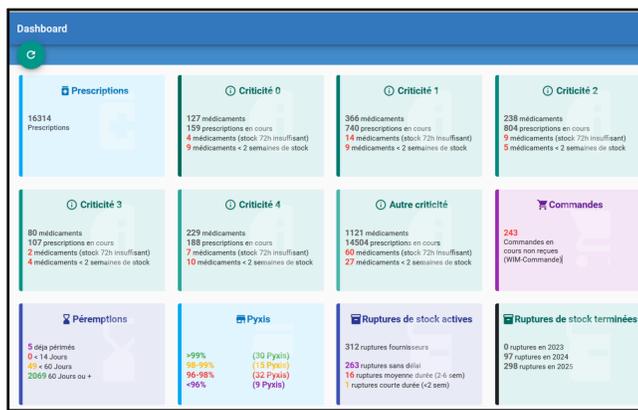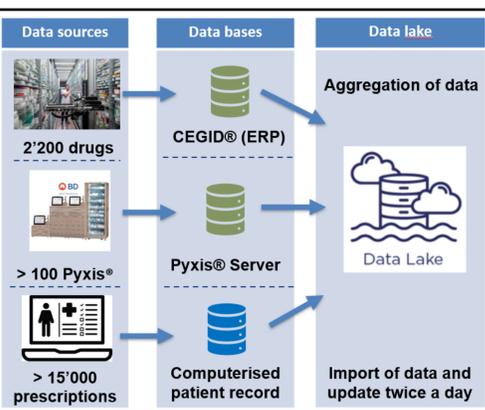
CONCLUSION

The routine integration of the cockpit has enabled a **reduction in stockout occurrences** and their associated costs. Shortages have decreased by **57%** and management time has been reduced by **25%.**

Integrating **logistical and clinical data** has proven to be an effective strategy for anticipating drug shortages.

METHODS

DrugStock is a combination of clinical data & logisticial data to predict and monitor drug shortages
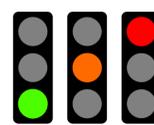

EVALUATION

A 3-month pilot study compared periods **before** and **after** implementation to evaluate the impact on **logistical, financial, and time-related indicators.**
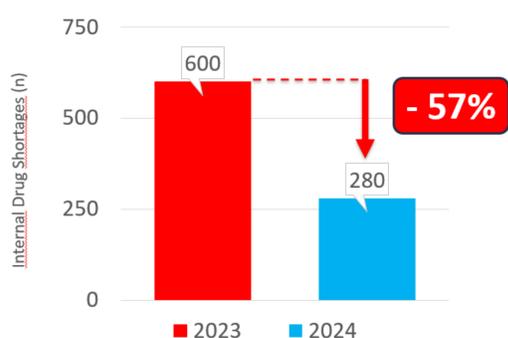
Drug shortage alerts

Alert 1: Sufficient stock for 72h of prescription ?
Alert 2 : Drugs with <2 weeks of stock at pharmacy
Alert 3 : Non-received orders from supplier >7 days
Alert 4 : Drugs that will expire in the next 14 days
Alert 5 : Overconsumption (>50%) in the last 14 days

Libellé	Nombre de Prescriptio... en cours	Qté Prescrite (EO=Equivalent emballages)	Stock suffisant pour 72h de prescription	Alternative Stricte	Conso./ HUG (unité=...	Tendance consomm...	Stock Pharmacie (unité=emb...	Semaines de couverture Pharmacie	Stock Pyxis (unité=emb...	Semaines de couverture Pyxis
Posaconazol cpr 100mg (1 x 24)	12	11 100 mg (EO=4,63)	⚠️	495839	8,83	↘	0	0	0,8	0
Posaconazol cpr 100mg (1 x 24)	12	11 100 mg (EO=4,63)	❌		15,83	↗	4	1	8,8	2
Noxafil fiol 300mg=16,7ml (pce)	1	900 mg (EO=3)	✅		65,25	→	85	5	29	1

DrugStock provides real-time alerts on medicines at risk of shortage due to demand (prescriptions), exceeding supply (available stock), or other causes (unreceived orders, overconsumption, imminent expiration), and suggests mitigation measures such as alternatives or redistribution.
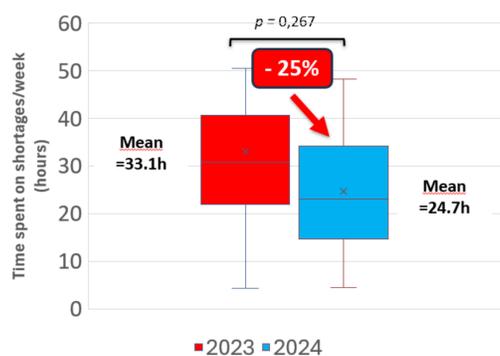
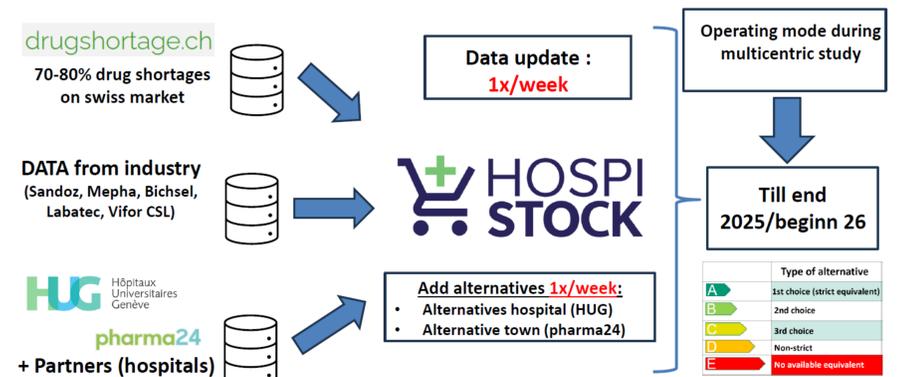## RESULTS

#1 Number of drug shortages

#2 Time spent on shortages/week

- 57 % shortages within hospital

- 25 % time spent on shortages/week

WHAT IS NEXT ?

Next steps will enhance the dashboard by adding a **supplier reliability** and **drug shortage risk index** to better anticipate and manage shortages.

DrugStock will also connect to multiple shortage data sources and a public page listing current shortages with expert-validated alternatives (https://www.hug.ch/pharmacie/tableau-ruptures). It will evolve into a **drug shortage management tool**, with an impact study planned.