

Preparing for disaster: ensuring and optimizing medicine supply to a University Hospital in the event of a major accident

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Background, relevance and aim

To respond to extraordinary accidents (short-lasting phenomenon without contamination) in a region with 1.5 million inhabitants, the hospital pharmacy of an University Hospital manages a designated stock including medicines that may be required to cope with an emergency situation.

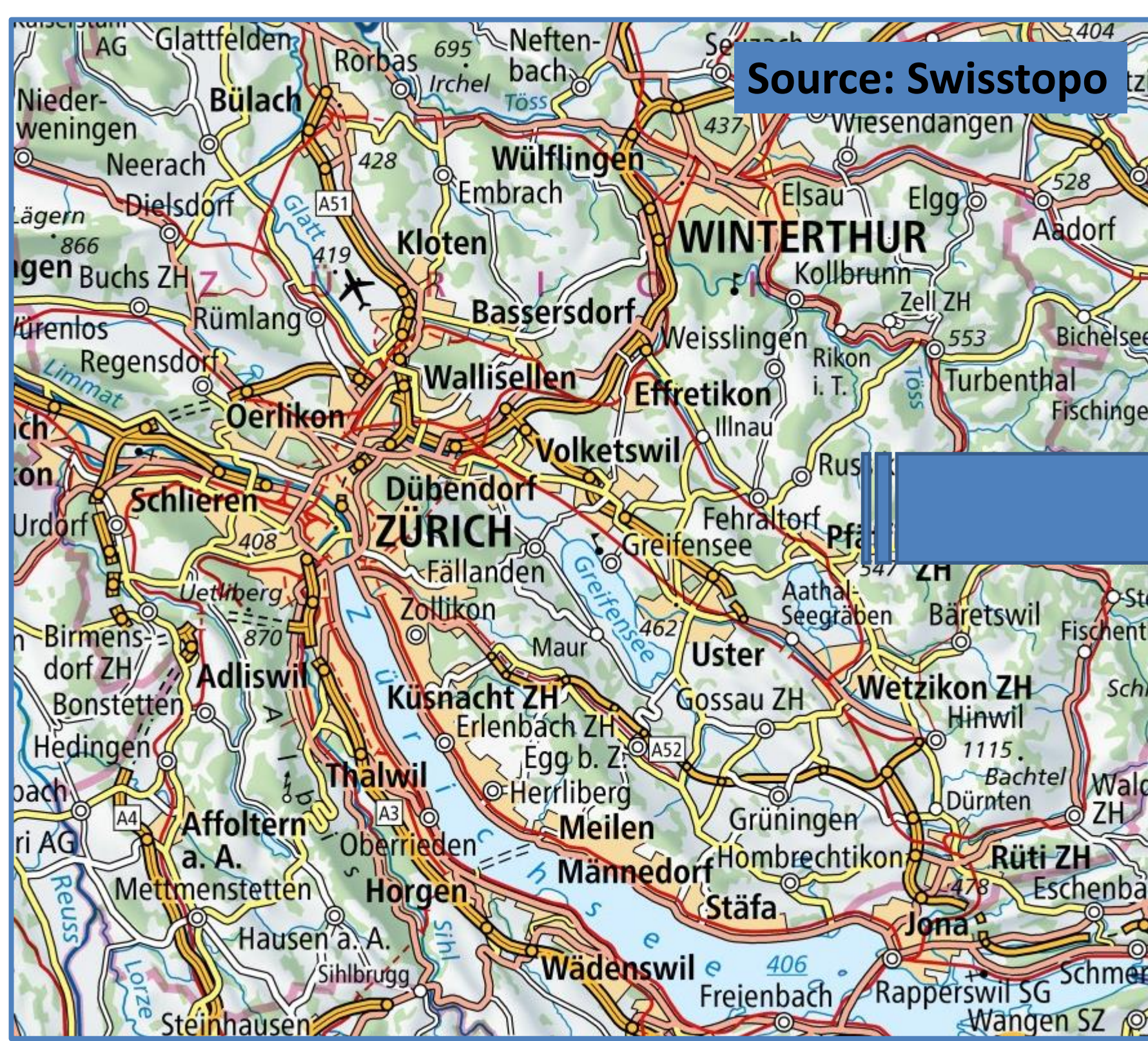
The overall project objectives were:

- optimization of medicine stock selection and related quantity
- process management optimization and cost reduction strategies

Methods

- (1) Risk-based analysis of all major scenarios relevant for the area (performed by an external specialized company)¹
→ Characterization of **major scenarios** based on possible and/or most likely occurrence in the region and concomitant definition of **types of injuries** expected
- (2) Reconciliation in a multidisciplinary team concerning a **medicine stocking strategy** by using therapeutic synergies for the different scenarios (OT, ER, ICU, anesthesiology, pharmacy)
- (3) Definition of a process aimed to **minimize expenditure**

Results



Area of 1.5 million inhabitants

Domain society

⊕ Terrorism: Conventional attack → **blunt, perforating and burn injuries**

Domain nature

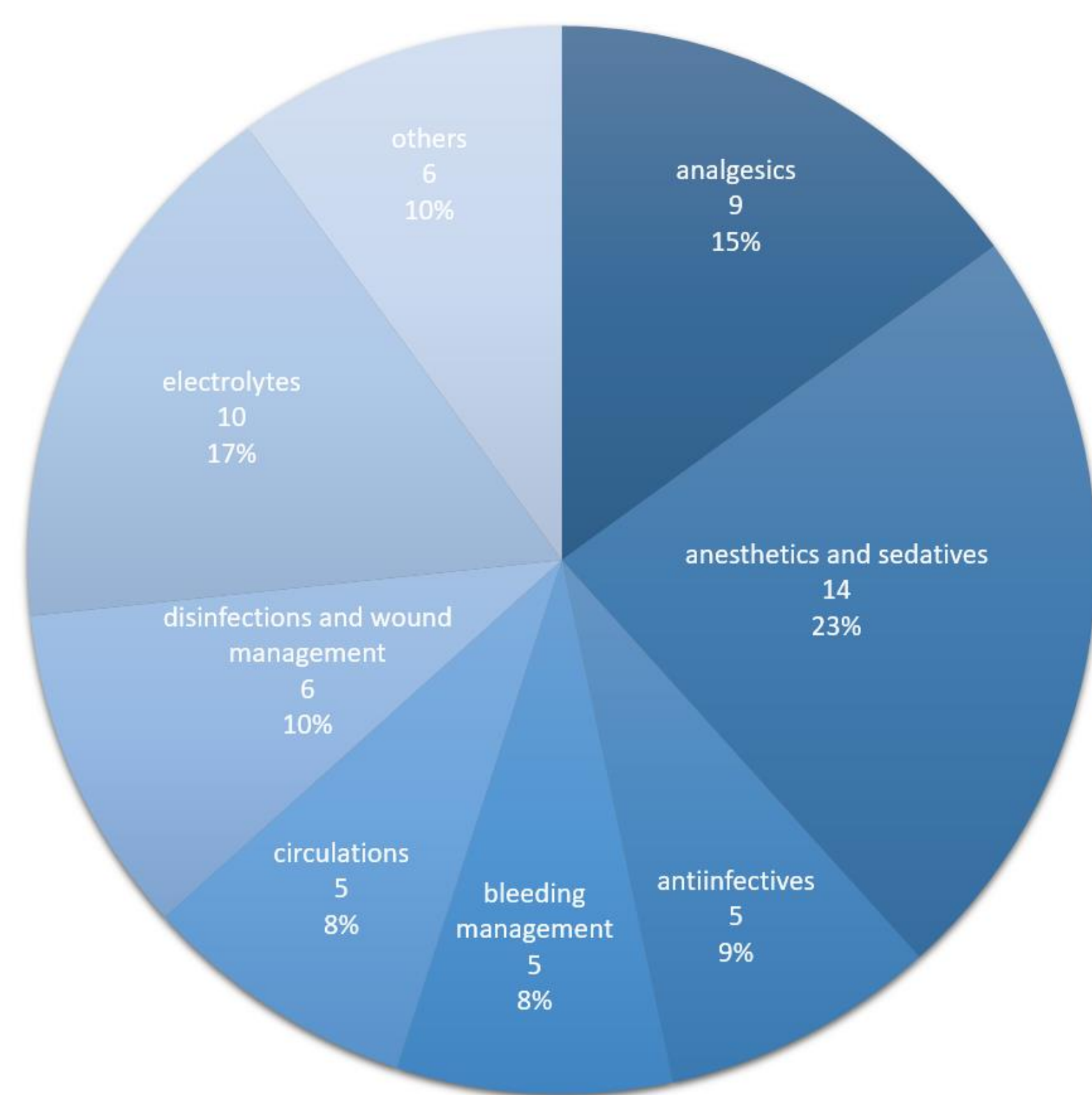
⊕ Windstorm
⊕ Inland flooding
⊕ Earthquake
} **blunt, perforating and burn injuries**

Relevant Hazards

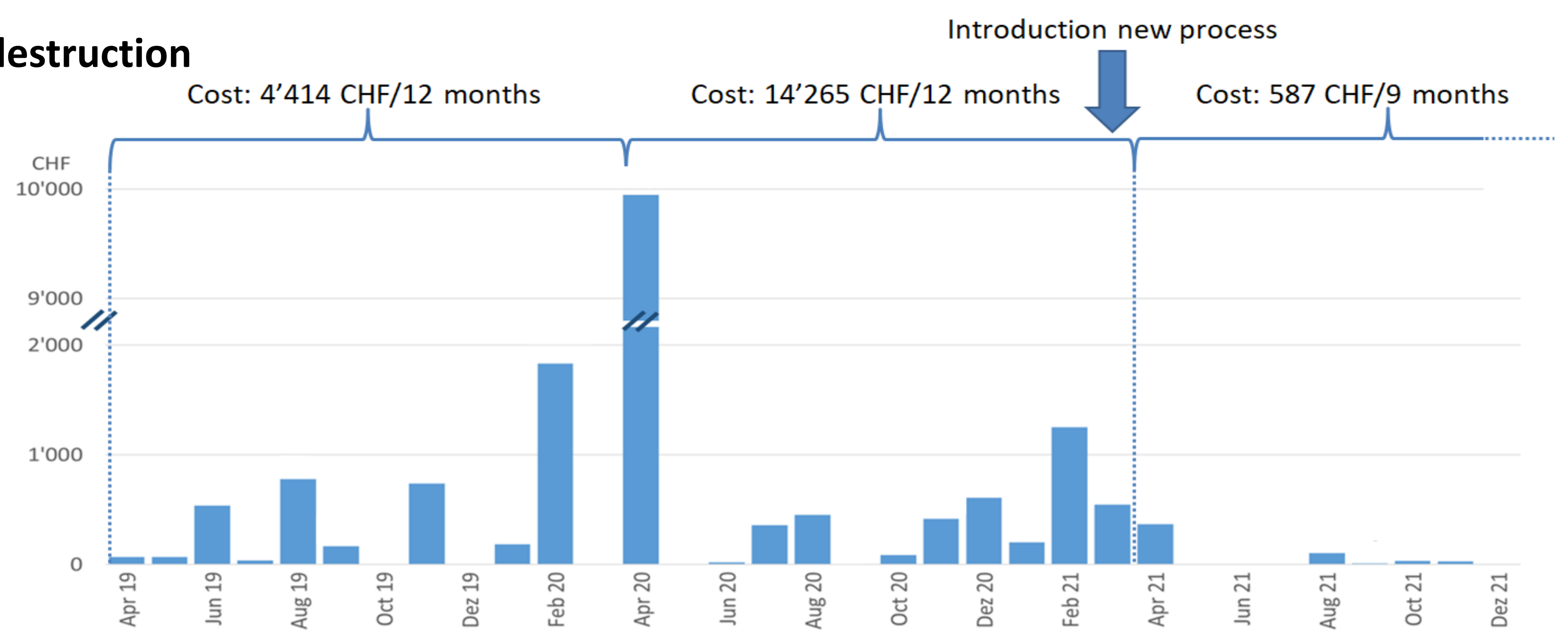
Domain technology

⊕ Airplane crash
⊕ Train accident
} **blunt, perforating and burn injuries**

- (1) Major types of injuries: **blunt, perforating and burn**
- (2) List of **60 different medicines** used for the treatment of the injuries (in collaboration with the University Hospital)
- (3) Reduction of management costs by selecting medicines which are already integrated in the main central pharmacy stock
→ Improved stock management by replacing short expiring products with such with a longer shelf-life from the main stock at least 6 months before expiration
→ **Reduction of medicine waste and destruction**



Stock selection based on essential medicine categories (quantity n; percentage of the selected medicine in comparison to the total stock quantity)



- Follow up of medicine waste expenditure (CHF) per month** over a period of 33 months:
- 03/2021: a new process was introduced whereby expired medicines were not disposed but replaced by drugs with a longer shelf-life → **annual saving ca. 4'000 – 14'000 CHF**
 - 04/2021: residual costs caused by the fact that some products at the time of implementation had an expiry date ≤6 months and therefore could not be timely replaced and were consequently destroyed

Conclusion and relevance

In case of extraordinary events in a geographically restricted area, the University Hospital might have an increased need for certain medicines. It is within the accountabilities of the hospital pharmacy to be always prepared for immediate supply of these products. This can only be achieved if the probable emergency scenarios are well understood and a response plan delineated. In order to maintain costs to a minimum, emergency stock selection and management processes should be consistently implemented.

References: ¹Ernst Basler + Partner AG. Risikomanagement Bevölkerungsschutz Kanton Zürich. Gefährdungsanalyse, Potenzialanalyse und Umsetzung. Juli 2015.

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Questions?

