



# NIKI-TAG to preserve kidney health in hospitalized children

## NIKI-TAG (Nephrotoxic Injury in Kids-TAG): screening of pediatric hospitalized patients exposed to nephrotoxic drugs and education for reducing the risk of acute kidney injury

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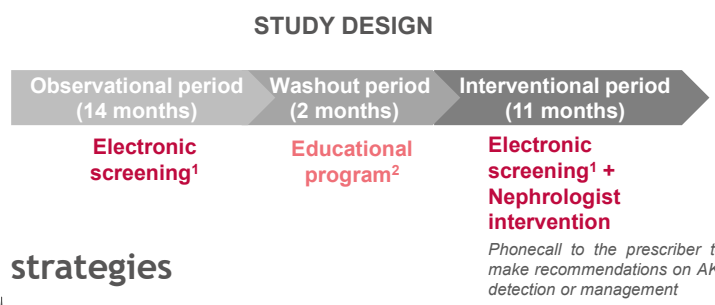
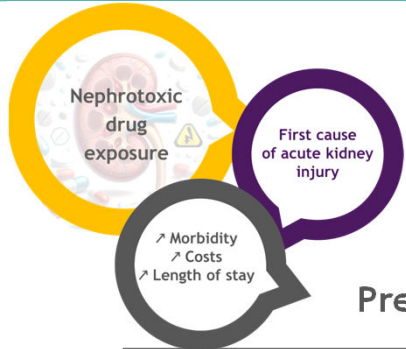
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### Objectives

To evaluate the impact of a quality improvement program including electronic screening of high-risk patients and education on reducing the risk of acute kidney injury (AKI)

### Conclusion

- A targeted intervention combining automated detection of high-risk patients and caregiver education can prevent nephrotoxic-induced AKI
- Alert management and clinical interventions are subsequently handled by clinical pharmacists



### 1 - Electronic screening of high-risk situations

Rules implemented into PharmaCheck<sup>3</sup> to screen daily pediatric patient files (0 – 18yrs) to prevent AKI episodes

- ≥ 3 days of prescription length of IV nephrotoxic drugs (Antibiotics, Antivirals, Antifungals, NSAIDs, Immunosuppressants, ACE/AT-inhibitors, Cytotoxics)
- ≥ 2 concomitant IV or PO nephrotoxic drugs prescription

**AKI definition according KDIGO guidelines**

Stage	Serum creatinine	Urine output (mL/kg/h)
1	1.5-1.9 × increase in baseline creatinine within 7 days or ≥26.5 μmol/L increase within 48 hours	<0.5 mL/kg/h for 6-12h (*or >0.5 and <1.0 mL/kg/h for 24h)
2	2.0-2.9 × increase in baseline creatinine	<0.5 for ≥12h (*or >0.3 and <0.5 mL/kg/h for 24h)
3	≥3 × increase in baseline creatinine or creatinine ≥353.6 μmol/L (*≥221 μmol/L) or initiation of renal replacement therapy or GFR <35 mL/min/1.73 m <sup>2</sup>	<0.3 mL/kg/h for ≥24h or anuria for ≥12h

### 2 - Interactive workshops and educational materials

**Workshops** (30–45 min)

- Led by a nephrologist and a pharmacist
- Targeted to physicians and nurses
- Micro-learning, cases discussion using pocket card

**Pocket card**

- AKI definition (KDIGO guidelines)
- List of nephrotoxic drugs
- High-risk situations and management

**5-minute micro-learning module**

- Created using Vyond<sup>®</sup>
- 5 main classes of nephrotoxic drugs
- Assessment of AKI severity based on KDIGO

<https://vimeo.com/685947091/d6e7f83136>

[https://www.hug.ch/pharmacie/recommandations/document/nikitag\\_carte\\_pochette](https://www.hug.ch/pharmacie/recommandations/document/nikitag_carte_pochette)

10'698 admissions  
555 alerts

Observational period	Interventional period
285 alerts in 164 patients Mean age 6.5 ± 6.2 yo	270 alerts in 183 patients Mean age 5.7 ± 5.6 yo
22.5% AKI episodes n=64	11.9% AKI episodes n=32
	PPV = 39.3%* 106 interventions 270 alerts
	46% AKI risk reduction Hazard ratio 0.54 (0.95% CI : 0.33-0.87) *adjusted for patient age, hospital ward, type of alert, presence of a risk factor for CKD, presence of CKD

\*i.e. PPV = Positive Predictive Value, proportion of alerts associated with a phone call intervention by nephrologists

- 168 participants watched the microlearning
- 39 physicians and 84 nurses participated to workshops

