Deploying an eco-conscious RO-reject recovery system in hemodialysis units in Egypt: A cost-effective water-saving strategy

ISN INTERNATIONAL SOCIETY OF NEPHROLOGY

Phase 1: baseline

- Water quality assessment at HD inlet and post-RO
- Non-clinical reuse feasibility evaluation

Phase 2: reclamation chain

- Installation of water storage tanks, basic filtration and pH control
- Plumbing for non-potable uses

Phase 3: scheduled monitoring

- Weekly pH/TDS
- Monthly coliforms
- Quarterly savings reports

RO (Reverse Osmosis)
TBRI (Theodor Bilharz Research Institute)
TDS (Total Dissolved Solids)
ROI (Return On Investment)

Water reuse

Per-patient
72,000 L/year

National
~244 million L/year

TBRI unit
~32.4 million L/year

International pilots (Australia, UK)

Mains water reduction
up to 38%

Greywater collection rate
800 L/h

ROI
≤3 years

Conclusions: RO-reject reuse in dialysis is a cost-effective, green nephrology solution that reduces freshwater consumption and wastewater generation. After treatment, the water is suitable for cleaning, laundry, toilet flushing and landscape irrigation, all without infection risk.

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