

General actions for a sustainable future of Nephrology (in brief)

Action 1: Organize the effort and aim to change the mindset

Define a responsible person and the form of a continuous improvement system.

Action 2: Status quo and where to go

Gather information, define the first steps, and transform them into projects with responsibilities and timelines.

Action 3: Medical Review

The medical review should be performed independently from ecological ideas. A systematic pre-dialysis information will help to assure the best treatment method according to the needs of each patient. Dialysis should be started when uremic symptoms warrant it (life threatening laboratory results should be avoided).

Action 4: Waste handling and reduction

Review the "Waste Process" in your center. Strictly separate non-hazardous from hazardous (potentially infected) waste.

Steps to reduce the non hazardous waste:

- Reduce single use plastic/cardboard cups (use glass)
- Omit plastic cups to provide drugs given in the center (e.g. use the blister)
- Use washable dishcloth for all the cleaning to reduce the use of wipes
- Start-up machines right on time (this reduces the amount of electricity, dialysate and waste water)

Action 5: Recycling and waste recovery

We suggest to make a plan which materials can be recycled.

Steps to increase recycling:

- Evacuate and recycle PET (Where is the PET recycling box?)
- Sorting of paper (develop a process for paper with patient information)
- Cardboard (collection at the site of unpacking?)
- Collect non contaminated plastic waste (when there is a recycle plan available)

Action 6: Energy consumption

We suggest to review the energy consumption in the center and use natural resources of energy if possible.

Potential steps towards energy conservation:

- Switching off the machine when not in use to reduce energy and water consumption.
- Be vigilant on the light in the common rooms and corridors. Lower the light intensity whenever possible. Switch off the light whenever possible in smaller rooms
- Reduce dialysate temperature (e.g. 36°Celsius are generally feasible, many centers use 35.5°Celsius).

Action 7: Water consumption

We suggest to perform a review of the water system.

- Review indications and obtained substitution volumes of HDF. Consider to use "Auto Sub" function, if your machines provide this function. In case of substitution volumes < 23L/session, consider switching to HD or HDx (additional data is necessary).
- Choose the optimal volume for bicarbonate "bottles" for each patient, depending on the duration of the dialysis, HD vs HDF, dialysate flow.
- Avoid unnecessary disinfection,



- Prescribe bag sparing/optimizing peritoneal dialysis regimes.

Action 8: Human resources

We live in times of decreasing human resources.

Help provide sustainable working conditions we suggest to:

- Listen to needs of the team members
- Empower team members to design processes (bottom up)
- Support continuous improvement processes (see lean management)
- Invest resources in better working conditions

Action 9: Sustainable leadership

We suggest that sustainability should not be viewed as an add on to regular business, but should be part of the leadership of the unit.

Action 10: Spread the information

Work cannot be separated from the private sector when it comes to sustainability.

Reduce private CO2 Emissions:

- Private transport to work (Carpooling for employees and patients? Train? Bicycle?)
- Consider online attendance in international meetings
- Traffic and traveling (rethink flying)
- Consumption of meat (reduce by 50%), consume local things according to the season
- Avoid ordering in foreign countries (see the full costs, not only the price for item)
- Invest in sustainable resources

Action 11: Dialysate flow rate

Many centers are still using a high dialysate flow up to 800ml/min. It is suggested that it should be lowered to a ratio of 1:2 (Dialysate flow : Blood flow) which is in general about 500 ml/min. And that HDF should only be used when blood flow is > 350 ml/min. In HDF a dialysate flow of 600ml/min should be used. This allows to save a lot of water and so energy.

Action 12: Machine Activation

Switch on dialysis machine with patient arrival to avoid unnecessary use of energy and dialysate. Back-up machines should only be switched-on every 72h for disinfection, in line with the supplier guidelines.

Action 13: Water preparation and heat cycles

Water preparation. Supplier should check how often heat disinfection is really necessary for the water system. Maybe 1-2 times per week is frequent enough.

This list of suggestions is based on the opinions of the members of the Working Group for Sustainable Nephrology of the Swiss Society of Nephrology. Suggestions for improvement are welcome (please send them to office@swissnephrology.ch ("Sustainable Nephrology").

