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Exploiting the Secondary Raw Material Potential in Hospital Waste.

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The demographic change and an increasingly better health care for EU citizens, associated with increasing average age, are a financial challenge for hospitals. In order to reduce the economic pressure, more and more hospitals are about to join together in big networks and combine their services and changing process flows. One approach of hospitals to cut costs while ensuring a constantly high quality of patient treatment and reduce risks of infections being spread is to switch from reusable to disposable materials on the wards and the functional areas. This transition eventually leads to a growth of waste that must be disposed or taken care of in another way, because sticking to the waste hierarchy and focusing on prevention, minimisation and reuse is no preferred option in the sensitive areas of medical care.

Therefore, a more radical approach is necessary: Redesigning value and supply chains for and around hospitals with the target to establish a systemic approach to eco-innovation: Realising the circular economy in the healthcare sector means a) to design products in a more sustainable way and b) recycle waste better than this is currently undertaken and thus create a more efficient way to interact with natural resources in this industry. To achieve the goal of establishing a circular economy within the medical sector, three different design dimensions, in which concrete goals should be achieved, will have to be addressed by the actors involved in this industry:

1. Secondary raw materials: Technological innovations have to be developed, including specific processing and sorting technologies to obtain marketable secondary raw materials with defined and consistent quality out of the waste streams from hospitals. The challenges of separating waste fractions and sanitation of waste have to be addressed.
2. Products: Through specific product design approaches, disposable medical products are re-designed to become more sustainable products, meaning they have to rely on secondary raw materials for their production (or packaging) as well as be designed in a way that helps to easily separate different materials from each other.
3. Processes: By integrating the waste management processes into the hospitals' daily routine it must be guaranteed that no additional costs occur and the high quality of care can be further increased due to less additional tasks.

Only an approach that covers not only the output perspective of waste treatment and recycling, but also the input perspective and sustainable design of medical products, will enable a systemic change of supply chains and help closing the loop. Engaging all actors involved in the chain will be the key to alter the supply chain networks within the industry.

The approaches described have to be mirrored in hospitals' procurement policies. Ecological aspects such as resource efficiency and sustainability of medical products used in hospitals must become an equally important criterion for procurers.