

## Graduation Opportunity (IPD)

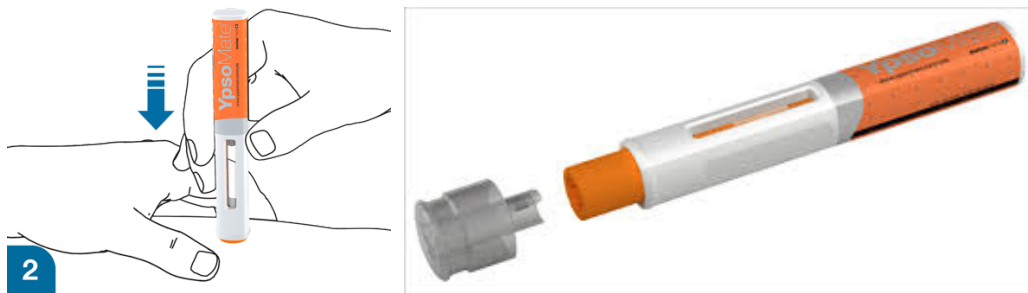
### Circular Economy – Medical Device Design for Disassembly of an Auto-Injector

Alliance to Zero



Auto-injectors (See figures below) are increasingly used to provide medications to patients at home by themselves. After a single use, these sophisticated medical devices are disposed of. The Alliance to Zero and TU Delft are actively exploring how such a device can become more circular by refilling, reusing parts, or recycling. We have explored so far two scenarios: Refilling and recycling. In both cases easy disassembly of the auto-injector is crucial. Consequently, we are looking for an IPD graduation student to look after disassembly opportunities for auto-injectors. The student will look after both new disassembly technologies as well as how to redesign the auto-injector to ease disassembly. The TU Delft has developed disassembly mapping tools which can facilitate this process. Some starting questions for the project could be:

- How easy or difficult is the disassembly of the current auto-injectors? Using TU Delft mapping tool.
- What are trends in disassembly?
- How could the auto-injectors design be improved for ease of disassembly?
- Which parts need to be recycled and which parts can be re-used?
- And more...



*Auto-injectors*

The Alliance to Zero (<https://alliancetozero.com>) is a consortium of industry partners that represent the supply chain of auto-injectors that aims to facilitate the transition of the pharma sector to compliance with net-zero emissions.

If you are interested in this graduation project, please contact Jan Carel Diehl ([j.c.diehl@tudelft.nl](mailto:j.c.diehl@tudelft.nl)) – [www.sustainablehospital.org](http://www.sustainablehospital.org)

