Carbon nanotubes X-Ray systems for Medical Sterilization
1 500 000 000
2040: 19% OF POPULATION

1 025 000 000
2025: 17% OF POPULATION

620 000 000
2012: 12% OF POPULATION
2015: 70 Billion CHF
2016: 72.5 Billion CHF
Increase: +3.5%
Raised price of life saving pill from 13.5$ to 700$
- higher longevity
- lower manufacturing costs
- miniaturisation without loss of power
NANO-RX

- energy from 10 to 100keV
- current density up to 3A/cm²
X-RAYS APPLICATIONS

IMAGING

SECURITY

INSPECTION
Medical devices sterilization is the key to reduce patient infection.
<table>
<thead>
<tr>
<th>Methods</th>
<th>Pros</th>
<th>Cons</th>
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<tbody>
<tr>
<td>Autoclave</td>
<td>■ Fast</td>
<td>■ Incompatibility with thermo-sensitive polymers</td>
</tr>
<tr>
<td></td>
<td>■ No toxic residues</td>
<td></td>
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<tr>
<td>EtO</td>
<td>■ High compatibility</td>
<td>■ Toxic residues</td>
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<tr>
<td></td>
<td></td>
<td>■ Slow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ Surface sterilization only</td>
</tr>
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<td></td>
<td></td>
<td>■ Third party sterilization only</td>
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<tr>
<td>H2O2</td>
<td>■ High compatibility</td>
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<td></td>
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<tr>
<td>Gamma rays</td>
<td>■ High penetration</td>
<td>■ Radioactivity</td>
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X-RAY STERILIZATION

Pros:
- high penetration
- fast
- clean-sustainable
X-RAY STERILIZATION

Pros:
- high penetration
- fast
- clean-sustainable

Cons:
- costs
- size of infrastructures
Third party sterilization

Takes 2 weeks or more/batch and cost an average 180kCHF/year
On site sterilization

Reduction of costs and delay, better control of sterilization process
The RX-1 sterilization system

- The RX-1 sterilization system is a device designed for sterilizing various items. It is a part of the nXRs system.
- The system includes a sterilization chamber that is armored for protection and an X-ray source for sterilization.
- The dimensions of the chamber are 180 cm in height and 50 cm in width.
- The system is equipped with a control screen for monitoring and a source of energy for the sterilization process.

The RX-1 sterilization system is a high-tech solution for effective and efficient sterilization.
MODELISATION

PVC, 100keV, 50mA, 30min

Dose (kGy)
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