***SUPPLEMENTARY TABLE 1**: Characteristics of the studies included (n = 17)*

| Author, year of publication | Country of study, care service targeted by the contribution, type of team carrying out the study | Research question(s)/objective(s) | Pillar of SD studied | | | Measured results | | |
|---|---|---|---|---|---|---|---|---|
| | | | Economic | Environment | Social | Environmental impact | Economic impact | Other results |
| Rouvière *et al.*, 2022 [9] | France<br>OR/hospital pharmacy/Sterile Processing Department<br>Mixed multidisciplinary team | Evaluate the ecological and economic impact of implementing sustainable actions in the operating room and sterile processing department. | X | X | | Annual savings of<br>- 203 tonnes of CO2e<br>- 707 tonnes of 1.4 DCB (environmental toxicity)<br>- 156 tonnes of 1.4 DCB (human toxicity)<br>- 1071 m2 year eq culture (land use)<br>- 610 kg eq Cu (mineral resources)<br>- 9 tonnes eq Oil (fossil resources)<br>551 m3 (water consumption) | Annual gain:<br>- 5188 € TTC | / |
| Giraud *et al.*, 2022 [10] | France<br>Hospital pharmacy<br>Pharmaceutical team | What is the progress in the level of commitment to sustainability among healthcare product suppliers?<br>What are the degrees of 'applicability' and importance of these sustainability initiatives as perceived by healthcare product buyers? | | X | | / | / | 90% of suppliers declare themselves committed to a significant or very significant degree.<br>40% of the criteria are integrated into the overall rating by at least one of the buyers. |
| Singleton *et al.*, 2022 [11] | England<br>Hospital pharmacy<br>Pharmaceutical team | Assess the involvement of hospital pharmacists in the carbon emissions reduction policy of the National Health Service (NHS) | | X | | / | / | Obstacles to the inclusion of SD items in the healthcare product supply chain:<br>Government support<br>Lack of professional training<br>Absence of clinical practice guidelines<br>Budget constraints<br>Lack of environmental knowledge. |
| Mouarbes *et al.*, 2022 [12] | France<br>OR<br>Multidisciplinary medical team | Assess the three pillars of SD following the implementation of custom pack usage in the operating room. | X | X | X | The custom pack does not significantly reduce the amount of waste:<br>- 10/intervention (213g/intervention) vs | Cost of all instruments used per operation:<br>- 58€ | Social Impact:<br>Time savings at various stages.<br>Significant reduction in the number of movements |

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| | | | | | | 36/intervention (221g/intervention) | Cost of a custom pack:<br>- 106€ | performed by nurses (opening equipment, waste sorting)." |
| Leraut *et al*., 2022<br><br>[13] | France<br><br>Hospital pharmacy<br><br>Pharmaceutical team | Take stock of national inhaler consumption as well as carbon footprint data for the main inhalers dispensed in France in both community and healthcare settings. | | X | | Carbon footprint of pressurised metered-dose aerosols:<br>- 11 to 28kgCO2e/can<br><br>Carbon footprint of dry powder inhalers/mist inhalers:<br>- 1kgCO2e/box<br><br>Inhalers containing salbutamol have the highest carbon impact:<br>- 310 ktCO2e in 2019 (city and HFs data) | / | Number of specialities by type of device marketed in France (2019):<br>- 78 (68 %) dry powder inhalers<br><br>- 34 (30 %) pressurised metered-dose aerosol specialities<br><br>- 3 (2 %) mist inhaler type specialities |
| Mohammed *et al*., 2021 [14] | Ethiopia<br><br>Hospital pharmacy<br><br>Pharmaceutical team | What is the amount of healthcare product wastage in HFs?<br>How is healthcare product waste managed in these HFs? | X | | | / | Average annual wastage rate:<br>- US$159,763 (4%) | Most wasted pharmaceutical class:<br>- Anti-infectives (23%).<br>Most wasted pharmaceutical form:<br>- Tablets (21%)<br>- Injectables (16%).<br>Most wasted healthcare products in terms of value:<br>- Medium-sized examination gloves<br>- Clarithromycin 500mg (tablets)<br>- Chloramphenicol 250mg (capsules)<br>Primary reason for wastage:<br>- Expiry (92%)<br>Most common method of healthcare product disposal:<br>- Open-air incineration (64%). |

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| Barbariol *et al.*, 2021<br><br>[15] | Italy<br><br>OR/care service<br><br>Multidisciplinary medical team | Assess the wastage of medications in operating rooms and intensive care units and calculate its economic impact. | X | X | | Total annual wastage rate:<br>- from 36% to 40%<br><br>Annual mass of avoidable medical waste:<br>- 4698 kg | Cost of annual waste:<br>- 78 060€<br><br>Annual cost of disposing of avoidable waste:<br>- 10 000€ | Medicines responsible for the cost of waste (54%):<br>- epinephrine<br>- atropine<br>- ephedrine<br><br>Annual time spent reconstituting unused medication:<br>- 1512 hours. |
| Gidey *et al.*, 2020<br><br>[16] | Ethiopia<br><br>Hospital pharmacy<br><br>Pharmaceutical team | Assess the knowledge and practices of medication disposal by patients picking up their treatments at the Hospital pharmacy Unit (Hospital pharmacy). | | X | | / | / | Among the people surveyed:<br>- 52% were not familiar with pharmaceutical waste.<br>- 61% did not receive any information on how to dispose of medications. |
| Alhomoud, 2020<br>[17] | Saudi Arabia<br><br>Hospital pharmacy<br><br>Pharmaceutical team | Identify waste reduction and medication wastage minimization efforts carried out by pharmacists in the Gulf countries and evaluate their feasibility and implementation. | | X | | / | / | Identification of 21 actions categorized by the medication pathway:<br>1- Prescription Stage<br>4/6 responding countries provide advice to prescribers on the quantities to be prescribed.<br><br>2- Dispensation Stage<br>In 4/6 responding countries, pharmacists adjust the quantities of prescribed medications.<br>2/6 countries schedule patients on the same day to optimize the preparation of intravenous medications. |

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| | | | | | | | | 3- Remaining Stages<br>- None of the responding countries re-dispense returned medications from healthcare services. The activities at each stage are considered to be important or very important and feasible or very feasible for waste reduction. |
| Tsang *et al.*, 2019<br>[18] | United states<br>OR<br>Multidisciplinary medical team | Optimize the circuit of refrigerated anaesthetic medications in the OR to minimize wastage. | X | X | | The quantity of drugs wasted decreased significantly for each speciality, with the exception of *nitro-glycerine* vials (standard deviation pre- *vs.* post-intervention: 2.5 *vs.* 2.1 with p=0.559). | Significant reduction in the weekly cost of wasting medicines:<br>- US$1,188.59 vs US$322.96 ($P < 0.001$) | / |
| Lin *et al.*, 2018<br>[19] | United States<br>Hospital pharmacy<br>Pharmaceutical team | Evaluate the impact on waste production of:<br>-Increasing the use of pre-reconstituted intravenous (IV) medications (e.g., multi-compartment bags and frozen solutions).<br>- Increasing the frequency of intravenous pharmaceutical compounding. | X | X | | Increased use of reconstituted medicines:<br>- 698 discarded doses/month avoided (equivalent to 67L/month)<br>Increased production frequency:<br>- reduction in the number of doses wasted by 394 doses/month (equivalent to 78L/month) | Increased use of reconstituted medication:<br>- significant savings of $11,581/month<br>Increased production frequency:<br>- insignificant savings of $3,431 | / |
| Bekker *et al.*, 2018<br>[20] | Netherlands<br>Hospital pharmacy<br>Pharmaceutical team | Identify actions taken by pharmacists in developed countries to reduce drug wastage.<br>Evaluate the implementation of these actions, their importance and their feasibility | | X | | / | / | Questionnaire completed by 89 pharmacists (dispensing and hospital) in 22 developed countries.<br>Fourteen actions identified and classified according to the medication circuit:<br>1- Prescription stage<br>- 68% of responding countries carry out medication reviews. |

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| | | | | | | | | 2- Dispensing stage<br>- 95% of responding countries limit the quantity of medicines in stock.<br><br>3- Remaining stages<br>- 77% of responding countries recover unused medicines.<br>- 18% of responding countries donate unused medicines to associations.<br>- No responding country dispenses medicines returned from healthcare services. |
| Abbasi *et al*., 2017<br><br>[21] | United States<br><br>Hospital pharmacy<br><br>Multidisciplinary medical team | Measure the impact on wastage of increasing the frequency of sterile preparation batch production. | X | X | | Reduction in the number of sterile preparations discarded in one week:<br>- 97 doses (2.2%) *vs.* 83 doses (1.8%) | Reduction in the total cost of wasted preparations in one week:<br>- $4,585 vs. $4,454. | / |
| Furukawa *et al*., 2016<br><br>[22] | Brazil<br><br>Hospital pharmacy/care unit<br><br>Multidisciplinary medical team | Analyse environmental actions implemented concerning the healthcare products (HP) circuit. | | X | | Within the pharmacy:<br>- 75% reduction in chemical, infectious and sharp waste.<br>- 33% increase in common recyclable waste.<br>- 20% increase in common non-recyclable waste.<br><br>In the medical-surgical unit:<br>- 23% reduction in chemical, infectious and sharp waste.<br>- 23% increase in common recyclable waste.<br>- 20% increase in common non-recyclable waste. | / | Implementation of 8 actions to improve the HP circuit. |
| Al-Shareef *et al*., 2016<br><br>[23] | Saudi Arabia<br><br>Hospital pharmacy/care unit<br><br>Pharmaceutical team | Evaluate patients' behaviour regarding the disposal of expired and unused medications.<br><br>Identify the most relevant methods for educating patients on proper healthcare product disposal practices. | | X | | / | / | Most common method of elimination:<br>- household waste (79%) - returned to pharmacies (2%)<br><br>The most common therapeutic groups in the homes are:<br>- cold, cough and flu medicines (18%). |

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| | | | | | | | | - vitamins and food supplements (18%)<br>- antibiotics (17%)<br><br>Preferred methods for teaching good disposal practices:<br>- social networks (17%)<br>- mobile applications (14%)<br>- hospital pharmacists (14%) |
| Mosquera *et al.*, 2014<br><br>[24] | Spain<br><br>Care unit<br><br>Multidisciplinary medical team | Evaluate the impact of waste management training in various departments of a university hospital centre. | X | X | | Within the hospital pharmacy, a non-significant decrease in the weight of waste was observed in the following categories:<br>- Infectious waste (45 kg/month *vs.* 42 kg/month)<br>- Genotoxic and pharmaceutical waste (610 kg/month *vs.* 423 kg/month)<br>- Chemical waste (23 kg/month *vs.* 15 kg/month) | Annual savings from reducing the weight of waste:<br>- 125 205 € (26%) | Optimization of disposal pathways:<br><br>- Dialysis filters that were initially discarded with infectious/biological waste are now disposed of as household waste (with the exception of filters with a risk of HIV, hepatitis B, and C). |
| Toerper *et al.*, 2014<br><br>[25] | United States<br><br>Hospital pharmacy/Care unit<br><br>Pharmaceutical team | Using an algorithm to determine the optimum frequency, timing and preparation time for paediatric pharmaceutical compounding. | X | X | | Increase in production frequency from 1 batch to 3 batches per day:<br>- 31% reduction in annual waste | Increase in production frequency from 1 batch to 3 batches per day:<br>- Net annual savings of $97,970 | Frequency of preparation:<br>- Reduction in the number of dispensed doses wasted from 2 batches/day onwards<br><br>Preparation time:<br>- Minimisation of waste when batches are prepared outside the times when doctors are on duty, and as close as possible to the times when medicines are administered.<br><br>Preparation time:<br>- Reduce waste by cutting preparation time. |

OR: Operating Room