PHARMACY STAFF PERSPECTIVES ON ERGONOMIC CHALLENGES AND THE ROLE OF AUTOMATION IN ASEPTIC COMPOUNDING

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Background and Importance

Manual compounding of aseptic preparations in hospital pharmacies may involve repetitive movements and physical workloads that may affect staff health. Despite technological advancements, many preparations are still performed manually, highlighting the need to identify ergonomic risks and assess staff perceptions related to this activity.

Aim and Objectives

To collect feedback from pharmacy staff regarding ergonomic challenges, health concerns, and perceptions of automation in aseptic compounding.

Materials and Methods

A cross-sectional survey was conducted among KIRO-Oncology© and Kiro-Isolator© users.
The questionnaire collected demographic data (age, gender), occupational information (professional category, time dedicated to manual compounding), and self-reported physical health aspects related to work. Additional compounding-related variables included syringe size, final container type, and medicines considered difficult to compound manually or preferred for robotic preparation.

Results

We received 37 responses from hospital pharmacy professionals, all of them used to combine manual and automated compounding with KIRO-Oncology© or Kiro-Isolator© robots across six countries: Spain (15), France (11), Latvia (5), Finland (3), Ireland (2) and Poland (1).

Demographic data:

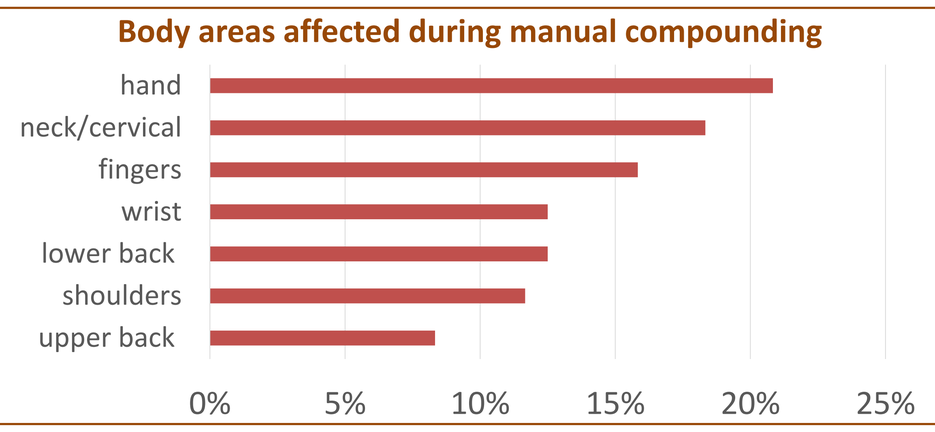
- Age distribution of respondents: 39.3% aged 18–30, 46.4% aged 31–41, 3.6% aged 41–50, and 10.7% aged 51–60
- 78.4% were women

Occupational information:

- 65% were pharmacy technicians, 27% pharmacists and 8% nurses
- 73% spent over half of their working time on manual compounding

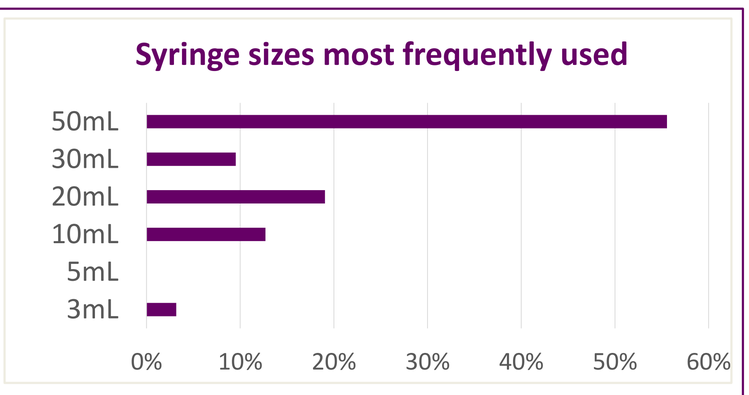
Self reported physical health aspects related to work:

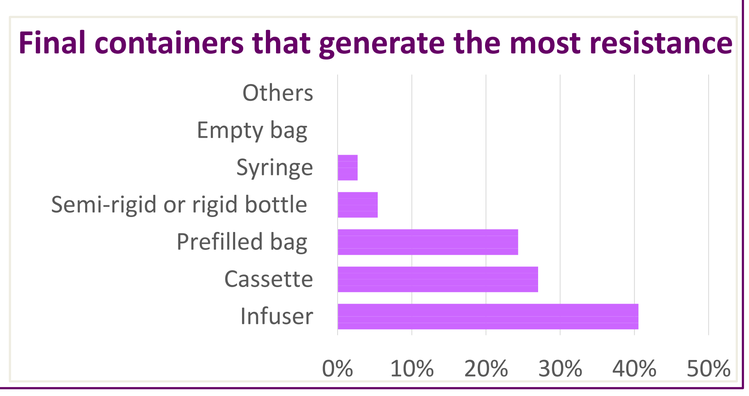
- 95% reported discomfort or pain during compounding
- 19% took sick leave due to musculoskeletal disorders:
  - 50% informed the Occupational Health Service
  - two-thirds had medical leave or reassignment lasting >one month



Additional compounding-related variables:

- Drugs considered most difficult to prepare manually: paclitaxel (35%), fluorouracil (13%) and cyclophosphamide (12%)
- Preferred drugs for robotic compounding: cyclophosphamide (27%), paclitaxel (24%), fluorouracil (8.2%), carboplatin (7%) and doxorubicin (6%)
- Automated compounding were preferred for: large volumes, reconstitutions, infusers and cassettes, highly contaminating drugs and preparations requiring 50mL syringes
- 95% believed robotic compounding could help reduce repetitive stress injuries.





Conclusion and Relevance

Manual compounding frequently leads to musculoskeletal discomfort among pharmacy personnel. Implementing ergonomic strategies and expanding robotic compounding for high-risk or physically demanding preparations could potentially enhance staff safety and well-being.

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