Background La Fe Universitario y Politécnico Hospital is a tertiary-care hospital with approximately 1000 beds serving a population of 210,000 people. The pharmacy department owns 4 vertical laminar flow hoods where more than 35,000 chemotherapy treatments, including the filling of 800 elastomeric pumps, are prepared per year.

Purpose To compare both the time spent and the accuracy in the filling of elastomeric pumps (EPs) with fluorouracil by two different methods: DIANA ONCO-PLUS, a semi-automated compounding system (ICU Medical Europe), and the normal manual method used in the hospital’s Chemotherapy Unit (CU). The secondary endpoint was to assess user satisfaction with the two methods.

Materials and Methods For 4 consecutive weeks, EPs were filled by trained nurses two days per week. The first day DIANA ONCO-PLUS was used and the second day the EPs were filled manually. To avoid bias, every week a different nurse filled the EPs using both methods. Filling time was measured by a different nurse using a conventional chronograph and the accuracy was evaluated by weight of EP (before and after filling). Nurses’ satisfaction was assessed by a questionnaire.

Results The filling of sixty-five EPs was evaluated. The filling mean time was 4.25 min with the manual method and 3.84 min with DIANA ONCO-PLUS (p = 0.008). If purge is considered, the mean time was 6.65 min and 5.52 min respectively (p < 0.001). The mean relative error in the filling was 0.735% in manual method and 0.314% in DIANA method (p = 0.006) without any clinical relevance. There was no user-related variability. Nurses were very satisfied and the second day the EPs were filled manually.

Conclusions DIANA ONCO-PLUS is a more efficient and accurate method to fill EPs than the manual method. The differences found were user-independent.

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No conflict of interest.