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Reduced Research Patient Wait Times Using Automated Dispensing Cabinet (ADC) Technology for Oral Investigational Drug at an NCI-Designated Comprehensive Cancer Center

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1. Background
Many multicampus cancer centers face the complex challenge of timely dispensation and administration of investigational drug from a central investigational pharmacy (IP). Before utilizing the automated dispensing cabinet (ADC), investigational oral drug dispensation and administration averaged 96.5 minutes, median 84 minutes (n=122, min: 41, max: 298), from provider order signature to patient administration at a satellite site 0.3 miles from IP in an urban setting. A solution to improve patient wait times and infusion center efficiency was critical while maintaining a safe, standardized research clearance process.

2. Goals
The goal was to utilize the satellite site ADC for dispensation and administration for oral investigational drug administration in order to reduce patient wait times. A multidisciplinary workflow was implemented for safe ADC treatment clearance and for sponsor approval of early vial assignment, when applicable.

3. Solutions and Methods
The ADC workflow was piloted in two oncology disease groups for studies that only utilized oral investigational product. Of 13 studies, two required vial assignment and sponsors granted approval for early dispensation. The following workflow was established for safe clearance (T-0 is day of administration): signed orders in electronic health record (EHR) T-8 to T-2; dispensation email sent T-2, vials assignment (if applicable) and release of orders in EHR by infusion T-2; IP dispenses oral drug to ADC at satellite site T-1; treatment clearance smartphrase is placed in EHR by CRC/CRN and co-signed by investigator T-0; infusion nursing confirms note is cosigned in EHR via a smartphrase T-0; and lastly, IP drug dispensed to patient. Of note, a workflow is in place if a patient requires a dose hold/reduction.

4. Outcomes
Since utilizing the ADC workflow for dispensing oral investigational drug from October 2022-January 2023, the average patient wait time decreased to 27.1 minutes, median 29.5 minutes (n=12, min: five, max: 41) from the time of treatment clearance in Epic to administration at satellite site. The ADC workflow saves patients an average of 69.5 mins, and decreases wait times by 71.9 percent. When comparing paired data for patients dispense times for those that utilized the old vs. new workflow, the average time decreased significantly from 88.3 mins to 28 mins (p=0.0001) and improving efficiency by an average of 362.7 percent (n=7, min: 52; 17, max: 105; 39). This was achieved with a process that maintained the integrity of the research clearance process for safety and quality.

5. Lessons Learned and Future Directions
We plan to initiate the next stages of the pilot:

- Stage 2: include all disease groups at satellite site, expand to include clinical trials that have oral IP drug combined with SOC medications

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- Stage 3: expand project to the central IP site, as the overall wait time at all campuses is 85.5 mins (n=409)
- Step 4: implement the process to span all campuses/sites with wait time for Oral IP under 30 minutes and perform a patient satisfaction survey

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