



A Cancer Workforce in Crisis

Repository on Best Practices and Innovations

TECHNOLOGY

Intro: Incorporating technological innovations in oncology practices not only streamlines diagnostics and treatment processes but empowers healthcare professionals to stay at the forefront of advancements, fostering a dynamic and adaptive workforce ready to meet the ever-expanding challenges of cancer care.

Title: WHITE PAPER Call to Action developed by the ECAMET Alliance

Publication date: 2022

Link: <chrome-extension://efaidnbnmnnibpcajpcglclefindmkaj/https://ecamet.eu/wp-content/uploads/2022/05/ECAMET-White-Paper-Call-to-Action-March-2022-v3.pdf>

Example: Introduction of medication traceability systems is strongly recommended based on existing clinical evidence. Utilizing technology to standardize medication use, especially in the preparation stage, can reduce variability. Medication traceability systems encompass electronic prescriptions with clinical decision support, automated dispensing cabinets, electronic preparation systems ensuring correct medication dosage, barcode medication administration for accurate patient dosage, and smart pumps with safety features to prevent programming errors. Complete connectivity among all systems is crucial for seamless integration. Electronic prescription systems, specifically computerized provider order entry (CPOE), play a pivotal role in minimizing medication prescription errors. CPOEs with integrated functions like allergy alerts, interaction checks, and dosage recommendations can significantly reduce errors. Survey results indicate that while 94% of hospitals have electronic prescription systems, only 20% are integrated with clinical decision support, and approximately 50% are available for critical patients in certain areas. Moreover, limited integration with hospital systems is observed. Automated drug cabinets, when connected



with CPOE, reduce medication errors, costs, and enhance efficiency. Clinical studies emphasize the optimal introduction of automated dispensing systems for maximum clinical and economic benefits. Survey findings reveal limited availability of automated drug cabinets, especially in critical care areas. Only 16% have a barcode system for verifying drug selection before dispensing or refilling cabinets. In terms of medication preparation, central pharmacies are well-equipped, yet a significant volume is prepared outside, necessitating similar resources and skills. Survey data indicate that only 19% of medication is prepared by central pharmacies, with varying percentages in different hospital areas. These findings underscore the importance of comprehensive medication traceability systems and the need for improved integration and technology adoption in healthcare settings to enhance patient safety and reduce medication errors.

Title: Batson S, et al. Automation of in-hospital pharmacy dispensing: a systematic review. Eur J Hosp Pharm. 2021 Mar;28(2):58-64.

Publication date: PubMed 2021

Link: <https://pubmed.ncbi.nlm.nih.gov/32434785/>

Example: The systematic review aimed to assess the clinical and economic value of automated in-hospital pharmacy services, focusing on systems supporting medication dispensing. A total of 48 publications were included, revealing inconsistent study designs and outcome reporting. Both pharmacy and ward-based automated dispensing systems (ADSs) demonstrated benefits over manual methods, including reductions in medication errors, administration time, and costs. The study also highlights the potential for increased adoption of these technologies by European hospitals with additional well-designed studies.

Title: Macmillan Cancer Decision Support Tool: supporting GPs in earlier detection of cancer

Publication date: All.Can Efficiency Hub

Link: <https://www.all-can.org/efficiency-hub/macmillan-cancer-decision-support-tool-supporting-gps-in-earlier-detection-of-cancer/>



Example: Macmillan Cancer Support developed a Cancer Decision Support (CDS) tool aimed at GPs to improve the early detection of cancer in the UK. The tool calculates a person's risk of having an undiagnosed cancer based on symptoms, medical history and demographic data pulled from their medical records.⁵ The calculations are based on two algorithms developed and validated by UK researchers – QCancer[®] and Risk Assessment Tool (RAT).

The CDS tool was launched in 2013, initially focusing on lung, colorectal, pancreatic, gastro-oesophageal and ovarian cancer. It has since been expanded to include blood, breast, cervical, uterine, kidney, prostate and testicular cancer. While it does not diagnose cancer, it helps GPs 'think possible cancer' and consider further testing and specialist referral. To do this, it uses:

- automatic prompts that alert GPs when a person's risk of a specific cancer is above 2% (medium risk)
- a symptom checker where GPs can select symptoms from a list to calculate a person's risk of having an undiagnosed cancer
- a risk stratification tool that calculates a score for every patient in a practice, allowing GPs to screen their patient population based on their risk of different types of cancer.

Title: Pharmacy robots: improving the safety and efficiency of chemotherapy preparation

Publication date: All.Can Efficiency Hub

Link: <https://www.all-can.org/efficiency-hub/pharmacy-robots-improving-the-safety-and-efficiency-of-chemotherapy-preparation/>

Example: Two large hospital pharmacies in the US, Allegheny General Hospital Pharmacy and Johns Hopkins Weinberg Pharmacy, have adopted robotic systems to automate their compounding processes. The intravenous (IV) compounding robots mix medications within a self-contained system to protect staff from potential exposure and improve the accuracy and efficiency of chemotherapy compounding.

The robots are programmed with a drug library that includes information on how to compound common chemotherapies. They also contain highly precise scales that weigh ingredients and automatically reject any end products that fall out of the correct weight



range.6 Pharmacy staff have to prime the system with clinical information, such as the number of doses required and the patient's height and weight. They also have to load the system with infusion bags, syringes and medication needed to produce the chemotherapy. The robot then prepares individualised doses, which are ready to be administered.

IV compounding robots can keep an electronic record of all chemotherapies that have been prepared. Implementing these automated systems in oncology pharmacies requires considerable planning and knowledgeable pharmacy staff to calibrate the robots. Some pharmacies have hired automation specialists to ease the transition to automated processes and train staff appropriately.

Title: Hospital pharmacists – making the difference by improving medication safety

Publication date: 2020

Link:

https://www.eahp.eu/sites/default/files/eahp_position_paper_on_patient_safety_october_2020.pdf

Example: The European Association of Hospital Pharmacists (EAHP) underscores the pivotal role hospital pharmacists play in ensuring patient safety and quality care across European hospitals. With a dedicated focus on medication safety, EAHP emphasizes the need for robust risk management tools, including single unit dose barcoding and quality control committees, to mitigate medication errors and enhance patient outcomes. The adoption of closed loop medication management is advocated to streamline the administration process, ensuring faster and more accurate medicine delivery. Additionally, EAHP highlights the critical role of hospital pharmacists in medication reconciliation during care transitions, calling for their expertise to guarantee accurate and complete medication information transfer. Medication concordance, involving patient-centered care and effective communication, is identified as key, with a plea for adequate staffing of hospital pharmacists to support this initiative. Strengthened interprofessional collaboration among healthcare professionals is deemed essential to reduce medication-related problems and improve overall treatment safety. Finally, EAHP recommends universal application of infection prevention and control measures to combat healthcare-associated infections, reinforcing the importance of hand hygiene in promoting patient safety. In essence, EAHP's comprehensive



approach underscores the collective efforts required to enhance patient safety, emphasizing the integral role of hospital pharmacists in medication management and collaborative interprofessional practices in European hospitals.