

39.^a REUNIÃO ANUAL DO COLÉGIO DE INDÚSTRIA

"RACI 2021: FUTURE CHALLENGES OF GOOD PRACTISES"

RESUMO PÓSTER

REFERÊNCIA (reservado aos serviços)	
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TÍTULO

Production of individualized medicines by additive manufacture (3D-printing).

RESUMO

(Texto com letra em Arial 10, espaçamento 1,5 linhas e justificado. Não incluir figuras, gráficos nem referências. A Estrutura do resumo deve incluir: Objetivo, Metodologia, Resultados e Discussão, Conclusões. Número máximo de caracteres: 2500)

Introduction: Three-dimensional printing (3DP) is an emerging set of technologies, increasingly explored in the production of customized dosage forms (mainly oral, but also transdermal, vaginal, etc.). Benefiting from the ongoing digital revolution (e.g. industry 4.0) within healthcare, and the ability to provide higher flexibility than traditional pharmaceutical manufacturing processes, 3DP presents remarkable advantages, but also challenges.

Objective: Conduct a SWOT analysis to assess the implementation of 3DP technologies in pharmacy, towards patient-centric manufacturing of medicines,

Results & Discussion:

Strengths – Ability to design and produce individualized medicines: (a) with flexible, precise doses, particularly useful to maximize therapeutic outcomes in particular age groups (e.g. paediatrics and geriatrics) and/or diseases (e.g. kidney/hepatic impairment, oncology, psychiatry), (b) for chronic treatments (e.g. multiple drugs into a single dosage form, modulation of the drug release kinetics by adjustment of shape, size and structure), (c) for rare diseases (e.g. orphan drugs); Manufacture closer to patients (e.g. 3D printers are eligible for implementation in compounding pharmacies); Scale-up not required; Increased role of pharmacists on patient care; Overall promotion of pharmacists as service providers.

Weaknesses - Trained personnel and qualified equipment/software required and initial investment on such resources; Adaptation of printers for pharmaceutical production and legal requirements; Running costs may increase; Change in daily practice.

Opportunities - Better integration of prescription, production and dispensing; Strengthen the connection between pharmacist and patient; Benefits in compliance and health literacy.

Threats - 3DP implementation has to consider specificities of the pharmaceutical industry (e.g. equipment qualification; technician training, cleaning validation, etc.); Resistance of physicians and pharmacists (or other stakeholders) to change in professional practice.

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Conclusion: Emergent 3DP of dosage forms can potentially fulfil the goal of personalizing the medicines to the individual patient's needs. Despite the many strengths and opportunities identified, there are still many hurdles to overcome. The pharmaceutical sector and academia are committed, through research and training to make production of tailored medicines a reality, while strengthening the pharmacist role as a healthcare provider.

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