Accepted Manuscript

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PII: S0022-3549(17)30616-0

DOI: 10.1016/j.xphs.2017.08.020

Reference: XPHS 912

To appear in: *Journal of Pharmaceutical Sciences*

Received Date: 20 July 2017

Revised Date: 24 August 2017

Accepted Date: 25 August 2017

Please cite this article as: Forrest WP, Mackey MA, Shah VM, Hassell KM, Shah P, Wylie JL, Gopinath J, Balderhaar H, Li L, Wuelfing WP, Helmy R, Mixed Reality (MR) Meets Pharmaceutical Development, *Journal of Pharmaceutical Sciences* (2017), doi: 10.1016/j.xphs.2017.08.020.

Mixed Reality (MR) Meets Pharmaceutical Development

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Abstract. As science evolves, the need for more efficient and innovative knowledge transfer capabilities becomes evident. Advances in drug discovery and delivery sciences have directly impacted the pharmaceutical industry, though the added complexities have not shortened the development process. These added complexities also make it difficult for scientists to rapidly and effectively transfer knowledge to offset the lengthened drug development timelines. While webcams, camera phones and iPads have been explored as potential new methods of real-time information sharing, the non-"hands-free" nature and lack of viewer and observer point-of-view render them unsuitable for the R&D laboratory or manufacturing setting. As an alternative solution, the Microsoft HoloLens™ mixed-reality (MR) headset was evaluated as a more efficient, hands-free method of knowledge transfer and information sharing. After completing a traditional method transfer between three R&D sites (Rahway, NJ; West Point, PA and Schnachen, Switzerland), a retrospective analysis of efficiency gain was performed through comparison of a mock method transfer between NJ/PA sites using the HoloLens™. The results demonstrated a minimum ten fold gain in efficiency, weighing in from a savings in time, cost, and the ability to have *real-time* data analysis and discussion. Additionally, other use cases were evaluated involving vendor and contract research/manufacturing organizations.