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### **Smart homes: Occupational therapy and sensor technologies to help clients stay in their homes**

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Introduction - Technologies can be used to remotely monitor activities and critical incidents of clients living at home. Occupational therapy involvement in the design and application of such technologies is timely in the current context of global aging and emphasis on community and home care.

Objectives - The purpose of this initiative was to leverage expertise in the health sciences, design and computing science to create capacity and research innovation in smart home designs.

Description - 47 students in four disciplines (occupational therapy, industrial design, pharmacy and computing science) collaborated in the design of a Smart Condominium. The teams negotiated a family persona to include a mother, father, and child living with multiple sclerosis, diabetes and asthma. Teams designed one of four spaces: Play & Connect, Rest & Sleep, Bathing & Grooming, and Cooking & Eating. Students and instructors applied their knowledge of occupational performance, functional design and human factors (physical, cognitive and sensory) to their design with a focus on wellness. The computing science students and faculty provided expertise on the application and integration of sensor networks into the Condo in order to monitor health-related events and transmit this to an online virtual environment.

Results - This innovative project engaged students, instructors and researchers to apply human-centered Universal Design and gain teamwork experience beyond their disciplines. The full size model condo was completed in 8 weeks. Instructor and researchers are continuing this work with new student cohorts in the actual Smart Condo currently being built.

Conclusion - Opportunities for entry level occupational therapy students to engage in emerging areas of practice help build capacity for the discipline to collaborate with other disciplines to create environments that support independence.

Contribution to practice - Occupational therapy students apply discipline specific expertise to the design and applications of technologies that will enhance the quality of life for clients across the lifespan.