



KEY POINT SUMMARY

OBJECTIVES

To describe how bathroom stall designs can be optimized to accommodate patients with wheelchairs.

Pilot study to measure wheelchair users' space requirements in the bathroom

Morales, E., Gamache, S., Routhier, F., Rousseau, J., Doyle, O. 2018 | *Journal of Enabling Technologies, Volume 12, Issue 3, Pages 129-140*

Key Concepts/Context

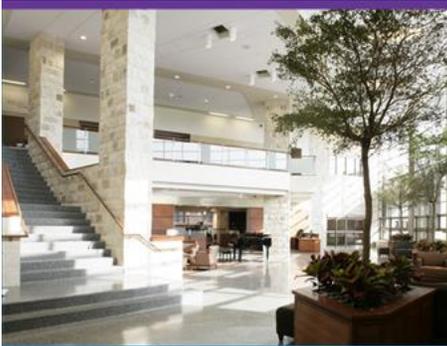
In healthcare facilities around the world, many construction codes pertaining to building accessibility standards for patients using mobility devices (such as wheelchairs) have remained unchanged despite the introduction of newer mobility devices and changing patient demographics. As the population of elderly people using more modern mobility devices increases, the building codes shaping their healthcare environments should adapt to maintain positive treatment experiences. The authors note that given this context, a re-evaluation of the codes for constructing more accessible bathrooms for patients with wheelchairs is needed.

Methods

The researchers used moveable artificial walls to simulate the minimum size requirements of toilet stalls as stipulated by two different regional building codes. Motion-capture cameras were used to measure possible degrees of three-dimensional movement within the stall areas. Eight participants (four female and four male) ranging in ages from 26 to 75 operated manual and powered wheelchairs within the observed stall areas to supplement the motion-capture study and provide more in-depth analysis of how different body types might operate within the observed stall spaces. Motion-captured movements of the participants were recorded in stall areas following the building codes, as well as in a stall area that provided slightly more space for the participants. Results from all trials were compared to determine the influence of space on participant motion.

Findings

The simulated bathroom stalls, which were designed according to two different regional construction codes, proved to be too small for the average participant in this study; average participants needed at least 300 to 400 millimeters of extra



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space during motion-captured trials. The simulated stalls that provided more room for the participants allowed movements to be performed more quickly overall, implying that lack of space within stalls makes actions more time-consuming.

Limitations

The authors note that a relatively small sample size was involved in this study, and that the simulated stalls did not closely resemble actual toilet stalls. This study focused on manual and motorized wheelchairs; other devices such as scooters were excluded from examination.

Design Implications

Designers could consider how accessible bathrooms stalls might be adapted to better conform to the dimensions of modern wheelchairs and other devices; providing as much space as possible, perhaps even beyond the guidelines of some regional construction codes, may improve patient experiences and perceptions of care.

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