

**Subject:** Investigation into the strain on cabin crew members assisting passengers with reduced mobility  
(PRM – Passengers with Reduced Mobility)

**Responsible for project:**  
BG Verkehr (Germany)

**Cooperation partners:**  
Airbus Industries, Lufthansa AG, IfADo (Leibniz Research Centre for Working Environment and Human Factors), HAW (Hamburg University of Applied Sciences)

**Country:**  
Germany

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**Purpose:**  
Published in 2007, **Regulation (EC) 1107/2006** establishes the requirements for commercial airports and airlines for disabled passengers or passengers with reduced mobility (PRM) when travelling by air from Europe. Not least owing to demographic change, in addition to people with physical disabilities, more and more elderly persons travel, the majority of whom have considerable limitations and require assistance. The European regulation governs the assistance flight attendants provide these passengers during boarding, and especially in-flight.  
In accordance with this, in day-to-day operations flight attendants are obligated to accompany the PRM from their seat to the on-board toilet if needed. Due to awkward or untrained assistance transferring the guest from the seat to the on-board wheelchair, there have been increasing numbers of cases of flight attendants suffering injuries to the musculoskeletal system of the back. For example, for long-distance flights from Europe to Asia or North America, up to 40 PRM registered with airports and airlines prior to the flight, of which about 10% required the described assistance on board. This caused the Occupational Safety and Health Directorate at the BG Verkehr to develop a procedure to minimize this hazard through consultation with airlines.



### Regulation (EC) 1107/2006

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### Procedure:

In order to establish a risk assessment adapted to the changed conditions and use this to determine suitable measures, a team of experts was put together by the occupational accident insurance institution and airlines. This was supported by scientific institutions and an aircraft manufacturer. To better visualize the processes in practice and support these with trials and tests of various aids, a mock-up of part of an Economy class cabin of an Airbus A340 including window seats was built at the IfADO.



### Mock-up at the IfADO

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Together with experts, flight attendants were now able to integrate and rate the aids on the market previously analyzed and selected in structured courses of action.

### **Results:**

After many trials and several months, a pair of slider sheets in the form of large loops made from silicone-coated polyester fabric proved successful. This fabric has already been used as pads for repositioning bedridden patients and exhibits outstanding features. Additional test runs were conducted with flight attendants in the cabin simulator of a major airline and then evaluated.



### **Simulator training**

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The extremely positive results of these usability tests gave hope this aid could soon be widely used on long-haul aircrafts. Parallel to this, a digital practical guide and flashcards were developed to familiarize the flight attendants with its use.

The other aids tested, which were not investigated closer in this project, nonetheless showed potential as future alternative solutions. Apart from the slider sheets (loops), other good aids emerged during the test phase.

### **Project abandoned:**

Unfortunately, the airline had to abandon the cooperation in 2017. There were increasing cases where passengers on transatlantic flights filed complaints with the DOT (Department of Transportation, USA) for having their rights violated. These complaints were related to contact in more intimate areas, which is not entirely avoidable when using the slider sheets. The project therefore had to be abandoned and archived along with all its findings.

**Conclusion:**

The European regulation is still legally binding. According to flight crew now, the aforementioned assistance is again provided in a similar way as before. If persons requiring assistance do not have a fit assistant, assistance is provided "as best possible", if possible taking ergonomic aspects into consideration.



**Loops in use**  
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If airlines conduct an objective risk assessment for air traffic and these special use cases, using these suitable aids is inevitable.

**Further examples:**

As Airbus quickly recognized that the implementation of the EU regulation only required the flight attendants to provide the PRM with assistance to the entrance of the toilet, not inside the cramped bathroom, Airbus developed new on-board toilets for the A 320 Neo, A 380 and A 350. In this new double toilet cabin, the partition between the two toilet cabins can be removed if necessary to create more room for using the on-board wheelchair. This solved the issue of being unable to transport the PRM into the confined bathroom in a wheelchair on standard aircraft types.



**Double toilet with removable partition**  
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