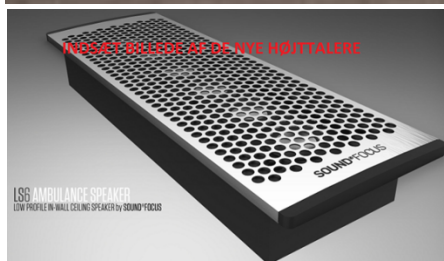


Music Intervention reduces Anxiety, Stress and Pain

3 out of 4 heart patients prefer listening to music during ambulance transport

Personalized directional loudspeakers and specially composed music
Volume is automatically adjusted to surroundings



Music in Health Care

By Line Gebauer and Peter Vuust 2014

- in collaboration with Widex, SoundFocus, DKsystems, Aarhus University and Danish Sound Innovation Network



Care for Sound Sound Environment, Healing & Health-Care

Patrik Grahn | Johannes Van Der Berg | Kerstin Persson Waye | Töres Theorell | Per Thorgaard | Maria Quinn
Sound Environment Center at Lund University Ljudmiljöcentrum vid Lunds Universitet 2014

Danish Studies of Music Intervention in Ambulances during Patient Transport

It is scientifically proven that patients experience severe distress during ambulance transport to hospitals in relation to acute illness. A study group headed by Chief Phycian Per Thorgaard at Aalborg University Hospital, Aalborg, Denmark and associate professor Philip Anderson at BIDMC, Harvard medical School, Boston, USA established three studies - briefly reported here.

The studies were performed in cooperation with Falck (a Danish ambulance dispatch company), Section of Acoustics, Aalborg University, Aalborg, Denmark, Composer Jacob Gurevitsch and SoundFocus (a Danish company producing specialized loudspeaker solutions). Music intervention was added “on top” of the existing acoustic conditions during ambulance transports - technically described in a master thesis performed by Mark Mikaelson and Jesper Oddershede at Department of Electronic systems, Section of Acoustics, Aalborg University, Aalborg, Denmark.

In the first study a nurse accompanied 17 patients with suspected Myocardial Infarction during their transportation to the Emergency Department (ED) at the regional University Hospital. All sounds were recorded by a digital recorder placed close to the patient ear. The patients were interviewed with regard to their level of distress 3 times during transportation (at the retrieval site, during transportation and at arrival to ED). All patients experienced severe distress - with noise from the vehicle and the sirene as dominant eliciting causes. Human voice was on the other hand a significantly calming factor (and sound experience).

Based on these experiences a second study was established. In preparation for this the company SoundFocus developed loud speakers placed in the ceiling of the ambulance above the patient’s head enabling undisturbed handling of the patient during transport. The loud speakers used a special “beam technique” creating a “sound bubble” around the head of the patient (but not in the rest of the stretcher room). Sound volume was adjusted automatically during transport with an increase in volume adjusted by the speed of the ambulance. Specially composed music was used. This study included 53 unselected patients for acute ambulance transportation expected to exceed 10 minutes - with or without use of sirene. After 10 minutes the music was turned off. A positive wish for continued music was given by 80% (42/53). A negative wish for music was given by 11% (6/53). The rest were unable to express an opinion on the issue.

In the main study - scientifically designed as a cross-over study - the same basic tools were used (specially composed music and loud speakers). In total 152 patients were enrolled in the study. Patient preference was clear: 3 out of 4 patients, who were able to express their opinion, preferred music environment.

Conclusion: These studies demonstrate that a majority of patients have a positive wish for music environment during ambulance transport. Music intervention performed in ambulances supports patient wellbeing - and thus therapy and care.

Per Thorgaard, Chief investigator
Kjeld Brogaard, Chief of ambulance service
Kim Rishøj, CEO SoundFocus ApS

pt@rn.dk
kjb@falck.dk
kr@soundfocus.dk