N.H.A.M. VAN HOUT. ***Acoustic measurements of the speech intelligibility in common rooms of care facilities.*** *Gerontechnology 2012;11(2):249;* doi:10.4017/gt.2012.11.02.671.00 **Purpose** Social isolation is very common among older adults. Not only for those who still live independently, but also for those who live in nursing homes or other care facilities. In the Netherlands 158 000 older adults live in these homes and care facilities[1]. The hearing loss that most elderly people suffer, together with the acoustic conditions of the living environment in the nursing homes and care facilities, is an important factor contributing to social isolation. Common rooms especially, which should stimulate social interaction, are often avoided because elderly experience them as being too noisy. They encounter difficulties in understanding speech and having conversations. To be able to understand why elderly encounter these difficulties in common rooms a study of the current acoustical state of these rooms was examined. Its purpose is to obtain an overview of the current situation regarding speech intelligibility in common rooms in the elderly care. **Method** A field study was performed in eight common rooms of care facilities for older adults[2]. Room acoustic measurements were performed to determine all important room acoustic parameters like the reverberation time (T_{20}), background noise level (L_{Aeq}) and the speech transmission index (STI)[3]. Normally these parameters are measured in an empty room. Because in common rooms problems with understanding speech mainly occur during activities the background noise level and speech transmission index was also determined in the 'used' situation. To determine the speech intelligibility room impulse responses and background noise levels were measured. The method used complies with the international standards for acoustic measurements[4,5]. In addition the speech intelligibility was not only determined for the empty rooms but also for the situation of the rooms in use. This latter measurement of background noise levels was taken in the rooms during social activities. **Results & Discussion** The results show a high STI-value (good speech intelligibility) for the empty situation but a low STI-value (bad speech intelligibility) in the used situation during social activities. Due to long reverberation times and high background noise levels, low levels of speech intelligibility were measured during social activities in the eight common rooms in which the field study was performed. However, to make a more valid statement about the current situation, measurements should be performed in a larger sample of common rooms. This study enforces the belief that specific acoustical guidelines are necessary to create an acceptable level of speech intelligibility in care facilities for older adults. Future studies will aim to develop acoustical guidelines for these types of care facilities.

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Table 1. Measurement results of eight common rooms

Parameter	Mean	Range	Difference
T_{20} [s]	0.68	0.37-0.96	0.59
$L_{Aeq,\ empty}$ [dB]	40	28-48	20
$L_{Aeq,\ in\ use}$ [dB]	62	54-67	13
$STI_{omni,\ empty}$ [-]	0.62	0.39-0.77	0.25
$STI_{omni,\ in\ use}$ [-]	0.16	0.00-0.50	0.50
$STI_{dir,\ empty}$ [-]	0.83	0.71-0.92	0.21
$STI_{dir,\ in\ use}$ [-]	0.25	0.00-0.63	0.63