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*noise notes* is published quarterly by  
**Multi-Science Publishing Co. Ltd.**

5 Wates Way, Brentwood, Essex, UK

Tel: +44 (0)1277 224632 · Fax: +44 (0)1277 223453

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# Noise in hospitals - 150 years on

Back in the late 1850's, Florence Nightingale, founder of modern nursing, published her "Notes on Nursing"<sup>1</sup>. A whole chapter of this book was devoted to "Noise" and its effects on the patient. She wrote:

"Unnecessary noise, or noise that creates an expectation in the mind, is that which hurts a patient. It is rarely the loudness of the noise, the effect of the organ of the ear itself, which appears to affect the sick... But intermittent noise, or sudden and sharp noise... affects more than continuous noise... Unnecessary noise is the most cruel absence of care which can be afflicted either on the sick or well."

In the 1850's, her problem with noise was that its intermittency, from speech and movements, disturbed patients. In the present high technology era there has been an increase in levels of hospital noise which Nightingale could not have imagined. A recent study<sup>2</sup> shows that, over the past 40 years, hospital noise levels have averaged an increase of about 0.4dB a year, leading to a rise of over 15dBA. Major noise sources are HVAC systems,

public paging and speech. Additionally there are patient monitoring systems, meal tray carts and a multitude of others.

Jon Hopkins hospital had 30 minute average A-weighted Leq noise levels of 60 to 70 dBA in an Intensive Care Unit, with little day/night variation. Of course, short time levels will be higher or lower than this. Typical patient spaces, where there is less monitoring equipment than in intensive care, were averaged at 50 to 60dBA. These are levels way above what we expect in an office or at home, although 40 years ago hospital noise levels were similar to domestic ones.

Hospitals are victims of the "noise drift" which comes with high tech developments. More electronics, more cooling fans, more warning beeps, more air conditioning, all contribute to an increase in background noise which would not be tolerated by those who felt able to complain.

150 years on from Florence Nightingale, patients' recovery continues to be hindered by noise, and at continuously increasing level.

<sup>1</sup> "Notes on Nursing - what it is and what it is not" Florence Nightingale. Reprints by Dover Publications, 1970

<sup>2</sup> "Noise Levels in John Hopkins Hospital" I.J. Busch-Vishniac et al. Jnl Ac Soc America, 118, 3629-3645, 2005

