A public health service model as a part of countermeasures against the risk of environmental noise.

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ABSTRACT

Health risks from environmental noise are not specific and cannot hardly be separated from other risk factors. Countermeasures against noise can improve environment steady but slowly. If we change our policy target from environmental noise to the health effect, the risk on people can be drastically improved as a whole. The goal can be set on the status without attributable risk. To provide health care for all and to share financial aid for medical service fee by sharing health risks would be the basic ideas. Health care service around Fukuoka Airport and medical support system for asthma in Tokyo might be models for the concept.

INTRODUCTION

Traffic noise is still a cause of annoyance among people living near airports or traffic roads, however, its near-term steep reduction cannot be expected without immeasurable social cost for a technological innovation or some strict regulations. While at a stalemate, the health risk of noise on ischemic heart disease (IHD) and other disorders has become a general concern.

The incidence of IHD in the areas with traffic noise over 60dB (Lden) is said to be ten to twenty percent higher than that in the area with noise under the level mentioned above. Though its causative relation is still controvertible, there needs a policy to deal with the potential health risk to the public. One of the difficult points is that the risk from environmental noise cannot be broken out of other risks. As is well-known the major risk factors to IHD are smoking and undesirable food life. Almost no way is there to compensate only patients from excessive risk of noise.

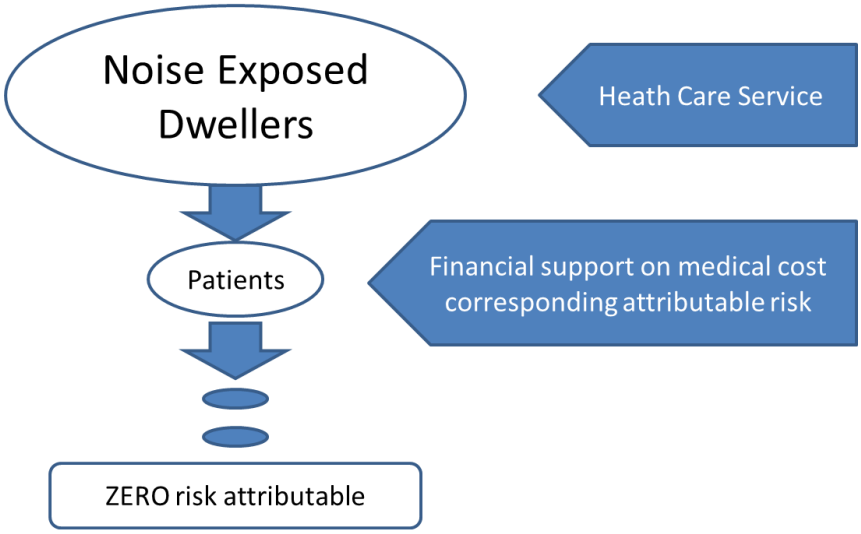
BASIC SCHEME

Basic scheme of countermeasures are shown in the figure next.

Health care service including examinations and consultation is for all the dwellers in the area with noise over NOAEL. This service also provide a guidance and counseling about daily health risk management (e.g., quitting smoking, balancing food intake).

All the patients with diseases that might have caused by environmental noise get a financial support on medical cost corresponding attributable risk. In other words, sharing support by sharing risk.

Fig. Basic scheme of countermeasures against health risks from environmental noise



PART MODEL 1

Fukuoka Airport, one of the busiest city airports in Japan, has landing planes more than 70,000 per year. It has 1,750ha of countermeasure area with more than 100,000 dwellers under Lden 62dB approx. A health care service is provided by our foundation with zone-rotation planning at present. When the service is performed every year at once, around 12 million dollar is needed. If all the cost was charged to airport use, each landing cost would show about 170 dollar increase on average. It is nearly equal to 10% of B-777 landing fee at the airport. Even after considering high cost of Japanese airport use, the increase seems to be a burden.

Fortunately, the foundation mentioned above has another financial resource. And more, Japanese citizens also have a basic medical resource of universal health care system which is providing other parallel health services.

Without these supportive conditions, providing effectual health service to limited area can hardly be attainable with small expenses.

PART MODEL 2

A model countermeasure for medical support is the compensation fund system for asthma patients suffering ambient air pollution in Tokyo. In this system the financial aid is partial. Their out-of-pocket medical cost, 30% of real cost, is covered in this system. The fund was instituted by metropolitan government and automakers. Asthma also relates with many host-environmental factors. In this system a kind of screening is set for the compensation.

To select the appropriate patients four requirements are set. No-smoking patients suffering bronchial asthma, living in Tokyo more than one year, and being insured by a health coverage have the right. Under this control the financial aid can be reached to the people who have health risk from environmental noise. Recent three years the number of certified patients

is over 90,000. Comparing the total estimated number of 1,045.000 in whole of Japan(2011), relative risk of asthma is not excessive in Tokyo whose population size is nearly one tenths of whole land. Though the rate of financial aid is not corresponding the risk of asthma in Tokyo, a chance to get the aid is shared evenly under reasonable conditions.

CONCLUSION

Once a danger on public health is recognized, there is no grace period to hang off. To minimize the risk among people the bail-out plan should be carried out immediately. Attributable risk is one of the helpful guides to construct comprehensive measures in policy against environmental health risks. Public health approaches can be harmonized usefully with environmental countermeasures against the potential risks of traffic noise.

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