

## Indoor Air Fine Particular Pollution In Ulaanbaatar, Mongolia

Buyantushig. B<sup>1</sup>, Jargalsaikhan. G<sup>1</sup>, Nansalmaa. M<sup>1</sup>, Enkhjargal. G<sup>1</sup>

<sup>1</sup>Department of Environmental Health, SPH, MNUMS

**Background:** Indoor air pollution is a major public health problem since people spend most of their lives in indoors. Indoor air pollutants vary depends on many factors, including climate, human activity, season, heating, and fuel consumption. There is a need to examine how the concentration of fine particulate matter or the main indoor air pollutant, fluctuates 24 hours a day concerning fuel combustion, and whether it varies depending on the type of dwelling, compared with previous studies.

**Objective.** The objective of the study was to compare 24-hour fluctuations of PM<sub>2.5</sub> particles in the indoor and to them by type of dwelling.

**Materials and methodology:** The study was conducted in a cross-sectional design. The survey covered 179 apartments, traditional Ger and houses in 6 districts of Ulaanbaatar. The indoor fine particulate matter concentration was measured with the Dyllos DC1700 instrument in February 2020, and the portable instrument was installed in the living room of apartments and houses. The measurements were performed on the rear part of a traditional Ger and were carried out on a portable instrument at 5-minute intervals for 24 hours to analyze the data statistically.

**Results:** The mean 24-hours PM<sub>2.5</sub> concentration was 66.45 µg/m<sup>3</sup> for overall households, for Ger, dwelling and apartment were 63.75 µg/m<sup>3</sup>, 68.68 µg/m<sup>3</sup>, and 61.46 µg/m<sup>3</sup> respectively. In the traditional Ger, the concentration of fine PM<sub>2.5</sub> particulates has reached a peak between 7 AM to 11 AM (70-86 µg/m<sup>3</sup>) and between 7 PM to 8 PM (77-86 µg/m<sup>3</sup>) in the evening. The dwelling PM<sub>2.5</sub> concentration was the highest (74-76 µg/m<sup>3</sup>) between 8 AM to 12 AM and at 8 PM (73 µg/m<sup>3</sup>). However, apartments with the central heating system were less fluctuation, but the particulate matter was high at 1 PM during the day (68 µg/m<sup>3</sup>) and at 11 PM during the night (66.7 µg/m<sup>3</sup>), especially at 10 PM to 11 PM, the concentration increased sharply compared to other hours. Compared to previous particulate matter studies (A.Enhjargal et al., Barn et al.), PM<sub>2.5</sub> was higher in apartments and lower in Ger and dwellings.

**Conclusion:** The concentration of fine particles of traditional Ger, houses and apartments fluctuates 24 hours a day due to heating. However, there is little fluctuation in the apartment, but the concentration was increasing at certain hours due to the ventilation through the windows.

**Keywords:** Air quality, Indoor air pollution, Fine particles, Direct measurement, Dyllos DC1700.

## Study of Medical Regulation of Euthanasia

Chuluunsukh. S<sup>1</sup>, Damdinjav. Kh<sup>2</sup>, Tvwshinjargal. Ts<sup>3</sup>, Tserenbat. M<sup>3</sup>

<sup>1</sup>NIFS, Forensic Medicine, <sup>2</sup>MNUMS-SPH, <sup>3</sup>MNUMS-BMS

**Background:** Euthanasia is one of the most sensitive issues directly related to the right to life, and it is a topic that directly affects the social psychology of deciding whether a person will live or die in the future. As a component of multifaceted social relations, euthanasia is a complex concept that includes ethics, medicine, legal science, and religious and customary norms. The issue of euthanasia, which arises from the development trends and trends in legal studies in our country and abroad, has always been raised, but has not yet been resolved.

The Mongolian Health Law and other medical legal acts do not prohibit euthanasia, and the right to refuse treatment is openly regulated, but from a criminal point of view, euthanasia is prohibited under criminal law. For example, if a doctor performs euthanasia with the consent of a client or his / her relatives, he / she will be considered a criminal and sentenced to 8-15 years in prison under Article 10.1 of the 2015 Criminal Code of Mongolia. Moreover, the 2010 Supreme Court's General Interpretation states that the killing of a victim with the victim's consent should be categorized as such.

Currently, the following countries around the world support Active Euthanasia. These are: the Netherlands / 2002 /, France / 2004 /, Switzerland / 2005 /, Luxembourg / 2009 /, Canada / 2016 /, Belgium / 2014 /, Italy / 2018 /, Oregon / 1998 /, Montana / 2008 /, Washington / 2009 /, Vermont / 2013 /, California / 2015 /, Colorado / 2016 /, Germany / 2015 /, Colombia / 2015 /, Australia / 2019 /, and the number of countries supporting euthanasia is increasing year by year. There are also 60 countries in the world that have legalized inactive euthanasia, including India (2011), Israel (2005), South Korea (2016), and Mexico (2008), and Mongolia issued Order No. 446 on November 25, 2013. , guaranteeing the right to refuse service is the legalization of inactive euthanasia.

There has been no comprehensive medical and legal study to determine the knowledge and attitudes of physicians and caregivers of patients about the legal environment, and palliative care has been developed in Mongolia for 20 years. On the other hand, the development of a democratic society raises the issue of human rights at a time when human rights issues are on the rise.

**Purpose:** To study the specifics of the legal regulation of euthanasia.

**Objective:**

1. To study the concept of legal regulation of euthanasia in Mongolia from the medical, ethical and legal point of view and to assess the knowledge of euthanasia of clients, their caregivers, medical professionals and students of the Academy of Sciences of Mongolia.
2. To study the national legal regulation of euthanasia.
3. To study the international legal regulation of euthanasia.

**Research materials and methodology:**

The survey will be conducted using an analytical instantaneous model.

The sampling rate is calculated using a simple random sampling formula:

$N$  - Size of the original set ( $N = 1500$ )

$p$  - Distribution of the studied phenomenon ( $p = 50\%$ )

- Statistical significance level ( $= 5\% = 1.96$ )

$e$  - Error limit ( $e = 4\%$ )

**Survey scope and sample**

Involvement of medical professionals and students:

The target group of the study is the Intensive Care, Surgery and Palliative Care Units of the National Center for Disease Control and Prevention, Green Home, Brilliant Hospice, NTP, ICU, UHTE, UGTE, and the Intensive Care Unit. It will be selected from doctors of the HIV and AIDS surveillance service. It will be attended by 6th year students studying at the Academy of Sciences in 2019-2020.

Involvement of legal guardians and clients: The target population of the study is the palliative care unit of the National Center for Disease Control and Prevention, Green Home Hospice, Brilliant Hospice, NTP, ICU, UHTE, UGTE, and the Department of Hospital Surgery and Intensive Care.

**Significance of the research:**

Improving the legal framework for euthanasia is important to ensure human rights and freedoms in Mongolia. Research on the legal regulation of euthanasia should not be limited to attempts to determine the legal basis, but should be carried out in a comparative study of euthanasia, criminal law, medical law, and the relationship between medicine and ethics. At a time when medical law and criminal law in the world are gaining momentum and the process of legalizing euthanasia is gaining momentum, it is important to study this topic.

It is of practical importance to clarify the provisions related to euthanasia in the current legislation of Mongolia, to harmonize the application of the law, to protect the interests of terminally ill and terminally ill patients, and to clarify the legal environment for doctors and medical professionals.

**Results and conclusions of the research:**

Currently, the following countries around the world support Active Euthanasia. These are: the Netherlands / 2002 /, France / 2004 /, Switzerland / 2005 /, Luxembourg / 2009 /, Canada / 2016 /, Belgium / 2014 /, Italy / 2018 /, Oregon / 1998 /, Montana / 2008 /, Washington / 2009 /, Vermont / 2013 /, California / 2015 /, Colorado / 2016 /, Germany / 2015 /, Colombia / 2015 /, Australia / 2019 /, and the number of countries supporting euthanasia is increasing year by year. There are about 60 countries in the world that have legalized inactive euthanasia, and Mongolia has enacted passive euthanasia by Order No. 446 of the Minister of Health on November 25, 2013, guaranteeing the right of patients to refuse treatment and services. The Health Law and other medical legal acts do not prohibit euthanasia, and the right to refuse treatment is openly regulated, but is prohibited under criminal law, creating a latent form of euthanasia. Each year, euthanasia is recognized internationally, and comparative studies have shown that euthanasia is more legally recognized and compassionate than any other legal group in the Roman-German legal community. In countries where active or passive euthanasia is not permitted, intentional homicide is considered a crime and is punishable by 1 to 15 years in prison. Mongolia is one of the countries with the longest life sentence.

**Keywords:** easy death, painless death, supportive suicide, active and passive euthanasia, human rights, client rights, end of life.