# CHANGE OF ATTITUDE IN RELATION TO ORGAN DONATION A COMPARATIVE ANALYSIS OVER TEN YEARS

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**Summary** - Attitudes among health care professionals towards organ donation influence the donor rate. The purpose of this study was to investigate whether the attitude towards organ donation had changed over a period of ten years. The investigation was carried out in northern Denmark, serving 1.6 million inhabitants. A structured questionnaire was circulated in intensive care units to assess knowledge, attitudes, and confidence in connection with organ donation in 2000 and was repeated in 2009.

In 2001, 1168 questionnaires were distributed among health care professionals from 17 intensive care units and 59% were returned against 66.8% in 2009. In 2009, 726 (92.3%) were in favour of organ donation, 22 was against and 32 had not taken a position. This was a statistically significant (p<0.01) improvement compared to 2001, particularly significant in the nurses group since doctors already had a high percentage in favour of donation in 2000.

Willingness to donate their own organs was statistically significantly (p< 0.01) higher in 2009 rising from 49.2% to 69.2% for both nurses and doctors. The percentage of staff that had discussed organ donation with their relatives was also statistically significantly higher (p< 0.01) in 2009.

We observed a significant change in attitude towards organ donation among health care professionals during the study period. There are many reasons for this, but by the end of 2008 a multidisciplinary program had been initiated focusing on health care professionals aiming to increase their level of knowledge and skills on organ donation issues, and may have contributed to the changes.

## Introduction

Organ transplantation from deceased persons has been performed in Denmark since 1964. In the beginning only transplantation of kidneys was possible, but after the introduction of brain dead as a legal criterion of death in 1990, transplantation was extended to include all organs.

Transplantation has proven to be a widely accepted therapy

as a solution for end-stage organ failure, and the improvements in surgical techniques, as well as the ongoing development of immunosuppressive drugs, have increased the numbers of potential recipients over time. The consequence of this progress has been a persistent shortage of organs available for transplantation. In Denmark the average number of organ donations during the last ten years has been 70 donations per year contrasted with 529 persons on the waiting list for an organ transplant by the end of 2012 (1).

Several international studies have shown that the existing organ donor potential, at any given time, is not completely utilized (2-5). There might be several reasons for this, but it is obvious that staff in intensive care units (ICUs) play a

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major role in the complicated process of donation. Their attitudes towards organ donation and their motivation to perform it is crucial if donations are to take place (4,6).

In 2000, a survey was undertaken to reveal attitudes and knowledge in relation to organ donation among staff members of ICUs (7). In 2009, the study was repeated by the newly established Danish Center of Organ Donation, and the purpose of this comparative analysis is to describe the current status and the change in attitudes during ten years. The questionnaire used in both studies was designed for the respondent group and inspired by the questionnaire included in the international Donor Action Program (Roels 2009) modified according to Danish standards in the field of organ donation.

## **Material and Methods**

Both studies were conducted as cross-sectional studies using identical questionnaires. Questions were asked concerning demographic characteristics as well as current knowledge, attitudes, and proficiency in relation to organ donation (Table 1).

In 2000, 1168 questionnaires were distributed among all doctors, nurses and social and health care assistants at 17 ICUs in northern Denmark, serving 1.64 million inhabit-

#### Questions were asked concerning:

What is your general attitude to donation of organs for transplants?

Support - oppose - no opinion

Would you donate one or more of your organs in case of brain death?

Yes - no - no opinion

Have you told your family about your attitude towards organ donation?

Yes - no

Do you think that brain death is a valid determination of death?

Yes - no - no opinion

Do you have sufficient knowledge to explain brain death to the relatives?

Yes - no - don't know

Do you have sufficient knowledge to introduce the subject of organ donation?

Yes - no - don't know

Will the relatives of a potential donor always be approached about organ donation in your department ?

Yes - no - don't know

Inspired by the questionnaire included in the international Donor Action Program (11) modified according to Danish standards in the field of organ donation.

TABLE 1 - Selected questions from the questionnaire.

ants. Two ICUs were neuro-intensive care units, in which neurosurgical doctors were also included.

In 2009, the Danish hospital system had undertaken a reconstruction, leading to a reduction in the number of ICUs in the same area from 17 to 15, but the number of staff was almost identical, as 1177 persons were identified and received a questionnaire in the second study.

Both studies were organized and carried out in collaboration with local key persons responsible for the area of organ donation in their own department. These key persons were informed about the studies, and determined the number of questionnaires needed at each ICU, distributing the questionnaires and taking care of reminders. Both studies were performed on a voluntary and anonymous basis.

In the present study statistical analyses were performed using Epidata. Data were analyzed using descriptive statistics (%) and comparisons of proportions of categorical variables using Fischer's exact test. Probability values at p < 0.05 were considered statistically significant. The statistical analyses were performed in cooperation with the Department of Clinical Epidemiology, Aarhus University Hospital.

## **Results**

In 2000, 1168 questionnaires were distributed among health care professionals from 17 ICUs and 689 (59%) were returned. In 2009, 786 (67%) out of 1177 questionnaires were returned. In 2009, significantly more doctors participated, while the fraction of social and health care assistants was reduced by almost one-third compared to the participants in 2000 (Figure 1). This resulted in a shift in the male/female ratio from 0.18 to 0.25, and may also have raised the age-distribution (Figure 2).

The years of experience in ICU was slightly increased in 2009 (Figure 3).

The overall result for all respondents was that 92% had a positive attitude towards organ donation in 2009, whereas

	2000	2009
Intensive-Care Units	17	15
ICU-Staff members	1168	1177
Returned questionnaires	59%	67%
Doctors	17%	24%
Nurses	74%	70%
Auxilliary Staff	9%	6%

FIGURE 1 - Respondents to the questionnaires.

81% were positive in 2000. This result is statistically significant (P< 0.01). In 2000 and in 2009 there was a significant variation between the different groups of professionals. The positive attitude was highest among doctors rising from 94% to 99%. In the nurses group the figure rose from 80% to 91% and in the group of social and health care assistants the increase was from 70% to 84%. In both studies this variation between groups of health care professionals was statistically significant (p < 0.001) (Figure 4).

When we look at the willingness to donate their own organs in case of brain death there was also a significant change from 49% in 2000 to 69% in 2009 (p < 0.01). As in the case of attitude in general, it is also evident that there are considerable variations between the professions. The highest acceptance can be found in the doctors group. In 2000, 70% were willing to donate their own organs while in 2009 81% would do so. In the nurses group the figure rose from 45% to 67%, whereas in the group of social and health care assistants the increase was insignificant from 47% to 48% (Figure 5).

Albeit not statistically significant, there was a more pronounced tendency for a positive attitude and willingness to donate their own organs are in neuro-intensive care units (neuro-ICUs). In neuro-ICUs 84% had a positive attitude towards organ donation against 82% in general ICUs, and 58% in the neuro-ICUs were willing to donate their own organs against 48% in general ICUs.

The study shows that in 2009 a larger proportion of the staff had informed their relatives about their attitude, but the increase from 77% in 2000 to 83% in 2009 was not statistically significant (p = 0.34.

The diagnosis of brain death was considered to be safe and certain by 95% in 2000. There was a statistically significant decrease in 2009 as only 88.6% believed the same (p< 0.01). On the other hand, only 3% believed the diagnosis to be unsafe while 8% did not know what to answer.

Also when it comes to explaining brain death to relatives, there was a significant decrease (p< 0.01) in staff members who felt capable of doing this, but nevertheless a higher number of staff members, also significant at a level of p < 0.01, felt confident in addressing the issue of organ donation to donor relatives, and in supporting them emotionally (p < 0.01).

Finally the staff-members were asked whether they believed that a relative always was approached about organ donation when a potential donor was in the department. In 2009, 39% believed this was the case, which is significantly higher compared to 25% in 2000.

## Discussion

Organ donation is highly complex process. It includes both detection of possible donors, brain death diagnosis, communication with relatives, and treatment of the cir-

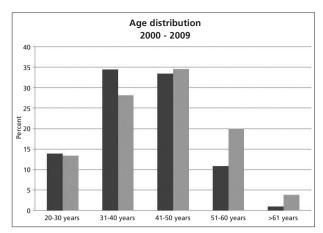


FIGURE 2 - Age distribution of respondents.

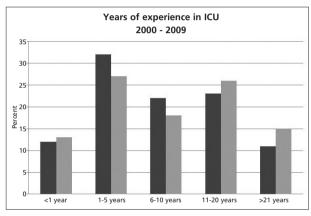


FIGURE 3 - Years of experience in intensive care units.

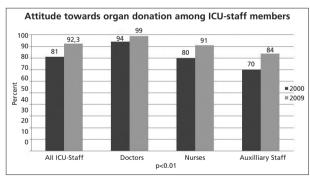


FIGURE 4 - Attitude towards organ donation among ICU staff.

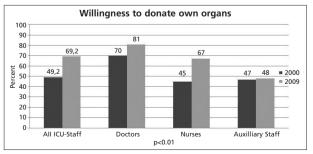


FIGURE 5 - Willingness to donate their own organs among ICU staff.

culatory unstable donor to secure organ function until donation surgery can take place. Highly specialized skills are needed and many persons are involved throughout the process. Therefore it is not surprising that several studies show that not all potential donors end up donating their organs (2-5). Many factors play a role in this complicated process and it is documented that the attitude of staff members is crucial for the process to take place (8,9). Data from the Donor Action Program databas<sup>11</sup> show a connection between the attitude of staff members and their national donation rates, when compared to the donor potential in each country.

The present study disclosed statistically significant changes in attitudes in favor of organ donation among health care professionals in intensive care units (ICUs) over a timespan of ten years in a region comprising one third of the Danish population. The overall changes may to some extent be explained by a greater participation of doctors in the second survey, but the changes are also evident in each of the different groups of health care professionals.

Multiple factors may have contributed to these changes. Ongoing public information campaigns that influence public opinion also affect ICU staff, and an increased positive attitude towards organ donation in the public will also be found in ICU staff members.

However, special efforts have focused on ICU staff. The Danish Center of Organ Donation was established in 2007, and by the end of 2008 dedicated programs had been launched to increase positive attitudes, knowledge and proficiency in dealing with organ donation in ICUs. The attitude towards organ donation among ICU staff often reflects the attitudes in the public in general, and is influenced by social, cultural and religious factors in society (12,13). Most important is the understanding and acceptance that the brain death diagnosis is a genuine and safe diagnosis (14).

As a matter of fact, this study revealed a significant fall in trust that brain death diagnosis is a safe diagnosis, and a fall in the staff members' confidence in explaining brain death to relatives. This may seem a paradox and difficult to explain, since the positive attitude towards organ donation increased in the same period. In the period between the two questionnaires a multidisciplinary program focusing on health care professionals was launched, including discussions on the brain death diagnosis. This may have led to recognition of the complexity of brain death determination and understanding to a higher degree than previously. Nevertheless, it emphasizes the constant need to educate ICU staff because uncertainty about the brain death diagnosis has shown to lead to a higher frequency of refusals by relatives, when permission for donation is asked (7,15-17) and to lower donation rates (11).

The differences shown in attitudes between the different groups of staff-member are also seen in international studies. A study by Pelleriaux et al. (18) stated that doctors are more involved in the donation process, and therefore more positive than nurses. This seems not to be the case in Denmark. Doctors are responsible for obtaining the actual permission for organ donation, but nurses are very much involved in the rest of the donation process, and may have a closer relation with relatives during the course of events. On the other hand, our study shows a tendency towards a more positive attitude to organ donation and donation of their own organs among staff from the neuro-intensive care units, indicating that the more staff become involved in the process, the more positive they become.

It is interesting that the positive attitude declined as the questions become more personal. The study from 2009 showed that a total of 92% were positive towards organ donation, but only 69% were willing to donate their own organs. This correlates well with results from international studies that also show that the willingness to donate further declines when it comes to accepting donation on behalf of your children (9,11). So it seems that there are discrepancies between staff's attitudes as professionals and as private persons.

## Conclusion

The attitude towards organ donation among respondents was in general positive and has been increasing over a period of ten years in our region. Compared to international studies the positive attitude is also high, but nevertheless Denmark has one of the lowest donation rates in Europe. This indicates that not only is the staff's attitude decisive, when it comes to the actual donor potential being exploited. The donation process is complex with many persons involved and with many potential obstacles that may halt the process. It is therefore of the utmost importance to maintain a focus on continuing education of ICU staff at every stage of the donation process. Especially important is dissemination of the fact that the brain death diagnosis is a genuine and safe criterion for death.

Another factor that may play a major role in the low donation rate in Denmark is the documented shortage of beds in ICU's (18). The brain dead patient has no breathing capacity and depends on a ventilator, and may have to compete for an ICU bed with patients who may have the potential for survival and recovery. This shortage of beds could prevent potential donations taking place. It is an unsolved question whether this shortage influences the way comatose patients are handled by prehospital teams and in emergency rooms in Denmark.

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