

Potenciális szervdonorok felismerése

Szervdonációs minőségbiztosítási program

Dr. Mihály Sándor

Országos Vérellátó Szolgálat

Transzplantációs igazgatóság

Transzplantáció – donor és recipiens oldaláról

2023. Budapest, SE-ÁOK



Total Rate (pmp) Total Number of Actual deceased organ donors (Global.2018)

Source: GODT (<http://www.transplant-observatory.org>)

DONORSZERV HIÁNY



Donorszerv hiány

Forrás	Egy éves új beteg incidencia	Szervátültetések éves esetszáma (elhunyt donorból)	Különbség
86 országban, WHO, 2021	~200.000	144.302	-27,85%
Eurotransplant 2022	9.524	6.454	-32,23%
Magyarország 2022	451	313	-30,60%

Eurotransplant várólista 2021	Eurotransplant várólista mérete magyar lakosságszámra	Tényleges magyar várólista 2021	Különbség
13.729	954	911	-4,51%

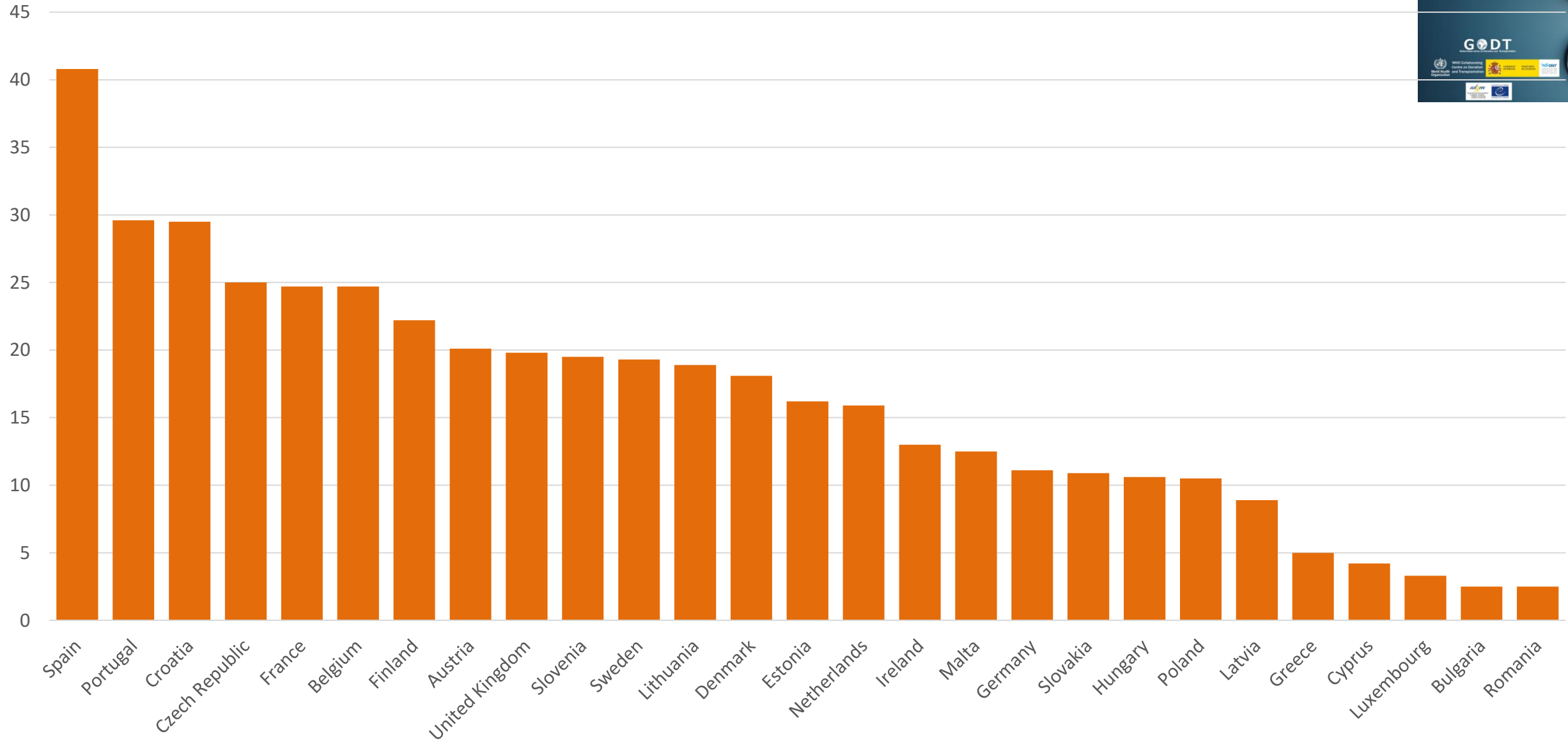
A magyar várólisták feltöltöttsége megegyezik az Eurotransplant átlag adatokkal!

<http://www.transplant-observatory.org>

<http://eurotransplant.org>

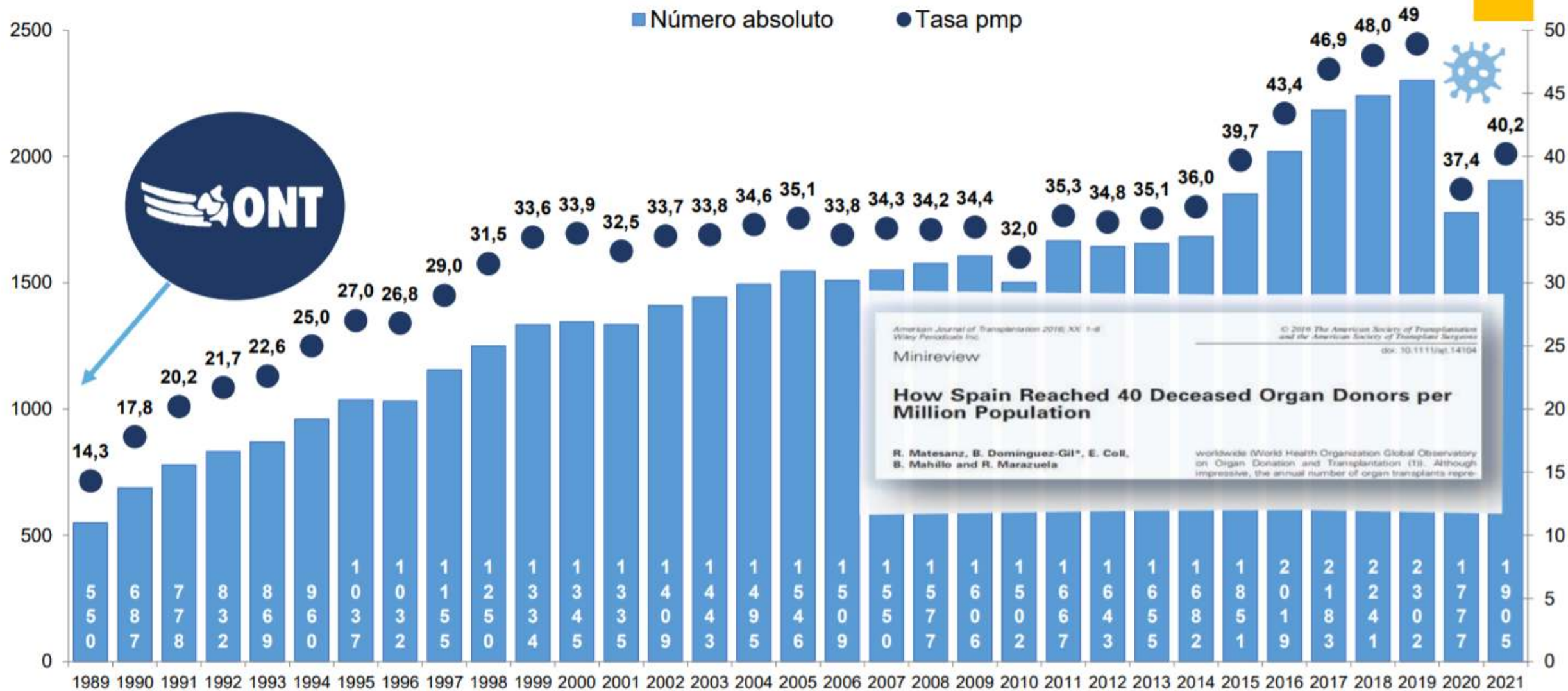
<https://nszr.ovsz.hu>

Elhunyt szervdonorok száma EU (+UK) tagállamokban 1 millió lakosra számítva 2021-ben





DONACIÓN DE ÓRGANOS EN ESPAÑA



Fuente: Organización Nacional de Trasplantes

Szervdonációs aktivitás befolyásoló tényezők Magyarországon (DBD)

- **Társadalmi támogatottság:**
 - Ismeret, tájékozottság
 - Egészségügyi ellátórendszerrel szembeni bizalom
- **Jogi szabályozás = Feltételezett beleegyezés elve**
- **Szervdonációs potenciál mérése = QAP: adatgyűjtés, elemzés, beavatkozás**
- **Elkötelezettség**
 - Oktatás
 - Tapasztalat: utilizáció, visszajelzés, szervátültetések
- **Finanszírozás = költségtérítés (reimbursement)**
- **Erőforrások**
 - Humán erőforrás
 - Egyéb erőforrások, pl. ITO ágy, eszközök, diagnosztika, műtő



A szervdonációs aktivitást befolyásoló tényezők

1. Mortalitás:

1. Gyakorisági adatok: balesetek, agyvérzések
2. Intervenció: idegsebészet, neuro-radiológia

2. ITO ágyszám

3. Potenciális donorok felismerése

4. Koordinátori rendszer

5. Beleegyezés, hozzájárulás

6. Jogszabályi környezet

7. Klinikai döntéshozatali folyamat

NHS

Blood and Transplant



Kutatási hipotézis

A súlyos agykárosodást szenvedett betegek életvégi ellátása során történő klinikai döntések variációi befolyásolják a szervdonációs (DBD/DCD) potenciált.

American Journal of Transplantation 2007; 7: 1439–1441
Blackwell Munksgaard

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Journal compilation © 2007 The American Society of
Transplantation and the American Society of Transplant Surgeons

Editorial

doi: 10.1111/j.1600-6143.2007.01831.x

Countries' Donation Performance in Perspective: Time for More Accurate Comparative Methodologies

L. Roels, B. Cohen* and C. Gachet



World Health
Organization

Módszertan

- Szervdonáció esetén leggyakrabban előforduló agyhalál okok:
 - Cerebro-vascularis katasztrófa
 - Közúti baleset
 - Esés
 - Egyéb baleset
 - Gyilkosság áldozata

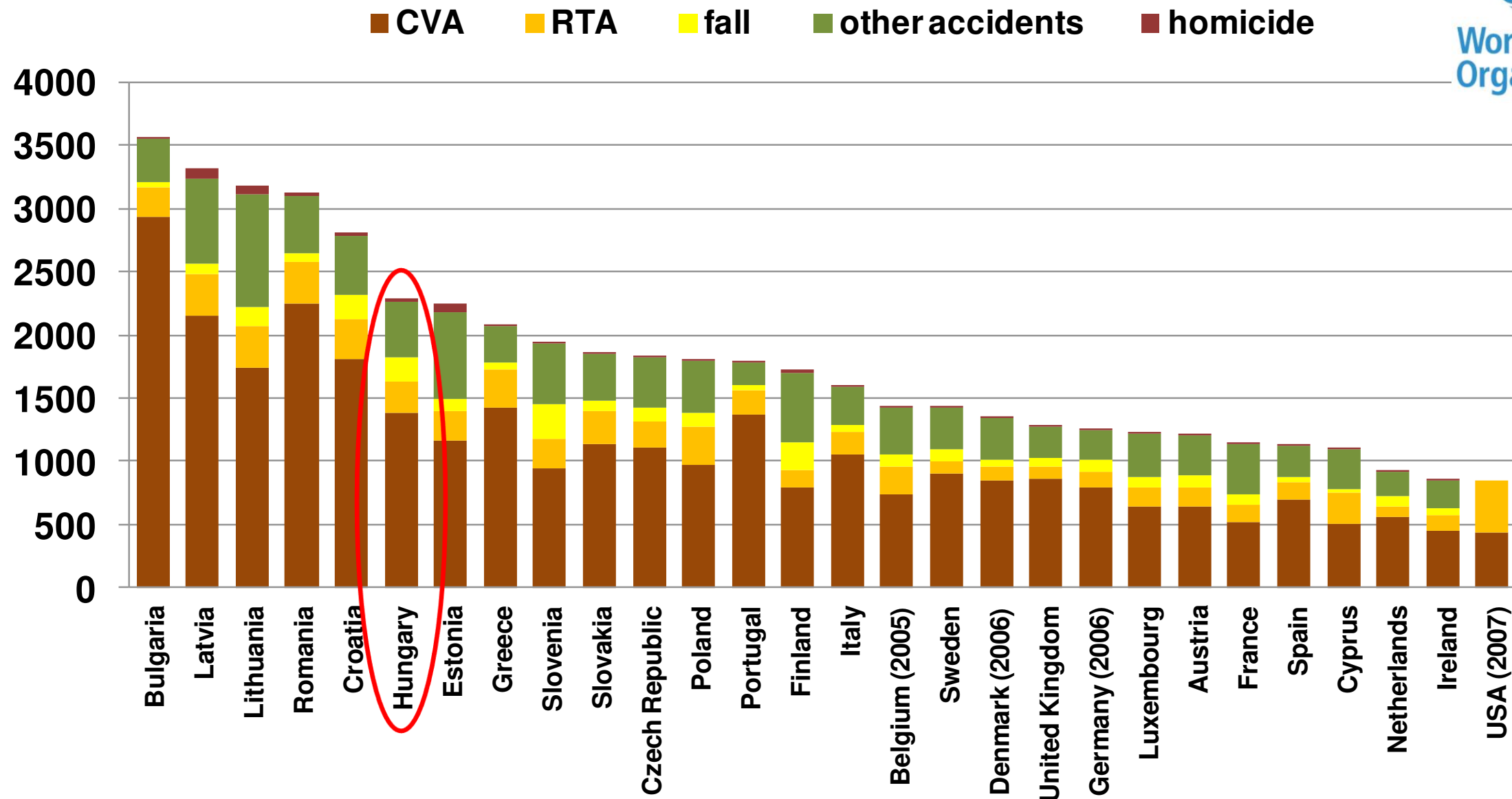
(86% -os UNOS gyakoriság 2000-ben)

(86,8% -os gyakoriság Magyarországon 2010-ben)

Death rates from selected causes*



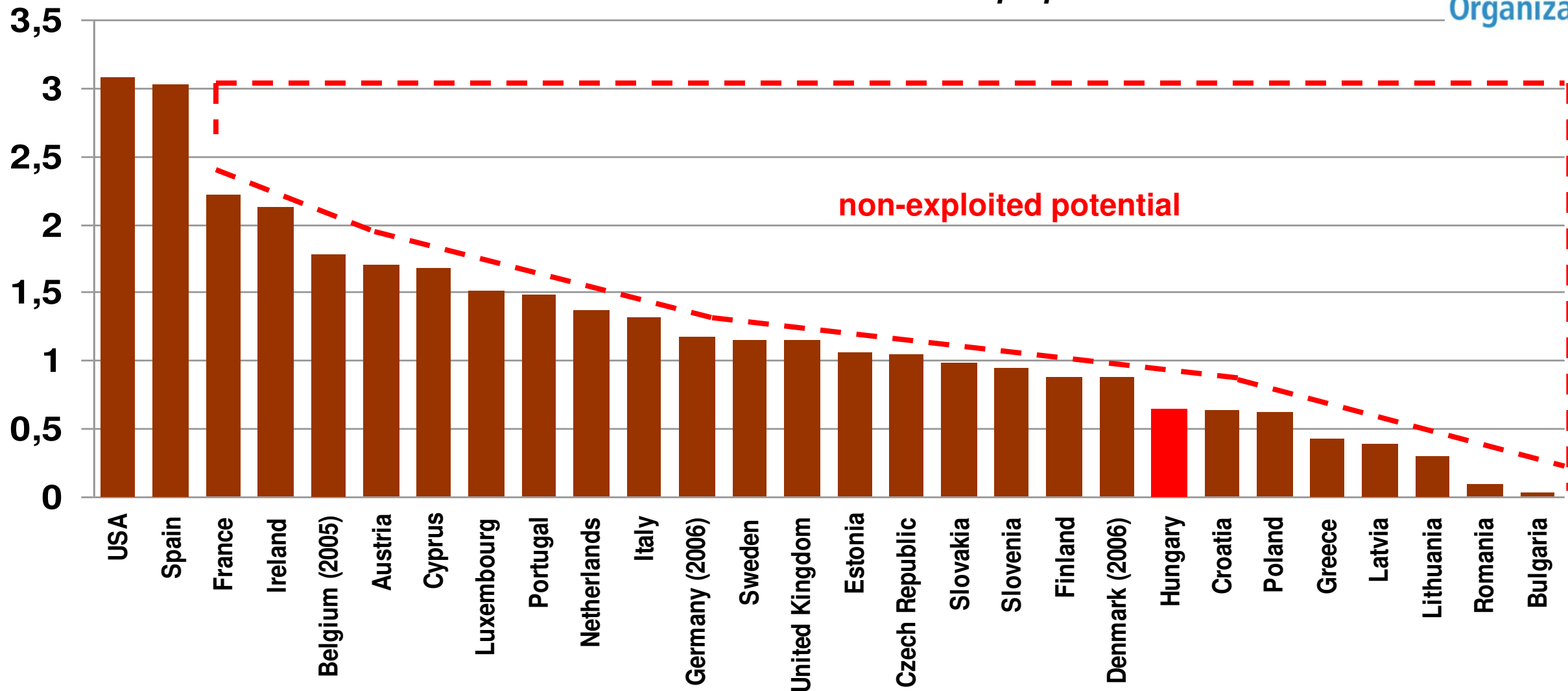
World Health Organization





'Donation Efficiency Index'

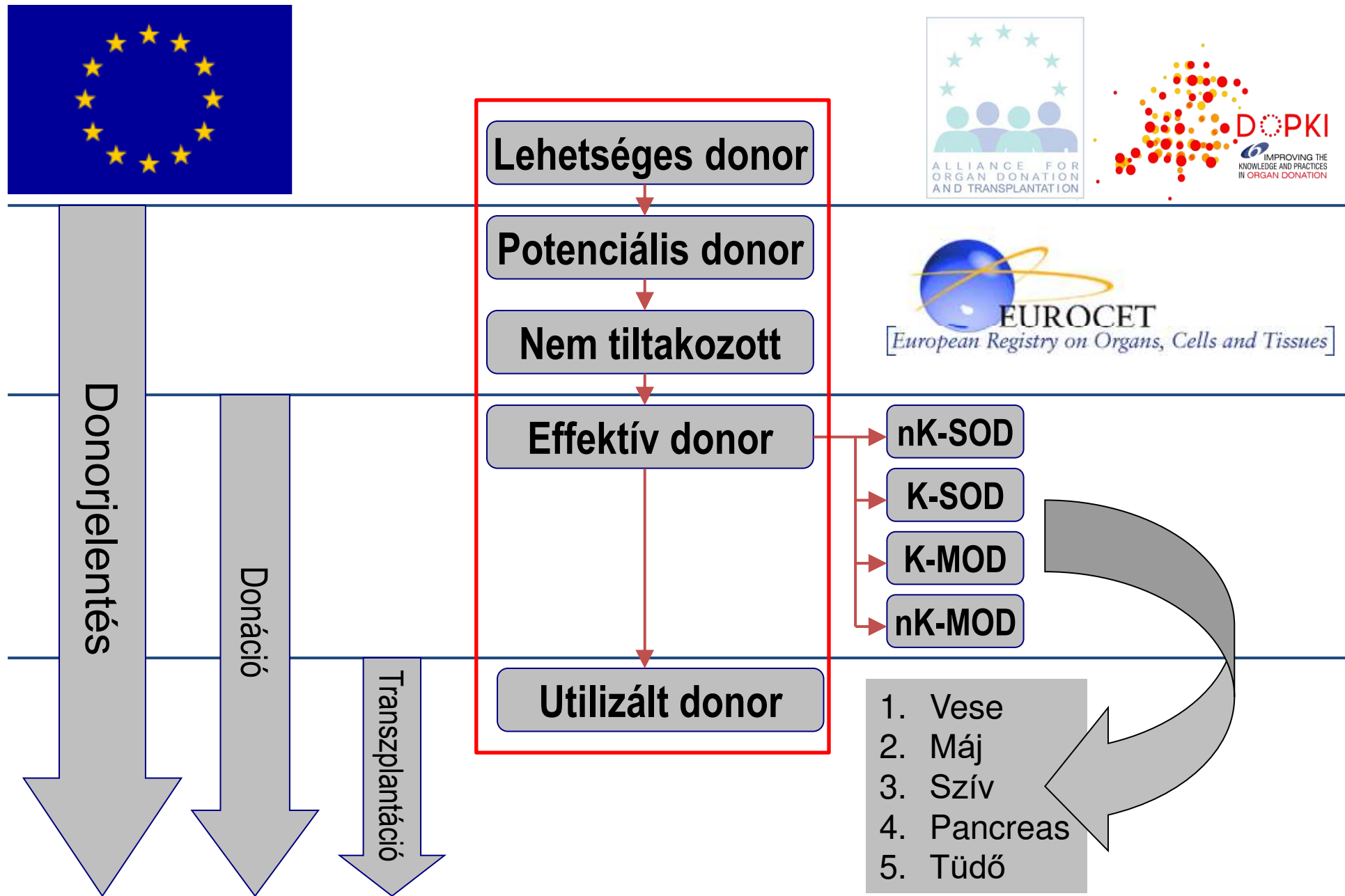
donors/deaths from selected causes pmp - 2008



Potenciális donor

Minden súlyos agykárosodást szenvedett beteg, ha a szerv- vagy szövetdonációnak jogi és/vagy orvosszakmai akadályja nincsen, és a neurológiai kritériumoknak megfelelő halálmegállapítás keretei között végzett első észlelés és annak dokumentálása megkezdődött.

Telefonos értesítések kimenete





Chapter 2. **Identification and referral of possible deceased organ donors**

Through the **Madrid Resolution**, participants at the 3rd World Health Organization (WHO) Global Consultation on Organ Donation and Transplantation, held in Madrid (Spain) in 2010, called on governments and healthcare professionals to pursue **self-sufficiency in transplantation**, that is, to comprehensively satisfy the transplantation needs of their patients by using resources from within their own population [1]. Self-sufficiency entails a combination of strategies targeted at decreasing the burden of diseases treatable through transplantation and at **maximising the availability of organs for transplantation, with priority given to donation from deceased donors**. Deceased organ donation is an essential component of self-sufficiency. Countries that have achieved the highest transplantation rates – and best access of their patients to transplant therapy – are those with well-established deceased donation programmes.

World Health Organization (WHO), Transplantation Society (TTS) and Organización Nacional de Transplantes (ONT). Third WHO Global Consultation on Organ Donation and Transplantation: striving to achieve self-sufficiency, 23-25 March 2010, Madrid, Spain. *Transplantation* 2011; 91(Suppl 1): S27-8. <https://doi.org/10.1097/TP.0b013e3182190b29>.



Chapter 2. Identification and referral of possible deceased organ donors



Donation from deceased donors is a complex process, a sequence of procedural steps which must be properly realised to achieve successful organ transplantation.

The Madrid Resolution resulted in a list of practical recommendations for self-sufficiency in transplantation and the publication of the **WHO Critical Pathway for Deceased Donation**, classifying organ donors on the basis of the phases of the deceased donation process.

The Madrid Resolution also stated that, in pursuing self-sufficiency in transplantation, **donation should be included as a consideration in every end-of-life care pathway**. This recommendation is consistent with the generally accepted principle that the treating physician or team should respect the overall best interests of the dying patient in the decision-making process at the end of life.


This assessment of best interests is not based simply on the patient's medical or clinical interests, but should include a more holistic approach, where the patient's values, beliefs and preferences are also taken into account, including their wishes to donate (or not donate) their organs after death.

DONATION as a normal step in EOL

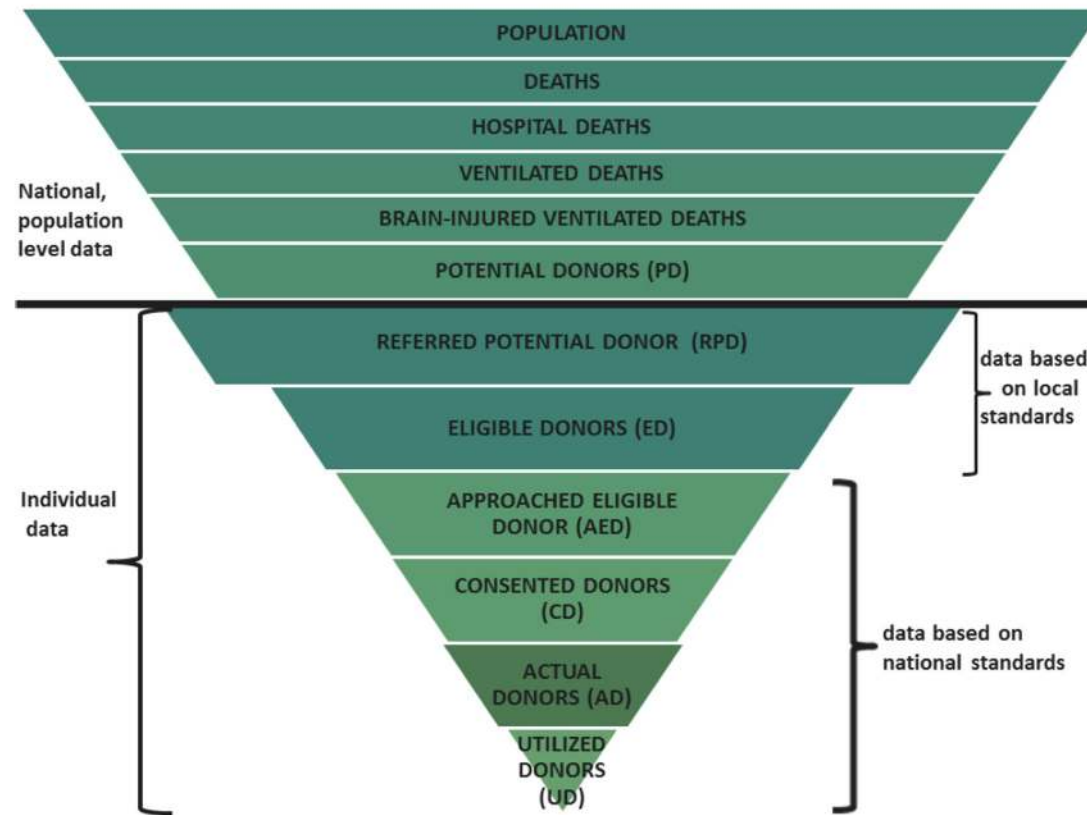


**Potential organ donor identification and system accountability:
expert guidance from a Canadian consensus conference**

**Identification des donneurs d'organes potentiels et responsabilités
du système : conseils experts d'une conférence de consensus
canadienne**

Samara Zavalkoff, MD  · Sam D. Shemie, MD · Jeremy M. Grimshaw, PhD · Michaël Chassé, MD, PhD · Janet E. Squires, PhD · Stefanie Linklater, MSc · Amber Appleby, MM · David Hartell, MA · Jehan Lalani, MHA · Ken Lotherington, BSc · Greg Knoll, MD, MSc on behalf of the Potential Organ Donation Identification and System Accountability (PODISA) Conference Participants (Appendix)

Can J Anesth/J Can Anesth (2019) 66:432–447
<https://doi.org/10.1007/s12630-018-1252-6>




Ventilated Deaths	Persons that died while on positive pressure ventilation (invasive or non-invasive) at any time during the hospital episode during which the patient died.
Brain Injured Ventilated Deaths	Deaths of brain injured ventilated patients.
Potential Donors	Persons with a brain injury leading to death, who received mechanical ventilation at or near the time of death.
Referred Potential Donor	A potential donor who was referred to an ODO.

Fig. 1 Deceased donation information pyramid. Reproduced with permission from: *Canadian Blood Services*. Deceased Donation Data Working Group¹

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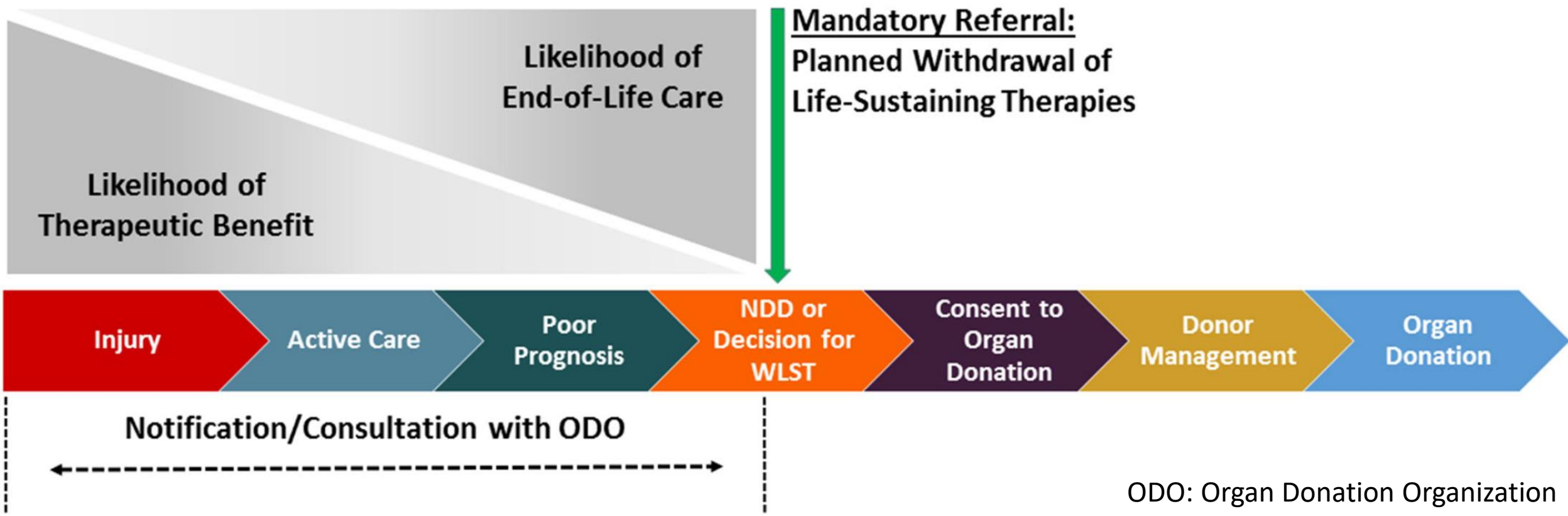


Fig. 2 Sequence of care in deceased donation in relation to notification and referral

ODO: Organ Donation Organization
NDD: neurologically determined death
WLST: Withdrawal of Life-Sustaining Therapies

Australian emergency clinicians' perceptions and use of the GIVE Clinical Trigger for identification of potential organ and tissue donors



doi: 10.1111/j.1742-6723.2012.01598.x

Emergency Medicine Australasia (2012) 24, 501–509

Sandra Neate,^{1,2,3} Claudia H Marck,⁴ Tracey J Weiland,^{3,4} Nicola Cunningham,^{1,3} Bernadette B Hickey,^{2,3,5} Bernadine M Dwyer⁶ and George A Jelinek^{3,4}
Departments of ¹Emergency Medicine and ²Organ and Tissue Donation, St Vincent's Hospital, ³Department of Medicine, The University of Melbourne, St Vincent's Hospital, ⁴Emergency Practice Innovation Centre (EPIcentre), St Vincent's Hospital, ⁵Intensive Care Unit, St Vincent's Hospital, and ⁶DonateLife, Melbourne, Victoria, Australia

The GIVE Clinical Trigger (**GIVE**Trigger/The Trigger) aims to identify patients less than 80 years who have a Glasgow Coma Scale (GCS) score equal to or less than 5 from an irrecoverable brain injury (**G**),

are intubated (**I**),

ventilated (**V**)

and in whom end-of-life discussions (**E**) have concluded that palliative care is planned.

There are no medical conditions that preclude activation of the Trigger.

Minimum Notification Criteria for the identification and referral of patients with a devastating head injury



Glasgow kóma skála (GCS)

Az eszméletlenség mélységének mennyiségi megítélésére szolgáló neurológiai pontrendszer, melynek használatával objektív és megbízható módon mérhető föl a beteg tudatállapota

SZEMNYITÁS

- 4 pont:** spontán
- 3 pont:** megszólításra
- 2 pont:** fájdalomingerre
- 1 pont:** semmilyen stimulusra sem nyitja a szemét
- A pupillák tágassága:**
- 9 mm:** tág
- 6 mm:** középtág
- 2 mm:** szűk

VERBÁLIS FELELET

- 5 pont:** orientált
- 4 pont:** zavart
- 3 pont:** nem megfelelő szavak használata
- 2 pont:** hangok kiadása
- 1 pont:** semmilyen verbális feleletre sem képes
- A beteget megszólítjuk, esetleg ébresztjük, szükség esetén fájdalomingerrel. Célzott kérdéseket teszünk fel (Hol van most?).

MOTOROS VÁLASZ

- 6 pont:** végrehajtja az utasításokat (karját, lábát megemeli, nyelvét mutatja stb...)
- 5 pont:** célzott fájdalomelhárítás
- 4 pont:** céltalan fájdalomelhárítás (ingerelt végtagok elhúzása, elhárító flexió)
- 3 pont:** abnormális flexió a fájdalom hatására (az ingerelt végtag egy vagy mindkét oldali patológiás flexiója, középgagy feletti területek károsodására utal)
- 2 pont:** abnormális extenzió fájdalom hatására
- 1 pont:** nincs válasz, még a legerősebb ingerre sem

15 pont

eszméletlenség mélysége

3 pont

GCS

A **Glasgow Coma Scale (GCS)** egy klinikai skála, amellyel megbízhatóan mérhető egy személy tudatszintje agysérülés után.

A GCS a szemmozgások, a beszéd és a testmozgás képessége alapján értékeli a személyt. Ez a három viselkedés alkotja a skála három elemét: szem, verbális és motoros. Egy személy GCS-pontszáma 3-tól (teljesen nem reagál) 15-ig (reszponzív) terjedhet. Ez a pontszám az agysérülés (például autóbaleset) utáni azonnali orvosi ellátás irányítására, valamint a kórházi betegek megfigyelésére és tudatszintjük nyomon követésére szolgál.

Az alacsonyabb GCS pontszám összefüggésben van a magasabb halálozási kockázattal. A GCS-pontszám önmagában azonban nem használható önmagában az agysérült személy kimenetelének előrejelzésére.

A Glasgow-i kómaskálát két éven felüliek esetében használják, és három tesztből áll: szem-, verbális- és motoros reakciókból. Az egyes tesztek pontszámait az alábbi táblázat tartalmazza.

A glasgow-i kóma skála a kombinált pontszám (3-tól 15-ig terjed) és az egyes tesztek pontszámaként (E a szem, V a verbális és M a motor). Az egyes teszteknek az értéknek a vizsgált személy által adott legjobb válaszon kell alapulnia.

GLASGOW COMA SCALE : Do it this way

GCS EYES
VERBAL
MOTOR

Institute of Neurological Sciences NHS Greater Glasgow and Clyde



CHECK

For factors Interfering with communication, ability to respond and other injuries



OBSERVE

Eye opening, content of speech and movements of right and left sides



STIMULATE

Sound: spoken or shouted request
Physical: Pressure on finger tip, trapezius or supraorbital notch



RATE

Assign according to highest response observed

Eye opening

Criterion	Observed	Rating	Score
Open before stimulus	✓	Spontaneous	4
After spoken or shouted request	✓	To sound	3
After finger tip stimulus	✓	To pressure	2
No opening at any time, no interfering factor	✓	None	1
Closed by local factor	✓	Non testable	NT

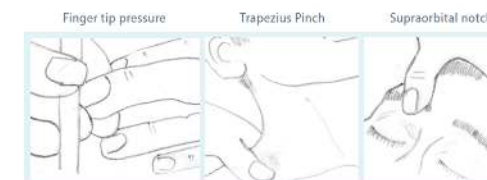
Verbal response

Criterion	Observed	Rating	Score
Correctly gives name, place and date	✓	Orientated	5
Not orientated but communication coherently	✓	Confused	4
Intelligible single words	✓	Words	3
Only moans / groans	✓	Sounds	2
No audible response, no interfering factor	✓	None	1
Factor interfering with communication	✓	Non testable	NT

Best motor response

Criterion	Observed	Rating	Score
Obeys 2-part request	✓	Obeys commands	6
Brings hand above clavicle to stimulus on head neck	✓	Localising	5
Bends arm at elbow rapidly but features not predominantly abnormal	✓	Normal flexion	4
Bends arm at elbow, features clearly predominantly abnormal	✓	Abnormal flexion	3
Extends arm at elbow	✓	Extension	2
No movement in arms / legs, no interfering factor	✓	None	1
Paralysed or other limiting factor	✓	Non testable	NT

Sites For Physical Stimulation



Features of Flexion Responses

Modified with permission from Van Der Naalt 2004 Ned Tijdschr Geneesk



For further information and video demonstration visit www.glasgowcomascale.org

Graphic design: by Margaret Peir based on layout and illustrations from Medical Illustration 6(1) 288005 (c) 2011 Graham Teasdale 2011

Identification and Referral of Potential Organ Donors

Identify potential donors as early as possible if either of the following criteria are met.

Patients with severe brain injury if

- *One or more cranial nerve reflexes is absent and the Glasgow Coma Score is 4 or less and cannot be explained by sedation, or*
- *A decision has been made to perform brain stem death tests*

Patients for whom a decision has been made to withdraw life-sustaining treatment

Continue on-going and supportive critical care.

Step 1. Call Organ Donor Referral Line 03000 203040. Provide your hospital name, your name, direct dial number and reason for your call. You will receive a call back within 20 minutes.

Step 2. A member of the organ donation specialist nursing team will contact you and ask a series of structured questions to determine the suitability of the patient to become an organ donor.

Providing the information requested will enable the team to undertake a robust assessment, provide a decision about suitability and plan next steps.



Chapter 2. Identification and referral of possible deceased organ donors

The **identification** and subsequent referral of organ donors **by treating physicians**, usually from **intensive care units (ICUs) and emergency departments**, to the donor co-ordinator or staff of the corresponding organ procurement organisation (OPO) is the first and most crucial step of the deceased donation process.

Organ donation cannot take place unless possible donors are identified and referred in a timely fashion, marking the beginning of either the DBD or the DCD organ donation pathway.

Failure to identify and refer organ donors is in fact one of the main reasons for substantial differences in deceased donation rates between countries, regions and hospitals.

Potential for Deceased Donation Not Optimally Exploited: Donor Action Data From Six Countries

Leo Roels,^{1,3} Jacqueline Smits,² and Bernard Cohen¹

TABLE 1. Potential heart-beating donor losses along the donation pathway in six countries (total 2007–2009) (^aincluding registry checks in countries with presumed consent legislation)

	Total no. records	Ventilated, medically suitable	Potential HB donors, as % of ventilated, medically suitable	<u>Not identified, as % of potential</u>	<u>Not referred, as % of identified</u>	No family approach ^a , as % of identified	Refusal, as % of approach	Organ retrieval, as % of potential (=conversion rate)
Belgium	22,249	7,015	17.8	20.6	28.2	23.9	20.3	44.3
Finland	2,131	603	36.5	21.4	23.7	16.8	14.6	51.4
France	19,383	6,332	32.4	18.9	11.0	12.7	32.7	47.1
Israel	470	452	99.8	9.1	2.0	0	53.7	38.1
Poland	1,470	1,129	34.9	55.6	19.4	4.6	23.4	30.5
Switzerland	6,742	2,372	20.7	23.2	47.1	10.1	40.9	41.1
Total	52,382	17,903						
Mean			40.3	24.8	21.9	11.3	30.9	42.1
SD			30.1	15.9	15.5	8.5	14.5	7.3

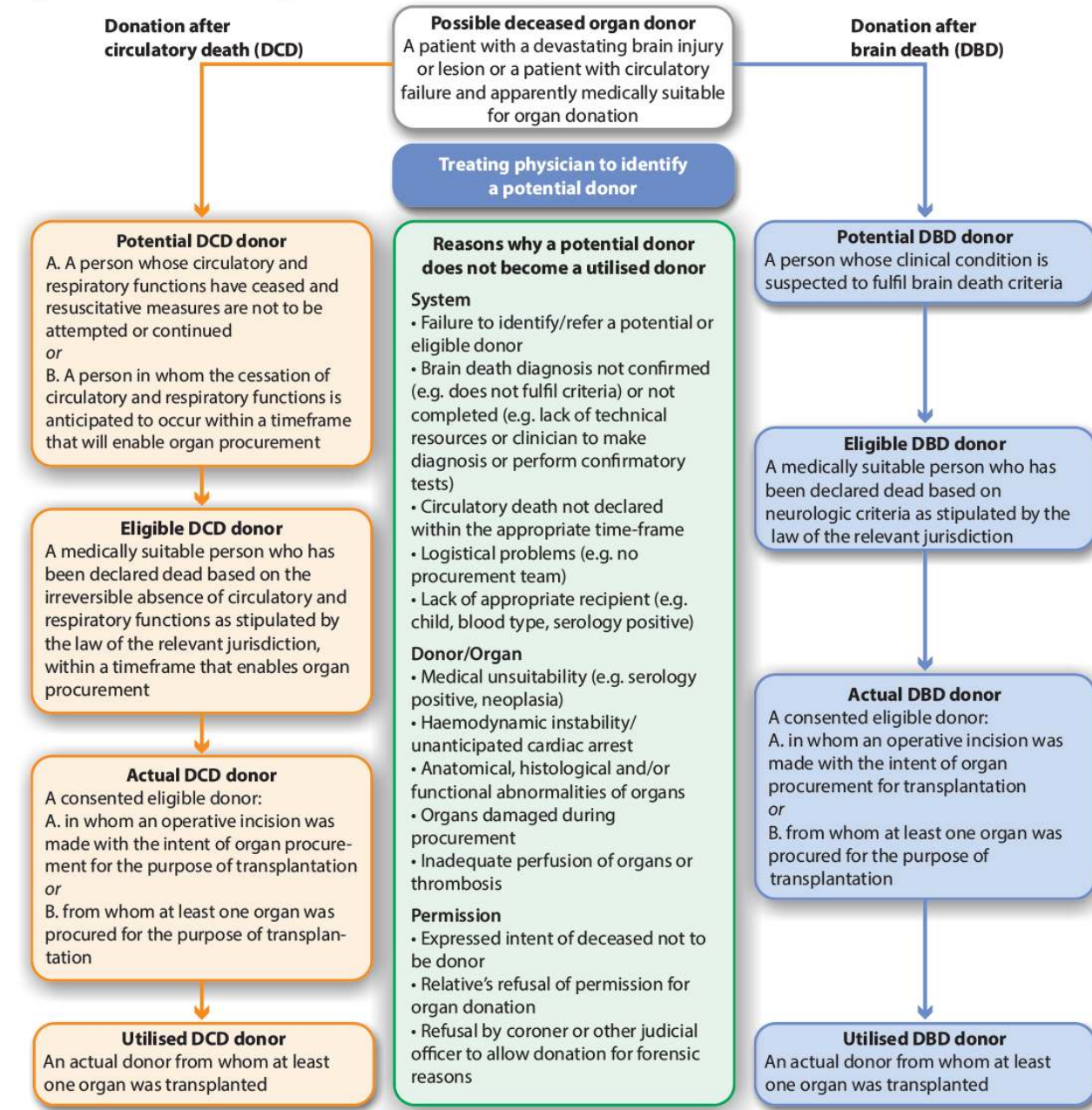
Chapter 2. Identification and referral of possible deceased organ donors

2.3. The process of deceased donation: the WHO Critical Pathway

The **WHO Critical Pathway for Deceased Donation** was conceived as a useful clinical tool **applicable in every country** (region or hospital) for assessing the potential of deceased organ donation, evaluating performance in the deceased donation process and identifying areas for improvement.

The particular value of this tool is that it **creates uniformity in the description and assessment of the deceased donation process**. The Critical Pathway for Deceased Donation addresses both DBD and DCD and defines types of donors based on the different phases of the donation process: **possible, potential, eligible, actual** and **utilised** organ donors

Figure 2.1. World Health Organization Critical Pathway for Deceased Donation



The 'dead donor rule' must be respected. That is, patients may become donors only after death, and the procurement of organs must not cause a donor's death.

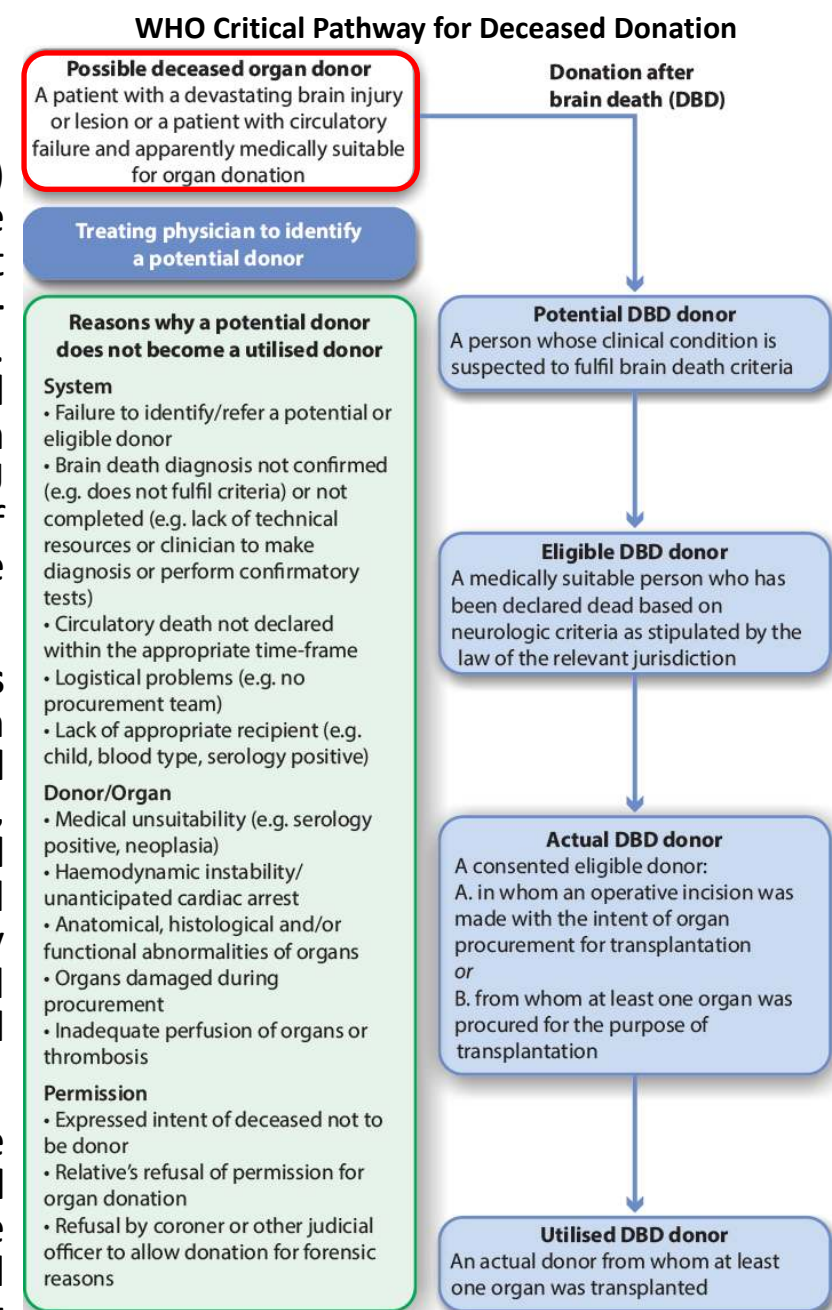
Adapted with permission from *Transpl Int* 2011;24(4):373-8 [4].

Chapter 2. Identification and referral of possible deceased organ donors

A **possible deceased organ donor** is a patient, either **with a devastating brain injury (DBI)** or **with a circulatory failure**, who is apparently **medically suitable** for organ donation. The patient with a DBI is a patient with an imminent risk of death from a neurological insult and where the multidisciplinary team is **considering not initiating or not continuing life-sustaining therapies on the grounds of futility in favour of palliative and end-of-life care**. This is frequently a patient **already admitted to an ICU and receiving mechanical ventilation**, but it can also be a patient outside the ICU in whom the decision has been made not to initiate or continue mechanical ventilation and/or not to admit to the ICU with a therapeutic purpose. Organ donation is possible in this particular scenario if intensive care is initiated or continued despite futility, that is, if intensive care to facilitate organ donation (ICOD) is applied.

The WHO Critical Pathway for Deceased Donation identifies the **possible organ donor as the ideal starting point for identification and referral** of donors by the treating physician or team to the donor co-ordinator or staff of the corresponding OPO in order **to avoid late referrals**. Early referral allows an **appropriate assessment of medical suitability, careful preparation of the family approach and timely organisation of other logistical aspects** of the deceased donation process. However, early referral is not considered appropriate or is not legally possible in all jurisdictions, which leads to the need for delay in referral, particularly in DBD, to the point where the person already exhibits clinical signs consistent with BD (brain death) or to the point where BD has already been declared as per national standards.

The **emergency department is an important unit** where possible organ donors can be identified and are, however, frequently missed. It is estimated that **up to 50 % of actual DBD donors are admitted from emergency departments**. Failed identification of possible donors in the emergency department may be due to lack of knowledge of referral pathways or incorrect assumptions regarding eligibility criteria. This is why it is of utmost importance to educate personnel from the emergency department in referral criteria regarding DBD, where applicable.



Chapter 2. Identification and referral of possible deceased organ donors

A **potential deceased organ** (DBD) donor is a person whose clinical condition is consistent with BD.

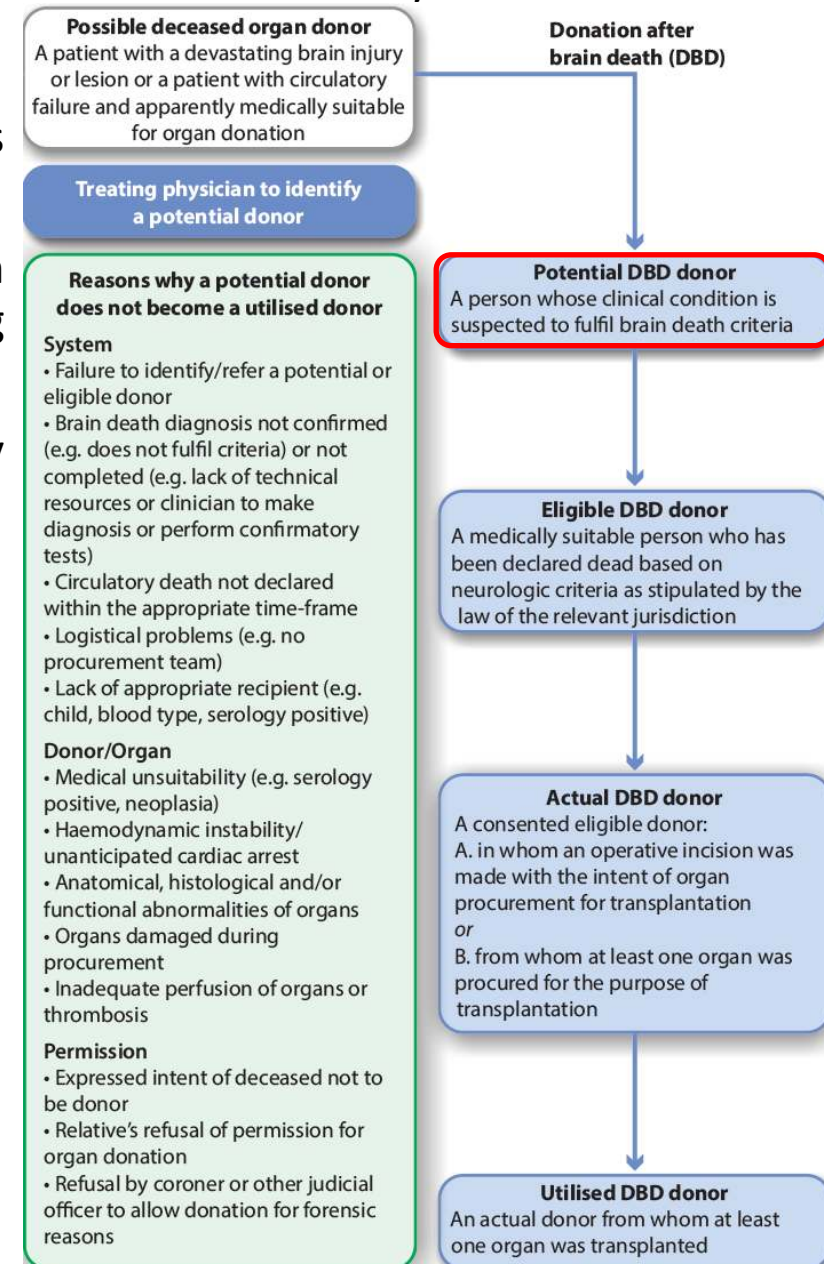
This last scenario refers to persons with a DBI in whom further treatment has been deemed futile and for whom a decision has been made to withdraw life-saving treatment.

The transition from possible to potential deceased organ donor depends on a variety of factors, particularly the end-of-life care practices in place.

Ethicus Study	End of life Categories (% patients)				
	Unsuccessful CPR	Brain death	Treatment limitation	Treatment withdrawal	Active shortening of dying process
Northern Denmark, Finland, Ireland, Netherlands, Sweden, UK	10.2	3.2	38.2	47.4	0.9
Central Austria, Belgium, Czechia, Germany, Switzerland	17.9	7.6	34.1	33.8	6.5
Southern Greece, Israel, Italy, Portugal, Spain, Turkey	30.1	12.4	39.6	17.9	0.1
Range between countries	5 - 48	0 - 15	16 - 70	5 - 69	0 - 19

Sprung CL, Cohen SL, Sjkovist P, Baras M, Bulow HH, Hovilehto S, Ledoux D, Lippert A, Maia P, Phelan D, Schobersberger W, Wennberg E, Woodcock T; Ethicus Study Group. End-of-life practices in European intensive care units: the Ethicus Study. JAMA. 2003 Aug 13;290(6):790-7. doi: 10.1001/jama.290.6.790. PMID: 12915432.

WHO Critical Pathway for Deceased Donation



Chapter 2. Identification and referral of possible deceased organ donors

The **eligible DBD donor** is a medically suitable patient who has been declared dead based on neurological criteria as stipulated by the law of the relevant jurisdiction.

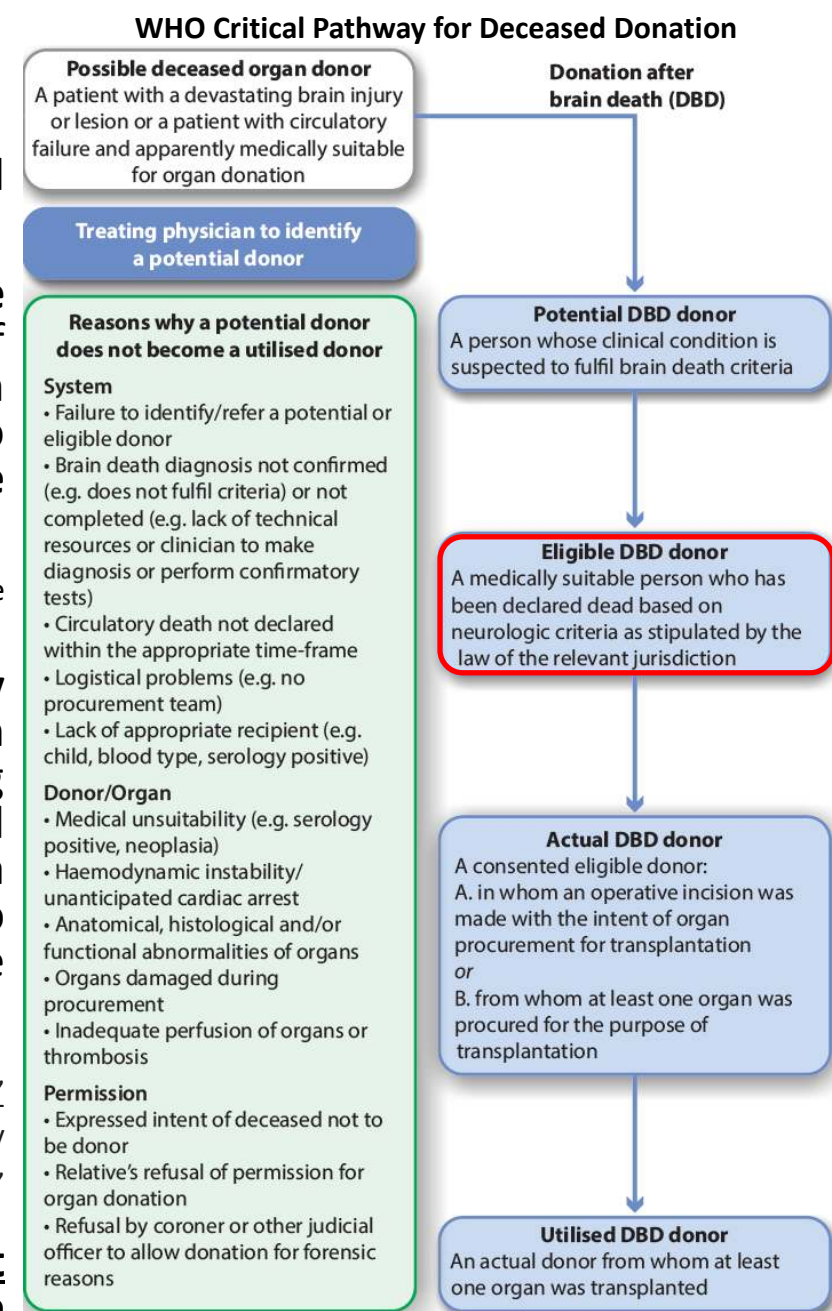
A potential DBD donor **might not become eligible for organ donation because the diagnosis of death by neurological criteria has not been confirmed** – e.g. because of a **lack of the technical and human resources** needed for confirmation. It is worth noting that in some European countries and the USA up to **30 % of patients** who exhibit a clinical condition consistent with BD **are not tested to confirm the diagnosis, a practice that completely removes the possibility of DBD.**

de Groot, Y.J., Wijdicks, E.F.M., van der Jagt, M. et al. Donor conversion rates depend on the assessment tools used in the evaluation of potential organ donors. *Intensive Care Med* 37, 665–670 (2011). <https://doi.org/10.1007/s00134-011-2131-6>

Potential donors might also be ineligible because **they are considered medically unsuitable**. Although there are **very few absolute contraindications** to organ donation, a perception of medical unsuitability is a frequent reason for not referring potential donors to the donor co-ordinator or staff of the OPO. Moreover, external audits in some countries have revealed that **11 % of the decisions not to refer a potential DBD donor on medical grounds were incorrect**. A patient's suitability to donate organs is dependent on recipient factors as well as donor factors, and some organs may be acceptable for certain patients, whereas others may not.

de la Rosa, G., Domínguez-Gil, B., Matesanz, R., Ramón, S., Alonso-Álvarez, J., Araiz, J., Choperena, G., Cortés, J.L., Daga, D., Elizalde, J., Escudero, D., Escudero, E., Fernández-Renedo, C., Frutos, M.A., Galán, J., Getino, M.A., Guerrero, F., Lara, M., López-Sánchez, L., Macías, S., Martínez-Guillén, J., Masnou, N., Pedraza, S., Pont, T. and Sánchez-Rodríguez, A. (2012), Continuously Evaluating Performance in Deceased Donation: The Spanish Quality Assurance Program. *American Journal of Transplantation*, 12: 2507-2513. <https://doi.org/10.1111/j.1600-6143.2012.04138.x>

The primary role of the treating team is to identify and refer potential donors, but decisions regarding medical suitability for donation should be always left to the donor co-ordinator and the relevant transplant teams.



Chapter 2. Identification and referral of possible deceased organ donors

An **actual DBD** and an **actual DCD donor** are defined in the same manner – as a consenting, eligible organ donor in whom an operative incision has been made with the intention of organ procurement for the purpose of transplantation. An actual deceased organ donor is also defined as a **person from whom at least one organ has been retrieved for transplantation purposes**.

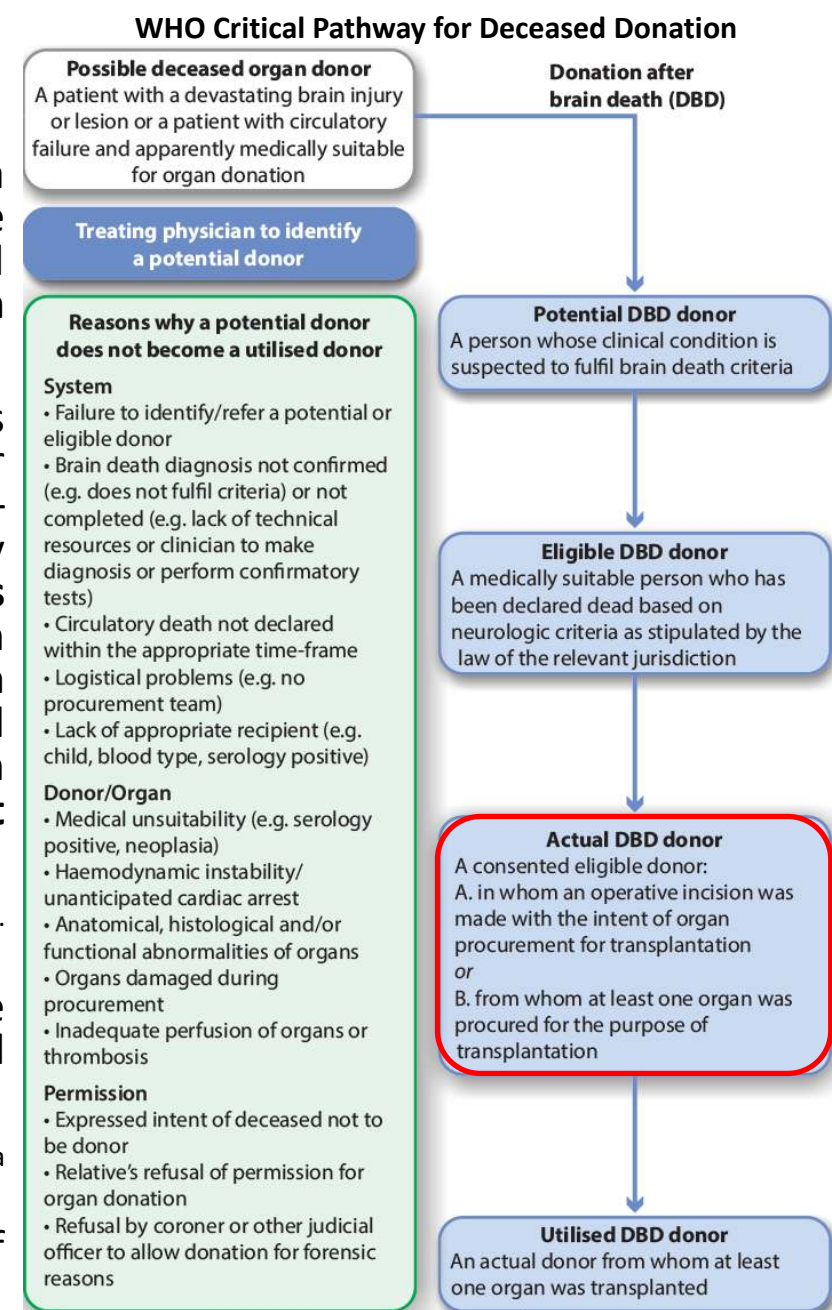
The main reason why organ procurement does not proceed in an eligible organ donor is that **consent/authorisation was declined**, either by the individual during their lifetime or by their relatives. Consent rates to organ donation are influenced by a variety of factors – both modifiable and non-modifiable. In the Accord Joint Action, in a dedicated study undertaken at 67 hospitals from 15 EU member states, **24% and 33% of families approached to discuss organ donation declined authorisation for organ procurement**, in the DBD and DCD processes respectively. The rate of declined consent for organ procurement in the DBD process was, however, underestimated since the rate referred only to those families approached to discuss organ donation from persons whose death was already confirmed by neurological criteria. **The moment when the family is first approached to discuss organ donation has indeed an impact on consent rates.**

de Groot, Y.J., Jansen, N.E., Bakker, J. et al. Imminent brain death: point of departure for potential heart-beating organ donor recognition. *Intensive Care Med* 36, 1488–1494 (2010). <https://doi.org/10.1007/s00134-010-1848-y>

In a Spanish study, consent was more frequent if the family was approached once the patient already fulfilled BD criteria or if the BD diagnosis had been completed, compared with situations when BD was likely but had not occurred yet.

B. Domínguez-Gil, et al. End-of-life practices in patients with devastating brain injury in Spain: implications for organ donation. *Medicina Intensiva*. Volume 41, Issue 3, April 2017, Pages 162-173. <https://doi.org/10.1016/j.medin.2016.07.011>

These data reveal the more complex communication with the family in the context of ICOD.

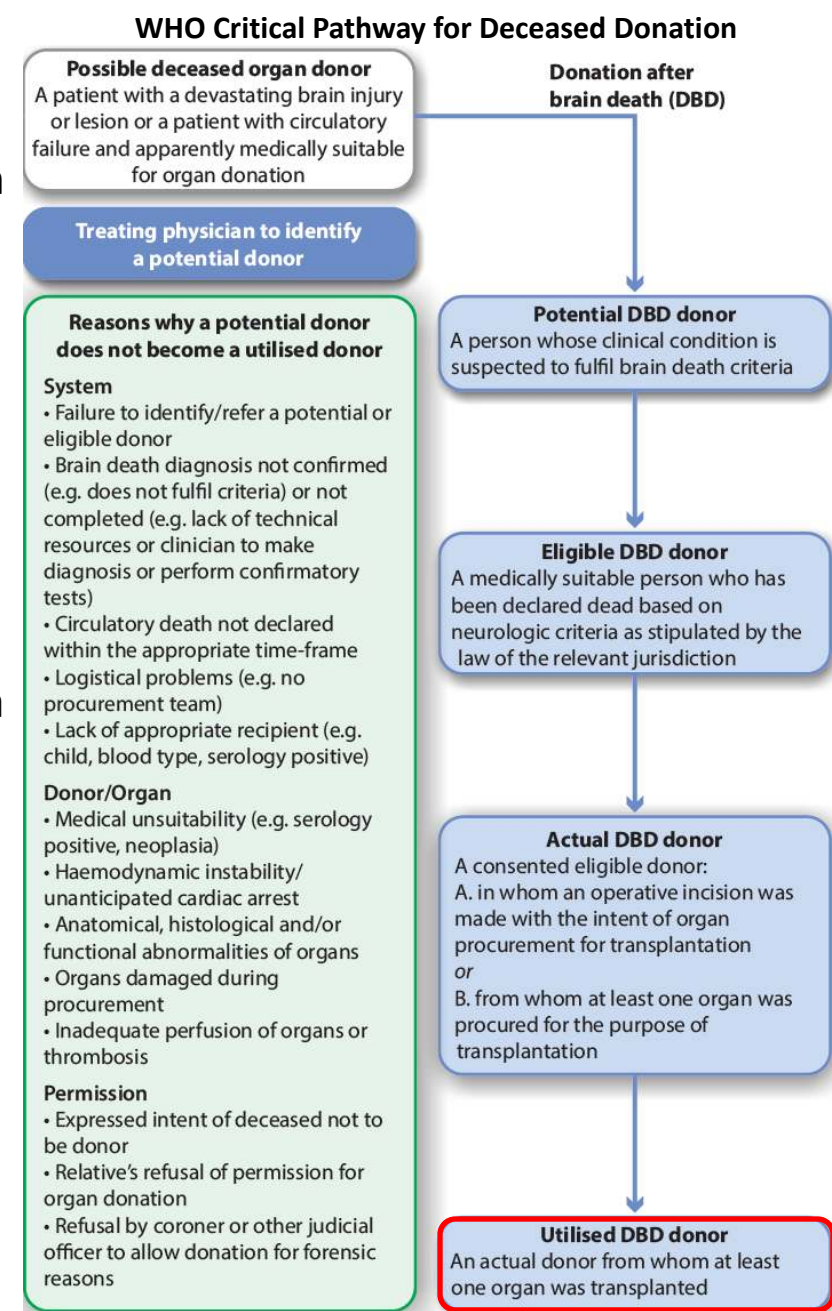


Chapter 2. Identification and referral of possible deceased organ donors

Utilised DBD and DCD donors are defined as those actual DBD or DCD donors from whom at least one solid organ has been transplanted.

Once retrieved, organs **might not be transplanted because of** anatomical or histological findings in the donor or in the organs themselves, poor perfusion, organ damage during procurement or lack of suitable recipients, among others.

Non- utilisation of actual donors is more frequent in the case of expanded- criteria donors and in DCD in comparison to the DBD process



Chapter 2. Identification and referral of possible deceased organ donors

Intensive care to enable organ donation (ICOD)

A possible organ donor may be a person with a **DBI** in whom further therapy is deemed **futile**, either in the **emergency department or in the hospital ward, and for whom admission to an ICU**, and even the initiation of mechanical ventilation, is not deemed therapeutically indicated because neither procedure is considered to be in the patient's best clinical interest. In this context, **intubation and initiation of mechanical ventilation – that is, elective non-therapeutic ventilation (ENTV) – and admission to an ICU could be considered with the purpose of incorporating the option of organ donation into the end-of-life care of the patient.**

Martin-Loeches I, Sandiumenge A, Charpentier J, Kellum JA, Gaffney AM, Procaccio F, Westphal GA. Management of donation after brain death (DBD) in the ICU: the potential donor is identified, what's next? Intensive Care Med. 2019 Mar;45(3):322-330. doi: <http://10.1007/s00134-019-05574-5>. Epub 2019 Feb 28. PMID: 30820584.

The potential for organ donation could be therefore considered in patients with a DBI, that is, **patients with acute, severe neurological damage** and an apparently **hopeless prognosis**, where the multidisciplinary team is considering a **shift from active treatment to palliative and end-of-life care**. In this situation, a patient with DBI and impending death could be **considered for ICOD**, which may include ENTV and continued organ support. **In practice, this means admission to the ICU.**

Escudero D, Otero J, Menéndez de León B et al. Organ donation and elective ventilation: a necessary strategy. Biomed Res Int 2017, 15 January 2017, 1-6, <https://doi.org/10.1155/2017/7518375>.

Candidates for **ICOD** are mainly **identified in the emergency department**, but also in hospital wards (neurology, neurosurgery and others). Close collaboration between OPO staff or donor co-ordinators, ICU personnel and professionals from the above-mentioned departments is necessary and thus represents a crucial starting point for the successful realisation of this particular donation practice.

Today, ICOD, inclusive of ENTV or not, is a **common clinical practice in many but not all countries** since it still raises some ethical, legal, community and professional concerns in some settings. What is clear is that ICOD and ENTV result in an **increase in the total number of organs available** for transplantation at a time when the pool of 'standard' DBD donors is decreasing because of reduced incidence of death from brain trauma and stroke. ICOD also offers more patients the opportunity to donate organs after death if this is consistent with their wishes and values.

Chapter 2. **Identification and referral of possible deceased organ donors**

Intensive care to enable organ donation (ICOD)

Since ICOD and ENTV are relatively new as successful organ-donation practices, a few details are discussed below.

In patients with a severe neurological injury, a consensus concerning the patient's prognosis and non-treatable condition should be established by an **expert multidisciplinary team before ICOD** is considered. The decision not to pursue active treatment should be **based on scientific evidence, expert opinion, clinical experience** and the patient's **age** and **co-morbidity**; moreover, it should be made on an individual, **case-by-case** basis.

Patients identified as potential candidates for ICOD and ENTV **should be immediately referred to the donor coordinator** or the staff of the corresponding OPO. Early referral allows enough time for the **assessment of suitability for donation, reduces the delay for ICU admission** and **enables a planned approach to the patient's family**. Clinical and radiological triggers facilitate the identification of possible donors and should be developed and recommended by a multidisciplinary expert team for adoption in every hospital with a potential for organ donation.

Once referred, **patients with a DBI should not be considered candidates for ICOD unless it is likely that BD will occur within a short period of time and the patient has no apparent medical contraindications to organ donation.**

Chapter 2. **Identification and referral of possible deceased organ donors**

Intensive care to enable organ donation (ICOD)

Although **informed consent for ICOD and ENTV cannot be obtained from a patient with a DBI**, these procedures can be considered to be in the patient's best interests if they are consistent with the patient's known moral values and beliefs, including any expressed wish to donate organs after death. **Family consent must be obtained before using interventions** that are intended to incorporate organ donation into end-of-life care. The patient's relatives must be given **clear and understandable information** that the **prognosis is hopeless** either for survival or an acceptable functional outcome, and that ICOD and ENTV are only to be introduced once they have accepted the decision that active treatment will not be pursued. The family should be informed that **interventions will be initiated or continued to allow organ donation when the patient deteriorates to BD** and that measures will be undertaken to avoid any potential distress, pain and discomfort. The family should be able to revoke their decision at any time.

Because the family is likely to experience initial shock and inability to make decisions, information should be provided in a gradual and progressive manner adapted to the emotional and other needs of the family. These complex **communications with a patient's relatives need to be conducted by highly skilled staff with knowledge and experience in organ donation and in this particular type of interview**. A large number of patients with DBI will have been intubated in a prehospital setting, facilitating a decision for ICOD while waiting until the patient's and their family's wishes regarding organ donation have been established.

Intensive care to enable organ donation (ICOD)

Once consent for **ICOD – and ENTV – has been obtained**, patients will be subject to **mechanical ventilation** and **somatic organ-protective measures** until BD is established and then until the procurement of transplantable organs. **Sedation** with or without analgesia should be provided to ensure the patient's comfort with drugs and doses that **do not interfere with the subsequent BD diagnosis**. The **majority** of possible deceased organ donors subject to ICOD develop BD and **fulfil the criteria of potential DBD donors during the first 72 hours** following the brain injury.

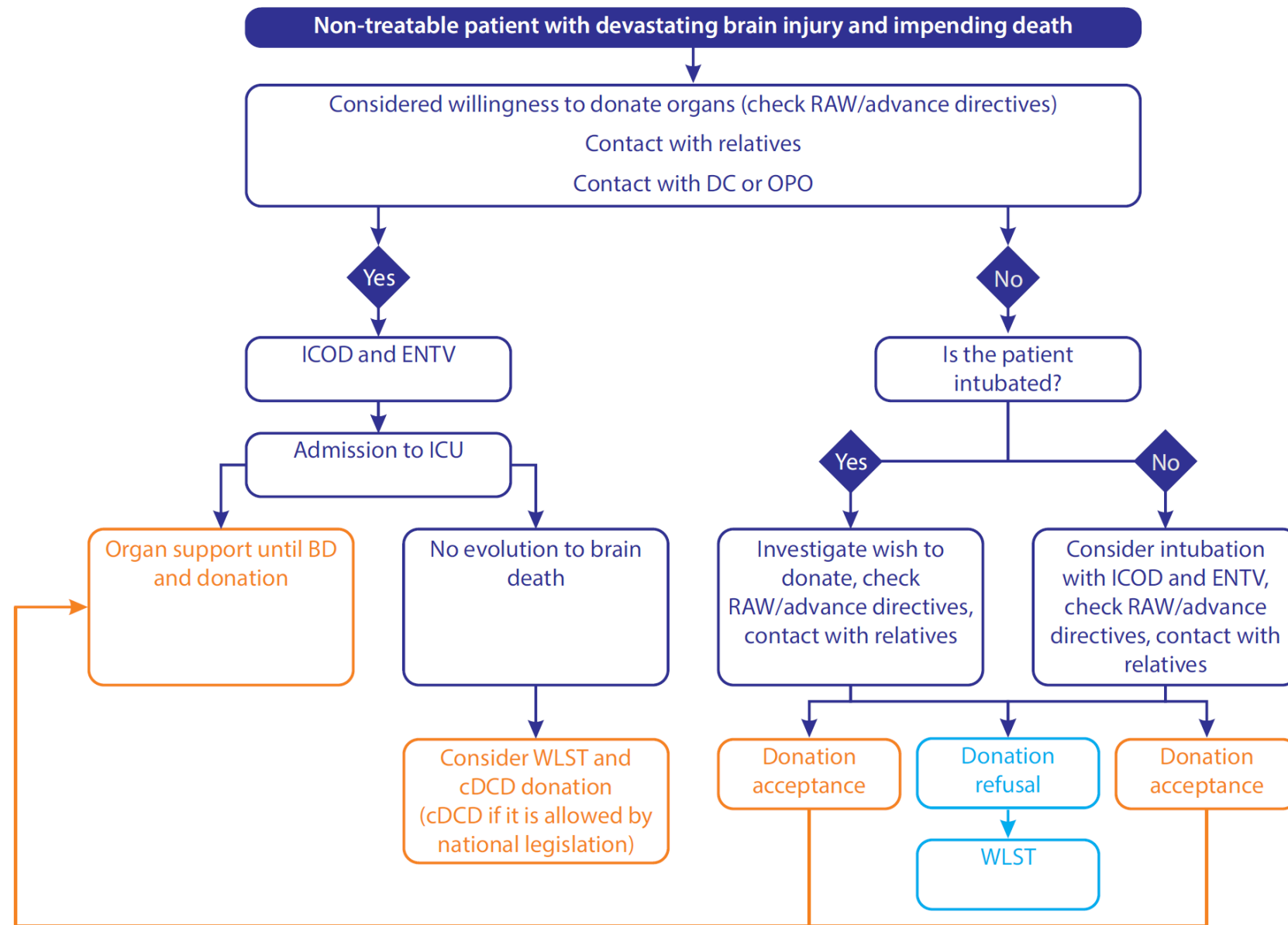
The use of ICOD in nearly dead patients solely to preserve their organs for transplantation and to optimise the chance for deceased donation may **raise some legal and ethical concerns**. In general, however, **specific legislation for this practice is absent**. The practice of ICOD is currently justified by the legal and ethical considerations of fulfilling the patient's overall best interests including the patient's living will and beliefs, not solely their clinical benefit. The main threat to decisions regarding the use of the medical treatment for organ donation in end-of-life situations must be respect for the patient's individual dignity and autonomy by carrying out as far as possible what would have been their wishes if they could express them. The decision-making process regarding medical treatment and the use of some invasive clinical procedures in these circumstances both have to meet the requirements of internationally acknowledged ethical principles, namely autonomy, beneficence, non-maleficence and justice. Moreover, **admission of a critically ill patient with DBI to the ICU provides the best opportunity for end-of-life and palliative care, it allows time to establish a safer prognosis and it gives the family the time to adapt to a tragic and unexpected event**.

Intensive care to enable organ donation (ICOD)

From the perspective of using ICU resources for non-curative purposes, the fast deterioration to BD in the majority of patients with DBI means that ICOD does not place unacceptable pressures on ICU capacity. The admission of a dying patient with DBI to the ICU, when end-of-life care and organ donation are being considered, is acceptable due to appreciable community benefit, yielding an average of over seven times in the quality-adjusted life-years (**7.3 QALYs**) per ICU bed-day compared with the average benefit for ICU patients expected to survive. The family distress caused by the high risk of impending death of their loved one and the application of invasive non-therapeutic interventions can be mitigated by the awareness that this procedure is necessary to meet the desire of their family member and that it might save other lives owing to the organ donation.

Another approach is to **avoid early decisions on WLST** in the emergency department and to **admit all intubated patients with a DBI to the ICU** with the primary intention of ensuring the **safety** of the prognostication, which is virtually always in a patient's best interest. These pathways aspire to improve end-of-life care for patients and their families, and also ensure that organ donation is always considered as part of the patient's end-of-life care. This approach is similar to, and broadly based upon, that developed for the management of patients with hypoxic brain injury who remain comatose after resuscitation from an out-of-hospital cardiac arrest.

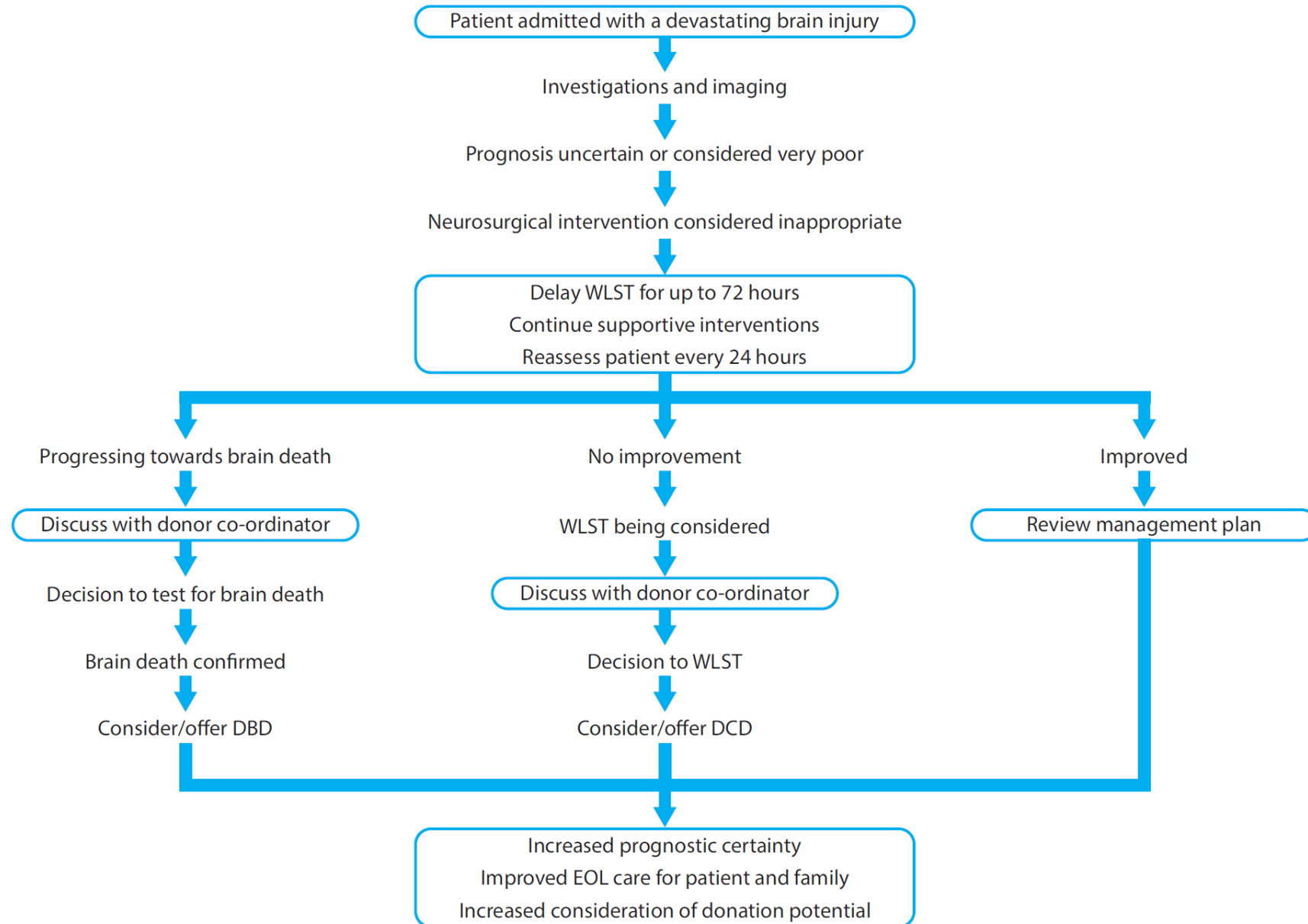
Figure 2.2. Proposed pathway for clinical decisions on initiation of intensive care to facilitate organ donation and elective non-therapeutic ventilation



* cDCD: controlled donation after circulatory death, only if it is allowed by national legislation.

BD: brain death; DC: donor co-ordinator; DCD: donation after circulatory death; ENTV: elective non-therapeutic ventilation; ICOD: intensive care to facilitate organ donation; ICU: intensive care unit; OPO: organ procurement organisation; RAW: registry of anticipated willingness; WLST: withdrawal of life-sustaining treatments.

Figure 2.3. Proposed pathway for clinical decisions on initiation of intensive care to facilitate organ donation and elective non-therapeutic ventilation



* cDCD: controlled donation after circulatory death, only if it is allowed by national legislation.

DBD: donation after brain death; DCD: donation after circulatory death; EOL: end-of-life; WLST: withdrawal of life-sustaining treatments.

Clinical triggers for the identification and referral of donors for donation after brain death

The Glasgow Coma Scale (GCS) is most commonly used to define clinical triggers for referring DBD donors (e.g. GCS < 8). In **Croatia**, certain scores of different neurological scales, depending on the aetiology of brain injury, are recommended to trigger notification to the donor co-ordinator:

- a) For patients with ischaemic brain injury, a National Institute for Health (UK) stroke severity scale ≥ 27 ;
- b) For patients with cerebral haemorrhage, an intracerebral haemorrhage scale or a Hunt-Hess scale ≥ 4 ;
- c) For patients with secondary cerebral anoxia, central nervous system tumours or infections, or severe cerebral trauma, a GCS ≤ 6 .

Clinical triggers for identification and referral of donors for donation after brain death in Croatia

Clinical triggers	Ischaemic brain injury	Intracerebral haemorrhage	Secondary cerebral anoxia	CNS tumour	CNS infection	Cerebral trauma
Recommended referral	NIHSS ≥ 27	ICHS or Hunt-Hess ≥ 4			GCS ≤ 6	
Required referral	GCS 3 and progressive absence of at least three out of six brain stem reflexes or FOUR score of EoMoBoRo					

Note: CNS: central nervous system; GCS: Glasgow coma scale; ICHS: intracerebral haemorrhage scale; NIHSS: National Institute for Health stroke severity scale.

Clinical triggers for the identification and referral of donors for donation after brain death

In the **United Kingdom**, the National Institute for Health and Care Excellence recommendations for the identification and referral of possible organ donors are based on the principle that organ donation should be a component of end-of-life care planning, and are incorporated into an NHS Blood and Transplant strategy for implementation of these recommendations.

In patients with a catastrophic brain injury, referral is recommended

in the absence of one or more brainstem reflexes

and a GCS \leq 4,

unless there is a clear reason why the above clinical triggers are not met (for example, because of sedation) and/or a decision has been made to perform BD testing, whichever is the earlier.

Clinical triggers for the identification and referral of donors for donation after brain death

In a retrospective analysis of patients with acute stroke and high probability of developing BD in five centres in Lorraine (**France**), the authors identified six clinical and radiological factors which could form a predictive score of BD in acute phase of severe stroke with high predictive values (score 1 v. score 2: 72 v. 77 %).

1. The GCS score ≤ 6 before sedation,
2. stroke volume > 65 mL,
3. presence of herniation
4. and/or hydrocephalus on brain imaging,
5. initial systolic blood pressure > 150 mmHg
6. and history of alcohol abuse

represent six different predictive factors of poor prognosis and high probability of progression to BD within 24 h following stroke onset.

Taken together, these factors can make a simple score system that can help clinicians at emergency departments, neurological wards or stroke units to more accurately assess patients with severe stroke as being possible organ donors and to facilitate discussions with family members about treatment futility and ICOD.

Hospital coordination



The choice is in your hand!



COUNCIL OF EUROPE
CONSEIL DE L'EUROPE
Committee of Ministers
Comité des Ministres

Az Európa Tanács ajánlásai

Recommendation Rec(2006)15 of the Committee of Ministers to member states on the background, functions and responsibilities of a National Transplant Organisation (NTO)

The essential functions of an NTO (with its advisory committees) are the following:

- taking responsibility for running a transplant quality assurance system consistent with internationally recognised standards;

Recommendation Rec(2006)16 of the Committee of Ministers to member states on quality improvement programmes for organ donation

a quality improvement programme for organ donation is put in place in every hospital where there is a potential for organ donation;

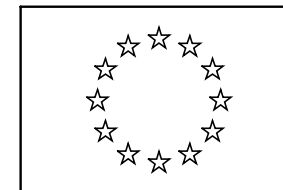
the quality improvement programme is primarily a self-evaluation of the whole process of organ donation, jointly performed by the specialists in intensive care and the transplant co-ordinator of every hospital.

GUIDE OF RECOMMENDATIONS FOR QUALITY ASSURANCE PROGRAMMES IN THE DECEASED DONATION PROCESS



Country	Start	Participating hospitals	Staff	Focus on
France	2001	20,4%	MD & nurses	Donation after BD
Germany	2002	100% (NE Region)	MD & nurses	Donation after BD
Italy	2006	100%	Tx coord	Donation after BD
Spain	1996	75,2%	Tx coord	Donation after BD
UK	2003	100%	Tx coord	BD + NHBD

Brüsszel, 2008.12.8
COM(2008) 819 végleges



A BIZOTTSÁG KÖZLEMÉNYE

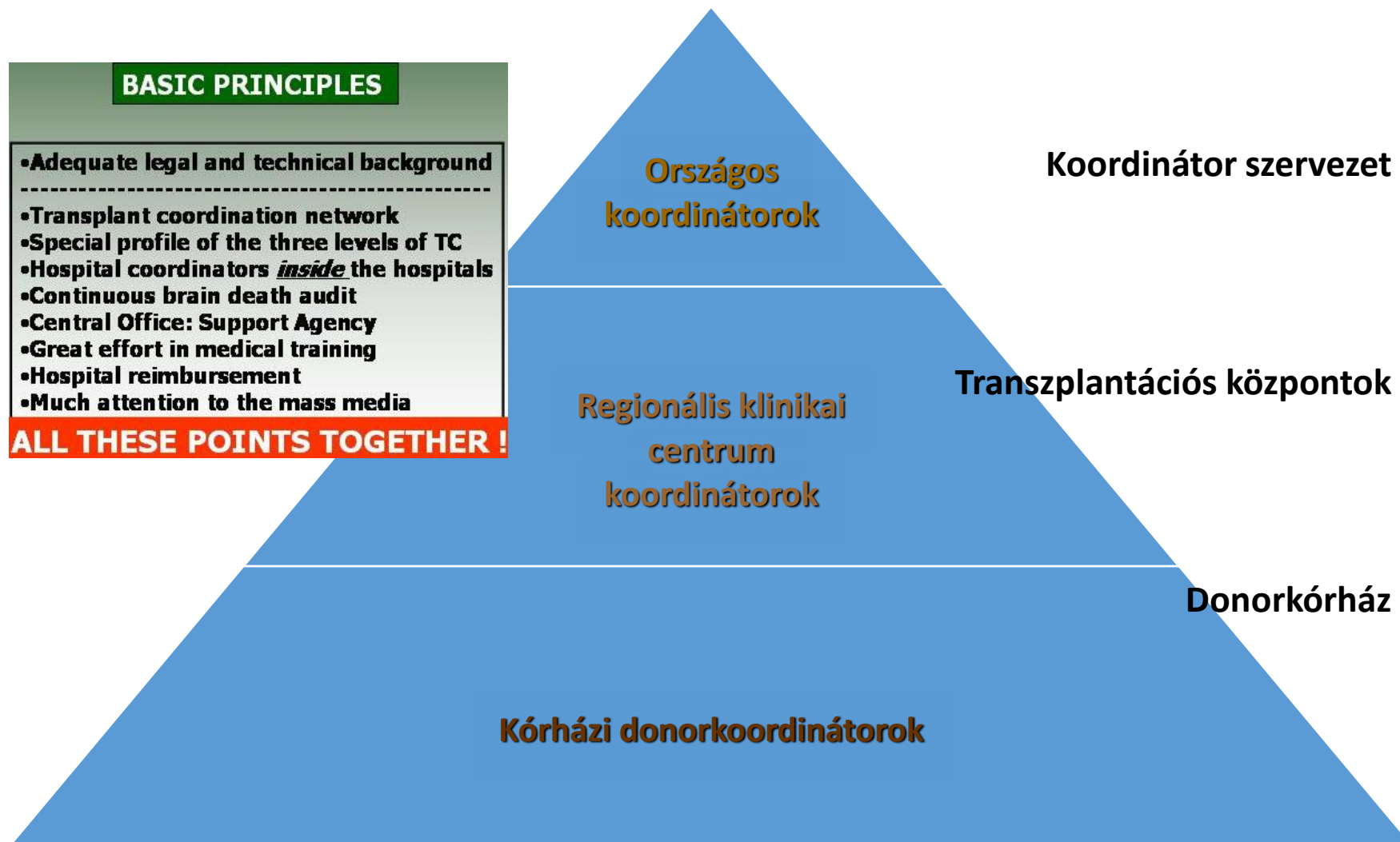
***A szervadományozásra és a szervátültetésre vonatkozó cselekvési terv
(2009-2015): Megerősített együttműködés a tagállamok között***

3.1. Kiemelt intézkedések a rendelkezésre álló szervek mennyiségének növelése érdekében

3.1.1. Az elhalálozott donortól származó szervadományozás nyújtotta lehetőségek teljes kiaknázása

2. kiemelt intézkedés: minden olyan kórházban, ahol lehetőség van szervadományozásra, ösztönözzék a szervadományozásra vonatkozó minőségfejlesztési programokat

Koordinátori struktúra a gyakorlatban és a „Spanyol Modell” értelmezésében



Kórházi koordináció

Minőségbiztosítás a szervdonációban

Brief Communication | [Free Access](#)

Continuously Evaluating Performance in Deceased Donation: The Spanish Quality Assurance Program

G. de la Rosa, B. Domínguez-Gil, R. Matesanz, S. Ramón, J. Alonso-Álvarez, J. Araiz, G. Choperena, J. L. Cortés, D. Daga, J. Elizalde, D. Escudero, E. Escudero, C. Fernández-Renedo ... [See all authors](#) ▾

First published: 15 June 2012 | <https://doi.org/10.1111/j.1600-6143.2012.04138.x> | Citations: 66

Table 3: External evaluations. Global results from all the evaluated hospitals (111 centers). Years 2001–2010

	Internal evaluation		External evaluation	
	N	%	N	%
CCU deaths	19 736		20 080	
Medical records not found			198	1
Potential donors	2 480	12.6	2 529*	12.6
<i>Not referred</i>	45	1.8	167	6.6
Medical contraindications	665	26.8	580	22.9
<i>Inadequate</i>	-	-	67	2.6
Maintenance problems	77	3.1	57	2.3
<i>Correctable</i>	-	-	24	0.9
Family refusals	356	14.4	350	13.8
<i>Avoidable</i>	-	-	5	0.2
Organizational problems	10	0.4	19	0.8
<i>Avoidable</i>	-	-	6	0.2
Lack of adequate recipient	17	0.7	22	0.9
Coroner refusals	7	0.3	9	0.4
Impossible to evaluate	6	0.2	17	0.7
Actual donors	1 297	52.3		
Possible donors			1 577**	62.4

CCU = critical care unit.

Table 4: External evaluations. Hospitals with neurosurgical facilities (66 centers). Years 2001–2010

	Internal evaluation		External evaluation	
	N	%	N	%
CCU deaths	14 981		15 231	
Medical records not found			176	1.2
Potential donors	2 035	13.6	2 088*	13.7
<i>Not referred</i>	31	1.5	126	6
Medical contraindications	537	26.4	483	23.1
<i>Inadequate</i>	-	-	58	2.8
Maintenance problems	56	2.8	46	2.2
<i>Correctable</i>	-	-	20	1
Family refusals	296	14.5	284	13.6
<i>Avoidable</i>	-	-	3	0.1
Organizational problems	7	0.3	18	0.9
<i>Avoidable</i>	-	-	5	0.2
Lack of adequate recipient	14	0.7	18	0.9
Coroner refusals	6	0.2	6	0.3
Impossible to evaluate	5	0.2	9	0.4
Actual donors	1083	53.2		
Possible donors			1 310**	62.7

CCU = critical care unit.

*Confirmed and highly probable cases of potential donors. **The number of possible donors is calculated by subtracting from the identified cases of potential donors (2 088) the unavoidable losses: adequate medical contraindications (425), noncorrectable maintenance problems (26), not avoidable family refusals (281) and organizational problems (13) as well as coroner refusals (6) and lack of adequate recipients (18). Cases impossible to evaluate are also subtracted (9).

Table 5: External evaluations. Hospitals without neurosurgical facilities (45 centers). Years 2001–2010

	Internal Evaluation		External Evaluation	
	N	%	N	%
CCU DEATHS	4 755		4 849	
Medical records not found			22	0.5
Potential donors	445	9.4	441*	9.1
<i>Not referred</i>	14	3.1	41	9.3
Medical Contraindications	128	28.8	97	22
<i>Inadequate</i>			9	2
Maintenance problems	21	4.7	11	2.5
<i>Correctable</i>			4	0.9
Family refusals	60	13.5	66	15
<i>Avoidable</i>			2	0.5
Organizational problems	3	0.7	1	0.2
<i>Avoidable</i>			1	0.2
Lack of adequate recipient	3	0.7	4	0.9
Coroner refusals	1	0.2	3	0.7
Impossible to evaluate	1	0.2	8	1.8
Actual donors	214	51.9		
Possible donors			267**	60.5

CCU = critical care unit.

*Confirmed and highly probable cases of potential donors. **The number of possible donors is calculated by subtracting from the identified cases of potential donors (441) the unavoidable losses: adequate medical contraindications (88), noncorrectable maintenance problems (7), not avoidable family refusals (64) as well as coroner refusals (3) and lack of adequate recipients (4). Cases impossible to evaluate are also subtracted (8).

Brief Communication

Continuously Evaluating Performance in Deceased Donation: The Spanish Quality Assurance Program

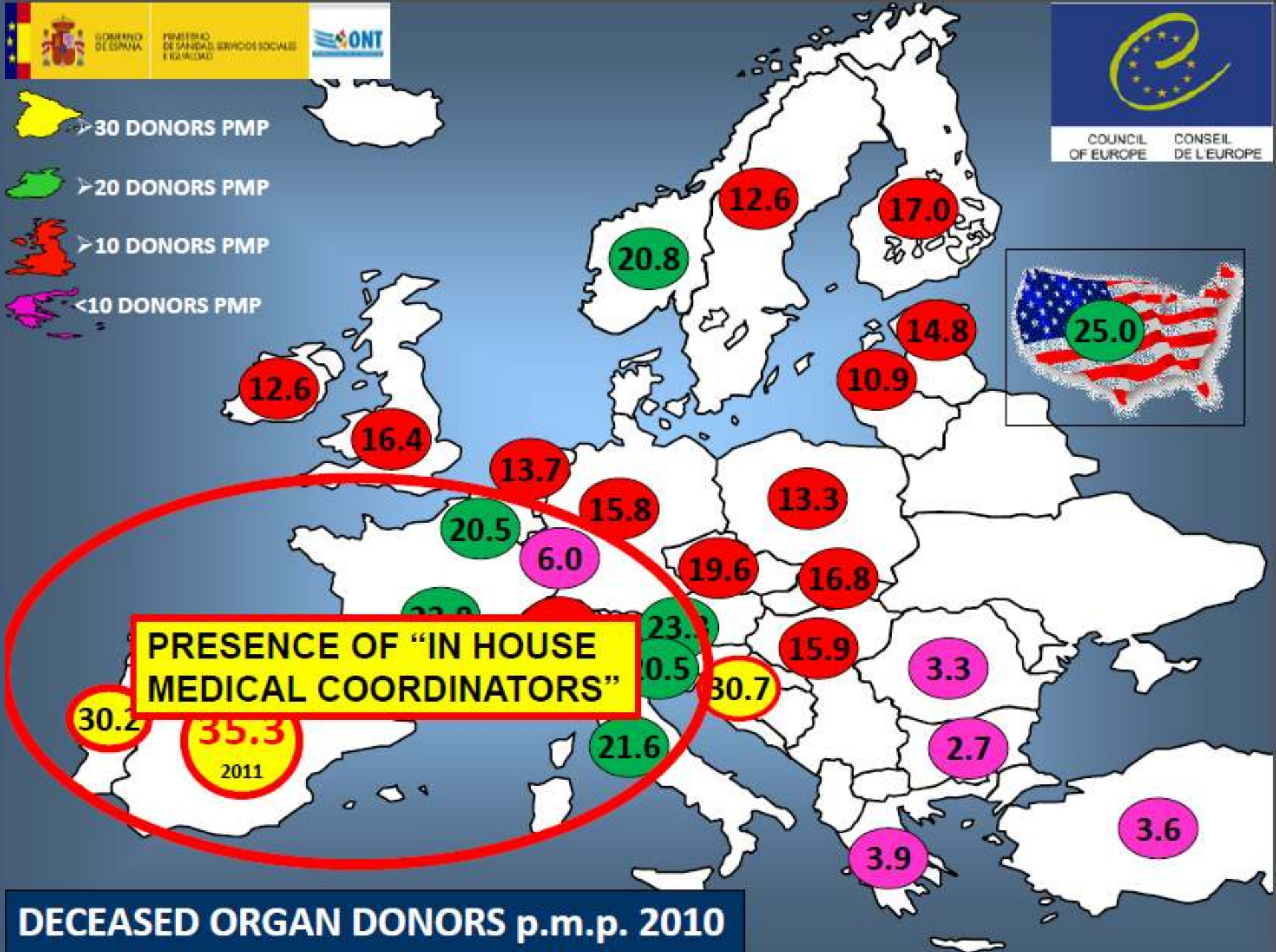
G. de la Rosa^a, B. Domínguez-Gil^a, R. Matesanz^a, S. Ramón^a, J. Alonso-Álvarez^b, J. Aralaz^c, G. Choperena^d, J. L. Cortés^e, D. Daga^f, J. Elizalde^g, D. Escudero^h, E. Escuderoⁱ, C. Fernández-Renedo^j, M. A. Frutos^k, J. Galán^l, M. A. Getino^m, F. Guerreroⁿ, M. Lara^o, L. López-Sánchez^p, S. Macías^q, J. Martínez-Guillén^r, N. Masnou^s, S. Pedraza^t, T. Pont^s and A. Sánchez-Rodríguez^t

The **Spanish Quality Assurance Program** applied to the process of **donation after brain death** entails an internal stage consisting of a continuous **clinical chart review of deaths in critical care units (CCUs)** performed **by transplant coordinators** and periodical **external audits** to selected centers.

This paper describes the methodology and provides the most relevant results of this program, with information analyzed from **206,345 CCU deaths**. According to the **internal audit**, **2.3% of hospital deaths** and **12.4% of CCU deaths** in Spain yield **potential donors** (clinical criteria consistent with brain death).

Out of the potential donors, **54.6% become actual donors**, **26% are lost** due to **medical unsuitability**, **13.3% due to refusals** to donation, **3.1% due to maintenance problems** and **3% due to other reasons**. Although the national pool of potential donors after brain death has progressively decreased from 65.2 per million population (pmp) in 2001 to 49 pmp in 2010, the number of actual donors after brain death has remained at about 30 pmp. **External audits** reveal that the **number of actual donors could be 21.6% higher if all potential donors were identified*** and preventable losses avoided. We encourage other countries to develop similar comprehensive approaches to deceased donation performance.

*The **external audit** is carried out by **2–3 physicians**, depending on complexity of the evaluated hospital. The profile of the auditor is that of a **critical care specialist, with at least 5 years' experience as hospital TC, who has worked previously in an audited hospital and with specific training** in the Spanish QAPDD methodology.



**PRESENCE OF "IN HOUSE
 MEDICAL COORDINATORS"**

DECEASED ORGAN DONORS p.m.p. 2010

Párhuzamos lépések

együttműködésben az egészségpolitikával, jogalkotóval, finanszírozóval, szakmai szervezetekkel, és betegszervezettel

– 2011: Eurotransplant csatlakozási folyamat

– 2012.01.01: Eurotransplant előzetes együttműködési megállapodás

– 2013.07.01: Eurotransplant teljes jogú tagság

– 2010: **kórházi koordináció:**

– Minőségbiztosítási Program

– 2011: Szervdonációs célú szállítási feladatok centralizálása

– 2012: a 2010/53/EU Irányelv hazai implementációja

– Szervdonációs útmutató a donorkórházak részére

– 2013: Nemzeti Szervdonációs Regiszter

– 2014: Donorsebészeti képzés Magyarországon

– A transzplantációs donor-koordinátori hálózat fejlesztése





Accord

Achieving Comprehensive
Coordination in Organ Donation

WP 5: Collaboration ICU & DTC



NHSBT, UK

COLLABORATING PARTNERS (3)

European Hospital and Healthcare Federation (HOPE) – Pascal Garel & Sara Pupato

European Society of Intensive Care Medicine (ESICM) – Giuseppe Citerio & Paulo Maia

European Transplant Coordinators Organisation-European Donation Committee (ETCO-EDC), a section of ESOT – Teresa Pont

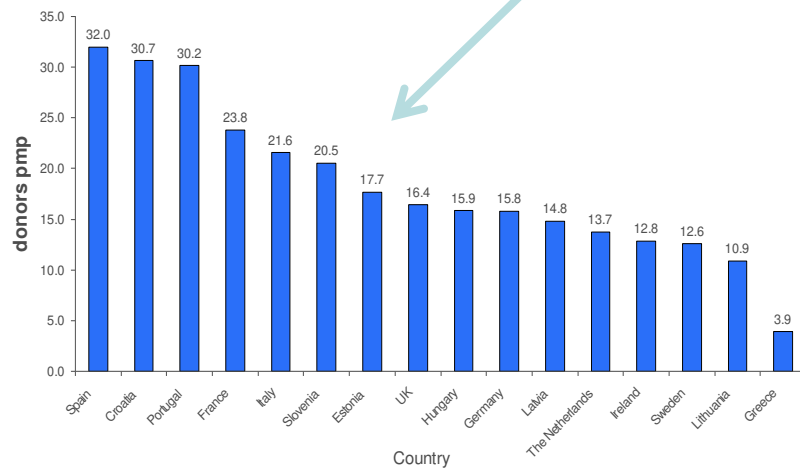


ASSOCIATED PARTNERS (16)

Hol vannak az agyhalott donorok?

	Potential DBD pool	Actual DBD donors
Spain	≈ 50	32
UK	18	10

Per million population, 2010



Mi különbség oka?

Eltér az agyhalál megállapítási módszertan (aggasztó)

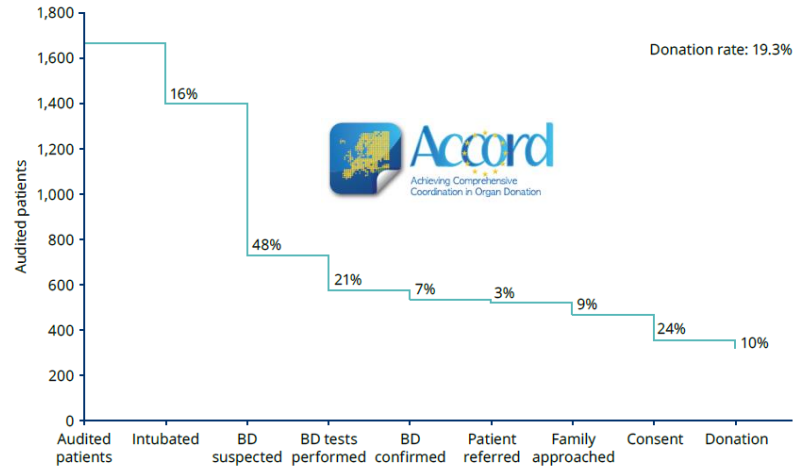
- Alacsonyabb agykárosodás incidencia (udvarias)

- Ellátás kimenetele jobb (öntelt)

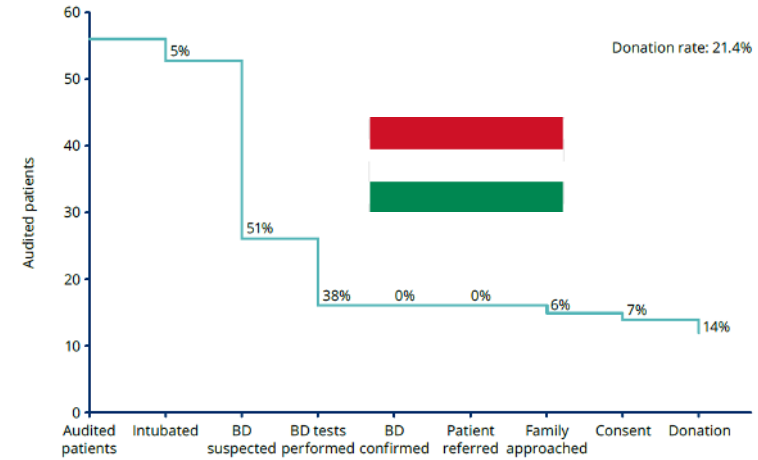
- Súlyos agykárosodott betegek ellátásának megközelítési különbségei (érdekes)

ACCORD DBD pathway

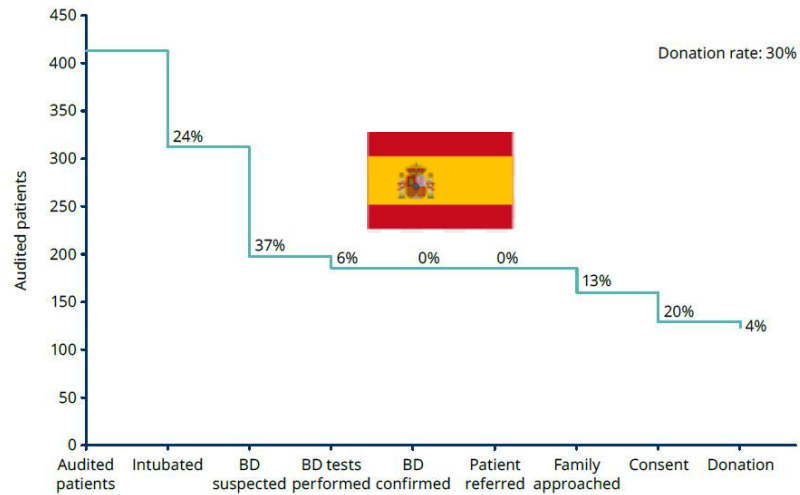
ACCORD Whole cohort



HUNGARY, DBD pathway



SPAIN, DBD pathway



UK, DBD pathway

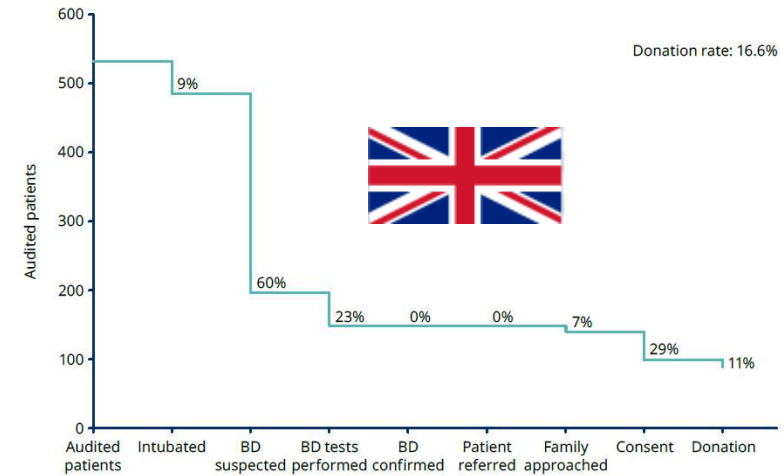


Table 3: Indicators of the potential of donation. Percentage and percentiles 25-75.

	N Hosp	N BD	% (p25-p75)
Referred to the number of beds			
Brain Deaths/ Hospital Beds	30	1099	3.9 (2.4-5.3)
Brain Deaths/ ICU Beds	30	1099	109.2 (68.0-190.3)
Referred to the number of admissions			
Brain Deaths/ Hospital Admissions	29	1080	0.08 (0.03-0.13)
Brain Deaths/ ICU Admissions	30	1099	1.77 (1.09-3.79)
Referred to the number of deaths			
Brain Deaths/ Hospital Deaths	29	1040	2.9 (1.7-4.3)
Brain Deaths/ ICU Deaths	30	1099	15.1 (8.3-20.7)
Referred to the number of admissions with selected codes			
Brain Deaths/ Hospital Admissions with Selected Codes	17	510	2.7 (2.0-4.5)
Brain Deaths/ ICU Admissions with Selected Codes	15	464	18.0 (9.7-25.7)
Referred to the number of deaths with selected codes			
Brain Deaths/ Hospital Deaths with Selected Codes	22	802	20.3 (11.9-35.9)
Brain Deaths/ ICU Deaths with Selected Codes	26	1059	67.5 (50.0-89.7)

N Hosp: Number of hospitals providing data to construct the indicator. BD: Brain Deaths

Table 12: Indicators of Global Effectiveness of the process of donation. Percentage and percentiles 25-75.

	N Hosp	N Effective Donors	% (p25-p75)
Referred to the number of beds			
Effective Donors/ Hospital Beds	30	466	1.6 (0.9-2.9)
Effective Donors/ ICU Beds	30	466	46.3 (29.9-67.7)
Referred to the number of admissions			
Effective Donors/ Hospital Admissions	29	452	0.03 (0.01-0.06)
Effective Donors/ ICU Admissions	30	466	0.75 (0.46-1.35)
Referred to the number of deaths			
Effective Donors/ Hospital Deaths	29	453	1.3 (0.8-2.3)
Effective Donors/ ICU Deaths	30	466	6.4 (4.2-9.4)
Other			
Effective Donors/ Potential Donors	29	463	51.1 (37.1-73.7)
Effective Donors/ Brain Deaths	30	466	42.4 (33.3-60.0)
Multiorgan Donors/ Effective Donors	23	328	78.7 (50.0-100.0)
Utilised Donors/ Effective Donors	30	466	94.6 (90.3-100.0)
Organs Retrieved/ Effective Donors	27	433	3.24 (2.93-3.77)
Organs Implanted/ Effective Donors	30	466	2.91 (2.37-3.50)
Organs Implanted/ Utilised Donors	30	441*	3.08 (2.67-3.54)

* N utilised donors



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Súlyozott cadaver szervdonációs aktivitás

Idegsebészeti preferencia

Indikátorok	18 NS	28 NS na	P
Cadaver szervdonációs aktivitás (X)	5,72	1,93	< 0,01
X / kórházi ágyszám	0,0063	0,0034	< 0,01
X / ITO ágyszám	0,1976	0,1299	= 0,015
X / kórházi felvétel	0,00013	0,00008	< 0,01
X / ITO felvétel	0,0054	0,0032	< 0,01
X / kórházi halálozás	0,5639	0,2394	< 0,01
X / ITO halálozás	2,7485	1,4190	< 0,01

Idegsebészeten van több donor

Mann-Whitney Test

Ranks

	Idegsebészeten van?	N	Mean Rank	Sum of Ranks
Tavaly kb. hány elhunyt lett volna alkalmas donációra a kórházukban?	Igen	162	186,69	30244,50
	Nem	152	126,38	19210,50
	Total	314		

Test Statistics^a

	Tavaly kb. hány elhunyt lett volna alkalmas donációra a kórházukban?
Mann-Whitney U	7582,500
Wilcoxon W	19210,500
Z	-6,144
Asymp. Sig. (2-tailed)	,000

Mann-Whitney Test

Ranks

	Idegsebészeten van?	N	Mean Rank	Sum of Ranks
Tavaly kb. hány halott vált donorrá a kórházukban?	Igen	162	191,49	31021,00
	Nem	150	118,71	17807,00
	Total	312		

Test Statistics^a

	Tavaly kb. hány halott vált donorrá a kórházukban?
Mann-Whitney U	6482,000
Wilcoxon W	17807,000
Z	-7,458
Asymp. Sig. (2-tailed)	,000

Fejlesztési javaslat

Idegsebészeti preferencia

Table 4: Comparison of the indicator Brain Deaths/ Hospital Deaths between hospitals with and without Neurosurgery

	With Neurosurgery (n=24)	Without Neurosurgery (N=5)
Mean (SD)	4.1 (3.2)	2.1 (1.2)
p		0.414
Median (P25-P75)	2.9 (1.6-7.1)	2.5 (1.1-3.0)
p		0.330
Proportion	3.01	1.99
p		0.007

Table 5: Comparison of the indicator Brain Deaths / ICU Deaths between hospitals with and without Neurosurgery

	With Neurosurgery (n=25)	Without Neurosurgery (n=5)
Mean (SD)	17.9 (10.2)	9.4 (5.5)
p		0.037
Median (P25-P75)	16.8 (10.3-22.2)	6.9 (4.9-15.3)
p		0.042
Proportion	15.6	10.1
p		0.0002

Célok

- Az intézményi szintű szervdonációs potenciál meghatározása
- A szervdonációs folyamat adott pontjain mérhető hiányosságok azonosítása, valamint a donorvesztések okainak elemzése
- Azon kórházi és demográfiai jellemzők leírása, amelyek befolyásolják a szervdonációs aktivitást.

Megvalósítási terv

A kórházi koordinátori rendszer megvalósítási elemei:

Együttműködési megállapodás a fekvőbeteg ellátó intézmények és az OVSZ között a Szervkoordinációs Iroda által delegált személy kórházban is végzett feladatainak ellátása érdekében.

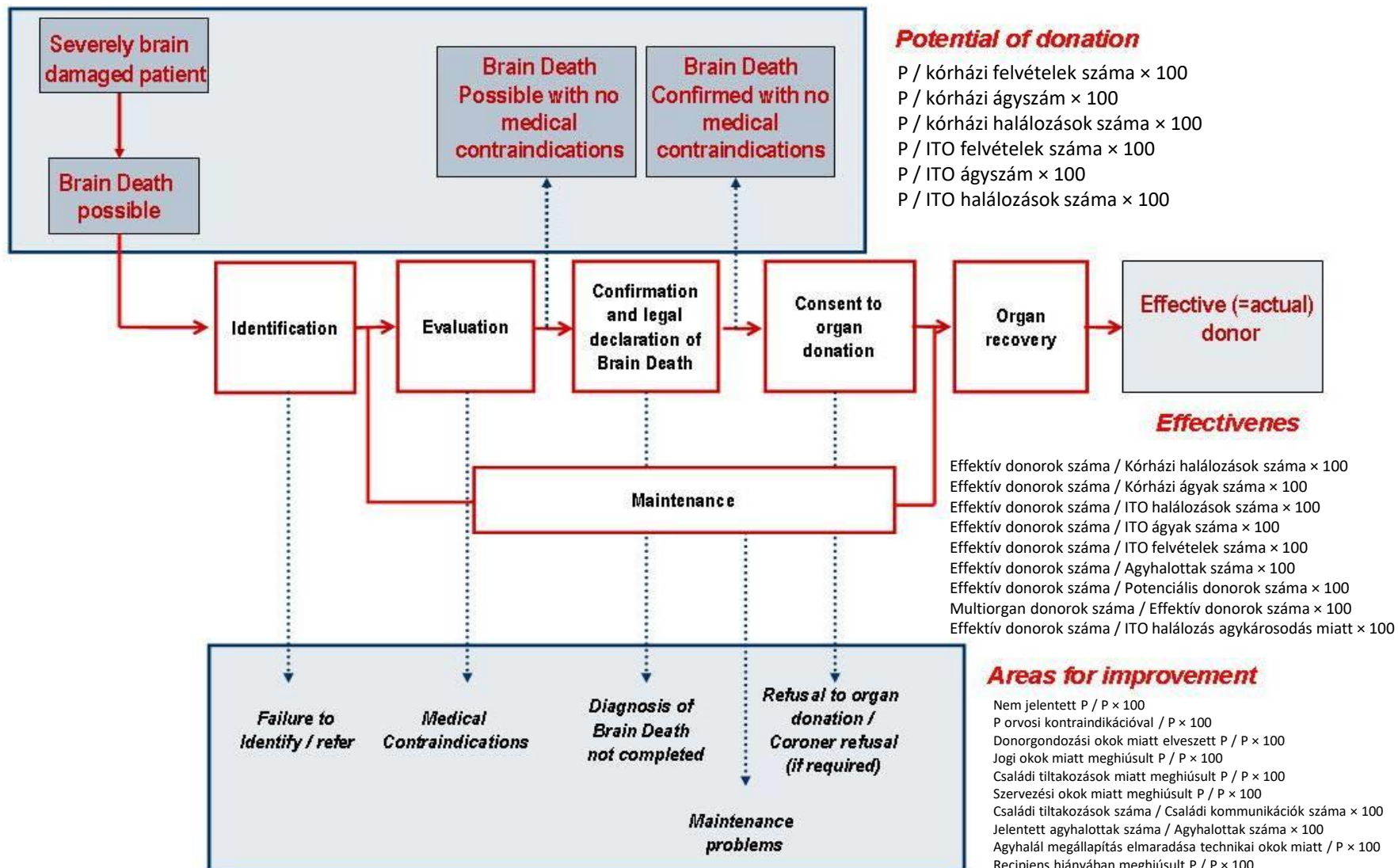
1 kórházi koordinátor legfontosabb feladatai:

- **Donorjelentés esetén:**
 - helyi szervezési feladatok ellátása,
 - részvétel a donorgondozásban
 - család tájékoztatása
- **Napi vizit** minden osztályon (pl. idegsebészet, neurológia, traumatológia, SBO, ITO), ahol súlyos agyi károsodott betegek ellátása történhet.
- Legalább havonta retrospektív kórházi halálozási felülvizsgálat (Quality Assurance Program: **Brain Death Audit**), illetve az adatok továbbítása a Szervkoordinációs Iroda részére.
- **Helyi oktatás:** 2 kórházi előadás/év szervezése, megtartása.



Kórházi koordináció

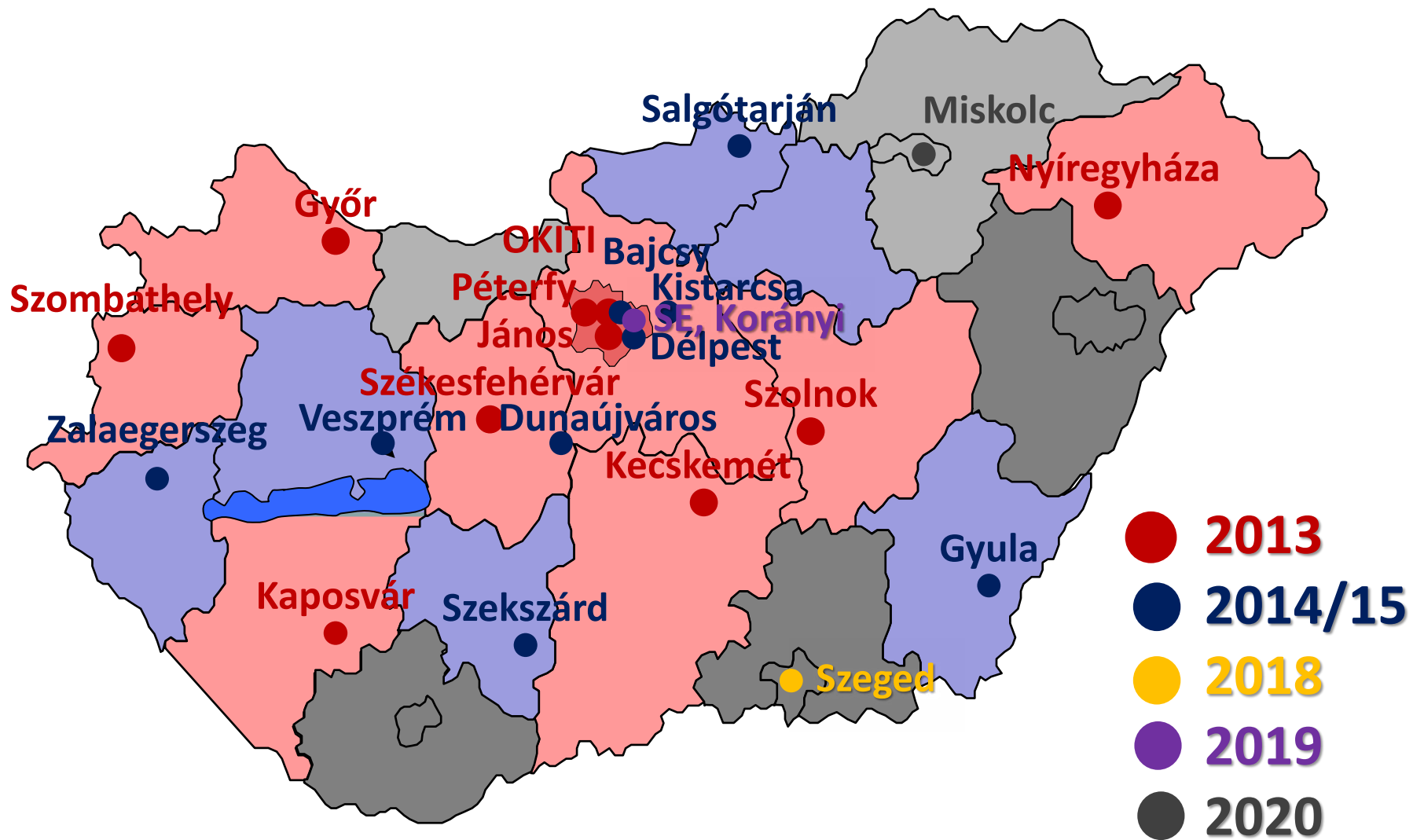
Szervdonációs minőségbiztosítási program 21 kórházban



A kórházi koordinációt meghatározó események

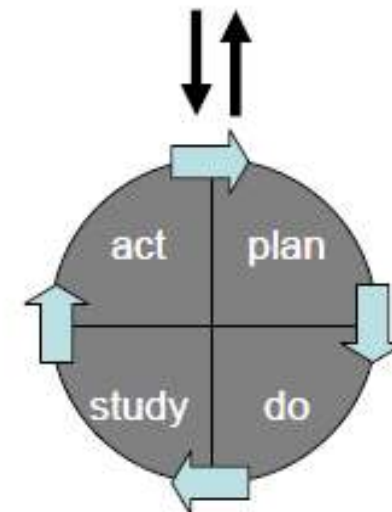
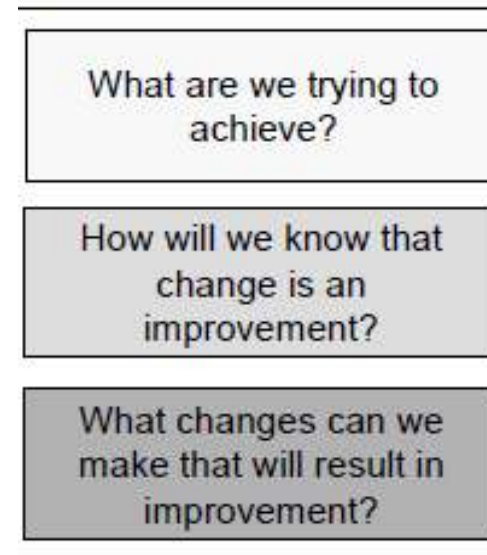
- 2006: Recommendation Rec(2006)15/16 of the Committee of Ministers to member states on the background, functions and responsibilities of a National Transplant Organisation (NTO)
- 2008: A Bizottság közleménye - A szervadományozásra és a szervátültetésre vonatkozó **cselekvési terv** (2009-20015)
- 2009: Transzplantációs céllal történő szervkivételek a fekvőbeteg-ellátásban, Indikátorrendszer 2009. Egészségbiztosítási Felügyelet, 2009. december
- 2010: **Kórházi koordinátori Pilot program**
- 2010: AZ EURÓPAI PARLAMENT ÉS A TANÁCS 2010/53/EU IRÁNYELVE (2010. július 7.) az átültetésre szánt emberi szervekre vonatkozó minőségi és biztonsági előírásokról
- 2012: Potential of Deceased Donation not optimally exploited: Donor Action Data from six countries (2007-2009)
- 2012: Félbehagyott kórházi koordinátori program
- 2012: ACCORD Work Package 5 Improved collaboration between Intensive Care and Donor Transplant Coordination
- 2013: A folyamatosan működtetett kórházi koordinátori program indulása

A kórházi koordinátori hálózat intézményei (22)



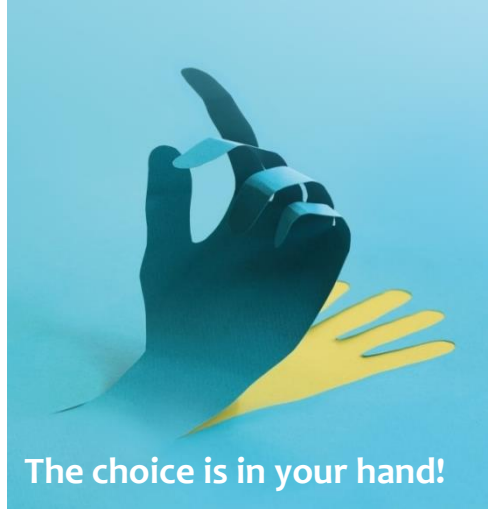
Mit csinál az eredményes kórházi koordinátor?

1. Retrospektív módon adatot gyűjt és **értelmez**
2. **Aktívan** részt vesz a szervezési folyamatban
3. **Felismer** és megfogalmaz problémákat
4. Megoldási **javaslatot** tesz
5. A javaslatnak megfelelően eljárva **bizonyítja** a hatékonyságát
6. **Megosztja** a folyamatban résztvevőkkel az észrevételeit



Mit lát a kórházi koordináció?

- 22 kórházban 11.070 aktív ágy , **358 ITO ágy**
- **3849 Agyhalál Audit**
- **114 AH felismerés, 89 AHM, 71 DBD**
- A donorjelentések **71,52%**-a a donorkórházak 57,14%-ból érkezik (20/35)
- A megvalósult donációk **69,61%**-a érkezett a programba bevont intézményekből
- Megvalósult donációk aránya: **65,74%** - 67,5%
- **Multiorgan donációk aránya: 67,61%** – 71,57%
- **Kivett szervek átlagos száma: 2,78** – 2,93
- **Elhunytból történő szervdonációs aktivitás a COVID-járvány alatt (2019-2021):**
 - 2019-ről 2020-ra országosan 5,88%-kal, majd összesen a járvány hatására 2019-ről 2021-re 7,22%-kal csökkent.
 - A minőségbiztosítási programba bevont intézményekben világjárvány első évében 3,94%-kal esett vissza a donációs potenciál, míg a második évben minimális emelkedés volt már tapasztalható (0,23%), de így is összesítve a két év alatt 3,68%-os volt a csökkenés mértéke.



Donoraudit

Intézményi adatok	
Költés dátuma:	
Ellenőrzést végző személy neve:	
Intézmény neve:	
Vizsgálat helye (osztály): ITO / SBO / GYITO / PIC / Neurológia / Neurológia SubITO / Traumatológia / Idegsebészet / Belgyógyászat / Gyermekosztály	
Melyik osztályról történt a jelentés?: ITO / SBO / GYITO / PIC / Neurológia / Neurológia SubITO / Traumatológia / Idegsebészet / Belgyógyászat / Gyermekosztály	
Melyik osztályon halt meg a beteg?: ITO / SBO / GYITO / PIC / Neurológia / Neurológia SubITO / Traumatológia / Idegsebészet / Belgyógyászat / Gyermekosztály	
Betegadatok	
Betegazonosító (TAJ):	
Nem: <input type="checkbox"/> Férfi <input type="checkbox"/> Nő	
Születési dátum:	
Kh. felvétel időpontja:	
Osztályos felvétel időpontja:	
Lélegeztetés kezdete:	
Halál időpontja:	
Halálkori életkor: év	
Ellátásra/Állapatra vonatkozó adatok	
Lélegeztetve/intubálva volt?: <input type="checkbox"/> Igen <input type="checkbox"/> Nem	Elmaradás oka: Nem szükséges Nem megfelelő Nem várható töle pozitív változás az állapot súlyossága miatt
Mennyi volt a GCS "E" a lélegeztetésről való döntés időpontjában?: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	
Mennyi volt a GCS "M" a lélegeztetésről való döntés időpontjában?: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6	
Mennyi volt a GCS "V" a lélegeztetésről való döntés időpontjában?: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	
GCS a lélegeztetésről való döntés időpontjában:	
Lélegeztetés időtartama: nap	
Felvételi diagnózis:	
Eszméletlenséghez vezető diagnózis:	
Halál oka:	
Diagnózt alátámasztó vizsgálat készült?: <input type="checkbox"/> Igen <input type="checkbox"/> Nem	Alátámasztó vizsgálat: CT MR Egyéb
Agyhalál megállapítás körüli teendők	
Agyhalál első jeleinek észlelése megtörtént?: <input type="checkbox"/> Igen <input type="checkbox"/> Nem	Elmaradás oka: Haemodinamikai instabilitás Mérgezés vagy központi idegrendszerre ható szer által kiváltott kóma Neuromuskuláris blokádnak Metabolikus vagy endokrin eredetű kóma v. egyéb klinikai eltérés Maghőmérséklet 35°C alatt Heveny gyulladási idegrendszeri megbetegedés fennáll Az agyhalál észlelésének megkezdése neurológiai tünetek alapján nem indokolt Nem agyhalott - a megkezdett vizsgálat során valamely agytörzsi reflex kiváltható Családi tiltakozás donáció ellen Keringés összeomlás

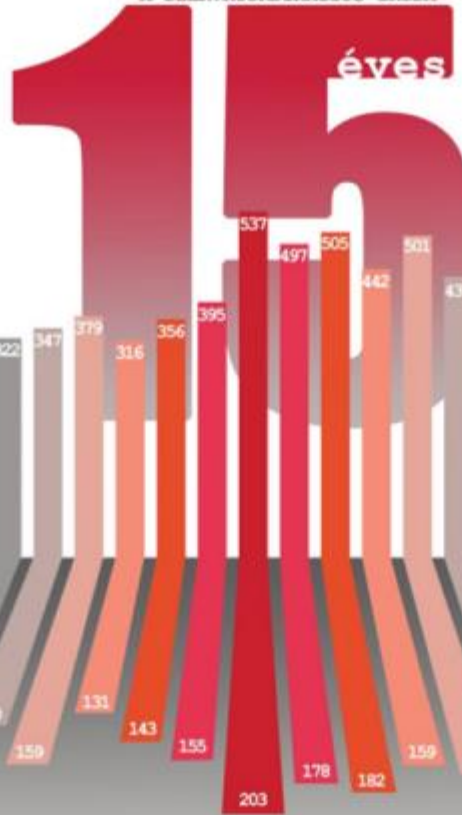
Agyhalál megállapítás körüli teendők	
Agyhalál megállapítás megtörtént?: <input type="checkbox"/> Igen <input type="checkbox"/> Nem	Elmaradás oka: Agytörzsi reflexek kiválthatók Keringés összeomlás Családi tiltakozás donáció ellen
Jelentés a Szervkoordinációs Iroda felé megtörtént?: <input type="checkbox"/> Igen <input type="checkbox"/> Nem	Elmaradás oka: Kapacitáshiány Nem merült fel a szervdonáció lehetősége Rendőrségi engedély megtagadva Életében írásban tiltakozott Család visszautasítja a donáció lehetőségét Tévesen alkalmatlannak lett minősítve Abszolút vagy relatív kontraindikáció
NSZTR lekérdezése megtörtént?: <input type="checkbox"/> Igen <input type="checkbox"/> Nem	Elmaradás oka: Ügyeletesen nincs lekérdezési jogosultsága Nincs/nem elérhető a fax Nem történik donáció Nincs kapacitás
Hozzártartozók tájékoztatása a szervdonációról	
Hozzártartozók tájékoztatása megtörtént?: <input type="checkbox"/> Igen <input type="checkbox"/> Nem	Elmaradás oka: Család nem elérhető A család már korábban visszautasította a donációt Nyomozó hatóságok Nincs hely az ITO-n Orvosi kontraindikáció/transzplantációs centrummal egyetértésben Nem agyhalott Külföldi állampolgár
Hozzártartozók tájékoztatásának időzítése: Agyhalál észlelése előtt Agyhalál észlelése után Agyhalál megállapítás után	
Ki vezette a beszélgetést?: Osztályvezető főorvos Ügyeletes szakorvos Ügyeletes rezidens Kórházi koordinátor	
A hozzártartozók tájékoztatása után felmerült-e tiltakozás?: <input type="checkbox"/> Igen <input type="checkbox"/> Nem	Családi tiltakozás oka: Nem értették az agyhalál tényét A test integritásának megsértésétől való félelem Életében szóban tiltakozott Vallási ok Egyéb Az ellátó rendszer felé való bizalmatlanság
Donáció	
Legalább egy szerv transzplantációs célú eltávolítása megtörtént?:	Elmaradás oka:
Szövetdonáció történt?:	
Eltávolított szövetek típusa:	
Nyomozó hatóság bevonása	
Nyomozó hatóság megkeresése megtörtént?: <input type="checkbox"/> Igen <input type="checkbox"/> Nem	
Nyomozó hatóság hozzájárulása megtörtént?: <input type="checkbox"/> Igen <input type="checkbox"/> Nem	
Megjegyzés	

2021

SZAKMAI BESZÁMOLÓ

ORSZÁGOS VÉRELLÁTÓ SZOLGÁLAT
TRANSZPLANTÁCIÓS IGAZGATÓSÁG

A SZERVKOORDINÁCIÓS IRODA



5999
MEGMENTETT
ÉLET

2007 - 2021



Agyhalálhoz vezető kórok megvalósult donoroknál (2021-01-01 - 2021-12-31)			
BNO	Diagnózis	Elemsszám	%
I6090	Subarachnoidealis vérzés, k.m.n.	16	15,69
S0650	Traumás subduralis vérzés	9	8,82
I6190	Agyállományi vérzés, k.m.n.	7	6,86
I6150	Agyállományi vérzés agykamrában	7	6,86
G9310	Anoxiás agyi károsodás m.n.o.	6	5,88
I6010	Subarachnoidealis vérzés az arteria cerebri mediából	6	5,88
S0620	Az agy diffúz sérülése	4	3,92
S0660	Traumás subarachnoidealis vérzés	4	3,92
I4600	Szív megállás sikeres újraélesztéssel	4	3,92
I6120	Agyállományi vérzés féltekében, k.m.n.	3	2,94
I6070	Subarachnoidealis vérzés k.m.n. koponyaűri artériából	3	2,94
I6020	Subarachnoidealis vérzés az arteria communicans anteriorból	3	2,94
I6080	Egyéb subarachnoidealis vérzés	2	1,96
I6130	Agyállományi vérzés agytörzsben	2	1,96
G4630	Agytörzsi szélütés (stroke) syndroma	2	1,96
I6160	Agyállományi vérzés több lokalizációban	2	1,96
I6110	Agyállományi vérzés féltekében, corticalis	2	1,96
I6330	Agyi infarctus a cerebralis ütőerek rögződése miatt	2	1,96
I6510	Az arteria basilaris elzáródása vagy szűkülete	1	0,98
I6380	Agyi infarctus, egyéb	1	0,98
I6040	Subarachnoidealis vérzés az arteria basilarisból	1	0,98
I6180	Agyállományi vérzés, egyéb	1	0,98
I6600	Az arteria cerebri media elzáródása és szűkülete	1	0,98
S0630	Lokalizált agysérülés	1	0,98
I2190	Heveny szívizomelhalás, k.m.n.	1	0,98
D3207	Agyburkok jóindulatú daganata: tuberculom sellae meningeoma	1	0,98
G9360	Agyvízenyő	1	0,98
I4900	Kamra fibrillatio és flutter	1	0,98
I6200	Keményburok alatti (subduralis) vérzés (heveny) (nem-traumás)	1	0,98
I6290	Koponyaűri vérzés (nem-traumás), k.m.n.	1	0,98
I6350	Agyi infarctus a cerebralis art. k.m.n. elzáródása-szűkülete miatt	1	0,98
I6500	Az arteria vertebralis elzáródása vagy szűkülete	1	0,98
S0610	Traumás agyvízenyő	1	0,98
T5092	Súlyos egyéb és k.m.n. gyógyszerek és biológiai anyagok okozta mérgezés	1	0,98
V0390	Gyalogos sérülése autóval-teherautóval összeütközésben, k.m.n. baleset	1	0,98
X23H0	Méhek, lódarazsak és darazsak csípése	1	0,98

1. táblázat: Agyhalálhoz vezető kórok megvalósult donoroknál 2021-ben

Gyűjtött betegségcsoportok köre BNO/ICD-10 kódok alapján

I60 – subarachnoidealis vérzés

I61 – agyállományi (intracerebralis vérzés)

I62 – más koponyaűri (intracranialis) vérzés

I63 – koponyaűri artériák elzáródása

I64 – stroke nem vérzésnek vagy infarctusnak minősítve

I65 – paracerebralis artériák infarctust nem okozó elzáródása és szűkülete

I66 – agyi artériák infarctust nem okozó elzáródása és szűkülete

I46 – szívmegállás

S06 – intracranialis sérülés

S02 – a koponya- és arccsontok törése

Gyűjtött betegségcsoportok köre BNO/ICD-10 kódok alapján

V01-X59 – morbiditás és mortalitás külső okai (mérgezés, baleset, trauma)

G00-G05 – központi idegrendszer gyulladósos betegségei

G93.1 – anoxiás agyi károsodás m.n.o

G97 – beavatkozások utáni idegrendszeri rendellenességek m.n.o

G91 – vízfejűség

C70 – agyburkok daganata

C71 – nagyagy daganata

C72 – gerincvelői daganatok

D32 – agyburkok jóindulatú daganata

Agyhalálhoz vezető kórokokban elhunytak számának változása országosan 2019/2022

BNO kód	Megnevezés	2019.	2022.	%
		Elhalálozás összesen a szelektált betegcsoportban	Elhalálozás összesen a szelektált betegcsoportban	Esetszám változás a szelektált betegcsoportban
C70	Az agyburkok rosszindulatú daganata	9	6	-33%
C71	Az agy rosszindulatú daganata	213	170	-20%
C72	A gerincvelő, az agyidegek és a központi idegrendszer egyéb részeinek rosszindulatú daganata	12	10	-17%
D32	Az agy - és gerincburkok jóindulatú daganata	23	25	9%
G00-G09	Központi idegrendszer gyulladásos betegségei	86	71	-17%
G91	Vízfejűség (hydrocephalus)	25	16	-36%
G931	Anoxiás agyi károsodás m.n.o.	253	257	2%
I46	Szívmegállás	6 719	10 594	= 3875 58%
I60	Pókhálóhártya alatti vérzés	181	175	-3%
I61	Agyállományi vérzés	1 146	1 055	-8%
I62	Egyéb nem traumás koponyaűri vérzés	59	42	-29%
I63	Agyi infarktus	2 395	1 739	-27%
I64	Szélütés (stroke) nem vérzésnek vagy infarktusnak minősítve	89	156	75%
I65	A praecerebralis artériák agyi infarktust nem okozó elzáródása és szűkülete	132	136	3%
I66	Az agyi artériák agyi infarktust nem okozó elzáródása és szűkülete	113	102	-10%
S02	A koponya és arccsontok törése	89	54	-39%
S06	Intracranialis sérülés	487	460	-6%
V01-X59	Balesetek (közlekedési balesetek V01-V99 és A baleseti sérülés egyéb külső okai W00-X59)	686	517	-25%
		12 002	14 818	= 2816 23%

(12 002 – 6 719) - (14 818 - 10 594) = - 1 059

Valójában 8,82%-kal csökkent potenciál

Intézeti halálozás 2019-ben: 64 164

donációs potenciál: DOPKI: potenciális agyhalottak száma 3%: 1 925 => potenciális donorok száma 42,4%: 816

2019-ben az összes kórházi halálozás 18,7%-ában (12 002/64 164), 2022-ben 23,8%-ban (14 818/62 170) merült fel agykárosodás a diagnózis között



A globális hatékonyság indikátorai a kórházi koordinátori intézményekben/Szekszárdon évente, átlagosan

ÉV	ED/AH	AH/ITO mort.	ED/KH mort.	ED/ITO mort.
KK 2018	79,05%	3,45%	0,35%	2,73%
KK 2019	80,15%	4,12%	0,41%	3,29%
Országos 2019	71,43%	2,67%	0,28%	1,91%
Országos 2020	70,25%	1,35%	0,16%	0,94%
EU 2009	42,4%	15%	1,3%	6,4%

**Magas arány:
Donációs trigger**

**Alacsony arány:
ITO veszteség**

**Alacsony arány:
Kórházi veszteség**

**Alacsony arány:
ITO veszteség**

N: résztvevő kórházak száma

ED: effektív donor

AH: agyhalott

ITO mort.: intenzív osztályos mortalitás

KH mort.: kórházi mortalitás





Kórházi koordináció = szervdonációs minőszbiztosítási program



Chapter 15. Quality management in organ donation and transplantation



There are three main models for quality management used in the healthcare sector, which are discussed below: ISO, JCAHO and EFQM. It must be very clear that these are different options.

- Applying a systematic approach to quality management in this process involves separate reviews of:
- Government and health authority responsibilities;
 - Quality management in organ donation;
 - Quality management in organ transplant.

European Committee (Partial Agreement) on Organ Transplantation (CD-P/O) EDQM 6th Edition 2016

Deceased donation	Applies to	Type	Standard
1 Donation process procedures	DBO/DCD	structure	100 %
2 Proactive Donor Identification Protocol	DBO/DCD	structure	100 %
3 Donation team full-time availability	DBO/DCD	structure	100 %
4 Donation team members with ICU background	DBO/DCD	structure	50 %
5 Dedicated time Key Donation Person	DBO/DCD	structure	100 %
6a Documentation of key points of the donation process	DBO/DCD	structure	100 %
6b Documentation of reason for non-donation	DBO/DCD	process	100 %
7 Patient / family consent	DBO/DCD	outcome	90 %
8 Identification of all possible donors in ICU	DBO	process	75 %
9 Uncontrolled in-hospital DCD donor identification	DCD	process	100 %
10 Controlled DCD donor identification	DCD	process	100 %
11 Existence of controlled DCD donation protocols	DCD	structure	100 %
12 Referral of possible DBO donors	DBO	process	100 %
13 Discarded organs documented	DBO/DCD	process	100 %
14 Evaluation of Brain-Dead donors	DBO	process	100 %
15 Donor management	DBO	process	90 %
16 Unexpected cardiac arrest	DBO	outcome	3 %
17 DCD organ donor preservation	DCD	process	85 %
18 Seminars on organ donation	DBO/DCD	process	≥ 1
19 Documentation of evaluation of potential donors	DBO/DCD	process	100 %
20 Brain death identification	DBO	outcome	50 %
21 Conversion rate in DBO donors	DBO	outcome	75 %
22 Conversion rate in uncontrolled DCD donors	DCD	outcome	85 %
23 Conversion rate in controlled DCD donors	DCD	outcome	90 %
24 Kidneys transplanted from uncontrolled DCD donors	DCD	outcome	80 %
25 Kidneys transplanted from controlled DCD donors	DCD	outcome	90 %

Indicators applied in Donu pilot experience (key indicators highlighted in bold)	
<i>a) Indicators relating to the potential for deceased organ donation</i>	
Of the number of deaths:	
• Brain deaths (possible and confirmed)/hospital deaths × 100	
• Brain deaths (possible and confirmed)/ICU deaths × 100	
• Brain deaths (possible and confirmed)/Number of persons who died within the hospital containing among their primary and/or secondary diagnosis at least one of the ICD codes [11] representing diseases potentially progressing towards a situation of brain death × 100	
• Brain deaths (possible and confirmed)/Number of persons who died within the ICU containing among their primary and/or secondary diagnosis at least one of the ICD codes [11] representing diseases potentially progressing towards a situation of brain death × 100	
<i>b) Indicators relating to areas for improvement in the deceased donation process</i>	
Of the number of brain deaths (BD) (possible and confirmed):	
• BD not referred/BD × 100	
• BD lost because of medical contraindications to organ donation/BD × 100	
• BD lost because of maintenance problems/BD × 100	
• BD lost due to refusal for organ donation/BD × 100	
• BD lost due to coroner refusal for organ donation/BD × 100	
• BD lost due to organisational problems/BD × 100	
• BD lost for other reasons/BD × 100	
Of the total number of families approached and judicial requests to proceed with organ donation:	
• Number of families who refused organ donation/Number of families approached to request organ donation × 100	
• Number of coroner refusals of organ donation/Number of judicial requests for organ donation × 100	
<i>c) Indicators relating to the global effectiveness in the deceased donation process</i>	
Regarding the number of deaths:	
• Actual donors/Hospital deaths × 100	
• Actual donors/ICU deaths × 100	
• Actual donors/Brain deaths (possible and confirmed) × 100	
<i>Other</i>	
• Multiple-organ donors/Actual donors × 100	
• Utilised donors/Actual donors × 100	
• Organs recovered/Actual donors × 100	
• Organs utilised/Actual donors × 100	
• Organs utilised/Utilised donors × 100	

Name	6b. Documentation of cause of non-donation
Justification	Proper documentation of the cause of non-donation ensures that it will be possible later to review and analyse donor losses. This is the basis that will enable continuous improvement. Recommendation C.
Dimension	Appropriateness
Formula	$\frac{\text{Number of referred failed donors in which the cause of non-donation is properly documented}}{\text{Number of referred failed donors}} \times 100$
Explanation of terms	Donor referral: see glossary Possible donor: see glossary Failed donor: Possible donor who did not become an actual donor Cause of non-donation properly documented: if in the records of the patient there is a note stating the cause by which the patient did not become an actual donor
Population	All possible referred donors who did not become actual donors
Type	Process
Data source	Donation team records
Expected result	100 %
Comments	Note: in order to standardise the evaluation of causes of donor's loss the recommendation is to implement a closed list of possible causes.
Reference	Coll E, Czerwinski J, De la Rosa G, Dominguez-Gil B (coord.): Guide of recommendations for quality assurance programmes in the deceased donation process. Donu 2009. www.ont.es/publicaciones/Documents/DOPKI%20GUIA.pdf . Last accessed March 2016.

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Potential for Deceased Donation Not Optimally Exploited: Donor Action Data From Six Countries

Leo Roels,^{1,3} Jacqueline Smits,² and Bernard Cohen¹

TABLE 1. Potential heart-beating donor losses along the donation pathway in six countries (total 2007-2009) (*including registry checks in countries with presumed consent legislation)

	Total no. records	Ventilated, medically suitable	Potential HB donors, as % of ventilated, medically suitable	Not identified, as % of potential	Not referred, as % of identified	No family approach ^a , as % of identified	Refusal, as % of approach	Organ retrieval, as % of potential (=conversion rate)
Belgium	22,249	7,015	17.8	20.6	28.2	23.9	20.3	44.3
Finland	2,131	603	36.5	21.4	23.7	16.8	14.6	51.4
France	19,383	6,332	32.4	18.9	11.0	12.7	32.7	47.1
Israel	470	452	99.8	9.1	2.0	0	53.7	38.1
Poland	1,470	1,129	34.9	55.6	19.4	4.6	23.4	30.5
Switzerland	6,742	2,372	20.7	23.2	47.1	10.1	40.9	41.1
Total	52,382	17,903						
Mean			40.3	24.8	21.9	11.3	30.9	42.1
SD			30.1	15.9	15.5	8.5	14.5	7.3



Köszönöm a figyelmet!