EU Joint Action: Achieving Comprehensive Coordination in ORgan Donation throughout the European Union

Work Package 5 - Increasing the collaboration between donor transplant coordinators and intensive care professionals

FINAL REPORT –Part Three
Deliverable 8: Recommendations for improvement and toolkit methodology: systemic improvements in end-of-life care pathways to promote organ donation.

Implementation of a rapid improvement toolkit

April 2015

Contents

Part Three

Deliverable 8: Recommendations for improvement and toolkit methodology: systemic improvements in end-of-life care pathways to promote organ donation.

Report on the implementation of a rapid improvement toolkit.

This section of the report describes the experience with the application of the PDSA methodology and the Toolkit to improve performance in the process of donation after death.

1. Methodology

Details of the PDSA improvement methodology, and a toolkit, are given in Part Two. In brief, three one-day training workshops were held in June and September 2013 attended by 66 participants from the 15 EU participating countries, at which the principles of the PDSA methodology were described and guidance given as to the application of the principles to the data derived from Part 1 of this WP.

The participants were each asked to assess the data from their own hospital, based on the patient questionnaire described in section 2.3 of Part 2 and to develop and implement a PDSA cycle. PDSA plans were initially reviewed by project leads at each country and by the project team in the UK and, if appropriate, suggestions for improvement were made. However, each hospital was responsible for its own plan.

It was hoped that all plans could be related to a single part of the questionnaire, and thus measurement of the success or otherwise of the plan could be identified through a repeated (limited) use of the relevant part of the questionnaire. However there were a number of hospitals where the plans did not fit this model. In some, the relevant step of the pathway was not felt to be amenable to change without significant external changes – for example, legislation. In others, there was little scope for improvement on the Donation after Brain Death (DBD) pathway and the introduction of Donation after Circulatory Death (DCD) was seen as a high priority. However all plans were required to include some measure of success, whether related to the questionnaire or not. Summary reports were submitted to NHS Blood and Transplant (NHSBT) by all hospitals participating in this part of the project,

using a standard template (Appendix 1), thus allowing a degree of subjective analysis of the outcomes from the plans.

Hospitals were asked to implement their PDSA cycle(s) starting in September-November 2013, collating the pre-specified information to evaluate the impact of their interventions. A report summarizing the experience with the development and the implementation of the PDSA cycle(s) was asked to be submitted to NHSBT by April 30th 2014. In summary, participants were asked to provide information on the obstacle identified and addressed, describe the interventions developed, provide measures of success, assess the subjective impact of the interventions and report on any difficulty encountered. Quantitative data collections undertaken to objectively assess the impact of interventions were usually carried out with the same questionnaires used for Study 1 of the project, and finalised on July 14th 2014. Thus, no project ran for more than 6 months. However, a number of hospitals have continued with their projects after this deadline, and continue to see the benefits.

An assessment was made that describes in general terms the stage of the patient pathway that participating hospitals chose to address through their PDSA plans, the approaches taken to effect change, any evidence that increased collaboration occurred with the ICUs and/or other hospital departments, the level of support from hospital management, whether the PDSA methodology was found to be helpful, whether in general the process had achieved a positive impact, whether there were unresolved issues and finally whether an increase in donation had been observed.

2. Results

A total of 51 hospitals submitted reports on their completed PDSA cycles by July 14th 2014, with one hospital submitting two PDSA plans – there were therefore 52 plans available for analysis. 27 plans reported data using the relevant part of the patient questionnaire used in Part 1of the WP, 25 plans were only reported using the template. A summary report of each of the 52 completed PDSA plans is in Appendix 2. These summary reports have been analysed by the UK team. For the reasons given above, these results are largely subjective.

2.1 Type of donor

Each plan was asked to report whether the changes to be made were intended to influence the DBD pathway (e.g. through training in the brain death testing), the DCD pathway (e.g. through protocols to refine the practice of withdrawal or limitation of life sustaining treatments and DCD donation) or both pathways (e.g. through a focus on the consent process). In 4 plans this was not specified. See **Table 1** and **Figure 1**.

Table 1: Type of donation pathway intended to be influenced by the PDSA plans

DBD Pathway	24
DCD Pathway	10
Both	14
Not specified	4

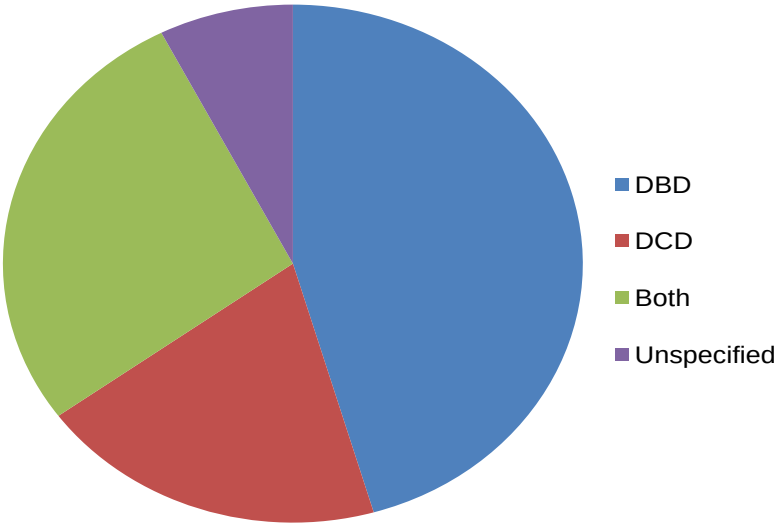


Figure 1. Type of donation pathway intended to be influenced by the PDSA plans

2.2 Stage of the Pathway

An attempt was made to classify the plans according to the stage of the patient care pathway (including specific collaboration between DTCs and critical care professionals) that was to be addressed. These stages ranged from the initial management of the patient, the identification of the patient as a possible donor and referral to/collaboration with a DTC, brain death testing, consent for donation and the development of protocols for withdrawal or limitation of life sustaining treatments (WLST) and/or the DCD process. A number of plans made interventions that could have an effect on more than one stage – for example, an approach that aimed to increase both referral of possible donors and the consent process. For this reason the total numbers given in **Table 2** exceed the number of completed plans. Information is also provided in **Figure 2**.

Table 2: Stage of the pathway addressed by the PDSA plans

Donor identification and/or referral	33
Consent	14
Collaboration	5
DCD Protocols	5
WLST Protocols	4
Brain Death Testing	4
Intubation	1

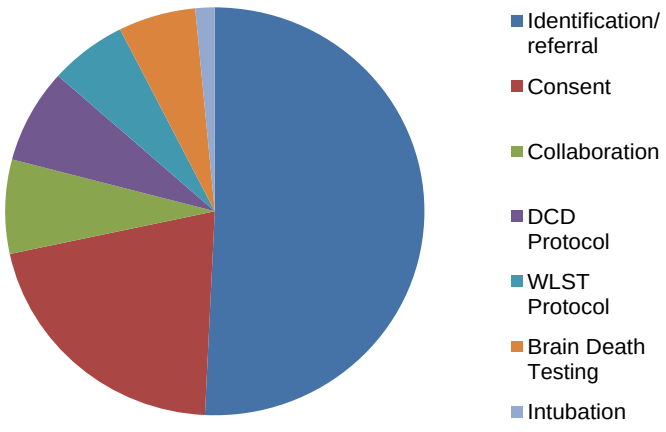


Figure 2: Stage of the pathway addressed by the PDSA plans

2.3 Target Unit

PDSA plans could be classified as being directed towards one or more of the hospital units where patients received end-of-life care. Whilst the majority focussed on one or more critical care areas, there were seven plans that involved the whole hospital. As with para 2.2, the total numbers in **Table 3** exceed the total number of completed plans. Information is also graphically represented in **Figure 3**.

Table 3: Hospital unit target of PDSA plans

ICU	34
Emergency Department	13
Neurology/stroke unit	9
Whole Hospital	7
Neurosurgical ICU	5
Coronary Care Unit	1

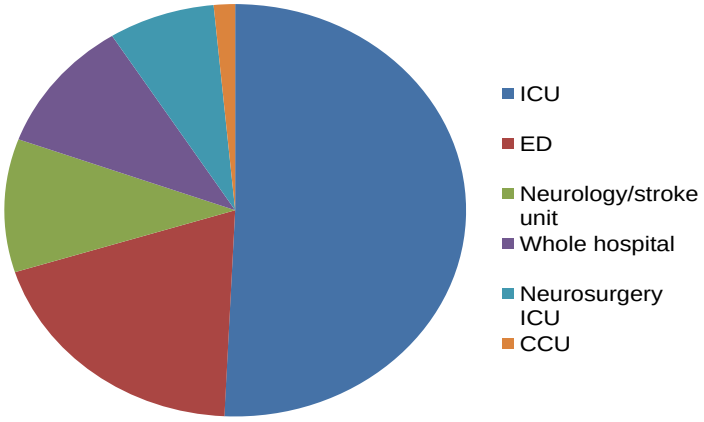


Figure 3: Hospital unit target of PDSA plans

2.4 Approach taken to effect change.

Whilst implementation of the PDSA plans used a wide variety of approaches they can be grouped broadly as follows: the development and use of protocols or guidelines, plans based on education and/or training, the wider use and dissemination of available data, the appointment of additional staff or nominated staff and meetings of relevant people. In a number of plans more than one approach was used – for example the development of protocols followed by education and training of relevant staff. As with para 2.2 the total numbers in **Table 4** exceed the total number of completed plans.

Table 4: Approach taken in PDSA plans

Protocols or guidelines	25
Education and/or training	23
Use of available data	7
Additional or nominated staff	8
Meetings	3

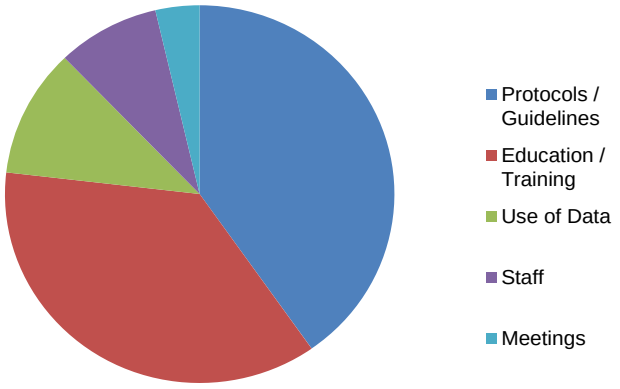


Figure 4: Approach taken in PDSA plans

2.5. Evidence of Collaboration with ICU

Not all plans involved the ICU, but collaboration with ICU clinicians was an explicit part of 42 of the plans.

2.6 Evidence of Collaboration with other professionals

32 of the plans involved active collaboration with non-ICU clinicians, such as those in the Emergency Department (ED), Neurologists or Neurosurgeons.

2.7 Managerial Support

Most reports did not comment on the extent to which the PDSA plan had received support from hospital managers or administrators. However 7 reports did identify managerial support as a part of the plan, whilst 2 noted the lack of managerial support as an obstacle.

2.8 Positive Impact

39 plans were reported as having had a positive overall effect, whilst 13 could not identify any effect (**Figure 5**). The positive effect was subjective in some cases, objective in others, and was reported in terms of, for example, increased referral of possible donors to the coordinator or increased training in, and awareness of, local protocols.

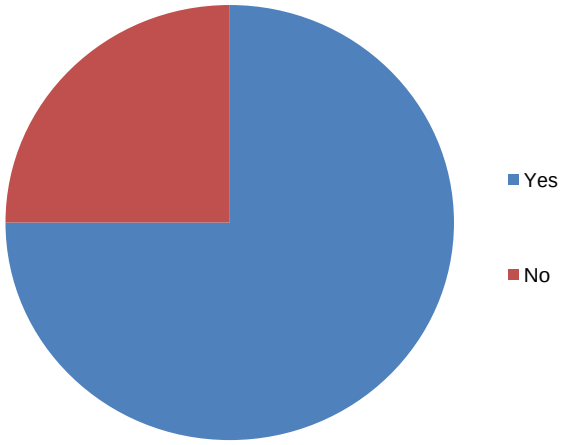


Figure 5: Positive impact of PDSA plans

2.9 PDSA methodology

Whilst 36 of the reports said that an understanding of the PDSA methodology and the opportunity to implement it was helpful, 16 did not feel this to be the case (**Figure 6**).

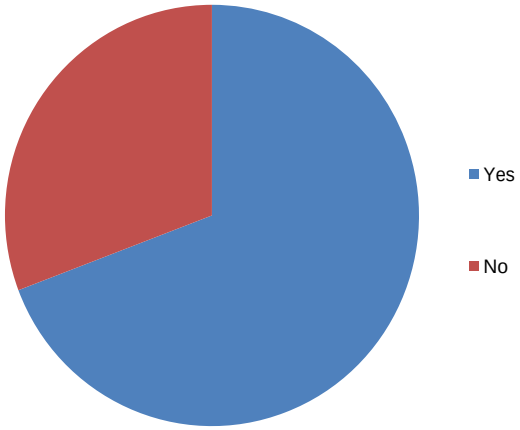


Figure 6: Help provided by the PDSA methodology

3. Unresolved issues.

A number of PDSA plan reports commented on issues that remain unresolved. These can be grouped under the following common themes:

- Clinical: Resistance to change from some or all ICU/stroke/neurosurgery consultants.
- Resources: Lack of ICU beds and resources – particularly nurses.
- Training: Staff turnover, slow recruitment and the need for constant training programmes. The workload involved in training.
- Structural: The lack of National or Local health policies.

It is also apparent that the data reported in Part One of this Report show that only some of the issues identified were likely to be amenable to local actions and the PDSA methodology. Limitations to donation involving resources, wider hospital or national policies or major system changes need a different approach. One of the key lessons of this project is that there needs to be the analysis of the patient pathway, then an analysis of the obstacles to change, and then, wherever appropriate, the use of PDSA techniques. For those hospitals with more fundamental problems, alternative strategies need to be developed, probably with the Competent Authority.

4. Increase in donation

Despite the short timescale and small number of patients studied, 9 plans reported an increase in donation, and 8 further plans reported an increase in their targeted stage of the process: consent, referral, collaboration or brain death testing. Ideally, an overall aggregate assessment of donation before and after implementation of the PDSA plans would have been made to assess more directly the impact on donation. However this would only have been possible if all patients studied during all the PDSA cycles were reported using the entire patient questionnaire, as used in Part One of the project. As this was not done, such an aggregate assessment is not possible.

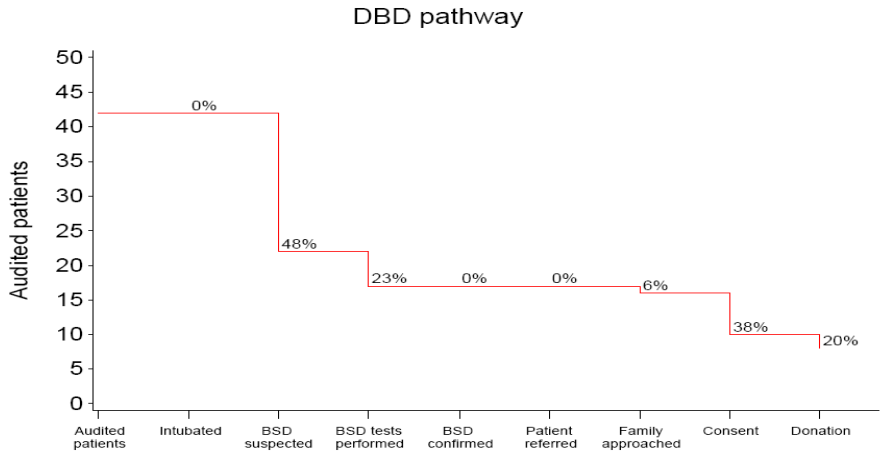
5. Examples

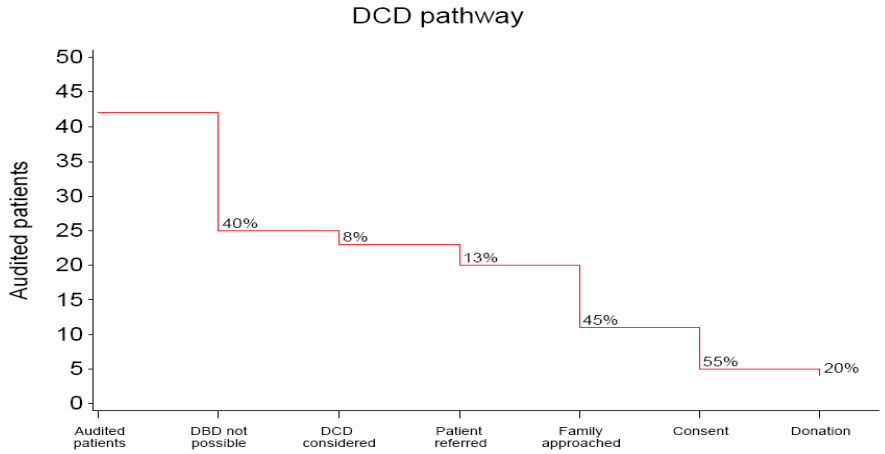
Below are examples, describing briefly the PDSA plan and the outcome. Five used the patient questionnaire to supply data, and the step charts for Part 1 and Part 2 are shown. Others used only the template to report their outcomes. Examples 1-4 show PDSA plans deemed to have had a positive impact by the reporting teams. Examples 5-6 show plans that were not felt to have had a positive impact.

Example 1

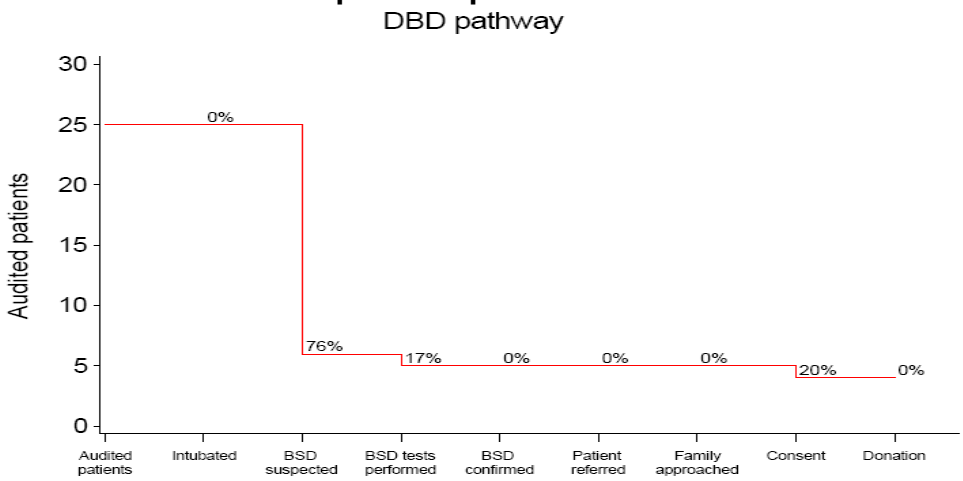
"During Part 1 we identified that the main obstruction to donation was consent. Data collected for 43 patients during 6 months showed a 48% family refusal rate (i.e. a 52% consent rate) and only in 46% of these refusals was a Specialist Nurse-Organ Donation (SNOD) involved. Following the Improvement Model training we developed and implemented strategies focussed on improving collaboration between the SNODs and the ICU team to address this. The results of Part 2 showed an increase to 80% consent, with a SNOD involved in 100% of approaches."

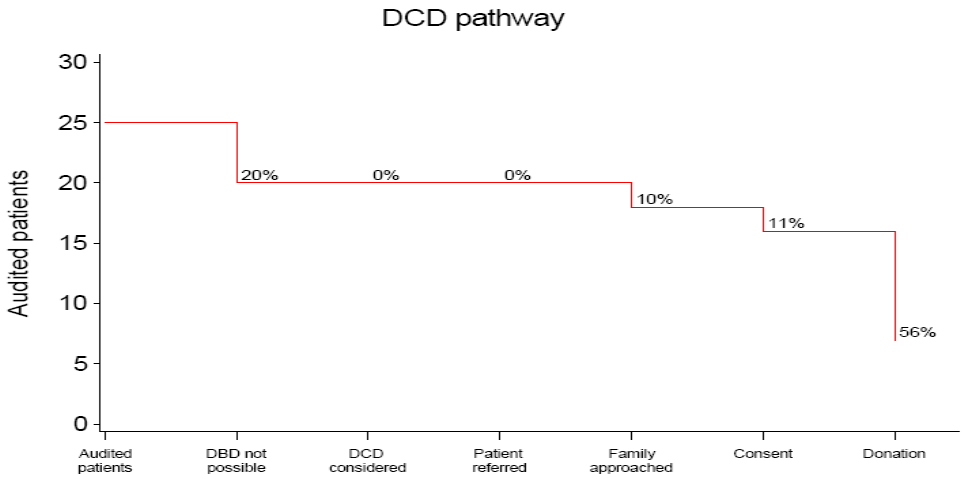
Example 1 DBD and DCD step charts pre -intervention





Example 1 DBD and DCD step charts post- intervention

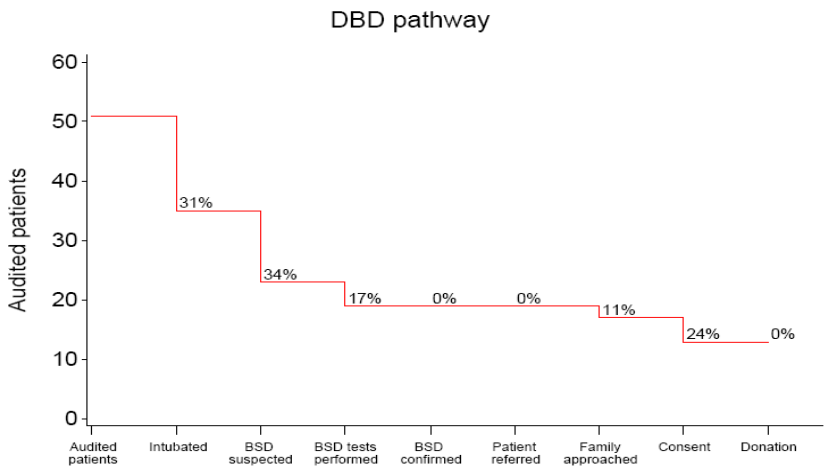




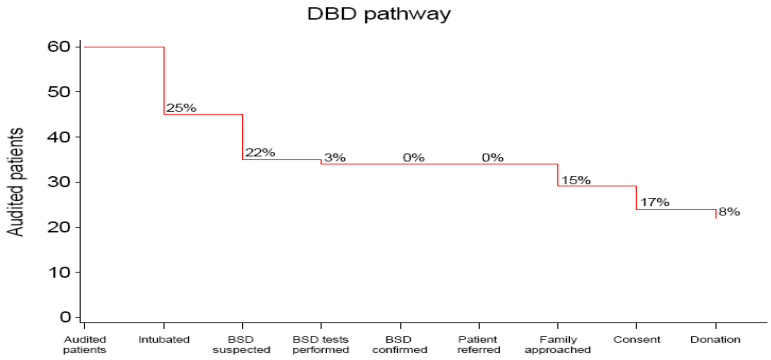
Example 2

"Pre-Intervention data analysis revealed a non-systematic referral of possible donors to the DTC. Non-compliance with the donor detection protocol was more frequent at units with high staff turnover and no consideration of deceased donation as a professional responsibility.
Our intervention consisted of monitoring compliance with the donor detection protocol. All hospital deaths were reviewed daily, to obtain feed-back from physicians in charge, in case of non-compliance. Training and informative sessions were developed.
Following the intervention, referral of possible donors evolved from 78% to 91%. Marked improvements were observed in other steps of deceased donation, e.g. consent to donate increased from 76% to 92%. The percentage of possible donors converted into actual donors increased from 25% to 46%'.

Example 2 DBD step chart pre- intervention



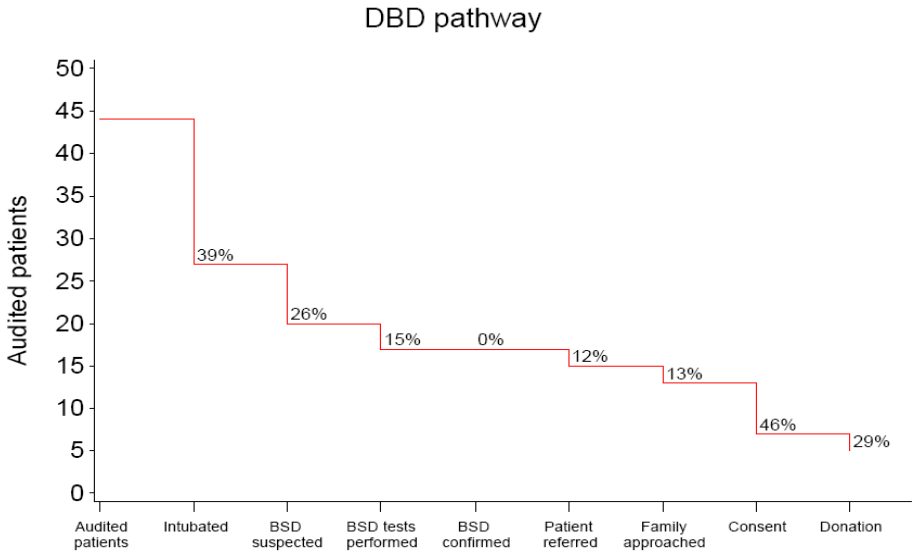
Example 2 DBD step chart post- intervention



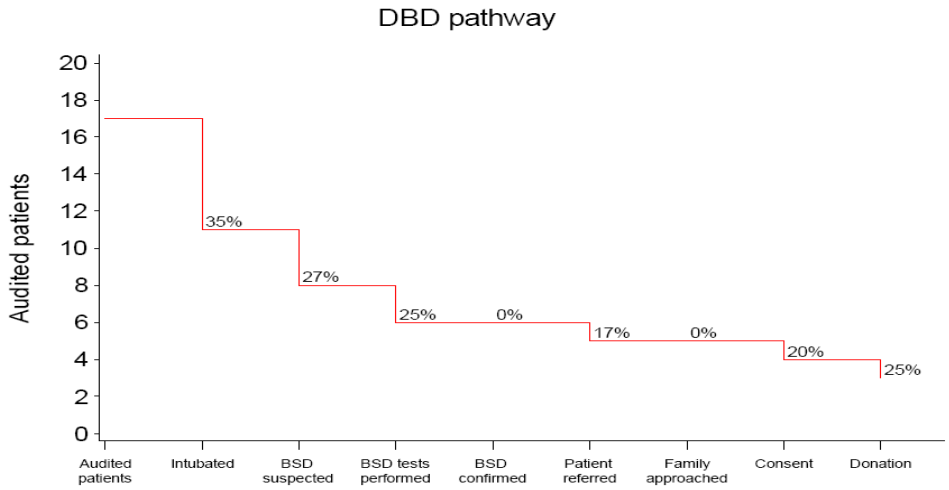
Example 3

"Main problem identified was to improve the family consent rates. Interventions to improve consent rates involved training of ICU doctors in communicating with the family, breaking bad news, explaining brain stem death and using native speaker of relatives' home language for conversation about brain death and organ donation. Measures of success were an increase in the number of family consents and increase in the number of actual donors'. Following the intervention there was an increase in the number of consents from 54% to 71% and an increase in the number of actual donors from 9% to 18%."

Example 3 DBD step chart pre- intervention



Example 3 DBD step chart post- intervention

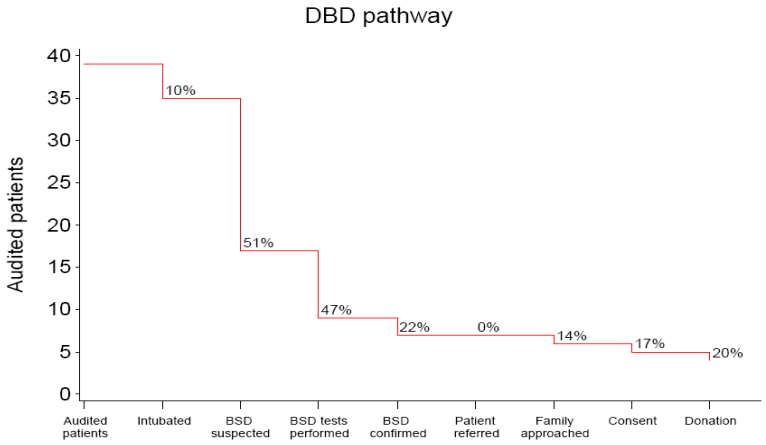


Example 4

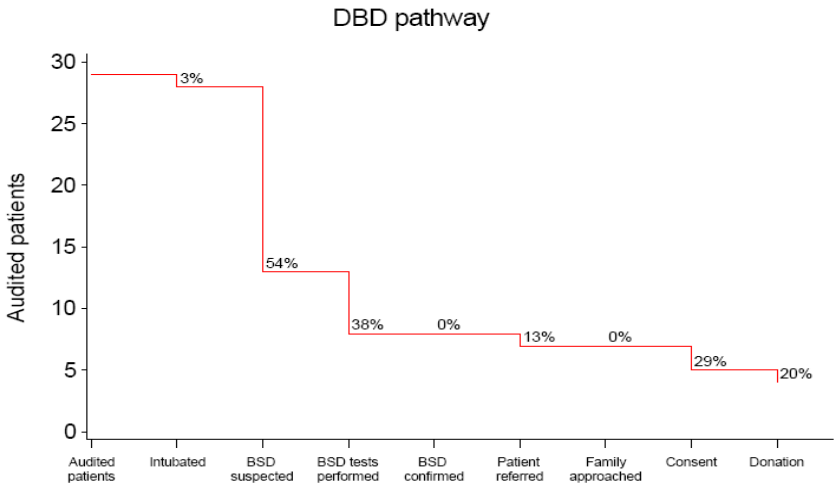
"Two major problems were identified during study 1. The difficult conversation with relatives about organ donation on one hand, and the identification of potential donors together with brain death testing on the other hand. Planned interventions included discussions with physicians about potential donors, trainings on brain death testing as well as the organisation of the donation process, and a support offer for physicians approaching the families. Regarding the latter, a workshop on "family counselling and support" was planned for July.

25 intensive care physicians at UKB received training in brain death testing. The proportion of family approaches supported by a transplant or DSO coordinator increased from 17.9% to 26.3%. "

Example 4 DBD Step chart pre- intervention



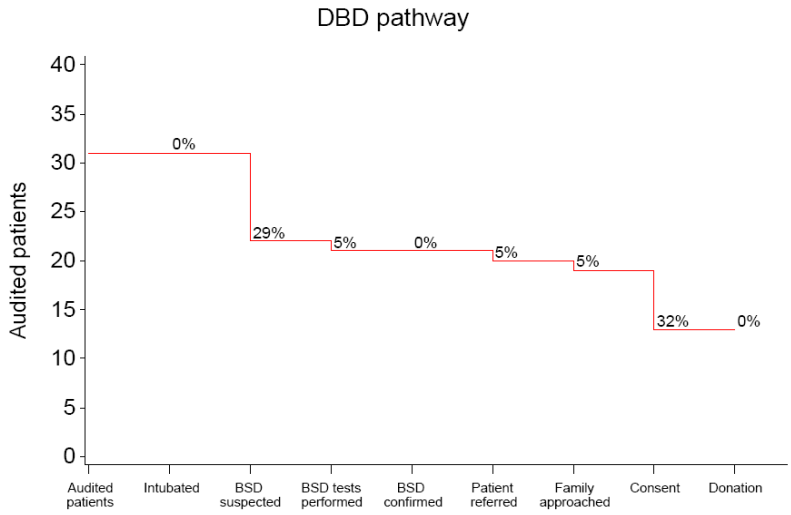
Example 4 DBD Step chart post- intervention



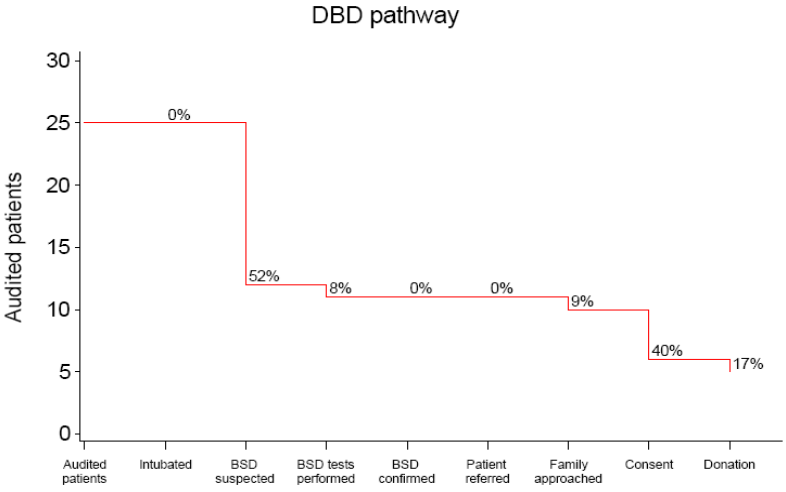
Example 5

"Problem identified was 22% of families refused organ donation. The intervention was to have a clinical psychologist with specific training in organ donation available to support the family with a measure to increase the number of family consents. Although the cooperation from the clinical psychologist was good the offer of the extra support to families was not well accepted and was perceived as an external presence. The family refusal rate actually increased during the intervention."

Example 5 DBD Step chart pre- intervention



Example 5 DBD Step chart post- intervention



Example 6

"The problems identified from the questionnaire were identification of the potential donors, not enough staff involved, loss of donors due to lack of referral to Transplant Coordinator, lack of information about patients at Department that died but did not get to ICU'. Planned interventions included 'meeting at the highest level, joining the Hospital Director, Transplant Coordinator, National Transplant Coordinator and directors of all ICUs. We also named people who are responsible for detection and referral of potential organ donor to the Transplant Coordinator in all ICUs'. Measures for success were 'increase in the number of organ donor referrals and an overall increase in the number of potential and actual organ donors."

This hospital did not input extra data into the online questionnaire post intervention but their results are reported in the table below.

Measure	Data before PDSA Cycle implemented (if appropriate)	Outcome/Data after PDSA Cycle implemented
Increase of potential organ donor referrals	38	16
Overall increase of actual organ donors	5	0
Getting a bed in surgical ICU reserved only for potential donors	/	Still not given

In describing the impact of their intervention they stated *'Even though at first it seemed that there might be positive results, the idea of a change was not very well accepted among the staff. We assumed due to lack of motivation and work overload'*. They have also cited a lack of resources as a problem.

6. Discussion

It is apparent that the PDSA methodology is far more appropriate for local issues, often very limited in scope, than it is for higher-level problems that require National resolution. Even where clear local change was achieved as a result of the PDSA cycle, the effects of the change could often be expected to influence donation only over a longer timescale. In addition the number of relevant patients was, in many hospitals, relatively small. As a result, few hospitals were able to demonstrate clearly an increase in donation but this in no way diminishes the success of the overall WP – it was anticipated. It is the proof-of-principle – that a rigorous but simple rapid improvement methodology can be used, can promote collaboration between donor transplant coordinators and others and can achieve change – that is important.

To make significant changes to a Member State's overall organ donation rate, usually measured as donors per million population, requires a systematic approach at National, Regional and Local levels. The Spanish model has been implemented effectively not only in Spain but also in a number of other countries or areas, and the UK model (similar in concept) has resulted in a 60% increase in deceased organ donation in 6 years. This project was not designed to achieve this sort of outcome. It was intended to demonstrate that collection of good data – at a local level- could identify possible areas for improvement and that implementation of a standard change improvement methodology could be effective – also at a local level. It was based on the premise that increased collaboration between ICU professionals and DTCs would be an important component of such changes. It was accepted that some areas for improvement, and the interventions to achieve improvement, may be unsuccessful, but that small-scale interventions would either point the way ahead for larger-scale change, or would demonstrate the need to focus on other areas or other interventions. It is therefore encouraging that 75% of the plans were reported to have had a positive effect within their specific area of interest, and over 85% of plans reported greater collaboration between donor transplant coordinators and either intensive care clinicians, other critical care clinicians (e.g. ED, Stroke Unit or Neurology/neurosurgery) or both.

Whilst the PDSA methodology is intrinsically a simple approach, full training and understanding of the techniques involved requires adequate time for training and assimilation. Within the ACCORD WP 5, this training was provided at three one-day workshops held in London, and in retrospect this may have been the minimum necessary – more training, or more support after the

workshops, may have resulted in some plans being more clearly defined and thus more deliverable. Specifically, the PDSA process works most effectively when thorough analyses of not only the problem to be addressed but also the very detailed components of the problem have been made. This may then lead to a very small, limited intervention that can be achieved quickly, tested quickly, and then either discarded or developed further over time. It would appear that a number of plans – for understandable reasons – were wider in scope, more ambitious and involved several interventions. Their benefits are therefore likely to be seen over a longer time period.

Despite these caveats, 68% of reports suggested that use of the PDSA methodology had been helpful, and a number of those that did not report this had learnt lessons that should make the methodology more helpful if the process is repeated.

Whilst only 2 reports stated explicitly that lack of managerial support from the hospital was an obstacle, a number more identified issues related to resources, either clinical (e.g. ICU bed numbers) or organisational (e.g. the provision of enough time for staff to be trained in issues involved in organ donation, and enough staff to do the training). Conversely, in hospitals where management was actively supportive of organ donation implementation of change methodology was in general more successful.

7. Appendices to Part Three

Appendix 1

Template for PDSA reporting

PDSA Cycle Report

Name	
E-mail address	
Country	
Name of hospital	

1. **Could you provide a brief summary of your PDSA Plan.**

2. **Did you amend the original plan? If 'yes', state reason?**

   ☐ Yes ☐ No

   (If for example you could not implement the change/intervention identified in your original plan. Please explain why your original intervention could not be implemented).

3. **What was the problem you were addressing?**
   (Identified from the patient questionnaire for example identification or referral of potential donors, consent rate or brain death testing).

4. **Were you able to identify a root cause for the problem?**
   (For example: lack of resources; lack of training etc).

   ☐ Yes ☐ No

   If yes what was it?

5. **What interventions did you make to address the problem?**
   (What changes/interventions did you implement? This would of been identified on your original PDSA plan.)

6. **What were your measures of success?**
   (This would of been identified in your original PDSA plan)

7. **Dates PDSA cycle commenced and finished**

   Start date

   Finish date

8. **What did your data demonstrate after you implemented your change/intervention?** *(only complete the last box 'outcome/data after PDSA Cycle completed' if you have not entered your data/outcome into the online questionnaire)*

Measure		Data before PDSA Cycle implemented (if appropriate)	Outcome/Data after PDSA Cycle implemented
EXAMPLE	Increase number of referrals from Stroke Unit	% of patients referred from stroke unit	% of patients referred from stroke unit
EXAMPLE	Increase consent rate	% Consent rate	% Consent rate
EXAMPLE	Ethical Committee approval of protocol	Not applicable	Ethical approval gained 31/01/2014

9. **Did you see any impact as a result of your PDSA cycle?**

(*Where you able to identify any other impact, aside from the data you have collected, of your PDSA plan for example did you see a change in attitude to donation or increase in the number of people attending training courses attended)*

☐ Yes ☐ No

10. **Please describe the impact that you saw.**

11. What went well?

(*Did your intervention change go well, was it accepted by colleagues, did you get agreement from key people to implement the intervention/change)*

12. What didn't go well?

(was there any resistance to the intervention/ change you tried to implement or to the PDSA methodology)

13. What have you learnt through your participation in ACCORD?

(would you use the Improvement model and PDSA methodology again to implement change)

14. What are your next steps?

(Are you planning any other interventions once ACCORD has finished)

15. Was there any other activity/initiatives underway in your hospital that might have impacted on the results from the PDSA cycle.