NHS
Blood and Transplant

# Providing H&I advice, support, and representation to OTDT

David Briggs – Interim H&I Advisor to OTDT

NHS
Blood and Transplant

# NHSBT

| Blood Supply | Clinical Services | OTDT | Plasma |
|---|---|---|---|

| QA | Donors | ? | People | Strategy | IT | £ Finance |
|---|---|---|---|---|---|---|

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# NHSBT

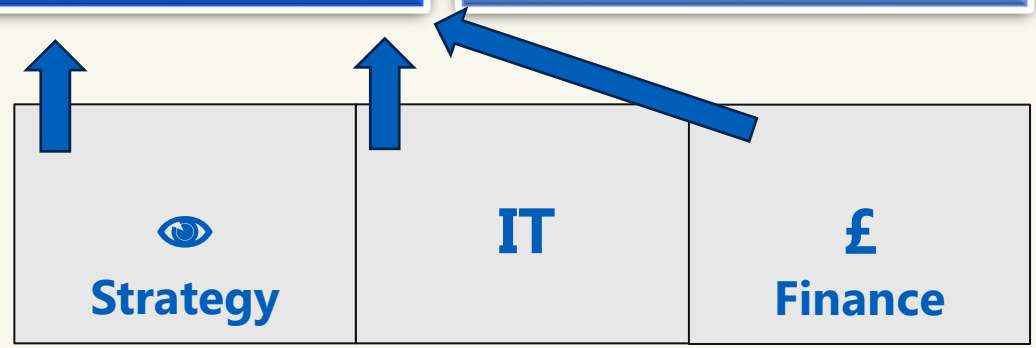
**Blood Supply**

**Clinical Services**

- Statistics
- H&I

**OTDT**

**Plasma**

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# H&I and OTDT

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## Previously - Chief Scientific Officer ODT

To provide expert advice on matters relating to Histocompatibility and Immunogenetics (H&I) and the use of H&I information in allocation and transplantation.

H&I expertise
Nomenclature
HLA queries form labs

Advisory Group meetings
Quality meetings

Clinical governance

Liaise with UK labs

- Policies
- Use of HLA data

1 day/week


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# H&I and OTDT

NHS Blood and Transplant

## NHSBT

**Blood Supply**

**Clinical Services**

- H&I

**OTDT**

- Hub activities
- SCORE
- Commissioning

- Quality incidents
- Advisory Groups

- NTxD
- DCERT
- DonorPath
- LivingPath
- cRF calculator
- Min resolution
- Match resolution
- etc

**Plasma**

BSHI British Society for Histocompatibility and Immunogenetics

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# H&I and OTDT

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## BSHI OTDT role

### Professional representation

### Clinical governance

- Advisory Groups membership
- Guideline development

### HLA development

- Technology
- Commissioning

### Projects/programmes of work

### R&D

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# H&I and OTDT

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## NHSBT H & I Lead role

### Operational

#### Supporting business as usual

- H&I queries
- Technical issues

#### Clinical governance

- Investigating quality incidents
- Advisory Groups membership

#### Service development

- Projects
- Programmes

#### R&D

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# cRF calculator

1. **"Splits" frequency calculations**

2. Missing loci:
   - DQA
   - DPA
   - DPB

3. Agreement with NTxD cRF calculation and allocation

4. Version control

**1. Examples**

A2 = 50.09%
A203 = 50.09%
A210 = 50.09%

A24 = 14.91%
A2403 = 15.00%

B27 = 8.31%
B2708 = 8.31%

Bw6 = 85.37%
Bw6+B2708 = 88.33%

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# cRF calculator

1. “Splits” frequency calculations

2. **Missing loci:**
   - DQA
   - DPA
   - DPB

3. Agreement with NTxD cRF calculation and allocation

4. Version control

**2. Lacking in most of the last 10,000 donors**

Solutions:

- Wait
- Use other UK data sets
  - STRIDES
    - ✓ Blood donors
    - ○ Imputed types
  - BBMR
    - ✓ NGS (DPB1)
  - Audit
    - ✓ HLA allele frequencies
    - ✓ ABO distribution
    - ✓ Ethnicity distribution

# cRF calculator

NHS Blood and Transplant

1. "Splits" frequency calculations

2. Missing loci:
   - DQA
   - DPA
   - DPB

3. **Agreement with NTxD cRF calculation and allocation**

4. Version control

**3. DPB1 calculation**

- Uses available types donors – 3,642 but uses 10,000 denominator
  - Falsely low cRF
  - Prevent entry into Tier A

**Mian Chen, Oxford**

| BG | Specs | Calculator | Waiting list | Corrected |
|---|---|---|---|---|
| A | DP3, 6, 9, 14, 17, 20, 104 | 0% | 11% | 30.99% |
| A | DP10, 14 | 0% | 2% | 5.33% |
| O | DP3, 6, 9, 14, 17, 20, 104 | 0% | 10% | 29.96% |
| O | DP2, 4(0401), 9, 14, 15, 19, 23 | 0% | 30% | 90.55% |
| A | A66, B37, 63, DR9, DP4(0402) | 4% | 33% | 78.87% |

# cRF calculator

1. “Splits” frequency calculations

2. Missing loci:
   - DQA
   - DPA
   - DPB

3. **Agreement with NTxD cRF calculation and allocation**

4. Version control

**3. Donor allocation and UAA:**

- A203 eliminates A2
- A2403 eliminates A24, A9
- B2708 eliminates B27

ODT-INC-8021

**HLA ++**

# cRF calculator

NHS
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1. “Splits” frequency calculations

2. Missing loci:
   - DQA
   - DPA
   - DPB

3. Agreement with NTxD cRF calculation and allocation

4. **Version control**

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# DP typing deceased donors

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## DPB1 not reported - 6 cases in the last 12 months

**HLA Incidents - Cause of Incident - Technical Error**

**09g. H&I Cause - Non compliance with minimum typing requirements - No impact**

| Number | Risk | Event Title | Incident Details | Investigation Detail | H&I Lab | Impact | Likelihood | Date Raised |
|---|---|---|---|---|---|---|---|---|
| ODT-INC-7982 | Green | Non-compliance to minimum HLA typing resolution - HLA-DPB1 – no impact | Laboratory Error<br>Resolved Post-Allocation<br>RAG 1 Negligible / 3 Possible (Green)<br>HLA locus: HLA-DPB1<br>Methodology used: PCR-SSP<br><br>Report comment: "HLA-DPB1 not reported as type was not resolved due to multiple rare call." | No actions required by CG - reported for data capture/trending/HLA Reports. | | Negligible 1 | Possible 3 | 28/05/2024 |

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# DP typing deceased donors

Blood and Transplant

| | | | | | Transplant type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Kidney | Pancreas | Heart | Lung | Liver | Bowel |
| 1 | When a donor is offered with a full HLA type, do you? | **Do a pre-tx VXM** | **(U/S/N/X)** | > | | | | | | |
| 2a | If no donor DPB1 type and the recipient has some DP-specific antibodies | **Does this change what you do?** | **(Y/N)** | > | | | | | | |
| 2b | ditto | **Do a pre-tx wet XM** | **(U/S/N/X)** | > | | | | | | |
| 2c | ditto | **Decline offered recipient** | **(U/S/N/X)** | > | | | | | | |

| | | | |
|---|---|---|---|
| **U** | **Usually** | **Y** | **Yes** |
| **S** | **Sometimes** | **N** | **No** |
| **N** | **Never** | | |
| **X** | **N/A** | | |

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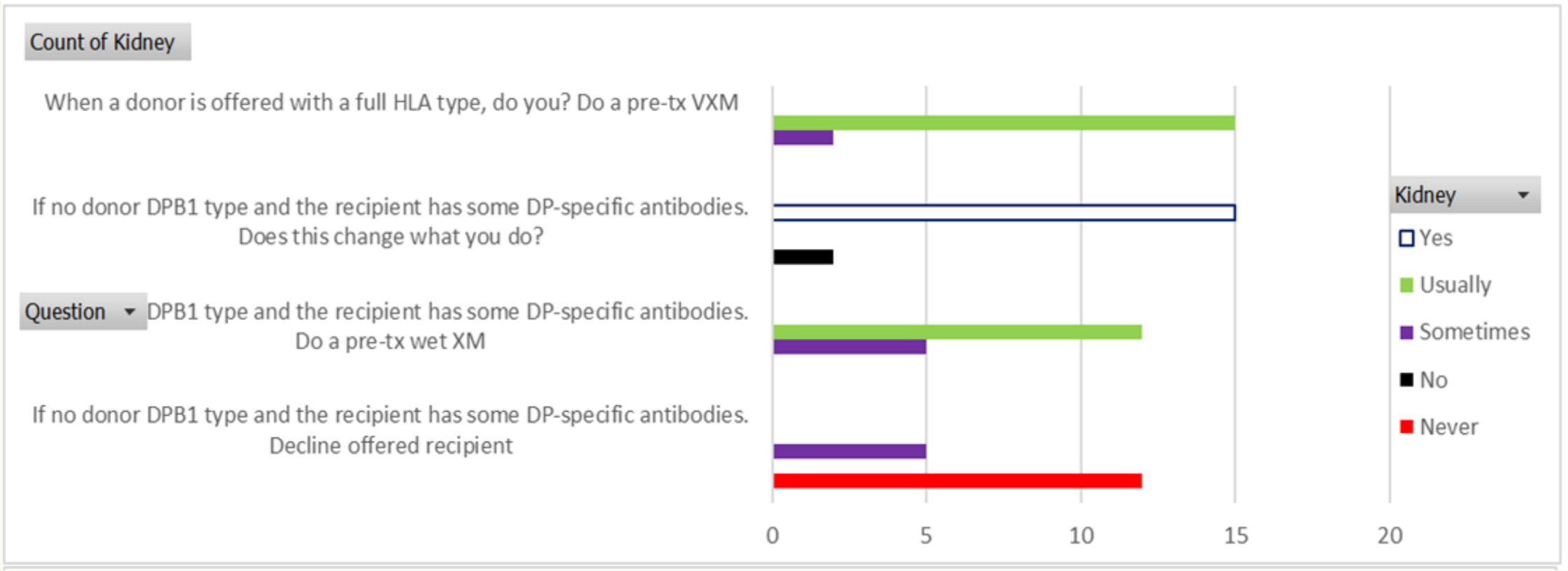
# DP typing deceased donors

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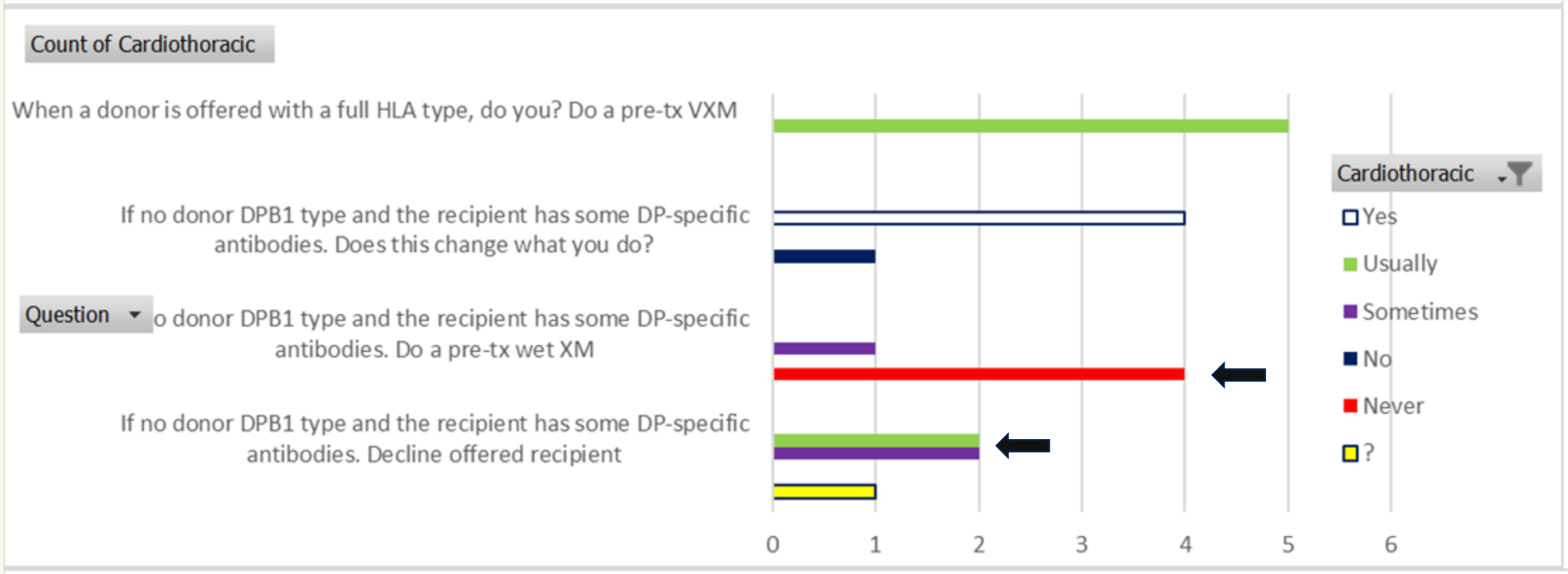
# DP typing deceased donors



# DP typing deceased donors

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| No DPB1 type | Mitigation | Consequence |
|---|---|---|
| Operational | Re-type | **Transplant delay** |
| | Re-type | Additional cost |
| | Wet XM | **Transplant delay** |
| | Wet XM | Additional cost |
| | Review data | |
| Clinical | Re-type | **Transplant delay- ?CIT** ↑ |
| | - | **Offer decline** |
| | Wet XM | **Transplant delay- ?CIT** ↑ |
| | - | **Offer decline** |
| | Review data | |

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# DP typing deceased donors

NHS Blood and Transplant

DPB1 not reported - 6 cases in last year

**HLA Incidents - Cause of Incident - Technical Error**

**09g. H&I Cause - Non compliance with minimum typing requirements - No impact**

20%

| Number | Risk | Event Title | Incident Details | Investigation Detail | H&I Lab | Impact | Likelihood | Date Raised |
|---|---|---|---|---|---|---|---|---|
| ODT-INC-7912 | Green | Non-compliance to minimum HLA typing resolution - HLA-DPB1 – no impact | Laboratory Error<br>Resolved Post-Allocation<br>RAG 1 Negligible / 3 Possible (Green)<br>HLA locus: HLA-DPB1<br>Methodology used: PCR-SSP<br><br>Report comment: "HLA-DPB1 not reported as type was not resolved due to multiple rare call." | No actions required by CG - reported for data capture/trending/HLA Reports. | | Negligible 1 | Possible 3 | 28/05/2024 |

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Version 09/ 2019

# NATIONAL TRANSPLANT DATABASE
## HLA CONVERSION CHART FOR ORGAN ALLOCATION

HLA Dictionary 2008 NOMENCLATURE April 2010

| MATCHED ON | '2 DIGIT BROAD' Allele | SPLITS OR ASSOCIATED SPECIFICITIES | '2 DIGIT SPLIT' Allele | ALLELE GROUP |
|---|---|---|---|---|

| MAPPED TO | '2 DIGIT BROAD' Allele | SPLITS OR ASSOCIATED SPECIFICITIES | '2 DIGIT SPLIT' Allele | ALLELE GROUP |
|---|---|---|---|---|
| | | HLA Dictionary 2008 | NOMENCLATURE 2010 | |
| **DPB1** | DPB1*01 | DPB0101 | | DPB1*01 |
| **DPB2** | DPB1*02 | DPB0201 | | DPB1*02:01,*02:01:01, *02:01:02, *02:01:03<br>DPB1*02:01:04, *02:01:05, *02:01:06,*02:01:07<br>DPB1*02:01:08, *02:01:09, *02:01:10,*02:01:11<br>DPB1*02:01:12, *02:01:13, *02:01:14,*02:01:15<br>DPB1*02:01:16 |
| | | DPB0202 | | DPB1*02:02 |
| **DPB3** | DPB1*03 | DPB0301 | | DPB1*03 |
| **DPB4** | DPB1*04 | DPB0401 | | DPB1*04:01,*04:01:01,*04:01:01:01,*04:01:01:02<br>DPB1*04:01:02, *04:01:03, *04:01:04, *04:01:05<br>DPB1*04:01:06, *04:01:07, *04:01:08, *04:01:09<br>DPB1*04:01:10, *04:01:11, *04:01:12, *04:01:13<br>DPB1*04:01:14, *04:01:15, *04:01:16, *04:01:17<br>DPB1*04:01:18, *04:01:19, *04:01:20, *04:01:21<br>DPB1*04:01:22, *04:01:23, *04:01:24, *04:01:25<br>DPB1*04:01:26, *04:01:27 |
| | | DPB0402 | | DPB1*04:02, *04:02:01,*04:02:01:01<br>DPB1*04:02:01:02,*04:02:02, *04:02:03<br>DPB1*04:02:04, *04:02:05, *04:02:06<br>DPB1*04:02:07 |
| **DPB5** | DPB1*05 | DPB0501 | | DPB1*05 |
| **DPB417** | DPB1*417 | DPB41701 | | DPB1*417 |
| **DPB584** | DPB1*584 | DPB58401 | | DPB1*584 |

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# H&I and OTDT

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HLA is a principal component of many OTDT operations, systems, policies and apps.

## In general

Expertise not always used
- Quality incidents
- cRF calculator
- Advisory groups

Outdated
- cRF calculator
- NTxD
- Min resolution/conversion charts

Inconsistent use
- Living Path
  - Donor HLA – DNA-based nomenclature
  - Recipient UAA – uses serological nomenclature

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## NHSBT H&I - Operational support

**Supporting business as usual**
- H&I queries
- Technical issues

**Service development**
- Projects
- Programmes

**Clinical governance**
- Advisory Groups membership
- Investigating quality incidents

**R&D**

**Engagement with BSHI**

# - H&I and OTDT -

## BSHI - Professional representation

**HLA development**
- Technology
- Commissioning

**Clinical governance**
- Advisory Groups membership
- Guideline development

**R&D**

**Engagement with OTDT**