

**NHS BLOOD AND TRANSPLANT
ORGAN DONATION & TRANSPLANTATION DIRECTORATE**

**MINUTES OF THE SEVENTEENTH MEETING OF THE
KIDNEY ADVISORY GROUP HELD ON WEDNESDAY, 26 MAY 2010
AT ODT, BRISTOL**

PRESENT:

Prof. Andrew Bradley	Chairman
Mr Niaz Ahmad	Representative for Newcastle & Leeds
Mr Argiris Asderakis	Deputy for Dr Richard Moore, Representative for Wales
Miss Laura Buist	Representative for Scotland
Ms Lisa Burnapp	Living Donor Scheme representative
Miss Sue Falvey	Head of Nurse Development, ODT
Dr Sue Fuggle	Scientific Adviser, ODT
Mr Abdul Hammad	Representative for Manchester & Liverpool
Dr Andrea Harmer	BSHI representative
Mr Iain Harrison	IT Directorate, NHSBT
Dr Robert Higgins	Representative for Cambridge, Birmingham & Coventry
Mr Alex Hudson	Statistics & Clinical Audit, NHSBT
Mrs Rachel Johnson	Statistics & Clinical Audit, NHSBT
Mr Geoff Koffman	Representative for South Thames (items 1 – 8 only)
Mrs Sue Madden	Statistics & Clinical Audit, NHSBT
Mr David Mayer	Clinical Lead for Organ Retrieval, NHSBT (items 1 – 8 only)
Dr Philip Mason	Renal Association/Registry representative (items 1 – 7 only)
Mr Justin Morgan	Representative for Oxford, Bristol, Plymouth & Portsmouth (items 8 to 17 only)
Dr Martin Raftery	Representative for North Thames
Mr Chris Rudge	Department of Health
Mr Badri Shrestha	Representative for Trent
Mr Dominic Summers	Addenbrooke's Hospital, Cambridge
Dr Jane Tizard	BAPN representative
Prof. Anthony Warrens	BTS representative (items 1 – 9 only)
Mr Christopher Watson	Chairman, Pancreas Advisory Group
Mrs Ann Yates	Duty Office Manager, ODT

In attendance: Mrs Kathy Zalewska Corporate Services Officer, ODT – Secretary

ACTION**APOLOGIES**

Apologies were received from Mr Anthony Clarkson, Mr John Connolly, Ms Dawn McPake, Dr Richard Moore, Prof. James Neuberger, Mr Aaron Powell, and Mrs Karen Quinn.

**1 DECLARATIONS OF INTEREST IN RELATION TO THE AGENDA –
KAG(10)1**

- 1.1 Prof Bradley, Mr Watson, and Miss Buist declared an interest in the kidney machine perfusion if discussed.

2 **MINUTES OF THE MEETING HELD ON 9 DECEMBER 2009 – KAG(M)(09)2**

2.1 The minutes of the meeting held on 9 December 2009 were agreed as a correct record subject to the following amendments:

Minute 3.3.1.1:

Third paragraph to read “*Mr Watson highlighted that each retrieval team should have a pancreas centre associated with it to ensure satisfactory retrieval of the pancreas.*”

Fifth paragraph – Amend *Mr Raftery* to *Dr Raftery*.

2.2 **Action points – KAG(AP)(10)1**

2.2.1 **Item 1 – Renal transplantation in highly sensitised patients using left lateral lobe of liver with kidney transplant:** Mr Koffman reported that there had been no activity in this project for the past 12 months. This work was now being overseen by the liver transplant team and would not be reported further at KAG unless there were any developments.

Item 2 – Biopsy of donor kidneys: Prof Bradley to liaise with Prof Neuberger on how to take this work forward as a prospective research project.

**A Bradley/
J Neuberger**

Item 3 – Retrieval standards document: Refer to minute 7.2

Item 4 – The allocation of kidneys to HSP: Refer to minute 6.3.

Item 5 – Proposal to modify the A₂ pilot in North Thames: This work is in hand.

Item 6 – Kidney machine perfusion trial: Following discussion at the previous KAG meeting it was stressed that this trial would not work and would be difficult to implement unless all centres sign up to participate in the trial. There are also issues with funding for the trial. Both issues are currently being addressed outside of KAG.

Item 7 – Pre-emptive kidney transplant rates: Completed.

Item 8 – Donor factors influencing outcome of kidney transplantation - Consider renal function as an additional outcome measure: To be reported at the next KAG meeting.

Item 9 – Kidney allocation to paediatric patients: Refer to minute 6.2.

Completed Action Points – Item 8 – Storage & transportation of kidneys: It was felt that the evidence for the use of 3 bags is not particularly compelling and that 2 bags would be adequate. This would, however, be changed if mandatory guidance stating the use of 3 bags is introduced. It was agreed that the use of 2 bags should be written into the NORS policy.

D Mayer

2.3 **Matters arising, not separately identified**

2.3.1 There were no further matters arising.

3 ASSOCIATE MEDICAL DIRECTOR'S REPORT

Miss Falvey congratulated Ms Burnapp on her appointment to the role of Lead Nurse for Living Donation with NHSBT as from 31st August 2010. The role assumes responsibility for developments in living donation, including developing standards of practice.

3.1 **Update on Organ Donation Taskforce (ODTF)**

3.1.1 The Programme Delivery Board was established in 2008 for a period of three years to ensure the ODTF recommendations were put in place. A presentation on progress of the work of the Taskforce was given by Mr Rudge at the BTS conference in March, with virtually all of the Taskforce recommendations nearing completion.

Miss Falvey updated members on the progress of work undertaken by NHSBT:

- Recruitment of Specialist Nurses in Organ Donation (SNODs) (formerly Donor Transplant Co-ordinators) is ongoing with a further 2/3 recruitment campaigns to take place. Approximately 200 are now employed by NHSBT.
- Over 170 Clinical Leads in Organ Donation are now in place.
- Over 175 Donation Committees have been established.
- A Professional Development Programme for Clinical Leads and Donation Committee Chairs has been launched with master-classes being held around the UK, concluding in February.

Mr Mayer reported that the commissioning of retrieval services by NHSBT went live on 1 April 2010 and data is being collected and monitored on a monthly basis.

Work is taking place on the collation of more robust data on coroner refusals in order to monitor the situation.

3.2 **NHSBT update**3.2.1 **Feedback on selection and allocation policies**

3.2.1.1 As reported at the previous meeting of KAG, ODT selection and allocation policies generated through Advisory Groups are to be approved by the new Transplant Policy Review Committee as part of the mechanism for NHSBT to take formal responsibility for these policies.

Work is underway with Advisory Group Chairs on revising these policies into a single selection and allocation policy with sections relevant to each organ. The different organ sections need to be consistent with each other and where there are differences in selection policies between different organs the clinical priorities must be maintained and justified in an evidence-based way wherever possible.

- 3.2.2 **Report from meeting with patients' groups – national and local**
- 3.2.2.1 The meeting with renal patients' groups was held on 29th January 2010. A presentation was given on the Kidney Allocation Scheme and attendees stated that this appeared to be an equitable system. The use of Kaplan Mier plots to explain transplant outcomes was commented on and some attendees asked if these could be explained using a different reporting method. Representatives also highlighted the need to promote living kidney donation more openly.
- 3.2.3 **Review of governance**
- As part of a review of governance within ODT, a new clinical governance reporting process for organ donation and transplantation has been established. A new email address for reporting of incidents has been circulated widely to interested parties (clinicalgovernance.odt@nhsbt.nhs.uk). This is part of a wider process to develop an on-line system for future reporting to ensure more effective recording and monitoring of these types of incidents. Three sub-groups have been established for donation, retrieval and transplantation to consider and investigate incidents and to report on the findings to the ODT Clinical Governance Monitoring Group (CGMG). The sub-groups will meet every other month by telecon.
- 3.2.3.1 **Improvements to the CUSUM monitoring of kidney transplant outcomes – KAG(10)2**
- 3.2.3.1.1 A paper presenting several improvements to the current CUSUM system was submitted for consideration. The report was divided into three sections which separately detailed the revision of the current reporting format, the regular update of expected mortality/failure rates, and the proposal for the introduction of a head start CUSUM.
- In order for kidney centres to benefit from the addition of informative tabular CUSUM charts, the layout of the kidney CUSUM reports has been amended. The new format has been applied retrospectively to the monitoring period presented in the last CUSUM reports. Across all centres monitored for adult kidney transplantation there were four alterations to signals previously observed, three new signals were identified and three previously recorded signals disappeared. In the monitoring of paediatric outcomes there were no changes to the signals previously observed and no new signals identified. All additional historical signals identified will not be investigated retrospectively. The revised reporting format will be in place for the forthcoming CUSUM reports due in June.
 - For CUSUM monitoring to remain informative, expected mortality rates need to be updated on a regular basis to keep them relevant to current practice and appropriate for the changes to the outcomes monitored. For the purposes of transplant outcome monitoring expected mortality/failure rates should be updated every two years and revised rates are due to be implemented in June of this year. As with current expected rates the calculation to determine the revised rates will give greater weight to the most recent performance. The monitoring period will also be brought

forward by two years so that it remains independent of the period used to calculate the baseline rates.

- Members noted a proposal to implement a more responsive system so that if outcomes remain inconsistent with the expected value the chart will signal more quickly. Instead of restarting the tabular CUSUM from zero this would restart halfway between zero and the chart threshold (head start CUSUM). It was proposed that this system be applied to the monitoring of transplant failure but not for monitoring patient mortality where the current system was sensitive enough. Following discussion members agreed that it would be inappropriate to incorporate the head start CUSUM into the current CUSUM monitoring of 30-day graft failure for kidney transplantation.

3.2.3.2 **Response to a signal – KAG(10)3**

3.2.3.2.1 A draft paper on the response to triggers arising from an audit of outcomes after solid organ transplantation was received for consideration. The aim of the paper was to outline the response when deterioration in performance or divergent outcomes had been identified and required investigation. Triggers would be notified to the nominated NCG representative, the ODT Associate Medical Director and the Chair of KAG who would decide whether the signal represents 'noise in the system' or whether further investigation is required. If so, the cause of the signal would be investigated by NCG, following which appropriate recommendations would be made.

3.3 **Nominations for membership of CGMG Retrieval sub-group**

3.3.1 Centre representatives were asked to suggest nominations for a renal representative on the retrieval sub-group who could be contacted if required to discuss specific incidents relating to kidney retrieval.

3.4 **Allocation of organs to non-UK EU residents**

3.4.1 The recommendations on the allocation of organs to non-UK EU residents were still awaiting Ministerial approval due to the complexities of current EU legislation and devolution within the UK. Once guidance has been approved any change to current practice will be notified to centres. With the recent agreement of the EU Organ Directive this issue is now likely to return to prominence.

3.5 **DEPARTMENT OF HEALTH UPDATE**

- 3.5.1
- The EU Organ Quality and Safety Directive is due to be adopted in the next month or so and member states will then have 2 years to transpose the Directive into law.
 - NICE have agreed to produce a short report on practices in intensive care, including identification of all potential organ donors and obtaining consent for organ donation. It is intended that these will be short clinical guidelines to be produced in early 2011. A stakeholder scoping exercise was held recently to agree on the scope of the report and an expert group is to be established to compile the final report.

- Requested allocation: Guidance on the circumstances in which these requests should be considered is available on the DH website (see link below).

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_114800

4 SCIENTIFIC ADVISOR'S REPORT

4.1 HLA donor discrepancy follow-up: 2009 – KAG(10)4

4.1.1 Dr Fuggle reported on the results of HLA donor discrepancy monitoring for 2009. The level of discrepant donor HLA types reported to ODT has decreased over the years and is now very low with the majority of discrepancies resulting from clerical errors.

4.2 Minimum resolution for reporting donor and recipient HLA types – KAG(10)5

4.2.1 Levels of compliance with the minimum requirements for reporting donor and patient HLA types are regularly monitored. Laboratories are contacted if non-compliant types are received and an annual report is presented to KAG. High levels of compliance are now routinely achieved and members noted that compliance levels from October 2009 to March 2010 were similar to those in the previous six months, with centres achieving good compliance with the required resolution.

4.3 Availability of HLA antibody reaction calculator tool

4.3.1 The development of an HLA antibody reaction calculator tool has been delayed due to workload issues within IT. As an interim measure a calculator tool has been developed in Excel which could be distributed to laboratories and centres to be uploaded onto local systems. Dr Fuggle thanked Mr Hudson for developing this tool and added that further details about how it would be made available would be circulated in due course.

**S Fuggle/
A Hudson**

5 STATISTICS AND CLINICAL AUDIT REPORT:

5.1 Conference presentations, current and future work – KAG(10)6

5.1.1 Mrs Johnson summarised a report of work currently being undertaken by the Statistics and Clinical Audit Directorate of ODT and by external researchers. This included work on a review of outcomes after DCD kidney transplantation; the introduction of domino paired donation; a review of the prioritisation for paediatric patients in Tier D of the National Kidney Allocation Scheme; and various ongoing collaborative work.

5.2 Update from the Kidney & Pancreas Research Group Meeting– KAG(10)7

5.2.1 The minutes of the meeting of the Kidney and Pancreas Research Group held on Monday, 10th May 2010 were noted.

6 SELECTION AND ALLOCATION**6.1 Recipient selection and kidney allocation policies**

6.1.1 Work is ongoing to develop a single policy incorporating sections relevant to each organ (see minute 3.2.1 above).

6.2 Prioritising paediatric patients in Tier D - KAG(10)8

6.2.1 At the meeting of the KAG Paediatric sub-group in April members discussed the priority given to paediatric patients in Tier D. In order to investigate possible alternative allocation priorities for these patients a number of simulations were developed and simulation (c), awarding an update to paediatric HLA/Age scores within Tier D, was agreed. KAG members noted and endorsed this proposed change to the Kidney Allocation Scheme arrangements.

A Hudson**6.3 Highly sensitised and long waiting kidney patients – KAG(10)9**

6.3.1 Members received a proposal for a revision to the National Kidney Allocation System (NKAS) in order to increase access to transplant for highly sensitised patients (HSP). These patients are currently included in Tiers A and C for 000 mismatched kidneys. The proposal recommended a change to the algorithm to allow those HSPs with accurately defined antibody profiles to have access to all nationally allocated kidneys (ie mismatch Levels 1 to 3). This change would be closely monitored and members endorsed the proposal.

A Hudson**7 DCD donor kidneys****7.1 DCD kidneys: A shared resource? – KAG(10)21**

7.1.1 Members received a presentation from Mr Dominic Summers on the sharing of DCD donor kidneys. The results of the study indicated that outcomes were comparable to those for DBD donor kidneys. The wide variation in retrieval rates from DCD donors between centres was also noted.

7.2 Allocation of DCD donor kidneys – KAG(10)10

7.2.1 Following on from the presentation at minute 7.1 above, discussion took place on the fact that DCD kidneys now form a significant proportion of deceased donor kidneys. Prof Bradley submitted a paper summarising some of the issues relating to whether kidneys from DCD donors should now be treated as a national resource. In order to take this forward it was proposed and agreed that a small sub-group of KAG be convened to consider how the allocation of DCD donor kidneys might work in the future and to make appropriate recommendations. Proposed terms of reference for the sub-group were tabled for information and membership agreed. The sub-group would be jointly chaired by Dr Martin Raftery and Dr Sue Fuggle with a remit to report back to KAG at the next meeting.

Mr Rudge also advised members of an initiative being launched by the Department of Health in conjunction with the BTS, ICS and NHSBT to produce a best practice statement, endorsed by these organisations, on donation after cardiac death. This work will take place during summer 2010.

8 **UK Registry of Antibody Incompatible Transplantation 2001-2009 – KAG(10)11**

- 8.1 Members received a presentation on the development of the national registry of antibody incompatible transplants. Data collection started in May 2008, including retrospective data collection for transplants from January 2001. There were 381 reported transplants between 2001 and 2009, comprising 231 HLAi transplants and 150 ABOi transplants. Post transplant outcome analysis showed:
- 3-month SCr slightly higher in HLAi
 - 3-year death-censored graft survival HLAi 89% & ABOi 86% (compares with 94% in other living donor transplants)
 - 3-year survival (failure/death) – ABOi 84%, HLAi 82%, other living donors 92%

More detailed analyses will be possible as the cohort grows and centres were encouraged to report more data for the registry. In future, NHSBT will provide centres with their dataset returns in case some are not up-to-date.

A Hudson

9 **PAIRED AND ALTRUISTIC DONATION**

9.1 **Paired donation update – KAG(10)12**

- 9.1.1 Mrs Johnson updated members on the progress with paired living donor kidney transplants, which in 2009 accounted for 3.1% of all living donor transplants in the UK. On 1 April 2010 a 12-month project started, in conjunction with the team from Glasgow University, to formalise and extend the programme to include domino paired donation. It was noted that four 3-way exchanges had taken place since November 2009.

9.2 **Reimbursement of paired/pooled and non-directed altruistic living kidney donors – KAG(10)13**

- 9.2.1 Ms Burnapp reported on the wide variances in practice in the reimbursement of expenses post nephrectomy to living kidney donors. In some areas the application and approval processes are well established but in others it is variable and subject to negotiation on a case-by-case basis. A recent case of pooled donation highlighted the need for an agreement in principle on the mechanism for achieving reimbursement when kidneys are exchanged between centres, particularly when kidneys are exchanged across boundaries where different commissioning arrangements apply. It was recommended that for paired/pooled donation, where there is limited time to obtain prior approval for donor reimbursement and kidneys are transported to recipient centres across the UK, application to the local PCT/Commissioning Authority for the recipient should be made in advance, when the donor/recipient pair is registered in the scheme. The cost to the local PCT/Commissioning Authority would be equivalent to a straightforward directed donation taking place between a local donor/recipient pair and this arrangement would permit prior approval of anticipated expenses and timely donor reimbursement. Members endorsed this recommendation.

Reimbursement for non-directed altruistic donation is also a problem and is further complicated as any recipient in the UK may be a beneficiary of the kidney from such a donor. Two options were considered; the first being reimbursement from the donor PCT/Commissioning Authority (as with paired pooled donation); or, secondly, permit retrospective requests for reimbursement from the recipient PCT/Commissioning Authority post donation. The donor centre would be responsible for providing information to the donor to manage expectation. Members agreed to the second option (reimbursement from the recipient PCT/Commissioning Authority retrospectively).

Ms Burnapp agreed to approach the Department of Health with both recommendations from KAG for approval.

L Burnapp

9.3 **Update on living donors from overseas – KAG(10)14**

Ms Burnapp reported on discussions with the Home Office UK Border Agency (HO) and the Department of Health (DH) re the logistical barriers that preclude potential donors living overseas from travelling to the UK for evaluation and donation to recipients entitled to NHS treatment. The agreed current position is that applications for UK entry visas for the purposes of donor evaluation/surgery will be referred to personnel in the UK so that decisions are centralised through the HO for greater consistency; and entry visas for these purposes will be issued for a maximum 6-month stay visitor visa (application for extension can be made but subject to a fixed fee).

Examples of situations where visas have not been awarded and/or where the process has been protracted, or where a 3-month visa has been awarded, should be reported to Ms Burnapp for submission to the HO Policy Team.

Going forward, HO is to produce guidance for personnel dealing with visa applications; also a template application pack and guidance for use by Living Donor Co-ordinators/Clinical teams; and Ms Burnapp will liaise with the Human Tissue Authority to ensure there is no conflict with HTA guidance.

9.4 **Non-directed altruistic living kidney donors (NDAD): offering & scheduling – KAG(10)15**

9.4.1 Members noted a report highlighting differences in practice in the offering and acceptance of NDAD kidneys. Areas requiring clarification and consideration were discussed and agreement reached as follows:

- The mechanism for offering NDAD kidneys from the ODT Duty Office: Offers should be channelled through a nominated person in each centre who would be responsible for liaising with colleagues and facilitating the transplant process according to local policy. Ms Burnapp agreed to provide the Duty Office with details of the nominated contact in each centre.
- Samples for initial and final cross-matching should be transported using transport arranged by ODT and funded by the recipient centre.
- Offering of kidneys with dates of donation specified by the donating

L Burnapp

centre: This can be difficult to accommodate for recipient centres and it was agreed that centres should avoid offering specific dates and instead offer a timeframe of within 6 weeks of acceptance of the offer, within which there is a preferred date or timeframe. If the proposed timeframe is not feasible there must always be negotiation between the centres in order to manage the expectations of the donor.

- o When the offer is accepted the HLA type should be faxed from the Duty Office to the laboratory.

10 USE OF DOUBLE KIDNEYS

- 10.1 Prof Bradley highlighted the need for guidelines on the use of double kidneys which are usually marginal organs. Previous attempts to review the use of double kidneys were unsuccessful due to the lack of data available. A Hudson agreed to review the situation and, if appropriate, update the analysis for reporting to the next meeting of KAG.

A Hudson

11 PAPER RETURNS TO ODT – KAG(10)16

- 11.1 Prof Bradley informed members of a query from a renal physician at the Royal Cornwall Hospital as to why ODT did not collect follow-up information from centres electronically rather than using paper forms; and why this data was not being analysed. It was reported that there was an issue of compatibility of IT systems as well as a need for the forms to be updated. Due to other priorities within IT, there has been no progress in developing IT systems to capture this information in an appropriate manner.

12 REPORT FROM THE KAG PAEDIATRIC SUB-GROUP

- 12.1 Dr Tizard summarised the discussion at the recent paediatric sub-group meeting including prioritising paediatric patients in Tier D; developing guidance on accepting kidney offers for paediatric patients; and on matching criteria. Other work involved a project proposal for a review of paediatric kidney transplantation in the UK and work on reasons for prioritising paediatric patients. This last item had been requested by NHSBT as all allocation algorithms need to be justified and based on clinical evidence to overcome the issue of age discrimination in transplantation.

13 REPORT FROM PANCREAS ADVISORY GROUP (9 APRIL 2010)

- 13.1 Mr Watson summarised items discussed at the recent Pancreas Advisory Group meeting including the development of a protocol for benchwork and preparation of pancreases at retrieval; progress on the new pancreas allocation scheme; and the development of a process for an Appeals Panel relating to standard listing criteria. It was noted that the data on islets was poor and it was acknowledged that rates should be better at this stage. This situation may change when the new pancreas allocation scheme is in place and better quality pancreases are offered for islet transplantation.

14 GOVERNANCE ISSUES**14.1 Non compliance**

14.1.1 There were no issues of non-compliance to report at this time.

15 FOR INFORMATION ONLY**15.1 Non-retrieval and non-use of organs – KAG(10)17**

15.1.1 Members noted a report on the rates and reasons for the non-retrieval and non-use of kidneys from data from adult deceased solid organ donors in the UK between 1 April 2007 and 31 December 2009.

15.2 Update on renal patient consent scheme & living patient consent scheme – KAG(10)18

15.2.1 The first report, on the renal patient consent scheme, showed that of the 7044 patients who were registered on the national list for a renal transplant, 92% have given consent for the use of their personal data.

The second report, on the living kidney donor patient consent scheme, showed that of the 1139 patients who were registered on the national list for a living kidney donor transplant, 96% have given consent for the use of their personal data.

15.3 Transplant activity report: March 2010 - KAG(10)19

15.3.1 The transplant activity report for March 2010 was noted for information.

15.4 KAS 3 year 9 month report – KAG(10)20

15.4.1 Members received and noted the report for the first three years and nine months (April 2006 – December 2009) of the National Kidney Allocation Scheme.

16 ANY OTHER BUSINESS

- 16.1
- Members noted details of a normothermic renal preservation programme being considered by Prof Nicholson at Leicester. The programme would involve the perfusion of DBD donor kidneys with cross-matched blood from the blood bank. Local ethical committee approval has been acquired and views were requested from KAG. Following discussion Prof Bradley agreed to write to Prof Nicholson to ask if these organs would be used locally and to ask that the results from the programme be reported to a future KAG.
 - In response to a request for clarification on the allocation of paediatric en bloc kidneys it was confirmed that these are offered, following a matching run, to centres for their preferred recipient.
 - A processing error affecting the ODR had recently come to light and had resulted in the preferences expressed by a number of people who had registered via the DVLA from 1999 onwards being mis-recorded on the register. Where possible, NHSBT had contacted those registrants and donor families affected by the incorrect recording of information. The Information Commissioner was informed of the situation and an independent review into the incident, led by Professor Sir Gordon Duff, has been commissioned. It was noted that where there is no response from registrants to contact made by NHSBT, their record will remain flagged to ensure

A Bradley

To be ratified

KAG(M)(10)1

ACTION

that, in the event of their becoming a potential organ donor, the record, detailing any preferences, is not relied upon in discussion with their family.

17 DATE OF NEXT MEETING

17.1 Tuesday 7 December 2010 at ODT, Bristol.

Organ Donation & Transplantation Directorate

September 2010