



EES results announced

An overall summary of 2009 Employee Engagement Survey has been released on Connect.

The detailed results for individual Divisions will be released as part of a series of presentations by members of the leadership team during the next few months with R&BD discussion sessions planned to be held over the next few weeks.

Looking at the overall results for all of ARCBS, a number of general trends become apparent.

The overall response rate for this year's survey was 78% (up from 69% in the previous year). This higher participation rate provides a good level of confidence that the results reflect the views of staff.

Again, looking at ARCBS as a whole, the survey results show a significant improvement in 11 of the 20 categories measured. All categories reflected improvement with no category declining, which is a very pleasing result.

While positive, ARCBS CEO Jennifer Williams said there remained room for improvement in many areas. She said the results clearly showed all managers including the ELT needed to continue to focus on providing strong, visible leadership to motivate and inspire staff.

Based on the feedback, Ms Williams said the organisation's managers need to make prompt decisions and communicate a

clear direction for all members of their teams to follow.

In the next few months, all staff will be invited to special EES discussion sessions and asked for their input to help move from results to action.

Three **key priority areas** have been identified for action nationally. These are:

1. **Leadership**
2. **Training and Development**, and
3. **Innovative culture** - where employees are encouraged to challenge the traditional way of doing things and to feel confident to speak up.

At the local level, teams will also select another priority area relevant to their area and develop a plan for action.

For R&BD, the additional priority area chosen to address is **Communication** – an area identified as needing attention at the R&BD Division meeting held in Sydney at the end of June. We will also be addressing **Working Relationships** aimed at facilitating the development of enhanced teamwork both with R&BD and between R&BD and other Divisions. This was also identified at the June meeting as a priority area.

The ELT will monitor progress and communicate regularly with staff. The next EES is to be held in May 2010 and will measure progress in achieving the goals set during the current consultation period.

In this Edition

P1 - EES Results

P2 - Sydney researchers are Running on Blood

P3 - In the Spotlight

P3 - Up Close and Personal

P3 - Mastering the Examiner

P4/5/6 - ANZSBT/HAA

Presidential Symposium success

P7 - Cross-Examination



Australian Red Cross

BLOOD SERVICE



Applied and Experimental Development researchers and City2Surf supporters Lacey Johnson and Kelly Winter

Sydney researchers are Running on Blood

by Damon Cavalchini and Lacey Johnson

Two members of the Applied and Developmental Research team in Sydney took part in the annual City2Surf fun run, raising pledges for the Running on Blood campaign at the same time.

Bondi shark attack survivor and recipient, Glenn Orgias, led more than 150 runners in red 'Year of the Blood Donor' t-shirts in the 2009 City2Surf on the 9th of August as part of a special campaign to celebrate the generosity of the donors who helped save his life.

Mr Orgias, who lost his hand in a shark attack at Bondi Beach in early 2009, said he always loved running in the City2Surf and he was ecstatic to be alive this year to run it again.

"The race for me is a celebration, and a fun way to show how the Australian Red Cross Blood Service has helped me get back on my feet and running again," Mr Orgias said.

NSW/ACT Australian Red Cross Blood Service Operations Manager, Garry Wolfe, said, "We are honoured that Glenn has shared his story with us and that as an Ambassador he is helping to encourage people to become donors, especially during the critical winter months".

"To run in the City2Surf event just six months after his ordeal is a fantastic feat," Mr Wolfe said.

"Not only for Glenn as an individual but for donors as well. It's due to the generosity of the Australian community that Glenn is able to do this".

As part of this campaign, Dr Lacey Johnson and Dr Kelly Winter also took part in a special promotional group blood donation at the Elizabeth Street Donor Centre in Sydney, ensuring they gave plenty of blood and sweat but no tears.

They were part of a group of 10 donors who participated in the special pre-race group donation which was covered by print, television and radio media.

In fact, Lacey made the Channel 10 news where she ably plugged the value of being a blood donor.

The Running on Blood campaign was held during July and August and there has been a high conversion rate with most people who pledged to donate visiting a donor centre within a few weeks of making their commitment.

At the time of writing, the campaign had registered almost one thousand pledges, with about one in three of those pledges being honoured. If everyone who pledged donates, it would see about two months supply added to the inventory.

Given this was their first time competing in the event, Lacey and Kelly didn't try to take on the professionals in the sprint for the finish line.

Nonetheless, they both finished with the very acceptable time of two hours and twenty minutes.

In the spotlight

- After a brief absence, Library Services has rejoined R&BD. Janette Smith (based at 153 Clarence St, Sydney) and Anna Stamatelos and Tarangini Bansal (based at Southbank, Melbourne) have moved across from CS&P as part of the recent restructure.

The Library Connect page has moved from the Decision Support Office page and can now be found under our Business\Support Services\Research and Business Development\Knowledge Management.

- Dr Stuart Behncken left R&BD on the 31st of August to take up a new position as Technical Director at Sanofi Aventis Consumer Healthcare, which is based in Brisbane.
- Work is underway to develop a new classification structure that will provide a standardised approach to the grading, definition and pay rates for award-based Blood Service roles. Some R&BD staff have already been involved in the initial fact finding phases and others may be approached to participate in future focus groups.

This new framework will enhance career path opportunities and maintain equity with the external health market and across Blood Service roles and divisions. The results of this work will be communicated to staff upon completion, which is anticipated to be in June next year.

This process is being conducted in association with the exercise in classification of Research Fellow position descriptions throughout R&BD, which is close to being finalised.

- Congratulations to Kristen Glenister and her husband, Travis, on the birth of their baby daughter, Abbey Kate Park, 3.44kg and 51cm long, on the 24th of August. Mother and baby are doing well.



Mastering Examiner

Do you like the current Examiner masthead or do you think you could do a better job?

The call is out for anyone who wants to have a go at redesigning the masthead (the bit at the top of page one).

All ideas should be submitted to dcavalchini@arcsb.redcross.org.au by Wednesday the 30th of September with the goal of launching the new masthead to celebrate Examiner's first birthday in October (Issue 12).

The best entry will be selected by an expert panel who look remarkably like the R&BD Management Team and the submitter will receive a credit in the information box, the joy of seeing their creation in print, and maybe a small Freddo Frog.

Entries should be high quality images (at least 600 dpi) in either PDF, eps, jpg or tif formats.



Up Close and Personal

With Dr Tim Bednall

What is your job in a nutshell?

I'm a Research Fellow working in the Donor and Community Research team. Basically, we are trying to uncover the factors that encourage people to become ongoing blood and apheresis donors.

What is the best part of your job?

Knowing that my work's ultimate purpose is to motivate people to do good deeds!

Where are you from originally?

I'm a Melbourne boy originally (I hail all the way over from Mitcham!). However, it would probably be more accurate to describe me as a repatriated Melbournian. In 2002-2003 I lived in Japan where I taught English, and from 2004-2009 I was studying and working up in Sydney. It's great to be home!

What are your favourite movies/TV shows?

I'm a bit of a nerd when it comes to my favourite TV shows. My three favourite shows at the moment are *Lost*, *How I Met Your Mother*, and *Dexter*. I've also been getting into *The Big Bang Theory* recently. (Ed - What? No "*Chuck*"?)

What is your favourite beverage?

A good Shiraz or Pinot. And I would never refuse a good cappuccino.

What is your favourite indulgence?

My mother's delicious chocolate hedgehog.

What do you do for fun / to relax?

I'm quite into indoor rock climbing, salsa, cycling and running - none of which I do especially well. Also Facebook and Xbox'ing are a couple of my other vices.

What motivates / inspires you?

I think the process of discovery - and learning new and interesting things about what makes people tick.

If you could be anything else, what would you be?

I always wanted to be a criminal profiler growing up. It's rather ironic that I got a job profiling altruists.

Have you ever Googled yourself and would you repeat the experience?

I'm ashamed to admit that I have. There's another (slightly) more famous Tim Bednall who is a partner in a large Sydney law firm. So I guess you could say that one of us works for a blood-sucking organisation, and the other works for the ARCBS!

Are you the "tbednall" on Twitter and, if so, will you be challenging Ashton Kutcher for the most followers?

That's me, but not any time soon!



Australian Red Cross

BLOOD SERVICE

ANZSBT/HAA Presidential Symposium Success

The hard work of ARCBS researchers has been acknowledged with the Blood Service providing all five speakers for this year's ANZSBT presidential symposium in Adelaide.

The combined Annual Scientific Meeting of the Haematology Society of Australia and New Zealand (HSANZ), the Australian and New Zealand Society of Blood Transfusion (ANZSBT) and the Australasian Society of Thrombosis and Haemostasis (ASTH) will be held at the Adelaide Convention Centre from the 18th to 21st October 2009 with the ANZSBT presidential symposium currently scheduled for 8:30-10:00am on Monday the 19th of October.

R&BD team members Dr Catherine Hyland, Dr Melinda Dean, John-Paul Tung, Jenny Morrison and Dr Zoe McQuilten, have all been selected to present at the prestigious event.

This is the first ANZSBT presidential symposium for John-Paul Tung, Jenny Morrison and Zoe McQuilten while Melinda and Cate have presented previously.

Professor Robert Flower said the achievement showed the skills of the Transfusion Science team and the quality of research being conducted.

"Having three debut presenters in this year's presidential symposium is a tremendous endorsement of the future of ARCBS researchers and the research strategy," Professor Flower said.

"ARCBS plays an important role in the Australian blood sector so it is fitting that all of the presenters for the presidential symposium are from the Blood Service," he said.

Professor Flower said the involvement of the researchers at the ANZSBT/HAA also meets one of the deliverables required by the R&BD division work plan (Objective 4 - see Examiner 9 or the ARCBS Business Plan for details).

In addition to being selected to present at the presidential symposium, Melinda Dean was also awarded a travel grant to attend the conference, valued at \$1,250.

Copies of the successful abstracts are reproduced on the next couple of pages.

Preliminary Findings from an Ovine Model of Blood Component Therapy Developed to Investigate Transfusion-Related Acute Lung Injury

John-Paul Tung^{1,2,3}, Yoke Lin Fung^{1,2,3}, Maria Nataatmadja^{2,3}, Kathryn Colebourne¹, Paul McMurray¹, Hend Mohamed³, Kathleen Wilson⁴, Peter Wood^{2,5}, Christopher Silliman⁶, John Fraser^{2,3,4,7}

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6. Bonfils Blood Centre, Denver, Colorado, USA
7. Queensland University of Technology, Brisbane, Queensland, Australia

Aim

To develop an ovine model of blood component therapy (BCT). The model will be used to study adverse reactions including transfusion-related acute lung injury.

Methods

Sheep were first infused with either saline (healthy sheep) or lipopolysaccharides (LPS) (sepsis sheep). An hour after the first infusion was completed sheep were infused with BCT of either saline (control), day-1 pool of heat-treated supernatants from human whole-blood platelets (d1-S/N) or day-5 pool (d5-S/N).

Results

1 st Infusion	2 nd Infusion	n	Circulating PMNs (x10 ⁹ /L)				Histology (semi-quantitative score from 0-4)					Sheep with mild pulmonary injury (avg. index ± 1)
			Pre-infusions	Post-1 st infusion	Post-2 nd infusion	Pre-epithelial (3-4hrs)	Oedema	Haemorrhage	Microvascular congestion	Bronchiole pathology	Average injury	
saline	saline	1	5.04	5.78	6.40	6.72	0	0	3	0	0.80	0/1
	d1-S/N	3	1.99	2.77	3.69	3.54	1.33	0.67	2.67	0.83	1.40	1/3
	d5-S/N	3	2.62	3.75	7.50	6.74	1.67	0.00	0.33	2.00	0.93	2/3
LPS	saline	2	2.45	0.08	0.11	0.14	0.00	0.00	1.50	0.00	0.40	0/2
	d1-S/N	2	2.53	0.83	0.10	0.39	1.25	1.50	2.50	1.00	1.55	1/2
	d5-S/N	3	3.68	0.04	0.14	0.58	1.50	1.67	2.33	1.33	1.70	3/3

LPS-infusion resulted in decreased circulating neutrophils (PMNs) corresponding with pulmonary sequestration of PMNs. Infusion of d1- and d5-S/N into healthy sheep resulted in increased circulating PMN counts. Infusion of human BCT caused only mild pulmonary injury which was most severe when d5-S/N was infused into septic sheep. D5-S/N also caused mild injury (average injury greater than or equal to 1) more often than d1-S/N.

Conclusion

This preliminary data indicates that sheep tolerate the infusion of human platelet supernatants, and therefore are potentially a suitable large animal model to study the effects of BCT. Mild pulmonary injury seen more often with stored blood product (d5-SN) may represent a mild TRALI, however further study is required to confirm this.

Mannose binding lectin deficiency is associated with altered myeloid blood dendritic cell function

Melinda M Dean^{1,2}, Robert L Flower¹, Damon P Eisen³, Derek N.J Hart² and Slavica Vuckovic²

1. Australian Red Cross Blood Service, QLD,
2. Mater Medical Research Institute, QLD,
3. Royal Melbourne Hospital, VIC.

Background

Mannose binding lectin (MBL) is a circulating plasma pattern recognition molecule that facilitates pathogen killing via direct opsonisation, activation of the complement

cascade and enhancing phagocytic uptake. Genetically driven MBL deficiency is found in 25% of the population and is associated with increased frequency and severity of infection. Dendritic cells (DC) play a central role in linking the innate and adaptive immune response. MBL deficiency may influence DC function and have important outcomes following an infectious challenge.

Aims

- To investigate whether MBL deficiency results in altered dendritic cell function.
- To investigate if addition of MBL (purified from human plasma) could change, or improve the response to pathogen.

Methods

Following zymosan stimulation in a whole blood infection model, CD11c⁺ myeloid blood (M)DC were isolated from MBL-Deficient (MBL-D, n=10) and MBL-Sufficient (MBL-S, n=6) individuals and characterised for cytokine production, surface phenotype and ability to induce allogeneic T cell responses. Total RNA was isolated from sorted MDC and investigated using expression microarray to compare the genes and signalling pathways induced in MBL-D and MBL-S individuals.

Results

MDC from MBL-D individuals displayed unique functional characteristics, including higher production of proinflammatory cytokines IL-6 (P<0.01) and TNF-alpha (P<0.01), but poor capacity for allo-T cell effector cell induction. Addition of MBL significantly reduced elevated IL-6 production by MDC in MBL-D individuals (P<0.05). Expression microarray analysis demonstrated MBL-S individuals had greater capacity to induce T and NK cell signalling pathways than MBL-D individuals. Further, MBL acted as a regulator of important inflammatory molecules, including T-cell receptor zeta (CD247), IFN-gamma and perforin 1.

Conclusions

MBL deficiency was associated with altered dendritic cell function, highlighting a potential mechanism of increased frequency and severity of disease in MBL-D individuals. Addition of MBL to MDC of MBL-D individuals reduced differences in pathogen induced immune responses between MBL-D and MBL-S individuals. Therapeutic administration of MBL may modify the immune response and reduce infectious episodes in MBL-D individuals.

Duffy Blood Group Molecular Typing - Complementing Serology to Manage Emerging Transfusion Needs in Clinical Practice

Jenny Morrison, Jacqui Martin, Naomi Roots, Robert Flower, Catherine Hyland

Australian Red Cross Blood Service

Background

The frequency of red cell blood groups varies in different ethnic populations. The Fy(a-b-) phenotype occurs in approximately 70% of people of African origin and may arise from a homozygous mutation in the GATA-1 promoter region which prevents Fyb expression on red cells but not other cells. Blood recipients with this mutation should be able to safely receive the more common Fy(a-b+) blood for transfusion whereas those without this mutation will need the rare Fy(a-b-) blood type for transfusion.

Hypothesis

Molecular DNA blood group typing can complement serological typing to resolve ambiguous results and meet clinical needs in transfusion medicine.

Aim

The aim of the project is to establish a PCR test for molecular Duffy group typing to classify people with the Fy(a-b-) phenotype into 2 groups, those with and without the GATA-1 mutation.

Methods

Two PCR methods were established and evaluated using a panel of samples (n=70) supplied by the Red Cell Reference Laboratories and DNA Laboratory, ARCBS. All samples were tested using an hydrolysis probe method for mutation detection. To date 26/70 samples have been tested by a second, custom designed HRM assay with raZor probe by PrimerDesign Ltd, UK.

Results

Known phenotypes (serology)	Assessed genotype*	Number tested	
		Hydrolysis Method (n=70)	HRM Method (n=26)
Fy(a-b+)	FYB/FYB	20	6
Fy(a+b+)	FYA/FYB	23	8
Fy(a+bw)	FYA/FYX	N/A	2
Fy(a+b-)	FYA/FYA	14	4
Fy(a-b+)	FY/FYB	1	Test pending
Fy(a-b-)	FY/FY	11	8
Fy(a-b-)	FY/FYA	1	Test pending

*FY = GATA-1 mutation preventing FYB expression

All Duffy genotype assessments, excepting one, correlated with known phenotype, Table. The one exception phenotyped Fy(a-b-) but was only heterozygous for the GATA-1 mutation. Further testing on an automatic high throughput platform (BLOODchip) confirmed our results. AS-PCR confirmed its genotype to be FY/FYA but the FYA allele is apparently not expressed.

Conclusions

Molecular typing was accurate using both methods however, more testing by HRM is required. In total, 11/12 Fy(a-b-) individuals were found to be homozygous for the GATA-1 mutation and therefore should be able to receive Fy(a-b+) blood in transfusion. A novel mutation may account for the

Fy(a-b-) individual heterozygous for the GATA-1 mutation and is being followed up. In the future molecular typing for Duffy, in conjunction with phenotyping, may guide clinicians in decision making to select blood types for transfusion.

DNA typing on BLOOD-chip v1: Pilot study to classify problematic serology samples

Dr Catherine Hyland, et al

Australian Red Cross Blood Service

Background

This pilot study was conducted as a component of a travel grant funded by CSL Bioplasma in 2008.

Hypothesis

DNA typing for blood groups using DNA array based systems can complement serology typing to resolve samples with ambiguous typing results

Aim

To test whether an automated DNA typing platform could resolve samples remaining problematic after testing in ARCBS red cell serology and DNA reference laboratories.

Methods

Panel comprised nine samples with unresolved serology either due to RhD status (n=6), or prior transfusion confounded grouping (n=2), or antibody apparently related to MNS (n=1). Genomic DNA isolated from white cells was stored at -20 C prior to shipment and testing on the BLOOD-chip v1 array (Progenika Biopharma S.A, Bilbao, Spain). The system is CE- marked for diagnostic purposes in the European Union. One sample was tested by exon sequencing.

Results

Phenotype predictions by DNA typing matched known phenotypes with one exception. Review of the apparent exception showed a sample derived from maternal genomic DNA was sent when the intent was to send the corresponding amniotic DNA. Therefore all DNA typing matched known phenotypes. DNA typing classified 5 of the 6 variants definitively and further sequencing suggests the remaining sample is a novel DIIIb variant. One of the two samples confounded by prior transfusion history typed RhD negative. The cause for the MN related antibody remains unknown although a full MNSsU & GYPB type was assigned.

Conclusions

This small study supports a role for DNA typing to supplement serology to resolve problematic samples. Further systematic studies are required to assess the needs and strategies for integrating DNA typing as part of reference serotyping. An interesting aspect of this study is the identification of a novel RhD IIIb variant under further review. Finally the unresolved nature of an antibody in one case is an instructive signal that DNA typing is an adjunct to, and not an alternative to, serology.

Transfusion is associated with adverse clinical outcomes in cardiac surgery: an analysis of a large patient cohort.

Zoe McQuilten¹, Erica Wood¹, Merrole Cole-Sinclair², Chris Reid³, Louise Phillips³.

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2. Department of Haematology, St Vincent's Hospital, Melbourne, Victoria, Australia
3. Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, Victoria, Australia

Background

Allogeneic red cell transfusion has been reported as associated with adverse post-operative outcomes in cardiac surgery. There is conflicting evidence on potential adverse effects of platelets in this setting. We investigated whether peri-operative transfusion was independently associated with clinical outcomes.

Method

Data were prospectively collected on 9363 cardiac surgery patients at six major Melbourne hospitals from January 2005 — December 2008 through the Australasian Society of Cardiac & Thoracic Surgeons Cardiac Surgery Database. The independent association of transfusion with a range of clinical outcomes was determined by stepwise logistic regression analysis. Patient factors (including co-morbidities and medication use) and surgical factors were included in the analysis.

Results

Procedure types were: coronary artery bypass graft (CABG) surgery in 60%, valve surgery 14%, CABG + valve 10% and other 16%. Transfusion of red cells, platelets and plasma were each associated with all outcome measures. In multiple logistic regression analysis, red cell transfusion was independently associated with multi-system failure, peri-operative myocardial infarction, stroke, prolonged ventilation, pulmonary embolism, pneumonia, deep sternal wound infection and septicaemia. Platelet transfusion was independently associated with multi-system failure and pneumonia. Plasma transfusion was independently associated with in-hospital and 30 day mortality, multi-system failure, prolonged ventilation and septicaemia.

Conclusion

Peri-operative transfusions of red cells, platelets and plasma were independently associated with increased risk of adverse events. Although identified confounding factors were controlled for, number of transfused units and laboratory investigations were not available for analysis, however a project is underway to link hospital laboratory data (including transfusion history) with this database. Whilst it cannot be concluded from this study that transfusion plays a causal role in these adverse clinical outcomes, these findings from a large cohort of patients support the need for further research into the effects of transfusion on patient outcomes in cardiac surgery to inform practice.

For more information about the 2009 ANZSBT/HAA conference visit: <http://www.fcconventions.com.au/HAA2009/>

Cross-Examination

New South Wales again won the competition with crossword superstar Lacey Johnson continuing her stellar run. The challenge is now laid down for staff from another state to come to the fore. All correct responses submitted before the closing date will win a prize.

This month's crossword questions reflect the impact blood donation and transfusion have had on society. From medical breakthroughs to classical music to celebrity chefs like Gordon Ramsey, the act of blood donation and transfusion has helped shape the world.

All answers are written out in full and numbers in answers are spelt out rather than being represented numerically.

Clues

Across

5. This swinging superhero has been involved in a number of blood transfusions - usually with disastrous results
7. Cows have more than _____ hundred blood types
8. This famous alien had T-negative blood
10. On average, men have _____ blood than women
14. This composer wrote a piece called "The Blood Donor" which features in the UK National Blood Service's advertising
15. This 1965 movie "Life for _____" explores the ethical dilemma of forced blood transfusion
16. Attila the Hun suffocated on his wedding night after suffering a _____ nose
17. This 'bloody' play was written by Euripides and set during the Trojan War
19. This British obstetrician performed the first documented human to human blood transfusion in 1818
20. These land animals have the highest blood pressure
21. This celebrity chef doesn't swear in the television ad in which he thanks blood donors. Gordon _____)
23. Vitamin K was originally known as _____ vitamin

Down

1. O _____ is the most common blood group in the world
2. The _____ Revolutionary Council made a famous proclamation in 1793 that every patient was entitled to their own bed
3. Many hospital gowns are green because red and green are _____ colours
4. Edward _____ discovered the first smallpox vaccine
6. Jean-Baptise _____ performed the first documented blood transfusion in France in 1665
9. This well-known calypso singer once recorded a song called 'Blood Transfusion' (Lord _____)
10. Bone marrow cells are replaced at the rate of three _____ per second
11. This spinach addict has been a blood donor since 1944
12. This dark knight featured in a famous Indian blood recruitment campaign
13. This famous American hero has been featured donating blood
18. This can be added to blood to greatly increase its storage time without significantly adversely affecting the quality
22. _____ can be added to blood to keep it from clotting until it is ready to be transfused

As always, the winners will receive a family sized chocolate block.

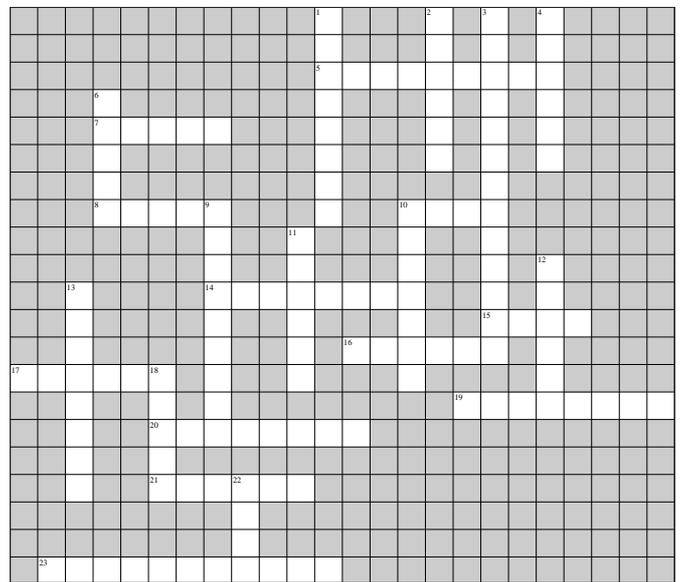
Cross-Examination can be completed individually or as a group and all responses are due by Friday the 18th of September in time for the next edition.

Answers can be completed on the crossword grid supplied or as a list. For example, simply write '23 across – Koagulation' to indicate that this is the answer.

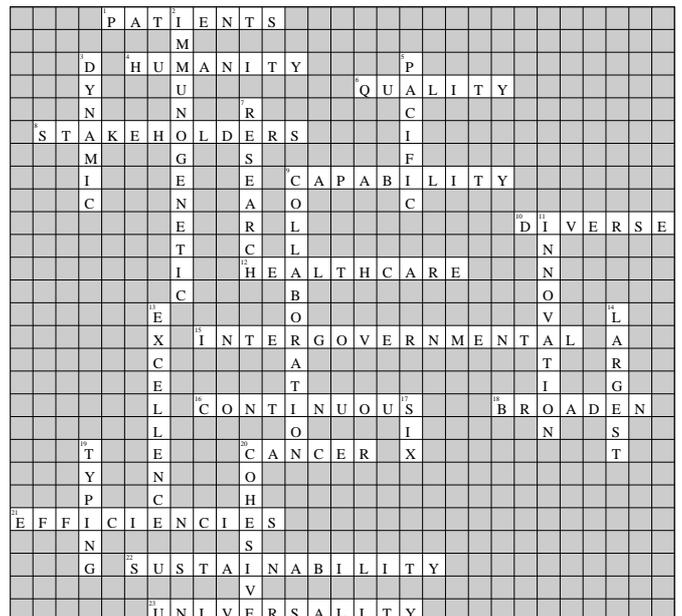
Prizes will be awarded to the most complete crossword and partial entries will be accepted.

In a case where no-one answers all the questions correctly, the person with most correct answers will win.

A Question of Culture



Solution to previous edition



Examiner Information

Edition Ten: Friday 11th of September 2009

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If you would like to submit an article for the next edition, please send it to us by Wednesday the 23rd of September 2009.



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