AVERT2: A Very Early Rehabilitation Trial, A Very Effective Reproductive Trigger†: A post hoc observational analysis.†Disclaimer: Participation in a rehabilitation trial does not guarantee successful reproductive activity.

<table>
<thead>
<tr>
<th>Journal:</th>
<th>BMJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manuscript ID</td>
<td>BMJ.2015.029379.R1</td>
</tr>
<tr>
<td>Article Type:</td>
<td>Christmas</td>
</tr>
<tr>
<td>Date Submitted by the Author:</td>
<td>11-Nov-2015</td>
</tr>
<tr>
<td>Complete List of Authors:</td>
<td>Bernhardt, Julie; The Florey Institute of Neuroscience and Mental Health, Lindley, Richard; The George Institute for Global Health , ; University of Sydney, Westmead Hospital Clinical School Lalor, Erin; National Stroke Foundation, Ellery, Fiona; The Florey Institute of Neuroscience and Mental Health, Chamberlain, Jan; The Florey Institute of Neuroscience and Mental Health, Van Holsteyn, John; La Trobe University, School of Nursing and Midwifery Collier, Janice; The Florey Institute of Neuroscience and Mental Health, Dewey, Helen; Monash University, Eastern Health Clinical School Parsons, Brooke; The Florey Institute of Neuroscience and Mental Health, Moodie, Marj; Deakin University, Deakin Health Economics Lennon, Sheila; Flinders University, School of Health Sciences Donnan, Geoffrey; The Florey Institute of Neuroscience and Mental Health, Thrift, Amanda; Monash University, Stroke and Ageing Research Centre, Department of Medicine, School of Clinical Sciences at Monash Health Churilov, Leonid; The Florey Institute of Neuroscience and Mental Health, Statistics Langhorne, Peter; University of Glasgow, Glasgow Royal Infirmary</td>
</tr>
<tr>
<td>Keywords:</td>
<td>Clinical Trials, Pragmatic Trials, Acute, Stroke, Rehabilitation</td>
</tr>
</tbody>
</table>
AVERT²: A Very Early Rehabilitation Trial, A Very Effective Reproductive Trigger†:

A post hoc observational analysis.

†Disclaimer: Participation in a rehabilitation trial does not guarantee successful reproductive activity.

Corresponding author

Professor Julie Bernhardt, PhD

The Florey Institute of Neuroscience and Mental Health, 245 Burgundy Street, Heidelberg, VIC 3084 Australia

Email: Julie.Bernhardt@florey.edu.au

Phone: +61 3 9035 7072

Authors

Julie Bernhardt, Director, NHMRC Centre of Research Excellence Stroke Rehabilitation and Brain Recovery and Head, Stroke Division, The Florey Institute of Neuroscience and Mental Health, 245 Burgundy Street, Heidelberg, VIC 3084 Australia.

Richard I Lindley, Professor of Geriatric Medicine, The George Institute for Global Health and Westmead Hospital Clinical School, University of Sydney, NSW 2006, Australia

Erin Lalor, CEO, National Stroke Foundation, Level 7, 461 Bourke Street, Melbourne VIC 3000 Australia.

Fiona Ellery, AVERT Trial Manager, The Florey Institute of Neuroscience and Mental Health, 245 Burgundy Street, Heidelberg, VIC 3084 Australia.
Jan Chamberlain, CRE Program Manager, The Florey Institute of Neuroscience and Mental Health, 245 Burgundy Street, Heidelberg, VIC 3084 Australia.

John Van Holsteyn, Research Assistant, School of Nursing and Midwifery, La Trobe University, Melbourne Victoria 3086, Australia

Janice M Collier, AVERT Data Manager, The Florey Institute of Neuroscience and Mental Health, 245 Burgundy Street, Heidelberg, VIC 3084 Australia.

Helen M Dewey, Director of Neurosciences, Eastern Health Clinical School, Monash University, 5 Arnold Street, Box Hill VIC 3128, Australia

Brooke Parsons, AVERT Consumer Representative, The Florey Institute of Neuroscience and Mental Health, 245 Burgundy Street, Heidelberg, VIC 3084 Australia.

Marjory Moodie, Deputy Head (Research), Deakin Health Economics, Faculty of Health, Deakin University, 221 Burwood Highway, Burwood VIC 3128 Australia

Sheila Lennon, Head of Physiotherapy, Flinders University, Health Sciences Building, Repatriation General Hospital, Daw Park, SA 5041, Adelaide, Australia

Geoffrey A Donnan, Director, The Florey Institute of Neuroscience and Mental Health, 30 Royal Parade, Parkville VIC 3052, Australia.
Amanda G Thrift, Head of Epidemiology and Prevention Division, Stroke and Ageing Research Centre, Department of Medicine, School of Clinical Sciences at Monash Health, Monash University, Wellington Road, Clayton, Victoria 3168, Australia

Leonid Churilov, Head, Statistics and Informatics Platform, The Florey Institute of Neuroscience and Mental Health, 30 Royal Parade, Parkville VIC 3052, Australia

Peter Langhorne, Professor of Stroke Care, University of Glasgow, Glasgow Royal Infirmary, Glasgow, G31 2ER Scotland UK

on behalf of the AVERT Collaboration Group*

*Members listed in the Supplementary Appendix.

Key Words: Clinical Trials; Pragmatic Trials; Acute; Stroke; Rehabilitation

Word count: 1643

Figure 1 | Accumulated recruitment of patients (left) and babies (right)

Figure 2 | Case study from a selected site showing actual recruitment of patients, babies born to site investigators and on site training delivered

Supplementary Appendix AVERT Collaboration Group
ABSTRACT

Objective Report the Number Needed to Recruit per Baby born (NNRpB) for trial staff during A Very Early Rehabilitation Trial (AVERT), and describe the trial management consequences.

Design A post hoc, observational analysis.

Setting 56 acute stroke hospitals in 8 countries.

Participants 1074 trial physiotherapists and nurses.

Outcome measures Babies born during trial recruitment per trial participant recruited.

Results Over 198 site recruitment years and 2104 patients recruited, we observed 120 births. Births led to an estimated 10% loss in time to achieve recruitment. Parental leave was linked to 6 site closures. The NNRpB was 17.5 and the estimated additional trial costs associated with each birth was AUD5,728.

Conclusion The Special Unexpected Staff Absences Registered (SUSAR) in AVERT delayed trial recruitment and increased costs. However, the celebration of new life became a highlight of the annual collaborators’ meetings and helped maintain a cohesive collaborative group.

Trial registration The AVERT trial is registered with the Australian New Zealand Clinical Trials Registry (ACTRN12606000185561).
INTRODUCTION

Trial governance and good clinical practice dictates detailed gathering of Serious Adverse Events (SAEs) and Suspected Unexpected Serious Adverse Reactions (SUSARs) in trials. In the large international acute stroke trial, AVERT (A Very Early Rehabilitation Trial), we became aware early on of a particular phenomenon of SUSARs - Special Unexpected Staff Absences Registered, due to babies born to trial clinical staff. Initially, these events were joyfully communicated to the AVERT collaborators via congratulatory emails and birth notices in the monthly AVERT Investigator Newsletters (featuring a range of stork Clip Art). Enquiries to the site lead investigator followed to determine plans for recruiting a new team member. However, as the SUSARs accumulated, management tracked these events in detail to assess their impact on trial progress. In this post-hoc analysis, we report the frequency of births, the management team’s response to the events, model the impact of babies born on recruitment, staff training, financial management and discuss how baby tracking influenced the morale of the study investigators.

METHODS

Study design and trial staff

The design and primary results of AVERT, which tested the hypothesis that early and frequent mobility training post stroke could reduce disability, have been previously published.[1-3] This pragmatic trial was fully embedded into the acute hospital environment. Typically sites were publically funded hospitals. Trial staff included hospital clinicians (physiotherapists and nurses already employed at the site) who delivered the intervention and other hospital staff (clinical or Stroke Research Network employees in the UK), who recruited patients or provided blinded follow up of participants. Management was undertaken centrally (AVERT Central). We provided on-site training at study initiation, repeated as
necessary for new trial staff. Annual investigator meetings helped maintain intervention fidelity and foster close communication between site teams and AVERT Central.

**Procedures and study data**

During the initial (pilot) phase (2006 to 2008), trial staff informally notified AVERT Central with their birth news. From 2008, more formal methods of case ascertainment were employed. We asked trial staff to notify the central coordinating office of any trial parental leave. Additionally, routine reminders to share baby news were made via regular emails, telephone calls, site visits and in monthly newsletters. The updated “baby count graphic” was regularly presented at investigators’ meetings, where the impact to staff morale was determined by a subjective “laughometer”. We maintained a register of all trial staff, their qualifications and duration of their trial participation. Active months of recruitment for each site and recruitment per month, the total number of staff working on the trial, staff turnover, and the number of site visits required for training new staff were recorded.

**Outcomes**

The primary outcome of this study is the Number Needed to Recruit per Baby (NNRpB) calculated as the ratio of the total number of patients recruited in AVERT to the number of babies born to trial staff.

The secondary outcome is the costs of added recruitment years reported as total costs and mean costs per birth episode.

**Analysis**
We grouped countries into three regions: Australia/New Zealand, Asia (Singapore, Malaysia), and the United Kingdom (Scotland, Northern Ireland, Wales and England).

Women and men who took parental leave were included in this analysis. NNRpB measures are reported as ratios with Binomial 95% Confidence Intervals (95% CIs). The differences in NNRpB between participating regions were compared using Fisher’s exact test.

To illustrate the effect of the SUSARs, we also present a case study from one foundation site involved since trial commencement.

Costs were calculated retrospectively from AVERT Central records using estimated costs for closing and opening new sites (site visits, administrative time, ethics costs etc), and additional training time for new staff, including travel costs. Total costs and cost per birth are reported in 2015 Australian dollars (AUD).

RESULTS

We randomised 2104 participants from 56 sites between 18 July 2006 and 16 October 2014, a total of 198 recruitment years. 1074 trial staff were registered; 926 women and 148 men, a ratio of 1 man : 6.3 women. These included: 629 nurses, 284 physiotherapists, 50 occupational therapists, three speech and language therapists, one psychologist and 69 physicians. The median (IQR) age of staff was 28.0 (24.0-36.8) years. We were notified of 29 babies born in the ‘pilot’ phase. A further 91 babies (total n=120) were born to 97 site staff (Table 1). Eleven additional babies born to AVERT Central staff are not included in the primary analysis which is focused on the impact of birth on recruitment. The number of babies born per parent ranged from one to three, and included four multiple births, equating to 116 pregnancies delivered.
Table 1. Patient Recruitment and Number Needed to Recruit per Baby born (NNRpB)

<table>
<thead>
<tr>
<th>Patients recruited n</th>
<th>Babies n</th>
<th>NNRPB (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>2104</td>
<td>120*</td>
</tr>
<tr>
<td>By region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia</td>
<td>251</td>
<td>4</td>
</tr>
<tr>
<td>Australia/NZ</td>
<td>1243</td>
<td>83</td>
</tr>
<tr>
<td>UK**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>England</td>
<td>610</td>
<td>33</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>368</td>
<td>16</td>
</tr>
<tr>
<td>Scotland</td>
<td>59</td>
<td>10</td>
</tr>
<tr>
<td>Wales</td>
<td>171</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>0</td>
</tr>
</tbody>
</table>

*11 additional babies born to staff at AVERT Central (the central coordinating site) are not included here because central staff did not recruit patients.

** For UK readership, breakdown by country provided.

The Number Needed to Recruit per Baby (NNRpB) was 17.5 (95% CI 14.7 to 21.0). There was a significant difference in the NNRPB by region (p=0.002) with Australia/NZ showing the lowest NNRPB and Asia the highest. The Hazard ratio of patients recruited per baby born (compared to Australia/NZ) was 5.0 in Asia (95% CI 1.6 to 15.4; p=0.005) and 1.8 in the UK (95% CI 1.2 to 2.9; p=0.009). Figure 1 shows patient and baby accrual.

Figure 1 ▪ Accumulated recruitment of patients (left) and babies (right)

Twenty trial main investigators from 15 sites went on parental leave during the course of the trial. We observed slowing of recruitment during the staff transition phase in most cases.
cases, birth led to site closure when no alternative local trial champion could be recruited. However, 46 parents (47.4%) returned to the trial after parental leave.

**Case study**

At one foundation site involved for the entire trial, the total number of babies born to trial staff was 15 (4 to main investigators) over 8 recruitment years (Figure 2). Ten additional training sessions were required for replacement of staff. Three staff had more than one baby so only 10 were needed. Each training session averaged 2.5 hours (25 hours).

Additional administrative management of staff changeover was estimated at approximately 16 hours per session (160 hours in total): appointment, travel, printing and supply of required documents, administrative tracking, database access setup, report writing and feedback to site, ethics notification, and additional queries by site.

![Figure 2](https://mc.manuscriptcentral.com/bmj)

*Figure 2 | Case study from a selected site showing actual recruitment of patients, babies born to site investigators and on site training delivered*

**Costs**

Births resulted in an estimated 232 months (19 years) of recruitment loss out of our total 198 recruitment years. The costs arising from births were conservatively estimated at AUD0.66M or AUD5,728 per birth episode.

**Staff morale**

Each presentation of the ‘baby count graphic’ to investigators resulted in loud chuckles.

**DISCUSSION**

A surprisingly large number of babies were born to AVERT staff the unexpected consequences of which included a high numbers of new recruits, more training and additional
recruitment time and costs. Furthermore, we estimated that sites closure or paused
recruitment due to parental leave of a critical staff member, lost us 19 years of recruitment.
This represents a previously unreported source of trial burden on hospital sites and trial
coordinating teams. Our estimate of 17.5 NNRpB should assist investigators in planning
similar trials in the future.

We believe AVERT staff were representative of public hospital staff. In Australia, the
average age of nurses and physiotherapists is 39.9 years and 36.6 years respectively, with a
gender ratio of 1 male : 7.6 females.[4,5] In Scotland,[6] 44% of allied health professionals,
including physiotherapists, and 33% of nurses are aged less than 40 years, with a gender ratio
of 1 male : 6.7 females. Our median staff age was somewhat younger. It is unclear whether
stroke units attract younger, largely female staff, or whether participation in AVERT was
attractive to this group. Older staff with additional responsibilities appeared less inclined to
take up a role in the trial. Our results illustrate that planned research involving stroke unit
staff should consider the family plans of this group.

The trial challenges we experienced with parental leave, reflect the broader challenges in the
community. The Australian Pregnancy and Return to Work National Review described
employers reporting difficulties filling maternity leave positions due to their often short-term
nature.[7] When external recruitment is necessary, costs and delays increase.[7] Clinical care
as well as clinical research can both be affected in these circumstances.

AVERT, like many ambitious randomised controlled trials, took longer than planned to
complete recruitment and our unexpected baby count added costs and delays, requiring
grants from many funding agencies around the world (see acknowledgements). Whilst we
wish to alert other researchers to these unexpected costs, we also wish to make some
additional reflections. Trials success requires careful nurturing of a large number of
collaborators, with regular collaborator meetings an essential ingredient of the esprit de corps.
We believe our “baby graph” became a positive part of the AVERT experience, enjoyed at
meetings as a celebration of life. Furthermore, we want to emphasise that perpetuating the
human race is of course a positive thing.

Strengths and limitations
Strengths of the study include its international reach and large workforce. Results should be
generalisable to other rehabilitation studies. However, we acknowledge some limitations. It is
possible that we did not achieve full baby ascertainment. We did not systematically conduct
exit questionnaires when staff left the study. Impaired memory associated with late
pregnancy, could have also reduced reporting of baby related information to the trials
team,[8] resulting in an underestimate of the workforce fertility rate. Unmeasured factors
such as parental leave policy and maternal obesity [9-10] may moderate the association
between NNRpB and country. Finally, as only two of our sites were in Asia, the regional
differences observed may have been due to the play of chance.

In conclusion, our very early rehabilitation trial (AVERT) was associated with a large
number of unexpected babies (A Very Effective Reproductive Trigger). It is possible that the
challenges of trial participation may have resulted in some team members deciding that
enduring childbirth would be an easier option at this stage of their life. It is fair to say,
however, that many returned to their senses, and resumed their AVERT roles, having realised
that research and patient care is perhaps more satisfying than changing endless nappies!
What this study adds

- We were unable to find previous similar reports.
- This study illustrates need for ongoing recruitment and training of new staff to cover parental leave amongst a young research workforce, and the resulting financial costs, which should be considered when planning research and estimating budgets.
- Celebrating the good stuff, including babies, in large trial collaborations is important, helping to maintain a cohesive collaborative group.
Acknowledgements:

The Florey Institute of Neuroscience and Mental Health acknowledges the strong support from the Victorian Government and in particular the funding from the Operational Infrastructure Support Grant. We thank all parents for volunteering their baby information and for being part of the AVERT Collaboration Group.

Competing interests:

All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf and declare: no support from any organisation for the submitted work; AT has received grants from National Health and Medical Research Council (NHMRC) Australia (grant number 1042600), during the conduct of the study. All authors declare no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

Funding:

Australian National Health and Medical Research Council, Singapore Health, Chest Heart and Stroke Scotland, Northern Ireland Chest Heart and Stroke, UK Stroke Association, UK National Institute of Health Research. The funders were not involved in the design or conduct of the study, the collection, management, analysis and interpretation of the data, or the preparation, review or approval of the manuscript. The content of this paper is solely the responsibility of the authors and does not reflect the views of the funders.
Contributors

RIL, JB and EL had the idea to publish these data (after an annual collaborators’ meeting).

FE, JCh, JvH and JMC collected and organised the data. RIL wrote the first draft, LC provided the statistical analysis, MM estimated costs associated with births. All revised the paper.

Transparency

The lead author (the manuscript’s guarantor) affirms that the manuscript is an honest, accurate and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

Data sharing

No additional data available.

Ethics:

All hospitals participating in the study received ethics approval.

Copyright statement/licence for publication

The Corresponding Author has the right to grant on behalf of all authors and does grant on behalf of all authors, a worldwide licence to the Publishers and its licensees in perpetuity, in all forms, formats and media (whether known now or created in the future), to i) publish, reproduce, distribute, display and store the Contribution, ii) translate the Contribution into other languages, create adaptations, reprints, include within collections and create summaries, extracts and/or, abstracts of the Contribution, iii) create any other derivative work(s) based on the Contribution, iv) to exploit all subsidiary rights in the Contribution, v) the inclusion of
electronic links from the Contribution to third party material where-ever it may be located;

and, vi) licence any third party to do any or all of the above.
References

Accumulated recruitment of patients (left) and babies born (right)
302x182mm (120 x 120 DPI)
Figure 2 - Case study from a selected site showing actual recruitment of patients, babies born to site investigators and on site training delivered
AVERT committees, advisors and coordinating centres

Management Committee
Julie Bernhardt (Chair), Leonid Churilov, Janice Collier, Helen Dewey, Geoffrey Donnan,
Fiona Ellery, Peter Langhorne, Richard Lindley, Marjory Moodie, Brooke Parsons (Consumer
Representative), Amanda Thrift.

Trial Steering Committee
Geoffrey Donnan (Co-Chair), Helen Dewey (Co-Chair), Julie Bernhardt, Peter Langhorne,
Marjory Moodie, Brooke Parsons (Consumer Representative) and Main Investigators (MIs) from all
participating hospitals.

International Advisors
Bent Indredavik, Torunn Askim.

Data Monitoring Committee
Phillip Bath (University of Nottingham, Nottingham, United Kingdom, Chair), Christopher Bladin
(Box Hill Hospital, Melbourne, Australia), Christopher Reid (Monash University, Melbourne,
Australia), Stephen Read (Royal Brisbane and Women’s Hospital, Melbourne, Australia), Cathy Said
(Austin Health, Melbourne, Australia).

Outcomes Committee
Sandy Middleton (Australian Catholic University, Sydney, Australia, Chair), Judith Frayne (Alfred
Hospital, Melbourne, Australia), Velandai Srikanth (Monash Health, Melbourne, Australia).

Country Leaders and Grant Holders
Australia: Julie Bernhardt, (NHMRC: Helen Dewey, Julie Bernhardt, Geoffrey Donnan,
Amanda Thrift, Robert Carter, Richard Lindley) (NHMRC: Julie Bernhardt, Geoff Donnan,

United Kingdom: Peter Langhorne, (CHSS: Peter Langhorne, Olivia Wu, Julie Bernhardt,
Matthew Walters Claire Ritchie, Lorraine Smith), (TSA: Peter Langhorne, Olivia Wu, Anne Ashburn,
Helen Rodgers, Julie Bernhardt), (HTA: Peter Langhorne, Anne Ashburn, Julie Bernhardt,
Helen Rogers, Olivia Wu).

Northern Ireland: Sheila Lennon, (NICHS: Sheila Lennon, Michael Power, Julie Bernhardt).

Singapore: Shahul Hameed, (Singhealth: Shahul Hameed, Ratnagopal Pavanni, Peter Lim,
Julie Bernhardt, Dawn Tan).

Statistics and Data Management
Leonid Churilov, Tim Brewer, Janice Collier, Nick Haritos, Edwin Leong, Cecilia Li,
Caesar NayWin, Marcus Nicol, Liudmyla Olenka, Li Chun Quang.

Health Economics
Marjory Moodie, Robert Carter, Silvia Hope, Lauren Sheppard, Kiusiang Tay-Teo, Olivia Wu.

Cognition
Toby Cumming, Thomas Linden.

Trial Coordinating Centres
The Florey Institute of Neuroscience and Mental Health, Melbourne, Australia.
Karen Borschmann, Jan Chamberlain, Janice Collier, Toby Cumming, Fiona Ellery,
Teresa Occhiodoro, Helen Palfreeman, Tara Purvis, Bernadette Sirgo, Nick Tiliacos,
John Van Holsteyn, Henry Zhao.

University of Glasgow, Glasgow, United Kingdom. Beverly Armstrong, Louise Craig,
Fiona Graham, Lynn Legg, Rosemary Morrison, Heather Moorhead, Lorraine O'Donohue,
Susan Rogers, Myra Smith.

University of Central Lancashire, Preston, United Kingdom. Denise Forshaw, Jane Fitzgerald.

List of AVERT collaborators, countries and recruitment at each participating hospital
Figures in parentheses are the number of patients recruited by the centre. Main Investigators are listed first for each site (MI). Some investigators worked across multiple sites, however, they are listed for one site only.

Australia


St George Hospital (23): N Austin, S Pomfret, M Tinsley (MIs), L All port, C Ang, L Armitage, E Blundell, A Courtney, M Dela Costa, T Devi Thapa, P Diwakar, M Dul leh, J Francis, P C ic, G Gel lie, C Gill, D James, S Lee, T Mai, K Majcher, C Mawson, G Newton, N Qiu, E Ragonton, L Roberts, H Saitamis, L Stanwell, L Ting, P Xu, L Yin.


Albury Hospital (23): K Broadhead, J Church, R Collins, K Everitt, M Fisher, V Crosby (MI), K Gro ten (MIs), J Bailey, K Ballinger, C Bell, B Camilleri, C Charnley, D Crabbe, S Crossland, N Edirimanna, C Fitzgerald, C Gibbins, J Gibbs, K Hirst, A Kennedy, E Klose, K McDowall, S Miller, R Morgan, A Noonan, M North, M Oliver, K Richards, T Russell, N Scott, A Shlanski, A Traynor. **West Gippsland Hospital (12):** S Smith (MI), R Adams, C Banks, M Dela Costa, T Devi Thapa, P Diwakar, M Dul leh, J Francis, P C ic, G Gel lie, C Gill, D James, S Lee, T Mai, K Majcher, C Maw son, G Newton, N Qi u, E Ragonton, L Roberts, H Saitamis, L Stan will, L Ting, P Xu, L Yin.


New Zealand


Malaysia


Singapore

Singapore General Hospital (128): D Tan, MT Ahmad, S Hameed (MIs), MFB Bakari, J Britto, JJ Chen, S Choo, M Faizal, FK Fong, S Hong, J Ja'afar, Z Ke, G Koh, CK Lee, YF Lee, P Lim, GM Lim, SH Ninhadi, G Ong, T Pei Pei, V Penero, N Rahim, P Ratnagopal, K Saleh, HC Seow, E Sim, CK Tan, PY Tay, I Teo, S Thilarajah, PHJ Wong, WP Wong, S Yeap.

United Kingdom
