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# 2018 Conference Booklet

## Gold Coast, December 6-7



WE ARE **DESTINATION**  
**GOLDCOAST.**



**MENZIES**  
HEALTH INSTITUTE  
QUEENSLAND



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## Welcome

On behalf of the Organising Committee, welcome to ASfAR 2018, the fourth conference of the Australasian Society for Autism Research. With over 100 contributors drawn from across Australia and overseas, ASfAR 2018 will highlight current advances in the major research disciplines investigating autism and the broader spectrum, including work led by adults on the autism spectrum, research with families, support services and the broader community. If you are visiting Gold Coast, we hope you have an opportunity to explore more of our beautiful city and state. We are grateful for the generous support of Gold Coast Tourism, the Autism CRC, the Psychology of Intellectual Disability and Autism Special Interest Group of the Australian Psychological Society, as well as Griffith University including the Griffith Institute for Educational Research, Menzies Health Institute Queensland, School of Applied Psychology, and School of Allied Health Sciences. We are grateful and give thanks to our wonderful colleagues and volunteers for their generous advice and assistance. Enjoy ASfAR 2018!

Jessica Paynter & Marleen Westerveld

## Acknowledgement of Traditional Owners

The ASfAR 2018 conference takes place in Gold Coast, Queensland, home of the Yugambeh/Kombumerri people. We recognise the Yugambeh/Kombumerri people as the Traditional Owners of the land on which we are meeting. We wish to acknowledge and respect their continuing culture and the contribution they make to the life of this region and our community.

## Conference Organising Committee

### Conference Convenors

Jessica Paynter & Marleen Westerveld

### Conference Organising Committee

Jessica Paynter, Marleen Westerveld, David Trembath, Rhylee Sulek, Olivia Gatfield, Joanne Mahony, Madonna Tucker, and Deb Keen.

## Thank you to our Sponsors

We would like to thank our sponsors of the ASfAR 2018 Conference



**Platinum Sponsor**  
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**Gold Sponsor**  
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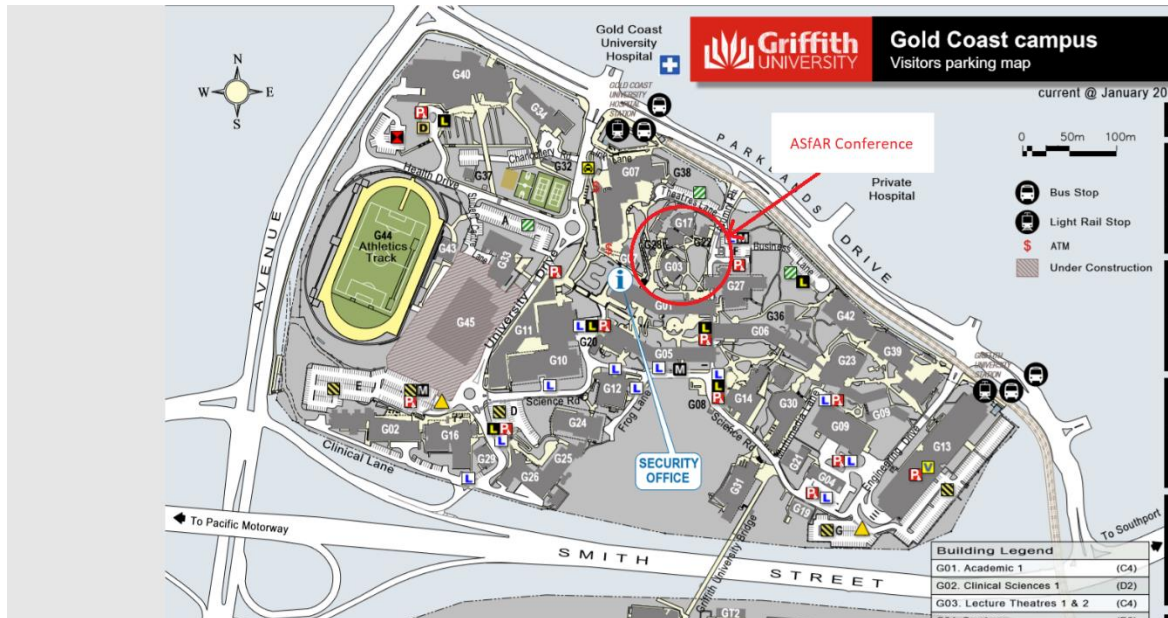


**Bronze Sponsors**  
Autism Centre of Excellence  
Griffith Institute for Educational Research  
Menzies Health Institute Queensland  
School of Applied Psychology  
School of Allied Health Sciences



## Conference Location

The conference will be held at Griffith University, Gold Coast Campus: Parklands Drive, Southport. The main conference venues are in building G17 and G03 as circled in the map below. For a larger version of this map please see <https://www162.griffith.edu.au/public/campus-maps/visitor-parking-map-gcc.pdf>.



## Transport

Griffith University Gold Coast Campus is serviced by trains/light rail (G:Link), buses, and taxis. It is approximately 15-20 minutes from Surfers Paradise, and approximately 60 minutes drive from Brisbane. Public transport is recommended as the easiest and most convenient way to travel to campus, as limited parking is available on campus. Paper tickets are available for purchase from ticket machines at public transport stations or "Go cards" may be used on Gold Coast public transport (see <https://gocard.translink.com.au/webtix/>).

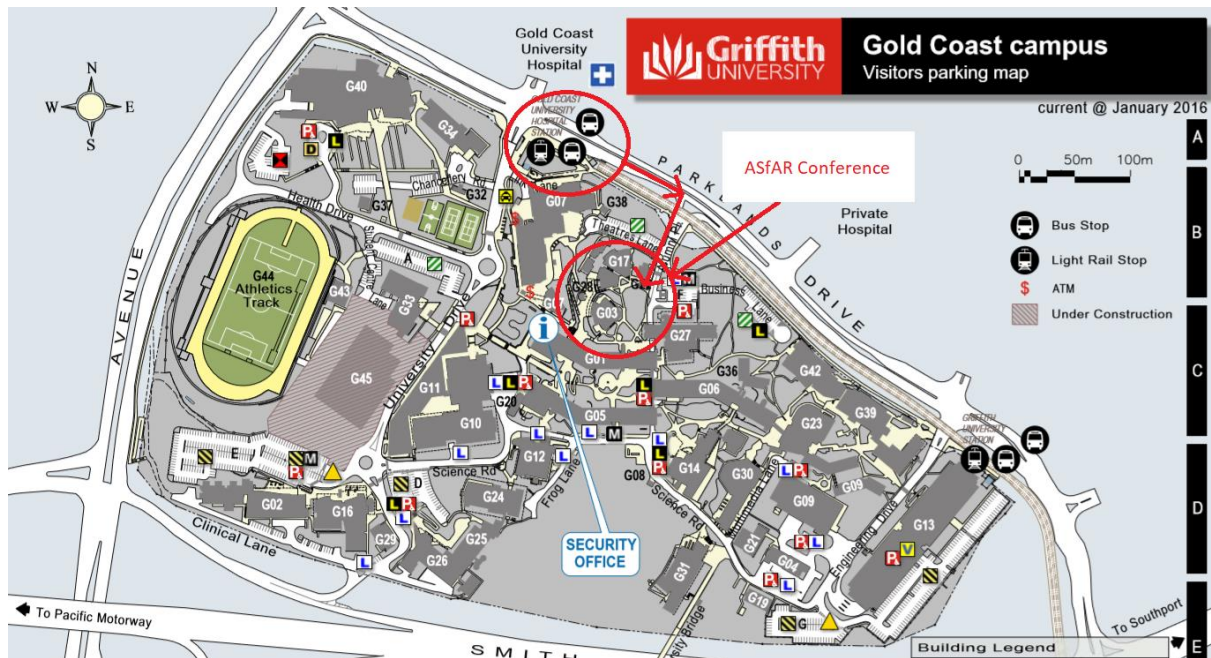
**Light rail / G:Link (trams)** – the closest station to the conference is the *Gold Coast University Hospital Station*. For further information, see <https://ridetheg.com.au/> regarding fares, planning your journey, station locations and more. All stations are accessible via ramps to provide improved access for passengers using mobility aids (wheelchairs, scooters, or motorised vehicles).

**Buses** – the closest station to the conference is the Gold Coast University Hospital Station. For further information see <https://translink.com.au/gold-coast> for information regarding fares, planning your journey and more

**Uber** – see <https://www.uber.com/en-AU/cities/gold-coast/>: fares from Surfers Paradise ranging from uberX: A\$13-18; uberXL: A\$20-27; uberSELECT: A\$23-31; or uberASSIST: A\$13-18 (pending travel distance)

**Taxi** – see <https://www.gccabs.com.au/>: fares from Surfers Paradise approximately ranging from \$23.15-\$32.41 (pending travel distance)





*Directions to Conference from buses and light rail stop (Gold Coast University Hospital Station)*

## Car

### On Campus Parking

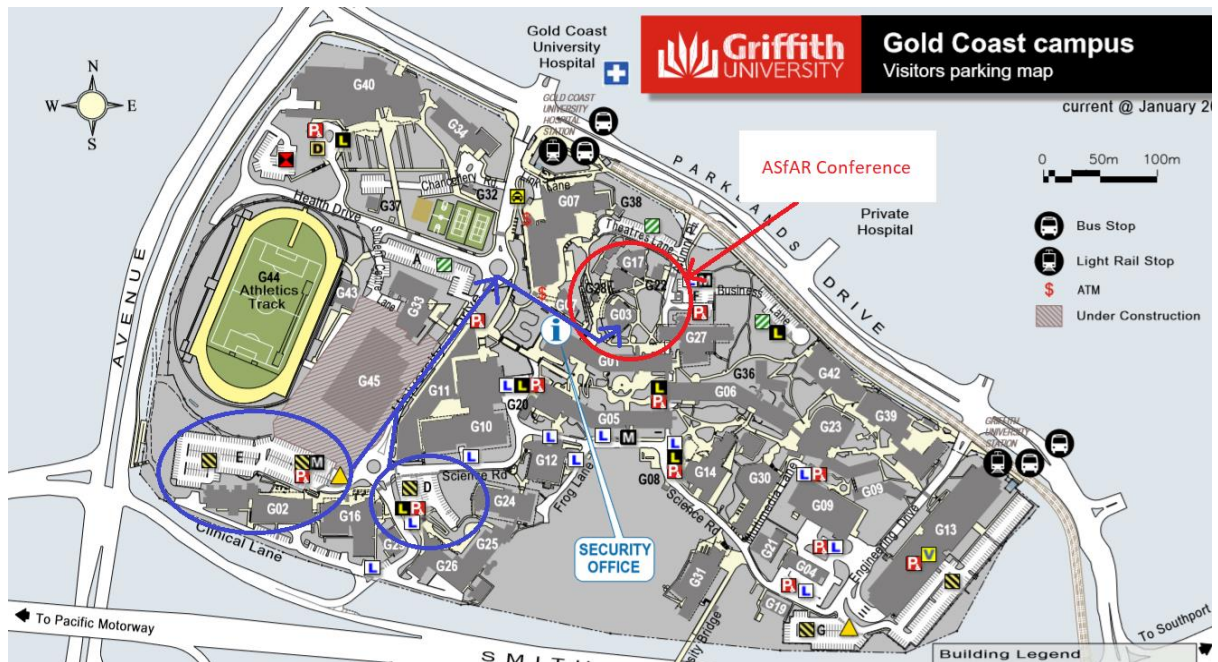
Limited parking is available free of charge in general parking areas, *it is recommended to plan to arrive before 8.30am* if you are travelling by car, as parking is not reserved and often fills by this time. **You must enter your registration details** and parking details in one of the parking meters in the carpark D or E as shown over the page to receive a daily permit. Failure to do so may result in a parking fine.

### What to do:

1. Enter your license plate number then Press OK
2. Press OK again (this selects the 'Permit' option shown on screen - not the right/left arrows CC / Cash)
3. **Enter the permit number for the day,**  
**Thursday:** Enter in 23621 as your permit number,  
**Friday:** Enter in 74003 as your permit number
4. Press OK
5. It will search for a permit, and it will then say that there is \$6 parking paid (i.e. your parking is free and \$6 is paid by the system), valid until the end of the day
6. Choose Y/N for your receipt

### University Hospital Car Park

If the above parking is full, paid parking is available for \$17 per day at the Gold Coast University Hospital. For further information see [https://www.secureparking.com.au/en-au/car-parks/australia/queensland/gold-coast/southport/gold-coast-university-hospital-car-park?utm\\_source=business.google.com&utm\\_medium=organic&utm\\_content=GMB%20Website%20Link&utm\\_campaign=Google%20My%20Business%20QLD](https://www.secureparking.com.au/en-au/car-parks/australia/queensland/gold-coast/southport/gold-coast-university-hospital-car-park?utm_source=business.google.com&utm_medium=organic&utm_content=GMB%20Website%20Link&utm_campaign=Google%20My%20Business%20QLD)



*Directions to Conference from General Carpark D or E*

## Conference Venues

### Registration

The registration desk will be located between G17 and G03 building outside (weather permitting; in case of inclement weather this will be moved into the G03 foyer). Registration commences at 8am each day, and it will be staffed from 8:00-9:00am each day as well as during morning tea, lunch, and afternoon tea breaks.

### Keynotes and Concurrent Sessions: Building G17

Keynote presentations and one stream of the concurrent sessions will be held in building G17 in Lecture Theatre 4.



**G17 Building**



**Lecture Theatre 4**



**Concurrent Sessions, and Posters: Building G03**

Two of our concurrent session streams will be in Building G03 in Lecture Theatres 1 and 2. Posters will be hosted in the downstairs foyer of this building along with our exhibitor stands in the upstairs foyer. Tea/coffee stands will also be in these foyers during breaks; poster presenters are encouraged to stand by their posters during morning and afternoon tea, and delegates are encouraged to visit them during this time.

**G03 Building****Lecture Theatre 1****Lecture Theatre 2****Refreshments and Special Diets**

Coffee and Tea on arrival, morning and afternoon tea, as well as lunch, are all included in the conference registration. Locations for each are outlined below. Special diets as indicated on registration will be catered for.

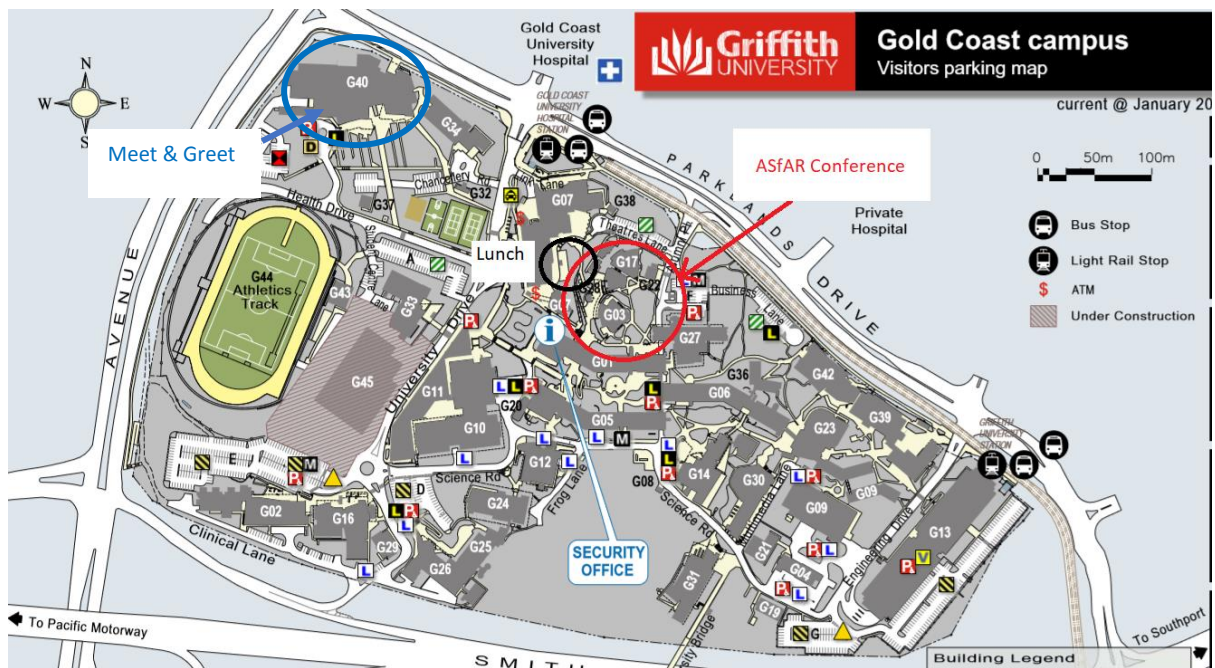
**Morning Tea and Afternoon Tea**

Stations will be between the main conference venues (outside between buildings G17 and G03) near the registration desk, as well as in Building G03 in the downstairs foyer with the posters.

**Lunch**

Lunch will be provided and will be served on the G07 deck (see map below). Dietary requirements will be catered for based on information provided in your registration.





### Refreshment Locations

#### Meet and Greet

The meet and greet will be held in restaurant G's on the bottom floor (Level 3) of building G40 which is on the corner of Parklands Drive and Olson Avenue as shown above. Volunteers will show the way on Thursday afternoon and will put signs up to assist. The easiest route (from the conference venues), is to walk to Parklands Drive, then turn left and walk up the hill to G40. Once at G40 you will need to walk through the building and out the other side and G's is on the right as indicated by the arrow above.

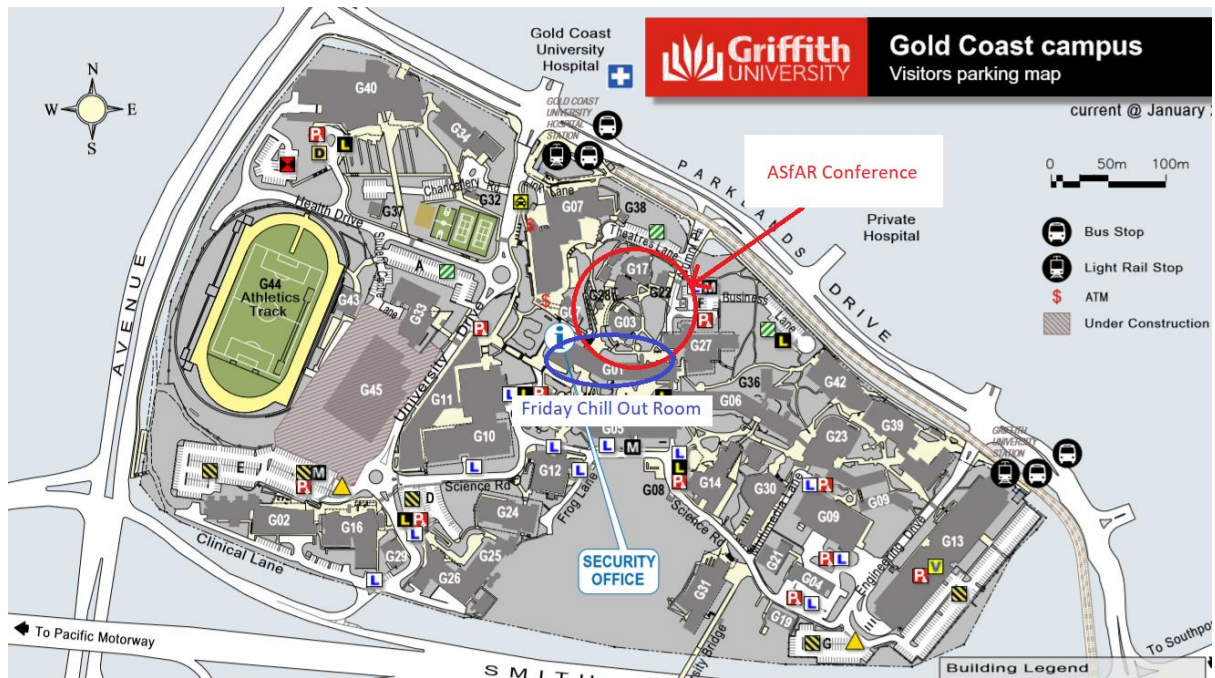
#### Chill Out Room

We aim to make the conference as comfortable as possible for all attendees. We are providing a quiet chill out room for those who need a break. We ask in this space that you avoid wearing or applying strong smelling perfumes or deodorants, follow the 'dot' system for communication preferences for others who may be using the space (see page 11: Before approaching someone to talk, look at their nametag to see if they have a dot. Please do not approach people with a red dot, and remember those with a yellow dot only want a quick chat), and remember that not everyone is comfortable with making eye contact.

*Please note we were unable to book the same room both days, we apologise for the challenges this may cause. Details for each day are outlined below.*

**Thursday Chill Out Room.** Our Thursday Chill Out Room is in Room: G17\_2.05. This is in the same building as the keynote presentation. If you need help finding the room please see the volunteer at the registration desk.

**Friday Chill Out Room.** Our Friday Chill Out Room is in Room: G01\_3.25. This is in a different building, see the map below. If you need help finding the room please see the volunteer at the registration desk.



*Friday Chill Out Room Location*

## Conference Tips

### What to Wear and What to Bring

The temperature on the Gold Coast in December is warm (average temperature 28 degrees). However, the conference venues are all air-conditioned which is centrally controlled which unfortunately means we will not be able to adjust the temperature. As such, it is recommended to bring a light jacket or cardigan for use if required in the lecture theatres during presentations. Please note also that rooms have fluorescent lighting, and you may like to bring sunglasses or a cap if these are helpful for you in such lighting. For those who may not have attended an academic conference before, attire is usually business casual, see <https://smallbusiness.chron.com/business-casual-attire-guidelines-3110.html> for further information about what this means. We will provide a notepad, pen, and program overview in the conference bag. You may want to bring business cards, a water bottle, a jacket or cardigan, and a print-out of this booklet (we will not be printing these).

### Mobile Phones, Laptops, and Tablets

As a courtesy to presenters and other delegates, please ensure that all devices are in silent mode during all sessions and social functions, and please do not use flash to take photographs during sessions (please see below for notes on recording/photography).

### Photography or Videotaping of Presentations

You may wish to record or photograph presentations, slides and/or posters on personal devices. Please be respectful if a presenter requests that you do not do so. Any recordings or photographs should be for your personal use only and not for uploading on any social media or online platform without the presenter's express permission, which you must request personally. Presenters, if you have sensitive material in your presentation that you do not want recorded or you simply do not wish to be recorded or photographed, please make an announcement to this effect at the beginning of your presentation; e.g. 'Please do not record or photograph this presentation.'

### Internet Access

Free Wi-Fi is available at the conference venue for delegates. For university students and staff we suggest using the Eduroam network. For other delegates please see the registration desk for details for Wi-Fi.

### Social Media

The official conference hashtag is #ASfAR2018. If you want to tweet about the conference, please use this hashtag so that others interested in the conference can find your tweets. Facebook posts are also encouraged.

We encourage live-tweeting during the conference using the official hashtag, with the following caveats and suggestions for best practice:

- Respect the wishes of the presenters if they do not wish their paper to be tweeted, and presenters please make it clear if this is your wish. Remember that many people present unpublished work at conferences and you should use your best judgement when putting other people's work into the public sphere.
- Correctly attributing information is vital. If tweeting be sure to give the name of the presenter and be clear when you are directly quoting someone. Presenters, if you are on Twitter and are happy for people to tweet about your paper put your Twitter handle on your opening slide so the audience can accurately cite you.
- Do your best not to misrepresent other people's views (even if you disagree with them) and post corrections if you slip up or someone misunderstands your tweet.
- You don't need to tweet everything a presenter says, a few take home messages to capture what you found interesting/significant about their presentation is generally sufficient.
- Do not post photos of people or posters without the permission of the individual or author.
- Remember that Twitter is a public forum, so think twice about posting comments about the more social aspects of the conference; the general rule is to be collegial and respectful.
- Enjoy it. Live-tweeting can be a great way to increase engagement and widen participation at a conference.
- REMINDER: Everything you post on Twitter using the conference hashtag and on the ASfAR Facebook page during the conference is considered to be public

### Communication Preferences during the Conference

All delegates are invited to use coloured dots to let others know whether you want to talk or need some space. These dots will be available from the registration desk and you can change them whenever you want. They mean:

- Red = I would prefer to be left alone.
- Yellow = I don't feel like an in-depth conversation, just a quick chat.
- Green = I am happy to engage in conversation.

### Contacts

If you need help or have questions or feedback on ASfAR 2018 please contact conference convenors Jessica (07 5678 7058, [j.paynter@griffith.edu.au](mailto:j.paynter@griffith.edu.au)) or Marleen (07 5678 7658, [m.westerveld@griffith.edu.au](mailto:m.westerveld@griffith.edu.au)) who will have these phone numbers diverted to their personal mobiles throughout the conference. You can also chat to James who will be on the registration desk throughout the conference who can call or text Jessica and Marleen for you if you would prefer.

**Instructions for Session Chairs**

Please ensure that you are at the venue at least 15 minutes before the beginning of your session to discuss the session format with the presenters and assist them with their slides. Each presentation in the oral series should be kept to 15 minutes including questions. You will be provided with 5 minute and 1 minute time cards to help presenters keep to the 15 minute time limit. To facilitate movement between sessions, and to ensure the programme runs to schedule, please adhere strictly to the programme as provided. If a presenter does not arrive for their slot, please do not move other presenters forward, but rather wait until the scheduled time to begin the next presentation.

**Instructions for Oral Presenters**

We have allocated 15 minutes (12 minutes for presentation, 3 minutes for questions) for oral presentations and 5 minutes (3 minutes for presentation, 2 minutes for questions) for ePosters. The venues will be available in the break (i.e. morning tea, lunch, or afternoon tea) before each set of sessions so that you can pre-load your presentation on to the computer. Please be in your session room 15 minutes prior to the start of your session to assist all sessions to run on time. Please note that time limits will be strictly enforced to ensure delegates can move between sessions.

**Instructions for Posters**

Please limit your poster to A0 size sheet in landscape or portrait format (1189mm high and 841mm wide). Posters will be on display for the full day, and poster boards will be in place from 8.00am on Day 1. We ask that you attend your poster during morning and afternoon tea breaks. Please work with staff at the Registration Desk to set up your poster by 9.00am on the day of your presentation. Please collect your poster immediately after the end of your presenting day. This is the responsibility of the presenter and no responsibility can be accepted by the organisers for the collection or safekeeping of posters. Posters not collected by the close of the conference will be discarded.



## Program

Time	Thursday 6 December		
8:00-9:00	Registration		
9:00-9:15	Welcome to ASfAR: <b>Marleen Westerveld &amp; Jessica Paynter</b> Welcome to Country: <b>John Graham</b> President's Opening Remarks: <b>Mark Stokes</b> , ASfAR President G17, Lecture Theatre 4		
9.15-9.35	Invited Presentation: Neurodiversity and Inclusive Conference Features <b>Jac Den Houting</b> G17, Lecture Theatre 4		
9.35-10.35	Keynote Presentation: Exploring Language and Communication in Autism from a Developmental Perspective <b>Helen Tager-Flusberg</b> G17, Lecture Theatre 4		
10.35-11.00	Morning Tea, Posters, and Exhibits G03 Foyers		
	Stream 1	Stream 2	Stream 3
11:00-11:45	1: Adulthood: Sleep & QoL G17, Lecture Theatre 4 Session Chair: <b>Susan Bruck</b>	2: Infants and Toddlers G03, Lecture Theatre 1 Session Chair: <b>Kate Simpson</b>	3: Knowledge Translation G03, Lecture Theatre 2 Session Chair: <b>Rhylee Sulek</b>
11:00	<i>76: Sleep quality and the autism spectrum from mid-adolescence to old age</i> <b>Sanya Jovevska</b> , Amanda Richdale, Lauren Lawson, Samuel Arnold, & Julian Trollor	<i>74: Characteristics of a community sample of infants showing early signs of ASD</i> <b>Kandice Varcin</b> , Kristelle Hudry, Andrew Whitehouse, & The AICES Team	<i>24: Simulation based education to upskill hospital staff in managing aggression in young people with autism</i> <b>Marijke Mitchell</b> , Fiona Newall, Colin White, Melissa Heywood, Jenni Sokol, & Katrina Williams
11:15	<i>77: Are Sleep and Mental Health Associated with Vocational Independence in Young People on the Autism Spectrum</i> <b>Ensu Sahin</b> , Amanda Richdale, & Lauren Lawson.	<i>72: Validation of the Autism Observation Scale for Infants (AOSI) in a Community-Referred Sample of Infants</i> <b>Kristelle Hudry</b> , Kandice Varcin, Lacey Chetcuti, Maryam Boutrus, Andrew Whitehouse, & The AICES Team	<i>71: Debunking Intervention Misinformation in Autism: An Application of Debunking Principles</i> <b>Jessica Paynter</b> , Sarah Luskin-Saxby, Grace Frost, Kathryn Fordyce, Christine Imms, Deb Keen, Scott Miller, David Trembath, Madonna Tucker, & Ullrich Ecker

11:30	68: <i>Capturing Lived Experience in Pictures: Quality of Life of Autistic Adults</i> <b>Rebecca Kuzminski</b> , Ben Milbourne, Marita Falkmer, Wenn Lawson, Sven Bölte, & Sonya Girdler	11: ePoster: <i>Predictors of adaptive functioning in toddlers and preschool children with autism spectrum disorder</i> Antoinette Hodge, <b>Rebecca Sutherland</b> , Benjamin Bailey, Diana Barnett, Suzi Drevensek, Chelvi Ganesalingam, Jane Cramsie, Alicia de Vries, Marcia Williamsz, & Natalie Silove	53: <i>BOOST-A knowledge translation: A journey from research trial to a holistic online service</i> <b>Cheryl Mangan &amp; Marina Ciccarelli</b>
11:35		86: ePoster: <i>Feasibility and preliminary efficacy of Gazefinder eye-tracking for use with infants showing early signs of autism</i> <b>Kristelle Hudry</b> , Kandice Varcin, Lacey Chetcuti, Maryam Boutrus, Cathy Bent, & Andrew Whitehouse	
11:40		37: ePoster: <i>Predictors of response to early intervention for young children with autism: A Systematic Review</i> <b>Catherine Bent</b> , Maya Yaari, Kristelle Hudry, & Cheryl Dissanayake	
11:45-12:00	Transition time		
12:00-12:45	4: Adulthood: Health & Sexuality G17, Lecture Theatre 4 Session Chair: <b>Emma Goodall</b>	5: Early Diagnosis and Screening G03, Lecture Theatre 1 Session Chair: <b>Megan Clarke</b>	6: Parents and Family G03, Lecture Theatre 2 Session Chair: <b>Dawn Adams</b>
12:00	17: <i>What qualitative evidence exists about the sexual health literacy of young women on the autism spectrum? A systematic review</i> <b>Vanessa Thomas</b> , Abirami Thirumanickam, & Jessica Gunson	85: <i>Early detection of autism using a mobile application: ASDetect</i> <b>Josephine Barbaro</b> , Nancy Sadka, Wojciech Nadachowski, Mike Burnside, Lachlan Burnside, Cheryl Dissanayake, Mick Leahy, Melinda Denham, & the ASDetect team	44: <i>Parent decision-making regarding interventions for their child with Autism Spectrum Disorder</i> <b>Meghan Wilson</b> , Tom Whelan, Lisa Milne, Diane Jacobs, & David Hamilton

12:15	104: <i>Investigating Transactional Thought Processes as a Motive behind Autistic Female Sexuality</i> <b>Laura Anne Pecora &amp; Mark Stokes</b>	28: <i>Early detection for better outcomes: building capacity and partnership with early childhood professionals</i> <b>Beth Mozolic-Staunton</b> , Josephine Barbaro, Michelle Donelly, & Jacqui Yoxall	12: <i>Characterising the Broader Autism Phenotype in Relatives of Individuals with High Functioning Autism Spectrum Disorder</i> <b>Cherie Christine Green</b> , Annie E. Richard, Keri Pereira, Sarah J. Wilson, & Ingrid E. Scheffer
12:30	82: <i>Identifying the online health information needs of adults on the autism spectrum with intellectual disability using an inclusive methodology</i> <b>Katie Brooker</b> , Nick Lennox, David Harley, Ava Ruth Baker, Helen Darch, Hank Szeto, Samuel Arnold, & Anna Urbanowicz	117: <i>Development and Preliminary Data of Checklist for Autism Spectrum Disorder Screening for Preschool Teachers (CAPT-S) in Singapore</i> <b>Yong-Hwee Nah</b>	
12:45-1:15	Lunch		
1:15-2:15	ASfAR Annual General Meeting		
2:15-3:00	7: Adults/Diagnosis G17, Lecture Theatre 4 Session Chair: <b>Josie Barbaro</b>	8: Early Support G03, Lecture Theatre 1 Session Chair: <b>Rebecca Sutherland</b>	9: Social Cognition and Social Skills G03, Lecture Theatre 2 Session Chair: <b>Vicky Gibbs</b>
2:15	75: <i>"The single most important thing that has happened to me in my life": Preliminary Investigation of the Impact of Diagnosis Scale – Revised (IODS-R)</i> <b>Samuel Arnold</b> , Lauren Lawson, Jane Hwang, Amanda Richdale, & Julian Trollor	83: <i>Comparing Short-term Outcomes for Pre-Schoolers with ASD receiving Group-Based versus One-on-One Early Start Denver Model (EDSM) Intervention</i> <b>Cherie Green</b> , Cathy Bent, Kristelle Hudry, & the Victorian ASELCC Team	97: <i>Do children with autism enact characters' actions? Comparison of character- and observer-viewpoint gestures in children with autism and neurotypical preschool children</i> <b>Miranda Kit-Yi Wong &amp; Wing-Chee So</b>
2:30	88: <i>Diagnostic Overshadowing in Autistic Women</i> <b>Claire Brown</b> , Matthew Fuller-Tyszkiewicz, Isabel Krug, & Mark A. Stokes	120: <i>Speech and Non-Speech Vocalisation changes over time in Children with ASD</i> <b>David Trembath</b> , Marleen Westerveld, Srinivas Teppala, Abirami Thirumanickam, Rhylee Sulek, Veronica Rose, Madonna Tucker, Jessica Paynter, Orit Hetzroni, Deb Keen, & Giacomo Vivanti	69: <i>Evaluating the feasibility and acceptability of KONTAKT for adolescents on the Autism Spectrum: A social skills group training</i> <b>Bahareh Afsharnejad</b> , Sonya Dirdler, Sven Bolte, & Marita Falkmer

2:45	<p>66: <i>Development of a national guideline for the assessment and diagnosis of autism spectrum disorders in Australia</i> Kiah Evans, Professor John Wray, Professor Valsamma Eapen, &amp; <b>Professor Andrew Whitehouse</b></p>	<p>13: <i>Characteristics associated with individual differences in developmental gains across one year of early intervention</i> <b>Cathy Bent</b>, Maya Yaari, Cherie Green, Kristelle Hudry, &amp; the Vic ASELCC team</p>	<p>111: <i>A systematic review on the psychometric properties of self-report school connectedness measures – implications for measurement with students with Autism Spectrum Disorder</i> <b>Amy Hodges</b>, Reinie Cordier, Annette Joosten, Helen Bourke-Taylor, &amp; Renee Speyer</p>
3:00-3:15	Transition time		
	<p>10: Adults G17, Lecture Theatre 4 Session Chair: <b>Jill Ashburner</b></p>	<p>11: Intervention and Communication Session Chair: <b>Stephi Sievers</b></p>	<p>12: Mental Health Session Chair: <b>Kristelle Hudry</b></p>
3:15-4:00			
3:15	<p>35: <i>"It's changed a lot since then": Patterns of continuity and change in the psychosocial outcomes of young autistic adults followed from childhood</i> <b>Liz Pellicano</b>, Serena Cribb, &amp; Lorcan Kenny</p>	<p>4: <i>A mixed methods analysis of factors that impact the efficacy of early intervention for young Australian children with autism, according to parents</i> <b>Jacqueline Gately</b></p>	<p>50: <i>More than autism: association between executive functioning, mental health and adaptive behaviour in adolescents with ASD</i> <b>Francesca Lami</b>, Katrina Williams, &amp; Rowena Conroy</p>
3:30	<p>79: ePoster: <i>The development of social competence in autistic university students through specialist peer mentoring</i> Craig Thompson, Torbjörn Falkmer, Sven Bölte, &amp; Sonya Girdler. Presenter: <b>Marina Ciccarelli</b></p>	<p>92: <i>Building Connections Tele-Therapy Pilot Program: a collaborative autism-specific intervention program delivered via technology in regional, rural and remote regions</i> <b>Genevieve Johnsson &amp; Rachel Kerslake</b></p>	<p>109: <i>Parent descriptors of signs of anxiousness in children on the autism spectrum</i> <b>Dawn Adams</b>, Kate Young, Kate Simpson, &amp; Deb Keen</p>
3:35	<p>2: ePoster: <i>Transition to higher education for students with autism: A systematic literature review</i> <b>Alison Nuske</b>, Fiona Rillotta, Michelle Bellon, &amp; Amanda Richdale</p>		
3:40	<p>112: ePoster: <i>Aspies@Work: The role of gender</i> <b>Susan M Hayward</b>, Mark A Stokes, &amp; Keith R McVilly</p>		



3:45	<p>95: ePoster: <i>Adults' disclosure of their autism: a mixed methods investigation</i>  <b>Yunhe Huang</b>, Jane Hwang, Julian Trollor, &amp; Samuel Arnold</p>	<p>103: <i>Who is a better teacher for children with autism? Comparison of learning outcomes between robot-based and human-based interventions in gestural production and recognition</i>  <b>Wan-Yi Lam</b>, Miranda Kit-Yi Wong, Chun-Ho Cheng, &amp; Wing-Chee So</p>	<p>40: <i>Gender Differences in the Anxiety Symptoms of Children on the Autism Spectrum</i>  <b>Kathryn Ambrose</b>, Deb Keen, Dawn Adams, &amp; Kate Simpson</p>
4:00-4:30	<p>Afternoon Tea, Posters, and Exhibits  G03 Foyers</p>		
4:30-5:30	<p><i>Keynote Presentation: Facing the unknown: Intolerance of uncertainty and anxiety in Autism Spectrum Disorder.</i>  <b>Jacqui Rodgers</b>  G17, Lecture Theatre 4</p>		
6.00 - 8.00	<p>Meet &amp; Greet Event  G's, G40, Griffith University</p>		

**Thursday Posters**  
**G03 Foyer (Lower Level)**

<b>Poster Number</b>	<b>Title</b>
1	73. Baseline Characteristics of the Longitudinal Study of Australian School Leavers with Autism. <b>Amanda Richdale</b> , Alex Haschek & Lauren Lawson
2	94. Mortality and cause of death of those on the autism spectrum: an investigation of linked data. <b>Jane Hwang</b> , Kitty-Rose Foley, Samuel Arnold & Julian Trollor
3	108. An Optimistic Outlook Concerning Employment in Autism. <b>Darren Hedley</b> , Jennifer Spoor, Mirko Uljarevic, Ru Cai, Simon Moss, Amanda Richdale, Timothy Bartram & Cheryl Dissanayake
4	59. Exploring the experience of seeking an autism diagnosis as an adult: Findings from online submissions and interviews. <b>Matthew de Broize</b> , Kiah Evans, Andrew Whitehouse, John Wray, Valsamma Eapen, & Anna Urbanowicz.
5	60. Get it Right, Make it Easy, See it All: Autism spectrum disorder diagnosis in Australia from the perspective of autistic individuals and their caregivers. <b>Emily D'Arcy</b> , Marita Falkmer, Torbjorn Falkmer, Andrew Whitehouse, John Wray, Valsamma Eapen, & Sonya Girdler.
6	62. Experiences of the autism spectrum disorder diagnostic process from the perspective of individuals, families and practitioners: A systematic review. Bahareh Afsharnejad, <b>Andrew Whitehouse</b> , John Wray, Valsamma Eapen, & Kiah Evans.
7	63. What Australian medical, allied health and educational experts want from an autism spectrum disorder diagnostic process. Kiah Evans, John Wray, Valsamma Eapen, & <b>Andrew Whitehouse</b> .
8	64. Consistency, accessibility, equity and strengths: The Australian community speaks out about what is important for the autism assessment and diagnostic process. Angela Stojanoska, Rebekka Jooste, <b>Andrew Whitehouse</b> , John Wray, Valsamma Eapen, & Kiah Evans.
9	65. A call for a holistic approach to autism assessment and diagnosis in Australia: Results of an online submission process. Rebekka Jooste, Angela Stojanoska, <b>Andrew Whitehouse</b> , John Wray, Valsamma Eapen, & Kiah Evans.
10	1. The experience of grandparenting in the context of families living with autism. Rebekka Jooste, <b>Andrew Whitehouse</b> , & Kiah Evans.
11	54. Experiences of pregnancy and parenting a second child when your first is diagnosed with autism. Dominique Cleary, <b>Andrew Whitehouse</b> , Murray Maybery, & Kiah Evans.
12	110. Parenting an Adult Child with Autism Spectrum Disorder and Aggression: The Associated Distress and Psychological Growth. <b>Linda Swaab</b> , Lynne McCormack, & Linda E. Campbell.
13	3. Microglial morphology in the NL3R451C mouse model of ASD. Samantha M. Matta, Peter J. Crack, & Elisa L. Hill-Yardin
14	30. An Electrophysiological Investigation of Temporal Auditory Processing across the Broader Autism Spectrum. <b>Anna Rose Jorgensen</b> , Murray Maybery, & Allison Fox.

Friday 7 December			
8:00-9:00	Registration		
9:00-9:10	Welcome <b>Jessica Paynter &amp; Marleen Westerveld</b> G17, Lecture Theatre 4		
9:10-10:10	<i>Keynote Presentation: Autism and severe intellectual disability: Looking beyond the environment to understand behaviour</i> <b>Chris Oliver</b> G17, Lecture Theatre 4		
10:10-10:30	Plenary: <i>The Launch of the Australian Autism Biobank</i> <b>Andrew Whitehouse</b> & the Australian Autism Biobank team. G17, Lecture Theatre 4		
10.30-11.00	Morning Tea & Posters		
	Stream 1	Stream 2	Stream 3
11:00-11:45	1: Adults/PAR G17, Lecture Theatre 4 Session Chair: <b>Wenn Lawson</b>	2: Education: Models of Practice G03, Lecture Theatre 1 Session Chair: <b>Sarah Luskin-Saxby</b>	3: Communication and Social Skills G03, Lecture Theatre 2 Session Chair: <b>David Trembath</b>
11:00	25: <i>Participatory autism research in the Autism CRC and beyond</i> <b>Jacquiline den Houting</b> & Liz Pellicano	43: <i>EDUCATING FOR SUCCESS. Models of Practice for Australian Teachers of Students on the Autism Spectrum</i> <b>Trevor R Clark</b> & Wendi Beamish	55: <i>How was your day? Parent, teacher and child perceptions of communication about the school day with children on the autism spectrum</i> <b>Lesley Stirling</b> , Cheryl Dissanayake, Kate Sofronoff, David Trembath, Marleen Westerveld, Jill Ashburner, & Lindsay Pamment
11:15	56: <i>How to work with us: Perspectives of autistic adults engaged in research</i> <b>Tori Haar</b> & Joel Wilson	93: <i>The Early Years Model of Practice: Initial Evaluation by Prep/Kindergarten Teachers</i> <b>Annalise Taylor</b> , Wendi Beamish, Jessica Paynter, & Madonna Tucker	18: ePoster: <i>Understanding the characteristics, quality and satisfaction of friendships for children on the autism spectrum: a systematic review</i> <b>Sarah Hazell</b> , David Trembath, Kate Simpson, & Jacqueline Roberts

11:20			33: ePoster: <i>Participation through the child's lens</i> <b>Kate Simpson</b> , Deb Keen, & Christine Imms
11:25			100: ePoster: <i>Robot-based drama therapy may enhance perspective-taking skills in preschool children with autism</i> <b>Wing-Chee So</b> , Chun-Ho Cheng, Wan-Yi Lam, & Kit-Yi Wong
11:30	116: <i>The impact of a Massive Open Online Course (MOOC) co-designed with autism lived experiences to increase community understanding about the condition</i> <b>Emma Donaldson</b> & Mick Grimley	81: <i>Developing a model of practice to support mainstream teachers of students on the autism spectrum</i> <b>Ainslie Robinson</b> & Emma Gallagher	102: ePoster: <i>Robot-Based Intervention May Reduce Delay in the Production of Intransitive Gestures in Chinese-Speaking Preschoolers with Autism Spectrum Disorder</i> <b>Chun-Ho Cheng</b> , Wan-Yi Lam, Miranda Kit-Yi Wong & Wing-Chee So
11:35			91: ePoster: <i>Teacher expectations of robot-assisted classroom instruction</i> <b>Susan Bruck</b> , David Silvera-Tawil, Dana Bradford, Trevor Clark, & Vicki Gibbs
11:40			
11:45-12:00	Transition time		
12:00-12:45	4: Adults: Work & Study G17, Lecture Theatre 4 Session Chair: <b>Olivia Gatfield</b>	5: Education: Continued G03, Lecture Theatre 1 Session Chair: <b>Trevor Clarke</b>	5: Predictors G03, Lecture Theatre 2 Session Chair: <b>Satine Winter</b>
	45: <i>Lessons from an internship program for adults on the autism spectrum</i> <b>Rhonda Chapman</b> , Marita Falkmer, Graham Ferguson, & David McMeekin	9: <i>Context matching: Supporting talent development in highly able individuals on the autism spectrum</i> <b>Susan Wade</b> & Leonie Kronborg	21: <i>Autism risk in 12 month old infants born to mothers with asthma</i> <b>Alison E Lane</b> , Vanessa Murphy, Daniel Barker, Linda Campbell, Frini Karayanidis, & Peter Gibson



	<p>107: <i>The autism advantage at work: A systematic review of the evidence concerning the relationship between restricted and repetitive behaviours and interests and work performance</i>  <b>Simon Matthew Bury</b>, Darren Hedley, Mirko Uljarević, &amp; Eynat Gal</p>	<p>6: <i>Mainstream or special education or somewhere in-between? What do parents want and why?</i>  <b>Jill Ashburner</b>, Jennifer Taylor, &amp; Beth Saggars</p>	<p>7: <i>Predictors of Autism Spectrum Disorder diagnosis at a tertiary hospital in Melbourne</i>  <b>Chamaïne Bernie</b>, Katrina Williams, Bernadette O'Connor, Sarah Rogers, &amp; Tamara May</p>
	<p>16: <i>Changing lives of parents of autistic university students through specialist peer mentoring</i>  Craig Thompson, Torbjörn Falkmer, Sven Bölte, &amp; Sonya Girdler. Presenter: <b>Marina Ciccirelli</b></p>		<p>101: <i>Symptom severity in Autism Spectrum Disorder is related to the frequency and severity of nausea and vomiting during pregnancy: A retrospective study</i>  <b>Murray Maybery</b>, Andrew Whitehouse, Gail Alvares, Dominique Cleary, Alexis Haru, Angela Stojanoska, Lauren Taylor, &amp; Kandice Varcin</p>
12:45-1:45	Lunch		
1:45-2:30	<p>7: Lifespan Development and Community Awareness  G17, Lecture Theatre 4  Chair: <b>Annalise Taylor</b></p>	<p>8: Literacy and Language  G03, Lecture Theatre 1  Session Chair: <b>Veronica Rose</b></p>	<p>9: Families  G03, Lecture Theatre 2  Session Chair: <b>Ainslie Robinson</b></p>
	<p>98: <i>Social competence, problem behaviours and school adjustment of children who were diagnosed with Autism Spectrum Disorder before and after 3-years of age</i>  <b>Megan Clark</b>, Zoe Vinen, Josephine Barbaro, &amp; Cheryl Dissanayake</p>	<p>57: <i>"Square pegs in round holes" Parent perceptions of literacy learning for their children on the autism spectrum in the first year of school</i>  <b>Kathryn O'Leary</b>, Marleen Westerveld, Bev Flückinger, &amp; Jessica Paynter</p>	<p>23: <i>Different Kids, Different Stories: Indigenous Australian Family Experiences of Autism</i>  <b>Rozanna Lilley</b>, Liz Pellicano, Mikala Sedgwick, Bronwyn Carlson, &amp; Tristan Kennedy</p>
2.00	<p>105: <i>When I get older will you still care?</i>  <b>Susan Bruck</b></p>	<p>15: <i>Moving towards evidence-based literacy instruction for children with autism spectrum disorders</i>  <b>Ben Bailey</b>, Joanne Arciuli, Rob Savage, &amp; Rauno Parrila</p>	<p>42: ePoster: <i>Before the Bowl Breaks: Predicting Psychological Wellbeing of Care Providers of Individuals with Autism Spectrum Disorder</i>  <b>Shyan Juang Low</b> &amp; Richard Hicks</p>

2.05			58: ePoster: <i>The Challenges and issues that recoupled parents encounter whilst raising and supporting their step/biological child with ASD within a stepfamily environment</i> <b>Sonia Cann-Milland</b> & Penny Round
2.10			89: ePoster: <i>The association between Child Problem Behaviour, Discipline strategies and Parental Stress in parents of children with Autism Spectrum Disorder</i> <b>Kimberley Amurao</b> & Chantal Roddy
2.15	119: ePoster: <i>Preferred terminology for autism in the Autistic community</i> <b>Kitty-Rose Foley, Jac den Houting</b> , Samuel Arnold, Lauren Lawson, Amanda Richdale & Julian Trollor	29: ePoster: <i>Emergent Literacy of Preschoolers on the Autism Spectrum: Links to Child Visual Attention and Verbal Engagement during Shared Book Reading</i> <b>Rachelle Wicks</b> , Marleen Westerveld, & Jessica Paynter	99: ePoster: <i>Self-compassion- a novel predictor of well-being in parents of children with Autism Spectrum Disorder</i> <b>Gal Rachel Bohadana</b> , Jessica Paynter, & Shirley Morrissey
2.20	70: ePoster: <i>Linking Knowledge and Attitudes: Determining Neurotypical Knowledge About and Attitudes Towards Autism</i> <b>Rebecca Kuzminski, Joel Wilson</b> , Julie Netto, Torbjorn Falkmer, Angela Chamberlain, & Marita Falkmer	27: ePoster: <i>Longitudinal predictors of word reading skills in verbal children on the autism spectrum who are in their first year of schooling</i> <b>Marleen Westerveld</b> , Jessica Paynter, David Trembath, & Kathryn O'Leary	113: ePoster: <i>The Mental Well-being of Informal Caregivers of Adults with Autism Spectrum Disorder: A Systematic Review</i> <b>Marisse Sonido</b> , Samuel Arnold, Jane Hwang, & Julian Trollor
2.25		121: ePoster: <i>Parental Experiences of Raising Trilingual Malaysian Children with Autism Spectrum Disorder: Policy Recommendations to Support Multilingualism</i> <b>Karen Jennifer Golden</b> & Shiu Sum Chan	48: ePoster: <i>Parental perception of supported access to treatment for children with ASD in the emergency department</i> <b>Alice Garrick</b> , Marie Lee, & Carrington Scarffe
2:30-2:45	Transition time/panel questions		

	10: Characteristics G17, Lecture Theatre 3 Session Chair: <b>Shyan Juang Low</b>	11: Education G03, Lecture Theatre 1 Session Chair: <b>Gal Bohadana</b>	12: Brain Function & Genetics G03, Lecture Theatre 2 Session Chair: <b>Rachelle Wicks</b>
2:45-3:30	<p>114: <i>The misnomer of “high functioning autism”: IQ is a weak predictor of functional abilities in autism spectrum disorder</i> <b>Gail Alvares</b>, Keely Bebbington, Dominique Cleary, Emma Glasson, Murray Maybery, Sarah Pillar, Mirko Uljarevic, Kandice Varcin, John Wray, &amp; Andrew Whitehouse</p>	<p>14: <i>Instructional practices used by paraprofessionals when supporting students with Autism Spectrum Disorders in primary and secondary mainstream schools</i> <b>Satine Winter</b> &amp; Anne Christie</p>	<p>51: <i>Exploring Predictive Coding of Perceptual Inference in Autistic Traits</i> <b>Min Stewart</b> &amp; Patrick Johnston</p>
	<p>84: <i>Prevalence of motor impairment in Autism Spectrum Disorder: A population-based analysis of diagnostic data</i> <b>Melissa Licari</b>, Gail Alvares, Kandice Varcin, Kiah Evans, Dominique Cleary, Siobhan Reid, Emma Glasson, Keely Bebbington, John Wray, &amp; Andrew Whitehouse</p>	<p>36: <i>Social validity of an online platform for teachers of students with autism</i> <b>Rhylee Sulek</b>, David Trembath, Jessica Paynter, &amp; Deb Keen</p>	<p>87: <i>Do adults with autistic-like traits show evidence of atypical language or visuospatial cerebral organisation? a functional Transcranial Doppler Ultrasounography study</i> <b>Simone Fernandez</b>, Murray Maybery, &amp; Andrew Whitehouse</p>
3:15	<p>96: ePoster: <i>Head Circumference in Autism Spectrum Disorder</i> <b>Joel Crucitti</b>, Mark Stokes, Peter Enticott, &amp; Christian Hyde</p>	<p>5: <i>How often and why do schools fail to meet the needs of students on the spectrum?</i> <b>Jill Ashburner</b>, Jennifer Taylor, &amp; Beth Saggars</p>	<p>47: <i>Development of human stem cell pre-clinical models to understand ASD in a dish</i> <b>Kiymet Bozaoglu</b>, Miriam Fanjul Fernandez, Haloom Rafehi, Ben Rollo, Natasha Brown, Eduardo Stanley, Steve Petrou, Martin Delatycki, Melanie Bahlo, Ingrid Scheffer, &amp; Paul Lockhart</p>
3:20	<p>10: ePoster: <i>Understanding the role relationship between executive functioning and adaptive functioning in individuals diagnosed with autism spectrum disorder.</i> <b>Kendra Dommissie</b>, Gail Alvares, Murray Maybery, &amp; Andrew Whitehouse</p>		
3:30-3:45	Afternoon Tea & Posters		
3:45-4:00	Closing & Awards G17, Lecture Theatre 4		

**Friday Posters**  
**G03 Foyer (Lower Level)**

<b>Poster Number</b>	<b>Title</b>
1	22. The relationship between IQ and sex differences in autism: A systematic review and meta-analysis. Evelyn Perry, <b>Alex Ure</b> , Veronica Rose, & Katrina Williams.
2	31. Heritability of facial masculinity in Autism Spectrum Disorder. <b>Diana Tan</b> , Syed Gilani, Murray Maybery, Gail Alvares, Ajmal Mian, & Andrew Whitehouse
3	32. Sex-specific variations in perceived facial masculinity/femininity across levels of autistic-like traits. <b>Diana Tan</b> , Murray Maybery, Melissa Evans, Renata Di Lorenzo, & Andrew Whitehouse.
4	34. Prevalence, onset and risk factors associated with regression in children with autism: A systematic review and meta-analysis. <b>Veronica Rose</b> , Christine Tan, Alex Ure, & Katrina Williams
5	90. Utility of Temperament for Predicting Psychopathology in Infants with Early Signs of Autism Spectrum Disorder (ASD). <b>Lacey Chetcuti</b> , Mirko Uljarevic, Maryam Boutrus, Andrew Whitehouse, Kandice Varcin, & Kristelle Hudry.
6	118. Object permanence versus poor theory of mind. <b>Wenn Lawson</b> .
7	19. Examination of speech-identified mediating factors on AAC outcomes for children with ASD. <b>Stephanie Sievers</b> , David Trembath, & Marleen Westerveld.
8	38. Language Profiles of Infants Showing Early Signs of Autism Spectrum Disorder (ASD). <b>Stefanie Dimov</b> , Kristelle Hudry, & Teresa Iacano.
9	61. Perspective-Taking Therapy with Thought Bubbles and PiSCES for Children with ASD. <b>Wong Ci Xin</b>
10	78. The Characteristics of Pitch Contours in Speech Directed to Infants at-risk for Autism. <b>Alix Woolard</b> , Titia Benders, Linda Campbell, Frini Karayanidis, Larissa Korostenski, & Alison Lane.
11	41. Applying Knowledge to Action: A strategic framework for implementing evidence-based practice in Autism Spectrum Disorder early intervention centres. <b>Sarah Luskin-Saxby</b> , Jessica Paynter, & Melanie Zimmer-Gembeck.
12	106. Replacing ineffective with effective teaching practices for students with autism. Deb Keen, <b>Rhylee Sulek</b> , Jessica Paynter, & David Trembath.



## Abstracts

### Day 1: Thursday

#### Opening Session 9:00-10:35

##### **Invited Presentation: Neurodiversity and Inclusive Conference Features**

Jac Den Houting

What happens when you fall off the edge of the Earth? Around 2000 years ago, it was common knowledge that the Earth was flat, and theories abounded regarding what sat at the edges of the world. In the many centuries since, science has demonstrated that the Earth is, of course, not flat. As a result, there have been vast changes in society's assumptions and beliefs about the nature of the world. We have seen an almost-universal paradigm shift.

Our understanding of autism is also based in our beliefs and assumptions about the nature of autism. The language that we use to discuss autism, the research questions that we ask, and our approaches to treatment and support for autistic people are all informed by our own personal autism paradigm. And for most of us, that paradigm is the pathology paradigm.

With the rise of autistic advocacy and strengths-based approaches to autism, however, the limitations of adhering to a pathologising approach to autism are becoming more and more evident. In this talk, Jac will provide delegates with an insider's understanding of an alternative conceptualisation of autism – the neurodiversity paradigm. Delegates will be challenged to examine their own beliefs and assumptions about autism, and will be encouraged to take steps towards their own personal paradigm shift.

Throughout the presentation, delegates will also be introduced to some of the inclusive practices that will be in place at this year's conference, designed to ensure an accessible and welcoming conference experience for delegates of all neurotypes.

##### **Keynote Presentation: Exploring Language and Communication in Autism from a Developmental Perspective**

Professor Helen Tager-Flusberg

Acquiring spoken language is the most significant predictor of long-term outcomes for children with autism and after more than four decades of research we have learned a great deal about the important predictors and optimal interventions for language in this population. Yet only recently have researchers begun to focus on older children and adolescents who fail to go beyond words and simple phrases by the time they enter school. In this presentation I will summarise what we and other have been learning about language across the full autism spectrum, addressing several questions: What are some of the early predictors of success or failure in acquiring language? How can we more effectively assess receptive and expressive language skills in all individuals with autism? How do the communication profiles develop from early childhood to adolescence in verbally fluent and minimally verbal individuals? Why do almost one-third of children with autism fail to develop language, and what are some new ideas about interventions that may help all children with autism develop functional language?

## Thursday Concurrent Sessions

### Stream 1: 11:00-11:45 Adulthood: Sleep & QoL

#### 76: *Sleep quality and the autism spectrum from mid-adolescence to old age*

Sanya Jovevska, Amanda Richdale, Lauren Lawson, Samuel Arnold, & Julian Trollor

**Background.** Getting sufficient, good quality sleep is often a major challenge for individuals on the autism spectrum. The prevalence of sleep complaints among individuals on the spectrum ranges from 50-80% in childhood, compared to 37% in the general population. Few adolescent and adult studies exist, but poor sleep also appears common. In the general population, gender differences also exist in sleep patterns; while females objectively may have better sleep quality, they tend to report more sleep problems than males. However, nothing is known about sleep problems in older adults on the spectrum, and gender influences have not been examined.

**Aim.** Our aim is to examine insomnia symptoms in adolescents and adults on the autism spectrum as compared with an age-matched control group, and the influence of gender on sleep.

**Method.** Participants are 427 adolescents and adults with autism and 267 controls aged 15-80 years participating in the Autism CRC longitudinal Study of Australian School Leavers with Autism (SASLA) and the Australian Longitudinal Study of Adults with Autism (ALSAA). Demographic data, Autism Quotient (AQ) and the Pittsburgh Sleep Quality Index (PSQI) will be examined. Autism diagnosis will be confirmed via AQ score > 65, and poor sleep quality via PSQI total score >5.

**Results.** PSQI sleep problem severity, sleep onset latency, night waking, total sleep, sleep efficiency, and sleep onset delay will be examined in relation to autism diagnosis, age-group (15-19 yrs, 20-39 yrs, 40-59 yrs, 60+ yrs) and gender. Data is currently being analysed and will be completed by October 2018.

**Conclusions.** We expect that sleep problems will be more frequent in ASD across ages, but type of sleep problem will vary with age. We anticipate that regardless of diagnosis, more females will have poor sleep quality. We will report our findings and discuss their implications.

#### 77: *Are Sleep and Mental Health Associated with Vocational Independence in Young People on the Autism Spectrum*

Ensu Sahin, Amanda Richdale, & Lauren Lawson.

**Background.** Individuals on the autism spectrum are at a higher risk of developing difficulties with anxiety, depression, and sleep. Despite inconsistencies in the literature, a significant association has been found between these difficulties and aspects of independence, including employment and education. However, most studies focus only on employment or education status, while people on the spectrum engage in a range of vocational activities. Further, the combined and unique contribution of these associated conditions is yet to be explored.

**Aims.** The primary aim of this study was to investigate how depression, anxiety, sleep problems, and/or daytime fatigue relate to vocational independence in young adults on the spectrum. A secondary aim was to examine if vocational independence was more affected among those with clinically significant symptoms or multiple associated conditions.

**Methods.** The study will use a sample (n = 124) of young adults on the spectrum aged between 15 and 25 years drawn from the first wave of data collected for the Longitudinal Study of Australian School Leavers with Autism (SASLA). Participants completed the surveys online measuring a range of variables. For the present study, demographic data, Vocational Index for Adults with Autism, DSM-5 Dimensional Generalised Anxiety Disorder Scale (DSM-5 GAD-D), Patient Health Questionnaire-9 (PHQ-9), Pittsburgh Sleep Quality Index (PSQI), and Flinders Fatigue Scale will be examined. Autism diagnoses will be confirmed via an Autism Quotient (AQ) score above 65.

**Results.** A hierarchical multiple regression, independent t-tests, and one-way ANOVAs will be conducted to test the hypotheses. Data are currently being analysed and will be completed in October 2018.

**Conclusions.** Findings from the current study may be used to inform and develop future interventions, services, and government policies that aim to assist young people on the spectrum achieve greater levels of vocational independence.

#### *68: Capturing Lived Experience in Pictures: Quality of Life of Autistic Adults*

**Rebecca Kuzminski**, Ben Milbourne, Marita Falkmer, Wenn Lawson, Sven Bölte, & Sonya Girdler

**Background.** Individuals on the autism spectrum are at a higher risk of developing difficulties with anxiety, depression, and sleep. Despite inconsistencies in the literature, a significant association has been found between these difficulties and aspects of independence, including employment and education. However, most studies focus only on employment or education status, while people on the spectrum engage in a range of vocational activities. Further, the combined and unique contribution of these associated conditions is yet to be explored.

**Aims.** The primary aim of this study was to investigate how depression, anxiety, sleep problems, and/or daytime fatigue relate to vocational independence in young adults on the spectrum. A secondary aim was to examine if vocational independence was more affected among those with clinically significant symptoms or multiple associated conditions.

**Methods.** The study will use a sample ( $n = 124$ ) of young adults on the spectrum aged between 15 and 25 years drawn from the first wave of data collected for the Longitudinal Study of Australian School Leavers with Autism (SASLA). Participants completed the surveys online measuring a range of variables. For the present study, demographic data, Vocational Index for Adults with Autism, DSM-5 Dimensional Generalised Anxiety Disorder Scale (DSM-5 GAD-D), Patient Health Questionnaire-9 (PHQ-9), Pittsburgh Sleep Quality Index (PSQI), and Flinders Fatigue Scale will be examined. Autism diagnoses will be confirmed via an Autism Quotient (AQ) score above 65.

**Results.** A hierarchical multiple regression, independent t-tests, and one-way ANOVAs will be conducted to test the hypotheses. Data are currently being analysed and will be completed in October 2018.

**Conclusions.** Findings from the current study may be used to inform and develop future interventions, services, and government policies that aim to assist young people on the spectrum achieve greater levels of vocational independence.

#### **Stream 2: 11:00-11:45: Infants and Toddlers**

##### *74: Characteristics of a community sample of infants showing early signs of ASD*

**Kandice Varcin**, Kristelle Hudry, Andrew Whitehouse, & The AICES Team

**Background.** Preliminary evidence supports the efficacy of very early intervention, delivered within the first two years for infants showing early signs of ASD (e.g., Green et al., 2015, 2017). However, these early intervention studies have predominately focused on infants who are the younger siblings of a child with ASD. The Australian Infant Communication and Engagement Study (AICES) is a unique, multisite, randomised controlled trial that aims to (1) identify infants within the community aged between 9-14 months, showing early signs of ASD, and (2) examine the efficacy of a parent-mediated intervention delivered to these infants, within this prodromal period.

**Aims.** To provide an overview of the characteristics of a unique, community-referred sample of infants showing early signs of ASD.

**Method.** Infants were recruited to AICES between 9-14 months of age across two sites (Perth, Melbourne) on the basis of referral by community health services for social communication concerns. Infants were screened for eligibility into the study using the 12-month checklist from the Social Attention and Communication Study-Revised (SACS-R; Barabro & Dissanayake, 2013). Eligible infants completed a baseline assessment of developmental functioning, early autism symptoms, and family demographics.

**Results.** The final sample comprised 104 infants with a mean age of 12.4 months (SD=1.98). Approximately two-thirds of the sample were male (67.3%). As a group, infants were below average in their gross motor (M=36.2, SD=12.6), receptive language (M=36.7, SD=10.4), and expressive language (M=36.5, SD=10.4) skills (based on Mullen Scales of Early Learning t-scores). At baseline, 50.5% of the sample had an Autism Observation Scale for Infants (AOSI) Total Score that exceeded the ASD cut-off (i.e.,  $\geq 9$ ).

**Conclusions.** We demonstrate the feasibility of recruiting a large sample of infants showing early behavioural signs of ASD around their first birthday, identified and referred by primary care providers, and provide characterisation of this unique cohort.

## 72: *Validation of the Autism Observation Scale for Infants (AOSI) in a Community-Referred Sample of Infants*

Kristelle Hudry, Kandice Varcin, Lacey Chetcuti, Maryam Boutrus, Andrew Whitehouse, & The AICES Team

**Background.** The Autism Observation Scale for Infants (AOSI; Bryson et al., 2008) is a short, play-based assessment developed to quantify the behavioural manifestation of autism symptoms in 6-18-month-old infants. The AOSI has been widely-used in prospective studies of 'high-risk infant siblings' – that is, the younger siblings of children with an ASD diagnosis. However, there has been only one independent validation study to date (i.e., Gammer et al., 2015), and very little attention to the utility of the AOSI beyond the context of infant siblings.

**Aim.** To conduct an independent validation of the AOSI with a unique cohort – 104 infants showing early signs of autism identified on the basis of community referral.

**Method.** We administered the AOSI with the 104 referred infants when aged between 9 and 16 months (M=12 months; SD=2), alongside standardised, norm-referenced assessments of developmental ability and adaptive behaviour. AOSIs were scored live (as standard) and also from video; a) by the same assessor to evaluate within-rater agreement, and b) by a second assessor (~20% of tapes) to evaluate inter-rater agreement.

**Results.** Correlational analysis indicated very high within-rater agreement across standard (i.e., live) and our adapted (i.e., video-based) rating protocols. Inter-rater agreement was also high. Those children with more parent-reported atypical markers identified at referral had higher AOSI scores, providing preliminary evidence of AOSI validity within this cohort.

**Conclusions.** High-level reliability for video ratings supports the potential utility of the AOSI as a measure of early behavioural symptoms suitable for protocols necessitating blinded rating (e.g., as key measurement within a randomised-controlled trial). Planned follow-up of this cohort will allow us to evaluate the predictive validity of AOSI scores against the gold-standard diagnostic tool valid from the second year of life (Autism Diagnostic Observation Schedule – Toddler Module) as well as clinical best estimate diagnosis ascertained around the third birthday.

## 11: *ePoster: Predictors of adaptive functioning in toddlers and preschool children with autism spectrum disorder.*

Antoinette Hodge, Rebecca Sutherland, Benjamin Bailey, Diana Barnett, Suzi Drevensek, Chelvi Ganesalingam, Jane Cramsie, Alicia de Vries, Marcia Williamsz, & Natalie Silove

Considering the recent emphasis on adaptive functioning by diagnostic clinicians, research and funding bodies, research focusing on the predictors of adaptive functioning in autism spectrum disorder (ASD) is critical. To date, few studies have used other variables other than intellectual ability as potential predictors of adaptive behaviour in the early childhood period. Participants were 83 children (2 to 5 years of age, 78% boys) with a diagnosis of ASD made by a multidisciplinary team following a comprehensive assessment. The assessment comprised a clinical interview, Autism Diagnostic Observation Schedule-Second Edition, Vineland Adaptive Behavior Scales Second Edition (Interview) and Mullen Scales of Early Learning. To establish the predictive capacity of the variables for adaptive functioning linear regression models were fitted for each predictor (chronological age,

ADOS-2 comparison score, Early Learning composite score) for adaptive behaviour scores. Preliminary analysis indicated that age, Early Learning composite score on the Mullen Scales and autism severity were significant predictors and accounted for 66% of the variance in adaptive functioning. Of the three, the Early Learning composite showed the strongest relationship to adaptive functioning. These findings support the need for a comprehensive assessment when assessing for an ASD diagnosis including both adaptive functioning and formal evaluation of development. Practical implications for intervention include the need to focus not only on core autism symptomatology but also other modifiable aspects of development and adaptive functioning. Data is currently being collated to examine these relationships in children with neurodevelopmental disorders in the absence of ASD.

86: ePoster: *Feasibility and preliminary efficacy of Gazefinder eye-tracking for use with infants showing early signs of autism*

**Kristelle Hudry**, Kandice Varcin, Lacey Chetcuti, Maryam Boutrus, Cathy Bent, & Andrew Whitehouse

**Background.** The identification and diagnosis of autism relies on behavioural assessment. Manufactured by JVC KENWOOD Corporation, Gazefinder is a bespoke eye-tracker which may support accurate and efficient identification across the lifespan. Gazefinder includes a <2-minute stimulus sequence with trials targeting referential attention to pointed-at objects (vs. distractors), and preferential attention to eyes (vs. mouth), people (vs. geometry) and biological motion (upright vs. inverted point-light displays). Previous studies – all conducted in Japan – suggest Gazefinder differentiates children (Fujisawa et al., 2014) and adolescents/adults (Fujioka et al., 2016) with and without autism.

**Aims.** To trial the feasible use of Gazefinder in a Western country by an independent team and evaluate preliminary efficacy for identifying autism in infancy.

**Method.** Fifty-four infants (75% boys) showing possible autism were assessed between 9-16 months of age ( $M=12$ ,  $SD=2$  months) on Gazefinder, the Autism Observation Scale for Infants (AOSI; Bryson et al., 2008) and Mullen Scales of Early Learning (MSEL; Mullen, 1995).

**Results.** Gazefinder captured tracking data ranging from 0% (no data due to examiner error;  $n=3$ ) to >99% ( $M=72\%$ ,  $SD=28$ ), including rates >80% for half of the sample. Among those 51 infants with some tracking data, expected patterns of referential attention to pointed-at objects (vs. distractors) and preferential attention – toward eyes (vs. mouth) and people (vs. geometry) – were observed, providing preliminary validity for data collected with Gazefinder. Further, greater attention to pointed-at objects was associated with better assessed language ( $r=.33$ ) while greater attention to (a) distractor objects and (b) geometry (vs. people) were both associated with more behavioural signs of autism ( $r = .39$  and  $r = .42$ , respectively).

**Conclusions.** Gazefinder tracking rates exceeded the minimum standard often accepted by researchers who publish eye-tracking data from infant participants. We found preliminary evidence that Gazefinder results may be associated with concurrent behavioural signs of autism among infants aged 9 to 16 months.

37: ePoster: *Predictors of response to early intervention for young children with autism: A Systematic Review*

**Catherine Bent**, Maya Yaari, Kristelle Hudry, & Cheryl Dissanayake

**Background.** Autism is characterized by heterogeneity, with substantial individual variability in presentation and outcomes. While there is a growing body of evidence supporting the effectiveness of early intervention for young children with autism, individual responses vary greatly and little is known about child and family characteristics that may predict more favourable outcomes.

**Aims.** To identify and collate existing empirical evidence on child and family characteristics associated with developmental outcomes for young children with autism receiving early intervention.



**Methods.** Relevant literature has been identified using key databases. Studies eligible for inclusion in the review were those which (1) examined the efficacy/effectiveness of an early behavioural intervention, (2) included participants aged 6 years and under, diagnosed with autism, or identified as at-risk of developing autism, and (3) reported a statistical association between a child or family characteristic and a quantitative outcome of child development or parent wellbeing. Two independent reviewers initially screened the titles and abstracts of 3522 papers, reviewed the full-text of 262 papers to confirm eligibility, and extracted data from 92 eligible papers utilizing the Covidence software platform. Analysis of risk of bias and the strengths and limitations of the evidence is also included.

**Results.** Preliminary results suggest that there is limited empirical evidence to date regarding the predictors of intervention outcomes. Many studies are not sufficiently well designed and powered to draw robust conclusions, meaning that it is not possible to differentiate true predictors of treatment response from prognostic indicators of generally better outcomes in early childhood.

**Conclusions.** Identifying predictors associated with favourable outcomes has the potential to inform individual treatment decisions, and ultimately help develop our understanding of which children with autism may benefit most from which intervention. However, further studies including well-powered samples and appropriate comparison groups are needed to address this question in an evidence-based way.

### **Stream 3: 11:00-11:45: Knowledge Translation**

#### *24: Simulation based education to upskill hospital staff in managing aggression in young people with autism*

**Marijke Mitchell**, Fiona Newall, Colin White, Melissa Heywood, Jenni Sokol, & Katrina Williams

**Background.** Children and young people with autism spectrum disorder (ASD) often exhibit challenging behaviours which can be magnified in the hospital and can result in injury and distress for the child. Children with ASD account for 36% of all clinical aggressive incidents at an Australian tertiary paediatric hospital. The staff training program prior to this study, to manage clinical aggression involved a full day of lectures and short skill sessions. Despite delivery of this program, numbers of aggressive incidents are increasing each year.

**Aim.** This study aimed to assess if the addition of a high fidelity 2 hour simulation training program increased participants' confidence and perceived competence in managing challenging behaviours.

**Method.** Two separate simulation exercises (of escalating difficulty) were delivered within the Management of Clinical Aggression (MOCA) training days. Participants completed a written survey prior to, at completion of the simulation training program, and at 3-6 months following the MOCA training.

**Results.** Nine training days were conducted in 2017 with a total of 146 participants. Most (68%) participants had experienced clinical aggression as part of their routine work, with 51% overall reporting a lack of confidence managing these patients. Immediately following this training, 80% of all participants reported feeling more confident in managing clinical aggression. At an individual level, 47% reported a 1 point increase in confidence while 33% of participants reported a 2 or 3 point increase. At 3-6 months following MOCA training, continued confidence in managing clinical aggression was reported by 66% of respondents with 100% of participants stating they would recommend this training to colleagues.

**Conclusion.** This study demonstrates high-fidelity simulation training increased confidence in participant's ability to manage challenging behaviours of young people with retention of perceived skills at 3-6 months post training. Our future research will investigate best methods for assessing the efficacy of utilising simulation training to enhance skill acquisition for staff in managing children and young people with ASD who display challenging behaviours while accessing hospital services.

### 71: *Debunking Intervention Misinformation in Autism: An Application of Debunking Principles*

Jessica Paynter, Sarah Lusk-Saxby, Grace Frost, Kathryn Fordyce, Christine Imms, Deb Keen, Scott Miller, David Trembath, Madonna Tucker, & Ullrich Ecker

**Background.** Misinformation about research support for autism interventions is common leading to continued use of ineffective practices. However, misinformation is not easily corrected; poorly designed refutations can induce greater belief in the misinformation, as seen in the fallacious association of autism with vaccination. The cognitive science literature provides guidelines for use of some effective strategies to debunk myths. To date, these guidelines have not been applied to autism interventions.

**Aims.** We aimed to test the application of debunking principles (e.g., visualising evidence, demonstrating consensus) to autism intervention myths. It was hypothesised that optimised debunking (using debunking principles) would be more effective at reducing support for ineffective practices, than existing materials that did not apply these principles.

**Method.** Participants included 47 early intervention staff from four locations in Australia. Participants completed a pre-test and were then randomly assigned to either debunking or control training conditions. Approximately 6-weeks later a follow-up assessment was completed. The key measure of interest was level of support for three ineffective practices ('support' being a composite of perceived evidence, intended future use, and likelihood to recommend to parents); impact on support for three effective practices was also measured.

**Results.** At immediate post-test, a significant interaction of time by group was found. The optimised debunking group showed a greater reduction in support for ineffective practices than the control group. This difference however was not sustained over time. No significant differences in support for effective practices were found.

**Conclusions.** Application of debunking principles can be effective in reducing support for autism intervention myths in the short-term, but further research is needed to support sustained change over time. Effective knowledge translation mechanisms are essential for improving access to evidence-based interventions for children with autism and for minimising the risk of exposure to ineffective and potentially harmful interventions.

### 53: *BOOST-A knowledge translation: A journey from research trial to a holistic online service*

Cheryl Mangan & Marina Ciccarelli

**Background.** Knowledge translation is "the synthesis, exchange, and application of knowledge to accelerate the benefits of global and local innovation in strengthening health systems and improving people's health". (WHO; 2012). Knowledge creation from research underpins improvements in service delivery and intervention. However, knowledge creation alone does not lead to widespread implementation of the knowledge and subsequent positive impacts. The knowledge must be translated into changes in policy, practices, and behaviour for the benefits to flow on to the community. The Better Outcomes and Successful Transitions for Autism (BOOST-A) goal setting and vocational planning tool was developed with strong end-user engagement and validated in a 12-month nation-wide clinical trial involving over 100 adolescents. The research findings were widely disseminated at national and international conferences and in journals.

**Aims.** We will describe our journey that takes the evidence-based BOOST-A tool through a service design process to plan and deliver a holistic online service to empower young people to dream big and take control of their futures.

**Method.** We engaged with almost 200 stakeholders over five months in interviews, workshops, user testing and informal conversations to co-design a service that supports young people transitioning from school to adulthood. This involved 40+ young people on the spectrum, parents, and allied health and education professionals.

**Results.** The five-stage process we used to design our service is described: Discovery; Problem exploration; Solution exploration; Market validation; and Preparation for growth and scale. The

service design process is three-quarters complete and the final design will be available to share in December.

**Conclusion.** Through our reflections of the BOOST-A knowledge translation journey, we challenge the research community to consider how they might engage key stakeholders in a process to find market opportunities to turn their own research outputs into a service that is beneficial and valued by the community.

#### **Stream 4: 12:00-12:45: Adulthood: Health & Sexuality**

##### *17: What qualitative evidence exists about the sexual health literacy of young women on the autism spectrum? A systematic review*

Vanessa Thomas, Abirami Thirumanickam, & Jessica Gunson

**Background.** There is little research around girls and young women on the autism spectrum who identify as other than heterosexual and even less to be found that addresses the sexual health literacy of the same population. It is hypothesised that members of this population do not assimilate sexual health information as it is commonly delivered via school-based sex education programs, and therefore have lower sexual health literacy and more difficulty forming sexual identity than neurotypical peers.

**Aims.** To explore the intersection of sexual health literacy and formation of sexual identity for young women on the autism spectrum.

**Method.** Design: systematic review. Inclusion criteria: Studies conducted between January 2000 to September 2018, including female participants with a diagnosis of Autism Spectrum Disorder or Asperger's syndrome without intellectual disability. Inclusion of studies will be assessed at two levels: (a) title and abstract checks, and (b) quality appraisal of studies that were included following the title and abstract checks. Inter-rater agreements will be conducted by the authors independently at both levels.

**Results.** The systematic review is currently in progress and preliminary findings will be available by December 2018.

**Conclusion.** As awareness and diagnosis of autism in females are increasing, little is known about how this population attains sexual health literacy or forms sexual identity. The proposed systematic literature review will inform future research, which will form the basis of improved supports.

##### *104: Investigating Transactional Thought Processes as a Motive behind Autistic Female Sexuality*

Laura Anne Pecora & Mark Stokes

**Background.** Preliminary insights into the sexuality of females with Autism have suggested a profile marked by increased vulnerabilities to sexual victimisation and abuse. Importantly, these data have revealed a mismatch between sexual interest and experience. Autistic women often report engaging in sexual behaviours that were unwanted, or later regretted. There is limited understanding of the specific factors that are contributing to the motives driving sexuality, and the subsequent vulnerabilities for autistic women.

**Aims.** As a means of identifying the motives leading to these regretted outcomes, this study compared the social, sexual, and romantic functioning.

**Methods.** 295 women (Autistic n=134; Typically Developing n=161) completed the Sexual Behaviour Scale-III (SBS-III) online. Data measured the self-reported responses of participants across social, sexual and romantic domains.

**Results.** As hypothesised, autistic females presented with (1) lower levels of social insight ( $p < 0.001$ ), (2) greater instances of social victimisation ( $p < 0.001$ ) and (3) difficulties initiating relationships ( $p < 0.001$ ); yet (4) comparable levels of interest in romantic relationships to TD females ( $p = .05$ ). Additionally, autistic females were more likely to endorse transactional processes when describing

their (5) motives behind sexual behaviour ( $p < .01$ ), and (6) behaviours used to initiate relationships ( $p < .01$ ).

**Conclusions.** Findings indicate that features of Autism interfere with the abilities of many women to obtain the sexual knowledge and social supports they require to approach social interactions. Moreover, concrete thinking styles observed in this group lead many autistic women to engage in sexual behaviour as a means of facilitating relationships. The significance of these results is that these findings raise important implications, suggesting that autistic women may engage in unwanted sexual behaviours in attempts to establish relationships, and may not have the skills and knowledge needed to develop appropriate relationships, and may benefit from interventions to develop these.

## *82: Identifying the online health information needs of adults on the autism spectrum with intellectual disability using an inclusive methodology*

**Katie Brooker**, Nick Lennox, David Harley, Ava Ruth Baker, Helen Darch, Hank Szeto, Samuel Arnold, & Anna Urbanowicz

**Background.** Adults on the autism spectrum with intellectual disability have unique health and wellbeing needs. It is important individuals and their support people can access health information. The internet can provide useful health information, however, many websites are not appropriately designed and include unsuitable content for this population group.

**Aim.** To develop for adults on the spectrum with intellectual disability (1) design recommendations for health information websites and (2) refine an inclusive methodology for website design and delivery.

**Method.** An inclusive approach was taken; an autistic adult was part of the team and the active engagement of adults on the spectrum with intellectual disability was sought. Before participating in a semi-structured interview about using the internet to find health information, participants completed a survey about their preferences and needs for the interview. This information was used to inform strategies to support the individual during data collection. Additionally, support people participated in a focus group about their experiences of using the internet to find health information for the individual they support. A mock website, based on the initial findings, was developed and piloted with participants who provided further feedback on content and design.

**Results.** The design and content needs of adults on the spectrum with intellectual disability were identified and a protocol was developed for the inclusion of adults on the spectrum with intellectual disability in research. The protocol included strategies and tools such as social stories about the interview, a visual interview schedule and the option to use stop cards.

**Conclusions.** The findings will inform recommendations that can be implemented to enable greater access to health information for adults on the spectrum with intellectual disability and their support people. The inclusive methodology employed in this research can be adopted by other researchers working with this population group.

## **Stream 5: 12:00-12:45: Early Diagnosis and Screening**

### *85: Early detection of autism using a mobile application: ASDetect*

**Josephine Barbaro**, Nancy Sadka, Wojciech Nadachowski, Mike Burnside, Lachlan Burnside, Cheryl Dissanayake, Mick Leahy, Melinda Denham, & the ASDetect team

**Background.** Early detection of autism is critical as it provides access to early intervention, improving children's developmental outcomes and quality of life. Two large-scale community-based studies for the early detection of autism have been conducted within the Victorian Maternal and Child Health (MCH) system, using Social Attention and Communication Surveillance; SACS; Barbaro & Dissanayake, 2010; 2013). Monitoring over 30,000 children, the SACS has a positive predictive value (PPV; accuracy) of 81%, and estimated sensitivity and specificity of 76.5% and 99.5%. To make this research accessible to the world's population, a free mobile app based on the SACS (ASDetect) was developed.

**Aim.** To determine the psychometric properties of ASDetect in sensitively and accurately identifying children with autism.

**Method.** Parents of children aged between 11-30 months are invited to participate via their MCH nurse or social media. Parents register their child's details on a webpage, download ASDetect, and complete an assessment. All children at 'high likelihood' for autism, and a small percentage of children at 'low likelihood' for autism, are invited for a diagnostic assessment by the ASDetect team. Children are assessed at intake and every 6 months until 24-months, with gold-standard instruments (ADOS, MSEL, ADI-R, Vineland) administered.

**Results.** To date, 410 parents have registered, with 328 completing an assessment. 63 children (19%) were identified at 'high likelihood' for autism, with 27 of the 32 children assessed thus far meeting criteria for autism; the remaining children had developmental/language delays. Updated results will be presented at the conference.

**Conclusions.** These preliminary data show very promising results for ASDetect's positive predictive value (PPV; accuracy) in identifying children with autism. However, more data are needed to determine its overall psychometric properties, and acceptability by parents and professionals, which will continue to be collected until 2019, with all children followed up to 30-months-of-age.

*28: Early detection for better outcomes: building capacity and partnership with early childhood professionals*

**Beth Mozolic-Staunton**, Josephine Barbaro, Michelle Donnelly, & Jacqui Yoxall

**Background.** Valid and reliable tools can accurately detect early signs of Autism Spectrum Disorder (ASD) and other developmental challenges in young children. Translation of research findings to practice and policy through routine implementation of evidenced-based tools in the community, particularly early childhood education settings is limited and a two year delay for young children with early signs of ASD in accessing diagnostic assessment and early intervention persists in many communities.

**Aims.** The study aimed to compare the effectiveness of developmental monitoring using broadband open questions completed by parents with the Social Attention and Communication Surveillance system (SACS-R), a targeted checklist of key markers for ASD and developmental delay completed by educators or nurses. Perspectives on challenges to implementation in community settings was explored.

**Methods.** A comparison of results of developmental monitoring practices was conducted in two separate prospective, longitudinal cohort studies to establish reliability and validity of procedures across health and education settings.

**Results.** This study established that the interrater reliability of early childhood educators in administering the Social Attention and Communication Surveillance System (SACS-R) is similar to nurses and is very high ( $k = 0.909$ ). Reliance on parent report alone as is current practice in many communities, has the potential to miss nearly half of children undergoing developmental monitoring.

**Conclusions.** Highly likely cases of ASD in this study would have gone undetected if SACS-R was not used during a child's visit to a health check or in their childcare setting. Results support the implementation of the SACS-R across health and education settings as a reliable and valid method of early detection of children with ASD and consideration of perceived challenges informs policy and practice in the childcare sector which presents an ideal opportunity for ongoing developmental surveillance and appropriate, timely referral of young children to essential early intervention supports.

117: *Development and Preliminary Data of Checklist for Autism Spectrum Disorder Screening for Preschool Teachers (CAPT-S) in Singapore*

Yong-Hwee Nah

**Background.** The screening process is an important step in the diagnostic procedure/identification of Autism Spectrum Disorder (ASD). However, little is known about the contribution of information obtained from teachers over and above the information obtained from parents in the identification of ASD. In addition, there are limited tools developed for preschool teachers to aid them in identifying these children with possible ASD.

**Aim.** This study described the development of a Checklist for ASD screening for Preschool Teachers (CAPT-S) in Singapore that is easy for preschool teachers to use to identify ASD in mainstream preschoolers from 3-6 years old. The CAPT-S is a 12-item checklist for the preschool teachers to report on their students' current social interaction and communication, and behaviors. Items are based on the current DSM-5 criteria (APA, 2013). The checklist provides an overall score based on a 4-point Likert scale on frequency of observed behavior [1 = 'rarely', 2 = 'sometimes', 3 = 'often' and 4 = 'almost always'], resulting in a minimum of 12 and a maximum of 48.

**Method.** Participants consisted of 101 preschool teachers (mean age = 29.6 years; SD = 9.6) teaching in mainstream preschool centres located in Singapore to complete the CAPT-S.

**Results.** Preliminary results of this study indicated high reliability in terms of internal consistency and moderate test-retest reliability of the CAPT-S. Diagnostic validity of the CAPT-S was also established, and even after controlling for teachers' years of working experience with special needs. Receiver Operating Characteristic (ROC) analysis was used to determine the CAPT-S's optimal cutoff score to differentiate between children with reported diagnosis of ASD and typically developing children. Using a cutoff score of 24 produced sensitivity of .97 and specificity of .89.

**Conclusion.** Preliminary results indicated that the CAPT-S may be suitable for preschool teachers to use to identify children with possible ASD.

**Stream 6: 12:00-12:45: Parents and Family**

44: *Parent decision-making regarding interventions for their child with Autism Spectrum Disorder*

Meghan Wilson, Tom Whelan, Lisa Milne, Diane Jacobs, & David Hamilton

**Background.** There are hundreds of interventions available for children with ASD and the responsibility to select from among them largely falls to parents. Misinformation, and the availability of ineffective treatments, complicate decision-making. With the exception of behavioural approaches, few interventions have empirical support and there are concerns about the efficacy and potential risks of many of the alternative treatments that continue to be used (e.g., dietary interventions).

**Aim.** Parents' reasons for pursuing particular interventions are not yet well understood. The aim of this qualitative study was to extend knowledge on intervention decision-making by exploring the reasons that parents provide for their choices.

**Method.** Parents of primary-school aged children were interviewed about their beliefs about their child's diagnosis of autism, the interventions or therapies that they have tried, and their reasons for selecting these interventions. Interview transcripts were analysed using a thematic analysis approach to identify prominent themes across interviews.

**Results.** The themes identified in the data contribute to an understanding of how and why parents select particular interventions.

**Conclusions.** It is important to understand parent perspectives on intervention decision-making. A better understanding of how and why parents choose interventions will help to inform strategies for shared decision-making and approaches that support parents to make well informed decisions.



## 20: *Maintaining relationship satisfaction in couples raising a child with autism*

Angela Chamberlain, Torbjorn Falkmer, Reinie Cordier, Sharmila Vaz, & Sofi Fridstedt

**Background.** Raising a child with autism can have a pervasive, dynamic and enduring impact on the entire family system, the keystone of which is the couple relationship. Couples' responses to these challenges are diverse. It is unclear why some adapt positively, while others do not. Little research has explored positive outcomes despite evidence that relationship satisfaction can be a protective resource in families managing these challenges.

**Aim.** To explore relationship satisfaction in couples raising a child with autism and how it can be maintained.

**Method.** A three-phased, mixed-method approach using an explanatory-exploratory sequential design was used to address the research aim. Phase one comprised a cross-sectional survey (N=127) to determine levels of relationship satisfaction, factors associated with it, and screen participants for the ensuing phases. Phase two involved couple interviews. Phase 3 comprised a Q-methodological study.

**Results.** The survey revealed two-thirds of parents reported relationship satisfaction, associated with low stress and dyadic coping strategies. Greater use of positive dyadic coping had a stronger association than reduced use of negative dyadic coping. Interviews showed that partnership was a common essence in relationship satisfaction, achieved through shared views and experiences, and teamwork. The Q-sort revealed priority areas of communication and sharing responsibilities in maintaining relationship satisfaction.

**Conclusions.** Despite being at greater risk of relationship dissatisfaction than other parents, many couples raising a child with autism maintain relationship satisfaction, attributed to factors intrinsic to the relationship; dyadic appraisal and coping. This is promising as these characteristics are amenable to change. Findings revealed positive outcomes that can provide hope, motivating couples to prioritise their relationship alongside child-centred goals to promote family resilience and optimise developmental, behavioural, and therapeutic outcomes in children. Based on the findings, a theoretical model has been developed to map future research and support a strengths-based, family-centred approach to clinical practice.

## 12: *Characterising the Broader Autism Phenotype in Relatives of Individuals with High Functioning Autism Spectrum Disorder*

Cherie Christine Green, Annie E. Richard, Keri Pereira, Sarah J. Wilson, & Ingrid E. Scheffer

**Background.** High Functioning Autism Spectrum Disorder (ASD)(HFA) refers to ASD with normal intellect. HFA is a pure ASD phenotype, not compounded by intellectual disability, and it provides an opportunity to look for ASD traits in relatives. Relatives of individuals with ASD often have mild traits, commonly referred to as the 'broader autism phenotype' (BAP). It is assumed that there is a graded degree of severity across the spectrum, from HFA to BAP to unaffected, however this has not been tested in a single study phenotyping all family members.

**Aims.** We aimed to characterise the BAP in relatives of individuals with HFA. We hypothesised that relatives would have BAP features with a graded expression of ASD traits and co-morbid features across the groups, with the BAP group showing an intermediate expression between an unaffected and HFA group.

**Method.** 34 families of individuals with HFA were phenotyped, totaling 124 participants (65 HFA, 48 BAP, 11 Unaffected). Core ASD features, cognition, executive functioning, theory of mind, and common co-morbid features such as anxiety and depression were measured.

**Results.** A Fisher's exact test found clinician ratings of ASD traits and classification status (i.e., BAP or unaffected) significantly correlated with self- and informant-ratings. One-way between groups ANOVA found significant group differences for ASD traits and co-morbid features. A graded expression of traits was found, with the BAP group showing more ASD traits than the unaffected group, and fewer than the HFA group. Similar results were found for co-morbid features, with the

BAP group having high levels of internalising and externalising behaviours. The BAP group had an uneven cognitive profile and mild impairments in executive functioning.

**Conclusions.** A graded degree of severity of ASD traits and co-morbid features was found across the spectrum amongst relatives of children with ASD, from HFA to BAP to unaffected.

### **Stream 7: 2:15-3:00: Adults and Diagnosis**

75: *"The single most important thing that has happened to me in my life": Preliminary Investigation of the Impact of Diagnosis Scale – Revised (IODS-R)*

Dr Samuel Arnold, Lauren Lawson, Jane Hwang, Amanda Richdale, & Julian Trollor

**Background.** Awareness and diagnosis of autism in adulthood and adolescence is on the rise. Studies have considered the impact of receiving a diagnosis of autism for parents of children on the spectrum, though only few small primarily qualitative studies have considered the self-reported impact of receiving a diagnosis.

**Aims.** The Impact of Diagnosis Scale (IODS) (Courtney & Makinen, 2016) was initially developed with a focus on borderline personality disorder. Our aim was to revise and trial a version suitable for adults on the spectrum.

**Methods.** The research team and a group of autistic advisors revised the IODS items for suitability and accessibility to participants on the spectrum. Participants were drawn from the Autism CRC longitudinal studies. After removing participants who could not specifically recall receiving their diagnosis, data from 76 adults and adolescents on the spectrum was analysed. Principal component factor analysis was used to explore potential factors, and a brief thematic analysis conducted of qualitative items responses.

**Results.** Factor analysis suggested a three-factor solution for the 11 items (7 point Likert scale) of the IODS-R, with preliminary subdomain titles of "Service Access (SA)", "Well-being (WB)" and "Self-Acceptance and Understanding (SU)". Cronbach's  $\alpha$  was acceptable overall and for subdomains though questionable for "Self-Acceptance and Understanding", potentially as only composed of three items. Item mean subdomain scores (SA M=4.26, SD=.98; WB M=4.95, SD=1.19; SU M=5.96, SD=1.06) suggest a neutral service access improvement, positive well-being improvement, and very positive self-understanding impact. Many commented on the lack of appropriate community services, and mostly positive experiences of "relief" and self-understanding, though also of diagnostic overshadowing.

**Conclusions.** The IODS-R, with further development, may be useful to understand the phenomenon and experience of receiving an autism diagnosis. The scale may also be useful in other conditions and has potential clinical applications.

### 88: *Diagnostic Overshadowing in Autistic Women*

Claire Brown, Matthew Fuller-Tyszkiewicz, Isabel Krug, & Mark A. Stokes

**Background.** Research indicates that autistic women are likely to experience comorbid mental health conditions including eating disorders (EDs), depression, and anxiety. However, it is unclear how these conditions impact the accurate detection and diagnosis of Autism Spectrum Disorder (ASD). It was hypothesised that autistic women would not receive a primary diagnosis of ASD, as it would be obscured by mental illness.

**Method.** We recruited 947 women between 18 and 72 years (M= 33.03, SD= 9.98) online. The sample contained 430 autistic women, 328 women with an ED diagnosis, 130 women with both ASD and ED diagnoses, and 319 typically developing women (TD). Self-declared diagnoses were confirmed using the Autism Spectrum Quotient (AQ) and Eating Attitudes Test (EAT-26). Depression and anxiety were assessed with the Depression, Anxiety, Stress Scale (DASS-21).

**Results.** Chi-square analysis found 39.6% of women with an ED were also autistic  $\chi^2(1)$  (N=130) = 6.75,  $p=.009$ . Of those, 86.7% received the ED diagnosis first, with M=12.07 years (SD= 9.54) delay before receiving an ASD diagnosis. Independent t-tests revealed significant differences in DASS-21

Depression scores in autistic ( $M = 17.06$ ,  $SD = 5.52$ ) and TD women ( $M = 16.34$ ,  $SD = 5.88$ ), indicating elevated levels of depression symptomology ( $t(903) = 3.32$ ,  $p < .001$ ). They also revealed significant differences in DASS-21 Anxiety scores for autistic women ( $M = 16.64$ ,  $SD = 4.57$ ) and TD women ( $M = 15.15$ ,  $SD = 4.63$ ) groups indicating elevated anxiety symptomology ( $t(903) = 4.84$ ,  $p < .001$ ).

**Conclusion.** Autistic women were more likely to have an ED than ASD as their primary diagnosis, and faced substantial delays before their ASD was detected and diagnosed. Autistic women also displayed more depression and anxiety symptoms than TD women. This suggests diagnostic overshadowing has occurred, as ASD symptoms were misattributed to mental health conditions. It highlights the necessity for greater understanding of female ASD presentation, and the use of female-centric screening tools in women with mental illness.

#### *66: Development of a national guideline for the assessment and diagnosis of autism spectrum disorders in Australia*

Dr Kiah Evans, Professor John Wray, Professor Valsamma Eapen, & **Professor Andrew Whitehouse**

**Background.** Diagnosis of autism spectrum disorder (ASD) is a challenging issue and 'gold standard' diagnosis is presently a best estimate clinical judgement. However, this is not straightforward due to symptom variability and overlap with other conditions. A recent review identified considerable variability across Australia in diagnostic practices, which has likely contributed to uneven service provision and confusion.

**Aims.** This project aimed to develop a guideline that: (1) describes a rigorous framework for accurately determining if diagnostic criteria for ASD is met; (2) outlines an approach to identify support needs; (3) contains sufficient flexibility to apply to the assessment of an individual of any age, gender, cultural or language background, communication or intellectual capacity, and medical complexity, living anywhere in Australia; (4) describes a feasible process to administer across all public and private community settings; and (5) meets the needs and expectations of individuals being assessed and their caregivers.

**Method.** A series of activities were conducted to ensure this guideline adhered to best practice standards, including: (1) Steering Committee comprised of consumer and professional peak bodies; (2) series of scoping and systematic reviews (3) community consultation via online submissions, workshops, Delphi surveys, Viewpoint surveys and individual interviews; (5) development of recommendations with supporting evidence tables; and (6) revisions in response to feedback on multiple versions from the public, peak bodies, international methodological/topic experts and NHMRC Council.

**Results.** Autism CRC has developed a national guideline for the assessment and diagnosis of ASD in Australia that outlines guiding principles, a coordinated assessment process (comprehensive needs assessment and diagnostic evaluation), required training/expertise, information collection strategies/settings, guidance for sharing findings, important considerations for specific populations and future practice points.

**Conclusions.** Implementation of this guideline within disability, health and education sectors across Australia will improve national consistency and promote service delivery based on functioning and need.

#### **Stream 8: 2:15-3:00: Early Support**

##### *83: Comparing Short-term Outcomes for Pre-Schoolers with ASD receiving Group-Based versus One-on-One Early Start Denver Model (ESDM) Intervention*

**Cherie Green**, Cathy Bent, Kristelle Hudry, & the Victorian ASELCC Team

**Background.** The Early Start Denver Model (ESDM) is an intensive intervention for young children with Autism Spectrum Disorder (ASD). The individually delivered approach (i.e., one-on-one) has evidence of efficacy for accelerating children's cognitive development and building adaptive behaviours from one published randomised controlled trial (Dawson et al., 2010). A group-delivery

approach has also been developed for implementation within educational settings (Vivanti et al., 2017), which has some published evidence of effectiveness via evaluation of child pre-and post-treatment outcomes (Vivanti et al., 2014). To date the two formats have not been directly compared, nor have gains been evaluated in the short-term (i.e., following one Semester of either program).

**Aims.** We will compare the short-term gains made by children within the first 5 months of participation in a study comparing outcomes across two types of therapist-delivered approach to ESDM – group-based and individually-delivered programs.

**Method.** Early childhood educators and allied health professionals/paraprofessionals from the Victorian Autism Specific Early Learning and Care Centre (ASELCC) provide ESDM to children: 1) in the ASELCC Playrooms group setting, and 2) one-on-one in the child's home or local community child care via the Autism Playmates program. We are assessing developmental gains made by children in the initial 5-month intervention period, and will compare the two formats. Developmental abilities are assessed using the Mullen Scales of Early Learning and adaptive behaviours using the Vineland Adaptive Behaviour Scales (parent interview). Gains in skills specifically targeted by the ESDM intervention are measured using the ESDM Curriculum Checklist.

**Results and Conclusions.** By November 2018 we will have 5-month outcome data for 15 children completing the group-based and 10 children completing the one-on-one program. We will present developmental and behavioural profiles for children following 5 months of intervention to inform the relative short-term effectiveness of one vs. other approach.

#### 120: *Speech and Non-Speech Vocalisation changes over time in Children with ASD*

**David Trembath**, Marleen Westerveld, Srinivas Teppala, Abirami Thirumanickam, Rhylee Sulek, Veronica Rose, Madonna Tucker, Jessica Paynter, Orit Hetzroni, Deb Keen, & Giacomo Vivanti

**Background.** The Language ENvironment and Analysis (LENA) system may help elucidate the communication trajectories of children with Autism Spectrum Disorder (ASD), through automated analysis of speech and non-speech vocalisations. Our aim was to examine possible changes on these measures over time, including factors that may account for differing trajectories, in children with ASD.

**Methods.** Using a longitudinal cohort design, 23 children with ASD (17M, 6F; ages 32-67m) completed monthly LENA recordings while attending early intervention over 10 months. The primary outcomes were Child Vocalisations per minute and their Vocalisation Ratio of speech to non-speech sounds. Standardised measures of language, cognition, and ASD characteristics were also administered.

**Results.** Using hierarchical generalized linear methods, we found significant time-trends for Child Vocalisations ( $p < .001$ ) and Vocalisation Ratio ( $p = .02$ ), reflecting a waxing and waning pattern. Children with higher expressive language scores (Mullen Scales, Vineland-II) and non-verbal cognition (Mullen Scales), and fewer ASD characteristics (Social Communication Questionnaire) demonstrated greater increases in the Vocalisation Ratio over time ( $p$  values .04 – .01). Children with greater language and cognition difficulties were the most vocal, but produced a greater proportion of non-speech vocalisations.

**Conclusion.** We found significant fluctuations in children's vocalisations over 10 months, rather than a uniform linear increase, with different patterns related to children's communication, cognition, and ASD characteristics. Our findings indicate that examining what children say (i.e., Vocalisation Ratio), as opposed to simply how much they say (Child Vocalisations), via LENA may have greater clinical and research value.

### 13: *Characteristics associated with individual differences in developmental gains across one year of early intervention*

**Cathy Bent**, Maya Yaari, Cherie Green, Kristelle Hudry, & the Vic ASELCC team

**Background.** Many children with autism benefit from intensive early intervention. However, individual response to intervention varies greatly and little is known about the profile of skills that may be associated with more favourable outcomes.

**Aim.** To identify specific skills and behaviours that are associated with the amount of developmental gains made across one year of early intervention following the Group-Early Start Denver Model (G-ESDM).

**Method.** Participants are a cohort of 111 children (M age = 2.7 years at intake; range 1.2 – 4.8) who received the G-ESDM at the Victorian Autism Specific Early Learning and Care Centre between 2015 and 2017. The Autism Diagnostic Observation Schedule (ADOS-2) was conducted at intake to the program, and single items representing key skills were examined as potential predictors. The primary outcome of interest was change in Verbal and Non-Verbal age equivalent scores on the Mullen Scales of Early Learning (MSEL), which was administered at intake and after approximately 1-year of intervention.

**Results.** Preliminary multiple regression analyses conducted with a subsample of the cohort (N=65), suggest that – controlling for child age – pointing and response to joint attention were significantly associated with change in MSEL Verbal age-equivalence. Pointing and functional play were associated with change in Non-Verbal MSEL age-equivalence. Final analyses will be conducted with the complete sample and will include adjustment for amount of intervention received (i.e., dose), which varies plausibly between 9 and 21 hours per week.

**Conclusions.** Identifying specific skills and behaviours that are associated with more favourable developmental outcomes may help to inform future treatment decisions for pre-schoolers with autism. However, in order to disentangle predictors of intervention outcomes from indicators of a generally better developmental prognosis, further research involving appropriate comparison groups is needed.

### **Stream 9: 2:15-3:00: Social Cognition and Social Skills**

#### *97: Do children with autism enact characters' actions? Comparison of character- and observer-viewpoint gestures in children with autism and neurotypical preschool children*

**Miranda Kit-Yi Wong & Wing-Chee So**

**Background.** Children with Autism Spectrum Disorders (ASD) have specific difficulties in understanding others' beliefs and taking others' perspectives. Those difficulties may be revealed in their narratives and in their viewpoints of iconic gestures (Parrill, 2012). However, very few studies have examined the gesture viewpoint in individuals with ASD.

**Aims.** The present study aimed to examine the gesture viewpoint in preschoolers with ASD, in comparison to their neurotypical peers, in order to understand their abilities in taking others' perspectives. Their language and communicative skills, Theory of Mind understanding, and motor skills were also assessed.

**Method.** Preschool Cantonese-speaking neurotypical children (N=22) and preschool Cantonese-speaking children with autism (N=19) participated in this study. All children were presented with a picture about a cat climbing a tower and asked to narrate a story (Wong & So, 2016, 2018). We transcribed their speech and coded their use of character viewpoint (CVPT) and observer viewpoint (OVPT) gestures co-occurring with speech.

**Results.** We analyzed the gesture viewpoints both groups of children adopted when describing the actions of the characters. After controlling for language and communicative skills, Theory of Mind understanding, and motor skills, a significant two-way interaction of group X viewpoint,  $F(1,36)=8.016$ ,  $p<.008$ , partial  $\eta^2=.182$ , was found. Neurotypical children tended to produce more

CVPT gestures than OVPT gestures when mentioning the characters' actions in their stories ( $p < .001$ ), but this pattern was not found in children with ASD ( $p < .933$ ).

**Conclusions.** Unlike neurotypical children who are able to take the characters' perspectives in their narrations by producing more CVPT gestures, preschool children with ASD seem not be able to do so.

*69: Evaluating the feasibility and acceptability of KONTAKT for adolescents on the Autism Spectrum: A social skills group training*

**Bahareh Afsharnejad**, Sonya Dirdler, Sven Bolte, & Marita Falkmer

**Background.** KONTAKT is a manualized Social Skills Training Group (SSTG) program designed for children and adolescents with ASD which has shown effectiveness in reducing parental stress and improving the social skills, behaviour and overall functioning of children and adolescents with ASD.

**Aim.** To evaluate the feasibility and acceptability of an Australian English version of KONTAKT.

**Method.** This has been examined in two phases: 1) Running focus group interviews with clinicians experienced in delivering social training for adolescents in Australia with a focus on the feasibility of the program and its modifications for the Australian context; 2) A pilot KONTAKT program which was delivered to 16 adolescents (5 females and 11 males) aged 12-17 with a confirmed diagnosis of ASD with an IQ of above 70, and intrinsic motivation to attend a social group. Participants attended a weekly 90 minute KONTAKT SSTG for 16 weeks. Groups consisted of 6-8 participants and was moderated by two trainers. The effectiveness of the program was explored through pre-post and follow up assessments of outcome measures: 1) The goal attainment scaling (adolescents' perceived success in achieving their social goals); 2) Social Responsiveness Scale (parent's perception of ASD symptom severity).

**Results.** Based on the focus groups, the KONTAKT program content was largely acceptable and only minor cultural modifications of the program such as re-naming activities, was needed. Preliminary results from phase two indicate that some participants achieved their goals during the training and experienced less ASD related symptoms as reported by parents.

**Discussion.** These results suggest that an Australian version of KONTAKT is perceived as feasible and acceptable by Australian clinicians and participants, and provides preliminary evidence of the effectiveness of KONTAKT in achieving adolescent's social goals and improving social responsiveness. Implications for the effectiveness of KONTAKT as a SSTG program will be discussed.

*111: A systematic review on the psychometric properties of self-report school connectedness measures – implications for measurement with students with Autism Spectrum Disorder*

**Amy Hodges**, Reinie Cordier, Annette Joosten, Helen Bourke-Taylor, & Renee Speyer

**Background.** School connectedness has received growing attention due to its impact on health, social and academic outcomes. Many students with Autism Spectrum Disorder (ASD) experience difficulty developing a sense of belonging and connectedness at school. There is limited evidence on effective ways of promoting school connectedness in students with ASD in the primary school context. To understand this phenomenon in the ASD population and develop effective school based supports, researchers and educators need to gain clarity on the construct of school connectedness and have access to valid and reliable instruments that measure school connectedness from the students' perspective.

**Aim.** To discuss the implications to the ASD population, of findings from a systematic literature review on the psychometric properties of self-report measures of school connectedness for students aged 6 to 14 years.

**Methods.** A systematic search of five electronic databases and grey literature was conducted. The CONsensus-based Standards for the selection of Health Measurement INSTRUMENTS (COSMIN) taxonomy of measurement properties was used to evaluate the quality of studies and pre-set psychometric criteria were used to evaluate the overall quality of psychometric properties.



**Results.** Fifteen school connectedness components were categorised thematically under affective, cognitive and behavioural domains; collectively encompassing the construct of school connectedness and critical dimensions of students' experience at school. The School Climate Measure and the Student Engagement Instrument had the strongest psychometric properties and measured the most school connectedness components.

**Conclusions.** The quality of psychometric properties of measures was limited, suggesting school connectedness measures require further development and validation. Future research should focus on establishing construct validity, and in particular content and face validity, and explore how school connectedness can be validly and reliably measured in the ASD population given the characteristics of ASD (e.g., difficulty expressing thoughts and feelings and interpreting subtle social nuances in the school environment).

### Stream 10: 3:15-4:00: Adults

35: *"It's changed a lot since then": Patterns of continuity and change in the psychosocial outcomes of young autistic adults followed from childhood*

Liz Pellicano, Serena Cribb, & Lorcan Kenny

**Background.** Long-term longitudinal studies have consistently demonstrated that the developmental outcomes of autistic individuals are highly variable, even for cognitively able individuals. Yet, all of these studies have focused on those aspects of functioning – including intellectual functioning, autistic features and adaptive functioning – deemed to be critical by non-autistic researchers, rather than autistic people themselves.

**Aims.** Here, we sought to examine the long-term psychosocial outcomes of a group of cognitively-able young autistic people followed from childhood using a unique combination of normative and phenomenological approaches.

**Method.** Twenty-eight participants were seen at three time points over a 12-year period (M age at current follow-up: 17 years; 10 months; SD = 1;3). We adopted a standard, normative approach to examine developmental changes in diagnostic outcomes (ADOS), autistic features (Social Communication Questionnaire) and adaptive functioning (Vineland-2) over 9- or 12-year periods. We also adopted a phenomenological approach in which we conducted semi-structured interviews with young people themselves to understand their own subjective experiences of their current functioning, as they approached emerging adulthood.

**Results.** The group showed considerable stability in their diagnostic outcomes and autistic features, at least over a 9-year period. This stability, however, was not mirrored in their adaptive functioning, which saw marked declines over the same period. While these often-substantial everyday challenges aligned well with the young people's subjective reports, the findings also showed that there was no straightforward one-to-one mapping between self-reported experiences of being autistic and standard, researcher-defined measures of severity.

**Conclusions.** The apparent plateauing of developments in autistic features and deterioration in adaptive functioning call for sustained and targeted interventions during adolescence in those areas that matter most to young people themselves – including their developing executive control, self-determination and positive self-perceptions.

79: ePoster: *The development of social competence in autistic university students through specialist peer mentoring*

Craig Thompson, Torbjörn Falkmer, Sven Bölte, & Sonya Girdler. Presenter: **Marina Ciccarelli**

**Background.** University environments are inherently unpredictable and have high social demands, which some autistic students may find overwhelming. This unpredictability also serves to exacerbate executive functioning difficulties, such as planning and prioritising tasks.

**Aims.** The aim of this study was to explain the impact of specialist peer mentoring (SPM) on the symptoms of autism and to explore the experiences of autistic university students participating in SPM.

**Method.** A total of 30 (8 female and 22 male; mean age=22.3; SD=6.7) autistic university students engaged in the Curtin Specialist Mentoring Program and UWA Specialist Peer Mentor Program participated in this study; with 18 (5 female and 13 male; mean age=22.5; SD=9.9) completing both aspects of the study. Seven (2 female and 5 male; mean age=22.3; SD=3.5) only completed the quantitative aspect and 5 (1 female and 4 male; mean age=21.0; SD=8.9) participated only in the interview. A convergent mixed-methods approach was utilised, including a pre-test post-test design to examine the changes in symptomology experienced by autistic university students. In parallel, the experiences of participating in a SPM were explored through semi-structured interviews.

**Results.** Significant improvements were noted on the Total SRS-2 ( $M_1=89.72$ ,  $SD_1=24.00$ ;  $M_2=79.66$ ,  $SD_2=26.66$ ;  $t(17)=2.52$ ,  $p=0.02$ ). Significant differences were also observed in the SRS-2 Social Communication ( $M_1=29.94$ ,  $SD_1=7.89$ ;  $M_2=25.50$ ,  $SD_2=11.29$ ;  $t(17)=2.24$ ,  $p=0.03$ ) and Social Motivation ( $M_1=18.22$ ,  $SD_1=5.88$ ;  $M_2=16.00$ ,  $SD_2=5.91$ ;  $t(17)=2.27$ ,  $p=0.03$ ) sub-scales. Thematic analysis of the interviews revealed five themes: Developing Partnership and Understanding, Engagement, Modelling and Practising Communication, Psychological Support and Grading and Planning Skills.

**Conclusion.** These results indicated that the mentor-mentee partnership is central to the success of SPM at university. This partnership appears to modify social cognition and motivation for autistic university students. The partnership with an experienced student allowed autistic university students to develop strategies to manage their studies and social communication challenges, which maximised social competence.

## 2: ePoster: *Transition to higher education for students with autism: A systematic literature review*

Alison Nuske, Fiona Rillotta, Michelle Bellon, & Amanda Richdale

**Background.** Increasing numbers of students with ASD are enrolling in higher education in recent years. Successful transition into higher education is related to improved outcomes. Research into supporting students with ASD in their transition to higher education has been increasing in recent years.

**Aim/s.** This review aimed to provide an update of current research into the experiences of individuals with ASD and/or their family members of the transition to higher education.

**Method.** A systematic review of current literature was conducted to identify studies that met the inclusion criteria, describing the experiences of individuals with ASD and/or their family members in the transition to higher education. Studies were evaluated for quality using the McMaster Critical Review form: Qualitative Studies. Studies were explored using the bioecological theory model.

**Findings.** Eleven studies met the inclusion criteria. Findings indicated that individuals with ASD experience challenges associated with core and associated characteristics of ASD, self-disclosure and awareness, and mental health and wellbeing. Family members also reported challenges presented by systemic policies and procedures.

**Conclusion.** This review highlighted the limited research conducted into the transition experiences of individuals with ASD and/or their family members. It also highlighted the importance of individualised and flexible approaches to transition support for individuals with ASD, and the importance of increased knowledge, awareness and understanding of ASD for academic and professional staff in higher education institutions in supporting transition to higher education for these students.

112: ePoster: *Aspies@Work: The role of gender*

Susan M Hayward, Mark A Stokes, &amp; Keith R McVilly

**Background.** Meaningful employment is important to positive well-being. Women generally, and people with disabilities such as autism with no co-morbid intellectual disability, are suggested to be negatively impacted in the labour market.

**Aims.** As little is understood about workplace participation of women with autism, we aimed to understand how this differs to men with autism, and with reference to their same sex counterparts.

**Method.** Quantitative and qualitative data was gathered from 132 women and men with and without autism (i.e., typically developing; TD) via anonymous online survey. Quantitative data were analysed using regression ascertaining the impact of gender and/or autism on vocational type. Qualitative data were analysed using inductive thematic analysis to establish categories of occupational experiences. Comparative statistics were then used to determine if categories of experiences differed between participant groups based on gender and autism. Groups of women and men with autism were compared to determine the impact of gender. Further, individuals with and without autism were compared to determine differences due to autism.

**Results.** Gender did not influence workplace experiences. However, compared to TD men, autistic men were less likely to work full-time, and more likely to describe skilled-underemployment; these patterns were not observed in women. Autistic women and men were significantly more likely than their same sex TD counterparts to report unstable and negative experiences. Yet, autistic women, but not men, were more likely to describe difficulty finding and maintaining employment than their TD counterparts. Barriers were related to autism symptomology; primarily social-communication issues. Yet, compared to their TD counterparts, autistic women, but not men, were more likely to describe challenges with workplace relationships; conversely concerning lack of predictability. Enablers for autistic women included professional relationships, a pattern not evident among men.

**Conclusions.** Job-person-environment fit is essential to employment success of autistic women.

95: ePoster: *Adults' disclosure of their autism: a mixed methods investigation*

Yunhe Huang, Jane Hwang, Julian Trollor, &amp; Samuel Arnold

**Background.** Adults on the autism spectrum are exposed to a wide range of groups and situations in which they may disclose their diagnosis. However, the impact of disclosure remains underexplored for this population. Some qualitative evidence from young adults suggests that disclosure has important implications in self-identity, emotional and mental health, and relationships. It is important to understand the circumstances and effects of disclosure to support adults on the spectrum. This mixed-methods investigation aims to explore to whom adults disclose their diagnosis, as well as reasons/intent for disclosure.

**Methods.** The participants were 106 adults on the spectrum (mean age 45; range 27-71) who took part in a questionnaire-based study run by the Cooperative Research Centre for Living with Autism and completed a number of multiple choice and open-ended questions related to the disclosure of their diagnosis. Descriptive statistics were used to explore the proportion of adults who disclosed, demographic profiles, and situations of disclosure. Thematic analysis was conducted on participant's responses to the reasons and effect of their disclosure and future intent to disclose.

**Results.** The vast majority (94%) of participants had disclosed their diagnosis to others. Most had disclosed to immediate family (88%) and/or their partners (87%). A smaller proportion disclosed in work (67%) or higher education (61%) settings. No gender or age differences were found for which groups participants chose to disclose to. Preliminary analysis of the qualitative data suggests themes relating to self-acceptance, increasing awareness, effects of involuntary disclosure and the functional utility of disclosure.

**Conclusions.** Final findings will be interpreted considering advice from an autistic advisory group. Findings to date suggest that adults on the spectrum are more likely to disclose to others in order of

closeness and that the experience of disclosure may be described broadly in terms of its purpose and effect on self and relationships.

#### **Stream 11: 3:15-4:00: Intervention and Communication**

##### *4: A mixed methods analysis of factors that impact the efficacy of early intervention for young Australian children with autism, according to parents*

Jacqueline Gately

**Background.** The importance of early intervention to alleviate challenges associated with autism spectrum conditions in young children, and difficulties for families to access appropriate support, have been widely reported in academic research and the public domain.

**Aim.** The aim of the study was to develop an understanding of parents' assessment of the early intervention available to young children with autism spectrum challenges in Australia, as per the research question, "How well is the Australian early intervention system meeting the requirements of young children with autism and similar therapeutic needs, according to their parents?"

**Method.** Parents of young Australian children up to seven years of age diagnosed with autism spectrum conditions ( $n = 77$ ) or undiagnosed but with similar challenges ( $n = 6$ ) were recruited via autism advisory and support organisations and allied health professionals. Parents completed an anonymous online survey that included questions regarding their children's therapeutic needs, professional supports accessed, and parents' perceptions of the suitability of current and previously-accessed interventions. Results were analysed quantitatively and qualitatively.

**Results.** Almost half the families reported previously accessing unsuitable early interventions. The vast majority of interventions being accessed were non-intensive. Conventional content analysis of parents' comments regarding the suitability of interventions revealed four major themes: Suitability to Children's Needs, Professional Therapist or Agency, Access, and Communication with Parents, with eighteen sub-themes.

**Conclusions.** Investigation of the content and prevalence of the major themes and sub-themes for parents speaking either positively or negatively about current or previous supports revealed important information about what is working in early intervention, what is not working, and what is potentially of great concern. The findings highlight the in-depth involvement of parents in the intervention process, and could assist in the development of a model of best practice for the delivery of developmental autism support in Australia, and more suitable and individualised referrals and recommendations.

##### *92: Building Connections Tele-Therapy Pilot Program: a collaborative autism-specific intervention program delivered via technology in regional, rural and remote regions*

Genevieve Johnsson & Rachel Kerslake

**Background.** The rollout of individualised funding in Australia under the National Disability Insurance Scheme will enable increased funding for disability services Australia-wide including rural and remote areas. Geographical distance however, is a known barrier in the equitable access of disability and health services in these more remote parts. Issues of long waiting lists, extensive travel times, and lack of choice of specialist disability services are frequently reported in the literature.

Technology has the potential to provide a timely, low-cost alternative for therapy services where face-to-face specialist disability support is unavailable or inaccessible.

**Aims.** The aim of the current study was to expand the availability of autism-specific disability support in rural and remote Australia via tele-therapy (video-conferencing). As well as the direct delivery of intervention to the client and their family, the tele-therapy program also aimed to collaborate with the participant's support team including educators and allied health professionals to build local capacity and encourage generalisation of skills.

**Method.** Seventeen children (ages 2-12 years), along with their families and support teams (Educators and Allied Health workers) participated in the tele-therapy program. The program consisted of 1 goal setting, and 6 intervention sessions. All sessions were conducted online using

Zoom videoconferencing software in the child's home, school or preschool. Goal progress was measured using the Goal Attainment Scale. Data was also collected on confidence in implementing strategies across a broad range of areas, family quality of life, family stress, and accessibility and acceptability of the tele-therapy service.

**Results.** Quantitative and qualitative results are currently under analysis and will be presented at the conference in December.

**Conclusions.** Findings from the current study will inform the efficacy and feasibility of tele-therapy delivered services to individuals on the autism spectrum and their support teams in rural and remote areas.

*103: Who is a better teacher for children with autism? Comparison of learning outcomes between robot-based and human-based interventions in gestural production and recognition*

**Wan-Yi Lam**, Miranda Kit-Yi Wong, Chun-Ho Cheng, & Wing-Chee So

**Background.** Individuals with Autism Spectrum Disorders (ASD) tend to show deficits in engaging with humans. Previous findings have shown that robot-based training improves the gestural recognition and production of children with ASD. Additionally, this kind of training may reduce the gestural delay in children with ASD in their early childhood. However, it is not known whether social robots perform better than human therapists in teaching children with ASD.

**Aims.** The present study aims to compare the learning outcomes in children with low-functioning ASD from robot-based intervention on gestural use to those from human-based intervention.

**Method.** We designed and implemented an intervention protocol, which involved humans and robots as the teachers of children with ASD. Children aged six to 12 with low-functioning autism were randomly assigned to the robot group (N=12) and human group (N=11). In both groups, human experimenters or social robots engaged in daily life conversations and demonstrated to children 14 intransitive gestures in a highly-structured and standardized intervention protocol.

**Results.** The human group was as likely as the robot group to recognize gestures and produce them accurately in the training conversations. Similar patterns were found in non-training conversations and two weeks later when no training was provided. Thus, there were no significant differences in the learning outcomes in either group of children. The comparable learning outcomes in the human- and robot-based intervention might be attributable to the fact that the training sessions in both conditions were highly structured, thereby yielding positive learning outcomes for children with ASD.

**Conclusions.** The social cues found in the human-based intervention might not influence gestural learning. It does not matter who serves as teaching agents when the lessons are highly structured.

## **Stream 12: 3:15-4:00: Mental Health**

*50: More than autism: association between executive functioning, mental health and adaptive behaviour in adolescents with ASD*

**Francesca Lami**, Katrina Williams, & Rowena Conroy

**Background.** There is no direct association between cognitive ability and adaptive behaviour in adolescents with ASD. Factors reported to be associated with difficulties in adaptive behaviour include disorders in comorbidity to ASD, such as mental health disorders and ADHD, as well as executive functioning impairments. An investigation of how these factors interact is crucial to furthering our understanding of adaptive behaviour limitations in adolescents with ASD.

**Aims.** To investigate the association between executive functioning and adaptive behaviour in adolescents with ASD, while accounting for comorbid symptoms.

**Method.** Thirty-nine 10-16 y.o. (Full-Scale IQ>77) adolescents with ASD completed subtests of the Delis-Kaplan Executive Functioning System measuring monitoring, inhibition and cognitive flexibility; the Spence Children's Anxiety Scale, and the Depression scale from Beck Youth Inventories-2. Parents also completed the Vineland Adaptive Behaviour Scales-3 (VABS-3) and Conners 3-Parent

Short. A hierarchical multivariable regression was performed to explore associations between executive function and adaptive behaviour, controlling for inattention and mental health symptoms.

**Results.** Executive functioning scores varied considerably between participants, as did ADHD and mental health scores. 15% to 28% of participants (variance due to measure used) scored in the clinical range for executive functioning impairments. VABS-3 Composite scores ranged from 63 to 104 ( $M=79.61$ ;  $SD=9.56$ ). The results of the multivariable hierarchical regression indicated that executive functioning, inattention and mental health (combined anxiety and depression) symptoms explained 44% of the variance in adaptive behaviour.

#### 109: *Parent descriptors of signs of anxiousness in children on the autism spectrum*

Dawn Adams, Kate Young, Kate Simpson, & Deb Keen

**Background.** It is well recognised that anxiety is elevated in children on the autism spectrum. However, the presentation of anxiety symptomatology in children on the spectrum remains debated, with suggestions that traditional checklists do not assess the entire range of symptomatology.

**Aim.** This study aimed to document the signs of anxiety noted by parents of children on the spectrum and explore whether these differ between different settings.

**Methods.** Parents of 173 children (aged 6-13) on the spectrum were asked a combination of open-ended and closed questions about signs of their child's anxiety. The data were analysed using quantitative and qualitative methods in order to document parent descriptors of their child's anxiety at home, school, and in the community and explore how these may change with child age or gender.

**Results.** Over three-quarters of parents (77.6%, 76.2%) felt their child was anxious at school and out in the community respectively, and a little over half (52.6%) felt their child was anxious when at home. Significantly more children within the older cohort (88.8%) were reported to be anxious at school than in the younger cohort (67.1%). Parents reported differing signs of anxiety in different settings, with exploratory analysis suggesting some differences in signs of anxiety with child age and gender.

**Conclusions.** Through the use of parent-led, open-ended responses, this study adds to the small but growing literature base reporting on the presentation of anxiety in children on the spectrum. The results highlight the importance of not only understanding each individual's profile of anxiety symptomatology, which may include behavioural, cognitive and/or emotional indicators, but also understanding how this may or may not differ between settings.

#### 40: *Gender Differences in the Anxiety Symptoms of Children on the Autism Spectrum*

Kathryn Ambrose, Deb Keen, Dawn Adams, & Kate Simpson

**Background.** Anxiety is highly prevalent in children on the autism spectrum and can have significant and long-term impacts. In typically developing children, a female preponderance in anxiety prevalence has been ascertained. However, gender differences in anxiety in children on the autism spectrum have not been established.

**Aims.** The study aims to explore whether there are discernible differences in anxiety levels and/or symptoms between male and female children on the spectrum.

**Method.** The parents of 48 children on the autism spectrum, aged 10-12 years, completed an autism-specific anxiety measure, the ASC-ASD-P. Girls were individually matched to boys on age and ability to enable a robust gender comparison. Analysis was conducted to explore similarities and differences between genders in the total anxiety score, as well as anxiety subscale scores (performance anxiety, anxious arousal, separation anxiety, and uncertainty). In order to explore potential gender-specific profiles of symptomatology, item-level comparisons were also conducted.

**Results.** No statistically significant gender differences were detected in total anxiety scores, although a small effect size was noted, with higher scores for females. Females scored significantly higher than males on the anxious arousal subscale. There were no significant differences on the other



subscales. Item level analysis suggests specific symptoms that were more frequently reported in females than males.

**Conclusions.** Males and females showed more similarities in their anxiety profiles than differences, however a few key gender differences were detected. Item level analysis allowed specific anxiety symptoms to be identified that may be more frequently experienced by girls on the autism spectrum. Further research into the typical and atypical anxiety symptoms of boys and girls may provide useful indicators for the diagnosis of anxiety in children on the autism spectrum, and identify targets for intervention.

### **Keynote Presentation: Facing the unknown: Intolerance of uncertainty and anxiety in Autism Spectrum Disorder.**

**Jacqui Rodgers**

Anxiety is a significant problem for many autistic people. There is growing evidence that some aspects of anxiety may present differently in ASD and that ASD related features of anxiety should therefore be considered during assessment and treatment. Furthermore, when anxiety is present it is often complex. Autistic people frequently present with multiple anxiety disorders concurrently, making it difficult to develop tailored packages based on specific anxiety sub-types. Effective interventions that target trans-diagnostic anxiety related mechanisms may be a parsimonious solution offering efficient and inclusive targets for treatment.

This presentation will consider the role that a specific trans-diagnostic mechanism: Intolerance of Uncertainty (IU), may have in an ASD specific model of anxiety. During the talk we will explore potential relationships between anxiety, IU and some of the core features of ASD and consider a model of anxiety, which takes these interactions into account. Building on this work evidence will be presented from two recent intervention programmes targeting IU. The first is a novel parent group intervention targeting IU in autistic children and the second is a single case experimental design study with autistic adults who participated in an individualised treatment programme targeting IU.

### **Thursday Posters**

73. Baseline Characteristics of the Longitudinal Study of Australian School Leavers with Autism.

**Amanda Richdale**, Alex Haschek & Lauren Lawson

**Background.** The time between middle to late high school and mid-twenties can be a difficult period for many individuals on the autism spectrum. It is characterised by changes in many areas of life including day-to-day activities and community support. Previous research has shown that young people on the spectrum often experience poorer outcomes over the first couple of years post-high school. Therefore, it is important to understand the factors that affect young people on the spectrum during this time.

**Aims.** The Longitudinal Study of Australian School Leavers with Autism (SASLA) was established in 2014 with an overarching aim to identify and describe the comprehensive profiles of Australian school leavers on the autism spectrum. The aim of this study is to examine and compare the sociodemographic details, employment/education status, and prevalence of associated conditions (e.g. anxiety, depression) of young adults on the spectrum and non-autistic controls.

**Methods.** The sample for this study consists of 124 young adults on the spectrum and 107 non-autistic controls aged between 15 and 25 years who have completed the baseline SASLA survey. Participants across Australia completed online surveys that collected data across a range of areas. Age at diagnosis, support received for the transition from high school to post school activities, employment, engagement in tertiary education, and prevalence of mental and physical conditions will be examined.

**Results.** Statistical differences between the young adults on the spectrum and non-autistic controls will be examined using chi-square analyses. Data are currently being analysed and will be completed by September 2018.

**Conclusions.** It is expected that the findings from this study will be used to inform policy recommendations for the support that is required to assist young people on the spectrum through the transition from adolescence to adulthood.

#### 94. Mortality and cause of death of those on the autism spectrum: an investigation of linked data.

**Jane Hwang,** Kitty-Rose Foley, Samuel Arnold & Julian Trollor

**Background.** Studies suggest increased mortality rates and unique top causes of death for adults on the autism spectrum compared to those from the general population. However, large-scale and focused investigations of these outcomes for autistic populations remain scarce.

**Aims & Methods.** The present study used large linked datasets to report the rates and risk factors for mortality and cause of death in individuals on the autism spectrum (age range 5-64 years; n=34,027) with and without concurrent intellectual disability in New South Wales, Australia. Records from health datasets, service datasets and data about deaths were linked by the Centre for Health Record Linkage. Comparative mortality figures and top-ranked causes of death were explored for those on the spectrum relative to the general population. Health and demographic factors associated with heightened risk of death for those on the autism spectrum were also explored.

**Results.** Elevated mortality rates were found for those on the autism spectrum compared to the general population. Concurrent intellectual disability, epilepsy, mental health conditions and chronic physical health conditions were associated with a higher risk of death for those on the spectrum, whilst demographic variables such as gender and socioeconomic status were not. Regarding cause of death, "nervous system and sense disorders", as well as "injury and poisoning" were top-ranked causes for those on the autism spectrum.

**Conclusions.** The findings alert the need for health promotion and management of concurrent physical and mental health conditions for those on the autism spectrum. There is also a need for better identification, diagnosis and documentation of older adults on the autism spectrum.

#### 108. An Optimistic Outlook Concerning Employment in Autism.

**Darren Hedley,** Jennifer Spoor, Mirko Uljarevic, Ru Cai, Simon Moss, Amanda Richdale, Timothy Bartram & Cheryl Dissanayake

**Background.** Individuals with autism face exceptionally high rates of underemployment and unemployment. When employed, outcomes can still be poor if appropriate workplace supports are not in place. Nonetheless, many individuals with autism exhibit high intellectual ability, specific skills and interests that may help them thrive in particular occupations and roles. They also tend to be reliable, trustworthy and conscientious, often completing work to a high standard.

**Aims.** We employed qualitative methodology to examine past and present work experiences, expectations, and perceptions of individuals with autism employed in technology positions in a supported program.

**Method.** Twenty-eight people, including nine employees with autism (89% male; Mage = 23.97, SD = 3.00), seven support staff (29% male; Mage = 36.83, SD = 8.52), six co-workers (67% male; Mage = 42.21, SD = 6.46), and six family members (33% male; Mage = 43.92, SD = 13.89), participated in the study. Seven focus groups were conducted using a semi-structured approach with set questions. Data were analysed following established consolidated criteria for reporting qualitative research to identify themes.

**Results.** Four themes associated with work experiences and program implementation were identified: Limitations in Previous Work Experiences (Theme 1), Pessimistic Expectations (Theme 2), Recruitment and Selection Adaptations (Theme 3), and Training and Transition (Theme 4). Individuals were motivated to work but experienced difficulty finding and maintaining suitable and

interesting employment. Challenges in obtaining meaningful work previously led to a mood of pessimism regarding the future.

**Conclusions.** Alternate approaches to entering the workplace, support when needed, and co-worker training can contribute to workplace success for people with autism. We suggest specific improvements to the program; e.g., personalization of support based on individual abilities. Employment programs that include appropriate modifications for people with autism may help to promote a more optimistic outlook amongst participants.

59. Exploring the experience of seeking an autism diagnosis as an adult: Findings from online submissions and interviews.

**Matthew de Broize**, Kiah Evans, Andrew Whitehouse, John Wray, Valsamma Eapen, & Anna Urbanowicz.

**Background.** Autism Spectrum Disorder (ASD) is typically diagnosed in childhood, with an accurate diagnosis becoming more challenging as time progresses into adulthood. There is a limited body of research, particularly within the Australian context, describing the experiences of adults who seek an ASD diagnosis.

**Aims.** This study aimed to explore the diagnostic experiences of individuals who seek an ASD diagnosis as an adult.

**Methods.** A total of 36 Australian adults who identified as being autistic were involved in this qualitative study, with a median age of 42 years (range = 27 – 80 years) and a gender distribution of 24 females and 12 males. Twenty-two participants completed an online submission of up to 100 words about the most important considerations to address when developing a national guideline for the diagnosis of ASD. Semi-structured interviews were conducted with 14 participants, where experiences before, during and after diagnosis were discussed. Online submissions and interview transcripts were imported into NVivo 11 and were analysed using thematic analysis.

**Results.** Experiences prior to ASD diagnosis were focused primarily on the motivators that ultimately led to diagnosis, such as family history and feelings of being “different” while growing up. Experiences during the ASD diagnostic process were varied in terms of logistic factors (who, where and how), approaches (strengths-focused and tailored) and barriers (cost, availability of skilled assessors, masking and sensory distress). Experiences following ASD diagnosis were typically positive, characterised by empowerment and self-realisation. However, negative experiences were also reported, such as stigma. Many of the participants reported unmet needs and difficulty in accessing important supports following diagnosis.

**Conclusions.** This study revealed varied ASD diagnostic experiences of adults in Australia, and unmet needs in the current diagnostic system were highlighted. Access to ASD diagnosis for Australian adults may be improved with the new nationwide diagnostic guideline.

60. Get it Right, Make it Easy, See it All: Autism spectrum disorder diagnosis in Australia from the perspective of autistic individuals and their caregivers.

**Emily D'Arcy**, Marita Falkmer, Torbjorn Falkmer, Andrew Whitehouse, John Wray, Valsamma Eapen, & Sonya Girdler.

**Background.** There is an emerging body of evidence in relation to the perspectives of autistic individuals and their caregivers in relation to the autism spectrum disorder (ASD) diagnostic process. However, these studies have focused on previous experiences that occurred before, during or after diagnosis. There is scarce information describing the future preferences or recommendations of these individuals.

**Aims.** This project aimed to understand the relative importance of different aspects of an ASD assessment from the perspective of people with lived experience of autism.

**Methods.** Thirty-eight autistic adolescents / adults (>12 years, n=12) or caregivers of autistic individuals of any age (n=26) participated in the Viewpoint survey. This project employed a Q-methodology, where participants sorted 66 statements regarding the ASD diagnostic process from

least important (-5) to most important (5). After extraction from the online Q sort software, the PQMethod software package was used to analyse the results using the prescribed method. This supported the retention of three factors, hence results were generated through by-person varimax rotation factor analysis. The factor arrays were interpreted to formulate viewpoints by a group of experts.

**Results.** The first viewpoint, “Get it Right”, valued trained and experienced diagnosticians, along with a comprehensive assessment process. The second viewpoint, “Make it Easy”, was characterised by prioritisation of convenience, accessibility and support, while not compromising accuracy of assessment. The third viewpoint, “See it All”, highlighted the importance of holistically evaluating the needs of the individual and their family, and tailoring the assessment to the unique circumstances.

**Conclusions.** The complexity of developing an ASD diagnostic process that is acceptable to all autistic individuals and caregivers was highlighted by this Viewpoint survey, given the three contrasting perspectives identified. This emphasises the importance of the guideline allowing sufficient flexibility to meet the varied needs and wants of end-users.

62. Experiences of the autism spectrum disorder diagnostic process from the perspective of individuals, families and practitioners: A systematic review.

Bahareh Afsharnejad, **Andrew Whitehouse**, John Wray, Valsamma Eapen, & Kiah Evans.

**Background.** An increasing number of individuals are being diagnosed with autism spectrum disorder (ASD). This diagnosis, and the diagnostic process, can significantly affect these individuals and their families. However, there is not a consistent understanding of the experiences of these individuals and their families within the existing literature.

**Aims.** This systematic review aimed to evaluate the extent and quality of the existing published literature regarding diagnostic experiences of individuals on the autism spectrum, their families and their practitioners.

**Methods.** The systematic review was conducted according to the PRISMA statement. The search was limited to journal articles and postgraduate theses published in English during the past decade. Search terms were synonyms for the three concepts of ASD, diagnosis and experience. Multiple databases were searched, resulting in 54 articles for inclusion once duplicates were removed and the abstract/full text were reviewed for relevance. A data extraction form was used to summarise the articles, and a thematic data analysis approach was utilised to identify themes. Quality was evaluated by using the ‘Kmet forms’.

**Results.** Three inter-related themes emerged: (1) a strengths-focused and individual/family centred approach was advocated to promote optimism, whilst keeping in perspective that ASD is a significant and lifelong disability; (2) provision of informational and emotional support during the ASD diagnostic process were appreciated, although this was one of the most challenging aspect for practitioners; and (3) a coordinated, efficient and comprehensive process through all the diagnostic process was considered important, where accurate and clear information is provided to the family.

**Conclusions.** The perspective of individuals, families and practitioners illustrated that an ASD diagnosis is often associated with a wide range of positive and negative emotions. The experiences of these key stakeholders suggested that it would be beneficial to focus on the approach, support and process.

63. What Australian medical, allied health and educational experts want from an autism spectrum disorder diagnostic process.

Kiah Evans, John Wray, Valsamma Eapen, & **Andrew Whitehouse**.

**Background.** In the absence of empirical evidence regarding the accuracy of various autism spectrum disorder (ASD) diagnostic practices, numerous clinical guidelines on the topic rely on expert consensus. However, the process for attaining this consensus is not often articulated.

**Aims.** This Delphi survey sought to generate consensus recommendations regarding assessment and diagnosis from medical, allied health and educational experts in Australia.

**Methods.** Steering committee members were invited to nominate experts, resulting in 118 professionals invited to participate, with a total of 77 participants from a wide variety of disciplines completing or partially completing the first round of the Delphi survey. The majority of participants were diagnosticians (n=48), with other participants reporting their involvement in other aspects of the clinical or educational management of autistic children or adults. A total of 42 participants provided responses on the Round 2 survey. The questions contained within Round 1 were developed based on a scoping review, and Round 2 questions focused on topics where agreement had not been achieved. Items were rated on a five-point scale ranging from strongly disagree to strongly agree that the component should be part of an ASD assessment, and space was provided to make comments. Two methods were utilised to determine if consensus had been achieved for a recommendation, based on the median / interquartile range and proportion of agreement.

**Results.** Agreement was obtained for many recommendations regarding who, where and how an ASD assessment should be conducted. The strongest agreement was obtained for recommendations addressing the prerequisite knowledge and experience of professionals conducting ASD assessments, topics to be addressed during an ASD assessment (in particular history and symptoms), and assessment approaches (observation and interview).

**Conclusions.** Results of the Delphi survey provide clear support for guideline recommendations that are considered acceptable by medical, allied health and educational professionals.

64. Consistency, accessibility, equity and strengths: The Australian community speaks out about what is important for the autism assessment and diagnostic process.

Angela Stojanoska, Rebekka Jooste, **Andrew Whitehouse**, John Wray, Valsamma Eapen, & Kiah Evans.

**Background.** Autism spectrum disorder (ASD) is diagnosed inconsistently across the states/territories of Australia, yet government funding to support individuals with ASD is nationally based. Developing a national guideline for assessing and diagnosing ASD will enable consistency across the country, leading to individuals and families receiving the support they require.

**Aims.** This series of consultative workshops aimed to determine what the most important considerations are in developing a national guideline for ASD assessment and diagnosis, from the perspective of community stakeholders.

**Method.** A total of 256 participants attended eight workshops across Australia (including one online workshop) during a three-month period in 2017. The participants included autistic adults, caregivers/family members of individuals on the autism spectrum, diagnosticians and other service providers. A possible assessment model was introduced and discussion was facilitated through questions addressing important aspects, such as feedback on the proposed assessment scope/structure, strategies for maintaining equity, potential impacts once the guideline is implemented and the most important considerations overall. Participants recorded their discussion through hand written notes, which were transcribed and coded by the research team. The framework analysis technique was utilised to highlight common themes, including concerns and strategies, expressed among the different workshops.

**Results.** Community stakeholders revealed four common important considerations across the states and territories of Australia. These were: (1) ensuring consistency across locations and between professionals; (2) utilising flexibility and technology to promote accessibility; (3) raising awareness in relation for equity for all individuals being assessed for ASD, including adult, female, culturally and linguistically diverse and geographically isolated individuals; and (4) adapting a strengths-focus throughout the process.

**Conclusions.** The importance of consistency, accessibility, equity and strengths were highlighted by community stakeholders. These important considerations have been addressed in the Autism CRC's publication titled *A guideline for the assessment and diagnosis of autism spectrum disorders in Australia*.

65. A call for a holistic approach to autism assessment and diagnosis in Australia: Results of an online submission process.

Rebekka Jooste, Angela Stojanoska, **Andrew Whitehouse**, John Wray, Valsamma Eapen, & Kiah Evans.

**Background.** The process for diagnosing autism spectrum disorders in Australia is inconsistent, leading to variations in a range of diagnostic outcomes. This can lead to inequities in service provision and subsequent functional outcomes. In response, the Autism CRC embarked on a project to develop a guideline for autism diagnosis in the Australian context, where extensive consultation with the autism community was deemed essential.

**Aims.** This online submission process aimed to identify the most important considerations that should be addressed in the national guideline for the assessment and diagnosis of autism spectrum disorders in Australia.

**Method.** Of the 242 individuals who participated, 20 were autistic adults, 86 were caregivers/family members of individuals on the autism spectrum, 88 were diagnosticians and 105 were other autism related service providers. Participants submitted a submission of up to 100 words via an online survey, answering the question: "From your perspective, what are the most important considerations to address when developing a national guideline for the diagnosis of autism spectrum disorder in Australia?" The resulting qualitative data were analysed using a framework analysis technique, with themes explored for the whole sample and specific stakeholder groups.

**Results.** The most salient themes that emerged from the data were the importance of multidisciplinary assessment teams, administering various assessment tools and considering more than one setting. Other themes arising from the data included the importance of timely and affordable assessments, an individual / family centred approach, appropriate disclosure of the diagnostic outcome and linkages to support service.

**Conclusions.** A holistic approach to the assessment and diagnosis is important to many different Australian stakeholders, including those with lived and professional experience of autism spectrum disorders. These important considerations have been addressed in the Autism CRC's publication titled A guideline for the assessment and diagnosis of autism spectrum disorders in Australia.

#### 1. The experience of grandparenting in the context of families living with autism.

Rebekka Jooste, **Andrew Whitehouse**, & Kiah Evans.

**Background.** With autism services embracing individual and family centred approaches, research has focused on the parental experience of having a child on the autism spectrum. Though helpful, the experiences of other family members have not been considered. Grandparents often form an integral support network for families. However, little is known about how grandparents experience this role when they have a child and/or grandchild on the autism spectrum.

**Aim.** This survey aimed to explore the rewarding and challenging experiences of grandparenting in the context of families living with autism.

**Method.** As part of a larger study investigating patterns of autistic traits within families, grandparents were invited to answer three open-ended questions about their experiences. These questions explored the challenging and rewarding aspects of being a grandparent, as well as an opportunity to describe other experiences about grandparenting, within the context of autism. Participants were given flexibility to answer these questions via an online survey link, postal submission, telephone interview or face-to-face meeting. Data collection is ongoing, with a current sample size of 48 grandparents. Data will be coded with the assistance of NVivo software and thematic analysis will be utilised to identify themes.

**Results.** Although only preliminary results are available, emerging themes suggest the challenges of grandparenting include; the difficulty of managing challenging behaviour, and the feeling of inadequacy when supporting parents of a child on the autism spectrum. Emerging themes about the



rewarding aspects of grandparenting include; the love grandparents have for their grandchild, the appreciation of individuality, and the joy of seeing grandchildren achieve.

**Conclusion.** Through understanding the varied experience of grandparenting in the context of autism, researchers can inform support strategies to overcome challenges and capitalise on rewards, thus improving intergenerational support networks and family quality of life.

54. Experiences of pregnancy and parenting a second child when your first is diagnosed with autism. Dominique Cleary, **Andrew Whitehouse**, Murraray Maybery, & Kiah Evans.

**Background.** Around 20% of infants who have an older sibling with Autism Spectrum Disorder (ASD) go on to receive a diagnosis of ASD themselves (Ozonoff et al., 2011), and a further 20–30% exhibit broader development difficulties (Messinger et al., 2013).

**Aims.** To investigate the impact of having a child diagnosed with ASD on parenting another child, exploring experiences of conception, pregnancy and early development. The aim of this study is to inform the development of a parent mediated intervention for infants with an older sibling with ASD.

**Methods.** The current study involves in depth interviews with (1) 15 parents of a child diagnosed with ASD, who have a subsequent child (with or without ASD); and (2) 15 parents of two typically developing children. A set of open-ended questions were developed to explore parental experiences around the pregnancy and early developmental periods of the subsequent child in both groups. Interviews will be transcribed verbatim: these transcripts will be qualitatively analysed to identify relevant themes.

**Results.** Findings from the two groups will be compared to determine whether there are any unique themes around the birth of a second child when the first child has a diagnosis of ASD. Whilst we expect there to be many commonalities between the groups, we anticipate there will be unique experiences that are driven by having a first child diagnosed with ASD.

**Implications.** Identifying the unique experiences of parents around the pregnancy and early development of children who have an older sibling with ASD include the identification of psychoeducational resources that would be important for future parents. The results of this study will be used to inform a parent-mediated intervention for infants with familial risk of ASD, with broader implications for clinicians and researchers working with the parents of children with ASD.

110. Parenting an Adult Child with Autism Spectrum Disorder and Aggression: The Associated Distress and Psychological Growth.

**Linda Swaab**, Lynne McCormack, & Linda E. Campbell.

Parenting an adult child with Autism Spectrum Disorder (ASD) who has intermittent outbursts of aggression may expose parents and other family members to potential physical threat and psychological distress including chronic hyper-vigilance. However, no known studies have explored the “lived” experience of parenting an adult child diagnosed with ASD who displays aggression. This phenomenological study sought both negative and positive subjective interpretations of three parents of adult sons with ASD (aged between 20 and 30) displaying intermittent and unpredictable aggressive behaviours. Data was collected through semi-structured interviews, transcribed, and analysed using Interpretive Phenomenological Analysis (IPA). One main theme emerged: Complex parental distress and growth overarching six subordinate themes. Themes describe the psychological and emotional unpredictability that was relentless in daily life while parenting a child diagnosed with ASD complicated by outbursts of aggressive behaviour. Anticipation of potentially traumatic events was expressed as constant. The powerful emotions of frustration, empathy, pity and an intense need to protect the child with ASD who displays aggression, were in contrast with felt stigma and societal criticism. In time, they developed their own pragmatic survival strategies for functioning as a family that could accommodate each family member’s needs as much as possible. Psychological wellbeing

became a balance of striving for personal psychological growth despite the constancy of anticipatory traumatic events. These findings will be used to guide future research.

### 3. Microglial morphology in the NL3R451C mouse model of ASD.

**Samantha M. Matta**, Peter J. Crack, & Elisa L. Hill-Yardin

**INTRODUCTION.** Emerging evidence supports a role for neuroinflammation in the pathophysiology underlying autism spectrum disorder (ASD). Many mutations in genes regulating neuronal communication have been identified in ASD. Selective under- and hyper-connectivity in and between different regions of the autistic brain are proposed to be due to aberrant synapse maintenance. Glial cells, particularly microglia, are of interest due to their homeostatic role in the formation, maintenance and elimination of neuronal synapses. The R451C mutation in the Neuroligin-3 synaptic protein was identified in ASD patients. NL3R451C mice expressing this mutation show altered neuronal communication and ASD-relevant behaviours. This study aimed to determine if microglial activation and changes in microglial activity is disrupted in the NL3R451C mouse model of ASD.

**METHODS.** We investigated changes in microglial morphology in wild type and NL3R451C mice. We selectively labelled microglia in coronal hippocampal brain slices of wild-type and NL3R451C mice using immunofluorescence for ionized calcium-binding adapter molecule-1 (IBA-1). IBA-1-immunoreactive (IR) cells from the Dentate Gyrus (DG) and CA1 regions of the hippocampus were digitally reconstructed and analysed using a custom-designed algorithm verified against tracing of human microglia. This approach uses multilevel thresholding (MT) and minimum spanning tree (MST) algorithms to quantify cell features including the number of microglia, soma area, soma eccentricity, number of primary branches and length of branches extending from microglial somata.

**RESULTS.** Our analysis revealed an increase in the density of IBA1-IR cells in both the DG ( $6.80 \pm 2.31$ ;  $p$ -value = 0.019) and CA1 ( $4.20 \pm 1.70$ ;  $p$ -value = 0.039) regions as well as an increase in soma eccentricity ( $0.062 \pm 0.022$ ;  $p$ -value = 0.024).

**CONCLUSIONS.** Our investigations indicate that microglia cell numbers are increased in the DG and CA1 region of the hippocampus of NL3R451C compared to wild types and may be favouring an activated morphological state. These results support further studies to determine if altered microglia morphology and function occur as a result of the R451C ASD-associated mutation in the Neuroligin-3 gene expressed in the nervous system.

### 30. An Electrophysiological Investigation of Temporal Auditory Processing across the Broader Autism Spectrum.

**Anna Rose Jorgensen**, Murray Maybery, & Allison Fox.

**Background.** The asymmetric sampling in time (AST) hypothesis of auditory processing proposes the left and right auditory cortices preferentially process auditory information across different temporal integration windows (Poeppe, 2003). The left hemisphere processes short time information (25-50 ms) and the right processes long time information (200-300 ms; Boemio et al., 2005). However, individuals with Autism Spectrum Disorder (ASD) have been shown to have a left hemisphere weakness and right hemisphere dominance of auditory processing (Haesen et al. 2011). Currently, several behavioural and cognitive studies suggest that the disrupted left lateralised temporal processing reported in ASD may exist in the broader autism phenotype, however, results are inconsistent.

**Aims.** The current study aimed to provide electrophysiological evidence in support of the AST hypothesis of auditory processing and investigate how this lateralisation relates to autistic-like traits in a neurotypical adult population.

**Methods.** Twenty-two university students completed the Autism Spectrum Quotient and had their electrophysiological event-related potentials (ERPs) to passively presented tone pairs recorded. All tones were 1000 Hz 20 ms sinusoidal tones presented at 72 dB intensity. The tone pairs varied in

inter-stimulus interval (25 ms, 50 ms and 200 ms) to represent fine, moderate and coarse processing.

**Results.** Significantly larger ERPs were found over the left hemisphere than the right hemisphere in response to fine-grain temporal information ( $t(21) = 2.28$ ,  $p = .033$ ,  $d = .703$ ). After computing a laterality index (negative values indicate left lateralised processing), higher levels of autistic-like traits were found to be related to right lateralised processing of temporal information ( $r = .491$ ,  $p < .050$ ).

**Conclusions.** The results demonstrate that individuals with higher levels of autistic-like traits may exhibit reversed lateralisation of low-level auditory processing similar to that seen in ASD. This study extends the literature examining atypical lateralisation in ASD, expanding it to a non-clinical sample.

**Day 2: Friday****Opening Session 9:00-10:30****Keynote Presentation: Autism and severe intellectual disability: Looking beyond the environment to understand behaviour****Professor Chris Oliver**

The historical and contemporary dominance of an operant learning model has eclipsed potential cognitive, emotional and physical influences on clinically significant behaviours, especially for people on the autism spectrum showing self-injurious behaviours. Research into these behaviours in autistic people and other neurodevelopmental disorders suggests interactions between operant learning accounts and motivational states related to autism. Additionally, a clear role for compromised executive function in inhibition of behaviours and directly driving some behaviours has emerged. Other research indicates that 'temper' outbursts may be better construed as an outcome of emotion dysregulation as opposed to conceptualised as an operant behaviour and pain and discomfort can be direct causes of some behaviours. Other factors such as sleep disorder may moderate environmental /emotional interactions and anxiety may be a critical motivational state for some behaviours. The challenges and implications of these recent additions to the research literature are the need for informed appraisal of executive dysfunction, shifting the perspective from an exclusively operant learning account, the development and use of broader assessments with robust psychometric properties and implementation of interventions against the background of required efficiency and minimal cost.

**Friday Concurrent Sessions****Stream 1: 11:00-11:45 Adults and Participatory Action Research***25: Participatory autism research in the Autism CRC and beyond***Jacqueline den Houting & Liz Pellicano**

**Background.** Participatory research approaches have grown increasingly popular in health research over recent decades, in part due to community demand for more inclusive research practices. As well as creating more collaborative and equitable research processes, participatory research can lead to improvements in the quality of research outputs; increased capacity in stakeholder groups; increased project sustainability; and can even influence systemic change. With the rise of the Autistic self-advocacy movement, it is becoming increasingly clear that a move towards participatory research approaches is needed in the field of autism research. In Australia, the Cooperative Research Centre for Living with Autism (Autism CRC) has led the way in the shift towards inclusive research, encouraging engagement with community partners (including Autistic people, their families and supporters, and service providers) in all Autism CRC funded research projects.

**Aim.** This research project seeks to evaluate the extent and nature of Autistic and broader autism community involvement in Autism CRC research projects, with the aim of enhancing the uptake and quality of participatory autism research practices within and beyond the Autism CRC.

**Method.** This project uses mixed methods, collecting data through both online surveys (n=100) and in-depth semi-structured interviews (n=36) to elicit participants' opinions and experiences of inclusive research conducted by the Autism CRC – from the perspectives of researchers and community partners.

**Results.** Data collection is ongoing. We will present data from the online survey, which will be complete in late 2018.

**Conclusion.** These preliminary findings will prompt reflection on the status quo in autism research methods, including the potential benefits and challenges of participatory approaches to autism research, and will inform the nature and extent of future participatory autism research within the Autism CRC and beyond.

**56: *How to work with us: Perspectives of autistic adults engaged in research***

**Tori Haar & Joel Wilson**

The autistic community is a diverse group of stakeholders with varying needs, skills and perspectives. Given this heterogeneity, establishing and sustaining mutually beneficial engagement with members of this community as contributors to stakeholder-relevant and community-informed autism research can present both a significant opportunity and a significant challenge. This presentation will be delivered by autistic adults who regularly engage with autism researchers with the purpose of assisting researchers to find new opportunities to connect with members of the community they are seeking to better understand and support. This session will not focus on unreachable, idealised standards or criticizing previous attempts at engagement. Instead, it aims to help interested researchers to identify possible next steps in engaging autistic people to make their research more inclusive. What this looks like will be different for various researchers and types of research. This engagement can vary between respectful participant engagement to highly integrated co-produced research. Meaningful and relevant engagement can also be dependent on the skills, experiences and co-morbidities of the specific members of the autistic community being engaged. The insights and suggestions shared will draw from their experiences as well as those of other members of the autistic community who have worked with researchers. Areas explored will include clear communication, expectation setting, the importance of seeking and accommodating diverse perspectives, environmental considerations and acknowledging and understanding previous experiences autistic individuals may have had with research.

**116: *The impact of a Massive Open Online Course (MOOC) co-designed with autism lived experiences to increase community understanding about the condition***

**Emma Donaldson & Mick Grimley**

People with conditions, such as autism experience stigmatisation and a lack of understanding and support in the wider community. The lived experiences of people with these conditions are exposed to vulnerability and are often misunderstood, leading to a limited understanding and support in the community.

Education resources designed to create awareness, develop knowledge and understanding to support vulnerable communities requires a deep understanding of the condition. Co-design and co-production terms are used interchangeably and have been the focus on advocacy to ensure the lived experiences of people with the condition to be able to share their voice to inform decisions at a policy, service and educational level (National Mental Health Consumer and Carer Forum, 2017). It involves the partnering between all of the people most affected by stigma and need for support at every stage from problem identification to design, development, delivery and evaluation (Mental Health Australia, 2017). The process moves beyond the traditional methods of consulting, such as seeking the lived experience voice after the decision has been made or the service/educational resource has been completed (Sarmiento-Pelayo, M.P, 2015).

MOOC (Massive Open Online Course) is an education technology that enables a large audience to participate together online to learn about a specific topic (Brahimi, Sarirete, Zha and Adams, 2015). MOOC's are typically used in University settings and are usually related to a discipline within the tertiary institution to attract students. MOOC's are accessible because they are free and online (LeCounte, J.F. and Johnson, D. 2015).

The altruistic Voices of Autism MOOC was developed by Torrens University and co-designed with people with autism. The voices of people with autism informed the learning journey and course content. The purpose of the MOOC was to draw together participants with similar interests with the view of creating change by developing deeper knowledge about the condition and day to day needs of lived experience. In May 2018, Torrens University launched the Voices of Autism MOOC, reaching over 12,000 participants with a retention rate of 43 percent.

**Stream 2: 11:00-11:45: Education: Models of Practice****43: EDUCATING FOR SUCCESS. Models of Practice for Australian Teachers of Students on the Autism Spectrum**

Trevor R Clark &amp; Wendi Beamish

**Background.** Teacher knowledge affects, positively or negatively, the inclusion and learning of students on the autism spectrum. Nationally, there is an established need for practising teachers to engage in professional learning and development activities for meeting the social-emotional, behavioural, communication, sensory and learning needs of students on the spectrum.

**Aims.** The aim of this research was to design, validate, and trial two Models of Practice (MoP) for mainstream early and middle educators, respectively. Each MoP supports teacher decision-making and fosters the effective inclusion of students on the spectrum. The MoP is a Cooperative Research Centre for Living with Autism (Autism CRC) project within Program 2.

**Method.** A Design Based Research approach was used to develop and validate the development of the Early Years Model of Practice (EY-MoP) and the Middle Years Model of Practice (MY-MoP). Multiple, iterative cycles of design/construction and evaluation/reflection were enacted (McKenney & Reeves, 2012). Successive prototypes were formatively evaluated to establish both content and social validity of both MoPs. Twenty-nine validated practices (EY-MoP) were trialled by Prep/Kindergarten teachers (n = 43) in 23 schools across Queensland, New South Wales, and Victoria whereas 36 validated practices in the MY-MoP were trialled by Year 7 and 8 secondary teachers (n = 32) in 10 schools across Queensland, New South Wales, and Victoria. Schools were - assigned to one of three professional conditions (face-to-face coaching, on-line coaching and information only) with access to the MoPs via the project website. Teachers used this tool in their classroom for 8 weeks, with data being collected at two time points across this period using online surveys and phone interviews.

**Results.** This field-testing of both the EY and MY MoPs has demonstrated their usefulness to teachers. In general, interview results indicated that teachers perceived each practice model as a user-friendly tool that supported their decision making and classroom practice. Further, survey results indicated that use of the MoPs led to increases in teacher knowledge, confidence, and sense of self-efficacy.

**Conclusion.** Preliminary field testing points to the viability of these practice tools in Australian classrooms which include either young students or adolescents on the spectrum.

**93: The Early Years Model of Practice: Initial Evaluation by Prep/Kindergarten Teachers**

Annalise Taylor, Wendi Beamish, Jessica Paynter, &amp; Madonna Tucker

**Background.** Teacher knowledge impacts, positively or negatively, on the inclusion and learning of students on the autism spectrum. Nationally, there is an identified need for practicing teachers to engage in professional learning and development activities in relation to meeting the social-emotional, behavioural, communication and sensory needs of students on the spectrum.

**Aims.** The aim of this research was to design, validate, and trial a Model of Practice for mainstream early years educators that supports teacher decision making and fosters teacher professional growth in relation to the effective and inclusive education of Prep/Kindergarten students on the spectrum.

**Method.** A Design Based Research approach was taken to the development of the Early Years Model of Practice (EY-MoP). Multiple, iterative cycles of design/construction and evaluation/reflection were enacted (McKenney & Reeves, 2012). Successive prototypes were formatively evaluated to establish both content and social validity and viability of the EY-MoP. Prototype 3 of the EY-MoP comprising 29 validated practices was evaluated by Prep/Kindergarten teachers (n = 17) in metropolitan schools across Queensland, New South Wales, and Victoria. Teachers accessed the EY-MoP via the project website and used this tool in their classroom for 8 weeks. Data were collected at two time points across this period using online surveys and phone interviews.

**Results.** The EY-MoP has been evaluated as having local viability with interview results indicating that teachers perceived the practice model as user-friendly tool that supported their decision making and practice. In addition, survey results indicate use of the EY-MoP led to increases in teacher knowledge, confidence, and sense of self efficacy.

**Conclusion.** The EY-MoP is a valid, Australian tool for teachers working with young students on the spectrum.

*81: Developing a model of practice to support mainstream teachers of students on the autism spectrum*

Ainslie Robinson & Emma Gallagher

**Background.** The Middle Years Model of Practice (MY-MoP) is a universally designed, evidence-based set of whole-class strategies for years 7 and 8 (middle years) teachers, which fosters the effective inclusion of students on the autism spectrum. The MY-MoP is part of the larger Cooperative Research Centre for Living with Autism (Autism CRC) project, 'Models of Practice'.

**Aims.** The aim of this part of the project, was to design and validate a middle years specific Model of Practice (MoP). This presentation describes how the MoP was developed.

**Method.** A literature review identified over 100 pedagogical concepts which were arranged using the organisers of Rigour, Relevance, Relationships (Test et al. 2014) as a theoretical framework. The organiser of 'Rigour' primarily concentrated on instructional practices around academic skills and strategies. 'Relevance' focused on academic modifications, and 'Relationships' was centred on socio-emotional capacities and skill development. These concepts were then synthesised into 60, one to two sentence practice descriptors which could be implemented by a middle years teacher to support the inclusion and education of a student on the spectrum. Through a consultative process, this list was then refined to a set of 38.

**Results.** An online content validity survey, conducted by four educational experts confirmed the relevance of the 38 practices. One hundred and one teachers were then surveyed for their opinion of the social validity of the practices. Two practices were removed following the content and social validity surveys, leaving 36 practices in the Middle Years Model of Practice. These 36 practices formed the MY-MoP which was taken to the implementation stage with participating teachers.

**Conclusion.** This presentation describes the process of developing, and validating the MY-MoP. These evidence based, whole class strategies are designed to facilitate the inclusion and education of students on the spectrum in mainstream classrooms.

**Stream 3: 11:00-11:45: Communication and Social Skills**

*55: How was your day? Parent, teacher and child perceptions of communication about the school day with children on the autism spectrum*

Lesley Stirling, Cheryl Dissanayake, Kate Sofronoff, David Trembath, Marleen Westerveld, Jill Ashburner, & Lindsay Pamment

**Background.** Autistic children face challenges at school which may lead to anxiety and affect learning outcomes. Children's capacity to effectively communicate school experiences is important, however previous research suggests they may struggle to converse about events at school, and how to tackle them.

**Aims.** We investigated parent, teacher and child perceptions concerning home communication about the school day, comparing families with autistic and non-autistic children.

**Method.** Study one involved families of 11 autistic and 10 non-autistic children, aged 8-12 years attending a mainstream school. All 21 parents and a subset of 9 teachers completed purpose-designed written questionnaires; researchers conducted semi-structured interviews with 19 of the children. In study two, an online version of the questionnaire has been completed by parents of 166 autistic and 36 non-autistic children.



**Results.** Study one revealed differences between parents of autistic and non-autistic children in their perceptions of communication with their child about the school day, with easier and more communication with non-autistic children; moreover, autistic children were reported to speak about positive incidents at school less frequently. There were also differences between parent and teacher perceptions. However, parents of autistic children gave relatively positive reports about communication and both groups of parents reported more difficulty with conversations about problems. In their interviews, non-autistic children focused on social issues as problematic while autistic children focused on institutional issues and procedural fairness. Data from Study two will also be presented.

**Conclusions.** Findings from study one, currently being tested against a larger group in study two, indicate differences in perception between parents of autistic and non-autistic children, and the interviews with children are informative in exploring how comfortable they feel discussing school events and with whom. The results will inform approaches to facilitate conversations about school between children and their parents.

18: ePoster: *Understanding the characteristics, quality and satisfaction of friendships for children on the autism spectrum: a systematic review*

Sarah Hazell, David Trembath, Kate Simpson, & Jacqueline Roberts

**Background.** Social interaction is important across lifespan and can occur across a variety of contexts. For children and adolescents, a core source of social interaction derives from friendships. Previous systematic reviews indicate that individuals on the autism spectrum differ in the characteristics and quality of their friendships compared to neuro-typical peers. However, little is known about friendship satisfaction from the perspective of children on the spectrum.

**Aim.** To conduct an updated systematic review of the literature to identify current understandings of (a) the characteristics (b) the self-perceived nature and quality of friendships in children and adolescents on the autism spectrum and (c) friendship satisfaction from the perspective of children on the spectrum.

**Method.** A systematic review will be conducted by searching electronic bibliographic databases for terms relating to friendships and social relationships of children and adolescents on the autism spectrum. Extracted information will include; study setting; study population and participant demographics and characteristics; study methodology; recruitment and study completion rates; and information regarding friendship characteristics, nature, and quality of friendships as perceived by children and adolescents on the autism spectrum.

**Results.** The review is currently in the extraction phase. There are currently 26 papers included for the review and the findings will be presented.

**Discussion/Implications.** Examining data from studies exploring the perspective of those on the spectrum will contribute to a greater understanding of the needs and preferences of these individuals.

33: ePoster: *Participation through the child's lens*

Kate Simpson, Deb Keen, & Christine Imms

**Background.** Children with autism are reported to participate in less activities than their peers. Little is known about what participation means for this group and the child's voice has been largely absent due to methodological limitations.

**Aims.** The aim of this study is to develop and trial a research method to elicit the views of children with autism about their participation experiences in activities.

**Methods.** Four children with autism (9 – 13 years) used a video recording device to collect data over a week period on their participation in activities. The children recorded an in-the-moment narrative to describe the activity, what they were doing and their level of involvement. A follow-up

individualised interview was conducted with each child using the information presented in their videos.

**Results.** Children presented their unique views on participation in activities across the week. The activities included leisure, organised activities and household chores. The recorded narrative provided information about the child's point of view at the time and aided their recall in the interview. Children presented different perspectives, however, they identified their level of involvement was not easily observed by others and was not always related to their level of enjoyment.

**Conclusion.** This approach offers the potential for understanding the perspective of children with autism and expands the limited knowledge about their participation in activities. By empowering the child with a voice, a better understanding was gained on what was meaningful participation for this group of children. The use of this approach and considerations for its application for future research will be discussed.

100: ePoster: *Robot-based drama therapy may enhance perspective-taking skills in preschool children with autism*

Wing-Chee So, Chun-Ho Cheng, Wan-Yi Lam, & Kit-Yi Wong

**Background.** Individuals with Autism Spectrum Disorders (ASD) have deficits in taking others' perspectives. Perspective-taking is an important skill for successful social functioning. However, very few intervention studies have been conducted to remediate the deficits in perspective-taking.

**Aims.** Previous findings have reported that robot-based intervention has significantly improved the gestural and verbal communication skills in children with ASD. This study aimed to examine whether robot-based drama therapy would facilitate perspective-taking in preschool children with ASD. If so, children with ASD could enact different roles and speak like the assigned characters.

**Method.** Four- to six-year-old Cantonese-speaking children with ASD (N=15) participated. They were presented with three episodes of robot dramas, with each having two social robots play different roles (e.g., tour guide and tourist) and converse with each other. There were nine robot drama lessons, with three lessons for each episode. In each lesson, children with ASD watched the drama twice, followed by having role plays with the social robots and later with human experimenter. During role-play, children enacted different characters.

**Results.** We transcribed the speech during the role-play with human experimenters from the first to the last lessons. For each turn of role-play, we evaluated whether the speech was appropriate. A score of 0 was given if the child merely imitated the speech produced by his/her partner who actually enacted another character, suggesting that he/she could not take the perspective of the character assigned to him/her. A score of 1 was given if the child spoke like the assigned character. We found that the proportion of turns scored 1 significantly increased after three lessons across three episodes (first episode: .53 to .65; second episode: .60 to .76; third episode: .55 to .70).

**Conclusions.** Robot-based drama therapy may enhance perspective-taking skills in preschool children with ASD.

102: ePoster: *Robot-Based Intervention May Reduce Delay in the Production of Intransitive Gestures in Chinese-Speaking Preschoolers with Autism Spectrum Disorder*

Chun-Ho Cheng, Wan-Yi Lam, Miranda Kit-Yi Wong & Wing-Chee So

**Background.** Past studies have shown that robot-based intervention was effective in improving gestural use in children with autism spectrum disorders (ASD). Yet, it is not known whether children with ASD still have delayed gestural production, in comparison to their age-matched children with typical development (TD), after robot-based training.

**Aims.** The present study examined whether children with ASD could catch up to the level of gestural production found in age-matched TD children.

**Method.** Children with ASD were randomly assigned to two groups. Four- to six-year-old children with ASD in the intervention group (N=15) received four 30-min robot-based gestural training sessions. In each session, a social robot, NAO, narrated five training stories and gestured (e.g., both hands clapping for an awesome expression). Children with ASD were told to imitate the gestures during training. Age-matched children with ASD in the wait-list control group (N=15) and age-matched TD children (N=15) received the gestural training after the completion of research.

**Results.** Children with ASD in the intervention condition were more likely to produce accurate or appropriate intransitive gestures in training and novel stories than those in the wait-list control. The positive learning outcomes were maintained in the delayed posttests. The level of gestural production accuracy in children with ASD in the delayed posttest of novel stories was comparable to that in TD children, suggesting that children with ASD could catch up to the level of gestural production found in TD children. Children with ASD in the intervention condition were also more likely to produce verbal markers while gesturing than those in the wait-list control. Gestural recognition skills predicted the learning of gestural production accuracy in the children with ASD, with such relation partially mediated via spontaneous imitation.

**Conclusions.** Robot-based intervention may reduce the gestural delay in children with ASD in their early childhood.

#### 91: ePoster: *Teacher expectations of robot-assisted classroom instruction*

Susan Bruck, David Silvera-Tawil, Dana Bradford, Trevor Clark, & Vicki Gibbs

**Background.** Previous research shows that robots can offer students opportunities for practicing skills in non-intimidating and predictable settings (Kim et al., 2013; Matarić & Scassellati, 2016) and there is evidence that robot-assisted teaching is effective in supporting positive behaviours, social communication and sensory processing in children on the autism spectrum (Esteban et al., 2017; Ghigliani et al., 2017; Sartorato, Przybylowski, & Sarko, 2017).

**Aim.** The aim of this multi-phase, mixed method study is to investigate teacher expectations of robots, develop plans for robot-assisted lessons, and to evaluate the effectiveness of robots in the classroom when teaching practical skills to students on the autism spectrum.

**Method.** In Phase 1 of the study focus groups investigated the opinions of teachers and young adults on the autism spectrum about using robots in the classroom. This presentation explains how these findings informed Phase 2 of the research, an online survey. The online survey collected detailed information from teachers about the subject lessons and age groups they believe would benefit most from robot support. Additional information about how to incorporate the robot into their classroom and curricula—including barriers, enablers and expectations—was also examined.

**Results.** The results from Phase 2 of the study identify the teachers' main areas of interest for developing robot-assisted lessons and their expectations of teaching with a robot.

**Conclusion.** This presentation examines teacher expectations of robots and discusses how the findings from the survey are informing the progress of Phase 3 of the research – the development and trial of robot-assisted lessons in an autism specific classroom and Phase 4, the evaluation of the effectiveness of the robot assisted lessons for students on the autism spectrum.

#### Stream 4: 12:00-12:45: Adults: Work & Study

##### 45: *Lessons from an internship program for adults on the autism spectrum*

Rhonda Chapman, Marita Falkmer, Graham Ferguson, & David McMeekin

**BACKGROUND & AIM.** In 2016, Curtin University's Autism Academy Software Quality Assurance launched an information technology (IT) internship for adults on the autism spectrum to help soon-to-be university graduates gain meaningful employment, and at the same time help fill competence gaps in the industry. Previous research in this area has paid little attention to the perspective of adults on the autism spectrum and to the strategies that work when employing them.

**METHOD.** The current study conducted in-depth interviews with interns on the autism spectrum and the employees who recruit, manage, support and mentor these interns. The data was thematically analysed focusing on exploring (1) facilitators and barriers faced by the participants, (2) the best strategies for employing adults on the autism spectrum, (3) the benefits/challenges of employing adults on the autism spectrum, (4) how to promote the benefits to other employers training (5) and support beneficial for employers wishing to employ adults on the autism spectrum.

**RESULTS & CONCLUSIONS.** Results suggest that employees managing and mentoring adults on the autism spectrum typically lack an understanding of autism and would benefit from autism-specific training and access to resources covering the potential complexities of working with these individuals and the strategies that may help. Managers and mentors of adults on the autism spectrum may benefit from external support from experts in employing and supporting adults on the autism spectrum. The interns perceived that modifications to the application and interview processes, supported them in gaining the internships. Furthermore, in order to encourage organisations to employ adults on the autism spectrum, the training and support program may need to include success stories from the internship program. These findings will later inform the content for a training and support program for individuals wishing to promote, employ or work alongside adults on the autism spectrum.

*107: The autism advantage at work: A systematic review of the evidence concerning the relationship between restricted and repetitive behaviours and interests and work performance*

**Simon Matthew Bury**, Darren Hedley, Mirko Uljarević, & Eynat Gal

**Background.** Individuals with autism are underrepresented and underutilised in the workforce, impacting their mental-wellbeing and financial independence. Employment programs supporting autism in the workplace have shown some success, and highlight specific challenges, and recommendations to overcome them. However, there is little research on the strengths that individuals with autism bring to employment. Despite this, while social difficulties and restricted and repetitive behaviours and interests (RRBI) associated with autism present clear challenges to gaining and maintaining employment, RRBI have also been suggested to present a strength in the workplace (e.g., attention to detail, tolerance for repetitive tasks), increasing workplace performance above that of non-autistic peers concerning certain tasks or occupations. However, the nature of this often termed “autism advantage”, has not been previously evaluated in a systematic manner.

**Aims.** This systematic review aimed to identify evidence of superior work performance of individuals with autism, with a particular focus on RRBI as a potential avenue for an autism advantage.

**Method.** The review methodology adhered to the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement. Nine databases were systematically searched for empirical papers that include individuals with an autism diagnosis, and describe or report performance in the workplace or on naturalistic approximations of work tasks. Additional papers were identified from reference lists and peer consultation.

**Results.** From 6657 records, two quantitative and three qualitative articles met the inclusion criteria, incorporating 101 participants with autism, and were summarised in the following themes: attention to detail, tolerance of repetitive tasks, special/circumscribed interests, and other RRBI related advantages/concerns.

**Conclusions.** Although there was some evidence of superior performance of individuals with autism, due to the breadth, nature and quality of the studies, there was no firm evidence for (or against) an autism advantage in the workplace. Implications for future research and support programmes are discussed.

16: *Changing lives of parents of autistic university students through specialist peer mentoring*

Craig Thompson, Torbjörn Falkmer, Sven Bölte, & Sonya Girdler. Presenter: **Marina Ciccarelli**

**Background.** Most parents continue to provide invaluable support for autistic students transitioning to university. Parents may experience considerable levels of stress as a result of the new dynamic introduced by University studies. This stress might be mitigated by specialist peer mentoring (SPM) for autistic university students.

**Aim.** The aim of this study was to explore the experiences of parents of specialist peer mentored autistic university students.

**Method.** A total of 13 semi-structured interviews (11 mothers and two fathers) were completed. The participants were discussing the experiences of 12 specialist peer mentored autistic university students (average age=21.2; SD=1.94; 2 female). The interviews were transcribed verbatim and analysed in three stages. Initially, meaning units were identified. Subsequently, thematic analysis was employed to identify themes. Finally, directive content analysis was used to link the data to the Comprehensive International Classification of Functioning, Disability and Health core set for autism spectrum disorder (ICF core set for ASD).

**Results.** A total of 284 meaning units were identified from the data. Five inter-related themes emerged from the data: 1) the mentoring relationship is a facilitator, 2) developing skills for university, 3) mentoring changes lives, 4) mentoring is not a substitute for other supports, and 5) 'university' is an emotional rollercoaster. The meaning units were linked with Body Function (18%), Activity and Participation (43%), Environment (31%) and Personal Factors (6%) within the ICF core set for ASD (2% not coded).

**Conclusion.** The experience of parents of specialist peer mentored students attending university continues to be an emotional rollercoaster. SPM of autistic university students improves the experiences of their parents. This is facilitated by the development of study skills and self-determination through SPM. However, autistic university student continue to experience unmet support needs. SPM programs mainly address the fit between participation in university studies and the environment.

**Stream 5: 12:00-12:45: Education**

80: *Toolbox for success: a model of practice for mainstream middle years teachers to develop their knowledge and confidence when educating students on the autism spectrum*

**Emma Gallagher & Ainslie Robinson**

**Background.** Teacher knowledge and confidence can influence inclusion and educational success for students on the autism spectrum. The Models of Practice project is a two stream research study, the early years and the middle years. This presentation discusses the middle years stream. The Middle Years Model of Practice (MY-MoP) project developed and tested an educational model of practice designed to increase teacher knowledge and confidence. The MY-MoP is a structured, validated tool developed for middle years teachers. This model of practice enables teachers to support students on the autism spectrum in Years 7 and 8 in mainstream education settings. The MY-MoP is part of the larger Autism Cooperative Research Centre (ACRC) funded project, 'Models of Practice' (MoP).

**Aim.** One of the aims of the middle year stream of the MoP project was to design and validate a tool to improve teacher knowledge and confidence.

**Method.** The MY-MoP was created using a Design Based Research Model (McKenney & Reeves, 2012) and refined through social and expert validation. Participating teachers implemented the MY-MoP within their classrooms for a period of 8 weeks. Teachers completed a pre and post MY-MoP intervention survey and participated in one pre-intervention phone interview.

**Results.** Quantitative data was collated and analysed using a Wilcoxon Signed Rank Test as the matched sample size was small (n=15). Qualitative data from the interviews was thematically analysed (Braun & Clarke, 2006). The findings from preliminary analyses suggest there is an improvement in teacher knowledge and confidence after implementation of the MY-MoP.

**Conclusion.** This presentation examines the implications of using a model of practice for improving teacher knowledge and confidence when educating students on the autism spectrum, who are enrolled in mainstream education settings.

*9: Context matching: Supporting talent development in highly able individuals on the autism spectrum*

Susan Wade & Leonie Kronborg

The process of context matching was identified and investigated as part of a larger grounded theory study to explore talent development in highly able individuals on the autism spectrum. While most research has focused on the deficits associated with autism, relatively little is known about effective educational provision for 'twice-exceptional' individuals on the autism spectrum - who are gifted and talented in addition to having a disability. The study design uses grounded theory methodology (GTM) in which initial data is collected via an online questionnaire from participants (adults with an autism diagnosis, parents, teachers, psychologists, mentors and coaches). Theoretical sampling informs the selection of highly able participants for follow-up interviews via email. Analysis of responses from 156 participants (Australia, North America and Europe) has been conducted using GTM procedures. The results demonstrate that context matching is an important process contributing to the outcome of asymmetrical thriving (high levels of achievement alongside coping with challenges associated with an uneven profile of strengths and weaknesses). Context matching occurs when the conditions or circumstances seen in different contexts (education, family, employment and community) align with the needs, preferences, and styles of learning/thinking of the individual on the autism spectrum. Significant aspects of context matching operate within environments which demonstrate: (a) assisting in learning skills, (b) flexing effectively, (c) challenging appropriately, (d) supporting empathetically, (e) recognising strengths, and (f) supporting the process of self-propelled learning. The study also identifies how the process of context mismatching can undermine talent development. Understanding the process of context matching in highly able individuals on the autism spectrum has practical educational implications for developing abilities relevant to multiple audiences (individuals on the autism spectrum, teachers, parents, mentors and psychologists) and contributes to increased levels of coping and achievement in highly able individuals on the autism spectrum.

*6: Mainstream or special education or somewhere in-between? What do parents want and why?*

Jill Ashburner, Jennifer Taylor, & Beth Sagers

**Background.** Although it is often assumed that most parents would prefer their child on the spectrum to be educated in regular classrooms in mainstream schools, parental preferences have not been explored in Australia.

**Aim.** This study examined (a) parents' school placement preferences, (b) their reasons for these preferences, and (c) student characteristics that impact on preferred and actual school placements.

**Method.** In response to a Queensland-wide online survey, responses were received from 732 parents including parents of 85 children yet to start school, 403 primary school-aged students, 175 secondary school-aged students, and 69 parents of young people who had left school. Descriptive and inferential statistics were used to analyse data on student characteristics and school preferences. Content analysis was used to analyse open-ended responses on parent's reasons for their preferences.

**Results.** Regular mainstream school classrooms were preferred by 58% of parents of children yet to start school, 51% of parents of primary school-aged children, 46% of parents of secondary school-aged children and 22% of parents of young people who had left school. The next most popular preferences included autism-specific classes in mainstream schools, a combination of part-time options, and autism-specific schools. Special education classes and special schools that were not

autism-specific, were less commonly preferred. Co-occurring conditions including intellectual disabilities, specific learning disorders, anxiety disorders and depression were associated with school placement preferences, as was the student's academic progress. While many parents value the opportunity to interact with neurotypical peers that mainstream schools provide, others highlight the need for greater support and understanding of their child's needs.

**Discussion.** Parental perspectives are enlightening in terms of the characteristics of students who are progressing well in regular classrooms, and those who need more support. This information will help inform the design of educational programs that more effectively cater to diverse student needs.

### Stream 6: 12:00-12:45: Predictors

#### 21: *Autism risk in 12 month old infants born to mothers with asthma*

Alison E Lane, Vanessa Murphy, Daniel Barker, Linda Campbell, Frini Karayanidis, & Peter Gibson

**Background.** Maternal immune activation has recently been implicated in autism (Patel et al. 2017). Asthma is the leading immune disease to complicate pregnancy, occurring in 12% of Australian pregnancies (Sawicki et al. 2012). Women with asthma during pregnancy are at increased risk of adverse perinatal outcomes, including low birth weight, prematurity, gestational diabetes and pre-eclampsia (Murphy et al. 2011; Wang et al. 2014) which have also been associated with increased autism risk in infants (Wang et al. 2017). Evidence suggests that asthma exacerbations during pregnancy, which affect up to 45% of women, are associated with an even greater risk of poorer infant outcomes (Namazy et al. 2013). A recent systematic review identified that four of the ten studies reported an increased risk for autism and/or intellectual disability in infants born to mothers with asthma (Whalen et al. 2018). Extant literature is weakened, however, by imprecise measurement of autism symptoms and asthma characteristics, and retrospective design.

**Aim.** To estimate autism risk in 12-month-old infants born to mothers with asthma during pregnancy.

**Method.** Study design: a prospective, cohort study. Participants: 12-month-old infants born to mothers with asthma during pregnancy.

Procedure: Mother/infant dyads complete comprehensive mental health, cognitive and developmental assessments at infant ages 6 weeks, 6 and 12 months. At 12 months, the First Year Inventory (FYI) is completed by the mother about her infant and used to establish autism risk.

**Results.** Preliminary results (n=45) show an elevated autism risk at 12 months in infants born to mothers with asthma. Eleven percent of babies in our sample showed a high risk of autism by meeting published risk criteria on the FYI. This compares with 4% meeting the risk criteria in a large community sample (Turner-Brown et al. 2013).

**Conclusion.** Data collection is ongoing to confirm this preliminary finding.

#### 7: *Predictors of Autism Spectrum Disorder diagnosis at a tertiary hospital in Melbourne*

Chamaine Bernie, Katrina Williams, Bernadette O'Connor, Sarah Rogers, & Tamara May

**Background.** Service access issues for children with developmental needs, including Autism Spectrum Disorder (ASD) continue to concern families, clinicians and researchers. Poor clarity exists around processes and tools that direct children to needed services efficiently and effectively.

**Aims.** To understand predictors along the pathway from referral to diagnosis for young children with suspected ASD.

**Method.** Following implementation of a centralised intake trial for young children with suspected ASD at The Royal Children's Hospital Melbourne, triage and assessment data were analysed. For children below 2.5 years of age, The Modified-Checklist for Autism in Toddlers was completed following referral, whilst the Social Communication Questionnaire was completed for older children. Univariate and multivariate analyses were used to assess the value of screening tools in predicting assessment outcome, and to investigate interaction of factors on the pathway to diagnosis.

**Results.** The mean age of 159 children triaged was 3.6 years, with more boys (81%) than girls referred. Most referrals were from paediatricians (53%), with others from general practitioners (31%), other doctors (8%) and nursing or allied health (8%). For the 121 children followed through to assessment, no significant difference was found for referrer subtypes in relation to diagnostic outcome ( $p = 0.292$ ). An ASD diagnosis was made in 64% this group, and of the 85 children with complete screening data, 56 (65%) were diagnosed with ASD. There was a true positive rate of 58% and true negative rate of 46%. Further multivariate analyses will be presented taking into account demographic factors, referral source, and service allocation.

**Discussion.** ASD screening tools did not assist early correct identification of children with ASD, and over a third of children identified as at-risk did not receive an ASD diagnosis. More is required to determine best practice in directing these children to the right service at the right time.

*101: Symptom severity in Autism Spectrum Disorder is related to the frequency and severity of nausea and vomiting during pregnancy: A retrospective study*

**Murray Maybery**, Andrew Whitehouse, Gail Alvares, Dominique Cleary, Alexis Haru, Angela Stojanoska, Lauren Taylor, & Kandice Varcin

**Background.** Nausea and vomiting during pregnancy (NVP) is thought to be caused by changes in maternal hormones during pregnancy. Differences in hormone exposure during prenatal life have been implicated in the causal pathways for some cases of Autism Spectrum Disorder (ASD). However, no study has investigated the relationship between NVP and symptom severity in offspring with ASD.

**Aim.** To investigate whether the presence and severity of NVP is related to symptom severity in autistic offspring.

**Method.** A large sample of children with ASD (227 males and 60 females, aged 2 to 18 years) received a clinical assessment during which parents completed questionnaires regarding their child's social (Social Responsiveness Scale, SRS) and communication (Children's Communication Checklist – 2nd edition, CCC-2) symptoms. Parents also reported on a five point scale the frequency and severity of NVPs during the pregnancy of the child being assessed: (1) no NVP during the pregnancy, (2) occasional nausea, but no vomiting, (3) daily nausea, but no vomiting, (4) occasional vomiting, with or without nausea, and (5) daily nausea and vomiting.

**Results.** Impairments in social responsiveness in offspring, as indexed by SRS total score, significantly increased as a function of the frequency and severity of their mothers' NVP, as did the level of language difficulties as indexed by the Global Communication Composite of the CCC-2.

**Conclusions.** The strong, positive association between increasing frequency and severity of NVP and ASD severity in offspring provides further evidence that exposure to an atypical hormonal environment during prenatal life may affect neurodevelopment and contribute to the ASD phenotype. Given that the measure of NVP symptoms in the current study was based on retrospective recall, replication of this finding is required before strong conclusions can be drawn.

**Stream 7: 1:45-2:30: Lifespan Development and Community Awareness**

*98: Social competence, problem behaviours and school adjustment of children who were diagnosed with Autism Spectrum Disorder before and after 3-years of age*

**Megan Clark**, Zoe Vinen, Josephine Barbaro, & Cheryl Dissanayake

**Background.** This study investigated the social competence, problem behaviours, school liking and avoidance of school-aged children who had been diagnosed with an Autism Spectrum Disorder (ASD) before and after 3-years of age.

**Method.** Forty-three parents of children diagnosed early (before 3-years), and 28 parents of children diagnosed later (after 3-years), reported on their child's social competence (social skills and peer interactions), problem behaviours, and school adjustment (school liking and avoidance). The groups were matched on chronological age, with all children aged between 7- and 9-years.



**Results.** No differences in social skills or problem behaviours were found between children diagnosed early and later. The groups were also equivalent in their school adjustment. However, children diagnosed early had better peer play skills, and less difficulty engaging in play with peers at school age. Social skills and play interaction were positively correlated with school liking, and each were negatively correlated with problem behaviours in both groups. Problem behaviours were positively correlated with ASD symptoms at school age in children diagnosed early and later.

**Conclusions.** Better play skills may be fostered by an early diagnosis, and these skills may contribute to successful social and academic outcomes, facilitating school adjustment in children with ASD.

#### 105: *When I get older will you still care?*

Susan Bruck

For individuals on the autism spectrum who are aged in their forties, fifties and beyond the options for autism-sensitive support are limited. Research indicates that this cohort have an increased risk of mental health concerns, loneliness and long-term disrupted employment and these challenges can result in dependence upon social services for basic support. Significantly, little of this support is individualised or designed to meet the age-related care needs of people on the autism spectrum. The aim of this multi-phase mixed method study is to identify the service requirements of adults on the autism spectrum who are aged over 40 years. This presentation discusses the findings from a focus group (Phase 1). These findings contribute to Phase 2 of the project, an online survey of adults on the spectrum and their network of support. The focus group participants were invited to discuss the needs of people on the autism spectrum as they age. Three male and two female adults all on the autism spectrum and one male therapist participated in the one hour informed consented session. Audio recorded transcripts were thematically analysed. The primary finding was that there is a great need for age-appropriate support for adults on the autism spectrum. The findings showed that support is needed in navigating and managing the financial, medical and bureaucratic sectors. Individuals who are diagnosed later in life have additional challenges such as convincing family and friends of their support requirements. The findings also highlighted the necessity for professional development for service providers who engage with adults on the autism spectrum at any point through the service delivery process. The study concluded that providing professional development in how to communicate effectively and respectfully with ageing adults on the autism spectrum is an essential part of providing appropriate care.

#### 119: ePoster: *Preferred terminology for autism in the Autistic community*

Kitty-Rose Foley, Jac den Houting, Samuel Arnold, Lauren Lawson, Amanda Richdale & Julian Trollor

**Background.** Few studies have explored the issue of terminology preference in the autism and Autistic communities. In recent decades, Autistic self-advocacy groups have rightly gained a voice and begun to be heard on research priorities. As a result, ongoing debate has developed regarding language preferences when speaking about autism: identity-first (e.g. Autistic person), or person-first (e.g. person with autism) language? Exploring this important topic from the perspective of autistic people is key to gaining a meaningful understanding of preferred terminology.

**Methods.** The Study of Australian School Leavers with Autism (SASLA) and the Australian Longitudinal Study of Adults with Autism (ALSAA) are questionnaire-based studies which explore the health and wellbeing of autistic people (aged 15-24 years and 25+ years, respectively). The questionnaires cover many domains of life including participation, health, wellbeing, supports and health service use. In this study, domains related to preferred terminology, autistic traits and demographics will be investigated. These studies are part of the Cooperative Research Centre for Living with Autism.

**Results.** In total, 111 autistic people aged 15–79 years have provided data related to terminology preferences. Preliminary results from the ALSAA showed that 26 (45%) of autistic adults agreed it

was acceptable for others to refer to those on the spectrum as being “with autism”, while 45 (70%) agreed that “autistic” was an acceptable term. In this presentation, data from both longitudinal studies will be pooled and reported. Additionally, qualitative responses to the question “Do you have any other comments regarding language used to describe autistic adults?” will be analysed and presented.

**Conclusions.** This study presents the first Australia-wide data exploring preferred terminology for autism in autistic adults. This presentation will facilitate reflection on the meaning and importance of language, respect and person-centeredness for everyone in the autism and Autistic communities.

70: ePoster: *Linking Knowledge and Attitudes: Determining Neurotypical Knowledge About and Attitudes Towards Autism*

Rebecca Kuzminski, Joel Wilson, Julie Netto, Torbjorn Falkmer, Angela Chamberlain, & Marita Falkmer

**Background.** Consultation with the autism community in Australia revealed ‘experience of being misunderstood,’ and misconceptions about autism. A paucity of studies exploring attitudes toward autism exist, hence, researching knowledge and attitudes of autistic people was deemed important by the community.

**Aim.** Explore neurotypical knowledge about, and attitudes towards, autism and identify factors that influenced attitudes.

**Methods.** A survey was co-produced with an autistic researcher/reference group members. Respondents were neurotypical adults largely representing the Australian population. The questionnaire comprised; the Societal Attitudes Towards Autism (SATA) scale (N 1,078) and four knowledge sections (N 1,054). Totals of the SATA section were analysed. Knowledge section scores were summed and independent variables influencing the SATA scores were identified through backwards entry multiple linear regression modelling.

**Results.** A strong positive attitude towards autism (81.3%) and a high level of knowledge (81.5%) were reported. Knowledge total scores (range 21-65; mean 51.3) were positively related to attitudes. Knowledge was entered into a refined model ( $r^2 = .129$ ) by its sections, 1: Societal Views and Ideas (Standardised  $\beta = 0.205$ ,  $\beta$  95% CI = 0.268 - 0.510,  $p < .001$ ), 2: What could it be Like to Have Autism (Standardised  $\beta = 0.121$ ,  $\beta$  95% CI = 0.109 - 0.346,  $p < .001$ ), dichotomous responses to: Do you know and have you spent time around someone with autism? (Standardised  $\beta = 0.115$ ,  $\beta$  95% CI = 0.697 - 2.188,  $p < .001$ ) and gender (Standardised  $\beta = 0.071$ ,  $\beta$  95% CI = 0.167 - 1.649,  $p = .016$ ). Specific knowledge about autism influenced attitudes towards autism and knowing someone with autism had a positive impact. Highest proportion of “I don’t know” responses was found in Societal Views and Ideas, lowest level of knowledge and second highest proportion of “I don’t know” responses were found in What Could it be Like to Have Autism.

**Conclusion.** Knowledge about autism can be enhanced through narratives of autistic people, and media reporting should be informed by the autistic community.

**Stream 8: 1:45-2:30: Literacy and Language**

57: *“Square pegs in round holes” Parent perceptions of literacy learning for their children on the autism spectrum in the first year of school*

Kathryn O’Leary, Marleen Westerveld, Bev Flückinger, & Jessica Paynter

**Background.** Literacy learning begins from birth for all children, including those on the autism spectrum. However, many children on the spectrum have been found to struggle with learning to read and write once they enter formal schooling.

**Aim.** Our aim was to understand parental views of the importance of literacy learning for their children on the spectrum, and the challenges and facilitators to literacy learning that parent have encountered during their child’s transition to school.

**Method.** Thirty-two parents of children on the spectrum participated in semi-structured interviews following their child’s first 6-12 months of formal schooling. Graneheim and Lundman’s (2003) thematic content analysis method was used to analyse the data.

**Results.** Three key themes emerged: 1) Information that parents hold about their child, 2) Strategies used by parents to engage their child in literacy learning, and 3) Concerns that parents raised about what is happening at school. Parents were found to hold invaluable knowledge about their child's strengths and weaknesses and used this information to implement targeted and individualised literacy activities at home. However, the child's school did not often utilise this knowledge, and parents reported poor communication with their child's teacher and limited teacher understanding of autism spectrum disorder. Similarly, parents expressed frustrations with the teaching of the academic curriculum, leading to a general view that greater flexibility is required to enable successful inclusion of these children into mainstream classrooms.

**Conclusion.** The challenges and facilitators identified by parents of children on the spectrum emphasise a need for greater home-school collaboration. Incorporation of parent knowledge and home strategies across contexts may facilitate better literacy outcomes for this population.

15: *Moving towards evidence-based literacy instruction for children with autism spectrum disorders*

**Ben Bailey**, Joanne Arciuli, Rob Savage, & Rauno Parrila

**Background.** A systematic review by Whalon, Al Otaiba, and Delano (2009) found support for literacy instruction based on the recommendations of the National Reading Panel (NRP; National Institute of Child Health and Human Development, 2000) for children with ASD. However, findings were subject to important limitations and the review did not include a systematic evaluation of research quality.

**Aim.** In this presentation, we provide an updated systematic review for the period 2009-2017 and add a much-needed analysis of research quality for the literature on NRP-guided instruction for children with ASD.

**Method.** Key word searches were executed using PsycINFO, ERIC, EBSCO, Medline, PubMed, and Cochrane Library databases. For each study which met inclusion criteria, instruction outcomes were quantified using standardised measures of effect size and research quality was assessed using the Evaluative Method for Determining Evidence-Based Practices in Autism framework (Reichow, Volkmar, & Cicchetti, 2008).

**Results.** All 19 studies which met inclusion criteria reported gains in phonics, reading accuracy, reading fluency, and/or reading comprehension skills, though few were of adequate or strong quality. Multi-component NRP instruction was associated with gains in reading accuracy and comprehension as well as relatively high quality ratings.

**Conclusions.** Results suggest that children with ASD may benefit from literacy instruction targeting skills consistent with the NRP guidelines. However, there appears to be scope to improve the efficacy of NRP instruction for these children. For example, recent research involving at-risk readers shows that phonics instruction – a key focus of the NRP guidelines – may be optimised by targeting the most frequently occurring letter-sound correspondences in children's texts (Chen & Savage, 2014). Opportunities to improve instruction delivery also exist, including the use of computer-assisted and home-based instruction methods (Bailey, Arciuli, & Stancliffe, 2017; Stephenson, Parrila, Georgiou, & Kirby, 2008). These opportunities, potential barriers, and directions for future research will be discussed.

29: ePoster: *Emergent Literacy of Preschoolers on the Autism Spectrum: Links to Child Visual Attention and Verbal Engagement during Shared Book Reading*

**Rachelle Wicks**, Marleen Westerveld, & Jessica Paynter

**Background.** Despite experiencing similar exposure to shared book reading (SBR) as their typically developing (TD) peers, children on the spectrum often show challenges in emergent literacy (EL) development. Emerging SBR intervention research for children on the spectrum have yielded promising results; however, it remains unknown why they may not benefit from SBR to the same degree as TD children. Child engagement (including visual attention) and parent-child interactions during SBR are important determinants of EL learning for young children. Thus, atypical visual attention and/or impairments in reciprocal social communication may impact upon learning in a

social context in children on the spectrum, potentially explaining the learning difficulties observed.

The current study forms part of a body of research aiming to address the question: Does visual attention and engagement during SBR explain the EL profiles of preschool children on the spectrum?

**Method.** Participants included a subset of 40 preschool-aged children ( $M = 56.68$  months;  $SD = 6.19$ ; 82.5% male) on the autism spectrum and their caregiver recruited for two previous studies conducted with the support of The Autism Cooperative Research Centre for Living with Autism (Autism CRC). Secondary analyses of video data of parent-child SBR sessions previously collected was conducted. Transcripts of video recorded SBR sessions were coded for child visual attention (child looking at the book per parent utterance) and verbal engagement and parent SBR behaviours.

**Results.** Pearson correlation analysis was conducted to explore the associations between visual attention and verbal engagement during SBR and whether these aspects are associated with parent SBR behaviours, child characteristics, and children's performance on EL measures. Strong significant associations were found between children's visual attention, verbal engagement, and parent SBR use of question and/or prompts during the SBR interaction. Contrary to expectations, limited significant links were found between children's visual attention and verbal engagement and their emergent literacy skills.

**Conclusion.** Overall, findings highlight the interplay between parent SBR behaviours and children's overall reading engagement during SBR for preschoolers with autism. Results of the study can be used to inform future intervention research.

*27: ePoster: Longitudinal predictors of word reading skills in verbal children on the autism spectrum who are in their first year of schooling*

Marleen Westerveld, Jessica Paynter, David Trembath, & Kathryn O'Leary

**Background.** Learning to read is one of the most important skills children learn during the early years at school. It is of concern that a high percentage of children with on the autism spectrum show challenges in their reading development.

**Aims.** To better understand the early reading trajectories of young children on the spectrum, we investigated longitudinal predictors of word reading skills in 41 children diagnosed with autism in the first year of formal schooling.

**Method.** A total of 41 children completed measures of emergent literacy skills at age 4-5, prior to school-entry, including phonological awareness, letter sound knowledge, rapid automatic naming, name writing, and phonological memory (digit span). Approximately one year later when they were in their first year of schooling, they completed measures of word- and passage-level reading skills.

**Results.** Nonverbal cognition and letter sound knowledge accounted for 53.4% of the variance in regular single word reading at school-age, with letter sound knowledge a significant individual predictor. Overall, 18 children showed reading accuracy ability scores in the average range on a standardized test of passage-level reading ability (the YARC), whereas 23 children performed below expectations. These groups differed significantly on all precursor literacy -school measures (at age 4-5), except autism symptoms based on parent-report. Group membership was significantly predicted by preschool receptive vocabulary, name writing, and rapid automatic naming, with high sensitivity and specificity.

**Conclusions.** Although further research investigating the nature of reading strengths and difficulties in young children on the spectrum is needed, our results identify some initial targets for intervention.

121: ePoster: *Parental Experiences of Raising Trilingual Malaysian Children with Autism Spectrum Disorder: Policy Recommendations to Support Multilingualism*

Karen Jennifer Golden & Shiu Sum Chan

**Background.** Professionals working with children with autism spectrum disorder (ASD) traditionally recommended that children should not be exposed to more than one language due to their language learning difficulties. However, following this advice could be detrimental in the increasingly multilingual world.

**Aims.** This qualitative study aimed to explore the experiences of parents raising trilingual children with ASD in diverse multilingual Malaysia and to explore parents' attitudes related to multilingual language education. This study sought to better understand children with ASD from diverse linguistic backgrounds.

**Method.** Structured language exposure interviews (LEI; assessing lifetime language exposure, see Hambly & Fombonne, 2012) and semi-structured interviews were conducted with 8 mothers. Participants' children were male students in government Chinese primary schools (7–12 years-old,  $M_{age} = 9$  years,  $SD = 2$  years), who were exposed to at least 3 languages (Mandarin, Malay, English). All children ( $n = 8$ ) had a confirmed diagnosis of ASD by a health professional and all scored above the autism screening cut-off on the Social Responsiveness Scale-2 (SRS-2 Total T-scores, 61 to  $\geq 90$ ).

**Results.** Using interpretative phenomenological analysis (IPA), four key themes were identified: Decision-making about language education choices; parents' view on multilingualism; challenges related to multilingualism; and other challenges. All mothers thought that learning multiple languages was important for children to connect with family members and be accepted in the wider community. Most language-related challenges related to general ASD symptoms and not to the number of languages learned.

**Conclusion.** The results supported findings of recent studies that multilingualism did not negatively affect the language development of children with ASD. Special education research within Malaysia has understudied students in the vernacular schooling systems. Policy suggestions are recommended to consider expanded supports for multilingual children with ASD. They should be afforded the same rights to education and multilingualism as their typically-developing peers.

**Stream 9: 1:45-2:30: Families**

23: *Different Kids, Different Stories: Indigenous Australian Family Experiences of Autism*

Rozanna Lilley, Liz Pellicano, Mikala Sedgwick, Bronwyn Carlson, & Tristan Kennedy

**Background.** Indigenous children experience a higher rate of disability than other Australian children. Yet, there is no published empirical research targeted towards autism in Indigenous communities. This absence of research is deeply concerning and means that we lack an understanding of how these communities perceive autism and 'atypicality', the services and supports being offered and the services from which they might benefit.

**Aim.** The aim of this preliminary research is to document a range of Aboriginal family experiences of supporting children on the autism spectrum.

**Method.** Ten parents/caregivers of Aboriginal autistic children are being recruited from urban, regional and remote locations through Positive Partnerships and First Peoples Disability Network (FPDN) to participate in an individual, semi-structured interview in early November 2018 (all of which have been scheduled already). These interviews examine parents' experiences of their child's early development and diagnostic pathways, access and barriers to relevant supports and services, as well as education placements and experiences. We will also ask about their ideas regarding local research needs and priorities in relation to autism.

**Results.** This research is ongoing. The interviews will be thematically analysed by the research team, which includes Aboriginal researchers from Macquarie University and the Australian National University. We will also seek feedback from participants, in collaboration with Positive Partnerships and FPDN.

**Conclusion.** In this paper, we reflect on both the results themselves and the benefits and challenges of co-production of research in an Australian Aboriginal context. The results will provide the first window into the first-hand experiences of Aboriginal families with a child on the autism spectrum, provide a voice to families that have previously not been heard in autism research and, critically, identify key areas for future investigation in a larger-scale project.

42: ePoster: *Before the Bowl Breaks: Predicting Psychological Wellbeing of Care Providers of Individuals with Autism Spectrum Disorder*

Shyan Juang Low & Richard Hicks

Throughout the years, parenting or caring for an individual with a developmental disability such as Autism Spectrum Disorder (ASD) has been established as a complex situation of intensive long-term care. Such chronic exposure to intensive long-term care not only adversely impacts various life domains (e.g., finances, marriage, quality of life) of the care provider but also severely diminishes the psychological wellbeing of the care provider, resulting in chronic care-provider stress. These factors can lead to the development of negative consequences such as depression, unemployment, and marital conflicts, which have the potential to: (a) increase societal costs, (b) exacerbate the level of experienced care-provider stress, and (c) perpetuate the experienced care-provider stress, the adverse impacts on various life domains, poor psychological wellbeing, and the resultant negative consequences. In order to beneficially reduce the negative impacts brought out about by chronic exposure to intensive long-term care of individuals with ASD, it is essential to identify contributing factors and understand how these factors interact. This study, therefore, will examine some of the predictive factors (personality, perfectionism, emotional intelligence, wellbeing, distress level, quality of life, coping styles) that have the capability to affect psychological wellbeing of care providers of individuals with ASD over the life range. The Mini-IPIP, Almost Perfect Scale (short-form), Trait Emotional Intelligence Questionnaire (short-form), WHO Well-Being Index, Quality of Life Scale, DASS, and Brief COPE Inventory are used respectively to measure the above-mentioned predictive factors amongst participants who are care providers of individuals with ASD. The Social Desirability Scale is also used to measure reliability of responses obtained. Data obtained will be processed through SPSS for MANOVA, multiple regression, and correlational analyses. Currently, the study is within the last data collection phase and thus results and conclusion would be available before December 2018.

58: ePoster: *The Challenges and issues that recoupled parents encounter whilst raising and supporting their step/biological child with ASD within a stepfamily environment*

Sonia Cann-Milland & Penny Round

Research on children with autism has changed in recent decades in its focus from assessing how the child is impacted as an individual, to assessing the family's influence on the healthy development of the child. In addressing families impacted by having a child with Autism Spectrum Disorder (ASD) raises the issue of diversity in families and how the different structures can affect the child with autism. Data shows clinicians, community support services, and policy makers are recognising that the stepfamily form is growing at a significant rate causing researchers to hypothesise stepfamilies will become the norm as the most prominent family form in most western countries. Ongoing research recognises the importance of understanding parents' experiences and perspectives of having a child with ASD, and what it means for them resourcing and managing their child's everyday needs, behaviour and necessary treatments. The purpose of this study is to address the challenges and issues recoupled parents face raising their step/biological child/ren with ASD in a stepfamily form. The researcher, through a small-scale qualitative case study, interviewed two recoupled parents on their experiences and interpretation of them that has influenced their beliefs and actions in supporting their child with ASD. Stepfamilies are distinctly different to the nuclear family in

design, origin and function. The outcomes of this research has substantiated the existing research and highlighted issues recoupled parents of children with ASD face. The interviewees articulated the need for deeper relevant understanding from professionals and informal supports when working within in a stepfamily form. Extensive research on how a child with ASD is impacted by changes in their family structure will be valuable to both the families and children. This research will open the much needed discussion on how to provide effective support and resources to a child with ASD in a stepfamily form. The impact this will have on service providers will be more resourced and education in the importance of understanding the family dynamics of a child with ASD, recognising the strengths and challenges within the family that benefit or prevent an effective working relationship between parents and teachers to provide the best support possible.

89: ePoster: *The association between Child Problem Behaviour, Discipline strategies and Parental Stress in parents of children with Autism Spectrum Disorder*

Kimberley Amurao & Chantal Roddy

**Background.** It is well established that parents of children with Autism Spectrum Disorder (ASD) experience significantly higher levels of stress than parents of children with typically developing children. This elevated stress may have significant consequences on the psychological health and wellbeing of parents, further impacting the quality of their parenting and the adjustment of their children. Whilst a clear link between child problem behaviour and parental stress exists, recent studies have suggested that the strength of this relationship may be further impacted by parenting behaviours.

**Aim.** The present study aimed to examine the mediating effect of overreactive parenting practices on the relationship between child problem behaviour and parental stress amongst parents of children with ASD.

**Method.** A sample of 130 parents of children aged 3 to 11 with ASD residing in Australia, America, and the UK, responded to three online self-report questionnaires measuring problem behaviour, overreactivity and parental stress. Based on prior studies, it was hypothesized that parenting practices high in overreactivity (harsh and punitive discipline) would strengthen the relationship between child problem behaviour and parental stress.

**Results.** A mediation analysis was conducted using the PROCESS mediation tool (Hayes, 2015) with results indicating a significant indirect effect between child problem behaviour and parental stress through overreactivity. This was consistent with previous studies similarly examining parenting behaviours characterized by harsh and controlling practices.

**Conclusion.** The findings from this study suggest that targeting discipline practices within ASD interventions may improve the parent-child relationship and reduce both problem behaviour and elevated parental stress. The adoption of a family-oriented approach is therefore encouraged whereby parents may be taught appropriate behaviour management and parenting strategies. Future research may benefit from replicating the present study whilst exploring the role of additional parenting practices, such as warmth and responsivity.

99: ePoster: *Self-compassion- a novel predictor of well-being in parents of children with Autism Spectrum Disorder*

Gal Rachel Bohadana, Jessica Paynter, & Shirley Morrissey

**Background.** Parents of children with ASD as a group show higher stress and poorer quality of life than parents of children without ASD and with other disabilities. Limited research has focused on the strengths and positive aspects associated with raising a child with ASD. One of the most comprehensive models used to understand parental outcomes in parents of children with ASD is the Double ABCX Model of adaptation. This model proposes that parental outcomes are influenced by several predictors, namely child characteristics, internal and external resources, coping, and appraisals.

**Aims.** This project aims to investigate the influence of a novel factor, self-compassion. It is hypothesised that the expanded model will account for a significant amount of the variance in parental stress and quality of life. Additionally, it is hypothesised that self-compassion will be a significant and unique predictor of both parental stress and quality of life.

**Method.** 138 parents (118 females, and 19 males) with a mean age of 39.06 (SD = 8.02) completed an online questionnaire that measured Double ABCX model factors (i.e., child ASD symptoms and behaviour, resources, appraisals, and coping) with the addition of a self-compassion measure.

**Results.** Predictions were supported as the total model accounted for a significant amount of the variance in both parental stress (74.2%) and quality of life (55.4%). Additionally, self-compassion was a unique significant predictor of both parental stress and quality of life after accounting for all other predictors in the model.

**Conclusions.** Limited research to date focused on the potential role of self-compassion in parenting a child with ASD. Our findings suggest a positive link between greater self-compassion and lower stress, and higher quality of life. Given previous research has suggested self-compassion may be improved through intervention, this provides a novel avenue for future interventions to support quality of life and reducing stress in parents of children with ASD. The main limitation is the cross-sectional nature of this study. Therefore, longitudinal future research is needed to indicate whether changes in self-compassion predict changes in parental outcomes.

#### 113: ePoster: *The Mental Well-being of Informal Caregivers of Adults with Autism Spectrum Disorder: A Systematic Review*

Marisse Sonido, Samuel Arnold, Jane Hwang, & Julian Trollor

**Background.** Carers of adults on the autism spectrum may experience increased day-to-day stress and reduced quality of life due to the demands of their caring role. No current systematic review or model focuses on the mental well-being of this population.

**Aims.** To identify factors that affect mental well-being in carers of adults on the spectrum and to map these results to an existing conceptual model of carer well-being proposed by King et al. (1999) for parents of children with developmental disabilities.

**Methods.** Studies were included if they discussed well-being of carers of autistic adults (age  $\geq 17$ ). Studies were found using electronic databases, hand-searching, and consultation with other researchers. Abstracts were initially screened and, of these, those potentially eligible were independently assessed by two authors. Seventeen studies met criteria for the review and results were synthesised. Results were discussed in light of the King et al. (1999) model.

**Results.** For many factors, there was conflicting or weakly supported associations with carer mental well-being (e.g., carer age, behaviours of concern in the care recipient, and formal services received). Well-supported factors include care recipient general health, adaptive skills, and the quality of the carer-care recipient relationship. A proposed conceptual model of carer mental well-being mapping current literature was developed, with some adaptations, based on the existing conceptual model by King et al. (1999).

**Conclusions.** Many carer-related and care recipient-related factors are potentially associated with carer mental well-being. However, studies currently available on this population have little diversity in sample characteristics, mostly small sample sizes, and use dissimilar measures for both the observed outcomes and factors. More studies on this population, particularly quantitative studies using standardised measures, are necessary to determine which factors most influence carer mental well-being and to statistically test conceptual models.



48: ePoster: *Parental perception of supported access to treatment for children with ASD in the emergency department*

Alice Garrick, Marie Lee, & Carrington Scarffe

Children with autism spectrum disorder (ASD) are more likely to experience poorer health than their neurotypical peers (Sigafoos et al., 2003) with a 26% higher rate of emergency department (ED) admissions (Deavenport-Saman et al., 2016). Children with ASD often experience somatosensory disturbances which can be exacerbated in the hectic and stimulating ED context, resulting in stress, trauma and a negative experience of the ED (Souders et al., 2002). There are currently few existing resources available supporting children with ASD and their families in the Victorian ED context, as supported by Nicholas' et al. (2016) article which determined an absence in the literature where resources supporting children's introduction to the ED were lacking. This study aims to investigate the impact of visiting the ED on children with ASD and their families through online surveys. This study also aims to determine parents' perceived barriers to safe and effective treatment for children with ASD and evaluate available resources for parents to communicate their child's needs to healthcare staff, and to explain to children with ASD the emergency department procedure. Additionally we aim to develop a sensory needs profile for parents to inform healthcare staff of their child's sensory needs and visual aids explaining ED procedure for children with ASD. Through evaluation of current perceptions and available resources, and development of needs profiles and visual aids, this study will improve delivery of safe and effective healthcare, mitigating stress and emotional trauma experienced by children with ASD and their families in the ED.

**Stream 10: 2:45-3:30: Characteristics**

114: *The misnomer of "high functioning autism": IQ is a weak predictor of functional abilities in autism spectrum disorder*

Gail Alvares, Keely Bebbington, Dominique Cleary, Emma Glasson, Murray Maybery, Sarah Pillar, Mirko Uljarevic, Kandice Varcin, John Wray, & Andrew Whitehouse

**Background.** 'High functioning autism' is a term often used for individuals diagnosed with autism spectrum disorder (ASD) without an intellectual disability (ID). Over time, this term has become synonymous with expectations of greater functional skills and long-term outcomes, despite contradictory clinical observations. There has been limited research examining whether an intellectual quotient (IQ) approximates adaptive functioning in ASD at the time of clinical diagnosis.

**Aims.** To investigate the relationship between IQ and adaptive functioning in children at the time of ASD diagnosis.

**Method.** Individuals with ASD (n = 2222, 1 - 18 years of age) were notified at diagnosis to a prospective register and grouped by presence (n = 1039) or absence (n = 1183) of ID. Functional abilities were reported using the Vineland Adaptive Behavior Scales (VABS). Analyses investigated the relationship between VABS, IQ, and age at diagnosis.

**Results.** Weak to moderate positive correlations were observed between IQ and adaptive functioning. Older children also exhibited greatest reductions in adaptive scores. Regression models suggested that IQ was a weak predictor of VABS after controlling for sex (change in R<sup>2</sup>'s between .01 - .07). Whereas the ID group's adaptive behavior estimates were close to their IQs, VABS scores fell significantly below IQs for children without ID. The gap between IQ and VABS scores increased with increasing age at diagnosis for all children.

**Conclusions.** Estimates from IQ alone are an imprecise proxy for functional abilities when diagnosing ASD, particularly for those without ID. These data indicate that comprehensive functional assessment should complement diagnostic evaluations and inform service provision. We argue that 'high functioning autism' is an inaccurate clinical descriptor when based solely on IQ and this term should be abandoned in research and clinical practice.

84: *Prevalence of motor impairment in Autism Spectrum Disorder: A population-based analysis of diagnostic data*

**Melissa Licari**, Gail Alvares, Kandice Varcin, Kiah Evans, Dominique Cleary, Siobhan Reid, Emma Glasson, Keely Bebbington, John Wray, & Andrew Whitehouse

**Background.** There is mounting evidence to support motor impairment as a key clinical feature of Autism Spectrum Disorder (ASD). With prevalence reports as high as 79%, and delays in motor milestones preceding other clinical features, motor impairment appears to be an important clinical feature that may be overlooked in the diagnostic process.

**Aims.** To examine the prevalence of motor impairment at time of diagnosis in an Australian cohort of children with ASD, along with factors in the ASD phenotype associated with motor impairment.

**Method.** Vineland Adaptive Behavior Scale Motor Skills Domain scores (motor scores) were examined in a sub-cohort of children aged  $\leq 6$  years from the Western Australian Autism Register (N = 2084; 1690 males, 391 females). Intellectual capacity was reported in 1168 cases, allowing the assessment of motor performance between children with (n = 441) and without intellectual impairment (n = 727). Motor scores were also examined between DSM editions (N = 2084; 256 diagnosed using DSM-IV criteria, 1828 diagnosed using DSM-5 criteria) and age of diagnosis.

**Results.** Below average motor scores were present in 76.3% of the sample; 35.5% in the low range, 40.8% in the moderately low range. Whilst the prevalence of poor motor scores was high, motor impairment was only reported as a comorbid feature in 1.34% of the sample. Motor scores were lower in children diagnosed with ASD at a later age ( $p < 0.001$ ), and children with intellectual impairment had lower motor scores than those without ( $p < 0.001$ ). Examination of motor scores based on diagnostic criteria from the DSM revealed that children presenting with greater impairment in non-verbal behavior and restricted and repetitive behaviors using the DSM-IV displayed lower motor scores than those without.

**Conclusions.** The high prevalence of motor impairment found in this large cohort highlight the need for further consideration of motor impairment as a distinct specifier within the diagnostic criteria for ASD.

96: ePoster: *Head Circumference in Autism Spectrum Disorder*

**Joel Crucitti**, Mark Stokes, Peter Enticott, & Christian Hyde

**Background.** The issue of head circumference (HC) within Autism Spectrum Disorder (ASD) is replete with contradictory findings. Some past research did not account for age, and was often based on small or moderate sample sizes. Others undertook analyses comparing results to older normative values rather than current data.

**Aims.** We aimed to clarify the issue of HC within ASD by undertaking two procedures: a meta-analysis and a data atlas.

**Methods.** Raw data, or the means and standard deviations of HC and age, were obtained from 32 studies reporting results with autistic participants (N=5,966) and 15 studies reporting results from Typically Developing (TD) participants (N=1,949). ANCOVA's, controlling for age, compared raw data of autistic participants to TD individuals for males and females separately across a number of age groups up until nine years of age. The meta-analysis included 14 of these studies, as the other studies had no comparison data.

**Results.** The meta-analysis found HC to be significantly greater in those with ASD than controls in a random effects model (Adjusted Hedges  $g=0.21$ ; CI 95%: 0.04, 0.39). In contrast, raw data from the atlas found no difference for HC between autistic and TD individuals for all age ranges of interest ( $p > .05$ ). Rather than HC following one loglinear fit over age, as expected, two separate loglinear trends were apparent, before and after one month of age.

**Conclusion.** From the results, it appears that the meta-analysis was limited in its utility. Further, results of the atlas reveal HC does not differ by diagnostic status. Autistic and TD individuals have

similar HC across age. These results reveal conclusively that HC does not differ between autistic and TD individuals, and suggest that simple meta-analyses are insufficient to analyse complex data.

10: ePoster: *Understanding the role relationship between executive functioning and adaptive functioning in individuals diagnosed with autism spectrum disorder.*

Kendra Dommissie, Gail Alvares, Murray Maybery, & Andrew Whitehouse

**Background.** Adaptive functioning refers to the level to which an individual can be self-sufficient in real-life situations. Executive function describes higher-order cognitive control processes. A growing body of evidence demonstrates the important role of executive functioning in contributing to persistent difficulties in adaptive functioning in individuals diagnosed with Autism Spectrum Disorder (ASD).

**Aims.** The purpose of this review is to summarise the current evidence on the relationship between executive function and adaptive functioning in individuals with ASD, with an emphasis on understanding these three research questions: a). Which executive function processes influence adaptive functioning? b). Does executive functioning contribute uniquely to adaptive functioning after controlling for other variables linked to adaptive functioning such as sex, age, comorbid mental health and sleep issues? c). Do other variables such as sex, age, comorbid mental health and sleep issues moderate the relationship between executive functioning and adaptive functioning?

**Method.** A systematic search of the literature will be conducted. Research studies that have evaluated adaptive and executive functioning in individuals with ASD will be reviewed and summarised.

**Results.** To date, a preliminary search has been conducted, with a number of central themes emerging. Executive function appears to be an influential factor associated with adaptive functioning. In addition, factors variables such as sex, age, comorbid mental health and sleep issues appear to be associated with this relationship.

**Conclusions.** Given that adaptive functioning has been associated with optimal outcomes such as independent living, employment and positive social relationships, understanding what factors influence it is an important area to research. Implications for future research, and clinical and educational practice will be discussed.

### Stream 11: 2:45-3:30: Education

14: *Instructional practices used by paraprofessionals when supporting students with Autism Spectrum Disorders in primary and secondary mainstream schools*

Satine Winter & Anne Christie

**Background.** The focus on inclusivity in mainstream schools combined with an increasing reliance on paraprofessionals to support teachers in meeting the needs of students with Autism Spectrum Disorders (ASD), leads to concerns about paraprofessional qualifications, training, and level of knowledge specific to ASD.

**Aims.** This research aims to gather current information on paraprofessionals' knowledge and use of instructional practices used to support students with ASD in mainstream schools and is part of a wider research project on the training needs of education professionals and paraprofessionals in promoting the inclusion of students with ASD.

**Method.** In Phase 1 of this research project, we are conducting an online survey on the training needs of paraprofessionals from the Independent and Christian primary and secondary school sector. The survey utilises Knight et al's (2018) work to explore paraprofessional implementation of 26 instructional practices, recent access to training resources, and the factors considered when deciding on which practices to use for students with ASD.

**Results.** The preliminary findings from Phase 1 of this research project will be presented in comparison to the Knight (2018) study. The significance of this research lies in determining exactly

what paraprofessionals know and use in the classroom to inform future training needs and highlights policy implications for the education of students with ASD for stakeholders including paraprofessionals, teachers, and principals.

**Conclusions.** This work will contribute to existing literature by comparing findings from the United States on instructional practices used by paraprofessionals and identifying similarities and differences in Australia.

### *36: Social validity of an online platform for teachers of students with autism*

Rhylee Sulek, David Trembath, Jessica Paynter, & Deb Keen

**Background.** The transition to school is often a challenging time for children. However, for children with autism, the challenges faced during this period are often compounded due to social-communication and behavioural difficulties associated with the disorder (Denkyirah & Agbeke, 2010; Forest, Horner, Lewis-Palmer, & Todd, 2004; Marsh & Eapen, 2017; McIntyre et al., 2006). Additionally, with a growing proportion of children with autism transitioning to general education settings, there is an increasing need for general education teachers to be well equipped to support their development. The transition to school might be enhanced if elements to transition, including: establishing strong connections with the child's previous setting, collaboration amongst professionals supporting these students, and providing access to quality resources and information around effective strategies, are present.

**Aim.** To determine the social validity of a purpose designed online platform harnessing elements important to transition for children with autism.

**Method.** A series of interviews and focus groups were conducted with parents, classroom teachers, and transition coordinators involved in the transition to school of children with autism. Participants were asked to provide feedback on four elements embedded in the online platform. The seven steps of Framework Analysis (Ritchie & Lewis, 2003) will be used to guide qualitative analysis of the data collected.

**Results.** Data collection is currently underway, with 14 interviews completed to date. An additional eight interviews will be completed by August 2018.

**Conclusions.** Major themes identified in the analyses, and how they relate to social validity of the proposed online platform will be discussed. Recommendations for the development of online based learning to improve the transition to school will be discussed.

### *5: How often and why do schools fail to meet the needs of students on the spectrum?*

Jill Ashburner, Jennifer Taylor, & Beth Sagers

**Background.** A nationwide UK survey suggested that 33% of students on the spectrum had changed school within the previous five years (Batten et al., Corbett, Rosenblatt, Withers & Yuille, 2006). Anecdotally, disrupted school trajectories are thought to be common in Australia, but there is currently no Australian data on this issue.

**Aim.** This paper reports on (a) reports of instances of students on the spectrum changing schools because the school wasn't a good fit, (b) their parents' reasons for changing schools, and (c) student characteristics associated with school changes.

**Method.** In response to a Queensland-wide online survey, responses were received from 403 parents of primary school-aged students, 175 parents of secondary school-aged students, 69 young people who had left school and 59 adults on the spectrum. Descriptive and inferential statistics were used to analyse data on student characteristics and school preferences. Content analysis was used to analyse open-ended responses on parent's reasons for changing schools.

**Results.** The percentages of students on the spectrum who had changed school at some time during their schooling was 34% for primary school-age students, 53% for secondary school-age students, and 57% for adolescent or adults who had left school. The most common reasons given for changing schools included a lack of adequate support, lack of understanding of the autism and/or the students' needs, lack of academic progress, repeated suspensions, and anxiety. Students with co-

occurring conditions such as attention deficit hyperactivity disorder, specific learning disorders, anxiety disorders and depression were more likely to change schools.

**Discussion.** This study will enhance our understanding of how often and why schools are not a good fit for some students on the spectrum, and the characteristics of students who are less likely to be successfully included. In so doing, it will inform the design of more effective educational programs.

### **Stream 12: 2:45-3:30: Brain Function & Genetics**

#### *51: Exploring Predictive Coding of Perceptual Inference in Autistic Traits*

**Min Stewart** & Patrick Johnston

In recent years compelling new hypotheses of sensory experience in autism spectrum disorder (ASD) have been proposed, based on predictive coding. These suggest underlying differences in neural mechanisms involved in inferencing and sensory processing in ASD, however the neurophysiological evidence is relatively lacking. The present study focuses on predictive coding at multiple stages in the hierarchical visual domain investigating how the brain constructs the extracts of invariance at successive levels of abstraction for visual recognition and applies predictive coding theory to visual processing in those affected by autistic traits (AT). It is hypothesised that there will be significantly disparate neural responses between high-AT and low-AT individuals, with larger and later neural responses to expected change of visual sequences in high-AT relative to low-AT, and reduced neural responses to violations of contextually-induced expectation about visual stimuli in high-AT relative to low-AT. The study will use electroencephalography and a recently developed experimental paradigm that is capable of indexing the brain's response to expectation and its violations across the visual processing hierarchy. The paradigm uses a rapid serial visual presentation (RSVP) to manipulate expectation about visual stimuli based on context, and is able to examine neural response to different levels of abstraction of visual information. A minimum of 20 EEG data will be acquired using a Bio-semi amplifier (ActiView version 7.06, BioSemi, 2013) and data will be analysed using the Brain Vision Analyzer 2.0 software (Brain Products GmbH) by November. The research will provide a unique contribution to the study of visual processing in ASD by advancing our understanding of how abnormalities in predictive coding might underpin aberrant perceptual experience. The results of this research will not only contribute to an under-researched area, but also inform clinical practitioners to help develop better diagnostic tests and treatment strategies for ASD.

#### *87: Do adults with autistic-like traits show evidence of atypical language or visuospatial cerebral organisation? a functional Transcranial Doppler Ultrasonography study*

**Simone Fernandez**, Murray Maybery, & Andrew Whitehouse

**Background.** For a majority of people, language functions are more commonly specialised in the left hemisphere of the brain, while visuospatial functions are focused in the right hemisphere. However, there is accumulating evidence suggesting that the development of cerebral lateralisation occurs differently or atypically in people on the autism spectrum, potentially explaining the discrepant cognitive profile of visuospatial abilities exceeding language abilities frequently documented.

**Aim.** This research aimed to evaluate whether non-clinical individuals with high levels of autistic-like traits show divergence from the typical pattern of left-hemisphere language and right-hemisphere visuospatial cerebral organisation, relative to age-matched peers with low levels of autistic-like traits

**Method.** Using non-invasive functional Transcranial Doppler Ultrasonography (fTCD), we assessed cerebral lateralisation for language production and visual short-term memory in undergraduate adult students selected for low ( $n = 26$ ) and high ( $n = 24$ ) autistic-like traits on the autism spectrum quotient (AQ) questionnaire.

**Results.** Although participants in the high AQ group displayed poorer behavioural performance on the language task relative to those in the low AQ group, laterality indices were similar in strength and directionality, marked by typical left-hemisphere language specialisation. Conversely, despite showing comparable behavioural accuracy on the visuospatial task, laterality indices revealed that

the high AQ group showed significantly weaker right-hemisphere visuospatial specialisation compared to their low AQ counterparts.

**Conclusion.** Our results indicate a mismatch between behavioural performance and neurological responses, as measured by fTCD. Theoretical explanations for AQ group differences in the strength but not in the directionality of visuospatial specialisation are discussed.

#### *47: Development of human stem cell pre-clinical models to understand ASD in a dish*

**Kiymet Bozaoglu**, Miriam Fanjul Fernandez, Haloom Rafehi, Ben Rollo, Natasha Brown, Eduardo Stanley, Steve Petrou, Martin Delatycki, Melanie Bahlo, Ingrid Scheffer, & Paul Lockhart

**Background.** In the last five years there have been exciting developments regarding the genetic causes of Autism Spectrum Disorder (ASD), however mechanistic analysis of ASD pathophysiology has been impaired by the inaccessibility of disease-relevant brain tissue. Patient-derived induced pluripotent stem cells (iPSC) enable accurate modelling of genetic diseases ex vivo, providing an outstanding opportunity to investigate disease mechanisms and ultimately develop and test novel therapies for ASD.

**Aim.** To develop pre-clinical models to test the role of the genetic variants identified in our multigenerational ASD pedigrees and more broadly demonstrate the utility of iPSCs in ASD research.

**Methods.** We have generated iPSC lines from 9 individuals (some carrying the novel variant and some not carrying the variant) from one of our well phenotyped families that a variant linked to ASD was identified. Isogenic controls were generated using CRISPR-Cas9 technology use alongside the iPSC that carry the variant. A glial/neuron co-culture differentiation protocol was used to perform the molecular characterisation of the variant. Real time PCR, confocal microscopy, calcium signalling assays, multi-electrode arrays (MEAs) and synaptogenesis assays were used for characterisation studies.

**Results.** Our preliminary data in control cells demonstrate that we have successfully generated a neuron/glia co-culture system which have active and functional neuronal networks. We have recently generated CRISPR-Cas9-corrected isogenic controls in 2 members from one ASD family which we are characterising to determine whether there is a difference in morphology, function and activity of the neuronal networks in the mutant vs isogenic control cells.

**Conclusion.** We have generated a pre-clinical pipeline using human iPSCs to determine how novel genes identified in multi-generational pedigrees may be contributing to ASD. This approach will make an important contribution to our understanding of the aetiology and pathogenesis of ASD and will establish the pipelines to use more broadly with other ASD genes.

#### **Friday Posters**

22. The relationship between IQ and sex differences in autism: A systematic review and meta-analysis.

Evelyn Perry, **Alex Ure**, Veronica Rose, & Katrina Williams.

**Background.** More males are currently diagnosed with autism than females, but the M:F ratio varies significantly across studies. It has been suggested that the ratio changes with IQ, with more females with autism having comorbid intellectual impairment (IQ<70) compared to females with average or above intelligence.

**Aim.** This study investigated the M:F ratio of autism based on IQ subgroup through a systematic review of the research literature.

**Methods.** Studies were identified from four electronic databases (Medline, Embase, PsycINFO and Cochrane Library) and included population-based studies investigating prevalence of autism published between January 2015 and March 2018, as well as studies from 1996 to 2014 included in a previous review. Study quality was assessed using the Hoy Risk of Bias Tool. Random-effects meta-analysis was conducted. The pooled outcome measurement was the male-to-female odds ratio (MFOR); the odds of being male in the group of individuals with autism.

**Results.** Twenty-five studies were selected, with 2,912,985 participants of whom 25,438 had IQ data available. The MFOR pooled estimate was 3.03 (95% CI 1.89 - 4.87,  $\chi^2 = 2.29$  (d.f 19),  $I^2 = 0\%$ ) for the IQ<70 subgroup, and 4.76 (95% CI 2.95 - 7.68,  $\chi^2 = 3.08$ ,  $I^2 = 0\%$ ) for the IQ>70 subgroup. An odds ratio of 0.74 (95% CI 0.63 - 0.87,  $I^2 = 63.4\%$ ) was found when the M:F ratio was compared for low and average or above IQ groups in studies reporting both low and high IQ groups, indicating that the MFOR was significantly less overall in the IQ<70 group.

**Conclusions.** This review documents a lower reported M:F ratio in individuals with autism and IQ<70 compared to those with autism and IQ>70. Future research should investigate whether diagnostic practices and service availability contribute to sex differences in autism diagnosis and whether aetiological or other clinical associations vary with IQ.

### 31. Heritability of facial masculinity in Autism Spectrum Disorder.

**Diana Tan**, Syed Gilani, Murray Mayberry, Gail Alvares, Ajmal Mian, & Andrew Whitehouse

**Background.** A recent study reported increased facial masculinity among prepubescent autistic children relative to non-autistic children. Additionally, facial masculinity was associated with social communication difficulties but not repetitive behaviours and restricted interests. Twin and family studies have provided clear evidence that certain cognitive phenotypes associated with ASD, such as social difficulties, are highly heritable. In terms of facial structures, genetic factors have been found to explain more than 70% of phenotypic facial variation. In particular, 49% of the variation in facial masculinity-femininity is due to genetic influences.

**Aims.** The present study aims to investigate whether masculinised facial features are present in full siblings of autistic children using state-of-the-art 3D photogrammetry and machine learning.

**Method.** Twenty-three boys (Mage=7.31 yrs) and 20 girls (Mage=6.95 yrs) who are non-autistic siblings of children with ASD were included in this study. Every sibling was age- and sex-matched with three typically-developing children (69 boys [Mage=7.39 yrs] and 60 girls [Mage=7.41 yrs]). Landmarks were placed on each 3D image to generate a set of linear and geodesic distances previously found to accurately differentiate between boys and girls of similar ages as those included in the current study. Using these distances, a continuous 'gender score' can be computed for each face to indicate the degree of facial masculinity.

**Results.** Facial and statistical analyses are expected to complete by the end of September 2018. Based on the converging evidence for hypermasculinised facial structures in autistic children and the heritability of both facial structures and autistic traits, it is expected that hypermasculinised facial features will be observed in the siblings of children with ASD compared to controls drawn from families without a history of ASD.

**Conclusions.** This study will elucidate the role of genetics in the biological mechanisms that underlie the development of behavioural and facial phenotypes associated with ASD.

### 32. Sex-specific variations in perceived facial masculinity/femininity across levels of autistic-like traits.

**Diana Tan**, Murray Mayberry, Melissa Evans, Renata Di Lorenzo, & Andrew Whitehouse.

**Background.** During foetal development, the brain and the face develop from the neural crest in synchrony, leading to the speculation that facial structures may hold crucial information about atypical neural development in ASD. Based on a hypothesis that the development of ASD may be linked to the increase exposure to testosterone in utero which is known for its masculinizing effect, a study published by our research group reported hypermasculinization facial structures among autistic children relative to non-autistic children.

**Aims.** The current study examined whether facial hypermasculinisation extends to neurotypical adults with varying degrees of autistic-like traits.

**Method.** Seventy-two Caucasian men and 81 Caucasian women who reported either high, mid-range or low levels of autistic traits completed the study in which their facial photographs were obtained.

Then, on a 10-point scale anchored by 'not at all masculine/feminine' and 'extremely masculine/feminine', the male faces were rated for masculinity and the female faces for femininity by a separate group of naive raters ( $n = 41$ ; 23 females).

**Results.** A significant U-shape relationship between facial masculinity ratings and levels of autistic traits was found in men. Specifically, men with mid-range levels of autistic traits received lower masculinity ratings than did those with either low or high levels of autistic traits. For women, a negative linear relationship was observed whereby lower femininity ratings were associated with greater degrees of autistic traits.

**Conclusions.** These results suggest a sex-specific relationship between perceived facial masculinity/femininity and autistic traits. Findings in the present sample of post-pubertal women are consistent with masculinised facial features observed in prepubescent girls with ASD. However, the current outcomes for men are inconsistent with our previous findings. Taken together, these results suggest the facial structures associated with autistic traits may be stable across development for females but non-linear for males.

34. Prevalence, onset and risk factors associated with regression in children with autism: A systematic review and meta-analysis.

**Veronica Rose**, Christine Tan, Alex Ure, & Katrina Williams

**Background.** Approximately 30% of children on the autism spectrum experience skill loss, known as 'autistic regression'; however, the frequency varies depending on definition and measure used to capture skills. Retrospective parent report and prospective observation indicate loss of language and/or social skills, with motor skills typically unaffected. While there is emerging research aimed at identifying causes of autistic regression, to date, no one variable has been identified as accounting for all instances.

**Aims.** The aim of this study was to document the prevalence and age of onset of regression in autism through a systematic review of the literature. A secondary aim was to explore reported risk factors of autistic regression.

**Methods.** A systematic literature search was conducted using Medline, Embase, PsycINFO and Cochrane Library databases and included studies published from 2010 onwards (the date of the most recent meta-analysis on this topic). Risk of bias assessment was performed on included studies. Random effects meta-analysis was used to calculate the prevalence and age of onset of autistic regression, while narrative synthesis was conducted for risk factors.

**Results.** Eighty studies were included in this review, of which 59 studies reporting on 18,905 participants had sufficient data for meta-analytic syntheses. The pooled prevalence of autistic regression was 30% (95% confidence interval [CI]: 26-34%); however, prevalence varied according to sample type (clinical: 28%, population: 34%) and definition of regression (language: 19%, language/social: 41%, mixed: 29%, unspecified: 26%). Average age of onset was 19.4 months (95% CI: 19.14-19.66). Risk factors associated with regression were grouped into six broad categories: biological, clinical, demographic, electrophysiological, environmental, and medical.

**Conclusions.** Findings from this systematic review inform the development of potential early identification and prevention strategies for regression in autism, with the aim of improving long-term outcomes of children on the autism spectrum.

90. Utility of Temperament for Predicting Psychopathology in Infants with Early Signs of Autism Spectrum Disorder (ASD).

**Lacey Chetcuti**, Mirko Uljarevic, Maryam Boutrus, Andrew Whitehouse, Kandice Varcin, & Kristelle Hudry.

**Background.** Autism Spectrum Disorder (ASD) rarely occurs in isolation from other psychopathology. However, the mechanism/s underlying this pattern of co-occurrence remain poorly understood. Abundant research on normative development suggests that individual differences in early temperamental characteristics can promote susceptibility or resilience to the development of



psychopathology. This temperament-psychopathology relation has rarely been investigated among individuals with ASD.

**Aims.** To investigate the presence of distinct temperament typologies and their associations with psychopathology in a cohort of infants presenting with early signs of ASD.

**Method.** Participants were 96 infants (67.7% male) aged 9-16 months ( $M=12.38$ ,  $SD=1.94$ ) showing early signs of ASD. Parents/carers completed the Infant Behaviour Questionnaire – Revised (IBQ-R), a 191-item measure of infant temperament, and the Infant-Toddler Social and Emotional Assessment (ITSEA), a 161-item measure of social-emotional and behavioural problems. Latent profile analysis was used to identify temperamental subgroups based on the IBQ-R, and one-way ANOVA were used to explore differences across ITSEA domains/scales between the identified temperamental subgroups.

**Results.** The following three temperament typologies were identified: (1) well-regulated ( $n=50$ ), characterized by high cuddliness, falling reactivity, and soothability (2) active/negatively reactive ( $n=24$ ), characterized by high activity level, distress to limitations, sadness, and fear, and low falling reactivity, and (3) inhibited/low positive ( $n=22$ ), characterized by low smiling and laughter, high intensity pleasure, vocal reactivity, approach, and perceptual sensitivity. There were no differences between temperamental typologies with respect to verbal/nonverbal developmental ability or ASD features. Infants classified as well-regulated had the lowest levels of broad internalizing symptoms and generalized anxiety. Active/negatively reactive infants had the highest levels of separation distress and broad externalizing symptoms, while inhibited/low positive infants had the highest levels of depression/withdrawal.

**Conclusions.** Temperamental heterogeneity presents among infants showing early signs of ASD and holds promise for explaining variability in psychopathology outcomes.

#### 118. Object permanence versus poor theory of mind.

**Wenn Lawson.**

Individuals on the autism spectrum (AS) may find it difficult to maintain eye contact, identify emotions of self or other and have difficulties to generalize concepts. This failure to attend to several things has often been misinterpreted as poor 'theory of mind' (ToM) due to failure to note and/or respond to others in expected ways. Object permanence (OP) (knowing objects have a life of their own even when out of sight) implies a person needs to attend to multiple stimuli in order to appreciate concepts such as 'here, now, gone, later, still here but unseen and so on'. In AS attending to several things simultaneously is difficult. This is why the DSM-5 names two criteria for autism and they are based upon single attention (Social & communication domain & restrictive & repetitive interests & behaviours domain).

Whether the object is in view or hidden from view, AS individuals may not discern the fuller context of OP. For example, two girls with AS might know their drink bottles are in their lunch bag, even when they can't see them, BUT, they don't seem to know that Mummy is still home, just not within their view, if she 'disappears' to a different room in the house. How is it they know one concept, but not the other? I propose that this is due to a lack of "big picture" thinking which requires a full range of cognitive and sensorimotor skills to work synchronously within the brain, to determine, "where am I?" and "where is it/they/them?" especially in regards to object permanence and generalization. The purpose of this presentation is to help professionals and families understand this behaviour and separate it from related problems with ToM. Appropriate education and support that fits the individual's learning style is the solution to this dichotomy. Once understood AS individuals will show less stress and anxiety, and have more available attention to focus upon learning. The teaching of OP contributes to appropriate building of skills needed to cope with daily life.

#### 19. Examination of speech-identified mediating factors on AAC outcomes for children with ASD.

**Stephanie Sievers,** David Trembath, & Marleen Westerveld.

**Background.** Minimally verbal children with autism spectrum disorder (ASD) are often prescribed augmentative and alternative communication (AAC) systems in an attempt to support their receptive and expressive communication skills. There is a growing body of evidence in regards to the overall positive effects for AAC but the heterogeneity of the ASD population and variability in response to intervention has made it difficult to understand what works for whom and why. Based on a systematic review of the literature and an international survey of speech-language pathologists (SLPs) (Sievers, Trembath, & Westerveld in preparation), a number of factors have been identified that may mediate children's response to AAC interventions.

**Aims.** The aim of this study is to investigate the possible mediating effect of three SLP identified factors – adult AAC input, opportunities for AAC use, and communication partner perception on the benefits of the AAC system - on expressive language intervention outcomes for children with ASD.

**Method.** This study uses a longitudinal cohort design involving 70 children with ASD across seven centres receiving comprehensive group-based community interventions. A generalised linear model will be used to analyse if the amount of access the child has to their AAC system, direct instruction of AAC systems provided, and staff perception of AAC mediated expressive and receptive communication gains mediate expressive communication outcomes measured via the ASELCF CFOS battery (e.g. MSEL, language samples, CSBS-DP).

**Result.** Preliminary results will be presented regarding the potential relationship between SLP identified factors and their ability to mediate expressive language outcomes following an AAC-infused comprehensive interventions.

**Conclusion.** Incorporating SLPs' clinical experiences in research will contribute to evidence-based-practices around AAC decisions for minimally verbal children with ASD.

### 38. Language Profiles of Infants Showing Early Signs of Autism Spectrum Disorder (ASD).

**Stefanie Dimov**, Kristelle Hudry, & Teresa Iacano

**Background.** Delays in language acquisition are among the clearest early indicators for Autism Spectrum Disorder (ASD). Typically, children understand words before they can use them (i.e., receptive language advantage). While children with ASD generally have both receptive and expressive language impairments, receptive language may be relatively more impaired (i.e., reduced receptive language advantage). However, few studies have investigated language profiles in infants with emerging ASD and particularly within community referred samples.

**Aim.** To investigate language profiles in a unique cohort of infants showing early signs of ASD identified via community-referral and using multiple measures of language assessment.

**Method.** Among the cohort of 104 infants, participants with complete language assessment data were 94 infants (67.0% male) aged 9-16 months ( $M = 12.32$ ,  $SD = 1.97$ ). Parents/caregivers completed the Vineland Adaptive Behaviours Scales (VABS) for functional receptive and expressive communication, and the MacArthur Bates Communication Development Inventory (MCDI, Words and Gestures form) for receptive and expressive vocabulary knowledge. Direct assessment included the Autism Observation Scale for Infants (AOSI), a measure of early signs of autism, and the Mullen Scales of Early Learning (MSEL), yielding a measure of child receptive and expressive ability.

**Results.** Correlational analyses revealed that agreement among the two parent-report and one direct assessment of language was moderate to low. Regression analyses revealed that direct-assessed expressive and receptive language were both significantly predicted by greater child age and fewer autism symptoms. No such effects were apparent for the parent-reported language measures.

**Conclusions.** Analysis of relative receptive language advantage for this cohort is underway. It is not clear that published research on language profiles with 'high-risk' infant siblings will generalise to community-referred sample of infants showing early signs of ASD.

## 61. Perspective-Taking Therapy with Thought Bubbles and PiSCES for Children with ASD.

Wong Ci Xin

**Background:** Children with Autism Spectrum Disorders (ASD) often have deficits in perspective-taking which limits their ability to evaluate emotions and interpret social situations accurately. Thought-bubble training has been used to extend their understanding of others' thoughts and hence improve performance on tests of false belief (Wellman et al., 2002).

**Aim:** To investigate the effects of a newly-developed perspective-taking intervention programme for preschool children with ASD using 'thought bubbles' in contextualized pictures of people in everyday situations.

**Method:** A single-case study design was developed for two female children with ASD aged 5 years 4 months and 5 years 9 months who were then guided to evaluate and verbalize the thoughts and feelings of people in a set of pictures using thought-bubbles. The intervention stimuli were drawn from the Pictures with Social Context and Emotional Scenes (PiSCES) database (Teh, Yap, & Rickard Liow, in press), a set of pictures standardized on emotional valence, intensity, and social engagement. The complexity of the picture stimuli was increased over the programme, beginning with those that required the least amount of social-processing (low social engagement) and emotional-processing (high intensity, negative valence), following through to pictures requiring higher social- and emotional-processing (high social engagement, low intensity emotions). The number of emotional and mental state vocabulary items used and the accuracy of the children's descriptions were recorded at baseline and post intervention with experimental stimuli. The results of an 8-session programme (one hour per session, completion July 2018) are expected to show an increase in the number and accuracy of emotional and mental state vocabulary for the experimental stimuli, and that the effects generalize to untreated pictures.

**Significance:** The study demonstrates the effectiveness of a thought-bubble intervention strategy, used with graded pictures with a social engagement construct, as stimuli for training perspective-taking skills in children with ASD.

## 78. The Characteristics of Pitch Contours in Speech Directed to Infants at-risk for Autism.

Alix Woolard, Titia Benders, Linda Campbell, Frini Karayanidis, Larissa Korostenski, &amp; Alison Lane.

**Background.** Maternal infant-directed speech (IDS) is a speech register used during interactions with infants and facilitates socio-communicative and language development. One salient aspect of IDS are its simplified pitch trajectories or contours. Previous research has shown that specific pitch contours are associated with infant affect and attention. However, there has been limited examination of pitch contours used with infants experiencing socio-communicative and language delay. Infants at-risk for Autism Spectrum Disorder (autism) display impairment in these areas, and it is hypothesised that mothers of these infants will use different pitch contours in IDS when compared to mothers of low-risk infants.

**Aims.** The aim of this study is to compare pitch contours used by mothers interacting with their infants who have high and low-risk for autism.

**Method.** Participants are 12-month-old (corrected) preterm infants (n=23) and their mothers, recruited from the Neonatal Intensive Care Unit at a local hospital. Preterm infants were chosen as they reportedly have up to three-fold increased risk for autism. Mother-infant dyads participate in a 15-minute video/audio recorded interaction, from which maternal pitch contours are extracted and classified. Infant autism risk is assessed using the Autism Detection in Early Childhood assessment and the First Year Inventory. Pearson product-moment correlation will be conducted to determine whether specific maternal pitch contours are associated with infant risk for Autism.

**Results.** Our pilot study of six high-risk infants revealed a difference in the pitch contours used compared with low-risk infants. Data from current participants will be reported at the conference.

**Conclusions.** This study will identify whether mothers of high-risk infants use different patterns pitch contours with their infants. If the findings of our pilot study are confirmed, we then hypothesise

interventions targeting maternal IDS in the first year of life may mediate social-communicative and language development in infants at-risk of autism.

41. Applying Knowledge to Action: A strategic framework for implementing evidence-based practice in Autism Spectrum Disorder early intervention centres.

**Sarah Luskin-Saxby**, Jessica Paynter, & Melanie Zimmer-Gembeck.

**Background.** Effective early intervention for autism exists in the form of Evidence Based Practices (EBP), and can be reliably obtained from systematic reviews of RCT's (e.g., Wong et al., 2015; NAC, 2015). Utilising these empirically supported, effective practices is critical in order to achieve the best possible outcomes for children with autism. However, a knowledge-to-practice gap has been widely acknowledged including non-use of effective practices and continued use of ineffective practices. This is a serious challenge in autism early intervention, as when early intervention providers use and/or recommend ineffective interventions, children with autism miss out on effective practices and risk harm.

**Aims.** To support early intervention providers to increase their use of EBP and reduce or eliminate use of ineffective practices, through development of effective staff training aimed at offering effective intervention and achieving best possible outcomes for children with autism.

**Method.** We developed a strategic framework for implementing EBP in autism Early Intervention Centres that encompasses the entire cycle of the knowledge-to-action (KTA) paradigm (Graham et al., 2006).

**Results.** The proposed framework will be outlined. This includes how progress in autism early intervention research (i.e., knowledge) may be put into action (i.e., practice) in a timely manner.

**Conclusions.** The study will contribute to the advancement of science by applying the KTA framework and demonstrating its potential for planning and implementing a strategy for early intervention professional development in EBP in autism Early Intervention Centres. The framework is based on the creative and coordinated effort anchored in stakeholder collaboration throughout the entire knowledge translation process. Such a collaboration between researchers and autism Early Intervention Centres (i.e. end-users) is crucial, as it ensures a meaningful exchange of knowledge and an ongoing open communication between parties who have a shared interest in enhancing care given to children with autism.

106. Replacing ineffective with effective teaching practices for students with autism.

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**Background.** Despite the existence of effective, or evidence-based, practices to support students with ASD, ineffective practices continue to be used by teachers in education settings. This diverts limited resources away from practices with proven positive outcomes and has the potential to cause harm to children. Educational outcomes for children with autism may be improved if teachers can increase their use of evidence-supported practices while decreasing their use of unsupported practices.

**Aim.** To evaluate the impact of purpose designed professional development (PD) materials on teachers' support for ineffective and effective practices.

**Methods.** Professional development materials were designed, drawing on strategies shown to be effective in correcting misinformation, to provide teachers with knowledge of the available research evidence about the efficacy of two practices: 'Sensory Integration Therapy' (ineffective practice), and 'Antecedent Based Intervention' (an evidence-based alternative). A total of 64 participants across four Queensland public schools participated. A 20-minute questionnaire was administered to participants before and immediately after exposure to purpose-designed PD materials about the evidence base of the two practices. The questionnaire asked about participant's knowledge of the research evidence, their current and intended use, and perceived applicability which were combined

to form a composite support measure for each practice. Social validity of the training materials was also assessed.

**Results.** Participant support for sensory integration therapy significantly decreased, while support for antecedent based interventions significantly increased, after exposure to the PD materials.

**Conclusion.** These results highlight that purpose-designed PD materials, based on the principles of misinformation correction, can be successful in reducing teacher self-reported support for ineffective practices, while increasing support for effective practices. The use of an evidence-based approach to both practice, and development of training is needed to achieve real-world changes in the field.