



Where in the World is the ASQ?

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“1980–Who Knew?”

~Diane Bricker, Ph.D.



Knobloch et al., 1979

- ▶ “The Validity of Parental Reporting of Infant Development”
- ▶ Parent questionnaire for infants 4– to 36–months
- ▶ Could parents be valid “pre-screeners”?
- ▶ Questionnaire at 28–months, Gesell at 40–months



Knobloch et al., 1979

“In view of the demonstrated high reliability and validity of the full Gesell Developmental and Neurological Examination, upon which the questionnaire is based, the relatively small percentage of overscreening and underscreening make it the most accurate and useful screening questionnaire to date.”

Can a parent–
completed
screening
system
spanning the
early childhood
years yield valid
and reliable
results?

Infant Monitoring Project*

Child's name: _____

Date of birth: _____

Address, if different from mailing address

City: _____

Phone: _____

Child's doctor: _____

Doctor's phone: _____

Who is filling out the questionnaire? _____

If someone helped you fill this out, w

Today's date: _____

Infancy — 1980s



Infant Monitoring Project

- ▶ Early 1980s
- ▶ Series of studies with parents of infants and infants and toddlers
- ▶ Targeted at-risk infants



Infant Monitoring Project

- ▶ Questionnaires at 4-month intervals
- ▶ Format: 5 domains, 7 questions per domain
- ▶ Followed medically at-risk children from hospital neonatal clinics
- ▶ Mail-out system



Infant Monitoring Questionnaires

your baby follow the toy with his eyes? ☐

2. When you move a toy from side to side slowly, does your baby follow the toy with his eyes, sometimes turning his head? ☐

3. When you put a toy in his hand, does your baby look directly at the toy so you are sure he is looking at it? ☐

4. When you put a toy in his hand, does your baby put the toy in his mouth while he is on his back? ☐

5. When he is on his back, does your baby reach for a toy he has dropped if he can see it? ☐

6. When you hold him in a sitting position, does your baby look at a toy (about the size of a cup) on the table? ☐

7. When you dangle a toy in front of him (either while he is sitting or lying on his back), does your baby wave his arms toward the toy? ☐

First IMQ data

Gesell $\frac{1}{3}$ IMP at same test interval within 29 days

✓ - Both Gesell $\frac{1}{3}$ IMP ✗ - No Gesell, no IMP
 0 - No Gesell

I.D.				1			2			3		
				4 month			8 month			12 month		
1 ✓				✓			✗			✗		✗
2 ✓				✓			✓			0		0
3 ✓				✓			✓			0		0
4 0				0			0			0		0
5 ✓				✓			✓			0		0
6 ✓				✓			✓			0		0
7 ✓				✓			0			✓		✓
8 ✓				0			✓			✓		✓
9 ✓				✓			✓			✓		✓
10 ✓				✓			✗			✗		✗

- ▶ It worked!
- ▶ Parent-completed screening, given study parameters, was valid and reliable approach



Valid, reliable, and loved

- ▶ Parents contacted us, asking if they could complete an IMQ
- ▶ “A chicken in every pot and an IMQ in every mail box”
 - Enid, Connecticut practitioner



Childhood — late 1980s

► The Outreach Years



The Outreach Years

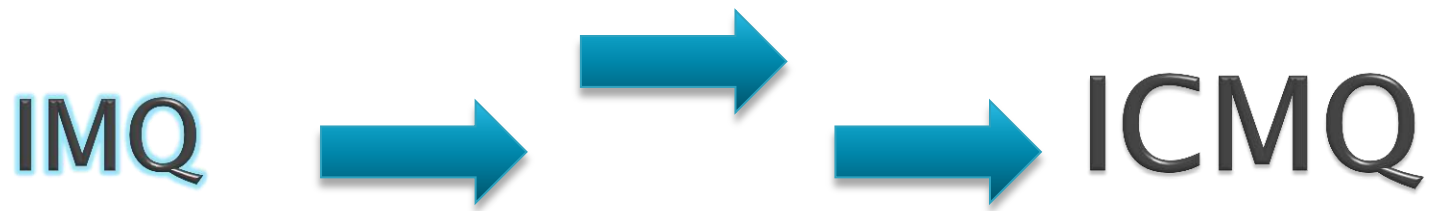
- ▶ Training of practitioners around the U.S. to use the IMQ
- ▶ Across disciplines, in almost every state



It worked!

- ▶ Local and regional programs
- ▶ Across disciplines and agencies
- ▶ Nursing, early childhood, social welfare, regional screening
- ▶ Grass-roots adoption





- ▶ Expanded age intervals—to 3, 4 years
- ▶ “Validity check” items omitted
- ▶ No more pink and blue

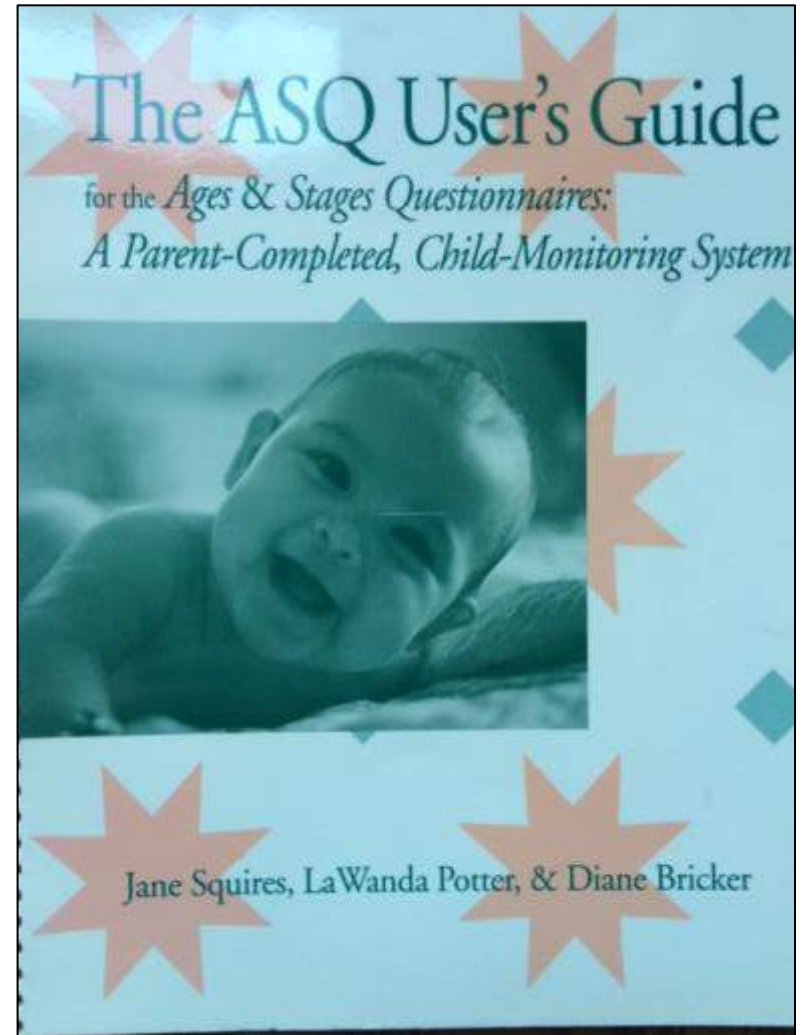


Adolescence — 1990s

- ▶ Wild, unruly growth
- ▶ Difficult to keep up with daily phone calls, visits
- ▶ Outgrew the basement office

Brookes Publishing Co.

- ▶ Ages & Stages Questionnaires, 1st Edition
- ▶ 1995
- ▶ 4 months–36 months



National Profile

- ▶ Adopted by Head Start, Parents as Teachers, Healthy Start
- ▶ Programs using across the U.S. increased
- ▶ 1999 2nd edition
- ▶ 4–60 month intervals



National Profile

▶ Cost effective

- Minnesota follow-along program, 1998
- \$25 per questionnaire
- Debrez, Sasso, et al., 2001
 - Estimating cost of screening in general pediatrics
 - Parent completed such as ASQ low cost

Early Adulthood

- ▶ American Academy of Pediatrics, 2001, 2006
 - Developmental screening necessary practice
 - 9, 18, 24–30, 48 months
 - Critical for adequately serving diverse children in variety of environments



Replication studies

- ▶ Huberman, 2000, 2001
 - A randomized clinical control trial examining the feasibility of three different approaches to periodic screening of at-risk children 0–3
 - In diverse inner city population
 - ASQ approach produced significantly higher rates of screenings and identification compared to the Denver I

Medical replication

- ▶ Skellern & O'Callaghan, 1999, 2001
 - Western Australia
 - Follow-up of premature infants in rural areas
- ▶ Williams, Gelijns, Moskowitz, et al., 2000
 - Hypoplastic left heart syndrome: valuing the survival
 - School of Public Health, Columbia University

International replication

- ▶ Kovanen, Maatta, Leskinen, & Heinonen, 2000
 - Finland
 - 4-, 8-, 12-month ASQ
 - Finnish parents of children who did not have multiple problems regarded approach as positive

International replication

- ▶ Janson et al., 2003, 2004, 2008
 - Translated and adapted 10 questionnaires into Norwegian for families
 - Mailed to random sample of 1,341 families, 82–176 per age interval



Janson et al., 2003, 2004, 2008 (cont.)

- Compared mean scores by domain
- “ASQ may be interpreted in same way in Norway and the United States, and these results may also generalize to other Western settings.”



Magpie Study, 2002, 2004, 2007

Outcomes after discharge from hospital for women who received magnesium sulphate for pre-eclampsia and their children

- ▶ 19 countries: India, Ghana, Malawi, Nigeria, England, Albania, Argentina, Bangladesh, South Africa
- ▶ ASQ was effective in evaluating neurosensory disability
- ▶ Magnesium sulphate improved outcomes

Canada

- ▶ Dionne et al., 2004, 2006
 - Translated and adapted ASQ, 2nd Edition, for French–Canadian populations
 - Compared U.S. and French–Canadian populations
 - In general, similar with some variations
 - Mohawk populations, 2014

Denmark

- ▶ Klamer, Lando, Pinborg, & Greisen, 2005
 - Denmark
 - Compared term and extremely preterm infant outcomes 36–42 months
 - ASQ score correlated significantly with WISC



National, international profile

- ▶ ASQ-3, 2009 (Third Edition)
- ▶ Widely used nationally, internationally
- ▶ Across disciplines, agencies
- ▶ Multiple translations
- ▶ Online systems



National, international reputation

▶ Medical settings

- Pinto–Martin et al., 2004 (public health, medical home)
- American Academy of Pediatrics, 2006
- Commonwealth Fund, 2008
- Early & Hays, 2006 (Assuring Better Child Health and Development (ABCD))
- Lipkin, Geleske, King, 2009 (medical home)
- Guevara, Gerdes, et al., 2013 (urban setting)

▶ Health & Human Services

- Birth to 5: Watch Me Thrive, 2014

National, international reputation

- ▶ Most widely used tool in medical settings
 - Radecki et al., 2011
- ▶ Early intervention, early childhood screening
 - Printz et al., 2003– Head Start
 - Ringwalt, 2008, NECTAC
 - Head Start, 2009
 - Foster care, Jee et al., 2010



Where in the World is ASQ?

- ▶ South Korea

- Heo et al., 2008
- Translated and adapted ASQ-2, ASQ:SE (2012)

- ▶ China

- Bian et al., 2010, 2011
- Translated and adapted ASQ-3™ and ASQ:SE
- Wang & Xu, ASQ-C in rural/urban



Northern Europe

- ▶ Norway, Finland
- ▶ Denmark
 - Ostergaard et al., 2012,
 - ASQ-3 at 9-, 18-, 21-months, premature
 - Significant linear regression ASQ scores and c. age
 - Pontoppidan, ASQ:SE, in progress
 - SEAM, Sjøe, in progress
- ▶ Netherlands
 - Kerstjens, Bos, et al., 2009,
 - Feasibility of 48 month
 - Baar et al., ASQ-3 validation (Flemish)

Central, Southern Europe

- ▶ Spain
 - Campos et al., 2010, child care
- ▶ France
 - Troude et al., 2011, follow-up by postal survey
- ▶ Germany
 - Sidor et al., 2013
 - ASQ-3 and ASQ:SE adaptation, translation

Central, Southern Europe

▶ England

- Nash, Crouzet, Verity, et al., ASQ-3™ adaptation for research and widespread use by health visitors in England
- Hillen et al., 2012, ASQ:SE for children in care

▶ Portugal

- Lopes, Serrano, Teixeira; ASQ validation



South America



▶ Chile

- Schonhaut et al., 2013
- ASQ in medical settings with term, preterm
- Compared with Bayley-III

▶ Brazil

- Filgueiras et al., 2013
- Portuguese adaptation of ASQ-3™ and ASQ:SE in public child care

Australia


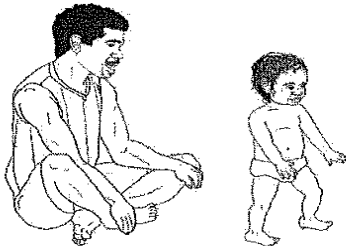


- ▶ D'Aprano et al., under review
- ▶ Australian Aboriginal
- ▶ Translation and adaptation:



- 2. Katjia ungkwanganhala anga thread–aka kurnama?
- 2. Can your child string shells or seeds onto string or fishing line?

Australia

Communication

<p>1. Katjia kurrkala yulthaka antja namanga, era unkwanga ntelama?</p> <p>1. When your child wants something, does he point to it to tell you?</p>		<p>Yes <input type="radio"/> Sometimes <input type="radio"/> Not yet <input type="radio"/></p>	<p>—</p>
<p>2. Unta paka katjia unkwanganha turnamanga, pmara kwaarnaka irrpumala, yultha initjika, era nganha wuma? Unta thunga paka ilamanga "Tjapa-tjapa inamala kngitjai!". Thunga paka maarntarra initjika. Thunga paka yultha arrpunha initjika.</p> <p>2. If you ask your child to go to inside to get something, will he do it? You might ask "Where is the ball?" or "Bring me your shorts" or "Get the cup"</p>		<p>Yes <input type="radio"/> Sometimes <input type="radio"/> Not yet <input type="radio"/></p>	<p>—</p>
<p>3. Nthaakintja ngkatja katjia unkwanga ngkama - thunga 10 paka, thunga kngarralkura paka?</p> <p>3. Count all the words your child can say. Can she say 10 words or more than 10 words?</p>		<p>Yes <input type="radio"/> Sometimes <input type="radio"/> Not yet <input type="radio"/></p>	<p>—</p>
<p>4. Katjia unkwanganhala nganha arrkarnama, unta ngkatja tharra ngkamanga? "Miala ilkuma." "Mpa, pmara-urna!" "Nhanha iwunha?"</p> <p>4. Does your child copy 2 words together? For example if you say "mama eat" or "bapa play" or "go home" or "what's this?", does your child say both words back to you?</p>		<p>Yes <input type="radio"/> Sometimes <input type="radio"/> Not yet <input type="radio"/></p> <p><i>Tick "yes" even if the words are hard to understand.</i></p>	<p>—</p>

Asia

- ▶ Thailand
 - Saihong, 2010
- ▶ Hmong and Somali
 - Wright et al., 2011
- ▶ Vietnam
 - In progress
- ▶ Taiwan
 - Tsai et al. 2006
 - Chen, in progress



Middle East, India

- ▶ Kuwait
 - Alkerainej, K., in progress
 - Arabic
 - Translation and adaptation
- ▶ Iran, ASQ-2
 - Medical settings
- ▶ India
 - Juneja et al., 2011
 - Hindi
 - Pediatric settings

- ▶ Almost everywhere!



ASQ Around the World

- ▶ Global research updates
- ▶ Suggestions, solutions for adaptation and translation
- ▶ Recommendations for handling issues, barriers



ASQ Around the World

- ▶ Improving ASQ-3 and ASQ:SE for international use
- ▶ Collaboration opportunities
- ▶ Future research
- ▶ Global solutions



Ages & Stages Questionnaires®,
Third Edition (ASQ-3)

Ages & Stages Questionnaires®:
Social-Emotional (ASQ:SE)

ASQ Around the World

Many thanks for travelling, participating and sharing expertise, conducting important research on developmental screening.

And for your dedication to improving outcomes for young children around the world.

Jane & Diane