

IACC/OARC ASD Research Publications Analysis Report: The Global Landscape of Autism Research July 2012 *Pre-publication draft*

Sara E. Dodson, PhD
Policy Analyst, OARC
IACC Full Committee Meeting
July 10, 2012

PDF available on the IACC Website at:

<http://iacc.hhs.gov/publications-analysis/july2012/index.shtml>

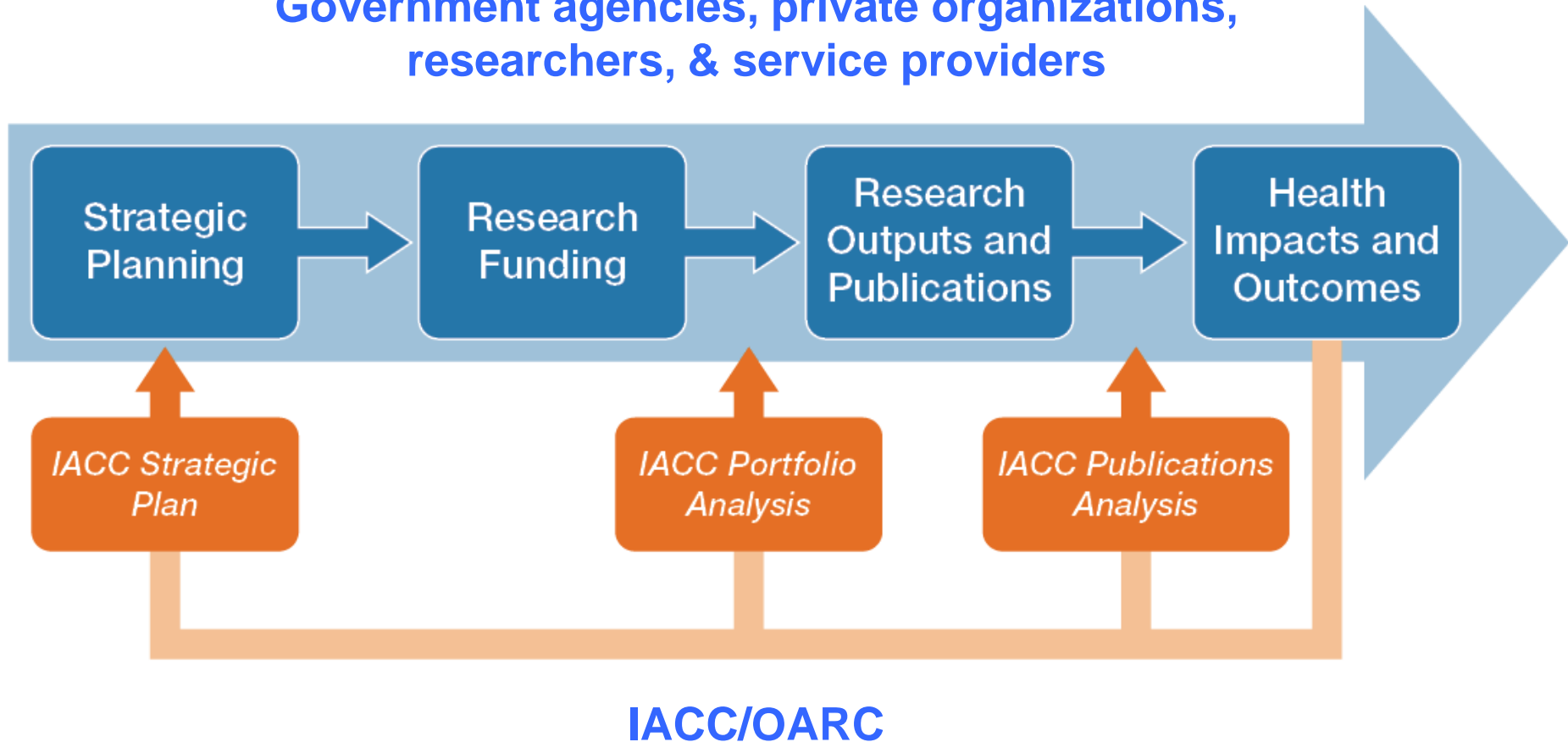


ASD Publications Analysis: Purpose and Approach

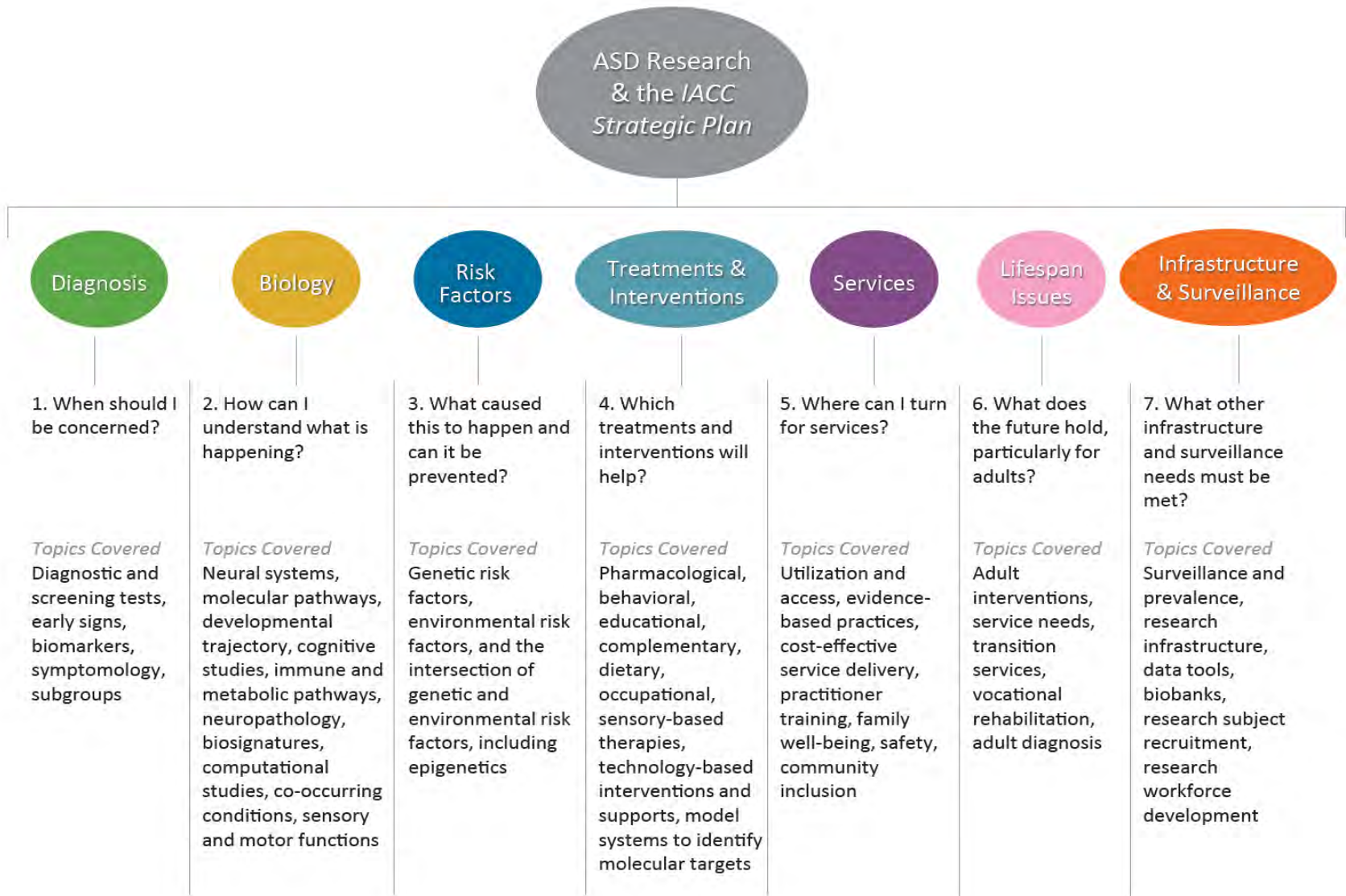
- Requested by the IACC to aid in monitoring outputs of ASD research efforts
- Utilized autism policy analysis expertise at OARC and scientific publication/data analysis expertise provided by Thomson Reuters, Inc.
- Helps describe the “state of the science” for autism research and how publications align with the *IACC Strategic Plan*
- Provides the IACC with an additional tool to identify key trends in research, opportunities, and knowledge gaps

How does the Publications Analysis fit in with other IACC/OARC activities?

Government agencies, private organizations,
researchers, & service providers



The Publications Analysis helps map publications to the critical research areas in the IACC Strategic Plan



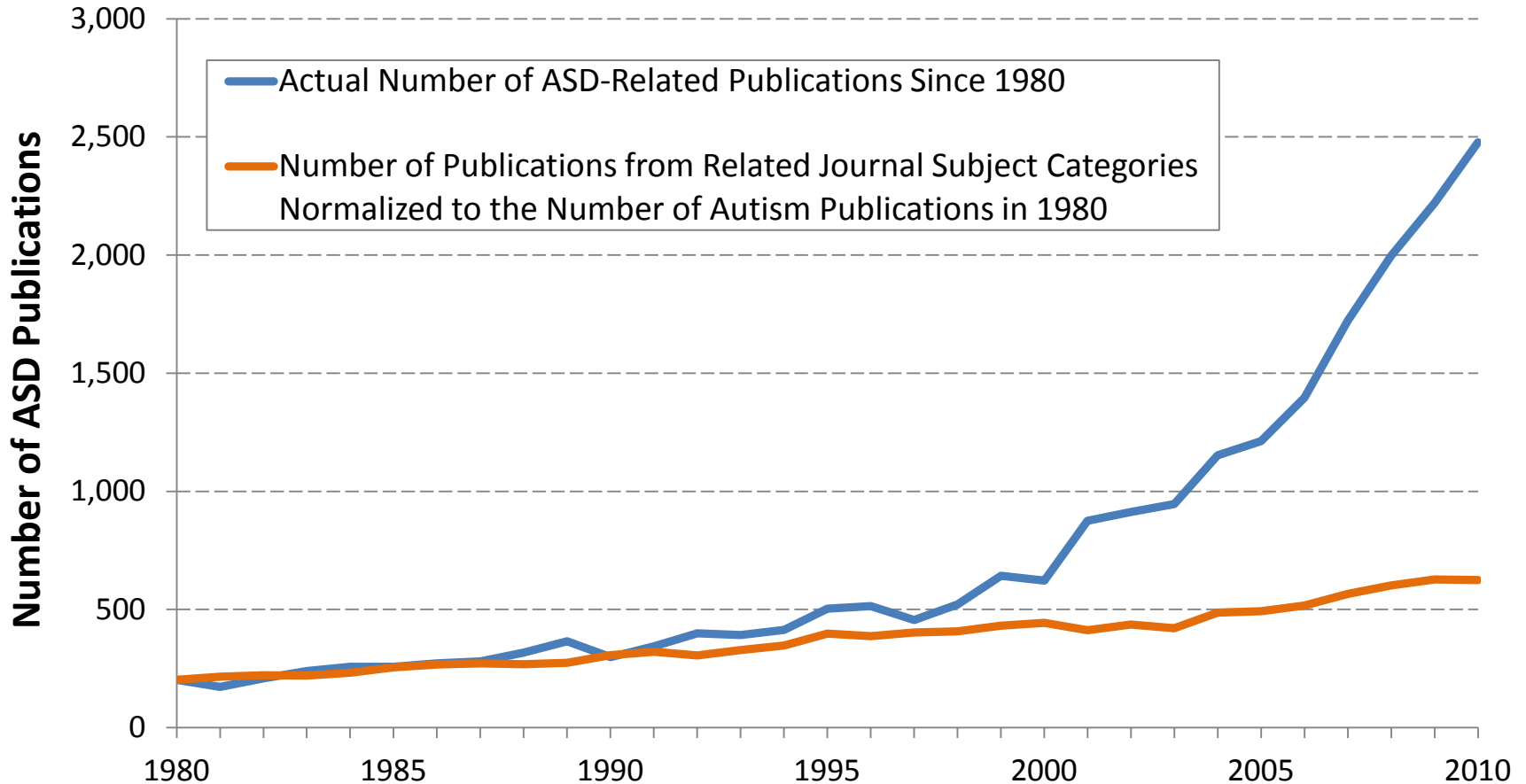
Main Questions Addressed in the *ASD Publications Analysis*

- How much has autism research grown?
- What autism research topics are being addressed?
- What is the impact of autism research publications?
- Who is funding autism research?
- Where is autism research being conducted?
- Is collaborative research increasing in the US and worldwide?

How much has autism research grown?

- An automated approach was used to identify articles published from 1980 to 2010 with the key words and terms, including:
 - autism, autistic, Asperger, or pervasive developmental disorder
- 25,000+ autism-relevant articles were published from 1980 to 2010

How much has autism research grown since 1980?



12-fold increase in annual publication rate since 1980

Sharp increase is evident around the year 2000

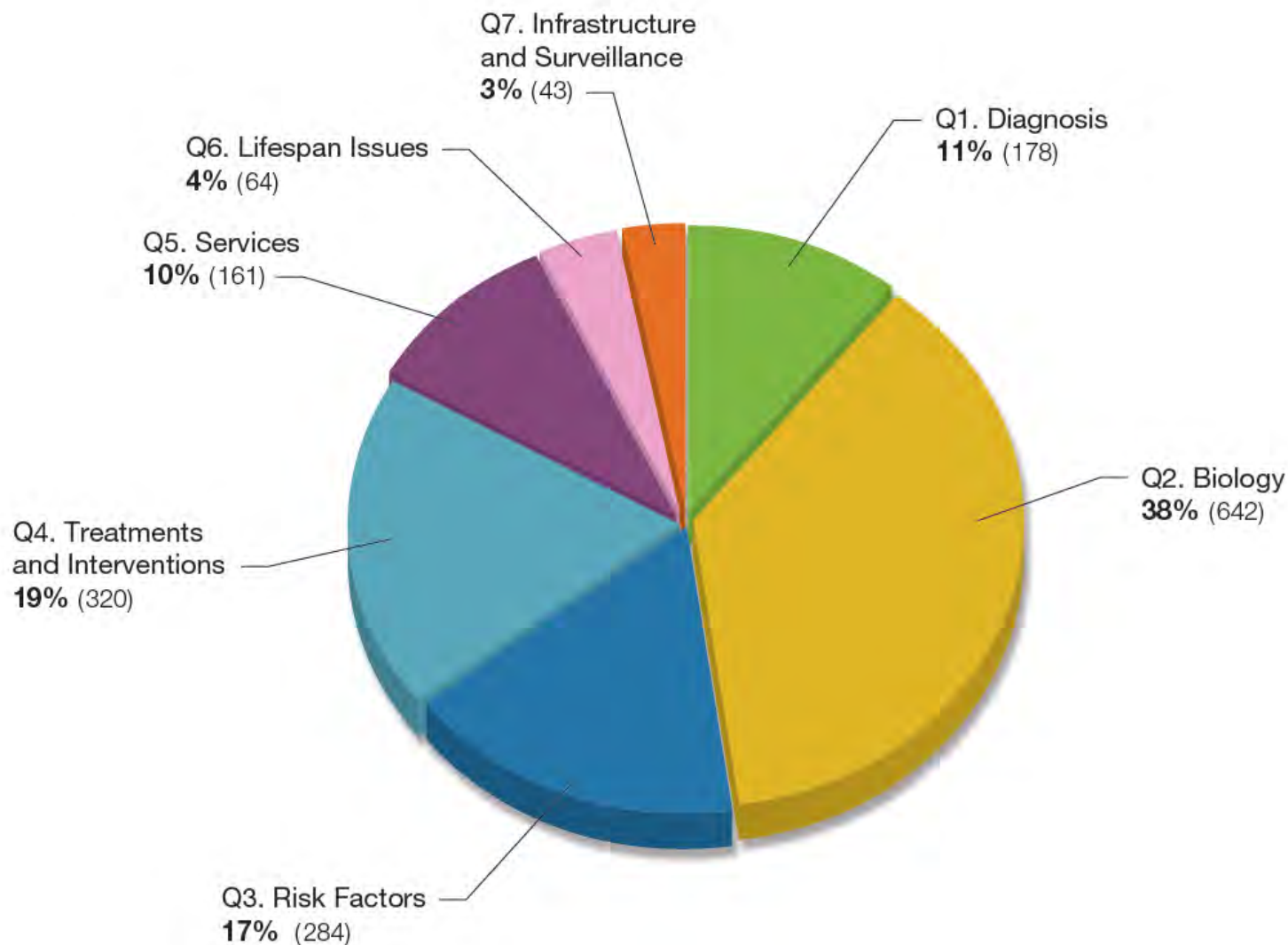
Summary: What did we learn?

- How much has autism research grown?
 - Dramatic growth since 2000 outpaces related research fields
 - More details are provided in the Report, including a discussion of driving factors that may be contributing to the overall growth of the field

What autism research topics have been addressed?

- OARC analysts manually categorized 2010 ASD-related publications
 - Each publication was assigned to one critical research area of the *IACC Strategic Plan*
- Customized algorithm was developed to classify publications from 1980 to 2009

How were 2010 research publications distributed across the seven Critical Question areas of the *IACC Strategic Plan*?



Summary: What did we learn?

- What autism research topics are being addressed?
 - Distribution of ASD publications across the *IACC Strategic Plan* is similar to that seen in the *IACC Portfolio Analysis*
 - More publications were observed in “basic” research areas than translational/applied research
 - Much more on autism research topics can be found in the Publications Analysis Report:
 - Growth curves by *Strategic Plan* Critical Question areas
 - In-depth analysis on *Risk Factors and Treatments and Interventions*

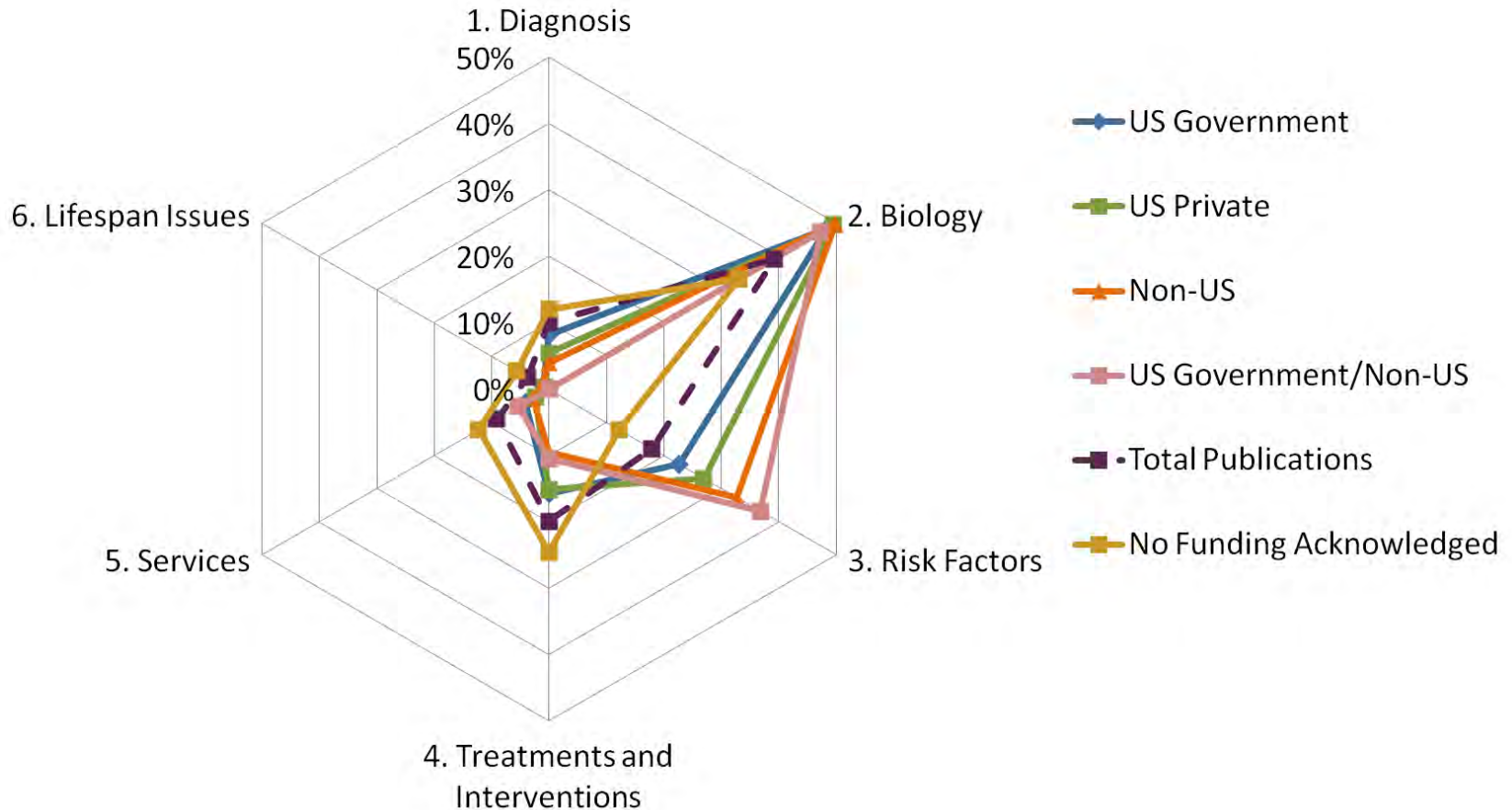
Who is funding research and what kinds of research were funded by different funder types?

- The ScienceWire database collects “Acknowledgment” paragraphs in publications and identifies funders who are cited for providing financial support
- Funders supporting 2010 ASD publications were identified and classified as:
 - US or non-US
 - Government or Private
- 36% of 2010 publications acknowledged a funding source, and more than 700 global funders of autism research were identified

Who were the top 15 funders acknowledged in 2010 ASD publications?

	Funding Organization	Country	Funder Type	Publications with acknowledgment
1	National Institutes of Health	US	Government	437
2	Autism Speaks	US	Private	119
3	The Medical Research Council	UK	Government	59
4	European Union	EU	Government	38
5	Wellcome Trust	UK	Private	36
6	The Canadian Institutes of Health Research	Canada	Government	35
7	Simons Foundation	US	Private	27
8	National Science Foundation	US	Government	26
9	Ministry of Education, Science, Sport and Culture	Japan	Government	25
10	Brain and Behavior Research Foundation/NARSAD	US	Private	24
11	Japan Society for the Promotion of Science	Japan	Government	18
12	German Research Foundation (DFG)	Germany	Government	17
13	Netherlands Organization for Scientific Research (NWO)	Netherlands	Government	15
14	Natural Sciences and Engineering Research Council	Canada	Government	14
15	National Institute for Health and Medical Research	France	Government	13

What kinds of research did different funder types support according to 2010 autism publications data?



Similar patterns of publication support observed from US Government, US Private, and non-US funders

Publications without funding acknowledgment are skewed toward *Treatments, Services, and Lifespan*

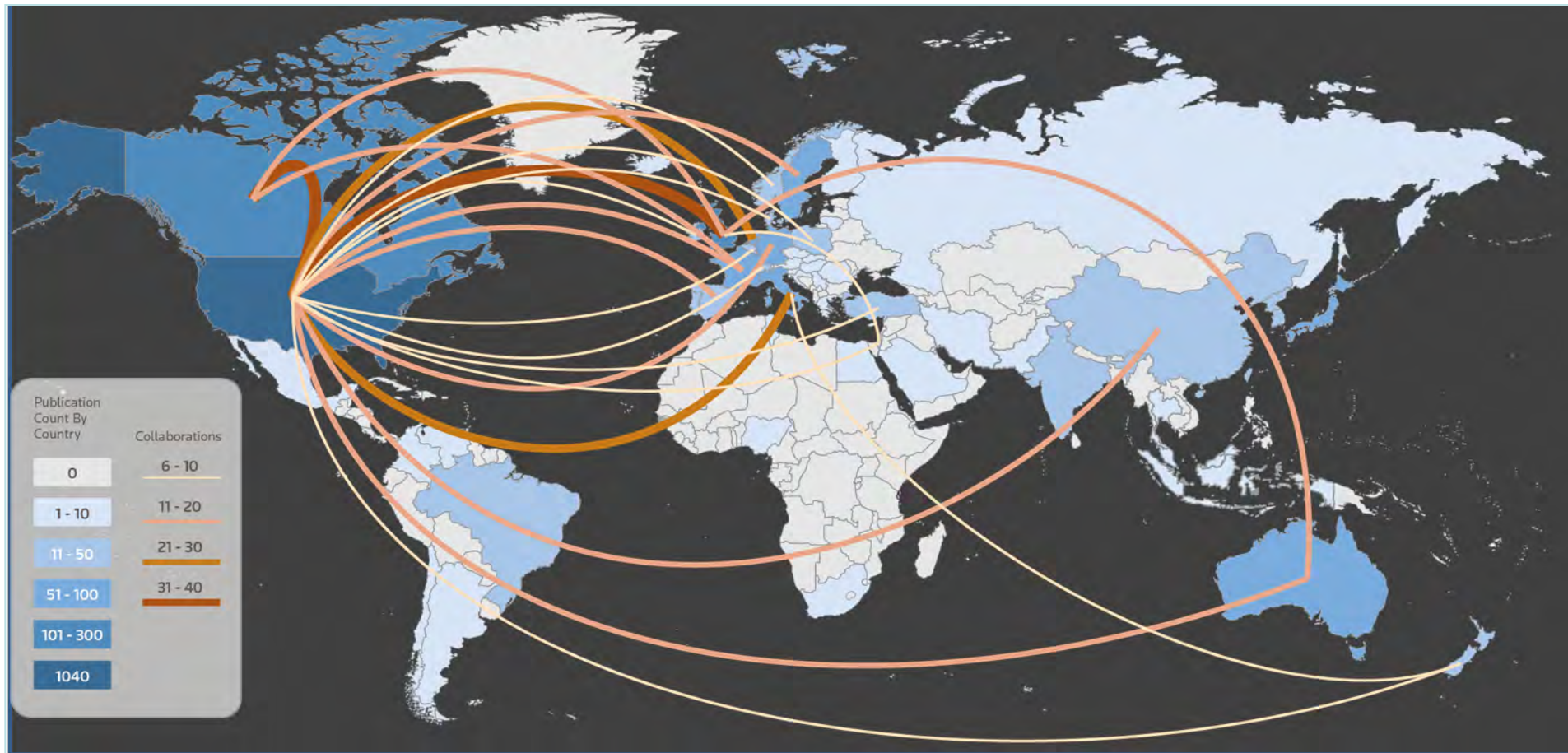
Summary: What did we learn?

- Who is funding autism research?
 - 2010 publications acknowledged more than 700 global funders, including many government and many private funders.
 - Non-US funders accounted for ~half of all acknowledgments.
 - Only 36% of autism publications acknowledged a funding source, and the acknowledgment rate was particularly low for *Treatments and Interventions, Services, and Lifespan Issues*.
 - Low rates of funding acknowledgment make it difficult for funders to track and report research progress.

Where is autism research being conducted and what is the extent of global collaboration?

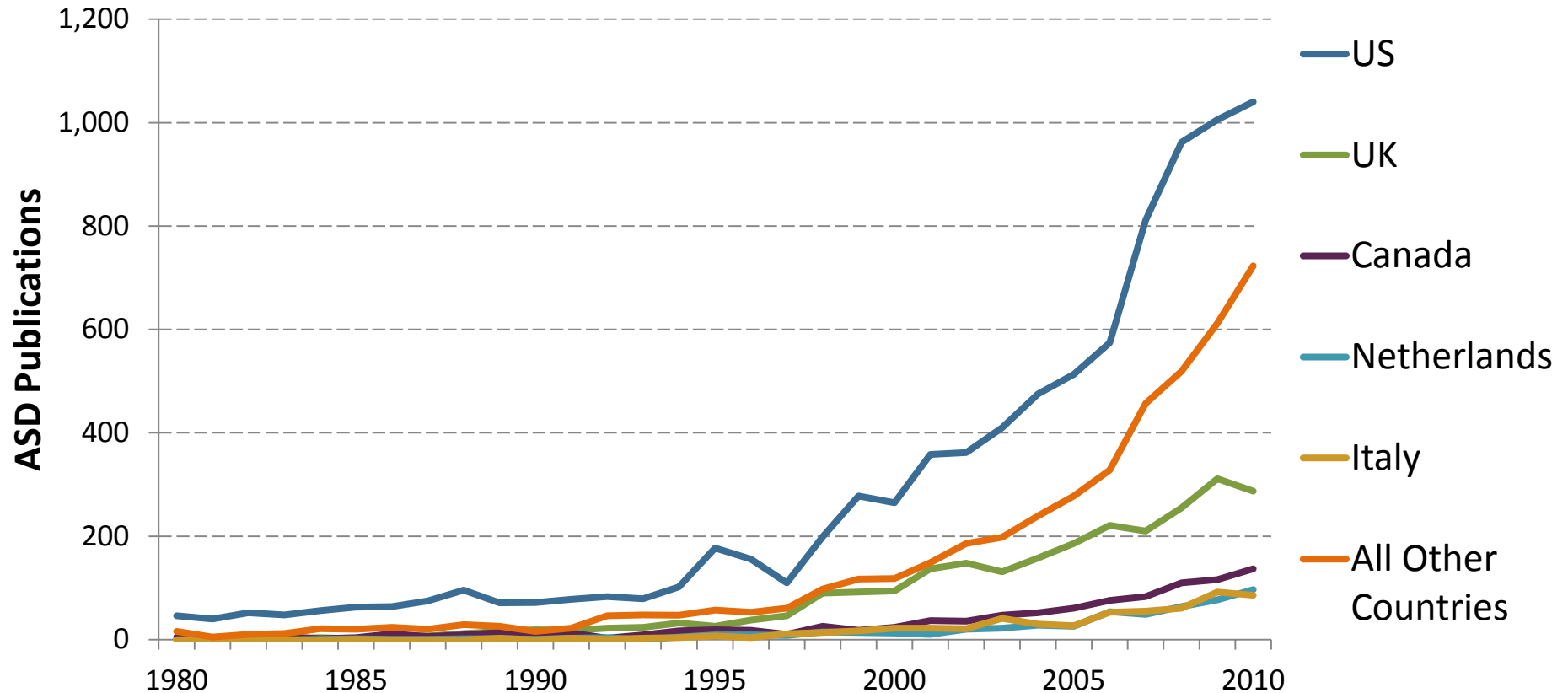
- Author addresses were used to identify which institutions and which countries have published ASD research
- Publications with author addresses from multiple countries and multiple institutions were assessed as a measure of “collaboration”
- Publication volume by country was analyzed from 1980 to 2010

Where was autism research conducted in 2010? Worldwide Publications and International Collaborations



ASD research was published by authors in over 50 countries and collaboration is most extensive between researchers in North America and Western Europe

Global Growth in Autism Publications from 1980 to 2010



The US accounts for the largest number of ASD publications each year

“All Other Countries” = China, Taiwan, South Korea, India, Brazil, and Poland

Summary: What did we learn?

- Where is autism research being conducted and what is the extent of collaboration in the field?
 - In 2010, autism research was published by authors in over 50 countries and more than 1,800 research institutions worldwide.
 - The US is the largest producer of ASD publications.
 - A recent sharp increase in publications was observed from China, South Korea, Taiwan, India, Brazil, and Poland.
 - Much more can be found in the Report, including analysis of collaborations between countries and institutions.



AUTISM SPECTRUM DISORDER RESEARCH PUBLICATIONS ANALYSIS:
THE GLOBAL LANDSCAPE OF AUTISM RESEARCH

Prepared by the Office of Autism Research Coordination and Thomson Reuters, Inc.
on behalf of the Interagency Autism Coordinating Committee

July 2012

Pre-publication draft



Find the full pre-publication draft
on the IACC website at:

[http://iacc.hhs.gov/publications-
analysis/july2012/index.shtml](http://iacc.hhs.gov/publications-analysis/july2012/index.shtml)

Final draft and extended Web
appendices will be posted soon.



THOMSON REUTERS™

Acknowledgments

OFFICE OF 
**AUTISM RESEARCH
COORDINATION**

NATIONAL INSTITUTES OF HEALTH



THOMSON REUTERS™

Susan Daniels, Ph.D.

Joshua Schnell, Ph.D.

Sara Dodson, Ph.D.

Duane Williams, Ph.D.

Sarah Rhodes, Ph.D.

Yvette Seger, Ph.D.

Elizabeth Baden, Ph.D. Brian Lawton

Nicole Jones

Marie-Cafone Moss

Miguelina Perez

Cyrus Davani