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# A Comprehensive Analysis of Authorship in Radiology Journals

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## Disclosures:



- Wilfred Dang: No Commercial Relationship
- Matthew DF. McInnes: No Commercial Relationship
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- Jiho Hong: No Commercial Relationship
- Stephanie Kenny: No Commercial Relationship

## Background:



- Assignment of inappropriate authorship credit is a frequently reported problem in major radiology journals [1-4].
- Many radiology journals have endorsed International Committee of Medical Journal Editors (ICMJE) guidelines to ensure proper attribution of authorship [5-9].
- An objective and comprehensive evaluation of the impact of ICMJE guidelines on authorship rates in radiology journals has not yet been done [4, 10].

## Study Aim:



To investigate trends in authorship rates in radiology journals, and whether ICMJE recommendations have had an impact on these trends



**AUTHORSHIP**



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# Methods: Overview



1. A list of 49 'clinical radiology journals' was comprised and organized by radiology topic.



2. Article data for each journal was retrieved and categorized from Ovid MEDLINE from Dec 1946 to Dec 2013



3. The following data was exported and analyzed: authors' full name, year of publication, author institution information, language of publication and publication type.

- Journals focused on Nuclear Medicine and experimental techniques were not included
- Journals selected represent a range of radiology topics and is varied in impact factor and history of publication.

- Articles were limited by publication type to exclude letters to the editor and editorials
- Articles included must have had at least one main author indexed on MEDLINE.
- For research groups, each contributing author within the group must be listed.



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# Methods: Journals & Categories



## EDUCATION/REVIEW JOURNALS (notMRI)

### original research)

ULTRASOUND Q  
MAGN RESON IMAGING CLIN N AM  
RADIOGRAPHICS  
RADIOL CLIN NORTH AM  
SEMIN ULTRASOUND CT MR  
SEMIN ROENTGENOL  
NEUROIMAGING CLIN N AM  
SEMIN MUSCULOSKELET RADIOL

### Abdominal

ABDOM IMAGING

### Ultrasound

J CLIN ULTRASOUND  
J ULTRASOUND MED  
ULTRASCHALL MED  
ULTRASON IMAGING  
ULTRASONICS  
ULTRASOUND MED BIOL  
ULTRASOUND OBSTET GYNECOL  
ULTRASOUND Q  
SEMIN ULTRASOUND CT MR

### CT

J COMPUT ASSIST TOMOGR  
SEMIN ULTRASOUND CT MR

J CARDIOVASC MAGN RESON  
J MAGN RESON IMAGING  
MAGN RESON IMAGING  
MAGN RESON IMAGING CLIN N AM  
MAGN RESON MED  
MAGN RESON MED SCI  
SEMIN ULTRASOUND CT MR

### General Radiology

ACAD RADIOL  
Acta Radiologica  
AJR  
Br J RADIOL  
CAN ASSOC RADIOL J  
CLIN IMAGING  
CLIN RADIOL  
EUR J RADIOL  
EUR RADIOL  
INVEST RADIOL  
J RADIOL  
JBR-BTR  
KOREAN J RADIOL  
RADIOLOGE  
RADIOLOGY  
ROFO  
SEMIN ROENTGENOL  
SEMIN ULTRASOUND CT MR

### Neuroradiology

AJNR  
J NEUROIMAGING  
J NEURORADIOL  
NEUROIMAGING CLIN N AM  
NEURORADIOLOGY

### MSK Radiology

SEMIN MUSCULOSKELET RADIOL  
SKELETAL RADIOL

### Pediatrics

PEDIATR RADIOL

### Cancer

CANCER IMAGING

### Thoracic

J THORAC IMAGING

### Cardiovascular

INT J CARDIOVASC IMAGING  
J CARDIOVASC MAGN RESON

### Misc

J DIGIT IMAGING  
SURG RADIOL ANAT



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## Methods: Data Extraction



- A series of Microsoft Excel scripts and formulas were used to a) count the number of authors per publication and to categorize article data by b) country of origin of the corresponding author's home institution, c) language of the article, and d) publication type.
- Following all computerized data analyses by Excel, two authors (WD and JH) independently reviewed the 3 most recent years of all included radiology journals for coding accuracy (2011-2013). Both authors agreed that coding was accurate for 100% (26,268/26,268) of these journal articles,  $\kappa=1$ .



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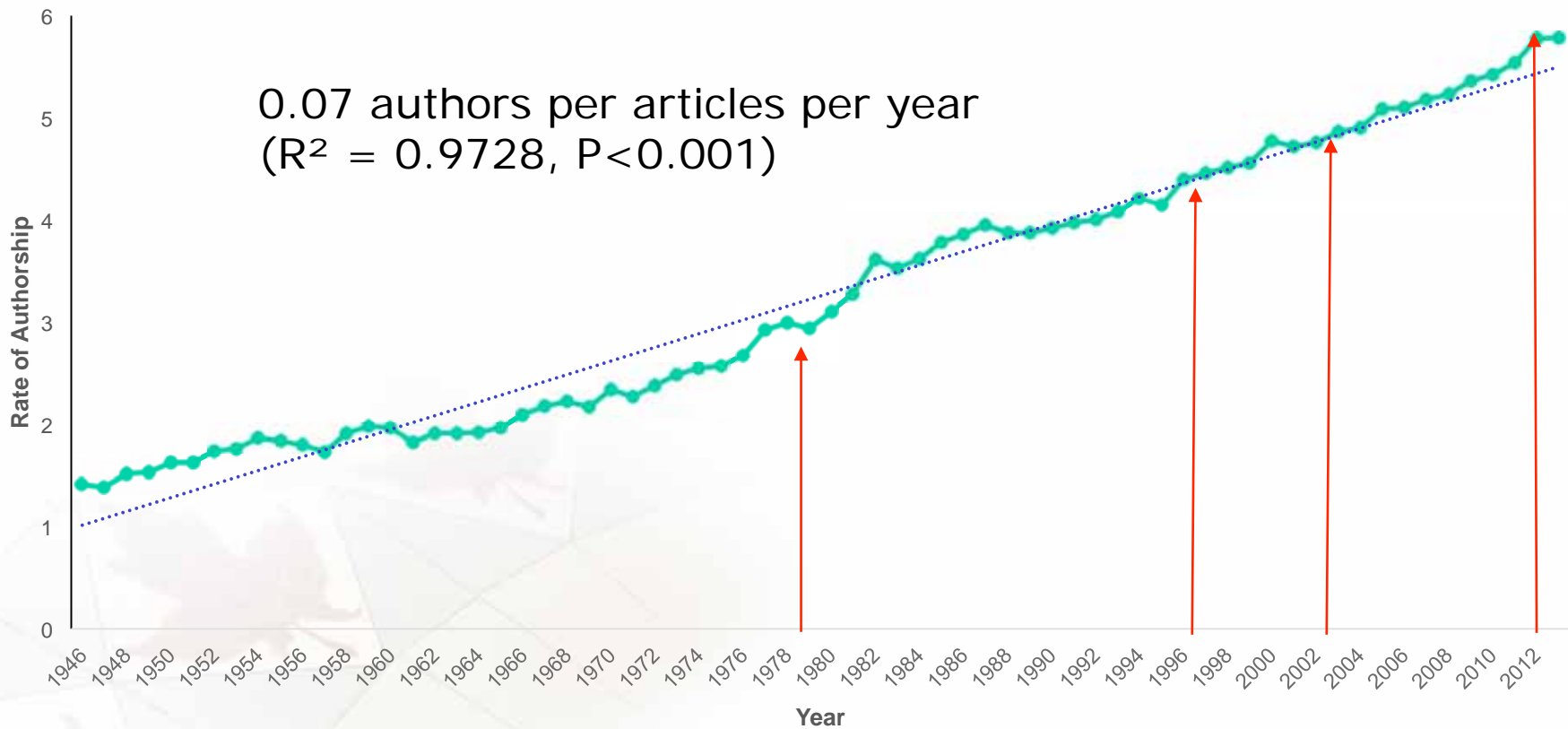
# Methods: Statistical Analysis



- The overall rate of authorship, rate of authorship and change in rate authorship over time was analyzed per journal, per country of origin, per language, and per publication type
- The rate of authorship before and after implementation and revision years of ICMJE guidelines were compared.
- The effect of explicitly stating ICMJE guidelines or authorship guidelines on each journal's website was assessed
- The change in the rate of authorship per year was compared between different radiology journal focuses



# Results: Overall Rate of Authorship



# Results: Effect of ICMJE Guidelines

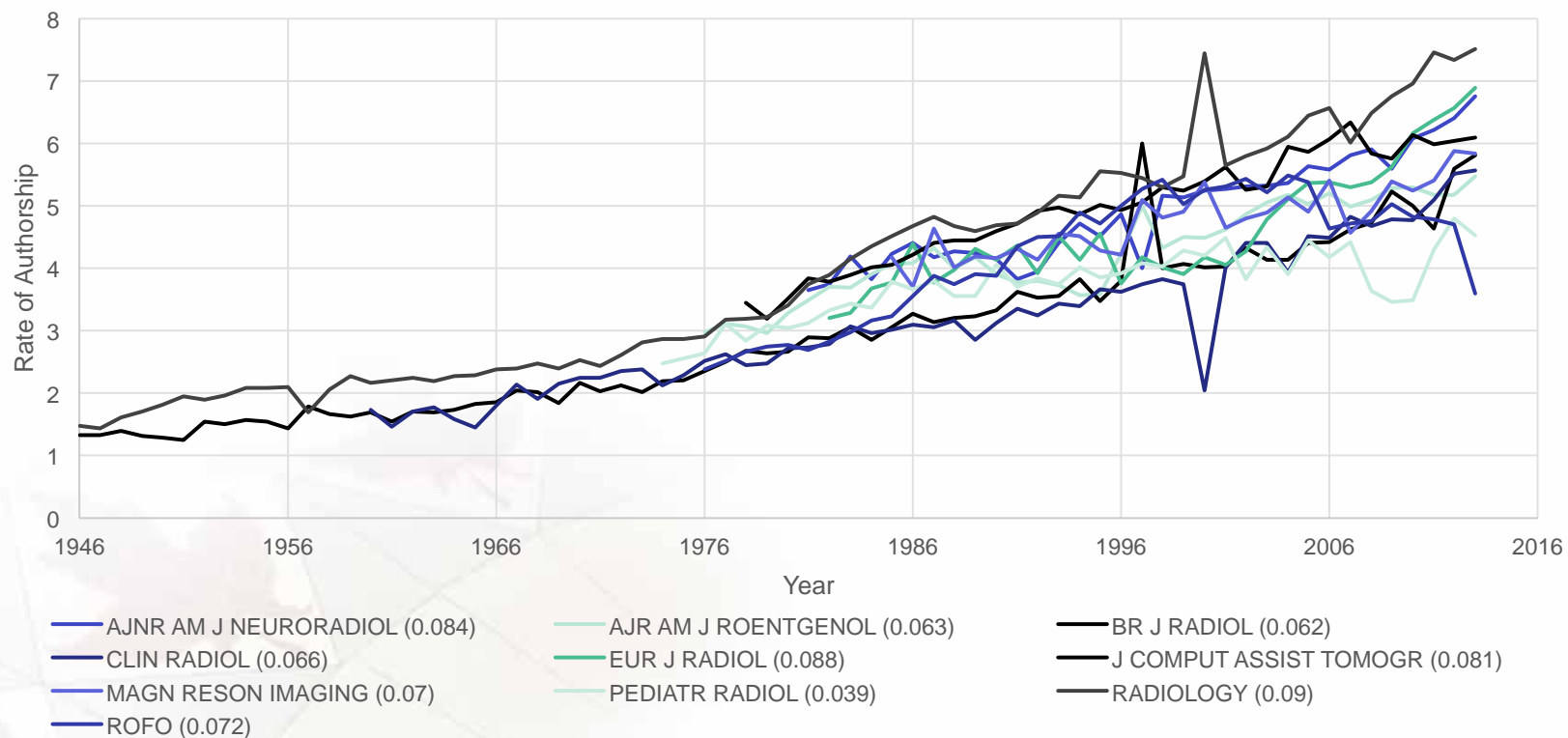


- The rate of authorship increased over time despite the implementation and revision of ICMJE guidelines
- Journals that explicitly follow ICMJE guidelines have significantly greater authorship rates
  - P=0.02 against groups with other authorship guidelines (6.04 vs 4.92 authors/article)
  - P=0.03 when compared against journals with no explicitly stated authorship criteria (6.04 vs 4.31 authors/article)

# Results: By Journal



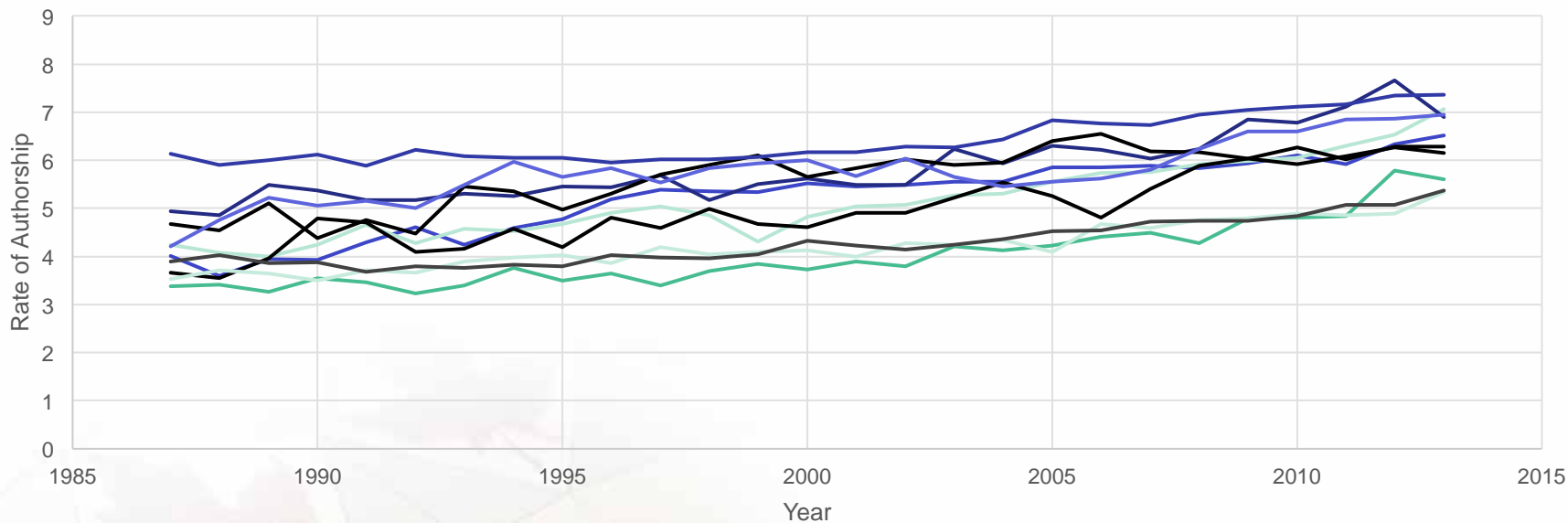
Average Rate of Authorship per Journal



# Results: By Country

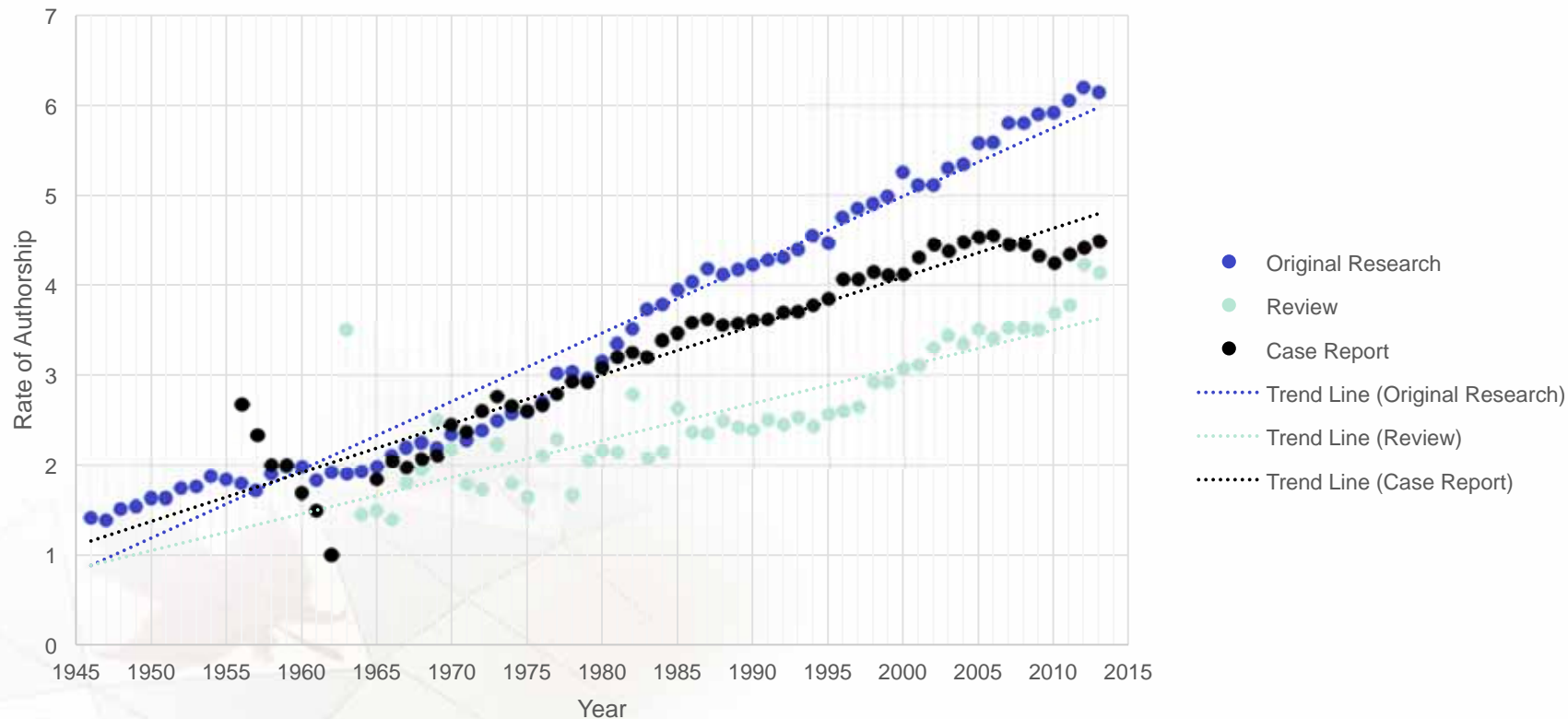


Average Rate of Authorship per Country

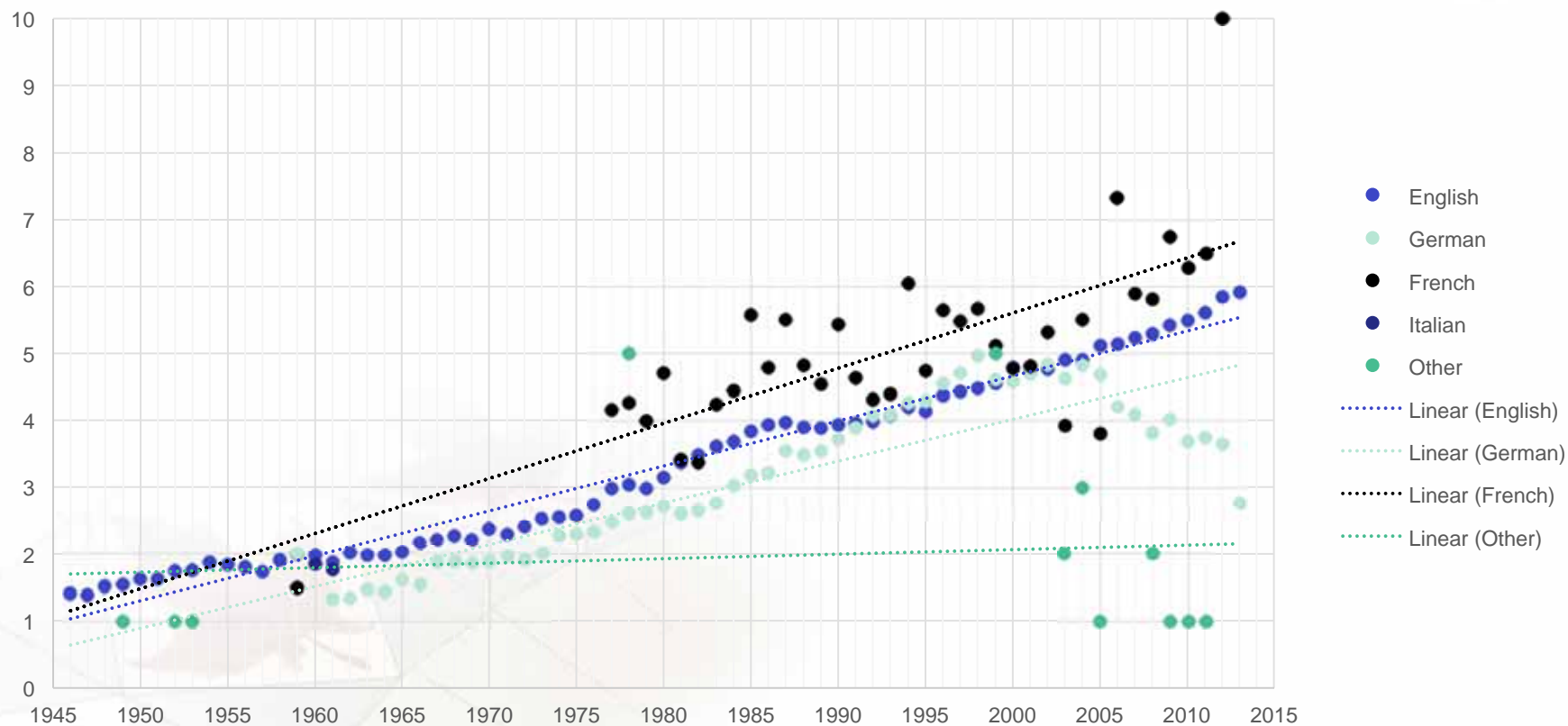


- Germany (0.098)
- Netherlands (0.096)
- China (0.089)
- Italy (0.082)
- England (0.078)
- Korea (0.072)
- France (0.07)
- Canada (0.058)
- USA (0.055)
- Japan (0.054)

# Results: By Publication Type



# Results: By Language



## Study Limitations:



- Limited by a select list of 'clinical' radiology journals
  - Non-radiology journals with landmark trials such as JAMA and New England Journal of Medicine were not included in our study
  - New open access journals (non pubmed) not included
- Computerized nature of data extraction
  - Multi-national studies could not be accounted for
  - Research groups that did not list all authors only counted as a single author

## Conclusions:



- The overall rate of authorship for 49 radiology journals across 68 years has increased markedly with no demonstrated impact from ICMJE guidelines.
- A higher rate of authorship was seen in articles from: higher impact journals, European and Asian countries, original research type, and those journals who explicitly endorse the ICMJE guidelines.



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**THANK YOU!**  
**Questions?**

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