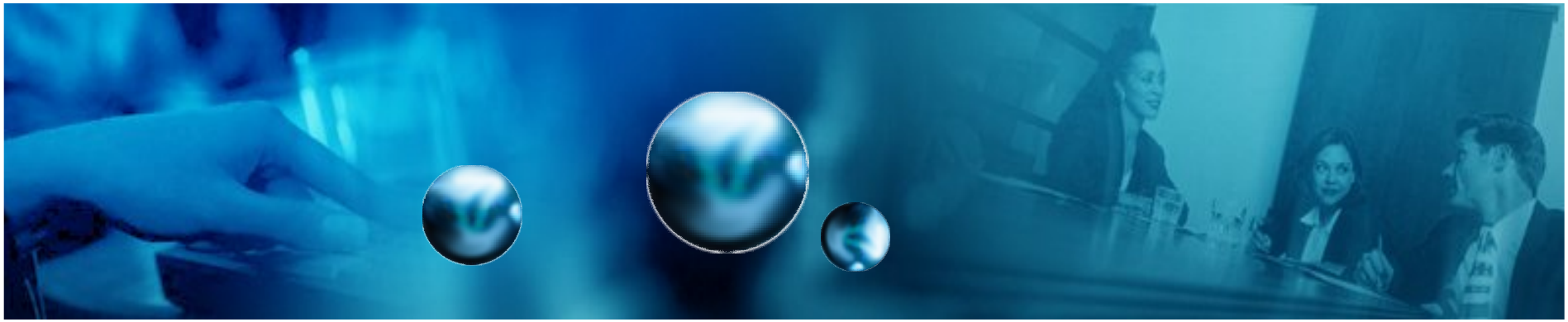
Use of a Novel Content Analysis Method to Examine Trends in Research Integrity Literature (1996 – 2005)



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BACKGROUND

- Research integrity - an emergent field of inquiry
- Examination of research integrity publishing trends
- Literature scan to identify important issues and trends in field

MIXED METHODS DESIGN

- **Bibliometrics:**
  - Mathematical and statistical methods applied to books and other communication media (Pritchard, 1969)
- **Content Analysis:**
  - Standard social science methodology to objectively and systematically describe content of communication or text
- **Natural language processing (NLP):**
  - Subfield of artificial intelligence and linguistics using computational techniques to analyze naturally occurring text (free text) at one or more levels of linguistic analysis (e.g., morphological, semantic).

METHODS

- Adaptation of methods from *Integrity in Scientific Research* report (IOM 2002, Appendix A)
- 5 journals, prolific publishers of RRI (IOM 2002, Steneck 2000)

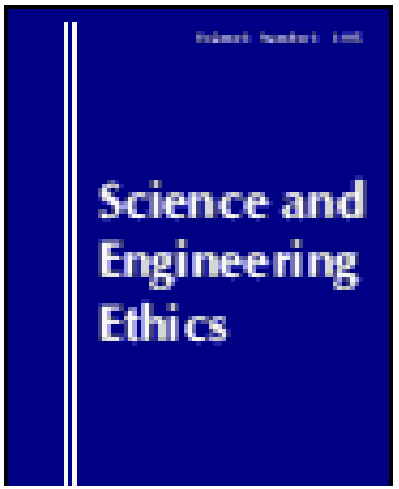
Academic Medicine

BMJ

JAMA

Science

Science & Engineering Ethics



Bibliographic Search Strategy

- OVID-Medline, 1996-2005
- 36 search terms IOM (2002), Appendix A:
  - MESH headings
  - Text-words
    - i.e., research integrity, mentoring, peer review
- 17 additional terms added to strategy:
    - i.e., institutional ethics, ethical climate

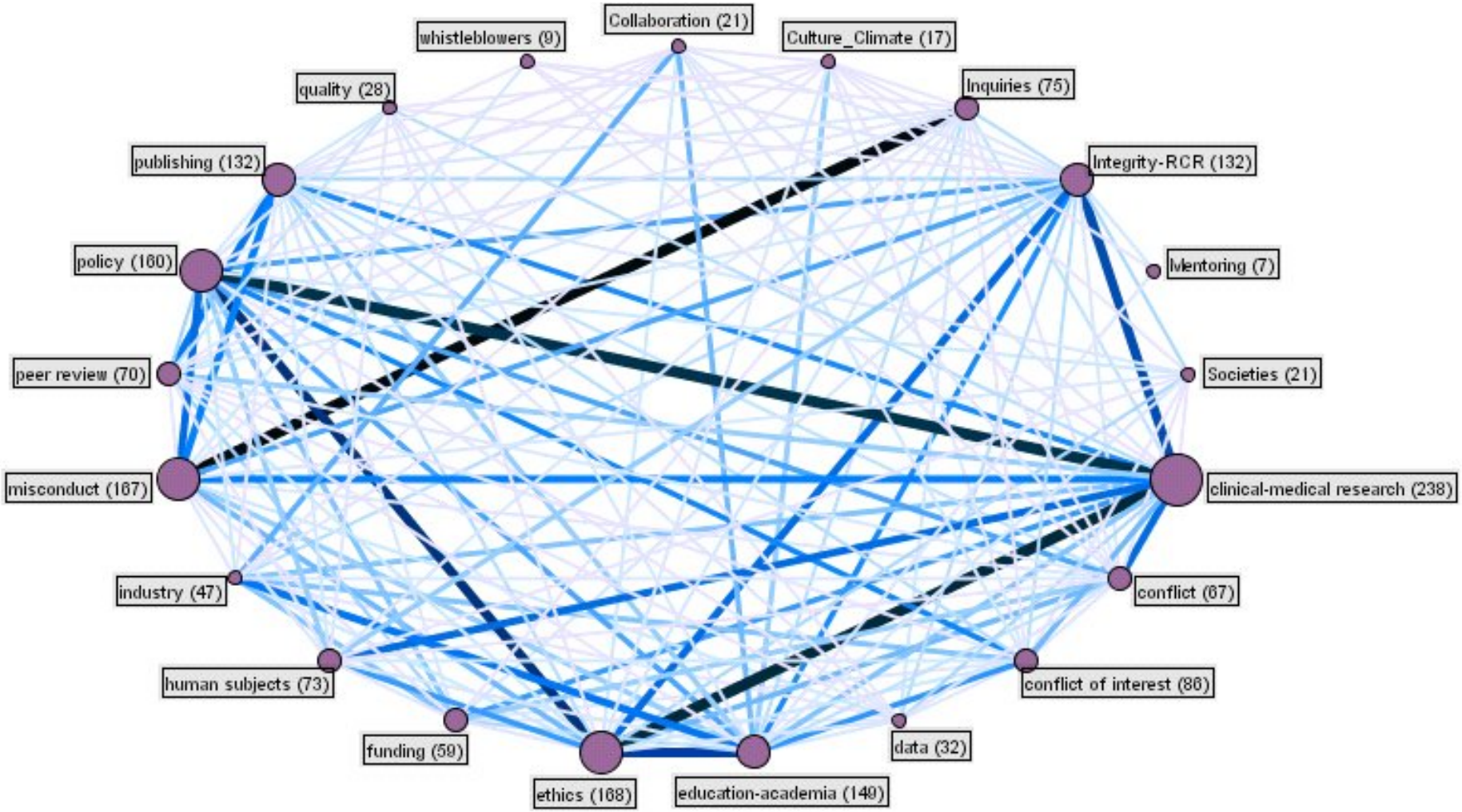
ANALYSES

- Article titles sorted into 21 categories using SPSS Text Analysis for Surveys:
  - NLP algorithms with linguistic sort methods
  - Investigator judgment
- Chi-square analysis used to examine temporal trends comparing frequency of categories for 1996-2000 vs. 2001-2005

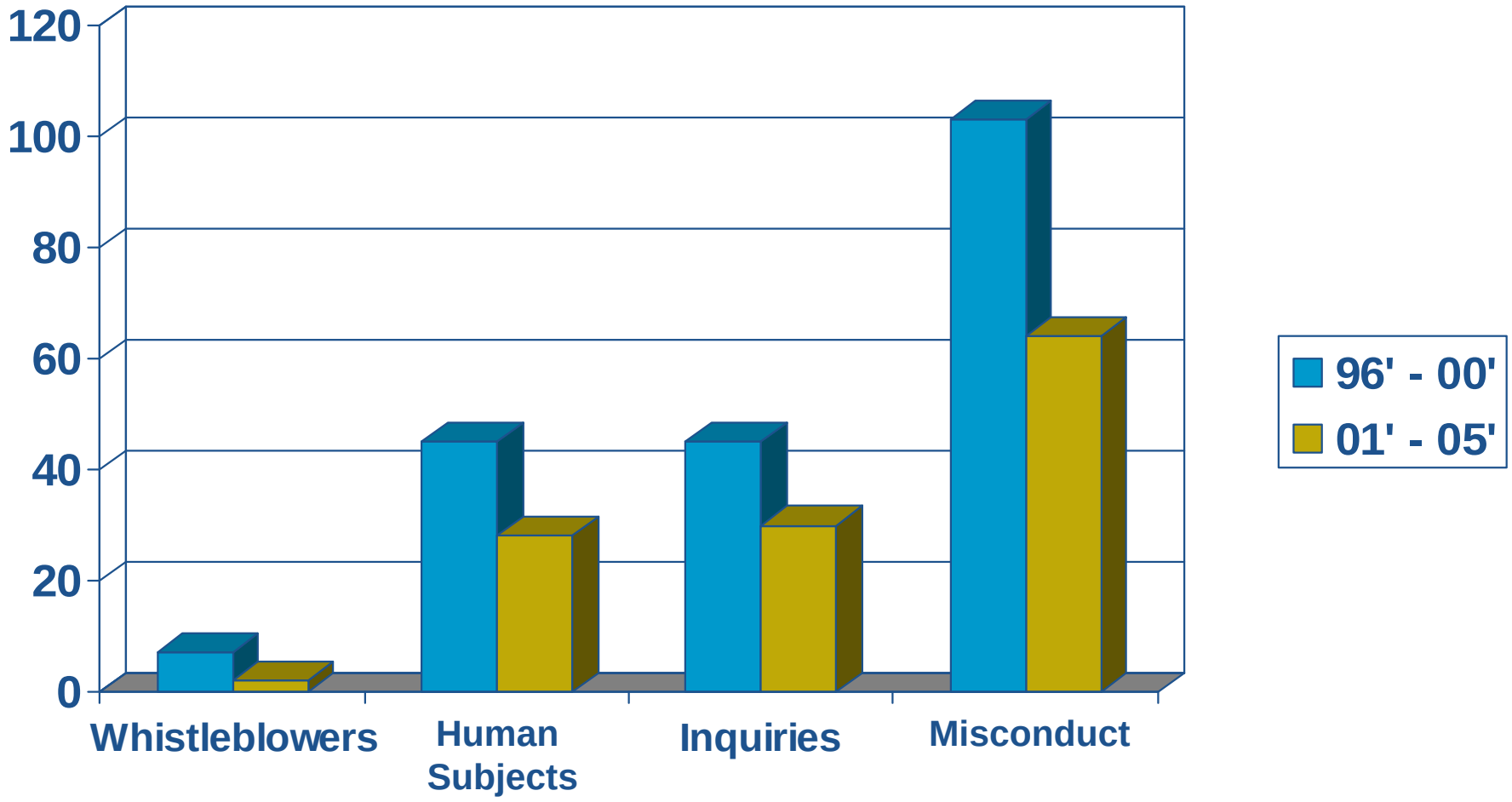
RESULTS

- A total of 1,086 article titles identified
  - 10% in *Academic Medicine*
  - 14% in *BMJ*
  - 16% in *JAMA*
  - 17% in *Science & Engineering Ethics*
  - 43% in *Science*
- 43% published in 1996-2000
- 57% published in 2001-2005
- 1,056 categorized into at least one category

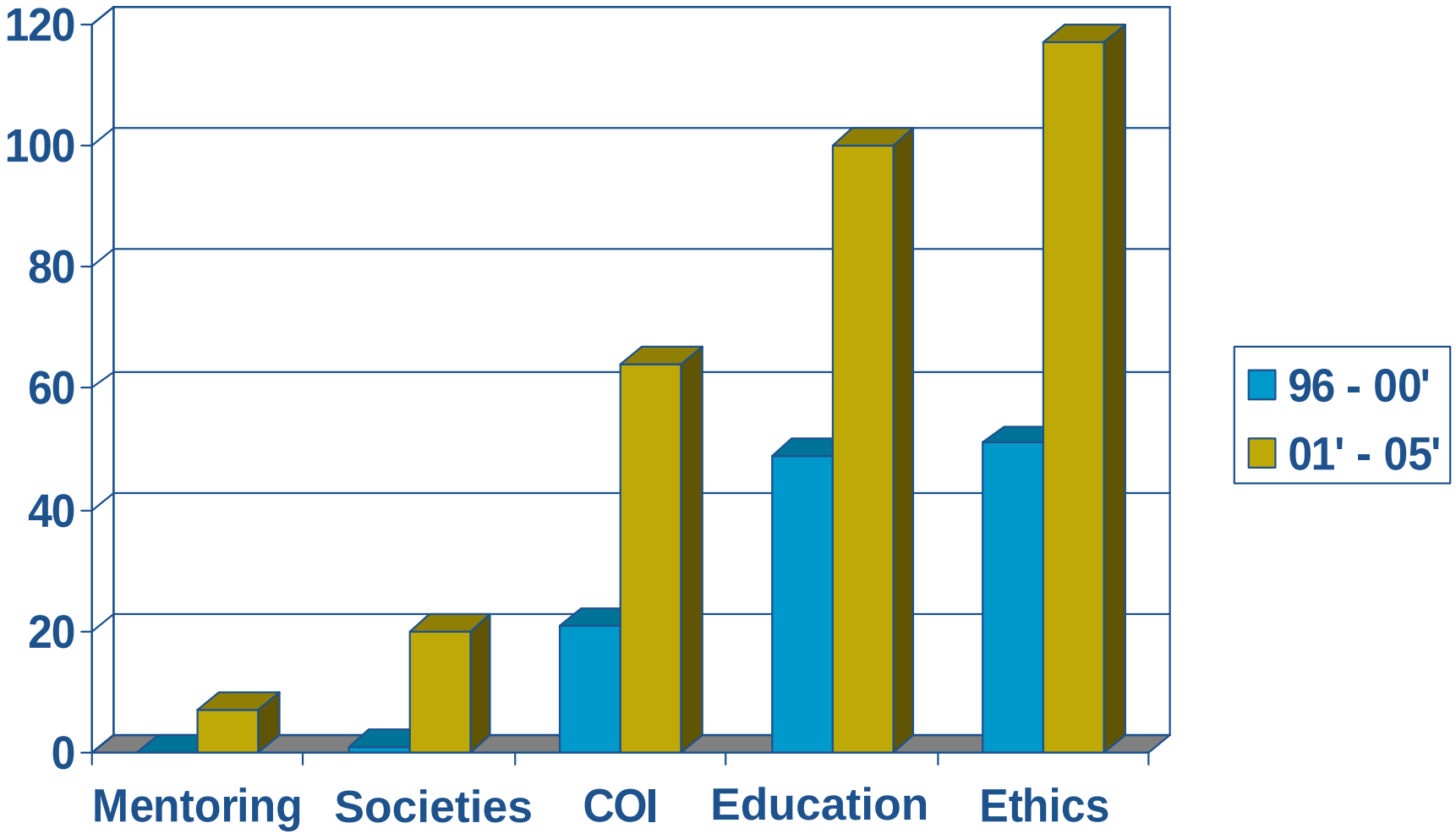
Visualization Web Graph



Temporal Shifts in Categories



Temporal Shifts in Categories



No Significant Change in Categories

- Industry
- Culture/Climate
- Quality
- Data
- Conflicts
- Funding
- Publishing
- Peer Review
- Collaboration
- Policy
- Integrity – RCR
- Clinical-medical research

SUMMARY

- Results limited to subset of journals, one bibliographic database, and article titles only
- Results suggest research integrity discourse shifting to address more complex and diverse areas
  - mentoring
  - role of academic societies in promoting integrity
  - conflict of interest issues
  - education
  - ethics