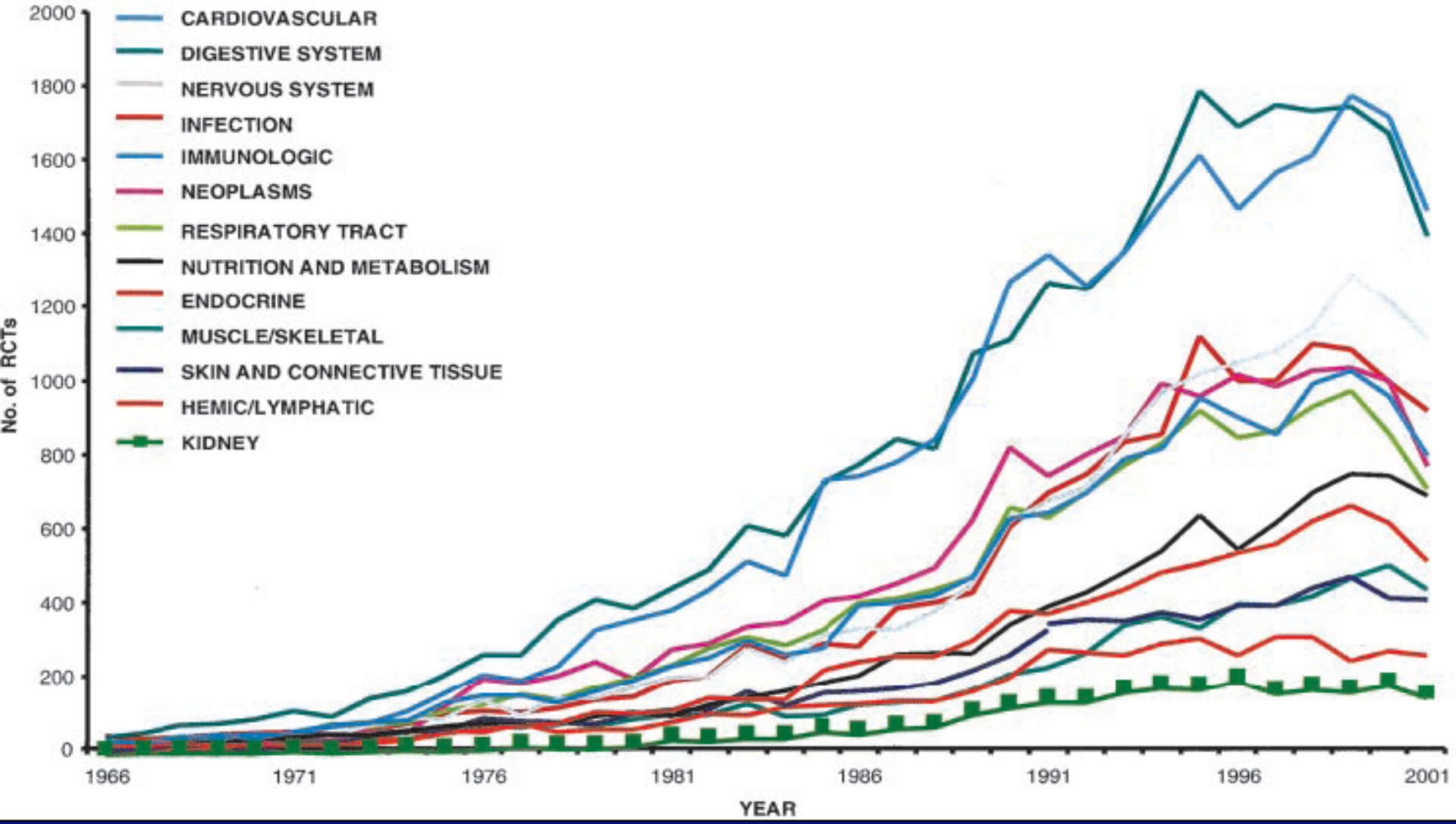
Using Available Systemic Reviews to Inform Guidelines Development

KDIGO Controversies Conference
Clinical Practice Guidelines: Methodology
October 12, 2007

Joseph Lau, MD
Tufts-New England Medical Center

Figure 1. Number of randomized controlled trials (RCT) published in nephrology and 12 other specialties of internal medicine from 1966 to 2001. *The Number, Quality, and Coverage of Randomized Controlled Trials in Nephrology. J Am Soc Nephrol 15: 411–419, 2004*



Literature examined in KDOQI guidelines

Guideline	Year	# abstracts / retrieved / extracted / included
CKD classification	2002	18,153 / 1,110 / - - - /367
Dyslipidemia	2003	10,363 / 642 / 133 / - - -
Hypertension	2004	11,688 / 899 / 224 / 76
Cardiovascular disease	2005	16,691 / 547 / - - - / 86
Anemia	2006	2,756* / 137 / 83 / 51
Diabetes	2007	11,378 / 822 / 250 / 142

* Decision not to re-examine articles reviewed in previous guideline

Impetus for using published systematic reviews

- Many questions are typically asked in developing guidelines
- Many studies need to be evaluable to address specific question
- Volume of literature will continue to grow
- Need to reduce literature review workload
- No need to reinvent the wheel
- If not used as is, might be able to use the bibliography and as a framework

Some questions to ask in using available systematic reviews for CPG

- How many systematic reviews are available in kidney diseases?
- Do they address the guideline questions?
- Are they up to date?
- What is their methodological quality?
- Are the methods consistent across publications?
- Are their methods consistent with accepted KDIGO process (grading of evidence)?
- Do they provide enough information to WG?
- How much additional information would be required?
- How much work (money) could we save?
- What are the trade-offs?

Sources of systematic reviews

- Journal publications
- Cochrane reviews
- Technology assessments from various countries (e.g., Australia, UK, US)
- Other guideline groups

A Critical Review of Meta-Analyses of Intervention RCTs in Nephrology

- Master's thesis (2005); George Fares, MD – NKF fellow
- Medline and Cochrane search 1966 – 2004
- 784 abstracts identified through search
- 636 rejected after abstract screening
- 32 rejected after full article evaluation
- 116 accepted

Quality Assessment

- The methodological quality of reporting of all identified Meta-analyses was assessed using the QUOROM (Quality of Reporting of Meta-analyses) checklist.
- Methodological adherence score was reported on a scale of 100.

Year of publication of 116 meta-analyses in Cochrane and Medline

Period	# Meta-analyses
Before 1990	2
1990-1995	11
1995-2000	30
2000-2004	73

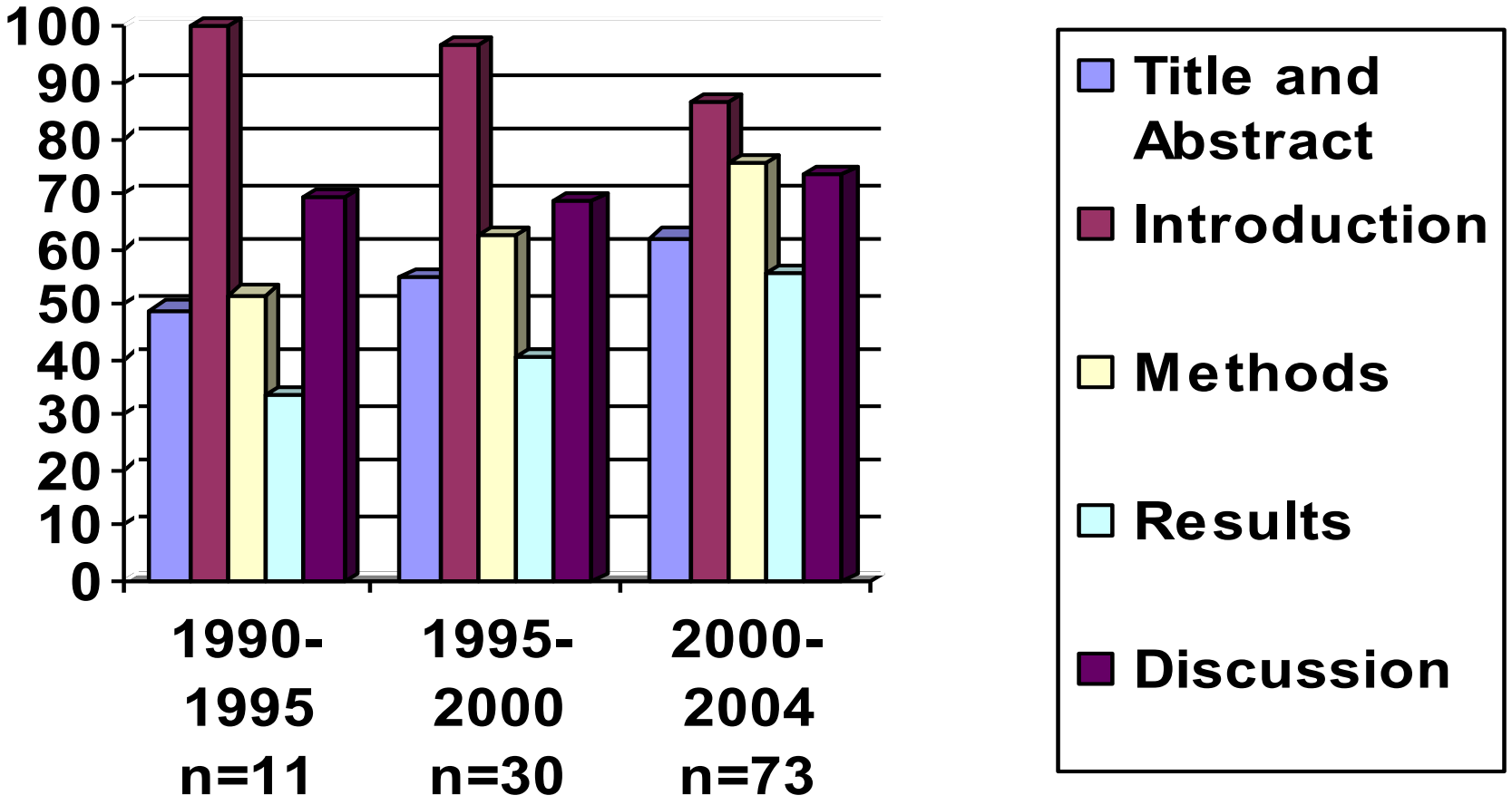
Number of meta-analyses according to category of conditions and source

Category	Cochrane N = 21	Medline N = 95	All N = 116
GN	4	13	17
ESRD	5	10	15
CKD	5	19	24
ARF	2	28	30
Transplant	2	15	17
Electrolytes	1	1	2
Stones	0	3	3
Diabetes	2	6	8

Quality rating of meta-analyses

- The overall adherence to methodological standards of reporting on a scale of 100 for all meta-analyses was 63.
- Quality report score of meta-analyses was 61 for MEDLINE and 73 for Cochrane publications ($p < 0.001$).
- Adherence to methodological standard of reporting showed significant improvement for meta-analyses published after 2000 compared to Meta-analyses published before 1995 ($p=0.0016$).

QUOROM score of all meta-analyses over time by study section (n=number of meta-analyses) excluding the 2 meta-analyses published before 1990



Our evidence-based practice center (EPC) experience in using systematic review

- Recent EPC evidence report on the effect of breastfeeding on infant and maternal health outcomes in developed countries
- Screened 9,000 abstracts
- 22 outcomes of interest selected, out of many more
- Evidence consists mostly of observational studies
- Reviewing all primary studies de novo would have required data extraction from >400 articles (not feasible)
- Selected 29 systematic reviews, out of 50+ available
- Reviewed 43 primary studies on infants and 43 primary studies on maternal outcomes for updating and new outcomes

Challenges of using available systematic reviews

- Even though we have assessed the reporting quality of these systematic reviews (using standards of reporting of systematic reviews of observational studies (MOOSE statement), and additional parameters that we devised), we cannot reliably know the validity of the reported summary data without knowing the details of the primary studies.
- A well-performed systematic review does not necessarily imply that the body of evidence for a particular outcome of interest is of high quality. On the other side, a poorly conducted systematic review does not mean that the quality of the primary studies is poor.
- Any systematic review is limited by the quality of the primary studies included in the review. Unless the method used to assess the quality of the primary studies is transparent and the details made available for examination, it would be difficult to reliably determine the validity of the conclusions.

Challenges of using available systematic reviews: updating

- Uncertainty about consistency of the method, eg, grading of evidence
- If detailed data not provided in the previous systematic review, would not be able to do a meta-analysis without extracting data from the original studies (no time saved)

Issues and challenges of using published systematic reviews

- WYSIWYG
- May not addressed the same question
- Inconsistent methods used across reviews
- Difficult to ascertain exactly what was done
- Updating is not straightforward
- Cochrane reviews focus on interventions