WHERE THE RUBBER MEETS THE ROAD 2:
Coding Procedures for Understanding Meta-Analysis Results (working draft)

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GOALS OF THIS EFFORT

- Standard Protocol to Build Knowledge
- Assess Knowledge in Key Areas
- Assess Knowledge of Outcomes
- Examine Quality of Meta-analyses to discern knowledge gaps
- Pre-cursor to Protocol for Systemic Review of “Reviews”
PRESENTATION GOALS

- Cover the basics of search & coding procedures
- Address FAQs asked by coders
- Sample coding
  - Example of how to go through and code an article
- Address issues that have come up in other articles
- Get feedback and suggestions
  - How can we further improve the recommended procedures?
  - Are there any changes that should be made to the code sheet or coding scheme?
  - Is there a better way to address the issues that have come up?
REFERENCE TOOLS

- Notebook
  - Proposed Coding Sheet
  - Proposed Decision Rules
- USB Drive
  - Proposed Protocol
  - Proposed Knowledge Map
  - Sample Article
Search Procedures: Basics

- Search terms developed by individual researcher
  - Input & consultation from the ACE! team

  - Google Scholar, Cochrane and Campbell Collaboration protocols and reviews examined for any additional materials not captured in main databases

- Search limited to abstract/title/keyword
  - Exact parameters dependant on database

- Read all abstracts for relevance
  - All articles on the topic area are relevant for our purposes
    - Search not limited to criminal justice population/setting
  - If unsure, err on the side of inclusion
Search Procedures: Documentation

- Articles saved in bibliographic software
  - Zotero – Firefox-based program designed by GMU
  - More information on Zotero to follow...
  - Researchers can save in their own database/reference technique

- Document:
  - Which database(s) articles were found in
  - How many duplicates were found
  - Rationale for exclusion of articles
SEARCH PROCEDURES: FAQs

What if a source seems relevant, but does not have available full text online?

- Some examples of this are in-press articles, books or book chapters, and articles that are outside the university’s subscription.
- See if there are any other available means of retrieval/review, such as contacting the original author.
- Record the citation in Zotero, and make a note that the source is inaccessible for review.
SEARCH PROCEDURES: FAQs

- Should I be looking only for articles dealing only with the criminal justice system or offenders?
  - No. We want to cover a broad range of research that could be transportable to justice settings.
  - Example from the “Screening” topic area:
    - Articles dealing with screening for cancer and other purely medical conditions are probably not relevant for our purposes.
    - Articles on screening for alcohol or substance use are relevant, even when conducted in hospitals or medical clinics.
CODING: BASICS

- Code sheet
  - Developed by researcher from template
    - Adapted to suit topic area
  - To be used as a code book for the entry database

- Entry database
  - Access form/database
  - Excel database
CODING DATABASE

Article Information

Title: 
Author(s): 
Journal: 
Date: 

Database(s) found in:
- Cambridge Journals Online
- LexisNexis
- ProQuest
- Criminal Justice Abstracts
- PsycArticles
- PubMed
- Google
- PsycINFO
- ScienceDirect

Continue to Methods and Criteria
Sample Article


- Found in ProQuest (3)
**Coding: Search Process**

**Code Sheet Pages 2-3**

- **Medley et al., 2009**
  - Number of databases searched: 5
  - Names of databases searched: 20, 32, 39, 40, 41
  - Search terms:
    - peer education and HIV; peer counseling and HIV; peer teaching and HIV; peer interventions and HIV; peer approaches and HIV; peer outreach and HIV; peer meetings and HIV; peer education and AIDS; peer counseling and AIDS; peer approaches and AIDS; peer outreach and AIDS; peer meetings and AIDS; peer evaluation and AIDS; peer and HIV and intervention; peer leaders and HIV; peer networks and HIV
  - Start date for search: 1990
  - End date for search: 2006
  - Other search methods: 1, 2
CODING: SEARCH PROCESS ISSUES

- Start/end date for search
  - Issue: when search parameters used are determined by when the database(s) started
  - Issue: when different dates are used for each database

- Databases searched
  - Issue: when article does not provide a full list

- Search terms
  - Should be recorded exactly as given
  - Issue: when article does not provide a full list
  - Issue: when researchers use different terms per database
CODING: CRITERIA FOR INCLUSION
CODE SHEET PAGES 2-3, 5-6

- Medley et al., 2009
  - Language: 1
  - Minimum sample size: 0
  - Publication: 2
  - Type of study (research design): 5, 15
  - Data collection: 4
  - Other criteria: 1 (developing countries)
  - Target population: 0
  - Target setting: 0
# Coding: Criteria for Inclusion (p. 2-3)

<table>
<thead>
<tr>
<th>Criteria for inclusion</th>
<th>(not a field for data entry)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Language</strong></td>
<td>Indicate languages included</td>
</tr>
<tr>
<td></td>
<td>0 = unspecified</td>
</tr>
<tr>
<td></td>
<td>1 = any</td>
</tr>
<tr>
<td></td>
<td>2 = English</td>
</tr>
<tr>
<td></td>
<td>3 = Spanish</td>
</tr>
<tr>
<td></td>
<td>4 = French</td>
</tr>
<tr>
<td></td>
<td>5 = Other (spec.)</td>
</tr>
<tr>
<td><strong>Minimum Sample Size</strong></td>
<td>Indicate sample size criteria (if any)</td>
</tr>
<tr>
<td></td>
<td>(0 if unspecified)</td>
</tr>
<tr>
<td><strong>Publication</strong></td>
<td>Indicate all that apply: type of publication</td>
</tr>
<tr>
<td></td>
<td>required for inclusion</td>
</tr>
<tr>
<td></td>
<td>0 = unknown</td>
</tr>
<tr>
<td></td>
<td>1 = all possible sources</td>
</tr>
<tr>
<td></td>
<td>2 = peer-reviewed journals</td>
</tr>
<tr>
<td></td>
<td>3 = reports</td>
</tr>
<tr>
<td></td>
<td>4 = published materials (other than peer-reviewed journals)</td>
</tr>
<tr>
<td></td>
<td>5 = unpublished materials</td>
</tr>
<tr>
<td></td>
<td>6 = books</td>
</tr>
<tr>
<td><strong>Type of study</strong></td>
<td>Indicate all that apply: study designs included</td>
</tr>
<tr>
<td></td>
<td>in meta-analysis</td>
</tr>
<tr>
<td></td>
<td>0 = none specified</td>
</tr>
<tr>
<td></td>
<td>1 = experimental/randomized</td>
</tr>
<tr>
<td></td>
<td>2 = quasi-experimental (specify type)</td>
</tr>
<tr>
<td></td>
<td>3 = clinical trial</td>
</tr>
<tr>
<td></td>
<td>4 = controlled</td>
</tr>
<tr>
<td></td>
<td>5 = pre-post condition studies</td>
</tr>
<tr>
<td></td>
<td>6 = within-group studies</td>
</tr>
<tr>
<td></td>
<td>7 = parallel groups</td>
</tr>
<tr>
<td></td>
<td>8 = cohort studies</td>
</tr>
<tr>
<td></td>
<td>9 = cross-sectional</td>
</tr>
<tr>
<td></td>
<td>10 = longitudinal</td>
</tr>
<tr>
<td></td>
<td>11 = qualitative</td>
</tr>
<tr>
<td></td>
<td>12 = individual-level</td>
</tr>
<tr>
<td></td>
<td>13 = group-level</td>
</tr>
<tr>
<td></td>
<td>14 = univariate</td>
</tr>
<tr>
<td></td>
<td>15 = evaluation studies</td>
</tr>
</tbody>
</table>
## Coding: Criteria for Inclusion (p. 3)

| Data Collection | Indicate all that apply: data collection required for inclusion; If data collection type not listed, add to list | 0 = none specified  
1 = statistics appropriate for meta-analysis (quantitative data) (specify if particular statistic required)  
2 = urinalysis/drug test data  
3 = qualitative data  
4 = relevant outcomes  
5 = multiple collection points (specify) |  |
|-----------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Other Criteria  | Indicate all that apply: other criteria required for inclusion; If criteria not listed, add to list | 0 = none specified  
1 = intervention of specific geographic location (e.g., United States) or type of location (e.g., developing countries) (specify)  
2 = intervention required particular reporting of outcomes (e.g., separate reporting of target population) (specify)  
3 = study did not use particular design (specify) |  |
CODING: CRITERIA FOR INCLUSION ISSUES

- Criteria must be stated explicitly
  - Should not be inferred from analysis or search terms
  - What meta-analysis researchers specified as criteria, not what was characteristic of included articles

- Issue: when intervention applies to one population but aims to improve outcomes for another
  - Which is the target population? Or are both?

- Some values are mutually exclusive
  - In general, it is ideal for coders to record as many values as fit in a category
  - In some cases, this is unnecessary and causes confusion
CODING: STUDIES INCLUDED IN META-ANALYSIS
CODE SHEET PAGE 4

- Medley et al., 2009
  - # identified through search: 271
  - # of abstracts reviewed: -88
  - # read through fully: 124
  - # included: 28

<table>
<thead>
<tr>
<th># of studies</th>
<th>Total number of studies found (e.g. database hits) by meta-analysis researchers (if not provided, enter -88)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identified thru search</td>
<td>271</td>
</tr>
<tr>
<td>Abstracts reviewed</td>
<td>-88</td>
</tr>
<tr>
<td>Read thru; examined for criteria</td>
<td>124</td>
</tr>
<tr>
<td>Coded</td>
<td>28</td>
</tr>
</tbody>
</table>
**Coding: Studies Found Issues**

- Not all fields for number of articles will be applicable to all articles
  - Ideally, articles report all these fields, but few do
- Issue when article is vague about where the number comes from
- Issue when article pulls number found separately
  - Coders must pay close attention, and occasionally calculate the actual totals
Coding: Methodology
Code Sheet Pages 4-6

Medley et al., 2009

- Definition of intervention: 8
- Research design (type of review): 1
- Methodological quality assessed?: 2
- Quality assessment: 11
- Control group: 0
- Comparison group: 0
- Source of comparison group: 99
## Coding: Methodology (pp. 4, 5)

<table>
<thead>
<tr>
<th>Definition of intervention</th>
<th>Indicate general type of intervention; If more than one intervention type is being studied, select all that apply; If intervention is not listed, add to list</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>general HIV risk behavior programming</td>
</tr>
<tr>
<td>2</td>
<td>information, education, &amp; communication (IEC) program</td>
</tr>
<tr>
<td>3</td>
<td>mass media campaign</td>
</tr>
<tr>
<td>4</td>
<td>harm reduction program</td>
</tr>
<tr>
<td>5</td>
<td>HIV testing/counseling</td>
</tr>
<tr>
<td>6</td>
<td>self-efficacy/response efficacy</td>
</tr>
<tr>
<td>7</td>
<td>motivational interviewing</td>
</tr>
<tr>
<td>8</td>
<td>peer education</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Methodological quality assessed?</th>
<th>Whether meta-analysis researchers assessed methodological quality of studies as a criterion for inclusion or for weighting effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>no methodological quality assessment</td>
</tr>
<tr>
<td>1</td>
<td>methodological quality assessed as inclusion/exclusion criteria</td>
</tr>
<tr>
<td>2</td>
<td>methodological quality assessed for weighting of effect size</td>
</tr>
</tbody>
</table>

| Quality assessment | If methodological quality was not assessed, enter 99  
Indicate all that apply: test(s) meta-analysis researchers applied to assess methodological quality; If test/assessment not listed, add to list  |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>none specified</td>
</tr>
<tr>
<td>1</td>
<td>Cochrane criteria</td>
</tr>
<tr>
<td>2</td>
<td>enhanced Overview Quality Assessment Questionnaire (OQAQ)</td>
</tr>
<tr>
<td>3</td>
<td>Sacks, et al. (1987) checklist</td>
</tr>
<tr>
<td>4</td>
<td>Evans and Pollock (1985) questionnaire</td>
</tr>
<tr>
<td>5</td>
<td>Jadad scale/Oxford quality scoring system</td>
</tr>
<tr>
<td>6</td>
<td>qualitative assessment</td>
</tr>
<tr>
<td>7</td>
<td>Bertrand, et al. 8-point scale</td>
</tr>
<tr>
<td>8</td>
<td>Miller, et al. 12-point scale</td>
</tr>
<tr>
<td>9</td>
<td>Collaborative Outcome Data Committee Guidelines</td>
</tr>
<tr>
<td>10</td>
<td>Maryland Score of Scientific Rigor</td>
</tr>
<tr>
<td>11</td>
<td>Assessment developed by authors</td>
</tr>
</tbody>
</table>
Coding: Methodology Issues

- Definition of intervention
  - The intervention must be specifically defined or identified in the article
    - You should not infer the intervention used from measures, procedures, or outcomes
    - If the article is vague about the intervention, you should select “unspecified” or “general”

- Research design
  - Be careful to record what the article is, not just what it says it is
  - There should only be one research design recorded

- Methodological quality
  - Shouldn’t be inferred from other inclusion criteria (such as inclusion of only peer-reviewed articles)
CODING: METHODOLOGY ISSUES

- Control group, Comparison group, Source of the comparison group
  - Like inclusion criteria, should be considered only as control group conditions sought out by meta-analysis researchers
CODING: GENERAL EFFECT
CODE SHEET PAGES 6-7

- Medley et al., 2009
  - Quantitative effect reported?: 3
  - Qualitative effect: 99
  - Method for calculating effect size: 7, 10
  - Method for reporting effect size: 7
  - Effect size: 99
  - Moderators: 99
**Coding: Effect Size (pp. 6-7)**

<table>
<thead>
<tr>
<th>Method for calculating effect size</th>
<th>Indicate all that apply: statistical method(s) used to calculate effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = not specified/unclear</td>
<td>1 = Pearson’s r</td>
</tr>
<tr>
<td>1 = Pearson’s r</td>
<td>2 = Cohen’s $d$</td>
</tr>
<tr>
<td>2 = Cohen’s $d$</td>
<td>3 = Glass’s $\Delta$</td>
</tr>
<tr>
<td>3 = Glass’s $\Delta$</td>
<td>4 = Hedges’ $g$</td>
</tr>
<tr>
<td>4 = Hedges’ $g$</td>
<td>5 = Cohen’s $f^2$</td>
</tr>
<tr>
<td>5 = Cohen’s $f^2$</td>
<td>6 = Cramér’s $\phi$ / Cramér’s $V$</td>
</tr>
<tr>
<td>6 = Cramér’s $\phi$ / Cramér’s $V$</td>
<td>7 = Odds ratio</td>
</tr>
<tr>
<td>7 = Odds ratio</td>
<td>8 = Relative risk/risk ratio</td>
</tr>
<tr>
<td>8 = Relative risk/risk ratio</td>
<td>9 = Statistical significance ($p$)</td>
</tr>
<tr>
<td>9 = Statistical significance ($p$)</td>
<td>10 = Standardized mean difference ($\theta$ or $d$)</td>
</tr>
<tr>
<td>10 = Standardized mean difference ($\theta$ or $d$)</td>
<td>99 = N/A (no effect size calculated)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Method for reporting effect size</th>
<th>Indicate one: statistic used for reporting final effect size(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = not specified/unclear</td>
<td>1 = Pearson’s r</td>
</tr>
<tr>
<td>1 = Pearson’s r</td>
<td>2 = Cohen’s $d$</td>
</tr>
<tr>
<td>2 = Cohen’s $d$</td>
<td>3 = Glass’s $\Delta$</td>
</tr>
<tr>
<td>3 = Glass’s $\Delta$</td>
<td>4 = Hedges’ $g$</td>
</tr>
<tr>
<td>4 = Hedges’ $g$</td>
<td>5 = Cohen’s $f^2$</td>
</tr>
<tr>
<td>5 = Cohen’s $f^2$</td>
<td>6 = Cramér’s $\phi$ / Cramér’s $V$</td>
</tr>
<tr>
<td>6 = Cramér’s $\phi$ / Cramér’s $V$</td>
<td>7 = Odds ratio</td>
</tr>
<tr>
<td>7 = Odds ratio</td>
<td>8 = Relative risk/risk ratio</td>
</tr>
<tr>
<td>8 = Relative risk/risk ratio</td>
<td>9 = Statistical significance ($p$)</td>
</tr>
<tr>
<td>9 = Statistical significance ($p$)</td>
<td>99 = N/A (no effect size calculated)</td>
</tr>
</tbody>
</table>
CODING: EFFECT ISSUES

- Method for calculating effect size
  - Distinct from method for reporting effect size
  - May have more than one answer

- General effect size
  - Issue when the article only reports a single outcome or otherwise does not produce a general effect size
    - Question of whether to infer a general effect from the main focus outcome
CODING: OUTCOMES

Medley et al., 2009

- Outcome measures: 1
- Outcome 1: HIV knowledge
  - Measure: 1
  - Effect size: 2.28
  - Moderators:
    - Population: youth (2.52), IDUs (1.52), CSWs (1.66), transport workers (1.28), heterosexuals (3.46), prisoners (8.27), miners (2.49)
  - Effect: 1

- Outcome 2: Injection drug equipment sharing
  - Measure: 3
  - Effect size: 0.37
  - Moderators: none
  - Effect: 1
CODING: OUTCOMES

- Medley et al., 2009
  - Outcome 3: condom use
    - Measure: 3
    - Effect size: 1.92
    - Moderators:
      - Population: youth (1.12), IDUs (1.49), CSWs (2.31), transport workers (2.43), heterosexuals (1.84), miners (1.97)
      - Partner type:
        - Casual: overall (2.23), youth (1.93), CSWs (1.25), transport workers (2.93), heterosexuals (3.35), miners (2.45)
        - Regular: overall (1.94), youth (0.53), CSWs (1.66), transport workers (2.23), heterosexuals (4.47)
    - Effect: 9
  - Outcome 4: STI infection
    - Measure: 3, 4, 5
    - Effect size: 1.22
    - Moderators:
      - Population: CSWs (1.15), transport workers (1.95), heterosexuals (0.94), prisoners (1.40), miners (1.90)
    - Effect: 0
CODING: OUTCOMES ISSUES

- Outcomes have been a complicated area for the NJH team in testing

- Problem: uncommon or specifically focused outcomes
  - Difficulty in fitting outcomes into the preset categories

- Solution: undefined outcome fields
  - Researchers can now enter whatever outcome the meta-analysis focuses on
  - More variability of reporting and possible subjectivity, but lower chance of confusion/error
Coding: Outcomes Issues

- Moderators
  - Should be as specific as possible
  - Give variable as well as relationship with effect size
    - If the article reports different effect sizes with moderating variables, include them in this field