

# Applying Sex and Gender Analysis to Systematic Reviews

## Development of A New Knowledge Translation Tool

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### Background

The safety and effectiveness of health interventions can differ between and within populations for many reasons including issues of sex and gender.

This knowledge is reflected in the growing consensus that sex and gender analysis (SGA) in health research is essential for scientific rigor.

There is a lack of consistent analysis and reporting of evidence concerning sex/gender in systematic reviews (Tugwell et al., 2006; Doull et al., 2010; Welch et al., 2012).

Review authors and editors have identified a need for guidance on the integration of SGA into systematic review methods.

### Objectives

To develop a tool to increase awareness of, and uptake of SGA in systematic review planning, conduct, reporting, and appraisal.

### Methods

A briefing note tool was developed based on emerging sex/gender theory, empirical evidence, prior checklists and knowledge translation theory (informed by diffusion of innovations theory and guided by a key informant). The initial end users were identified as systematic review authors, editors and peer referees.

The tool was adapted to, and piloted with, the Cochrane Hypertension, HIV/AIDS and Musculoskeletal Review Groups. This choice was based on reported sex/gender differences in at least six aspects of related health conditions or risk factors. Members of each review group were consulted for feedback at every stage of development.

The tool was finalized at a consensus meeting of experts in SGA, review group content areas and systematic review methodology.

As part of the initial evaluation process, the tool was piloted in a training Workshop at the 2012 Cochrane Canada Symposium.

### Results

The tool addresses:

- 1) why sex/gender are important for systematic reviews in general;
- 2) briefing on sex/gender analysis for Cochrane authors;
- 3) relevance of sex/gender to the specific content area of the test review groups;
- 4) how to consider sex/gender in each stage of a review.

Overall participant feedback was positive (fig. 1). Perceived obstacles to SGA included a lack of reported sex-disaggregated data in primary studies, methodological limitations associated with subgroup analysis, and the challenges of measuring gender.

The need to ensure a common terminology for a diverse audience was identified as key during development and piloting.

### Conclusions

A tool was developed to "make the case" for consideration of SGA in systematic reviews and to guide reviewers on how to implement SGA. The tool complements the Sex and Gender Appraisal Tool for Systematic Reviews previously developed by our working group (Doull et al., 2010). Both require further validation.

Reasons for omission of SGA in systematic reviews are multifactorial. For example, systematic reviews may replicate knowledge or reporting gaps from primary trials. However, it is important for research synthesists to report what is known and not known about sex/gender, with the ultimate goal of improving knowledge production and ensuring its relevance to diverse populations.

### Next steps

Engage a wider spectrum of systematic review stakeholders to evaluate the tool.

Integrate or link the tool with existing methods guidance, including equity methods, and appraisal tools such as AMSTAR.

Tailor a version for end users and consumers.

Test long-term impacts of the tool, for example, by monitoring integration of SGA into Cochrane protocols and completed reviews before and after the tool's dissemination to review groups.

### What is sex/gender analysis?

#### SEX

genetic, epigenetic, biological and physiological characteristics and processes that generally distinguish males and females



#### GENDER

socially constructed roles, relationships, values, attitudes, and forms of power that societies generally ascribe to women, men and people of diverse gender identities

➢ A framework to identify and analyze sex/gender differences and similarities, without assuming differences or similarities exist.

➢ SGA also explores the interrelationships of sex and gender between, and within groups of people, and potential interactions with other health determinants (Fig.2).

➢ SGA contributes to quality in health care decision making by addressing "to whom does this evidence apply?"

### Sex/gender matters in...

- Pharmacokinetics and pharmacodynamics
- Genetic expression
- Cell regulatory processes
- Prevalence and severity of disease
- Disease onset, recognition and diagnosis
- Experiences of diseases/conditions/addictions
- Responses to interventions
- Health system utilization
- Health care practitioner responses
- Social conditions and health inequities

### Applying SGA – a few pointers

• Even when health issues are sex-specific, dynamics of gender may affect prevention, how and when care is sought, diagnosis, treatment and outcome.

• At an individual level, one's sex is "embedded" within one's gender. Explanation of sex differences must therefore consider the intersection of sex/gender.

• Disaggregating data by sex is a necessary but not sufficient step for sex/gender analysis.

• The terms 'sex' and 'gender' are not interchangeable, but rather, the pathways between these processes should be explored and documented.

• Sex/gender are usually dichotomized but emerging theory highlights the intersections between the two and the inability to separate out the biological (sex) from the social (gender).

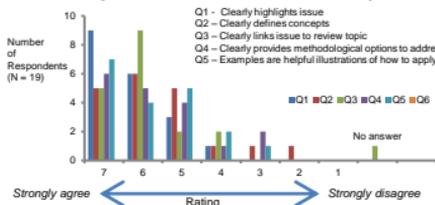
• The reporting of sex/gender in populations does not imply an equity perspective unless further analysis is undertaken.

### SGA – excerpts of items in the tool

Reviewers should consider and document whether and in what ways sex and/or gender are relevant to their review question. Depending on the specific research question, different methods may be appropriate. The following table provides some strategies to address issues of sex/gender.

Question formulation	Consider whether there are known or possible differences by sex/gender across: baseline risk, prevalence, vulnerability, implementation, response to intervention, Plan objectives and methods accordingly.
Population	Specify if sex and gender will be used as a basis for exclusion or inclusion of studies. Consider ways which other inclusion criteria such as age or ethnicity may have an interacting effect on sex/gender. For example, age of onset of disease or complications related to a condition may differ for men and women – but age based inclusion criteria may favour one sex.
Intervention and comparator	Is the intervention readily available or acceptable to patients of both sexes/ethnicity?
Outcomes	Consider whether the outcomes are relevant to women and men. Does the condition or the complications manifest differently in men and women – and do the selected outcomes for the review capture both of these concerns?
Study design	Consider including non-randomized study designs, in addition to RCTs.
Context	Consider health care context of the included studies (e.g. equity, setting influences, gender norms, performance, gender identity and gender relations).
Searching for studies	Identify for studies that assess sex/gender in context. Applying these terms to a search may unnecessarily limit the scope. Search beyond usual databases may be required.
Heterogeneity	Consider strategies to assess for heterogeneity and explore with methods such as meta-regression techniques and subgroup analyses (see Cochrane handbook). Consider effects of possible confounders such as age, ethnicity and others. Consider including qualitative methods such as narrative review, meta-ethnography, and thematic analysis to summarize heterogeneous results or study results with ecological understanding of gender.

Figure 1. Pilot Evaluation – selected items and responses



20 attended the workshop; 19 returned evaluations.  
Of 19 respondents, 9 were systematic review authors.

References and resource list are available from:

cochrane.sga@gmail.com

### Acknowledgments

- Canadian Institutes of Health Research
- Jim Wright, Hypertension Review Group
- Tara Honath, HIV/AIDS Review Group
- Peter Tugwell, MSK Review Group
- Participants in the InVited Workshop, Combining Forests to Improve Systematic Reviews: Gender, Equity & Bias, University of Ottawa, May 2-3, 2011.
- Participants in the Applying Sex and Gender Analysis Workshop, Cochrane Canada Symposium, Winnipeg, May 9 2012.

Figure 2. Sex/gender as cross-cutting determinants of health

