These guidelines are largely based on the ‘Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals’ (accessed Fall, 2015) produced by the International Committee of Medical Journal Editors (ICMJE). The most recent version of these recommendations is available online at www.icmje.org.

1. What is authorship?
Authorship is the means of assigning responsibility and giving credit for intellectual work. Being an author of a manuscript implies that you are accountable and responsible for what is being published. Every author listed on a publication is presumed to have approved the final version of the manuscript. Each author is also responsible for the integrity of the research being reported.

2. Deciding on authorship
The individuals who conduct a particular research project are responsible for identifying those who meet the criteria for authorship. Authorship is something research groups should discuss at the inception of a research project, making modifications as appropriate as the work progresses. This is particularly true when working in large multi-author groups: the project group should decide who will be an author on a paper prior to drafting the manuscript, and then re-confirm this decision prior to submission of the manuscript.

Who qualifies for authorship?
OHRI recommends the ICMJE guidelines for authorship. Accordingly, authorship should be based on the following 4 criteria:

1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND

2. Drafting the work or revising it critically for important intellectual content; AND

3. Final approval of the version to be published; AND

4. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Anyone who qualifies for authorship, based on the above, should be listed. Importantly, this includes research staff, consultants, trainees and students. Those who do not meet all four of the above criteria should be acknowledged (please see ‘Acknowledgements’ section 6).

Please note: These criteria are not intended to be used as a means of disqualifying colleagues from authorship. Anyone who meets the first criterion should be given the opportunity to participate in the review, drafting, and final approval of the manuscript.
3. Authors' contribution
Authors' should be able to identify which co-authors were responsible for the various aspects of the research project. Some journals require that information is published about the relative contributions of each author on the manuscript. Where this is not a requirement of the journal, OHRI recommends that, if possible, researchers provide this information in the acknowledgements section of their manuscript. Since authorship itself does not specify the relative contributions of each author, including a brief author contribution statement resolves any potential ambiguity surrounding contributions.

4. Order of authorship
Many different ways of determining order of authorship exist across disciplines, research groups, and countries. Examples of authorship policies include descending order of contribution; placing the person who took the lead in writing the manuscript or doing the research first and the most experienced contributor last; and alphabetical or random order. While the significance of a particular order may be understood in a given setting, order of authorship has no generally agreed upon meaning.

When establishing the authorship order for a manuscript, OHRI recommends:

1. The authors should decide on authorship and authorship order together prior to drafting their manuscript.

2. Authors should specify in their manuscript a description of the contributions of each author so that readers can interpret their roles correctly.

5. Changes to authorship
Changes to authorship and authorship order based on initial agreements are to be discussed and agreed upon by the project team prior to manuscript submission. Under some circumstances it may be acceptable to add additional author’s names during the review process. For example, if further studies were done with the help of an additional researcher, or an expert was consulted during the revision process, their contribution may be substantial enough to warrant authorship. Changing authorship at this stage would however require explicit written agreement of all authors and the editor of the journal.

Please note that at the proofing stage it is unacceptable to add or remove or alter the order of authors. Misappropriation of authorship is a form of scientific misconduct.

6. Acknowledgments
All those who have made a contribution to the work, but who do not fulfil the criteria for authorship (noted above in section 2), should be acknowledged by name in the manuscripts acknowledgement section. Authors should request permission before acknowledging anyone. Examples of individuals who may be appropriate to acknowledge include those responsible for general supervision of a research group, or those who provided administrative, clinical or technical support.
7. Inappropriate authorship
The following are examples of authorship types that are considered unethical:

Honorary Authorship
Honorary authorship, also referred to as ‘gift’ or ‘guest’ authorship, is an unwarranted claim of authorship by, or assignment of authorship to, persons who may have been associated in some way with a study but do not meet the criteria in item 1 of the ‘Who Qualifies for Authorship?’ guidelines. Honorary authorship is unacceptable and may constitute an unethical research practice. Honorary authorship may be influenced by unequal power relations (e.g., junior researchers may feel pressured to accept or assign their supervisors honorary authorship because they do not want to offend them), repaying a favour, encouraging collaboration, and maintaining good working relationships.

Ghost Authorship
Ghost authorship refers to cases in which an individual meets criteria 1 of the ‘Who Qualifies for Authorship?’ guidelines, but are not listed or acknowledged on the published manuscript. Ghost authorship may constitute unethical publication practice. Ghost authorship is a particular risk when research projects span several years and are conducted in environments where students, staff or trainees transition into and out of the group at high frequency. Ghost authorship has also been linked to publications between industry and academics. In this case, ghost authorship is considered particularly concerning as it may be used in an effort to prevent disclosure of relevant conflicts of interest.

8. Disputes over authorship
Disputes sometimes arise about who should be listed as an author or over the order in which authorship should be listed. When disagreements over authorship arise, they can take a substantial toll on the good will, effectiveness, and reputation of the individuals involved and their academic community. Many such disagreements result from misunderstanding and failed communication among colleagues and might have been prevented by a clear, early understanding of standards for authorship that are shared by the academic community as a whole.

All authors should be made aware of any existing authorship conflict. Disagreements over authorship (e.g. who has a right to be an author or the order of authorship) should be resolved by the Principal Investigator in collegial consultation with the other authors. When this process cannot reach resolution, the Principal Investigator should arrange with the Program Director and Department Head for mediation. If the Program Director, Department Head, and authors cannot agree, then the CEO and Scientific Director of the OHRI or the appropriate University of Ottawa Faculty Dean will mediate. Should this final step of mediation fail, an external arbitrator will be appointed. During the arbitration process all the authors are expected to refrain from unilateral actions that may damage the authorship interests and rights of the other authors. Journal editors are not typically contacted to provide guidance on authorship disputes.

When conflicts arise over authorship with trainees, it is pertinent to inform the trainees program director.
9. Approaches to minimizing conflict  
(Modified from The Ottawa Hospital Department of Medicine Guidelines)

The following practical steps are suggested to minimize conflicts arising from authorship:

1) Ensure that all researchers are made aware of the OHRI Authorship Guidelines. A copy of the guidelines should be made available to all team members. For trainees, the primary supervisor should review authorship guidelines with the trainee.

2) Discuss each collaborator's contribution to the project early in the planning of the research endeavor. Based upon contributions, all collaborators should develop an agreement on who will be an author and authorship order prior to drafting the manuscript.

3) For peer-reviewed projects involving multiple institutions, it is strongly encouraged that a clear description of all roles and responsibilities related to the project agreed upon early and written into the inter-institutional agreement amongst the investigators.

4) For Industry-sponsored projects in particular, all individuals contributing to the manuscript must be acknowledged. You must have made a significant intellectual contribution to the project, in accordance to the authorship definition noted above, and sign off on the final draft of the manuscript if you are included as an author.

5) A dispute resolution mechanism and assignation of responsibility should be written into the inter-institutional agreements or contracts for all projects involving more than one centre or multiple research groups.

10. Author conflicts of interest

When submitting a manuscript for publication authors are responsible for disclosing any relationship(s) that could be viewed as a potential conflict of interest. This includes both financial and personal relationships that may bias, or be viewed to be potentially biasing, their work.

Suggested resources

- Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals’ produced by the International Committee of Medical Journal Editors (ICMJE). The most recent version of these recommendations is available online at www.icmje.org.

- The Committee on Publications Ethics (COPE) cases http://publicationethics.org/

- OHRI Centre for Journalology webpage: http://www.ohri.ca/journalology/

- If you have specific publication questions, please contact The Ottawa Hospital Research Institute’s Publications Officer, Dr. Kelly Cobey (kcobey@toh.on.ca).