

## **RESOURCES FOR USERS OF CONSULTATION SERVICE**

### **St. Mary's Research Centre**

To optimize use of our Consultation Service, and to build the capacity for research at St. Mary's among SMHC researchers and their trainees, the Consultation Service has developed a list of resources on various methodological topics. We welcome feedback on this list (e.g., resources that are no longer available).

For questions, please contact us at:

[consultation.smrc.comtl@ssss.gouv.qc.ca](mailto:consultation.smrc.comtl@ssss.gouv.qc.ca)

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## RESOURCES FOR USERS

	<b>Resources</b>
<b>Planning Research Projects</b>	<p><u>Budget Preparation</u></p> <ol style="list-style-type: none"> <li>1. McGill – Budgets and Indirect Costs: General Budget Guidelines: <a href="http://www.mcgill.ca/research/researchers/proposal/budget">http://www.mcgill.ca/research/researchers/proposal/budget</a></li> </ol> <p><u>Ethical Approval</u></p> <ol style="list-style-type: none"> <li>1. St. Mary's Research Centre – Registration and Review: Basic Submission Guidelines: <a href="http://www.stmarysresearch.ca/en/research_review/registration_and_review">http://www.stmarysresearch.ca/en/research_review/registration_and_review</a></li> </ol> <p><u>Preparing Research Grant Proposals</u></p> <ol style="list-style-type: none"> <li>1. Canadian Institute of Health Research (CIHR) – The Art of Writing a CIHR Application: Summaries of Application-Writing Tips: <a href="http://www.cihr-irsc.gc.ca/e/45281.html">http://www.cihr-irsc.gc.ca/e/45281.html</a></li> </ol> <p><u>Project Management</u></p> <ol style="list-style-type: none"> <li>1. Memorial University's Project Management Guide for Researchers: <a href="https://research-tools.mun.ca/rpm/wp-content/uploads/2018/01/Research-Project-Management-Guide-Sept-2017-1.pdf">https://research-tools.mun.ca/rpm/wp-content/uploads/2018/01/Research-Project-Management-Guide-Sept-2017-1.pdf</a></li> </ol>
<b>Study Design and Methodology</b>	<p><u>Chart Reviews</u></p> <ol style="list-style-type: none"> <li>1. Vassar, M. and Holzmann, M. (2013). The retrospective chart review: important methodological considerations. <i>J Educ Eval Health Prof</i>,10: 12. Doi: 10.3352/jeehp.2013.10.12 See <i>Attachments</i> folder or <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3853868/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3853868/</a></li> </ol> <p><u>Northwestern University Office Chart Review Protocol Template: See <i>Attachments</i> folder</u></p> <p><u>Designing and Setting-up Questionnaires and Online Surveys</u></p> <ol style="list-style-type: none"> <li>1. McGill – Online Surveys via LimeSurvey <a href="http://kb.mcgill.ca/kb/?ArticleId=1452&amp;source=article&amp;c=12&amp;cid=2#tab:homeTab:crumb:8:artId:1452:src:article">http://kb.mcgill.ca/kb/?ArticleId=1452&amp;source=article&amp;c=12&amp;cid=2#tab:homeTab:crumb:8:artId:1452:src:article</a></li> <li>2. Data capture with Web-databases:             <ol style="list-style-type: none"> <li>a. SimpleSurvey, Canadian platform <a href="https://simplesurvey.com/">https://simplesurvey.com/</a></li> <li>b. <a href="http://www.qualtrics.com">Qualtrics</a>, available from some McGill departments <a href="http://www.qualtrics.com">www.qualtrics.com</a></li> </ol> </li> </ol> <p><u>Designing Experiments and Studies</u></p> <ol style="list-style-type: none"> <li>1. The Khan Academy (must use Google Chrome, Firefox, or Microsoft Edge) – Study Design: <a href="https://www.khanacademy.org/math/statistics-probability/designing-studies">https://www.khanacademy.org/math/statistics-probability/designing-studies</a> <ol style="list-style-type: none"> <li>a. Statistical questions (Quiz 1 and practice questions)                     <ol style="list-style-type: none"> <li>i. Statistical questions (9:33)</li> <li>ii. Statistical questions (7:50)</li> </ol> </li> <li>b. Sampling and observation studies (Quiz 1 and practice questions)                     <ol style="list-style-type: none"> <li>i. Reasonable samples (4:16)</li> <li>ii. Identifying a sample and population (2:11)</li> <li>iii. Examples of bias in surveys (5:41)</li> <li>iv. Example of under coverage introducing bias(4:20)</li> <li>v. Correlation and causality (10:44)</li> <li>vi. Identifying bias in samples and surveys (12 questions)</li> <li>vii. Simulation and randomness: Random digit tables (4 questions)</li> </ol> </li> <li>c. Sampling methods (Quiz 2 and practice questions)                     <ol style="list-style-type: none"> <li>i. Picking fairly(6:58)</li> <li>ii. Techniques for generating a simple random sample (6:25)</li> <li>iii. Techniques for random sampling and avoiding bias (9:12)</li> <li>iv. Sampling methods review (2 questions)</li> <li>v. Samples and survey (11 questions)</li> </ol> </li> <li>d. Types of studies (experimental vs. observational) (Quiz 3 and practice questions)                     <ol style="list-style-type: none"> <li>i. Types of statistical studies (10:31)</li> <li>ii. Worked example identifying experiment (4:35)</li> </ol> </li> </ol> </li> </ol>

	<ul style="list-style-type: none"> <li>iii. Worked example identifying observational study (6:43)</li> <li>iv. Worked example identifying sample study (3:00)</li> <li>v. Observational studies and experiments (4 questions)</li> <li>vi. Appropriate statistical study example (5:18)</li> <li>e. Experiments (Quiz 3 and practice questions)             <ul style="list-style-type: none"> <li>i. Introduction to experiment design (10:27)</li> <li>ii. Matched pairs experiment design (5:36)</li> <li>iii. The language of experiments (4 questions)</li> <li>iv. Principles of experiment design (4 questions)</li> <li>v. Random sampling vs. random assignment (scope of inference) (4 questions)</li> </ul> </li> <li>f. Unit test (9 questions)</li> </ul> <p>Implementation Studies : <a href="https://www.bmj.com/content/bmj/347/bmj.f6753.full.pdf">https://www.bmj.com/content/bmj/347/bmj.f6753.full.pdf</a></p> <p><u>Questionnaire Development and Design</u></p> <ol style="list-style-type: none"> <li>1. Boynton, P.M. and Greenhalgh, T. (2004). Selecting, designing, and developing your questionnaire. <i>BMJ</i>. <b>328</b>(7451): 1312-1315. Doi: 10.1136/bmj.328.7451.1312 <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC420179/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC420179/</a></li> </ol> <p><u>Recruitment Strategies and Logs</u></p> <ol style="list-style-type: none"> <li>1. [Document in progress]</li> </ol> <p><u>Systematic Review/Meta-analysis/Critical Assessment of Published Literature</u></p> <ol style="list-style-type: none"> <li>1. Durham University – Template for a Systematic Literature Review Protocol: See <i>Attachments</i> folder or <a href="https://community.dur.ac.uk/ebse/resources/templates/SLRTemplate.pdf">https://community.dur.ac.uk/ebse/resources/templates/SLRTemplate.pdf</a></li> <li>2. Australian Paediatric Surveillance Unit – Writing a Systematic Literature Review: Resources for Students and Trainees: <a href="http://www.apsu.org.au/assets/Resources/Writing-a-Systematic-Literature-Review.pdf">http://www.apsu.org.au/assets/Resources/Writing-a-Systematic-Literature-Review.pdf</a></li> <li>3. Course – Introduction to Systematic Review and Meta-Analysis (Clinical Trials): <a href="https://www.coursera.org/learn/systematic-review/lecture/x1PMq/planning-meta-analysis-and-statistical-methods">https://www.coursera.org/learn/systematic-review/lecture/x1PMq/planning-meta-analysis-and-statistical-methods</a> <ul style="list-style-type: none"> <li>• Video 1: Planning Meta-Analysis and Statistical Methods (1:04)</li> <li>• Video 2: Lecture 7A: Planning Your Meta-Analysis Section A (7:46)</li> <li>• Video 3: Lecture 7B: Introduction to Meta-Analysis (15:02)</li> <li>• Video 4: Lecture 7C: Why Do a Meta-Analysis? (10:57)</li> <li>• Video 5: Lecture 7D: Types of Data and Effect Measures (19:32)</li> </ul> </li> <li>4. Consolidated Standards of Reporting Trials (CONSORT)             <ol style="list-style-type: none"> <li>a. Website: <a href="http://www.consort-statement.org/">http://www.consort-statement.org/</a> <a href="https://www.elsevier.com/_data/promis_misc/CONSORT-2010-Checklist.pdf">https://www.elsevier.com/_data/promis_misc/CONSORT-2010-Checklist.pdf</a></li> </ol> </li> <li>5. Strengthening The Reporting of Observational Studies in Epidemiology (STROBE)             <ol style="list-style-type: none"> <li>a. Website: <a href="https://www.strobe-statement.org/index.php?id=strobe-home">https://www.strobe-statement.org/index.php?id=strobe-home</a></li> <li>b. <a href="https://www.elsevier.com/_data/promis_misc/ISSM_STROBE_Checklist.pdf">https://www.elsevier.com/_data/promis_misc/ISSM_STROBE_Checklist.pdf</a></li> </ol> </li> </ol>
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<p><b>Data Management</b></p>	<p><u>Data Cleaning</u></p> <ol style="list-style-type: none"> <li>1. Microsoft Office – Top ten ways to clean your data (Excel): <a href="https://support.office.com/en-us/article/Top-ten-ways-to-clean-your-data-2844B620-677C-47A7-AC3E-C2E157D1DB19">https://support.office.com/en-us/article/Top-ten-ways-to-clean-your-data-2844B620-677C-47A7-AC3E-C2E157D1DB19</a></li> </ol> <p><u>Data entry / checking:</u></p> <ol style="list-style-type: none"> <li>1. <a href="http://barchard.faculty.unlv.edu//doubleentry/Double%20Entry%20APS%202009%20handout.pdf">http://barchard.faculty.unlv.edu//doubleentry/Double%20Entry%20APS%202009%20handout.pdf</a> <a href="https://doi.org/10.1177/0193945914532550">https://doi.org/10.1177/0193945914532550</a></li> </ol> <p><u>Data Entry</u></p> <ol style="list-style-type: none"> <li>1. TeleForm – Optical Character Recognition (OCR) Software and Solutions: <a href="http://ocrsolution.com/">http://ocrsolution.com/</a></li> </ol> <p><u>Extracting Data from Administrative Databases</u></p> <ol style="list-style-type: none"> <li>1. Youtube – Excel Extract Data (Records) From Table / List / Database: Playlist of Videos <a href="https://www.youtube.com/playlist?list=PL63A7644FE57C97F4">https://www.youtube.com/playlist?list=PL63A7644FE57C97F4</a> 119 videos; most recent update: Jul 6, 2017 Setting-up Data Collection Procedures and Data</li> </ol> <p><u>Setting-up Data Collection Logs and Databases</u></p> <ol style="list-style-type: none"> <li>1. Microsoft Office – Using Access or Excel to manage your data: <a href="https://support.office.com/en-us/article/Using-Access-or-Excel-to-manage-your-data-09576147-47D1-4C6F-9312-E825227FCAEA">https://support.office.com/en-us/article/Using-Access-or-Excel-to-manage-your-data-09576147-47D1-4C6F-9312-E825227FCAEA</a></li> </ol> <p><u>Setting-up Data Collection Procedures and Data Management Manuals</u></p> <ol style="list-style-type: none"> <li>1. Statistics Canada – Data Collection, Capture and Coding (Scope and purpose, Principles, Guidelines, Quality Indicators, and References): <a href="http://statcan.gc.ca/pub/12-539-x/2009001/collection-collecte-eng.htm">http://statcan.gc.ca/pub/12-539-x/2009001/collection-collecte-eng.htm</a></li> <li>2. An Example: Canadian Heart Research Centre – Data Management Quality Manual: <a href="http://www.chrc.net/CHRCRC/sop/SOP/DataManagementManual/DATA-MGMT-MANUAL.pdf">http://www.chrc.net/CHRCRC/sop/SOP/DataManagementManual/DATA-MGMT-MANUAL.pdf</a></li> </ol>
<p><b>Statistical Software</b></p>	<p>Epi-Info: <a href="https://www.cdc.gov/epiinfo/index.html">https://www.cdc.gov/epiinfo/index.html</a> (Free)</p> <p>R: <a href="https://cran.r-project.org/">https://cran.r-project.org/</a> (Free)</p> <p><u>Students or staff from Mcgill can access the following statistical software for free:</u> <a href="https://www.mcgill.ca/eboss/resources/software">https://www.mcgill.ca/eboss/resources/software</a></p> <p><u>SAS</u> <a href="https://www.sas.com">https://www.sas.com</a> (at least 6000\$ per licence/year) SAS on demand is a free version for academic.</p> <ul style="list-style-type: none"> <li>• Basic tutorial <a href="https://www.youtube.com/watch?v=JPATJfQNSIQ">https://www.youtube.com/watch?v=JPATJfQNSIQ</a></li> <li>• Learn with <a href="https://stats.idre.ucla.edu/sas">https://stats.idre.ucla.edu/sas</a></li> </ul> <p><u>STATA</u> <a href="https://www.stata.com/">https://www.stata.com/</a> (Academic/Student ~200\$ to 500\$)</p> <ul style="list-style-type: none"> <li>• Learn in 15 minutes <a href="https://www.youtube.com/watch?v=rdFw-fBfygQ">https://www.youtube.com/watch?v=rdFw-fBfygQ</a></li> <li>• Learn with <a href="https://stats.idre.ucla.edu/stata/">https://stats.idre.ucla.edu/stata/</a></li> </ul> <p><u>SPSS:</u> <a href="https://www.ibm.com/products/spss-statistics?lnk=hpmps_bupr">https://www.ibm.com/products/spss-statistics?lnk=hpmps_bupr</a> (at least \$100 per licence/month)</p> <ul style="list-style-type: none"> <li>• Learn with <a href="https://stats.idre.ucla.edu/spss/">https://stats.idre.ucla.edu/spss/</a></li> </ul>

<p><b>Statistical Analysis</b></p>	<p><u>Meta-analyses</u></p> <ol style="list-style-type: none"> <li>1. Introduction to meta-analysis using STATA  <a href="https://stats.idre.ucla.edu/stata/seminars/introduction-to-meta-analysis-in-stata/">https://stats.idre.ucla.edu/stata/seminars/introduction-to-meta-analysis-in-stata/</a></li> </ol> <p><u>Power and Sample Size Calculations</u></p> <ol style="list-style-type: none"> <li>1. Cornish, R. (2006). Statistics: An introduction to sample size calculations. Loughborough University - Mathematics Learning Support Centre:            See <i>Attachments</i> folder or <a href="http://statstutordevelopment.lboro.ac.uk/topics/sample-size-and-statistical-power/sample-size-calculations/">http://statstutordevelopment.lboro.ac.uk/topics/sample-size-and-statistical-power/sample-size-calculations/</a></li> <li>2. Basic sample size calculator: <a href="https://clincalc.com/stats/samplesize.aspx">https://clincalc.com/stats/samplesize.aspx</a></li> <li>3. Measurement and Reliability: <a href="https://catalyst.harvard.edu/pdf/biostatseminar/harvard%20lecture%20series%20session%203_Validity.ppt">https://catalyst.harvard.edu/pdf/biostatseminar/harvard lecture series session 3_Validity.ppt</a></li> </ol> <p><u>Qualitative Methods</u></p> <ol style="list-style-type: none"> <li>1. NVivo Tutorials: <a href="http://www.qsrinternational.com/nvivo/free-nvivo-resources/tutorials">http://www.qsrinternational.com/nvivo/free-nvivo-resources/tutorials</a></li> </ol> <p><u>Randomization (e.g. RCTs, random sampling)</u></p> <ol style="list-style-type: none"> <li>1. Suresh, K.P. (2011) An overview of randomization techniques: An unbiased assessment of outcome in clinical research. <i>J Hum Reprod Sci</i>, 4(1): 8–11. doi: 10.4103/0974-1208.82352  <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3136079/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3136079/</a></li> </ol> <p><u>Statistical Software Packages (R)</u></p> <ol style="list-style-type: none"> <li>1. Harvard X - Free online courses from Harvard University           <ol style="list-style-type: none"> <li>a. Data Science: R Basics – Build a foundation in R and learn how to wrangle, analyze, and visualize data. This course covers common programming commands, how to operate on vectors, and when to use advanced functions such as sorting:  <a href="https://www.edx.org/course/data-science-r-basics">https://www.edx.org/course/data-science-r-basics</a> <ul style="list-style-type: none"> <li>• 4 weeks; 2-4 hours/week</li> </ul> </li> <li>b. Statistics and R – An introduction to basic statistical concepts and R programming skills necessary for analyzing data in the life sciences:  <a href="https://www.edx.org/course/statistics-r-harvardx-ph525-1x-1">https://www.edx.org/course/statistics-r-harvardx-ph525-1x-1</a> <ul style="list-style-type: none"> <li>• 4 weeks; 2-4 hours/week</li> </ul> </li> </ol> </li> </ol> <p><u>Statistical Software Packages (SAS, STATA, SPSS)</u></p> <ol style="list-style-type: none"> <li>1. The Institute for Digital Research and Education – UCLA: Statistical Consulting Group:  <a href="https://stats.idre.ucla.edu/other/mult-pkg/whatstat/choosestat.html/">https://stats.idre.ucla.edu/other/mult-pkg/whatstat/choosestat.html/</a></li> </ol> <p><u>Textbook References</u></p> <ol style="list-style-type: none"> <li>1. Dunn, O.J. and Clark, V.A. (2009). Basic Statistics: A Primer for the Biomedical Sciences (Fourth Edition): See <i>Attachments</i> folder or <a href="https://onlinelibrary.wiley.com/doi/book/10.1002/9780470496862">https://onlinelibrary.wiley.com/doi/book/10.1002/9780470496862</a> <ul style="list-style-type: none"> <li>• The PDF is 259 pages</li> </ul> </li> <li>2. Kirkwood, B.R. and Sterne, J.A.C (2003). Essential Medical Statistics (Second Edition)</li> </ol>
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