National Collaborating Centre for Environmental Health



Centre de collaboration nationale en santé environnementale

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Conducting a Literature Search & Evidence Review: The NCCEH Approach

Angela Eykelbosh, PhD Environmental Health and Knowledge Translation Scientist

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Outline

- 1. Intro to the NCCEH
 - Strategic priorities
 - KT product types
 - Current project highlights
- 2. What is evidence–informed decision making (EIDM)?
- 3. Knowledge Translation
 - Case examples
- 4. Step by step: Literature Reviews









Established by the Public Health Agency of Canada in 2005 to promote the use of knowledge and evidence by public health practitioners and policy-makers in Canada.

NCCEH's Mandate

Synthesize, translate, & exchange knowledge

 Incorporate evidence from research and experience to improve or develop policy & practice

Identify gaps in knowledge

 Catalyze new research or application of research

Build capacity

 Provide tools, establish networks, foster partnerships

Our target audience

Public health inspectors, Environmental health specialists Medical officers of health

> Policy-makers, government Land use planners

> Other health professionals:

e.g., veterinarians, physicians, nurses, dietitians and nutritionists

Needs, gaps, and opportunities assessment (2005-13)





A	Turin	Interviewees Rating Topic as High Importance	of Interviewees Who Rated the Topic
Area Health impact	Topic	Importance 81	26
assessment	Best practices for health impact assessment, for a range of environmental projects (from simple, e.g., harbourside marine waste disposal, to mega-projects, e.g., mining, hydro power, wind turbines). When and to what level.		26
Evaluation	How to evaluate EH programs (including overall impact of program vs. different program, priority setting of various programs), e.g., food safety, personal service establishments (e.g., based on burden of disease)		26
Oil & gas	Health impacts of shale gas (hydraulic fracturing) at the local level	42	26
Risk assessment & communication	Guide to risk communication with public and media, including where there is no standard or it is exceeded, e.g., old mine site and uranium in drinking water, mould, electromagnetic frequencies (not radon) (focus on gaps in guidance)	42	26
	Understanding and communicating the health relevance of exceeding environmental standards, e.g., drinking water	40	25
	Guide to human health risk assessment, including validation of predictions (e.g., US ATSDR, CDC, EPA) (consider complex chemical mixtures)	36	25
Food safety	Top sources of food-related risks and how to effectively reduce those (including irradiation, buy local food, small operations)		25
Enforcement	Comparison of how jurisdictions enforce regulations, including effectiveness (e.g., ticketing, disclosure), e.g., tobacco control (sales to minors, smoke-free environments)		26
Risk assessment & communication	How to apply a consistent approach to risk categories for food premises, public pools, personal service establishments		26
Drinking water	Regulation of small semi-public water supplies – What are the most effective elements of a regulatory program		26
Health impact assessment	How to assess health impacts of official community plans (e.g., water, septic, physical activity) and provide meaningful input		26
Housing	Provincial/territorial approaches to housing and health (best practices, including residential, rental)	27	26
Miscellaneous	Effectiveness of use of social media in EH	23	26

Percent of Total Number

2012-2013 Environmental Health Needs and Gaps in Canada - Suggested Document Topics

Strategic Priorities

Built Environment



Emergency Response & Enhancing Public Health Capacities



Climate Related Environmental Health



Contaminants & Hazards



Strategic Priorities

Built Environment



Climate Rela

mental Health

Evidence reviews

MARCH 2018 GROWING AT HOME: HEALTH AND SAFETY CONCERNS FOR PERSONAL CANNABIS CULTIVATION

PURPOSE

Personal cultivation as described by the proposed Cannabia home, effective communication about those risks Act part of the provision is intended to both bis plants per household. This provision is intended to both Phevious experience with remediating illegal promote equity by facilitating access to legal cannabis, par-ticularly when retail outlets are difficult to access, and to undercut the black market. However, indoor cultivation and mumber of practices intended to optimize grow

certain environmental health risks in the home. This document identifies health and safety concerns that the greatest risks, inspection professional may be relevant to personal cultivation after legalization - have reported such practices even in legal that is, legal home proving and the associated health risks. In Canada, medical home growers are requi

Act (2017)1 will permit adults to cultivate up to four canna- limited means that governments have to abate the

processing of cannabis may also introduce or exacerbate hypassing the electrical meter).¹ Although it i legalization will eliminate the need for practic Although this information may be of relevance to the public the relevant building and fire codes, as well at large, the evidence presented here has been synthesized and residential tenancy regulations, but a



Float Tanks: Review of Current Guidance and Considerations for Public Health Inspectors

Shelley Beaudet* and Angela Eykelbosh^b

Key Messages

- The growing popularity of "floatation" and the ways in which this practice differs from the use of pools and spas have raised interesting questions in environmental public health.
- Public health agencies in the US and Canada have ant announches to the classification taken some diffe

DDRESSING THE PUBLIC IDENTIFYING TH RIS F SPLASH PARKS

KEY MESSAGES

Recirculating splash parks have caused several large assimintestinal puthreaks in recent years. Dutbreaks are typically linked to failure of the chlorination/

filtration systems and/or lack of secondary disinfection. such as ultraviolet light, but may also derive from user behaviour as well as design and operating conditions.

This document reviews the literature to identify design hygiene, and operational best practices that are thought to reduce the risk of critical disinfection failures.

Introduction

Splash-parks, also known as splash pads, spray parks, or wet decks, have gained in popularity over the last decade. These interactive parks are artificially created depressions or basins into which water is sprayed, splashed or poured onto visitory; water is not permitted to accumulate, but instead drains immediately out of the play area.12 Splash parks may take one of two basic designs, which influences the associated







EQUITY IN ENVIRONMENTAL HEALTH PRACTICE: FINDINGS OF A PILOT STUDY







Review of Field Tests on Bed Bug Control Technologies

Taz Stuart¹

Key Messages

There are numerous bed bug control technologies but few published studies that evaluate or demonstrate effectiveness in the field.

Education and cooperation between affected residents. landiouts, and pest control professionals are important for successful long-term bed bug management strategies.

There are a limited number of insecticides available, so



The last effective residual products (e.g., chlorpyrifos propoxur) were removed from indoor use in 1999 and, since that time, bed bug populations resurged to epidemic levels across the world. This document reviews the bed bug control technologies that have been evaluated in the field from 2005 to 2014 and will



INTRODUCTION

is available to us in our day-to-day environments, is a healthy food in the community impedes people's ability determinant of what we eat as individuals.

This document is intended for environmental public health. In contrast, the more common type of community professionals, including medical health officers and public emvironment in Canadian urban settings is the food swi health inspectors, as well as other public health professionals. A feed swamp is a peoprophical area with adequate acc such as public health dietitians and health promoters, whose healthy food retail, but that also features an overabury work may include healthy built environments or healthy of exposure to less healthy food and beverages.13 communities. The document introduces food environments. Some researchers have identified food minages as such as food deserts and food swamps, discusses the related for individuals experiencing low-incomes to access health implications, provides the rationale for consideration affordable food in their neighbourhood.⁴ For some reby non-nutrition professionals, and highlights some the local healthy food retail options may be avail opportunities for action and collaboration with provincial they are out of reach financially. The effect of a for and municipal governments, as well as business operators. Is the same as a food desert in which reside For more information about healthy food environments, a distance away from home in order to obtain

Our food environments, which include the food that distance travel to access healthy food.³ Lack of access maintain a healthy diet.

To Waste From Potable

The "float tanks" in wh

chambers or pods that

a dark, quiet environn

pods, each with its own filtration

Guidance documents

CYANOBACTERIA IN FRESHWATER

What are cyanobacteria?

Cyanobacteria, or 'blue-green algae,' are naturally occurring microscopic organisms found in fresh, brackish, o marine water. Under conditions such as warmer water temperatures, high nutrient loads, and other anthropogenic influences, cyanobacteria can multiply quickly and create blooms, sometimes called harmful algae blooms (HABs), cyanoHABs, or cyanoblooms. Cyanoblooms can occur in Canada at any time of year, but are more common in summer or early fail."

What is the prof

Cyanobacteria can p of which are harmful drinking and recreati rare cases, cyanotice Not all custobacte bloom should be tree

iational Collaborating Centre to Environmental Health Centre de collaboration nationale en santé environnementati

Using a Hierarchy of Evidence to Assess Chemical Health Risks of Artificial Turf

Angela Eykelbosh and Daniel Fong⁴

Key Messages

- The evidence regarding the chemical risks of year-round access to playing surfaces. This is artificial turf exposure is incomplete or weak due to insufficient research, limitations in current methods, or impracticality of the needed study designs.
- . Current literature relies heavily on chemical composition and release studies to estimate









MARCH 2015 magnesium phosphide, and zinc phosphide. Metal phosphides are available as powders. granules, pellets, or tablets (prepackaged in pouches, short strips, or long strip "ropes"). Upon reaction with water, metal phosphides produce phosphine gas and metal oxides. Phosphine has a distinct odour of garlic or decaying fish: however, the odour may not give sufficient warning that those exposed are in the midst of dangerous concentrations." Phosphine exposures can occur through the

ingestion of metal phosphides or through the inhalation of phosphine gas. If ingested, metal phosphides generate highly taxic phosphine gas through interaction with hydrochloric acid in the stomach. Toxicity following exposure to phosphine gas depends on the concentration and duration of exposure. Symptoms (irritation, nausea, vomiting, headache, dizziness) occur

Field Inquiries



Infection Control for Tebori Tattooing

OCTOBER, 2017 IRRIGATING FOOD CROPS WITH WATER CONTAINING CYANOBACTERIA BLOOMS

Irrigating food crops with water containing cyanobacteria blooms

Primary inquiry: Small horticulture growers have been watering their crops with surface water containing a cyanobacterial bloom, before selling their crops at local markets.

a) Can irrigation of food crops using surface water affected by cyanobacteria blooms result in bloaccumulation of cyanotoxins in these crops?

b) Can cyanotoxins bioaccumulate to a concentration that might cause a public health concern?

Please note: The information provided here is for the purpose of addressing a specific inquiry and is not subjected to external review. The information offered does not supersede federal.

CEMETERY SETBACK DISTANCES

TO PREVENT SURFACE WATER





MEAT-PACKING PADS AS TATTOO DRESSINGS

Meat-packing Pads as Tattoo Dressings

Primary inquiry. Is there evidence for or against the use of clean vs. sterile dressings in the care of tattoos?

Disclaimer: The information provided here is for the purpose of addressing a specific rupury related to an environmental health issue. This is not a comprehensive evidence review and has not been subjected to peer review. The information offered here does not supersede federal, provincial or local guidance or regulations, and/or the advice of a medical professional (where applicable).

Background

During a recent convention on body modification and tattoos in Vancouver, BC, an environmental health officer noticed that tattoo



Photo credit: acorgirl, Getty Images Plus

NCCEH approached the question using the following multi-pronged

Cemetery setback distances to prevent surface water contamination

CONTAMINATION

OCTOBER, 2017

the oper sterile n

down to

Primary inquiry: In Canada, as in many other countries, cemeteries are required to be setback a certain distance from waterbodies to protect drinking water sources from contaminated liquids that can arise from the decomposition of bodies after burlar. What is recommended as a safe setback distance? What is the rationale for the setback distances used throughout Canada?

Please note: The information provided here is for the purpose of addressing a specific inquiry and is not subjected to external review. The information offered does not supersede federal, provincial, or local guidance or regulations.



Photo credit: DebraLee Wiseberg Getty Images

Topic pages

- Indigenous disaster response
- Floods: Prevention, preparedness, response and recovery
- Pesticide exposure in the urban environment
- Neonicotinoid pesticides
- Cannabis resources for environmental health practitioners
- Health equity and environmental public health practice

Whiteboard animated videos



Extreme heat can be a killer

https://www.youtube.com/watch?v=RBwgS_1D5FM

Blogs



Blog



Cannabis legalization: what can public health do? Leels Eteine; 2018-10-17 Cannabis, Indoor Air Given the complexities of the Cannabis Act (2017), public health communities will face a series of...



Cutitivation, Consumption, and Complexity - Cannabis... Leela Steiner, 2018-10-17 Cannabis, Indoor Air October 17th is an historic day in Canada. This moment offers public health professionals an...



August Newsletter Released: Wildfires NCCEH, 2018-09-12

The August 2018 newsletter introduces many new resources related to Wildfire Smoke and Disaster...



A searchable tool for finding policies on environmental agents, cancer and chronic diseases

Have you ever needed to do a quick policy scan for an environmental health issue or wanted up-to-date information to write a policy brief? Anne-Marie Nicol, 2018-07-19



Green space can reduce ADHD symptoms in children Access to green space improves the mental well-being of children and helps with behavior and symptoms of ADHD.

Helen Ward, 2018-06-05



Personal Service or Medical Procedure? Shirra Freeman, 2018-09-12

A growing number of personal services present challenges to environmental health practitioners...



Dragon's Breath – Take precautions when using liquid... Tina Chen, 2018-09-12

A novel food trend has been popping up in shopping malls, carnivals, fairs, and restaurants, using...



The Detection of Oxycodone in Mussels Collected in... Brandon Yau, BCCDC and Reza Afshari, BCCDC, 2018-08-22

The Washington State Department of Fish and Wildlife in collaboration with The Centre for Urban..



March 2018 NCCEH Research Scan

Each month, our resident super Librarian casts her expert eye across hundreds of journals, news portals, newsletters, and websites to find all the best research articles and grey literature related to NCCEH, 2018-05-17

Knowledge mobilization and exchange

- Training
 - Online courses
 - Seminar Series
 - EH practicum students
 - Medical students/residents
- Conference presentations
 - CIPHI conferences
 - CPHA
 - Invited talks
- Social media



Monthly eNews



National Collaborating Centre for Environmental Health

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New Wildfire Smoke Topic Page

The frequency and intensity of Canadian wildfires is increasing as a consequence of the changing global climate, as well as long-standing forest management practices. The NCCEH has assembled a collection of resources intended to assist public health practitioners, decision-makers, and the public with guidance regarding public health impacts, community preparedress, risk communication and response to wildfires and wildfire stroke.





Public Health Responses to Wildfire Smoke Events

This document is a first-of-Its kind report on wildfire smoke events and public health response in Canada and provides some insight into where future inquiry and capacity development might be warmarted. The public health response to wildfire smoke events is compice, involving inter-exectoral collaboration, community engagement and the use of many sources of information in decision-making. This am of this document is to undentand the perceptions, challenges and needs of public health practiceners.

Indigenous Disaster Response Topic Page

First Nations communities can be disproportionately impacted by floods, wildlines, crude oil applies and other diseaters. Key factors, including: togetical diffucties, veriability in local administrative and technical capacity, lack of flust, deep reliance on local accessitients, and the existence of profound social and health inequilies can all contribute to this disproportionate impact. We created this topic page to provide environmental health professionals, and the indigenous communities they support, with resources designed to enhance emergency.

EHO Secondments at NCCEH

2016 Vancouver Coastal Health: Shelley Beaudet

- Float Tanks: Review of Current Guidance and Considerations for Public Health Inspectors
- Float Tanks: Considerations for Environmental Public Health
- 2017 Interior Health: Chris Russell
 - Identifying and Addressing the Public Health Risks of Splash Parks
 - Food crops irrigated with cyanobacteriacontaminated water: An emerging public health issue in Canada
 - Co-facilitated two NCCEH eJournal Club sessions
 - CIPIH National AEC presentation

2018 First Nations Health Authority: Casey Neathway

- Radon in First Nations communities
- Healthy housing for First Nations
- Traditional/country foods and climate change/ resource development













Evidence-informed decision-making (EIDM)

- EIDM is "the intentional and systematic processes of bringing the best available scientific evidence on specific questions together with other relevant information to help weigh options and inform decisions that will affect priorities, policies, programs and practices" (Pierson et al. 2012).
- How to have EIDM in public health?
 - Effective knowledge translation, synthesis, and exchange (KTSE)

Knowledge translation has been described as....

- Activities that foster dissemination, adoption, and appropriation of the most up-to-date knowledge possible to allow for its use in professional practice (INSPQ, 2013)
- Systematic review, assessment, identification, aggregation, and practical application of research by key stakeholders (NCDDR, 2005)
- A dynamic and iterative process that includes synthesis, dissemination, exchange and ethically sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system (CIHR, 2017)

What kind of knowledge does KTSE capture?

- Public Health Knowledge (INSPQ, 2013)
 - Research-based
 - Fundamental/experimental, clinical, or applied
 - Tacit knowledge
 - Know-how of practitioners, researchers, etc. who accumulate knowledge through practical experience
 - Knowledge from data analysis
 - Collected, organized, analyzed and transmitted to stakeholders

KTSE may also be known as:

- Knowledge Transfer (commonly used outside of healthcare)
 - Systematic approach to capture, collect, and share tacit knowledge in order for it to become explicit knowledge
 - Process of getting knowledge used by stakeholders
 - All forms of 'knowing' including research, tacit/experiential knowledge
- Knowledge Exchange
- Research utilization
- Implementation
- Many more... often used interchangeably, but can mean different things



Why care about any of this?

'Tis not knowing much, but what is useful, that makes a wise man.

--Thomas Fuller

Where will good KT skills take you?

- Be the best inspector you can be
 - Be an informed, credible communicator with the public
 - Use your own or other research to problem solve
- Be a policy leader in your organization
 - Help develop and implement new ways of doing things (or new ways of dealing with new challenges)
- Share your skills at the provincial or federal level
 - Working groups that identify practice-policy gaps and develop solutions.
 - Permanent positions in policy development and research.
- Work for a KTSE organization like BCCDC or NCCEH

STEP BY STEP: LITERATURE REVIEWS



Many types of lit review for different purposes



Knowledge synthesis happens in the three upper levels

What does a literature review involve?

Generally...

Literature search

Critical Appraisal

Synthesis

Case example: An inquiry....



An EHO visiting a body art convention noticed that tattoo artists were using meat-packing pads as dressings for new tattoos. The pads are food safe and bacteriostatic, but not sterile. They don't seem to be causing infections. Is it acceptable to let this practice continue?

LITERATURE SEARCH

- 1. Develop a research question
- 2. Identify your key words
- 3. Identify your databases
- 4. Construct your search query
- 5. Document your search results
- 6. Identify the relevant papers
- 7. Repeat your searches to update



BE CAREFUL!



- Before beginning, take a moment to identify any previously held assumptions regarding the topic.
 - Bias in how you shape your question, where you look for information, or what papers you include can invalidate your work.
- Using pre-specified ("a priori") inclusion and exclusion criteria adds transparency and rigour to selection of information sources.

Bias in a literature search

• Publication bias:

- Studies with "positive" results more likely to get published.
- Helpful to question what types of information might not be represented in the literature.

• Database bias:

 Relying on a single database can systematically limit what you find for certain topic areas.

• Source selection bias:

 Not just relying on peer-reviewed literature, but also grey literature, theses, etc.

• Paper selection bias:

Stick to inclusion/exclusion criteria; have more than one reviewer, if possible.



Step 1: Develop A Research Question

- What question are you going to "ask" the literature?
- Should help you focus your thinking and narrow down your lit search.
- BAD examples:
 - What do we know about tattoo infections?
 - Do meat pads give you infections?
 - Do meat pads have bacteria growing on them?



Ρ	Population (or problem)	Freshly tattooed people
I	Intervention (or exposure)	Used a meat pad
С	Comparison	Instead of a sterile dressing
0	Outcome	Got an infection?

- Is the use of meat-packing pads for tattoo dressing associated with more infections than when using sterile dressings?
 - A specific question, easy to pick out key words.
 - Helps to develop inclusion/exclusion criteria.



Step 2: Identify Your Key Words

- Brainstorm a list of keywords, including acronyms → Bandages, dressings, sterile, non-sterile, clean, tattoos, infection.
- Think of your "lens" → keywords from other disciplines, countries, languages, etc.
 - Also called permanent ink; includes permanent makeup.
 - Conventional tattooing vs. traditional tattooing



Step 2: Identify Your Key Words

- More advanced: selecting MeSH terms
- Set your inclusion/exclusion criteria. In this example:
 - Papers about tattoo wounds or similar wounds
 - Papers in which sterile or non-sterile dressings were used intentionally (not accidental contamination)
 - English language only
 - Peer-reviewed, but also grey literature
 - Nothing related to traditional tattooing (different technology)



Step 3: Identifying Your Databases

- Google Scholar and PubMed are good places to start, but make sure you also search on other databases. Many great field-specific resources out there!
 - Relying on one database can be a source of bias
 - Libraries provide access to other databases (EBSCOhost, etc.)

Your new best friend: Ana-Maria Ferrinho, Health Sciences Librarian Ana-Maria_Ferrinho@bcit.ca

Step 4: Construct Your Search Query



- Boolean operators: AND, OR, NOT, used with (), ""
- Variants:
 - Truncation (*): will add any ending to the root of the word
 - metabol* → metabol<u>izing</u>, metabol<u>ism</u>, metabol<u>ic</u>, metabol<u>ite</u>
 - Wildcard (?): will return different spellings of the word with zero or 1 characters
 - isch?emic \rightarrow isch<u>e</u>mic, isch<u>ae</u>mic
- Limiters: time, language, peer-reviewed, paper types, etc.

Step 5: Document Your Search Results

- A lit search is **repeatable** or **replicable**.
- Keep track of what, where, and when you searched:

Date	Database	Key words	Hits
8/22/2016	EbscoHost #1	("post-surgical care" OR "home care") AND (wound OR incision) AND ("sanitary napkins" OR "sanitary pads" OR "maxi-pad" OR "diaper")	0 hits
8/22/2016	EbscoHost #2	(wound OR tattoo) AND (bandage OR dressing) AND (clean OR sterile OR non?sterile)	34 hits
8/23/2016	EbscoHost#3	"tattoos" AND "skin infection"	6,000 hits (Too many hits to review,
			revise search terms.)
9/1/2016	Google Scholar #1	("post-surgical care" OR "home care") AND (wound OR incision) AND ("sanitary napkins" OR "sanitary pads" OR "maxi-pad" OR "diaper")	1 hit
9/1/2016	Google Scholar #2	(wound OR tattoo) AND (bandage OR dressing) AND (clean OR sterile OR non?sterile)	5 hits
9/1/2016	CINAHL#1	("post-surgical care" OR "home care") AND (wound OR incision) AND ("sanitary napkins" OR "sanitary pads" OR "maxi-pad" OR "diaper")	0 hits

Very helpful when you need to <u>repeat</u> searches

Step 5: Document Your Search Results

- As you run your searches, you need to keep track of the citations of all relevant papers.
- If the title and/abstract looks promising, export the citation to reference management software.
- Many database search tools have a selection feature that will allow you to collect and export a batch of papers.


Step 5: Document Your Search Results

- Reference management software is an essential tool.
- Records meta-data for all your papers.
- Use folders to:
 - Archive your search results
 - Organize papers by topic
- Makes writing easier:
 - Cite as you write
 - Quick bibliography
 - Quick re-formatting

👺 EndNote X7 - [Tattoo Dressings]								
😰 File Edit References Groups Tools Window Help								
🐞 🌖 🚱 APA 6th CIPH	I journ	al •	🖣 👰 🔍 🖌 🌶 🐑	🧶 🦢 🖹 🛙	1 🦅	🕝 🖑 🔞 Quick	Search 🔎 🔹	33
My Library		Sear	ch Options •		Search W	Vhole Library 👻	Match Case Match Words	s
All References	(77)							
Imported References	(1)		Author -	Contains		•	± -	1
Unfiled	(28)	And 💌	Year 🔻	Contains		•	+ -	
🗑 Trash	(21)	And 🔻	Title 👻	Contains		•	+ -	
- Tattoo Dressings								
Clean vs. sterile tech	(1)							
New Group	(0)	Author			Year	Title		^
Non-sterile dressings	(6)	Abter, E	. I. M.; Lutwick, S. M.; Chapn	ck, E. K.; Chitt	1994 2006	Mucormycosis of a N	ledian Sternotomy Wound	
Other surgical infect	(0)		Alqahtani, Moraya; Lalonde, Donald H.			Sterile versus nonste	-	
Tattoo infections	(5)	Antonia			2009	Outbreaks of zygomy		
Database searches		Barber,	García, M. E.; Alonso-Peña, D	.; del Carmen	2009 2002		cosis: report of five cases a erile technique? Let's take	
CINAHL#1	(0)		, C.; Macheras, E.; Heym, B.;	Pages A: Auf			bscessus Skin Infectic	
EBSCO#1	(0)	=	nn, C.; Guenther, N.; Menena		2011	-	erived from implementati	
EBSCO#2	(34)		Bree-Williams, F. J.; Waterman, H.			An examination of nurses' practices when perfo		
EBSCO#3	(1)	Brooks,	Brooks, J.; Behrens, E.; Prickett, K.			PAinful and pruritic papules in the gray shading		
Google Scholar #1	(1)	Campbe	ell, Thomas; Woodard, Qeena	; Wu, Stepha	2013	Should You Use Anti	microbial Dressings On Cle	
Google Scholar #2	(5)	Carter, L			1992	Non-sterile dressings	and infection risk	
■ Tattoo Inks			for Disease Control; Prevention	1	2012	Tattoo-Associated No	ntuberculous Mycobacterial	-
		2					•	
Case reports	(1) . (0)	Reference	Preview	<u>A</u>				
	. (0)	Deferrer	e Type: Journal Article	-			0 ⁰	-
- Tattoo Infections			e Type: Journal Article	·				
Case Reports	(0)	Rating						
Reviews	(0)	Author						
- Online Search			illiams, F. J.					
Library of Congress	(0)	Waterm	ian, H.					
LISTA (EBSCO)	(0)	Year						
QWeb of Science Cor	(0)	1996						
more		Title						"
Showing 77 of 77 references.							E Layout	٠

Step 5: Document Your Search Results

• Many <u>FREE</u> reference management tools available:

Ref Management Software	Features			
Zotero www.zotero.org	 Allows you to import/save citations off Google Scholar and most scientific publication platforms. 			
Mendeley www.mendeley.com	 Great for organizing, tagging, and making notes on papers. Has desktop and web-based library. Facilitates info sharing with other users. 			
Google Scholar Library https://scholar.google.ca/	 Simplest tool; easy to use, but very limited functionality for a complex search/research question. Saves references directly out of a Google. Scholar Search (just click the "Save" button) Can export to other programs, if necessary. Allows tagging, but can't sort into folders. 			

Step 6: Identify the Relevant Papers

- Your search may return 100s of documents
 - Which ones are useful?
- Typically takes two rounds of review:
 - First Round: Select papers and import to reference manager based on title and then abstracts of relevant titles
 - <u>Second Round</u>: Read the selected papers and eliminate those which do not fit your selection criteria
- As you read, watch out for **additional citations** that may not have appeared in your search

Step 7: Repeat Your Searches

- During and after review, run your searches again periodically until submission for publication
 - Newest publications may have relevant info
 - Note the date range your search encompasses
- Can also use email alerts using your best keywords
 - Google Alerts \rightarrow good for non-academic content
 - Google Scholar \rightarrow keyword alerts for academic content
 - Web of Knowledge \rightarrow citations alerts
 - Many of the publishers have alerts

Common Lit Search Problems



CRITICAL APPRAISAL

- Academics and practitioners alike are often asked to appraise evidence for subjects in which they are *not* experts.
- This can be challenging (and intimidating), but remember...
 - The process is iterative: the more you read, the more you understand, and your understanding of earlier papers in the review will improve.
 - There are a set of basic questions you should ask when reading any (and every paper).

Steps to Conducting Critical Appraisal

Step 1: Start at the topStep 2: Ask the basic questionsStep 3: Set up your lit review matrix

CRITICAL APPRAISAL Step 1: Start at the top

- Rather than going directly to primary studies, start with other systematic or semi-systematic reviews
- These resources should have already been appraised through peer review, so they are (more) trustworthy
- At the very least, you know if yet another review is warranted

What is peer review and what does it matter?

- Reviewed by at least three experts who "grill" the author
- However....
 - Authors suggest their own reviewers
 - Reviewer is anonymous
 - Reviewers are busy
 - Bad stuff gets through.... Wakefield et al. 1998



https://guelphhumber.libguides.com/peer_review

How do I know if a journal is peer-reviewed?

• Library web page, Ulrichsweb, others...

Title Details	× +		Date Internet Result Bill 1997 219		
	t secure ulrichs	web.serialssolutions.com.ezproxy.library.ubc.ca/title	1568663072543/88521	A 🎲	
POD – PHSA on De	Built Environment	📙 Evidence-Informed 🚹 Work plan tracking) Women of Red River 🔇 Proliferation of self 🦉 jcritethnstud.3.1.01 🔞 âpihtawikosisân – L 📒 PH O	rgs 🦲 Work Tools	
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		Basic Description			
Marked Titles (0)		Title	Environmental Health Review (Online)		
Search History		Publisher	Canadian Institute of Public Health Inspectors		
Search History		Country	Canada		
<u>environmental health review</u> - (29524)	Status	Active			
	Start Year	1957			
		Frequency	Quarterly		
		Language of Text	Text in: English		
		Refereed	Yes		
		Abstracted / Indexed	Yes		
		Serial Type	Journal		
		Content Type	Academic / Scholarly		
		Format	Online		
		Website	http://pubs.ciphi.ca/journal/ehr		
		 Subject Classifications 			
Additional Title Details					
		Title History Details			
		Publisher & Ordering Details			
		Price Data			
		Abstracting & Indexing			
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Step 2: Ask the Basic Questions

- For each *individual* study, you should glean the following:
 - What questions does the paper address?
 - What are the main conclusions of the paper?
 - What evidence supports those conclusions?
 - Are the methods appropriate for answering the question?
 - Do the data actually support the conclusions?
 - What is the quality of the evidence?
 - Why are the conclusions important?

Resources for critical appraisal



- NCCEH and NCCMT documents
- "How to Read a Paper" series by Trish Greenhalgh
- Talk with research group or mentor
- Look for obvious conflicts of interest/bias

Step 3: Set up your lit review matrix

- The literature review matrix is a highly useful research tool:
 - Each paper gets a row
 - Each column is an important point of comparison amongst all the papers
 - When the matrix is complete, writing the paper and successfully synthesizing are much easier
- Benefits: organization, accountability, easy to find the gaps, focused RQs; facilitates group work
- During review, scan the references and add any additional relevant papers to the matrix
- For more info: see Klopper 2007, Garrard 2007

Example of a Literature Review Matrix

Study	Setting	Type of wound	Dressings Used	Outcomes
Lawson et al.	Hospital	Contaminated surgical incision	Sterile and non-sterile dressing changes 3 times a day.	No difference in infection rates.
Stott et al.	Hospital	Contaminated surgical incision	Sterile and non-sterile dressing changes 3 times a day.	No difference in wound healing
Karch & Karch	Homecare	Clean surgical incision	Sanitary pads, w/ instruction on clean technique	Serious infection

- Other important points of comparison (columns) may be:
 - Study type, # participants (n), population characteristics, quality rating, comments/criticisms, or any other category important to your research question

SYNTHESIS

- Synthesis means the generation or creation of new knowledge.
- Summarizing is <u>not</u> synthesizing.
- Your lit review matrix is a powerful tool for synthesis.



How do I know that "synthesis" has occurred?

- You have identified and drawn on relationships between studies
- You have identified themes that stand out from the body of literature
- You have understood the state of knowledge within the context of strengths and limitations
- You have identified gaps in the body of literature
- You have connected your work to current issues
- You can suggest further research or policy action

Key Messages

- Literature reviews are just one tool within KTSE
- A good synthesis can <u>only</u> come from a good lit search
- The quality is partly dependent on how well you can avoid bias during the process
- Using a literature review matrix (or synthesis matrix) can help clarify appraisal and facilitate synthesis
- True synthesis has occurred when <u>new knowledge</u> or insight on a topic/question has been generated
- A comprehensive synthesis will include public health knowledge from multiple lines of evidence

References

Garrard, J., 2007. Health sciences literature review made easy: The matrix method. Jones & Bartlett Learning.

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- Pierson, L., Ciliska, D., Dobbins, M., & Mowat, D. 2012. Building capacity for evidence informed decision making in public health. Public Health, 12(137).
- Taylor, C. What is "synthesis". n.d. Available from: <u>https://umanitoba.ca/faculties/nursing/students/What is synthesis.pdf</u>

More Resources

Canadian Institutes of Health Research. A Guide to Knowledge Synthesis. Available at: <u>http://www.cihr-irsc.gc.ca/e/41382.html</u>

Harvard Graduate School of Education. The Literature Review: a Research Journey. Available at:

http://guides.library.harvard.edu/c.php?g=310271&p=2071512

National Collaborating Centre for Methods and Tools:

http://www.nccmt.ca/

Virginia Commonwealth University. Write a Literature Review. Available at: <u>http://guides.library.vcu.edu/lit-review</u>



Angela.Eykelbosh@bccdc.ca

www.ncceh.ca www.ccnse.ca

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