



Canadian Arthritis  
Patient Alliance

# AN INTRODUCTION TO RESEARCH

Presented by the Arthritis Society & Canadian Arthritis Patient Alliance

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# Outline

- ▼ What research is, why it is done, and who is involved
- ▼ What knowledge translation is
- ▼ What research ethics is

# Objectives of this presentation

- ▼ The research process and why research is done
- ▼ The journey to become a researcher
- ▼ The research team and who is involved
- ▼ Knowledge translation
- ▼ Research ethics



# Research

## Research...

- ▼ “Creation of new knowledge and/or the use of existing knowledge in a new and creative way so as to generate new concepts, methodologies and understandings (2012 Higher Education Research Data Collection (HERDC))
- ▼ This could include synthesis and analysis of previous research to the extent that it leads to new and creative outcomes” (2012 Higher Education Research Data Collection (HERDC))
- ▼ Contributes to knowledge on particular topic
- ▼ Follows the scientific method of creating a research question, testing the question, conducting experiments, making observations, collecting results, and interpreting data (Bhattacharjee, 2012)

# Types of Research

## Basic Research

Aimed to improve scientific theories to better our understanding of particular topic

For example, identifying a new molecule that predicts the risk for developing arthritis

## Applied Research

Practical application of science using established theories, methods, and techniques

For example, research on screening practices for diagnosing arthritis

## Clinical Research

To determine safety and efficacy of medications, devices, diagnostic tools, and treatments intended for human use

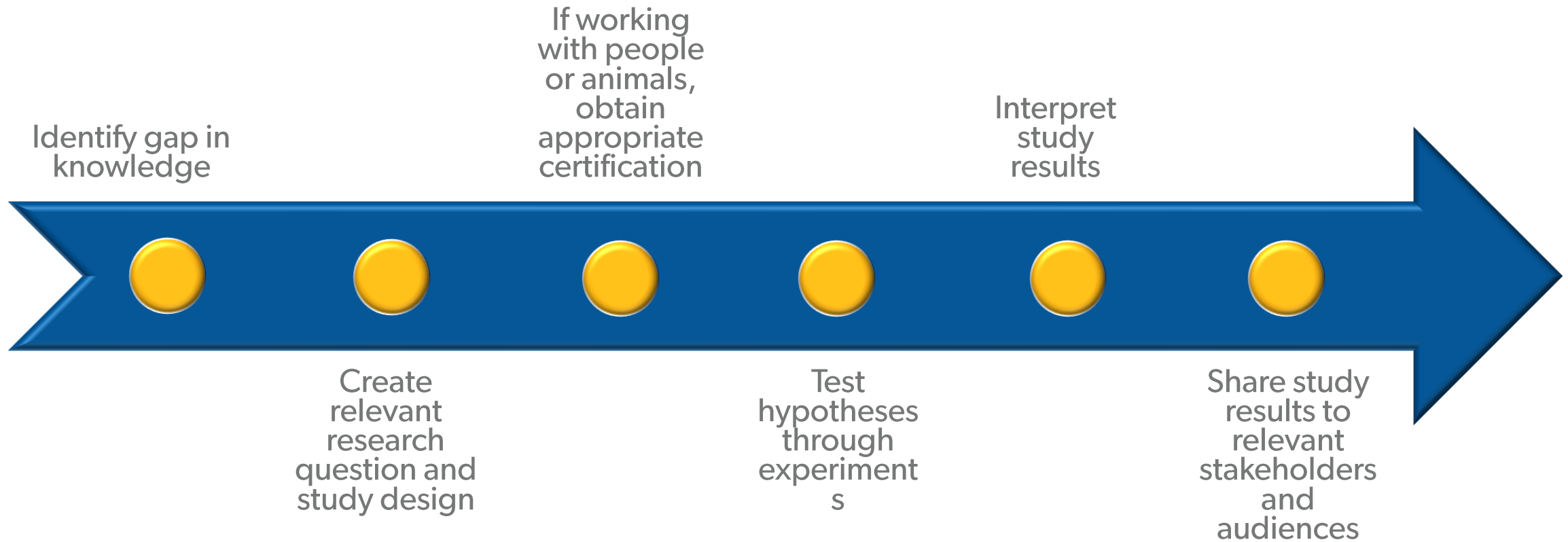
For example, studying the effects of a peer mentoring program in children diagnosed with juvenile idiopathic arthritis

# Why Research is Done

- ▼ To identify a gap in knowledge and address it
- ▼ To benefit society through informing policy and education programs
- ▼ To contribute to knowledge on a particular topic
- ▼ To improve the quality of life of individuals

(CIHR, 2017)

# The Research Process







# **The People Involved in Research**

# People Involved in Research

## Researchers

- Scientists
- Clinicians
- Other allied health care professionals (physical therapists, occupational therapists, nurses, chiropractors, etc.)

## Trainees

- Post-doctoral fellows
- PhD students
- Masters students
- Undergraduate and summer students

## Consumers

- People living with arthritis
- Caregivers
- Family members

# The Road to Becoming a Researcher

- ▼ Researchers are highly trained professionals within a given research topic(s)
- ▼ They receive education and training for many years
  - Post-secondary
  - Professional / Post-graduate
  - Fellowships
- ▼ May hold a Masters, PhD, MD, RN, and/or other degree designations

# Research Team Members' Roles

- ▼ There are specific terms or titles used to refer to the people who make up a research team
- ▼ Research teams may include:
  - Principal Investigator
  - Co-Principal Investigator(s)
  - Collaborators and Partners
  - Consumer Collaborators
  - Trainees

# Research Team Members' Roles

## Principal Investigator (PI)

- A researcher who holds full/part-time academic appointment at a university or institution
- Their main role is to direct the research program/activities, and to assume all administrative and financial responsibilities for a grant
- There is only one PI for each grant application

## Co-Principal Investigator (Co-PI)

- A researcher who holds full/part-time academic appointment at a university or institution
- Their role is to make a significant contribution in carrying out the proposed research project (for example, research design and analysis)
- Projects can include one or more co-PIs

# Research Team Members' Roles

## Collaborators/Partners

- **Collaborator:** researcher or other individual who makes meaningful contributions to the research project such as: providing tissue/fluid samples or data; consulting; resources (equipment, training, statistical analyses, etc.)
- **Partner:** participant in the research project who represents industry, government, consumers or other academic groups

## Consumer collaborators

- Can be a person who lives with arthritis, a family member or a caregiver who contributes to a research team by providing their perspectives on living with arthritis

## Trainees

- Post-doctoral fellows or trainees working towards their undergraduate, Master's or PhD degree



# **Knowledge Translation**

# Knowledge Translation

**Knowledge translation (KT)** is an umbrella term for the steps involved in taking research findings from the lab into the hands of people and organizations who put them to practical use

Knowledge translation might include:

- Publishing a research paper
- Presenting research findings at a conference
- Presenting research findings on a webinar
- Partnering with an organization to create products, policies and/or programs based on the best available scientific findings



# Knowledge Translation

The Canadian Institutes of Health Research's (CIHR's) formal Knowledge Translation definition involves 4 components:

- **Synthesis** through understanding and combining research findings
- **Knowledge sharing** with stakeholders, patients, practitioners, and/or policy makers
- Consumers and researchers share knowledge on the topic so that there is **mutual learning**
- **Applying knowledge** in an ethically sound way to improve the health of Canadians, providing effective healthcare services and strengthening the healthcare system

(CIHR, 2017)



# **Research Ethics**

# Research Ethics

## Definition

- Norms of conduct in the research environment that distinguish between acceptable and unacceptable behaviour. It is the method or perspective for deciding how to act and for analyzing complex issues without harming those involved (Tri-Council Policy Statement, CIHR, 2014)

## Purpose

- Research ethics serve to promote the aims of research such as objective truths, knowledge, and avoidance of error. Research ethics also promote important moral and social values, and accountability to the public (Tri-Council Policy Statement, CIHR, 2014)

# Why Research Ethics are Important

- To ensure the ethical conduct of research involving human participants and animals
  - To ensure respect and dignity for persons involved in experiments is maintained
  - To minimize risk of physical, social, and psychological harm during research studies
- To ensure academic integrity and honesty as to avoid manipulating results from research studies, creating false data, and copying the work of others

# Research Ethics for Research with People

Research that involves people must be reviewed by a Research Ethics Board, and the researchers must show funders of their research that:

- Research methods and protocols involving human participants must be considered acceptable in accordance with "[Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans \(2014\)](#)" (web link).

***The well-being of research participants is of primary importance.***

# Research Ethics for Research with Animals

When research is done with animals, researchers must show funders that:

- All animals will be cared for and studied under conditions stated in the “Guide to the Care and Use of Experimental Animals” (Vol 1: revised 1993; volume 2:1984), published by the Canadian Council on Animal Care

## Summary about Research

- ▼ Research is done to address gaps in knowledge, inform policy and education programs, and to contribute to knowledge on a particular topic
- ▼ The research team encompasses a variety of people such as clinicians, scientists, students, and allied health professionals
- ▼ Researchers are highly trained professionals
- ▼ Knowledge translation is important in putting research to practical use
- ▼ Research ethics ensures academic integrity and no harm to those involved in research

# References

Bhattacharjee, A. (2012). "Social Science Research: Principles, Methods, and Practices" (2012). Textbooks Collection. Book 3. [http://scholarcommons.usf.edu/oa\\_textbooks/3](http://scholarcommons.usf.edu/oa_textbooks/3) (web link)

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For further information about research at the Arthritis Society please see the links below:

About Research

<https://arthritis.ca/researchers/>

Research Strategy

<https://arthritis.ca/researchers/research-programs/research-strategy>

Current Research Investments

<https://arthritis.ca/researchers/current-funding-opportunities/competition-results>

*If you have any further questions, please contact us at [research@arthritis.ca](mailto:research@arthritis.ca).*