Infection Prevention Research and Scientific Writing

ABSTRACTS, PEER-REVIEWED ARTICLES

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Disclosure

No conflict of interest relevant to this presentation

Objectives

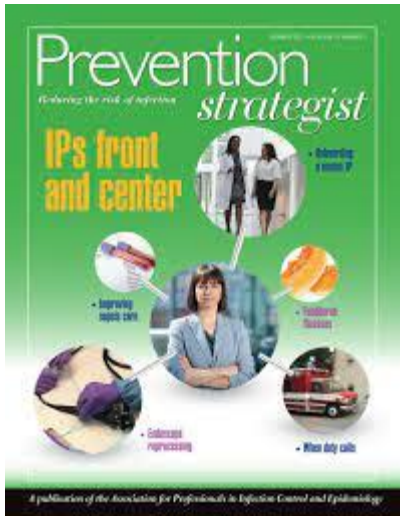
- Identify the most common types of research studies in Infection Prevention
- Describe why it's important to publish the work you've done
- Describe what an abstract is and the major components of an abstract
- Submit an abstract for APIC Annual Conference
  - Be on the lookout for the Call for Abstracts for 2024 Annual Conference June 3-5, 2024
- Get started advancing your current work to be considered for peer-reviewed journal publication

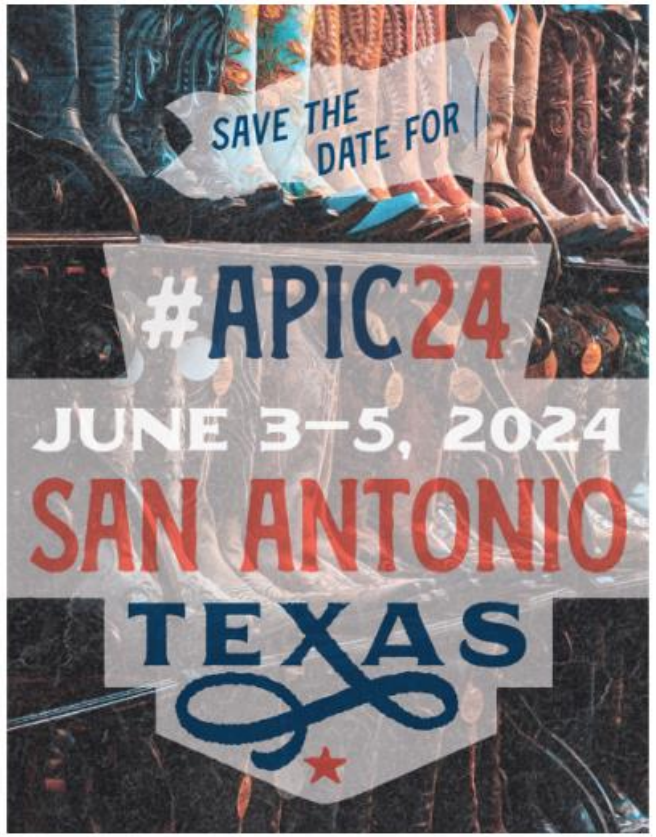
Why Publish/Write Abstracts?

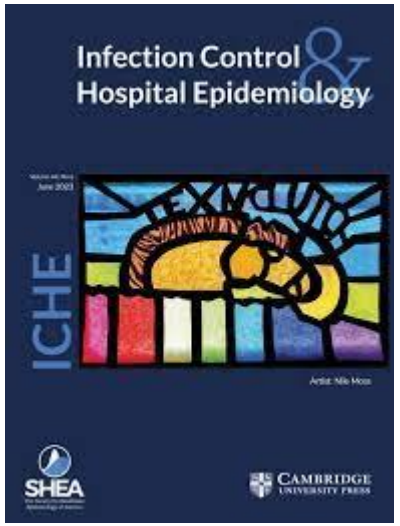
- Efficiency in advancing patient safety, avoiding duplicative failures
- Advance your career
- Sense of accomplishment
- Learning the abstract-writing process will help you …
  - Present complex information in a clear, concise manner
  - Read abstracts more effectively
  - Conduct research
  - Write abstracts about your own work

Where to Publish?

AJIC
American Journal of Infection Control

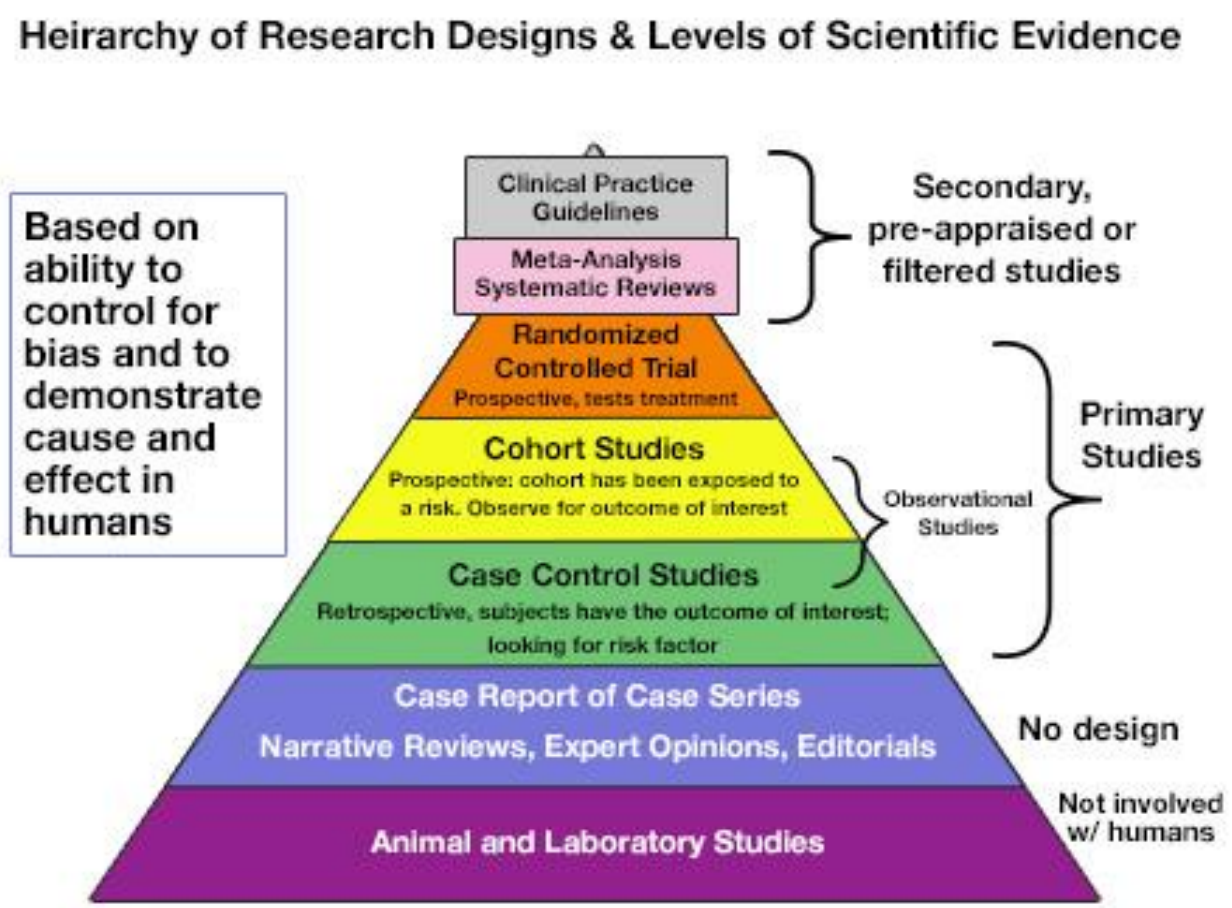






ICT INFECTION CONTROL TODAY

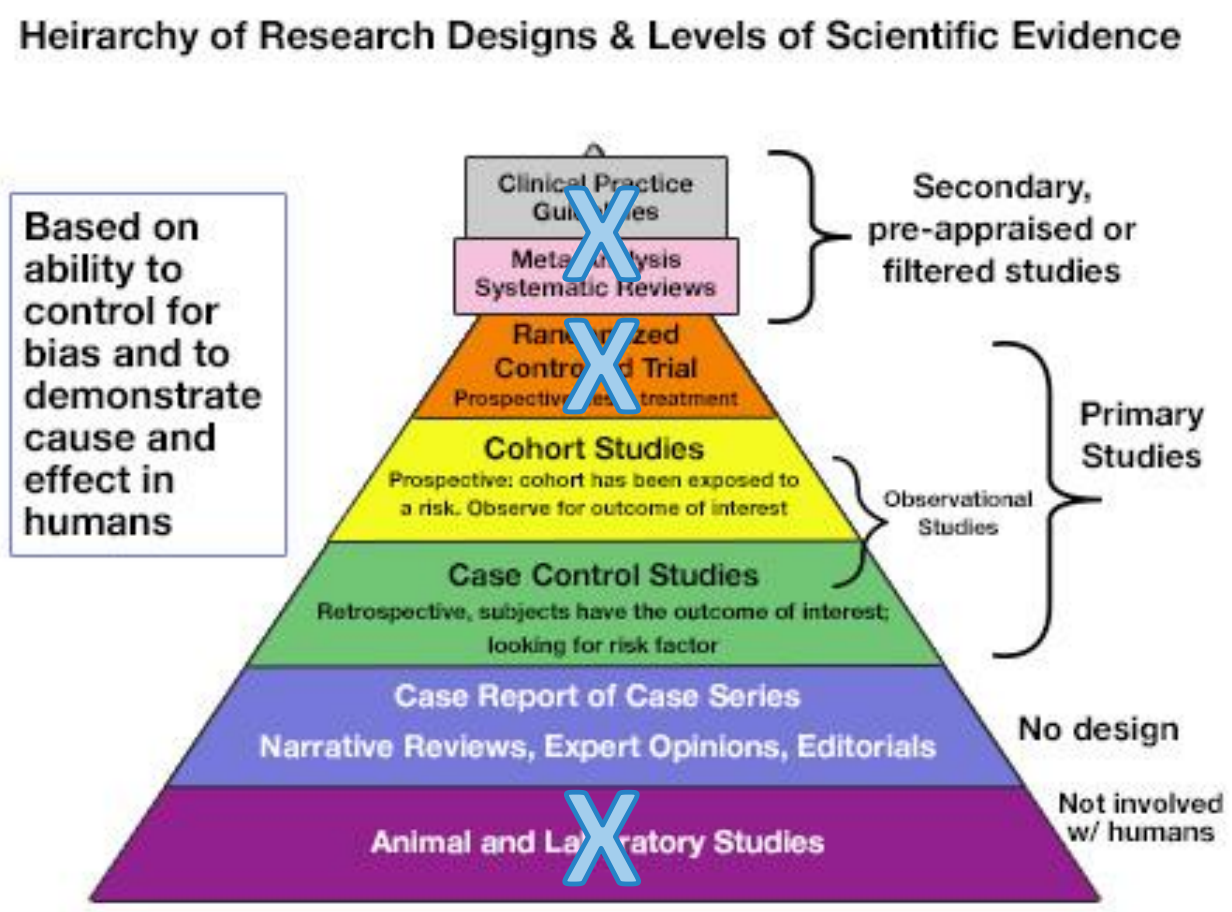
Types of Research



Research we are unlikely to perform…

- Animal and Laboratory Studies
  - NOTE: Doctors are not animals
- Randomized Control Trial
  - IRB approval for a study that randomizes patients to receive care from healthcare workers who wash their hands vs. those that don't is *very* unlikely
- Meta-Analysis/Systematic Review
  - Ain't nobody got time for that
- Clinical Practice Guidelines
  - APIC, SHEA, HICPAC

Types of Research



Research we can (and should!) do…

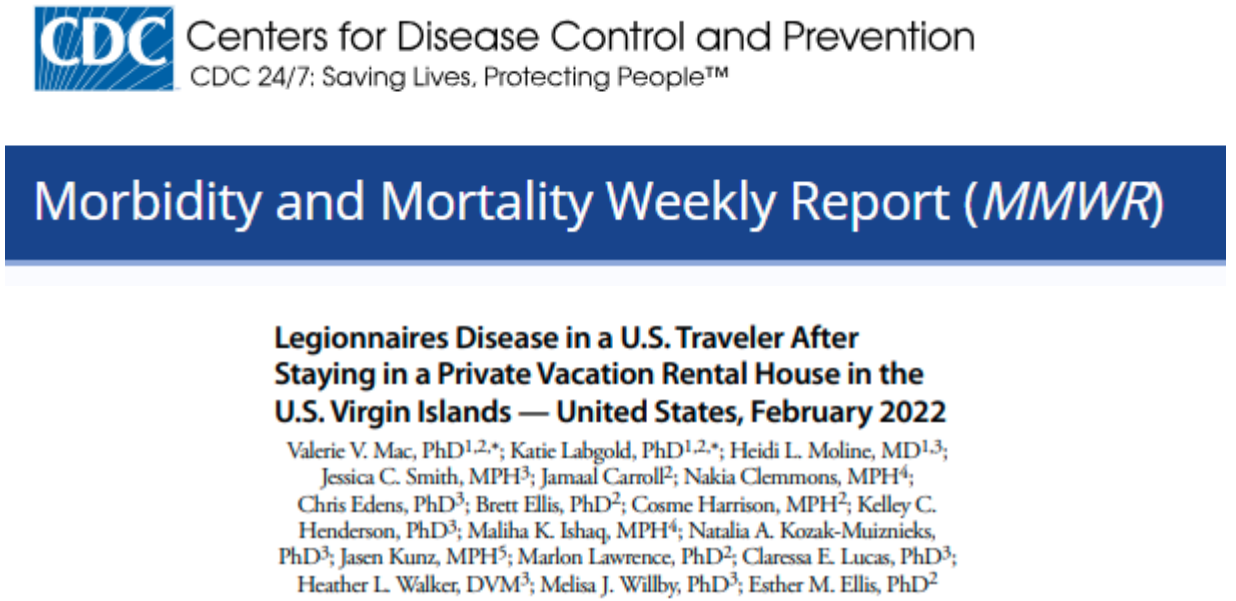
COHORT STUDIES

CASE CONTROL STUDIES

CASE REPORTS, EDITORIALS, EXPERT OPINIONS

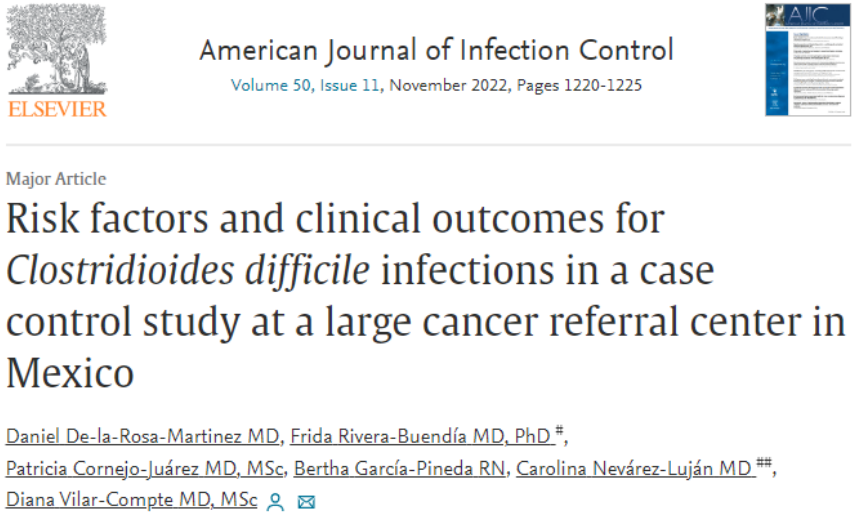
Case Reports

- Detailed report of an individual patient
  - Usually describe an unusual or novel occurrence
- Advantages
  - Provide new ideas
  - Detail many aspects of a situation
  - Rapid communication
- Disadvantages
  - Publication bias



Case Control

- Retrospective, Observational
- Two groups with differing outcomes compared based on causal attributes
  - Subjects have the outcome of interest
  - Looking for the risk factor(s)
- Advantages
  - Inexpensive
  - Can be carried out by individuals or small teams in single facilities
  - Preliminary studies when little is known about the association between the risk factor(s) and disease of interest
- Disadvantages
  - Confounded by other factors
  - May be difficult to establish the timeline of exposure to disease
  - Reliable information can be difficult to obtain



ELSEVIER

American Journal of Infection Control

Volume 50, Issue 11, November 2022, Pages 1220-1225

Major Article

Risk factors and clinical outcomes for *Clostridioides difficile* infections in a case control study at a large cancer referral center in Mexico

Daniel De-la-Rosa-Martinez MD, Frida Rivera-Buendía MD, PhD [#], Patricia Cornejo-Juárez MD, MSc, Bertha García-Pineda RN, Carolina Nevárez-Luján MD [##], Diana Vilar-Compte MD, MSc

Cohort Studies

Relationship between ventilator bundle compliance and the occurrence of ventilator-associated events: a prospective cohort study

Eman Arafa Hassan & Suad Elsayed abdelmotalb Elsaman

BMC Nursing **21**, Article number: 207 (2022) | Cite this article

- Prospective, Observational
- Obtain evidence to confirm or refute the existence of an association between cause and effect
  - Cohort is identified before the appearance of the outcome
- Advantages
  - Helps determine risk factors for contracting a disease
  - Recall error can be decreased by collecting data at regular intervals
- Disadvantages
  - Expensive to conduct
  - Sensitive to attrition
  - Timeframe to generate useful data is usually long

Writing an Abstract

Abstract

- Self-contained, short overview that describes a larger work
- Contains four major sections
  - Background
  - Methods
  - Results
  - Conclusion

Title

- Concise
- Describes the content of the abstract

Risk Factors for Central Line-Associated Bloodstream Infection in a NICU Population: Experiences at a Pediatric Hospital in South Texas

Background

- Brief background, study objectives, hypothesis tested, problem addressed
- General format
  - Describe importance of the topic
  - Define and indicate the problem
  - Outline the research question or objective
- Written in the present tense

Background

Central line-associated bloodstream infection (CLABSI) causes significant harm in patient populations, especially neonatal intensive care unit (NICU) patients. In this population, it is the most common nosocomial infection, leading to significant morbidity and mortality. However, data regarding CLABSI risk factors and prevention strategies in NICU patients is limited.

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- Brief background, study objectives, hypothesis tested, problem addressed
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Missing from this example: "The objective of this study is to …"

Background

Central line-associated bloodstream infection (CLABSI) causes significant harm in patient populations, especially neonatal intensive care unit (NICU) patients. In this population, it is the most common nosocomial infection, leading to significant morbidity and mortality. However, data regarding CLABSI risk factors and prevention strategies in NICU patients is limited.

Methods

- Describe study design – include setting, sample, sample size, subjects, intervention, type of statistical analysis
- General format
  - Indicate study design, subjects, timeframe
  - Outline study variables
  - Define statistical analysis
- Written in the past tense

Methods

A retrospective cohort study was conducted in the NICU at a pediatric hospital in South Texas. Detailed records of central line insertions (central line type, number of lumens, placement site, date of placement and removal) occurring in NICU patients from January 2018 to early November 2022 (N = 1,356) were extracted from the electronic medical record, along with risk factors of CLABSI (length of stay, gestational age, age at line placement, birthweight, any surgery, and receipt of parenteral nutrition and blood products). Central line insertions associated with CLABSI (N = 35) were compared to instances without CLABSI (N = 1,321) in a univariate (X2 and student's t-tests) and multivariate (logistic regression) analysis.

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Numbers = Results

Methods

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Results

- Summarize essential results with appropriate analysis
- Every method outlined should have a result, and they should be listed in the same order
- Written in the past tense

Results

Univariate risk factors ($p \leq .05$) were: very low birth weight, receipt of blood products, implantable central lines, neck site placement, longer device dwell time, age at line placement, and days patient was admitted before line placement. Multivariate risk factors were: very low birth weight and days admitted before line placement ($p \leq .10$), as well as years 2021 and 2022, and implantable device ($p \leq .05$). Implantable device had the largest effect size (Standardized $\beta = 4.78$), indicating they explain more of the variance in CLABSI than every other variable.

Results

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~~Interpretation~~ = Discussion/Conclusion

Results

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Conclusion

- Interpret study finding and summarize implications
- General format
  - Answer the research question
    - Ensure all conclusions are supported by the results
  - Implications of the results
- Written in the present tense

Conclusions

Implantable central lines are an independent risk factor for CLABSI in a NICU population at this facility, explaining more of the variance in this outcome than known predictors. Years 2021 and 2022 are also notable predictors of CLABSI, which warrants further investigation.

Conclusion

- Interpret study finding and summarize implications
- General format
  - Answer the research question
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Because there was no clearly stated objective, this is a little weak.
Could/should be stronger.

Conclusions

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Tips for Successful Submission

- Read and follow the rules!!
- Abstracts must be submitted in English
  - Grammar and spelling are important
  - Written in complete sentences in a narrative format
- Do not use brand, trade, author, or institution names
- SOA Spell out acronyms – even common ones
- Space limits: 300 words (not including spaces, excluding title)

Some Common Mistakes

- 1st person anecdotes
- Not enough information included
- Only raw data presented
- Ambiguous conclusion statements
- Failure to follow submission instructions

Publishing Your Work

DISCLOSURE: RECYCLING SLIDES ☺

Develop an Outline

Why bother?

- Time saver
- Get to the point and stay on track
- Organize thoughts and flow

Use abstract format

- Background
- Methods
- Results
- Discussion

Developing an Outline

Working title

- Work in progress and is subject to change

Background

- Why is this important?
- What does the current research say?
- What hasn't been answered?
  - Objective of your research

Methods

- Recreate what you did
  - Reader should be able to replicate
- Be sure to list any concurrent projects
  - These will be discussed as potential confounders

Developing an Outline

Results

- Report significant and non-significant findings
- Report positive and negative findings
- Be clear and concise – Use tables, charts, graphs, or figures when possible for clarity

Discussion

- Highlight key findings
- Interpret results
  - Tie back to the literature when possible
- Implications of findings
- Limitations (VERY important)
  - Identify and explain why they couldn’t be avoided
  - Transparency = Trust

Background

Purpose

- Provide all the information a reader needs to understand the rest of the paper

Common Mistakes

- Too much/not enough information
- Unclear what the study is
- Confusing structure
- 1st person anecdotes

Methods

Purpose

- Provide enough details for the reader to be able to reconstruct your work

Common Mistakes

- Not enough information
- Background, results, or discussion included
- Verbose descriptions

Results

Purpose

- Present the key findings without interpreting their meaning

Common Mistakes

- Raw data presented
- Redundancy
- Methods or discussion included
- No figures/tables
  - Common mistakes: Inappropriate format, redundant information, ugly, no labels/captions

Discussion

Purpose

- Interpret the results and tie everything together

Common Mistakes

- New results
- Broad statements
- “Inconclusive”
- Ambiguous
- Missing information

Succeeding in IP Research

Choose a mentor

- Process of accompaniment built with trust and mutual respect

Systematic Literature Search

- Comprehensive without slowing the project down
  - Languages other than English
  - Gray literature
    - Conference proceedings, dissertations and theses, clinical trial registries
  - Hand-searching of journals
  - Reference lists of relevant studies
- Eliminate bias from your search

#APIC2022

AHRQ HEALTH CARE
INNOVATIONS EXCHANGE
Innovations and Tools to Improve Quality and Reduce Disparities

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

INSTITUTE FOR HEALTHCARE IMPROVEMENT

SHEA
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Wrapping Things Up

- Let's Publish!!

QUESTIONS?

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