How to Write a Successful Abstract for a Public Health Conference



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State Epidemiologist, Georgia Department of Public Health October 4, 2022

Seminar Overview/Objectives

- In this seminar, we will describe the steps in writing a scientific abstract for submission to a public health conference and will discuss specific ways to improve abstract quality and chances for acceptance.
- After the webinar, participants will be able to:
 - Understand the purpose of a scientific abstract;
 - Describe the structure of a scientific abstract and the writing approaches for each section;
 - Discuss "tricks of the trade" to improve chances for abstract acceptance
 - Write an abstract for submission to the 2023 CSTE Annual Conference!



To write a strong abstract that is accepted for presentation at a public health conference

Ultimately, so that your great epi work is seen, heard, incorporated, discussed, modeled...USED—as part of the body of scientific knowledge!

What is a Scientific Abstract?

- An abstract is a "snapshot" of a scientific, epi, or research study
- Designed to **ENGAGE** (readers, attendees, etc.)
- So that your scientific work is consumed and used
- As such, the "snapshot" should be polished, clear, professional.

Snapshot analogy...



Vs



Two Types of Scientific Abstracts

1. Scientific Papers

- Appear at beginning of manuscript
- Included in PubMed and other abstract services
- Often the only part of a paper that many people read

2. Abstracts for Presentation at Scientific Meetings*

- Submitted in response to a call for abstracts
- Required formats and specified word counts

Abstracts are a means of conveying what was done and why, what was found, and the implications

How Do We Reach Our Goal of Getting an Abstract Accepted?

- The "science" itself isn't enough
- Requires careful planning and concise execution
- <u>First and most important step</u>: read and adhere to conference guidelines for submission (FOLLOW DIRECTIONS, they mean it!)
 - Submission deadline and mechanism
 - Abstract format
 - Word count (CSTE--400 words)
 - Selection of presentation format (e.g. for CSTE--Quick, Lightning, Poster, etc.)
- Takes more time than you think (build in time for review and clearance)
- Sort out authorship early

Strong Abstracts Should Be ("4 C's"):

- Complete —covers the major parts of the project, study, or analysis
- Concise no excess wordiness or unnecessary information
- Clear readable, well organized, and not jargon-laden
- Cohesive —flows smoothly between parts; coherent story overall

5th C is that this can be Challenging—but practice makes perfect!

Scientific Abstract Structure (Typically)

- Title
- Background
- Methods
- Results
- Conclusion



Scientific Abstracts: General Characteristics

- All 4 Cs are important, but <u>CLEAR is #1 -- AIM FOR CLARITY!</u>
- Should be understandable as a stand-alone story (chronological if possible)
- Sections relate back to each other (all results have a corresponding method, results support conclusion, conclusion ties back to why the study was important to do, etc.)
- Avoid wordiness, jargon, and excessive acronyms
- Use past tense (mostly)
- First person (I, we) now most accepted
- The word data is PLURAL
- Use active voice ("We investigated an outbreak of...")
- Do not include references, citations, tables, charts, illustrations, or figures

Title: Characteristics and Advice

- Clearly describes what the study is about (but doesn't give results away—encourages readers to want to read the rest of the abstract)
- Usually includes location and timeframe of study
 - "Injuries Among High School Football Players, Nebraska, 2013"
- Grabs your attention (note: some reviewers either like/don't like "plays on words" as part of title, so caution)
 - "Is the Juice Worth the Squeeze? Analyzing Rickettsia rickettsii Case Classifications – Georgia, 2016-2017"
- Usually capitalize first letter of each word
- Check conference guidelines—title might/might not be included in word count

Title: DON'TS

- Unclear
- Don't state results or conclusions
- Don't include phrases like "a study of", "an investigation of"
- Don't include jargon or unfamiliar acronyms
- Don't be too long
- Example for you to think about:
 - "State Public Health Laboratory-NIH-Funded Research Laboratory Collaboration for Carbapenem-Resistant Enterobacteriaceae Surveillance: A Model for Maximizing the Public Health Potential of Taxpayer Money"

Background: Characteristics and Advice

- Why did you perform the study?
- Should be 2-3 sentences total
- 1st sentence: Provide the context and/or motivation for doing the study (What is already known about the subject? What is not known, and hence what do you intend to examine?)
- 2nd sentence: Simple, clear statement of the aim of the study (What are you hoping to find out or what is your hypothesis?)
- The last sentence of the Background is one of the most important in the entire abstract-- should be a "hook"--the study's practical significance/importance to public health.

Background: DON'TS

- Don't include too much historical background
- Don't be too lengthy
- Unclear why you did the study
- Unclear why the study is important (no hook)
- Don't include methods, results, or conclusions

Methods: Characteristics and Advice

- What did you do? How did you do it?
- Usually 3-5 sentences total; chronological if possible
- Briefly describe study design (survey, cohort, etc.)
- Where and when (timeframe of study)?
- How and what data were collected?
- Who were the subjects? How selected?
- Case definition (if applicable)
- Statistical analyses or tests performed
- Balance between putting in not enough and too much

Methods: DON'TS

- Unclear what you did and how you did it
- Don't include non-specific phrases such as:
 - "We collected data"
 - "We surveyed the population"
 - "We performed statistical analyses"
- No statistical methods provided
- Methods missing for results presented later

Results: Characteristics and Advice

- What did you find?
- Usually the longest section, 3-8 sentences even
- Describe your main findings with data
- Don't include all study results, but highlight the findings that tie back to the primary study aim.
- Logical flow from descriptive (frequencies, etc.) to analytic
- Include measures of association, P-values, confidence intervals as appropriate
- Statements such as "to be completed" or "to be presented" are not acceptable
- Make sure to include the specific data that supports your conclusion
- Strike balance here between including not enough and too much

Results: DON'TS

- Results lack numbers
- **"Tie-back" issues:
 - Results do not pertain to the primary study aim
 - Results missing for methods that you mentioned
 - No results that tie to/support your primary conclusion
- Don't include conclusions or interpretation in the Results (sometimes I see methods here too)

Conclusion: Characteristics and Advice

- What does it mean? Why is it important?
- The Conclusions section should explain your main findings and why they are important (2-3 sentences)
- Should tie back to primary study aim(s)—to the HOOK
- You may have one primary conclusion, or several, depending on study aims (but not TOO many—reduces clarity and impact)
- Must be supported by your <u>presented</u> results
- End with a strong closer sentence that is the practical takehome message (a practical application)

Conclusion: DON'TS

- Don't present a conclusion not supported by the results of your study
- Don't overstate (generalization beyond scope of study)
- Unclear <u>specifically</u> why the study was important
- Don't have a generic "closer" sentence— the closer sentence should have a practical application or statement about how this study can be "used" in public health practice or epi science...
- Don't use "More research is needed" as your closer

Examples for Review

Outstanding Poster Presentation at the 2018 CSTE Annual Conference in West Palm Beach, Florida:

"Some Glitter Is Gold: Validity of Congenital Anomaly Flags on Electronic Birth Certificates in Identifying Zika-Associated Birth Defects, Georgia, 2016–2017"; Jerusha E Barton *et al.* Georgia Department of Public Health.

https://cste.confex.com/cste/2018/meetingapp.cgi/Paper/9883

201: Some Glitter Is Gold: Validity of Congenital Anomaly Flags on Electronic Birth Certificates in Identifying Zika-Associated Birth Defects, Georgia, 2016–2017

Sunday, June 10, 2018 03:00 PM - 03:30 PM

Palm Beach County Convention Center - Exhibit Hall A

Board Number: 201

https://cste.confex.com/cste/2018/meetingapp.cgi/Paper/9883

BACKGROUND: In April 2016, the Centers for Disease Control and Prevention (CDC) confirmed the association between congenital Zika infection and severe birth defects. Electronic birth certificates (eBCs) were explored as a statewide passive data source to identify Zika-related congenital anomalies. This study examined the validity of using congenital anomaly flags in eBCs to identify potential Zika-associated birth defects (ZBD) from January 2016 through June 2017.

METHODS: Suspected birth defect cases were identified through congenital anomaly flags reported on eBCs during 1 January 2016 through 30 June 2017. Flags were selected and ZBD cases were identified using CDC Zika Birth Defects Surveillance (CDC-ZBDS) Case Inclusion Guidance. Medical records were requested for any infant whose eBC noted ("flagged") at least one congenital anomaly. Diagnoses found in medical record review were considered the gold standard for birth defect case identification. Among cases whose medical records were reviewed, sensitivity and specificity were calculated for the overall sample and each defect flag by comparing eBC flags to medical records.

RESULTS: As of 15 December 2017, we identified 218 infants with 289 congenital anomaly flags potentially related to congenital Zika infection. We received and reviewed 173 (79%) records with 242 flags (84%) and found 153 diagnoses, of which 93 (61%) were confirmed. Fifty-three (31%) records met the CDC-ZBDS criteria and contained 65 (42%) diagnoses. Sixty additional ZBD diagnoses were found through record abstraction. Overall, the sensitivity and specificity of congenital anomaly flags was **59.6%** and **97.3%**, respectively. The most common flags (n>10) included intraventricular hemorrhage, clubfoot, hydrocephaly, spina bifida, and craniofacial anomalies. Sensitivities for microcephaly, limb reduction, and clubfoot ranged from 67% to 78%. Hydrocephaly, microcephaly, and craniofacial anomalies had specificities ≥95%.

CONCLUSIONS: Overall, congenital anomaly flags performed well in screening out false positives, yet captured many false negatives; hence, eBC flags may be only one tool for Zika-associated birth defects surveillance. Additionally, eBCs are available for all live-born infants, suggesting they may be a useful data source for statewide surveillance of related birth defects. Leveraging linkage to other data sources, including fetal death certificates and direct case reports from healthcare providers, could be used in conjunction with eBCs to enhance Zika birth defects case ascertainment and improve validity. Despite known limitations, eBCs appear to provide valid data for birth defects surveillance. Future studies may evaluate the validity of other eBC birth defects flags to clarify the limitations of using eBCs for population-level general birth defects surveillance.

More DPH Epi National Winners!



https://cste.confex.com/cste/2019/meetingapp.cgi/Paper/11294



https://cste.confex.com/cste/2019/ meetingapp.cgi/Paper/11404

More DPH Epi National Winners!



AGENDA TRAVEL PRESENTERS SPONSORS GENERAL INFORMATION ARCHIVES

101 Evaluation of Plaque Reduction Neutralization Test Results for Suspected Zika Virus and Dengue Virus Cases in Georgia, 2016



Sunday, June 4, 2017: 3:00 PM-3:30 PM

Eagle, Boise Centre

Skyler Brennan , Georgia Department of Public Health, Atlanta, GA Amanda Feldpausch, Georgia Department of Public Health, Atlanta, GA

Shawna Feinman, Georgia Department of Public Health, Atlanta, GA

Ashton Johnson, Georgia Department of Public Health, Atlanta, GA

Ashley Horne, Georgia Department of Public Health, Atlanta, GA Karen Wu, Georgia Department of Public Health, Atlanta, GA

Julie Gabel, Georgia Department of Public Health, Atlanta, GA

Cherie Drenzek , Georgia Department of Public Health, Atlanta, GA

BACKGROUND: Georgia Department of Public Health (GDPH) has been conducting surveillance for Zika virus since January 2016. The Georgia Public Health Laboratory (GPHL) has capacity to perform RT-PCR and MAC-ELISA (IgM) testing for Zika, Positive, equivocal, or inconclusive IgM results are not confirmatory for Zika infection due to cross-reactivity with other flaviviruses. Plaque Reduction Neutralization Test (PRNT), performed at the Centers for Disease Control and Prevention (CDC), is then required to confirm Zika virus infection. It can take weeks for GDPH to receive PRNT results, delaying notification and response to confirmed cases. Analysis of PRNT result data to determine the relationship between IgM results and subsequent confirmation of Zika virus infection may be helpful to inform management of suspect cases while PRNT is pending.

METHODS: Lab results on Georgia residents tested for Zika virus are recorded in the Zika Active Monitoring System (ZAMS) within the State Electronic Notifiable Disease Surveillance System (SendSS). PRNT results and their corresponding IgM results were compiled using both electronic and paper lab reports and analyzed using statistical software.

RESULTS: As of December 20, 2016, PRNT results have been received on 110 GA patients originally found to be positive, equivocal, or inconclusive by IgM testing. Of 62 positive IgM samples, 45 were positive for Zika by PRNT (72.6%), 9 were negative for any flavivirus (14.5%), and 8 were positive for dengue only (12.9%). Of 21 equivocal IgM samples, 8 were positive for Zika (38.1%), 8 were negative for any flavivirus (38.1%), and 5 were positive for dengue only (23.8%). Of 27 inconclusive IgM samples, 1 was positive for Zika (3.7%) and 26 were negative for any flavivirus (96.3%).

CONCLUSIONS: Analysis of available data in Georgia show that IgM-positive Zika results are often indicative of true Zika infections as opposed to inconclusive IgM results, which are largely negative for any flavivirus. IgM-equivocal Zika results, however, lead to a roughly even distribution of true Zika and/or dengue infections and no flavivirus infection. The differences in confirmed infections obtained from inconclusive and equivocal IgM results align with our understanding of inconclusive vs. equivocal IgM results as defined by the CDC. This information has helped GDPH epidemiologists prioritize pending patients for additional follow up and provide guidance for physician and patient education. Updating this analysis regularly is critical to relaying the most accurate information to healthcare providers and patients.

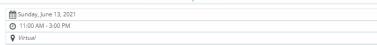
> See more of: Infectious Disease Poster Award Finalists See more of Poster Sessions

> > Previous Abstract | Next Abstract >>

https://cste.confex.com/cste/2017/webprogram/Paper8279.html

A Few Other Examples (Award Finalists from CSTE 2021)

Trends in COVID-19 Deaths By Urban-Rural Classifications of GA Counties, 2020



BACKGROUND:

The COVID-19 pandemic has contributed to >9,000 deaths in Georgia and >300,000 deaths in the United States during 2020. National trends have shown that although deaths were concentrated in urban areas in the first few months of the pandemic, there was a shift over time led in more deaths in rural areas. To reduce COVID deaths and target areas most in need of resources for prevention and treatment of COVID-19 mortality rates among Georgia's metropolitan and nonmetropolitan counties during March-December 2020.

METHODS:

Confirmed COVID-19 deaths were reported by healthcare providers or medical examiners/coroners, identified by death certificates, or there was evidence that COVID-19 contributed to the individual's death. The residential oppolation projections by Georgia's Governor's Office of Planning and Budget, Series 2020 were used to estimate the population size of each Georgia county. Using the 2013 National Center for Health Statistics urban-rural classification scheme, we categorized the 159 Georgia counties as metropolitan (81%) or nonmetropolitan (17%). Crude death rates were plotted during March-December 2020 and monthly risk ratios (RR) were calculated.

RESULTS:

Throughout 2020, nonmetro counties had an overall average monthly death rate/100,000 population that was over two times greater than metro counties (RR=2.35; 95% CI, 2.24-2.46). This disparity in rural-urban mortality was the smallest in March when comparing metro counties (2.0 deaths/100,000 population). After March, nonmetro counties surpassed metro counties in monthly death rates. The largest disparity occurred in September, metro counties had 5.3 deaths/100,000 population and nonmetro counties had 5.6 deaths/100,000 population (RR=3.88) eyb. (3.354-41).

CONCLUSIONS

The more than double average monthly COVID-19 death rates found when comparing Georgia's nonmetro counties to metro counties indicated a critical need for more preventative measures to be implemented in rural counties. Partnerships between nonmetro and metro counties should form to prevent physician shortages, a lack of resources, deficiencies in available health services, or often challenges that may contribute to more deaths occurring in nonmetro counties. Additional prevention measures must be established in rural counties, such as more campaigns on preventing COVID-19 transmission and more rural clinics as sites for COVID-19 testing and vaccinations. Throughout the rest of the COVID-19 pandemic, the changing trajectory of death rates could be used to inform prevention measures in nonmetro counties.

Presenting Author



Kelly Marie Vermandere Georgia Department of Public Health

Author



Cherie Drenzek Georgia Department of Public Health

https://cste.confex.com/cste/2021/ meetingapp.cgi/Paper/14968

Prolonged Outbreak of Group a Streptococcal Infections at a Long Term Care Facility— Georgia, 2018-2019



BACKGROUND: Group A Streptococcus (GAS) can cause colonization, pharyngitis, and invasive infections. The Georgia Department of Public Health (GDPH) conducts active surveillance for invasive GAS ((GAS) and monitors (GAS among residents of long from a feet from the same LTCF, Facility A, including 2 deaths. The GDPH, North Central Health District, and the Georgia Public Health Laboratory (GPHL) screened staff and residents for carriage, and evaluated medical and laboratory records for potential non-invasive cases. Active surveillance revealed additional cases of IGAS in residents over several months, with cases from June 2018 to April 2019.

METHODS: Invasive cases were defined as IGAS infections among Facility A residents during April 2018 - August 2019; non-invasive cases as symptomatic residents with a positive rapid antigen test or culture from a non-sterile site, and carriers as a resident or staff member with GAS cultured from a non-sterile site with no GAS signs or symptoms. Descriptive epidemiology of case characteristics was obtained. An IP evaluation was completed, Pharyngeal and wound swabs were cultured. Positive isolates underwent WG-MLST. Colonized individuals were given antibiotic prophylaxis and re-screened to ensure clearance of GAS.

RESULTS: From April 2018 to April 2019, 12 cases were identified (8 invasive, 4 non-invasive) and 15 carriers (7 staff, 8 residents). The average age of the 20 residents was 80 (range 47-92), 100% male, 14 had wounds, and all had underlying conditions. Between June and December 2018, 10 isolates were classified as emm 4/MLST 39. Between February and April 2019, 5 isolates were classified as emm 1/MLST 28. One staff member with an emm-4/MLST 39 isolate had 0 SNP differences from an invasive case resident. An additional case was identified and subsequent targeted screening of contacts was performed, 1 staff GAS strain was found to be related by 6 SNP differences to an iGAS case from February 2019. IP evaluation identified poor access to hand hygiene resources, lack of audits for environmental cleaning, and lack of data on employee illnesses.

CONCLUSIONS: GDPH investigated a prolonged GAS outbreak in a LTCF. Multiple IP deficiencies were identified and interventions were implemented. WG-MLST not only identified likely transmission between staff and residents, but also an introduction of a new strain, with apparent eradication of a previous one. The outbreak was considered over in August 2019, after no new cases were identified among Facility A residents for 4 months.

Presenting Author



Lauren Lorentzson Georgia Department of Public Health

https://cste.confex.com/cste/2021/ meetingapp.cgi/Paper/14988

More DPH Epi National Winners!



COVID-19 →

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OUTSTANDING POSTER PRESENTATION AWARDS



Poster presentations are an important and valued part of the CSTE Annual Conference. CSTE recognizes poster presenters with awards for each CSTE steering committee.

Only accepted poster presentations at the CSTE Annual Conference are eligible. Nominations are made by members of the Planning Committee, comprised of steering committee leaders and selected members of subcommittees related to the content of posters. Nominations are then scored and winners are chosen by a review committee. Only one poster per presenter may be considered. Criteria for selection include:

- · Scientific content, including originality, study design, and analysis
- Public health impact
- · Exemplifies the effective and innovative application of epidemiologic methods in an investigation or study

Review

The nomination and finalists selection period is from January through March each year before the conference. A review committee of CSTE members and staff use a scoring sheet and select winners.

Of those abstracts that met the criteria, up to five finalists in each area may be chosen by the review committee. Finalists are announced <u>May 1</u>, and their posters are shown at the Annual Conference. The review committee scores finalists during the conference using a score sheet based on the aforementioned criteria.

Previous Winners:

- 2022 Annual Conference
 - Chronic Disease/Maternal & Child Health/Oral Health: Abhilasha Saxena
 - Cross Cutting/Substance Use: Shahnaj B. Safi
 - Environmental Health/Occupational Health/Injury: Noemi B. Hall
 - Infectious Disease: Stephanie Lunn
 - · Surveillance/Informatics: Sabrina Johnston



"Tricks of the Trade" in Abstract Writing (and Acceptance)

- Science is KING: start with a study that has clear purpose
- Abstracts about emerging PH issues are a plus!
- FOLLOW Conference guidelines to the LETTER
- Also look at Conference guidelines for what the Selection Committee is looking for, and cover it!
- Example from 2022 CSTE Annual Conference:
 - "The Program Planning Committee will evaluate abstracts based on a number of criteria, including timeliness, relevance, design, clarity, outcomes, and potential impact"

"Tricks of the Trade" in Abstract Writing (and Acceptance)

- Find an abstract "expert" in your health department to guide and review your abstract throughout the process.
- Your abstract will go through numerous review steps, including your coauthors, your supervisor, the abstract "expert", your agency's clearance process. Allow sufficient time.
- Write a first draft with all of the Sections (as <u>clear</u> as possible) but don't worry about word count exactly yet.
- Some people use the technique of <u>starting</u> the first draft by narrow focus: writing two sentences for each Section that hits the <u>main</u> points, then add/revise after.



"Tricks of the Trade": Word Cutting



- Submit 1st draft to your expert or supervisor for review and editing—they can assist with word cutting (send to coauthors when closer to final)
- Word cutting can be an art!
 - If >30 words over, remove entire concepts
 - If 15–30 words over, remove sentences
 - If <15 words over, remove unnecessary phrases and adjectives
- We don't want too many acronyms, but strategic use can help with word counts (remember to spell out first time!)
- Check for and eliminate phrases like: "in close proximity to", "in a large number of cases", "with regard to", "in order to", "due to the fact that", etc.

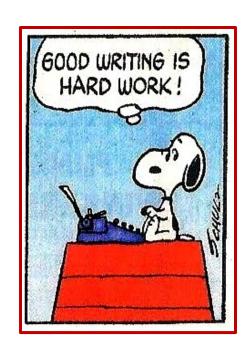
Most Common Reasons ("Risk Factors") for Abstract Rejection

- Usually not because of the science itself
- Most commonly because it is unclear
 - Why you did study in the first place
 - Why the results are important
- Poorly written; difficult to understand
- Data insufficient to support conclusions
- Low priority topic
- No new information gained
- Previously published



Successful Acceptance: Contributing Factors

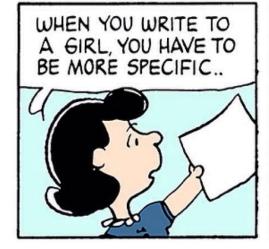
- Study topic is important and timely—an emerging problem, rising incidence, an area that we all want to learn more about
- Abstract is CLEAR (a readable story)—this is most important
- Follow directions exactly and submit on time
- Have a great closer: sentence with a clear practical implication for public health practice or epi science (never "more study is needed")



AIM FOR CLARITY!









Once It is Accepted...How do we Create a Poster?

- Mirrors the abstract but is not a replica
- Use your hook and closer as threads throughout
- Allows data visualization (think about importance AND aesthetics)
- Use Power Point slides to create (templates)
- References commonly used here
- Find experienced "mentors", there are many in DPH
- Creative but founded in science



Thank you!



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Happy Halloween! And THANK YOU!

