PREP Course #9: Intermediate Abstract Writing

Presented by: Alexandra V. Luks, Ph.D.
CME Disclosure Statement

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• Course Director, Kevin Tracey, has disclosed a commercial interest in Setpoint, Inc. as the cofounder, for stock and consulting support. He has resolved his conflicts by identifying a faculty member to conduct content review of this program who has no conflicts.

• Alexandra Lucs has nothing to disclose
Outline

• Introduction to an Abstract
• Abstract Structure/Examples
• Critiques
Why is an Abstract Important?

• Communicates your ideas
• Sparks interest
• What you did is important - IMPACT!
Programmatic or Scientific?

- Programmatic – innovative programs or approaches to management, function and operations
- Scientific – empirical studies
What are the major parts of an abstract?

- Title
- Authors, Degrees, Titles, Departments
- Topic
- Statement of Problem
- Approach
- Findings
- Conclusion
The Participation of Community Members on Institutional Review Boards
Charles W. Lidz, Lorna J. Simon, Antonia V. Seligowski, Suzanne Myers, William Gardner, Philip J. Candilis, Robert Arnold, Paul S. Appelbaum
Abstract: the goal of this study was to describe the contributions of community members (unaffiliated members) who serve on institutional review boards (IRBs) at large medical research centers and to compare their contributions to those of other IRB members. We observed and audiotaped 17 panel meetings attended by community members and interviewed 15 community members, as well as 152 other members and staff. The authors coded transcripts of the panel meetings and reviewed the interviews of the community members. Community members played a lesser role as designated reviewers than other members. They were infrequently primary reviewers and expressed hesitation about the role. As secondary or tertiary reviewers, they were less active participants than other members in those roles. Community members were more likely to focus on issues related to confidentiality when reviewing an application than other reviewers. When they were not designated reviewers, however, they played a markedly greater role and their discussion focused more on consent disclosures than other reviewers. They did not appear to represent the community so much as to provide a nonscientific view of the protocol and the consent form.

Know Your Audience

- Different Formats
- Different Emphasis
- Targeted “sell”
Title

- Succinct
- Main Message
Title Examples

• “Wnt/β-catenin-pathway as a molecular target for future anti-cancer therapeutics.” – International Journal of Cancer

• “Differential requirement for the dual functions of β-catenin in embryonic stem cell self-renewal and germ layer formation.” - Nature Cell Biology

• “Snapshots of Protein Dynamics and Post-translational Modifications In One Experiment – β-Catenin and Its Function.” – Molecular and Cellular Proteomics
More Examples

• “A Systematic Analysis of Human Papillomavirus (HPV) E6 PDZ Substrates Identifies MAGI-1 as a Major Target of HPV Type 16 (HPV-16) and HPV-18 Whose Loss Accompanies Disruption of Tight Junctions.” – Journal of Virology

• “The hScrib/Dlg apico-basal control complex is differentially targeted by HPV-16 and HPV-18 E6 proteins.” - Oncogene
Get Your Title Right!
Authors, Degrees, Titles and Departments/Facilities

• Make sure you include everyone who contributed
• Order matters – shows contributions
• First Author: did the work
• Last Author: head of the project
• Corresponding Author
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Statement of Problem

- Why?
- What made you start?
- Significance
NKX2.2 is a Useful Immunohistochemical Marker for Ewing Sarcoma.

Yoshida A, Sekine S, Tsuta K, Fukayama M, Furuta K, Tsuda H.

Source
*Pathology and Clinical Laboratory Division, National Cancer Center Hospital
†Department of Pathology, The University of Tokyo ‡Division of Pathology, National Cancer Center Research Institute, Tokyo, Japan.

Abstract

Ewing sarcoma is a high-grade round cell sarcoma that affects bones and soft tissues in children and young adults. Its diagnosis can be challenging, and the differential diagnoses include a wide variety of small round cell tumors. CD99 and FLI-1 are the currently accepted immunohistochemical markers for Ewing sarcoma, but their accuracy has been controversial. NKX2.2 is a homeodomain-containing transcription factor that plays a critical role in neuroendocrine/glial differentiation. The NKX2.2 gene was recently identified as a target of EWS-FLI-1, the fusion protein specific to Ewing sarcoma, and was shown to be differentially upregulated in Ewing sarcoma on the basis of array-based gene expression analysis. However, the immunohistochemical diagnostic potential of this marker has not been tested. We immunostained representative sections of 30 genetically confirmed Ewing sarcomas and 130 non-Ewing small round cell tumors by using an antibody to NKX2.2. . .
de Araújo Navas EA, Sato EI, Pereira DF, Back-Brito GN, Ishikawa JA, Jorge AO, Brighenti FL, Koga-Ito CY.
Source
Laboratory of Microbiology, Department of Oral Biosciences and Diagnosis, São José dos Campos Dental School, Univ. Estadual Paulista (UNESP), Brazil.
Abstract
Treating patients with systemic lupus erythematosus (SLE) with steroids and immunosuppressive drugs may interfere in the presence of potentially opportunistic microorganisms in the oral cavity. The aim of this study was to evaluate the presence of Candida spp., Staphylococcus spp., Enterobacteria and Pseudomonas spp. in the oral cavity of SLE patients, compared with healthy controls. A group of 40 patients who had received therapy for at least 60 days was selected (19-53 years). . .
As protocols become more difficult to execute and there is more pressure to complete studies in shorter periods of time, as an industry, we need to support sites and patients to meet those challenges. Operational advisory boards (OABs) are different from scientific advisory boards in that they are not intended to solicit investigator feedback on the protocol. The goal of an OAB is to have access to the research staff responsible for the day-to-day activity in a trial, and utilize their expertise for the practical application of a study after the scientific experts have provided the "must have" criteria. By having up-front access to lessons learned and best practices from a team of OAB members that have implemented similar studies and have recent patient feedback, a study can be successfully executed and patient comfort, convenience, and support made a priority.
Approach

• How?
• Methods
Prevalence of cervical human papillomavirus infection in women with systemic lupus erythematosus.

Lyrio LD, Grassi MF, Santana IU, Olavarria VG, Gomes AD, Costapinto L, Oliveira RP, Aquino RD, Santiago MB.

Genital infection by human papillomavirus (HPV) tends to occur more frequently in patients with conditions associated with immune suppression. Systemic lupus erythematosus (SLE) is an immunological disorder characterized by generalized inflammation and a number of clinical manifestations and circulating autoantibodies. The aim of the present study was to determine the prevalence of genital HPV infection among female SLE patients. Women diagnosed with SLE based on American College of Rheumatology classification criteria followed at rheumatology outpatient clinic of the Escola Bahiana de Medicina e Saude Publica, Salvador, Brazil, were included in the study. As a comparison group, clinically healthy women who were attending the gynecology outpatient clinic for routine examination at the same institution were recruited. Testing for cervical HPV infection was performed using the nested polymerase chain reaction technique. . .

Source
ABSTRACT: Whether a low body mass index (BMI) is directly associated with a high risk of suicidal ideation or self-harming behavior in adolescents is still inconclusive. This study has, therefore, evaluated the relevance of BMI to suicidal ideation and self-harming behavior after controlling for body weight perception (BWP) and other potential confounding factors. BMI, BWP, suicidal ideation, and self-harming behavior were all assessed using a self-report questionnaire administered to 18,104 Japanese adolescents. Potential confounding factors were also evaluated. The data were then analyzed using bivariate and multivariate logistic regression. Low BMI was associated with suicidal ideation and deliberate self-harm when controlling for sex, age, drug use, emotional distress, and BWP. Low BMI may be an independent risk factor for suicidal ideation and deliberate self-harming behavior in Japanese adolescents.
Findings

• What?
• Be specific – use units, measurements, data

We also followed the patients to evaluate adverse effects. After CSWT, the New York Heart Association class, the Canadian Cardiovascular Society angina scale, nitroglycerin dosage, myocardial perfusion and myocardial metabolic imaging scores of dual-isotope SPECT in the CSWT group were reduced significantly ($P = 0.019, 0.027, 0.039, 0.000, 0.001$, respectively), and the Seattle Angina Questionnaire scale, 6-min walking test, and left ventricular ejection fraction were increased significantly ($P = 0.021, 0.024, 0.016$, respectively) compared with those before the SW treatment. All of the parameters in the control group did not change significantly after the treatment (all $P > 0.05$). No serious adverse effects of CSWT were observed. Cardiac shock wave therapy is a safe and effective treatment for CHD patients.
Comparison of mid-term outcomes of carotid artery stenting for moderate versus critical stenosis.


INTRODUCTION:
MATERIAL AND METHODS:
RESULTS:

We treated 115 critical and 193 moderate stenoses and implanted 318 stents (56% with closed cell design). Embolic protection systems were used in 296 cases (96%). The technical success rate was 98.2% in the critical stenoses group and 99% in the moderate group (NS). During follow-up, the incidence of the primary endpoint was 12.9% (13 pts) in the critical stenoses group and 14.7% (25 pts) in the moderate stenoses group (estimated 3-year freedom from death/stroke was 0.844 vs. 0.812; log-rank test p = 0.983). Left ventricular ejection fraction < 40%, significant contralateral carotid artery occlusion or stenosis and renal insufficiency were identified as significant predictors of the primary endpoint (p < 0.03).
Conclusion

• IMPACT
• Be truthful, but don’t waffle
Immune Status in Very Preterm Neonates.
Azizia M, Lloyd J, Allen M, Klein N, Peebles D.

Abstract
OBJECTIVES:
METHODS:
RESULTS:
CONCLUSIONS:
Our data support the concept that fetal exposure to inflammation before preterm delivery leads to subsequent endotoxin hyporesponsiveness (immunoparalysis), which increases the risk of subsequent sepsis and associated organ dysfunction.
Cochlear Implants in Children Younger Than 6 Months. 
Colletti L, Mandalà M, Colletti V.

Objectives. (1) To determine the long-term outcomes of cochlear implantation in children implanted younger than 6 months. Study Design. Prospective cohort study. Setting. Tertiary referral center. Subjects and Methods. Twelve subjects aged 2 to 6 months, 9 aged 7 to 12 months, 11 aged 13 to 18 months, and 13 aged 19 to 24 months, all with profound bilateral hearing loss, were fitted with cochlear implants and followed longitudinally for 4 years. Results. Age at cochlear implantation was a significant factor in most outcome measures, contributing significantly to speech perception, speech production, and language outcomes. There were no major complications and no significantly higher rates of minor complications in the younger children. Conclusion. This article reports an uncontrolled observational study on a small group of infants fitted with cochlear implants following personal audiological criteria and, up to now, with limited literature support due to the innovative nature of the study. This study shows, for the first time, significantly improved auditory-based outcomes in children implanted younger than 6 months and without an increased rate of complications. The data from the present study must be considered as explorative, and a more extensive study is required.
Identification of differentially expressed genes in HPV-positive and HPV-negative oropharyngeal squamous cell carcinomas

Ivan Martinez, Jun Wang, Kenosha F. Hobson, Robert L. Ferris, Saleem A. Khana, *

Human papillomaviruses (HPVs) have been implicated in the pathogenesis of a subset of squamous cell carcinoma of the head and neck (SCCHN). The goal of this study was to compare the cellular gene expression profiles of HPV-positive and HPV-negative oropharyngeal carcinomas with those of the normal oral epithelium. Using Affymetrix Human U133A GeneChip, our results showed that 397 genes were differentially expressed in HPV-positive SCCHN compared to the normal oral epithelium. The upregulated genes included those involved in cell cycle regulation (CDKN2A), cell differentiation (SFRP4) and DNA repair (RAD51AP1), while the downregulated genes included those involved in proteolysis (PRSS3). We also found 162 differentially expressed genes in HPV-negative SCCHN compared to the normal oral mucosa. The upregulated genes included those involved in cell proliferation (AKR1C3) and transcription regulation (SNAPC1), while downregulated genes included those involved in apoptosis (CLU) and RNA processing (RBM3). Our studies also identified a subgroup of 59 differentially expressed genes in HPV-positive SCCHN as compared to both HPV-negative SCCHN and normal oral tissues. Such upregulated genes included those involved in nuclear structure and meiosis (SYCP2), DNA repair (RFC5), and transcription regulation (ZNF238). Genes involved in proteolysis (KLK8) and signal transduction (CRABP2) were found to be downregulated in HPV-positive SCCHN. The results of GeneChip experiments were validated by quantitative real-time RT-PCR analysis of a few representative genes. Our results reveal specific gene expression patterns in HPV-positive and HPV-negative oropharyngeal squamous carcinomas that may serve as potential biomarkers for the development of SCCHN.

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Rules of Thumb

• Avoid abbreviations
• Define any necessary abbreviations
• No references in abstracts
Abstract Critiques

• The Good and The Bad
• Title?
• What was their problem?
• How did they approach it?
• What did they find?
• Take home message?
An Orally Active TRPV4 Channel Blocker Prevents and Resolves Pulmonary Edema Induced by Heart Failure

Kevin S. Thorneloe1,* Mui Cheung1, Weike Bao1, Hasan Alsaid1, Stephen Lenhard1, Ming-Yuan Jian2, Melissa Costell1, Kristeen Maniscalco-Hauk1, John A. Krawiec1, Alan Olzinski1, Earl Gordon1, Irina Lozinskaya1, Lou Elefante3, Pu Qin1, Daniel S. Matasic1, Chris James1, James Tunstead4, Brian Donovan5, Lorena Kallal6, Anna Waszkiewicz6, Kalindi Vaidya6, Elizabeth A. Davenport6, Jonathan Larkin3, Mark Burgert7, Linda N. Casillas8, Robert W. Marquis8, Guosen Ye1, Hilary S. Eidam1, Krista B. Goodman1, John R. Toomey1, Theresa J. Roethke1, Beat M. Jucker1, Christine G. Schnackenberg1, Mary I. Townsley2, John J. Lepore1 and Robert N. Willette1

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Pulmonary edema resulting from high pulmonary venous pressure (PVP) is a major cause of morbidity and mortality in heart failure (HF) patients, but current treatment options demonstrate substantial limitations. Recent evidence from TRPV4 in the rodent lungs suggests that PVP-induced edema is driven by activation of pulmonary capillary endothelial transient receptor potential vanilloid 4 (TRPV4) channels. To examine the therapeutic potential of this mechanism, we evaluated TRPV4 expression in human congestive HF lungs and developed small-molecule TRPV4 channel blockers for testing in animal models of HF. TRPV4 immunolabeling of human lung sections demonstrated expression of pulmonary vasculature that was enhanced in sections from HF patients compared to controls.
GSK2193874 was identified as a selective, orally active TRPV4 blocker that inhibits Ca\(^{2+}\) influx through recombinant TRPV4 channels and native endothelial TRPV4 currents. In isolated rodent and canine lungs, TRPV4 blockade prevented the increased vascular permeability and resultant pulmonary edema associated with elevated PVP. Furthermore, in both acute and chronic HF models, GSK2193874 pretreatment inhibited the formation of pulmonary edema and enhanced arterial oxygenation. Finally, GSK2193874 treatment resolved pulmonary edema already established by myocardial infarction in mice. These findings identify a crucial role for TRPV4 in the formation of HF-induced pulmonary edema and suggest that TRPV4 blockade is a potential therapeutic strategy for HF patients.
Expression profiling during mammary epithelial cell three-dimensional morphogenesis identifies PTPRO as a novel regulator of morphogenesis and ErbB2-mediated transformation.


Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, USA.

Identification of genes that are upregulated during mammary epithelial cell morphogenesis may reveal novel regulators of tumorigenesis. We have demonstrated that gene expression programs in mammary epithelial cells grown in monolayer cultures differ significantly from those in three-dimensional (3D) cultures. We identify a protein tyrosine phosphate, PTPRO, that was upregulated in mature MCF-10A mammary epithelial 3D structures but had low to undetectable levels in monolayer cultures.
Downregulation of PTPRO by RNA interference inhibited proliferation arrest during morphogenesis. Low levels of PTPRO expression correlated with reduced survival for breast cancer patients, suggesting a tumor suppressor function. Furthermore, we showed that the receptor tyrosine kinase ErbB2/HER2 is a direct substrate of PTPRO and that loss of PTPRO increased ErbB2-induced cell proliferation and transformation, together with tyrosine phosphorylation of ErbB2. Moreover, in patients with ErbB2-positive breast tumors, low PTPRO expression correlated with poor clinical prognosis compared to ErbB2-positive patients with high levels of PTPRO.
Thus, PTPRO is a novel regulator of ErbB2 signaling, a potential tumor suppressor, and a novel prognostic marker for patients with ErbB2-positive breast cancers. We have identified the protein tyrosine phosphatase PTPRO as a regulator of three-dimensional epithelial morphogenesis of mammary epithelial cells and as a regulator of ErbB2-mediated transformation. In addition, we demonstrated that ErbB2 is a direct substrate of PTPRO and that decreased expression of PTPRO predicts poor prognosis for ErbB2-positive breast cancer patients. Thus, our results identify PTPRO as a novel regulator of mammary epithelial transformation, a potential tumor suppressor, and a predictive biomarker for breast cancer.
Timing of surgery for prenatally diagnosed asymptomatic choledochal cysts: a prospective randomized study
Mei Diao, Long Li, Wei Cheng

Department of Pediatric Surgery, Capital Institute of Pediatrics, Beijing 100020, PR China
Department of Paediatric Surgery, Monash Children's, Southern Health, Department of Paediatrics and Department of Surgery, Faculty of Medicine, Nursing and Health Sciences, Monash University, Clayton, Victoria 3168, Australia

Background/Purpose: Choledochal cysts (CDCs) are increasingly being diagnosed antenatally. The timing of surgery in this group of patients is unclear. We undertook a prospective randomized trial to establish the optimal timing of surgery for prenatally diagnosed asymptomatic CDCs.

Methods: Between 2003 and 2011, 68 fetuses with ultrasound-detected subhepatic cysts (ie, potential CDC) were randomized into 2 groups: (1) early (≤1 month) operation group (n = 34) and (2) late (N1 month) operation group (LO; n = 34). Operative time, postoperative hospital stay, drainage duration, postoperative complications, and perioperative ultrasonographic and laboratory results were analyzed.
Results: During the first month of life, 32 infants became symptomatic (eg, became jaundiced) and were excluded from the trial. This left 36 neonates who were asymptomatic (early operation, n = 16; LO, n = 20) and constituted the study group. It is noteworthy that a further 9 infants in the LO group then became symptomatic after 1 month of age. Grades III and IV hepatic fibroses were significantly more common in the LO group and in patients who were diagnosed during early pregnancy. Interestingly, liver functions in patients diagnosed at early fetal stage were only moderately deranged. Median follow-up period was 36 months. Neither mortality nor complications of bile leak or anastomotic stricture were encountered. However, complete liver function normalization was significantly delayed in the LO group and in patients with high-grade hepatic fibrosis.

Conclusion: Prenatally diagnosed CDC is a distinct group with a tendency of developing liver fibrosis immediately after birth. Early surgical intervention is warranted in the neonatal period.
Good Luck!