

PROGRAM ABSTRACTS

Regis University Celebration of Research, Scholarship and Creative Excellence

Peter Claver Hall Mountain View Room and Classrooms

April 16, 2014

10:00 am – 6:30 pm

Poster and Platform Sessions

Regis University Celebration of Research, Scholarship, and Creative Excellence

April 16, 2013; 10:00 am – 6:30 pm

Peter Claver Hall

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Regis University Celebration of Research, Scholarship, and Creative Excellence

April 16, 2014; 10:00 am – 6:30 pm

Peter Claver Hall

POSTER SESSION (Peter Claver Hall Mountain View Room)

- 10:00 am – 3:30 pm Poster Viewing (Presenters not present at poster)
3:30 pm – 5:00 pm Poster Presentations during Celebration Reception

KEYNOTE ADDRESS (Peter Claver Hall Room 315)

10:00 – 11:00 am



Catherine Kleier, PhD; Fulbright Scholar, Associate Professor and Chair,
Department of Biology

What Research Can Do For You, Yes You.

Streamed Live Via: <http://videos.regis.edu/live>

11:00 – 11:15 pm Break and Poster Viewing in Mountain View Room (Coffee, tea, water, and cookies provided)

PLATFORM SESSIONS (Peter Claver Hall Classrooms)

11:15 am – 12:30 pm Session 1; Room PCH306 (Student Session); Session Chair: Karen Smith, URSC Representative

Hannah Breece*: An Everyday Kind of Beautiful: Original Art and Children's Literature Toward the Development of the Moral Imagination

Andy Horner*: Relapse, Pterror, and Venom

Gina Nordini*: The Third Wheel: Role of the Third-Person Narrator in Ian McEwan's On Chesil Beach

David McIntyre*: "Finding Excalibur"; "Dracula and the Otherizing Dream Plague"

Jacob Garcia*: Environmentally Green Reductive Detoxification of 2, 4, 6-Trinitrotoluene (TNT) by Green Tea Iron Nanoparticles

12:30 – 12:45 pm Break and Poster Viewing in Mountain View Room

12:45 – 1:45 pm Session 2; Room PCH306; Session Chair: Luka Powanga, URSC Representative

Shu-Yi Wang, PhD, RN, CNS, et al.; Associate Professor, Nursing
Relationship of Cytokines to Symptom Distress and Symptom Clusters among Non-small Cell Lung Cancer Patients Receiving Gefitinib Treatment: A Pilot Study

Miki Goldwire, PharmD, PhD, et al.; Assistant Professor, Pharmacy
Interprofessional Spiritual Care Elective: A Pilot Experience

Christine Finn, PhD, RN, FNP, FNE, et al.; Associate Professor, Nursing
The Sky's The Limit: Reaching New Heights Through Interprofessional Learning Working With Community Partnerships

Lynn Wimett, EdD, APRN-C, et al.; Professor, Nursing
The Driving Culture Change Through Digital Storytelling

1:45 – 2:00 pm

Break and Poster Viewing in Mountain View Room (Coffee, tea, water, and brownies provided)

2:00 – 3:30 pm

Concurrent Sessions

Session 3; Room PCH306; Session Chair: Obdulia Castro, URSC Representative

Loretta Notareschi, PhD*; Associate Professor, Fine and Performing Arts

Balance and Swing: A Contradance Fantasy for Orchestra

Anthony Ortega, MFA*; Associate Professor, Fine and Performing Arts

Chicano Hybrid Prints

Quyen N. Hart, PhD*; Assistant Professor, Physics and Computational Science (needs after 2:30)

Heating from Within - Active Supermassive Black Holes in Clusters of Galaxies

Erika Nelson-Wong, PT, DPT, PhD*, et al.; Associate Professor, Physical Therapy

Lumbopelvic Control During Frontal Plane Motion And Hip Muscle Activation In Low Back Pain Cases Versus Controls

Alice Davis, PT, DPT; Assistant Professor, Physical Therapy

Is The Active Hip Abduction Test A Valid Assessment Tool For Lumbopelvic Control In Pregnant Women?

Dan Berlau, PhD; Assistant Professor, School of Pharmacy

Predicting Alzheimer's Disease with a Blood Test

Session 4; Room PCH303; Session Chair: Kelli Woodrow, URSC Representative

Robert Collins, PhD; Professor, School of Humanities and Social Sciences

Do Graduate Students Who Set Formal Goals Really Graduate at Higher Rates?

Kenneth Friedman, PhD; Affiliate Faculty, School of Humanities and Social Sciences

On The Rights Of Corporations

Luka Powanga, PhD; Professor, School of Management

Is Africa's Economic Boom Sustainable?

Kristine M. Brands, PhD; Assistant Professor, School of Management

Process Consulting Using Force Field Analysis: A South African Case Study

Robert Collins, PhD; Professor, School of Humanities and Social Sciences

Capstone Options and Graduation Rates: A Case Study

3:30 – 5:00 pm

Poster Presentations and Celebration Reception; Peter Claver Hall Mountain View Room

(Wine, non-alcoholic beverages, and light hors d'oeuvres provided)

Father John Fitzgibbons, SJ; President, Regis University

Welcome

Pat Ladewig, PhD; Provost, Regis University

The Culture of Research and Scholarship at Regis University

Don Bridger; Director, Office of Academic Grants

Faculty Award Presentations

*URSC Grant Recipients

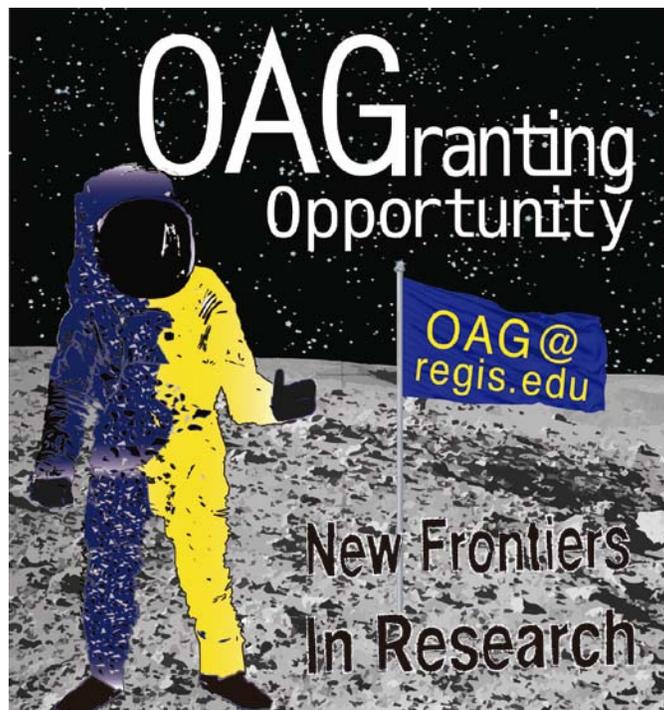
Please Also Attend These Additional Scholarly and Creative Events on Campus!

4:30 – 6:30 pm

Neuroscience and Psychology Undergraduate Research Methods Poster Session
SCI 114 and Lower Hallway of Pomponio Science Building

7:30pm

Regis University Music Program Concert Series: Guitar Ensemble & Soloists
James Cline, Director
Peter Claver Recital Hall
Free and Open to the Public!



KEYNOTE ADDRESS

Catherine Kleier, PhD

Fulbright Scholar, Associate Professor and Chair, Department of Biology



“What Research Can Do For You, Yes You”

Peter Claver Hall Room 315

10:00 – 11:00 am

Streamed Live Via: <http://videos.regis.edu/live>

Dr. Catherine Kleier, associate professor of biology in Regis College, is taking her study of alpine plants to new heights. Kleier was accepted into the core Fulbright Scholar Program, a prestigious opportunity to conduct research abroad. Kleier will study species of alpine cushion plants found only in New Zealand and teach global plant conservation at the University of Otago in Dunedin. Her studies, which began in January 2013, focus on how the plants are adapting to climate changes and elevation.

“The evolutionary relations between plants are fascinating. We absolutely need plants, and the studies of them can be applied to everyday life,” Kleier said.

Kleier credits the values-centered culture at Regis as the reason for her enriched love of the sciences – ecology in particular.

“The development of the whole person has resonated with me during my Fulbright preparation and confirms my commitment to make an impact on the students in the classroom,” she said.

Students in Kleier’s courses are applying their learned skills through grant writing and environmental assessments, which evaluate the positive or negative impact a proposed project has on the environment.

Kleier’s passion lies in the collegiality of Regis – how everyone treats each other, how faculty and staff respect the students and how the students respect the faculty and staff. Kleier believes that through Regis’ Jesuit education and values, she’s not just teaching students about ecology, she’s teaching students how to live purposeful lives.

PLATFORM SESSION ABSTRACTS

SESSION 1

11:15 am – 12:30 pm, Room PCH306

Hannah Breece*: An Everyday Kind of Beautiful: Original Art and Children's Literature Toward the Development of the Moral Imagination

Student, Department of English, Regis College

**URSC Student Research and Scholarship Grant Recipient*

Nineteenth-century philosopher Leo Tolstoy believed that art was an infectious way of communicating an idea or feeling from the artist to the viewer. Maxine Greene, a modern educational theorist, sees the arts as a necessary component of education that stirs the imagination in a way that impacts moral development. Educational philosopher John Dewey also saw art and aesthetic appreciation as a humanizing experience. Like these three, I believe that art and philosophy play a very important role in our education--both formal and life-long.

My project seeks to make art and literature a catalyst in our understanding of our lives and of the human experience. I am designing each artwork to illustrate common experiences with the hopes of sparking memories and ideas in the viewer, communicating a message—in this series, a message about how we appreciate beauty in the world around us as framed by Diotima in Plato's *Symposium*—and encouraging the viewer to contemplate that message in life outside of the gallery. While each piece will be reproduced in my original children's book—which will be published in mid-spring 2014—the senior art thesis show, my Honors thesis defense, and a post-graduation state-wide book tour will be other ways in which I visually share these philosophical ideas, as well as the scholarly research about childhood development and the moral imagination that accompany it.

Andy Horner*: "Relapse," "Pterror," and "Venom"

Student, Department of English, Regis College

**URSC Student Travel Grant Recipient: 2014 National Undergraduate Literature Conference*

Gina Nordini*: The Third Wheel: Role of the Third-Person Narrator in Ian McEwan's *On Chesil Beach*

Student, Department of English, Regis College

**URSC Student Travel Grant Recipient: 2014 National Undergraduate Literature Conference*

This essay explores the narrative structure within the 2007 novel *On Chesil Beach* by British author Ian McEwan. The novel focuses on two characters—Edward and Florence—from an unidentified omniscient third-person perspective. Momentary lapses beyond the perspectives of the two characters nuances the understanding of motivations and decisions throughout the course of the novel. Consideration is given to other scholarly research on narrative structure: W.B. Hutchings' essay "How Pleasant to Meet Mr. Fielding: The Narrator as Hero in *Tom Jones*" and James Phelan's "Cognitive Narratology, Rhetorical Narratology, and Interpretive Disagreement: A Response to Alan Palmer's Analysis of Enduring Love." The omniscient narrator ultimately exposes heavy consequences for McEwan's characters, who are limited by their own perceptions.

David McIntyre*: "Finding Excalibur"; "Dracula and the Otherizing Dream Plague"

Student, Department of English, Regis College

**URSC Student Travel Grant Recipient: 2014 National Undergraduate Literature Conference*

A boy's journey into manhood ends with a brush with death, an ancient ritual, and a prophecy centuries old. "Finding Excalibur" merges the ideals of traditionalistic fatalism and a contemporary understanding of manifestations of death and paranoia. Through this short work, I explore the meaning behind the existential phenomena of daily life.

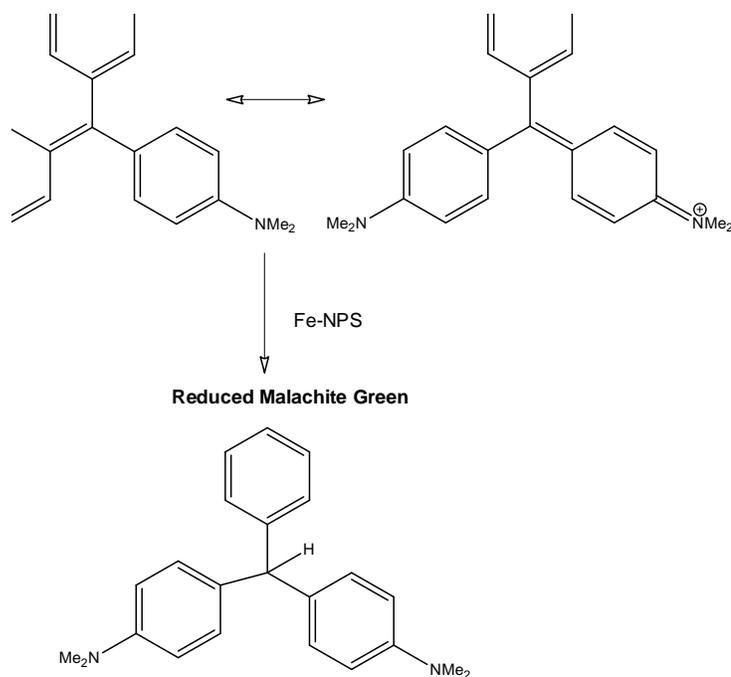
Jacob Garcia*, and Surendra N. Mahapatro: Environmentally Green Reductive Detoxification of 2, 4, 6-Trinitrotoluene (TNT) by Green Tea Iron Nanoparticles

Student, Department of Chemistry, Regis College

*URSC Student Travel Grant Recipient: 2014 American Chemical Society National Conference

The oxidative detoxification of 2, 4, 6-trinitrotoluene (TNT) has been an extraordinary challenge since its large scale use during the Second World War. Oxidation of TNT requires brutal conditions such as dichromate and concentrated sulfuric acid and days of reaction time. TNT contamination in soil and in water is more severe in military bases, explosive manufacturing plants and ammunition facilities. An attractive alternative approach employs a reductive strategy involving electrochemical reduction of the nitro groups to amines (Wang et al. *Electroanalysis*, **2011**, 23, 1193-1204). The fully reduced product (2, 4, 6-triaminotoluene) can then be easily functionalized to phenols using century-old diazonium ion chemistry (Sandmeyer reaction). We recently presented our preliminary results on the reductive detoxification of TNT using *nano*-iron particles (Fe-NPs) (247th National ACS meeting, March 16-20, 2014, Abstract No 350). The *nano*-iron particles were generated *in-situ* by the reduction of ferrous ammonium sulfate (complexed with citrate) by sodium borohydride (Ranu et al; *Chemical Communications*, **2012**, DOI: 10.1039/c2cc3099h; first published on the WEB on 10 April 2012, Royal Society of Chemistry). Using stoichiometric conditions of reactants (1mmol nitro compound: 3mmol *nano*-iron particles), the reduction was first done using 2, 4-dinitrotoluene (DNT), purified by silica chromatography (hexane –ethyl acetate; 2:1) and analyzed by 400 MHz ¹H-NMR. The integrated NMR spectra was used to estimate the observed *ortho/para* ratio. Interestingly, the reduction at the *para*-position was preferred to the reduction of the *ortho*-nitro group (*para:ortho* = 60:40). This result conflicts with the electrochemical measurements where there was remarkable selectivity (100%) for the reduction of the *ortho*-nitro group. With a 10-fold excess of Fe-NPs to TNT, complete reduction to 2, 4, 6-triaminotoluene was achieved.

It is worth noting that the preparation of Fe-NPs using the NaBH₄ protocol was straightforward. The particles settled to the bottom of the reaction flask simply by introducing an external magnet. The *nanoparticles* could be washed with water and collected. In the green-tea (G.T.) protocol, the particles remain dispersed in the aqueous medium and did not show any visible settling even in the presence of a small external magnet. The *nanoparticles* could be isolated only after boiling off the water. Published literature using green-tea extract mention capping of *nano*-iron particles by the polyphenols, but the physical and chemical nature of the capping remains to be examined. G.T. Fe-NPs reduced the dye Malachite Green in the oxidized form (green; λ_{max} at 620 nm) to the colorless *leuco* form as reported in earlier literature. In preliminary experiments involving GT Fe-NPs, *p*-nitrotoluene was reduced to *p*-toluidine. We are currently extending the studies to the reduction of TNT.



SESSION 2

12:45 pm – 1:45 pm, Room PCH306

Shu-Yi Wang, PhD, RN, CNS; Chun-Ming Tsai, MD[†]; and Chia-Chin Lin, PhD, RN[‡]. Relationship of Cytokines to Symptom Distress and Symptom Clusters among Non-small Cell Lung Cancer Patients Receiving Gefitinib Treatment: A Pilot Study

Associate Professor, Loretto Heights School of Nursing, Rueckert-Hartman College for Health Professions

[†]*Chest Department, Taipei Veterans General Hospital and School of Medicine, National Yang-Ming University, Taipei, Taiwan*

[‡]*School of Nursing, College of Nursing, Taipei Medical University, Taipei, Taiwan*

Background/Introduction: Several cytokines involved in the development of sickness behaviors are considered related to the development of cancer symptoms. However, the mechanism of cytokines' involvement in symptom relief with gefitinib treatment remains unknown. **Purpose:** This study analyzed relationships between single symptoms/symptom clusters and cytokines in patients with advanced non-small cell lung cancer (NSCLC) at pretreatment and 1, 3, and 6 months after gefitinib treatment. **Methods:** Fifty-seven patients with NSCLC were recruited via convenience sampling from a group of thoracic oncology patients in Northern Taiwan. Research measures included the use of the MD Anderson Symptom Inventory-Taiwan form and enzyme-linked immunosorbent assays. Statistical analyses included descriptive statistics and generalized estimating equation analysis. **Results:** Positive relationships between interleukin (IL)-2 and nausea ($p=0.004$), distress ($p=0.012$), drowsiness ($p=0.009$), lack of appetite ($p=0.010$), the sum of symptom severity ($p=0.004$), and a gastrointestinal symptom cluster ($p=0.004$) were observed. Positive relationships between IL-6 and sadness ($p=0.020$), lack of appetite ($p=0.012$), and pain ($p=0.014$) and a negative relationship between IL-6 and difficulty remembering ($p=-0.013$) were also observed. Positive relationships between IL-10 and fatigue ($p=0.005$), lack of appetite ($p=0.007$), drowsiness ($p=0.006$), sadness ($p=0.014$), the sum of symptom severity ($p=0.003$), and a general symptom cluster ($p=0.004$). **Conclusion/Implications for Practice:** These results may provide a basis for understanding possible mechanisms of symptom distress in patients with NSCLC, this may possibly lead to the identification of a target for effective symptom management, i.e., focusing on the inflammation pathway for the treatment of detrimental effects of cytokine-induced inflammatory responses.

Miki Goldwire, PharmD, PhD; Karen Pennington, PhD, RN[†]; Judy Crewell, PhD, RN, CNE[†]; Alice Davis, PT, DPT[‡]; Maureen McGuire, PhD, RN[†]; Daniel Roysden, PhD[#]. Interprofessional Spiritual Care Elective: A Pilot Experience

Assistant Professor, School of Pharmacy, Rueckert-Hartman College for Health Professions

[†]*Associate Professor, School of Nursing, Rueckert-Hartman College for Health Professions*

[‡]*Assistant Professor, School of Physical Therapy, Rueckert-Hartman College for Health Professions*

[#]*Faculty, School of Health Sciences, Walden University*

Objectives: To describe student perceptions of an interprofessional spiritual elective that was developed to deliver a foundation for spiritual care with emphasis on answering, "What do I say?" to patients. **Method:** The importance of religion and spirituality with health is well recognized. The Joint Commission requires assessment of patients' spiritual needs. However, pharmacists are often not aware of such needs. Faculty from Health Care Administration, Nursing, Physical Therapy, Pharmacy, and Ethics met to design a 3-hour elective course. The blended course was divided into two parts, theory (classroom based) and field experience with a hospital-based spiritual care provider. Specific activities included exploring personal feelings and assumptions about spirituality and religion, examining roles of spiritual care team members, observing and participating in a field experience, and presenting a verbatim of one patient encounter. The 16-week course consisted of a weekly online discussion posts and exercises as well as four 4-hour classroom sessions held on Saturday. **Results:** The pilot class, held spring 2012, included one nursing student and six third-year pharmacy students. All agreed or strongly agreed that the course was intellectually challenging and stimulating and rated the course as good to very good. Students regarded classroomsessions and discussions the highest. Students stated their field experience helped to personalize pharmacotherapy topics taught and provided tools necessary to be more aware and comfortable with the role of spirituality in health care. **Implications:** Although the class size was small, the course helped to shed light on the importance of spiritual care for pharmacy students and future pharmacists.

Christine Finn, PhD, RN, FNP, FNE; Mary Jo Coast, PhD, RN[†]; Lynn Wimett, EdD, APRN-C[‡]. The Sky's The Limit: Reaching New Heights Through Interprofessional Learning Working With Community Partnerships

Associate Professor, Loretto Heights School of Nursing, Rueckert-Hartman College for Health Professions

[†]*Associate Professor, Loretto Heights School of Nursing, Rueckert-Hartman College for Health Professions*

[‡]*Professor, Loretto Heights School of Nursing, Rueckert-Hartman College for Health Professions*

Interprofessional learning is a key component for preparing the future APRN with the knowledge, skills, and, attitude required for collaborative practice that integrates all members of the health care team. Wrap-around care that envisions state of the art health care for the individual, family, and community demands clear understanding of the expertise provided by multiple disciplines. Health care education has traditionally used telling rather than experiential strategies for exploring interprofessional collaboration, shared decision making, and vision. When students of many disciplines work together, they are socialized into a practice of collaboration. Community partnerships with health care providers deepen student understanding of collaborative practice. These two concepts (community action and interprofessional collaboration) connect at the level of shared decision making and shared vision of health.

Proposal

Regis University, a Jesuit school, historically utilizes Ignatian teaching principles of service, experiential learning, and reflection. The Ignatian tradition pivots upon community partnership, which provided our students with a unique opportunity to work in a milieu of interprofessional and community collaboration. This arm chair discussion shares the why, the how and the future for building community partnerships that have the potential to provide service to the community affording relevance to interprofessional experiential learning and practice.

Dialogue Questions

1. How do you prepare the APRN of the future?
2. What are the learning-teaching advantages of community partnership?
3. How do you build effective partnerships that have potential benefit for the community and student learning?

The Regis Experience

Objectives

1. Analyze experiential interprofessional learning modalities to prepare the future advanced practice nurse to practice as a collaborator and leader in the health care team.
2. Synthesize teaching modalities, community partnership, and interprofessional collaboration to achieve integrated community, family, and individual centered participatory health care.

Content Outline

- I. Transitions to Care
 - a. Description
 - b. Achievement and sustainability
- II. Experiential-interprofessional learning through community partnership
 - a. Community partnership
 - b. Project Homeless Connect: A community partnership to end homelessness
- III. Learning/community Outcomes
 - a. Community and student reflections
 - b. Teaching strategy relationship

Lynn Wimett, EdD, APRN-C; Phyllis Graham-Dickerson, PhD, RN, CNS[†]; Cheryl Kruschke, EdD[‡]. The Driving Culture Change Through Digital Storytelling

Professor, Loretto Heights School of Nursing, Rueckert-Hartman College for Health Professions

[†]*Assistant Dean, Professor, Loretto Heights School of Nursing, Rueckert-Hartman College for Health Professions*

[‡]*Associate Professor, Loretto Heights School of Nursing, Rueckert-Hartman College for Health Professions*

Background

The Colorado Culture Change Coalition is seeking to transform the culture throughout the long-term care (LTC) continuum by affirming the dignity and value of each individual who lives and works in these settings (www.coculturechange.org). Digital story telling (DST) has a strong impact upon its audiences. It leaves a powerful everlasting memory that words cannot elaborate or describe (Hamilton & Atkinson, 2009; Tucker, 2006).

Purpose

The purposes of this study were twofold. The first was to describe the experience of writing digital stores that documented the lives of residents living in LTC homes. The second part was to measure if viewing these digital stories would help communicate what culture change is and why it is needed.

Study Design

Interviews with residents and staff that participated in a DST workshop to develop DS that documented their lives and affirmed their dignity were held to explore themes from the lived experience. Staff members were interviewed to gain their perspective of helping residents write their stories. The second phase of the study was a survey conducted after participants watched 20 resident digital stories to measure the impact of the stories.

Sample and Methods

The Colorado Culture Change Coalition identified 10 staff members from 6 nursing homes who participated in a digital story telling educational experience. All of the participants were invited to share their experiences with the researchers at the completion of the education sessions. These participants identified 10 residents who developed their own digital stories. Three residents and nine staff members agreed to be interviewed and taped. The audio tapes were transcribed and analyzed using the constant comparative analysis methodology. The participants for the second phase of the study were recruited from those who attended the *Pearls of Wisdom: Stories of Transformation* Program. They watched 20 three minute digital stores and then completed a survey to share their perceptions of the influence of the digital stories.

Findings

Seven themes emerged from the qualitative data analysis including:

1. Participation in the process found DST was exhausting/enjoyable/fulfilling;
2. Staff jobs are important—staff realizing for themselves the importance of the care they provided to residents
3. Respect—gaining respect and insight into residents personal lives and experience
4. Caring—staff understanding the role of sharing with caring
5. Empowering to let someone tell their story and record it.
6. Freedom to share stories with others
7. Support and teamwork

The survey results strongly suggested that Digital Story Telling can positively influence views of nursing homes and care delivery as well as why culture change is needed.

Conclusions

Writing digital stories can be empowering and demonstrate caring. Watching the residents' stories can have a positive impact on communicating what culture change is and why it is needed.

Implications

The use of Digital Story Telling as a method to transform perceptions and drive culture change should continue to be explored.

SESSION 3

2:00 pm – 3:30 pm, Room PCH306

Loretta Notareschi, PhD*. Balance and Swing: A Contradance Fantasy for Orchestra

Associate Professor, Regis College Department of Fine and Performing Arts

**URSC Faculty Research and Scholarship Grant Recipient*

When Boulder Symphony Music Director Devin Patrick Hughes and I first began talking about a new piece for the 2013-2014 season, the tentative theme for the season was drama and dance. My love for contra dance, a traditional American form with intricate figures similar to those of square dance, but danced in lines, immediately sprung to mind. Although the season's theme eventually changed, I remained inspired by the sound and feeling of contra dance. Funded by a grant from Regis University, I immersed myself in the world of contra dance, attending dances and jam sessions sponsored by the Colorado Friends of Old Time Music and Dance, and taking fiddle lessons from fiddler extraordinaire Debbie Carstensen. In learning the fiddle, I encountered two charming traditional tunes, the reel "Allie Crocker" and the slip jig "Another Jig Will Do," and I composed my own jig, which I named "Ruby's Jig" after my newborn daughter, Ruby Helene. These tunes found their way into the piece, which turned out to be less a representation of a realistic contra dance and more a fantasy informed by the spirit of the tunes, the sound of contra dance bands, and the excitement of the caller and dancers as they move through the fast-paced figures of a traditional contra dance. A rough program for the piece emerged as I wrote it, centering around the rather whimsical notion of jigs dancing with reels.

Anthony Ortega, MFA*. Chicano Hybrid Prints

Associate Professor, Regis College Department of Fine and Performing Arts

**URSC Faculty Research and Scholarship Grant Recipient*

I am requesting financial support from the University Research and Scholarship Council for the purchase of art materials and to cover travel expenses to create a new series of hybrid prints. I, once again have been invited to create a new series of prints at Ventero Open Press in San Luis, Colorado this coming summer. This new artwork will be a series of hybrid prints that combine a variety of printmaking techniques which expresses a correlation between Chicanismo and popular culture. I will complete this project in three steps: 1) create a series of drawings (studies) based on the mixing of Chicano and American popular images; 2) create a series of eight to twelve hybrid prints that incorporate the printmaking techniques of lithography, solar etching and monotypes; 3) frame hybrid prints for upcoming exhibitions at two local gallery spaces to this fall. The first exhibition is the faculty exhibition at the O'Sullivan Gallery, Regis University Denver, CO and the second exhibit is a group exhibition that will be at the Chicano Humanities and Arts Council, Denver, CO. This research project will allow me to develop new ideas and new methods of expression. Funding is necessary for travel expenses and materials used in the production of prints including: paper, ink, litho and or etching plates and presentation materials.

Quyen N. Hart, PhD*. Heating from Within - Active Supermassive Black Holes in Clusters of Galaxies

Assistant Professor, Regis College Department of Physics and Computational Science

**URSC Faculty Research and Scholarship Grant Recipient*

Clusters of galaxies are the largest collections of matter in the universe. These large structures are, in many ways, self-contained systems, so that any activity within the cluster is confined to its gravitational boundaries. Thus, clusters are ideal locations to study the interactions between the cluster environment and the galaxies themselves. However, these feedback mechanisms can alter the large-scale cluster properties, which are used to map out the mass distribution in the universe across cosmic time and to study dark energy, the mysterious accelerant of the expanding universe.

Cluster masses are inferred from observations of the pervasive X-ray-emitting cluster gas. This gas is predicted to have a very unique temperature gradient going from the center of the cluster outwards. However, those profiles do not match the theoretical expectations based on gravity alone and current observational evidence has identified energetic outbursts of super-massive black holes at the centers of galaxies as one of the major heating mechanisms. Due to the importance of clusters of galaxies in understanding how the universe has unfolded, any alteration of the large-scale cluster properties needs to be identified and quantified. This proposal will investigate the impact of a distributed population of energetic cluster galaxies on the temperature profiles of the large-scale cluster environments.

Erika Nelson-Wong, PT, DPT, PhD*; Greg Bourgeois^{†**}, Chris DeGrandis^{†**}, Nathan Hamilton^{†**}, Ian Kirven[†], Kassidy Pieratt^{†**}, Wesley Thornton^{†**}. Lumbopelvic Control During Frontal Plane Motion And Hip Muscle Activation In Low Back Pain Cases Versus Controls

Associate Professor, School of Physical Therapy, Rueckert-Hartman College for Health Professions

[†]*Student, School of Physical Therapy, Rueckert-Hartman College for Health Professions*

**URSC Faculty Research and Scholarship Grant Recipient*

*** URSC Student Research and Scholarship Grant Recipient*

Low back pain (LBP) is the most common musculoskeletal problem experienced by Americans with 27.8% of all people over the age of 18 reporting LBP each year. LBP accounts for 1 in 25 health care resource visits resulting in an annual cost of \$193.9 billion. Up to 85% of all LBP cannot be linked to obvious tissue damage with current imaging techniques and is commonly referred to as 'non-specific LBP'. LBP is not well managed currently, despite the amount of resources that are spent on it, as evidenced by high recurrence rates of up to 60% Deficits in trunk and pelvis (lumbopelvic) control during movement have been well documented in the sagittal plane in people with LBP. Frontal plane deficits have also been shown to be an important factor in assessment of individuals with LBP. It has been demonstrated that individuals with atypical movement patterns during frontal plane clinical assessment tests can improve with a trunk/hip based exercise intervention. Both sagittal and frontal plane clinical tests rely on examiner observation of the patient's motion, and do not provide information about underlying muscle activation strategies that may result in aberrant lumbopelvic control, making it difficult to target specific interventions. The primary purpose of the current work is to link muscle activation strategies to performance on multi-planar lumbopelvic clinical motion tests in individuals with a recent history of LBP and healthy control subjects. A secondary aim is to investigate response to trunk/hip based exercise interventions in these subjects.

Alice Davis, PT, DPT; Andrea Brodie*; Melissa Burgemeister*; Melanie Conley*; Erin Griener*; Jillian Hargrove*; Katie Kernan*; Erika Nelson-Wong PT, DPT, PhD**. Is The Active Hip Abduction Test A Valid Assessment Tool For Lumbopelvic Control In Pregnant Women?

Assistant Professor, School of Physical Therapy, Rueckert-Hartman College for Health Professions

** URSC Student Research and Scholarship Grant Recipient*

***Associate Professor, School of Physical Therapy, Rueckert-Hartman College for Health Professions*

Purpose: Forty-five to 72% of women report low back pain (LBP) and/or pelvic girdle pain (PGP) during pregnancy, increasing to 85 to 94% with subsequent pregnancies. Developing a quick screening process for healthcare providers working with pregnant women may be useful in identification and management to identify and manage women who are "at risk" for LBP or increased disability during pregnancy. The Active Hip Abduction (AHAbd) test has been shown to have utility (Sn = .73 - .85) as a clinical assessment tool in patients with LBP, but has not been tested in pregnant women. The purpose of this preliminary study was to determine whether the AHAbd Test could discriminate between pregnant women with and without LBP.

Number of Subjects: N=38; n=20 with LBP, n=18 without LBP

Methods: Healthy, singleton pregnant women (28.9 ± 5.69 yrs), less than 37weeks gestation with no prior history of non-pregnancy related LBP were recruited for this study. Subjects were videotaped as they performed the AHAbd test which entailed hip abduction in sidelying while attempting to maintain neutral frontal plane alignment. Tests were scored by 2 trained examiners on a scale of 0-3 (0=no loss of control, 3=severe loss of control). A score of ≥ 2 on either side was considered a positive test. Contingency tables were used to calculate sensitivity (Sn), Specificity (Sp), Likelihood (+LR, -LR) and Odds Ratios (OR) for presence/absence of LBP.

Results: Predictive statistics with 95% confidence intervals were: Sn = 1.0 (.84, 1.0), Sp = 0.17 (.06, .39), +LR = 1.2 (.98, 1.5). -LR and Odds Ratios were unable to be calculated due to the absence of false (-) tests in this sample.

Conclusion: The AHAbd test cannot adequately discriminate presence or absence of LBP in subjects who are pregnant. However, 100% of subjects with LBP and 83% without LBP had poor frontal plane control as assessed by this test. In previous studies, 18% of asymptomatic, non-pregnant subjects had (+) scores on the AHAbd test. Of these, 75% went on to develop LBP during a functional task, indicating frontal control deficits may be a risk factor for LBP development. During pregnancy, decreased lumbopelvic control may be heightened due to normal pregnancy related changes in hormonal and musculoskeletal systems leading to increased risk of LBP.

Clinical Relevance: The results from this study revealed pregnant women demonstrate poor frontal plane control. Screening to identify lumbopelvic control deficits may be important as preventative measures, targeted towards specific control deficits, could be initiated early and potentially mitigate this LBP risk factor as pregnancy advances.

Dan Berlau, PhD. Predicting Alzheimer's Disease with a Blood Test

Assistant Professor, School of Pharmacy, Rueckert-Hartman College for Health Professions

Alzheimer's disease causes a progressive dementia that currently affects over 35 million individuals worldwide and is expected to affect 115 million by 2050. There are no cures or disease-modifying therapies, and this may be due to our inability to detect the disease before it has progressed to produce evident memory loss and functional decline. Biomarkers of preclinical disease will be critical to the development of disease-modifying or even preventative therapies. Unfortunately, current biomarkers for early disease, including cerebrospinal fluid tau and amyloid-beta levels, structural and functional magnetic resonance imaging and the recent use of brain amyloid imaging or inflammaging, are limited because they are either invasive, time-consuming or expensive. Blood-based biomarkers may be a more attractive option, but none can currently detect preclinical Alzheimer's disease with the required sensitivity and specificity. Herein, we describe our lipidomic approach to detecting preclinical Alzheimer's disease in a group of cognitively normal older adults. We discovered and validated a set of ten lipids from peripheral blood that predicted phenocconversion to either amnesic mild cognitive impairment or Alzheimer's disease within a 2–3 year timeframe with over 90% accuracy. This biomarker panel, reflecting cell membrane integrity, may be sensitive to early neurodegeneration of preclinical Alzheimer's disease.

SESSION 4

2:00 pm – 3:30 pm, Room PCH303

Robert Collins, PhD; Jill Coddington, PhD[†]; Dorothy Williams, PhD[‡]. Do Graduate Students Who Set Formal Goals Really Graduate at Higher Rates?

Professor, School of Humanities and Social Science, College for Professional Studies

[†]*Professor, School of Computer and Information Sciences, College for Professional Studies*

[‡]*Professor, School of Management, College for Professional Studies*

This chapter examines the impact of formal goal setting activities of adult non-traditional graduate students on their persistence to complete a master's degree. The researchers hypothesized that students in programs that incorporated formal goal setting and monitoring procedures would graduate at higher rates than students in comparable programs that did not incorporate such features. With IRB approval data were acquired from university records of students in eight graduate programs. No students were identified in the data. The data were analyzed using statistical methods to test the significance of findings. The preliminary findings did not support the hypothesis. The researchers subsequently determined that the data used in the initial study did not appropriately represent the programs given a relatively short timeline used for the preliminary study. Therefore, additional longitudinal data were added to the original data and further analysis was conducted in a follow-up study. The follow-up analysis of data from the longer timeline did not support the original hypothesis. While graduation rates for all four degrees increased, the degree program that incorporated formal goal setting still did not graduate students at a higher rate than the three other degree programs. The authors recommended further specific research involving variables identified in Goal Setting Theory and from other research. In addition, the authors recommended several specific interventions that could improve graduation rates for all programs. These recommendations may be useful to consider in similar programs in other colleges or universities.

Kenneth Friedman, PhD. On The Rights Of Corporations

Affiliate Faculty, School of Humanities and Social Sciences

Rights require perceived interests. Corporations, legal constructs, have no abilities to perceive and plausibly no interests. It is difficult to make a cogent case for granting them rights. In the U.S. rights are granted to corporations as a result of a headnote to the 14th Amendment, which sought to abolish slavery. The headnote was written, not by a Justice of the Supreme Court, but by a court reporter, a retired railway president with his own agenda. Today, the most serious problems we face are exacerbated by excessive corporate power. This power has destroyed economies, instigated wars, and imperiled the environment. It may be critical to limit such power. Providing corporations with the rights of persons impedes addressing this issue.

Luka Powanga, PhD. Is Africa's Economic Boom Sustainable?

Professor, School of Management, College for Professional Studies

Currently, seven of the top ten fastest growing economies in the world come from Africa. Overall the economies in Africa are growing at over 5% annually and expected to increase to over 6% in 2014 as the minerals, oil and other natural resources continue to be discovered and developed. The annual expenditures on infrastructure have increased significantly to US\$440 billion and consumer spending is projected to be US\$1.6 trillion by 2020 putting pressure on the creaking energy infrastructure. Is this economic boom sustainable?

Kristine M. Brands, PhD. Process Consulting Using Force Field Analysis: A South African Case Study

Assistant Professor, School of Management

Corporate fraud is particularly high in South Africa and requires significant changes to corporate culture to build ethical organizations that focus on employee integrity. The purpose of this project was to work with an entrepreneur in South Africa launch a training program he developed to help address the root cause of South Africa's high employee theft issue. In the seven years since its inception, he has been unsuccessful at selling the completed product and has not generated income. This paper describes how two researchers from the United States travelled to South Africa to work with the entrepreneur using a case study method to diagnosis the issues faced by the company. Using various data collection methods including, unstructured interviews, a company Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis and a Force Field Analysis an action plan was created that that the business owner implemented.

Robert Collins, PhD; Elisa Robyn, PhD[†]. Capstone Options and Graduation Rates: A Case Study

Professor, School of Humanities and Social Science, College for Professional Studies

[†]Dean, Associate Professor, School of Humanities and Social Science, College for Professional Studies

In a time of lower enrollments in programs designed for adult learners, graduate faculty members and program administrators are looking for ways to increase graduation rates thus retain students in programs. This paper is a case study describing how the faculty of a MA degree program at Regis University discovered factors contributing to a lower than expected graduation rate and how a change in one component of the program has helped to resolve that problem. A new and unique course was developed to provide an alternative for students to complete their capstone requirement, while retaining the academic rigor and quality of the program. The course is described as well as its impact on and contribution to an increasing graduation rate for the program.

POSTER ABSTRACTS
(In alphabetical order)

Katherine Blatter*; **Erika Reay**; Rhea Neff; Trista Hetland; Ceilia Maccani; Kieran McKinnell; Freeborn Mondello; Nicole Ratterman; Julie Reagan; Timothy Terry; Anna Thompson; Anealio Westfall; Heidi Eigsti, PT, PhD[†]; Larisa Hoffman, PT, PhD[‡]. Postural Perturbation Training for Children with Down syndrome

Students, School of Physical Therapy, Rueckert-Hartman College for Health Professions

[†]*Associate Professor, School of Physical Therapy, Rueckert-Hartman College for Health Professions*

[‡]*Assistant Professor, School of Physical Therapy, Rueckert-Hartman College for Health Professions*

**URSC Student Research and Scholarship Grant Recipient*

Down Syndrome (DS) is a genetic condition associated with slower rate of development of gross motor skills and balance responses (as well as many other impaired body functions and structures). Children with DS stand and walk much later than typically developing children, and their balance responses are much slower. Balance training (through perturbations) has been associated with improvements in balance responses in other populations. We hypothesize that balance training will have a positive effect on gross motor skills and balance responses in children with DS. This study aims to determine the effectiveness of massed practice or distributed practice perturbation training in young children with DS (under 5 years old). Individuals will be randomly assigned to the massed practice intervention (5 consecutive days of training), distributed practice intervention group (5 weeks of training: 1/week), or delayed treatment control (no treatment during the testing period). The intervention will consist of a minimum of 100 perturbations on the Proprio 5000. We will examine the effect on motor skills using the Gross Motor Function Measure (GMFM -88) compared to a delayed treatment control group.

Terry Buxton, PhD, RN; Karen Pennington PhD, RN[†]. A Case Study in Converting an Entire Program Into a Blended/Flipped Format for Technology Challenged Nursing Students

Assistant professor, Loretto Heights School of Nursing, Rueckert-Hartman College for Health Professions

[†]*Associate Professor, Loretto Heights School of Nursing, Rueckert-Hartman College for Health Professions*

Challenged with updating our entire program to utilize emerging technologies in the classroom and the entire curriculum, the Loretto Heights School of Nursing at Regis University didn't just convert some of their classes into a flipped/blended format, the entire RN-BSN completions program was converted. Nine courses were converted over a 12 month period, are fully operating, with formats that allows a 50%-75% combination of face-to-face and online learning environments. Depending on the difficulty of the content within each course the percentage of face-to-face and online instruction varies.

Surveys were conducted to determine technology challenges and satisfaction with the new learning environment. The student population was mostly unfamiliar with online, flipped, and web enhancements used in the classroom yet, the new learning environment is being positively embraced. Additionally, this curriculum is beginning to infuse emerging technologies consistent with the content being delivered. Survey data collection continues to determine how well the technologies used in each course is enhance learning.

Hanna Savaryn, **Erica Caffarini***, Leticia Shea, PharmD[†]; Matthew Fete, PhD[†]; Robert Haight[‡]. A Chemical Analysis of Currently Available Melatonin Products in the United States

Students, School of Pharmacy, Rueckert-Hartman College for Health Professions

[†] Assistant Professor, School of Pharmacy, Rueckert-Hartman College for Health Professions

[‡] Assessment Coordinator, School of Pharmacy, Rueckert-Hartman College for Health Professions

*URSC Student Travel Grant Recipient

Purpose: 1) To determine an effective analytical extraction method. 2) To quantify the concentration of melatonin in over-the-counter (OTC) products analyzing individual tablet strength and average concentrations.

Methods: Ultraviolet/Visible (UV/Vis) Spectroscopy and High Pressure Liquid Chromatography Mass Spectrometry (HPLC MS) was used to quantify tablet concentration. Sixteen different formulations/lot numbers of currently available melatonin supplements were analyzed. Melatonin solubility in ethanol allows extraction from commercial formulations (Melatonin $\lambda_{max} = 277$). To ensure accuracy of extraction, the remaining powder from each sample was analyzed to ensure full extraction of melatonin had been achieved.

Results: A total of 16 formulations of melatonin were analyzed using a one sample t-test. Six formulations were found to be statistically significant ($p \leq 0.05$) in melatonin than that stated on the label. The following table displays the small extraction procedure results.

Name	Stated Strength	Avg. Conc.	Std. Dev
Brand A	3	3.004811	0.225
Brand B	2.5	1.835103***	0.301
Brand C	2	0.718966***	0.114
Brand D	3	3.160888	0.228
Brand E	3	3.103918	0.342
Brand F	1	0.26441***	0.021
Brand G	10	9.109087	1.154
Brand H	2.5	0.615022***	0.237
Brand I	10	10.65741	0.911
Brand J	5	4.623326	0.908
Brand K	10	8.857737	2.521
Brand L	5	5.111358	0.678
Brand M	5	5.000073	0.749
Brand N	3	2.741327	0.285
Brand O	3	2.668522*	0.305
Brand P	3	2.580716**	0.327

* $\alpha \leq 0.05$

** $\alpha \leq 0.03$

*** $\alpha \leq 0.01$

Conclusion: Consumers have a right to know that there is inconsistency in tablet strength in dietary supplement products. As determined by this analysis, inconsistent tablet strength has been found in approximately 38% of the products.

Vicki Caruana, PhD; Kelli Woodrow, PhD[†]. Using the Ignatian Pedagogical Paradigm to Make Jesuit Values Explicit in Teacher Education Curriculum

Assistant Professor, Education Department Chair, School of Education, College for Professional Studies

[†]*Associate Professor, School of Education, College for Professional Studies*

Jesuit Values, as in *Cura Personalis*, *Men and Women For and With Others*, *Unity of Heart and Mind*, *Contemplatives in Action*, *Magis*, and *Finding God in All Things*, are directly connected to the vision and mission of the School of Education in the College for Professional Studies at Regis University. In an effort to make these values explicit for faculty and learners, several faculty embarked on a re-imagining of the curriculum in specific programs intended to prepare and promote reflective teaching practices, a commitment to service learning, and the dispositions and skills required to meet the needs of a widely diverse student population. This poster presentation illuminates those efforts by providing the conceptual and curricular frameworks aligned to Jesuit values, and examples of how the Ignatian Pedagogical Paradigm (IPP) was used in the design of curriculum, instruction, and assessment of learning through the use of reflective and reaction journals, service learning activities, and rubrics aligned to the five components of IPP: context, experience, reflection, action, and evaluation.

Beverly Chico. Hats And Headwear Around the World: A Cultural Encyclopedia.

Affiliate Faculty. School of Humanities and Social Sciences, College for Professional Studies

HATS AND HEADWEAR Around the World: A Cultural Encyclopedia, by Regis University history professor, Dr. Beverly Chico, (publisher ABC-CLIO) was released in early October 2013. Concisely illuminating the great diversity of human experience, Chico—as a hat collector and historian—presents material (largely unavailable in existing literature) spanning antiquity to the modern era with a wide range of unusual perspectives, to encompass architecture, animals, magic, prehistory, and medical/high-tech applications. Among 80 images and nearly 200 entries, revealing insights cover traditional European, Asian, African, and American headwear, along with specialized headpieces such as the Lamplao, named for a famous Brazilian outlaw-hero; Spain's pointed penitente-hood; a headdress of Sumatra resembling the horns of water buffalo; a straw, cone-shaped hat of Vietnam that conceals hidden messages; and the debonair, finely-woven Panama hat—actually from Ecuador.

Filled with facts, descriptions, and intriguing legends about hats across centuries, continents, and cultures, topics embrace religious symbolism (bishop's miters), political power (priceless bejeweled crowns), military prowess (Japanese Samurai warrior helmets), life ceremonies (wedding veils and Turkish Islamic circumcision hats), community festivals (the mirrored Vincha con Espejo of Argentina), historical traditions (tricornes of the American Revolution), and high fashion (Jackie Kennedy's elegant pillbox, Fred Astair's top hat, and whimsical fascinators of the new British Royal, Catherine, The Duchess of Cambridge).

FEATURES

- Vividly documents the fundamental human experience and universal practice of adorning the head
- Highlights the global community and cultural linkages of headwear function, material, and style
- Directly relates hats to race, religion, ethnicity, gender, usage, history, and form
- Enables greater understanding of human diversity throughout time by tracing the nuances and development of headwear in societies around the globe
- Provides dozens of sidebars and quotes to pique reader interest and offer short, witty, entertaining, and pertinent content

Available via Amazon, Barnes & Noble, and other booksellers.

Mary Christenson, PT, PhD*; Sarah Bicknese^{†**}, Amy Caldwell[†], Timothy Hinton[†], Karson Rizley[†], and Alison Zocco[†].
Translating Community and Evidence-based Support for Aquatic Therapy into a Model for Aquatic Programs in Rural Colorado

Assistant Professor, School of Physical Therapy, Ruckert-Hartman College for Health Professions

Student[†], School of Physical Therapy, Ruckert-Hartman College for Health Professions

**URSC Faculty Research and Scholarship Grant Recipient*

***URSC Student Research and Scholarship Grant Recipient*

Background and Significance: Health disparities in rural Colorado exist, in part, due to lack of access to health promoting resources when compared to urban regions. Access to therapeutic pools to address health concerns including musculoskeletal and neuromuscular dysfunction, obesity, hypertension, cardiovascular disease and arthritis can reduce health disparities and promote increased function and quality of life. No known literature addresses best practice for building and sustaining this resource in rural communities. Using principles of community-based participatory research (CBPR), this project is designed to provide data that can guide rural communities without a therapeutic pool through the decision-making processes necessary to develop and sustain a warm water pool. Physical therapists' expertise in combination with rural community experience and knowledge of therapy pool programs can create a model to assist other rural communities in building a warm water pool. Specific Aims: 1) provide a model that informs rural communities of the benefits and challenges of developing a therapeutic pool; 2) engage with community partners to address a community-driven project; 3) introduce students to the CBPR research approach in working with underserved populations. Methods: A mixed methods design will measure change in outcomes in individuals participating in physical therapy following a total knee replacement as well as incorporate dialogue with community members to provide insight into the impact of a therapeutic pool on individuals and communities. Expected outcomes: This project will provide knowledge to support a community's ability to effectively establish a therapeutic pool resource and positively impact health outcomes of its members.

Peter Cogan, PhD*. Studies Towards Nucleic Acid Synthesis via Substrate Complemented Catalysis

Assistant Professor, School of Pharmacy, Ruckert-Hartman College for Health Professions

**URSC Faculty Research and Scholarship Grant Recipient*

Synthetic oligomers of DNA (oligonucleotides) serve as invaluable assets in nearly every facet of modern biomedical research. The ability to synthesize such oligonucleotides is recognized as a veritable lynchpin to the entire field of molecular biology and promises to play a pivotal role in the future of both diagnostic and therapeutic medicine. Although processes exist for the synthesis of DNA, these are limited in their utility by the very chemical means they employ. To wit, the harsh reaction conditions employed in repetitive synthetic steps result in a mixture of mutant sequence and otherwise modified products. Moreover, the preparation both of the individual nucleotides (monomers of DNA) and of the final oligomeric product generates copious amounts of hazardous waste. The proposed investigation intends to develop a system of oligonucleotide synthesis in which aqueous buffers and the novel application of enzyme catalysis will replace organic solvents and harsh chemical reagents.

Lori Cook, RN, MS, CNE; Jennifer Sorensen, RN, MS; Sherry Fuller, RN, MSN, FNP-C. Evaluating Medication Administration When Integrating A Scanner And Academic EHR

Instructors, Loretto Heights School of Nursing, Rueckert-Hartman College for Health Professions

Purpose

The purpose of this project is to increase student confidence and competency when integrating medication scanners with an academic electronic health record (EHR).

Background

The literature repetitively supports the reduction in medication errors when hospitals utilize both an electronic medication record and barcode technology. There is great need to reduce the gap between classroom and clinical education in nursing. Undergraduate nursing education is compelled to provide opportunities for students to properly utilize technology similar to that used in acute and sub-acute health care environments. It is essential to engage students in the critical thought processes required to safely administer medications.

To date, none of the academic EHR's have integrated a medication scanner. Collaboratively, Regis University nursing faculty worked with Information Technologies to develop a simple web based application allowing use of a medication scanner with the academic EHR.

Method

Students were oriented to the use of the medication scanner via a video prior to practicing in skills lab. During competency validation, students were graded on their knowledge, skills and attitudes during safe medication administration in a one-on-one simulation setting with nursing faculty. The students were required to demonstrate proficiency using medication administration scanners, and comprehensive documentation in the academic EHR. The health care technologies used for this skill demonstration were the WASP scanners and the academic EHR.

Outcomes

Students and faculty voluntarily completed a survey utilizing a 5-point Likert scale (1-Strongly disagree, 2- Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree) and open ended questions. Students rated the following items highest: Using the Medication Scanner helped to ensure I delivered my patient medications safely= 4.71; I feel competent in the use of a medication scanner= 4.86; I feel prepared to use the medication scanner in clinical practice =4.0. 100 % of the students noted what they liked most about using the medication scanners with the EHR to administer patient medication was that it improved patient safety and provided warnings of possible medication errors. Faculty rated the following items highest: Students are prepared to use the medication scanner in clinical practice= 4.4; Using the Medication Scanner helped to ensure students delivered patient medications safely=4.09; Students were competent in the use of a medication scanner= 4.20; The medication scanners used in lab are similar to what I have seen used in the clinical setting= 4.30. When asked what faculty liked most about using the medication scanners with the EHR to administer patient medications, 90 % noted it improved patient safety. 40 % noted that it increased student confidence. 80 % of faculty disliked that the medication scanners were not integrated with the EHR.

Conclusion

Students and faculty valued the opportunity to participate in a medication administration simulation using current health care technologies that provided for skill acquisition in a safe environment. This medication administration model mimics current clinical practice, allowing for favorable outcomes for students, faculty, and most importantly, patients. The continued use of this skill demonstration in conjunction with healthcare technologies will ideally transform to increased student proficiency and positive patient outcomes.

Darcy Copeland, PhD; Judy Crewell, PhD[†]; Jennifer Sorenson, MSN[‡]. Dedicated Education Units: Partnership To Promote Excellence In Clinical Education

Nurse Scientist, Assistant Professor of Nursing, St Anthony Hospital/University of Northern Colorado

[†]Associate Professor, *Loretto Heights School of Nursing, Rueckert-Hartman College for Health Professions*

[‡]Instructor, *Loretto Heights School of Nursing, Rueckert-Hartman College for Health Professions*

Purpose

The purpose of this presentation is to describe the structure, process and outcomes of a unique Dedicated Education Unit (DEU) model of clinical education.

Background

In 2011, Regis University and St Anthony Hospital created an innovative educational model to enhance the provision of medical/surgical nursing clinical education. The purpose of developing and implementing a DEU model of clinical education was to create an optimum teaching-learning environment for students, clinical RNs, and faculty members.

Description

The DEU model of clinical nursing education developed by the School of Nursing at Flinders University of Australia and subsequent work done at the University of Portland were used as frameworks for our model. Ongoing RN, student, and faculty evaluations were used to continuously refine the program.

Stakeholders from the university and hospital worked collaboratively to formalize the structure and develop processes that enabled the model to be implemented on all hospital units, and for medical/surgical I and medical/surgical II clinical rotations. Staff nurses who attend hospital preceptor training and a one day workshop at Regis become Clinical Teaching Assistants (CTAs). CTAs assume the role of primary clinical teachers. Students and CTAs are paired 1:1 for the duration of the rotation. Clinical faculty members assist with ongoing CTA development.

Outcomes

Program evaluations have been collected from 143 students, 81 CTAs, and 8 faculty members. All evaluations utilized a 5-point Likert scale (1-Very Poor/Never, 2- Poor/Unlikely, 3-Neutral/Same, 4-Good/Perhaps, 5-Excellent/Always). Students rated the following items highest: Overall, the value of this rotation in preparing me for the future was, mean = 4.86; My staff RN and clinical faculty member communicated with one another about my learning, mean = 4.84. CTAs rated the following items highest: I enjoyed working with students, mean = 4.96; I was comfortable providing student(s) feedback about their performance, mean = 4.9. Clinical faculty members rated the following items highest: Desire to return to clinical site, mean = 5; Willingness of unit staff to assist me, mean = 4.88.

Students, CTAs and clinical faculty were also asked, "If you could change one thing about this clinical site/rotation, it would be...", and "One thing about this clinical site/rotation that should not change is..." Overwhelmingly, responses from all 3 groups revolved around the following themes: maintaining a 1:1 student to RN ratio, the benefit of consistency in student/RN pairings throughout the course of a rotation, the sense of welcoming exhibited by all unit employees, and the importance of RN awareness regarding rotation details.

Conclusions

A noteworthy outcome of the implementation of this model is the extremely high, self-reported enjoyment in working with students on the part of CTAs. Historically, a major challenge in clinical nursing education has revolved around strained relationships between students and clinical RNs with whom they work. We have successfully developed structures and implemented processes throughout the entire hospital that have resulted in favorable outcomes for students, clinical RNs and faculty members. The ability to provide consistent 1:1 RN/student pairings optimizes time spent on teaching and learning during clinical rotations.

Gabriela DeRobles*; Lisa Garza , PhD^{†**} ; Nicki Gonzales, PhD^{‡**} . Uncovering Chicana/o Voices: Chicana/o Activism in Colorado

Student, Regis College

[†]*Chair and Associate Professor, Department of Sociology, Regis College*

[‡]*Associate Professor, Department of History, Regis College*

**URSC Student Research and Scholarship Grant Recipient*

***URSC Faculty Research and Scholarship Grant Recipient*

Our study examines the long, yet neglected, history of Chicana/o political activism in Colorado. From the 1860s until the present, Chicana/o activists have taken up issues such as: land rights, access to education, home ownership, police brutality, workers' rights, environmental racism, and other forms of racial discrimination. Despite this long political tradition and the existence of a strong culture of opposition, the stories of Colorado's Chicana/o activists remain untold – especially those of Chicanas. Our research strives to tell this Colorado story, thus contributing to a richer, more comprehensive understanding of the history and legacy of the national Chicana/o Movement. While we acknowledge the long history of Mexican American community activism in Colorado, we will focus our study on the years commonly known as the Chicana/o Movement, *El Movimiento*, which followed the legal activism of the Mexican American Generation of the World War II years. The Chicana/o Movement of the 60s and 70s would build on those early legal foundations, as activists fought for equality – demanding enforcement of their legal rights and equal participation in America's democratic society. Using the tools of the sociologist and the historian, we will be able to document and analyze the stories of these activists, and in the process we will reshape the existing body of scholarship that exists about Chicana/o communities.

Emily Jones*; Kelsey Hansen; Benjamin Olson; Jason Shockley; Graham Whinery; Thuc-Doan Doan; Jay Campisi, PhD[†]. Oral Plaque as a Predictor of Early Signs of Cardiovascular Disease

Students, Biomedical Sciences, Regis College

[†]*Assistant Professor, Department of Biology, Regis College*

**URSC Student Research and Scholarship Grant Recipient*

Cardiovascular disease is a prevalent condition with a variety of contributing factors, including poor oral health. Although oral health is known to affect overall systemic health, the link between oral health and early indicators of heart disease requires more thorough examination. This study investigated whether oral plaque levels correlate with early indicators of heart disease such as hypertension, increased respiratory rate, and elevated resting heart rate. We hypothesized that higher levels of oral plaque would be associated with abnormal vital signs and therefore plaque accumulation would be useful for identifying patients with early indicators of cardiovascular disease. Plaque coverage on thirty-one subjects' six anterior-most maxillary and mandibular teeth were recorded and quantified. Additionally, respiratory rate, blood pressure, and pulse data was recorded before and after brief exercise. Statistical analysis was performed to identify correlations between plaque quantity, recorded vital sign data, and health questionnaire responses. Results from this study suggest that oral plaque is not correlated to early indicators of heart disease. However, analysis identified a strong correlation between family health history and early indicators of heart disease, including increased resting systolic and diastolic blood pressure. Additionally, we have developed a new method for quantifying plaque that is comparable to a previously published method. Overall, the results indicate a more significant relationship between family health history and early indications of cardiovascular disease than that of oral plaque in college-aged individuals.

Garrett Donegan*; Jamie Strike; Dillon Le; Ian Kozlowski; Manuel Lewis; Scott Choi; Jay Campisi, PhD[†]. The Effect of Taste, Musical Stimulation, and Positive Verbal Feedback on Visual Reaction Time in College Age Students

Students, Biomedical Sciences, Regis College

[†]*Assistant Professor, Department of Biology, Regis College*

**URSC Student Research and Scholarship Grant Recipient*

The surroundings of an individual in the current, Westernized world consist of texting, eating, talking, music, conversations, computers, and an endless list of distractions and stimulations that bear down simultaneously, concurrently, and consistently. All of these stimulations demand an incredible amount of cognitive focus and function. Although the human condition is designed to handle an immense amount of stress and stimulation, all of these disruptions and disturbances likely impose some effect on an individual's physical capabilities. Thus, working through three separate stimuli, taste, instrumental musical stimulation, and positive verbal feedback, the investigation will attempt to witness any variations between opposing versions of each category of stimulus and if they affect mean visual reaction time. Research on the differences in visual reaction times could lead to an improved sense of the human capacities, and, as such, reduce morbidity via a decrease in accidents and miscues attributed to over-stimulation. On the other hand, any positive findings could be applied toward performance, athletically or in daily activities, in attempts to decrease visual reaction times based on surrounding stimuli. In either case, the researchers seek to contribute to the advancement of science and of human capacities, while expanding their exposure to scientific, health-related research, and pursuing careers as health professionals. Consequently, the research proves novel given that taste, sight, and hearing have yet to be compared in a manner that encompasses all three of these integral senses. Unfortunately, the present study found no correlation between the visual reaction times of the control and those presented with a stimulus. However, there were differences among the stimuli that proved to be significant, which showed a decrease in mean visual reaction time for those trials in which the subject experienced positive verbal feedback. Furthermore, males displayed a faster mean reaction time, overall, when compared to females. Limitations like a small sample size along with an overly simple task most likely affected our results. Therefore, further research should be done to explore these stimuli in larger populations and with more complex tasks.

Megan Feeney; Jeffrey Lalama, PharmD, BCPS[†]. Assessing An Enoxaparin Dosing Protocol In Morbidly Obese Patients.

Student, School of Pharmacy, Rueckert-Hartman College for Health Professions

[†]*Assistant Professor, School of Pharmacy, Rueckert-Hartman College for Health Professions*

Purpose: Appropriate dosing of low molecular weight heparin (LMWH) for therapeutic purposes in morbidly obese patients is still unknown. At treatment doses, LMWH regimens demonstrate greater accumulation in tissues and serum, increasing the risk of over-anticoagulation in certain patient populations. Based on a previously published case series, it appears to be possible to meet therapeutic anti-Xa levels with lower doses of enoxaparin. A dosing protocol was developed at this institution to determine if these results were reproducible. The purpose of this study is to assess the efficacy and safety of this institution's dosing protocol of enoxaparin treatment for morbidly obese patients.

Methods: IRB exemption was obtained. A retrospective chart review was conducted using an electronic report generated by the pharmacy order entry system. Inclusion criteria include patients who weigh at least 200 kg or have a BMI of at least 40 and who were ordered a treatment dose of enoxaparin. Patients under the age of 18, who were pregnant, and who were receiving prophylactic doses of enoxaparin were excluded. All patient data was de-identified. Doses of enoxaparin were reduced to 0.75 mg/kg Q12h and peak anti-Xa levels were drawn four hours after the fourth dose of enoxaparin for patients meeting the criteria of the protocol. For patients with CrCl <30 mL/min, enoxaparin was only dosed daily, and peak anti-Xa levels were drawn four hours after the second dose. Enoxaparin doses were adjusted as needed based on results of anti-Xa monitoring. The primary objective is to determine the percentage of patients whose initial anti-Xa peak level is within goal range and the number of patients who reached goal. Safety outcomes include incidence of VTE, stroke, or bleeding events during index hospitalization and within 90 days of treatment. Bleeding events will be defined per the GUSTO bleeding scale.

Sheryle Ishimoto*; Nicole Gunderson; Lauren Burt, PharmD, BCOP[†]; Nancy McClew, PharmD, BCPS; Robert Sweeney, MD, MSPH. G-CSF For Primary Prophylaxis Of Febrile Neutropenia In Patients At A Community Cancer Center

Students, School of Pharmacy, Rueckert-Hartman College for Health Professions

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Purpose: Febrile neutropenia (FN) can lead to serious complications including delays or reductions in chemotherapy treatment and hospitalizations, as well as increase patient morbidity, mortality, and costs. Granulocyte-colony stimulating factors (G-CSF) is indicated as prophylactic treatment for chemotherapy regimens based on FN risk and patient risk factors and has been shown to be both clinically and cost effective. Due to the lack of generalizable data or definitive guideline, this study reviewed the prescribing habits within a community cancer center for primary prophylaxis for FN to help create future therapy guidelines and order sets.

Methods: Prior to commencement, this study was submitted to the Institutional Review Board at Exempla Lutheran Medical Center (ELMC) and Regis University for approval. The health systems electronic and paper records were used to identify patients that have been treated with chemotherapy for the first time in the previous calendar year. Data collected included: age, gender, cancer type, chemotherapy regimen, pre-existing neutropenia or bone marrow involvement, complete blood count, renal function, and liver function. If a patient had been diagnosed with FN, additional data concerning incidence and days since last treatment was collected. Patients that were excluded if they were younger than 18 years of age, had incomplete lab data, had insufficient study data regimen data, or the type of cancer or chemotherapy regimen could not be determined. Chemotherapy regimens were classified as having low (<10%), intermediate (10-20%), or high (>20%) risk for developing FN according to the NCCN version 2.2013 guidelines. All cases will be looked over by two pharmacists and two intern pharmacists to determine if prescribing habits of G-CSF as primary prophylaxis was appropriate.

Results: One hundred and ninety-eight patients were identified as receiving the first dose of a chemotherapy regimen between January 2011 and December 2011. Of those, 39 were excluded due to insufficient lab information, incomplete dosing regimens, or unable to determine cancer type, and 159 were included in the final analysis. G-CSF primary prophylaxis was administered in 16 of the 24 intermediate risk chemotherapies and 23 of the 125 low risk chemotherapies. The most common risk factor found in low and intermediate risk categories treated with G-CSF was being over 65 years of age. The most common regimens in patients with no risk factors, given G-CSF primary prophylaxis were docetaxel/cyclophosphamide (TC) in the low risk group and cyclophosphamide, doxorubicin, vincristine, prednisone +/- rituximab (CHOP-21) in the intermediate risk group.

FN Risk	# patients	
high risk	10	
G-CSF		8
No G-CSF		2
intermediate risk	24	
G-CSF		16
No G-CSF		8
low risk	125	
G-CSF		23
No G-CSF		102

RISK FACTORS	age > 65 years	previous chemotherapy	previous radiation	poor renal function (GFR < 50)	liver dysfunction, most notably elevated bilirubin (> 1.5)
high risk					
tx with G-CSF	0	3	3	0	0
tx without G-CSF	1	2	2	0	0
intermediate risk					
tx with G-CSF	6	2	2	0	2
tx without G-CSF	1	1	1	0	0
low risk					
tx with G-CSF	12	6	6	4	2
tx without G-CSF	56	40	39	21	6

Conclusion: An age of 65 years or older was the most common risk factor found in patients who received

Noel Lane*, Fred Gray, PhD[†]. Impurity Detector for the MuSun Experiment

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The MuSun experiment will measure the muon capture rate in deuterium. This process is sensitive to impurities within the deuterium at the part-per-billion level. When a muon is sent into a volume of deuterium it can be captured by an impurity atom, leading to the emission of an x-ray. In order to measure this reaction, a cylindrically symmetric array of ten plastic scintillating panels and five NaI crystals was designed. This apparatus may be placed around the deuterium volume during the experiment. It will observe the number of x-ray events in the NaI detectors that are not accompanied by an electron from the decay of the muon. A simulation was developed using the framework Geant4 to estimate the solid angle acceptance and energy resolution produced by the design.

Karen LeDuc, DNP APN-BC CNS CPN CNE; Alma Jackson, PhD COHN-S[†]; Kathleen Whalen, PhD CNE[†]; Corinna Preuschoff, PhD[‡]. Navigate Scenario: *Learnsapes For Research* (Pilot Study With Jones & Bartlett Learning)

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Purpose/Aims: The purpose of this pilot study was to ascertain the efficacy of an immersive, virtual learning environment to cultivate the skills associated with evidence-based practice and nursing research for undergraduate nursing students.

Rationale/Background: Navigate Scenario: *LearnScapes for Nursing Research* by Jones & Bartlett Learning powered by Toolwire, takes the virtual learning experience to a new level by giving students the opportunity to apply knowledge in authentic, contextualized environments. Navigate Scenario consists of sixteen cutting edge immersive learning simulations where nursing students develop critical thinking, problem-solving, and communication skills necessary to apply their knowledge in practice situations. The project was conducted to evaluate both faculty and student experiences with this innovative teaching/learning strategy in a BSN research course offered in the accelerated format.

Methods: Two parallel research courses participated in the project. The treatment group utilized Navigate Scenario; the control group did not. Both responded to a set of questions about their learning experience. Survey response rates in the control group (n = 7) were too low to make valid comparisons, therefore results are limited to product feedback from the treatment group (n=32) and course faculty (n=1).

Results: Most students liked the experiential learning aspect of the scenarios, the quality of the graphics, and the importance of the communication and teamwork applications in the practice setting. They reported dissatisfaction with the time consuming nature of the assignments given the accelerated course format and lack of immediate feedback for their answers. This issue is currently being addressed by Jones & Bartlett Learning in cooperation with Toolwire in an effort to create a solution whereby students receive more immediate feedback as well as access to rationales more easily.

The key features, however, were underutilized: Only 12/32 used the Natural Assessments; only 13/32 used the Transcript Feature; only 19/32 used the Note-Taking Functionality; and 27/32 used the Key Takeaways. The instructor was satisfied with the product and intends to use it in future course offerings focusing on integrating the product more fully in terms of product features and concentrating on better alignment of the scenarios with textbook material.

Implications: Nursing education is challenged to incorporate innovative teaching and learning methodologies as we prepare students for the reality of nursing practice. Navigate Scenario provided the long needed experiential learning opportunity to foster evidence-based practice and research skills. This immersive, virtual, experiential environment is consistent with the imperative to teach applicable skills and strategies necessary for the contemporary nursing milieu. Ongoing evaluation of the efficacy of this product in collaboration with the publisher will enhance education outcomes to meet practice demands across settings.

Karen LeDuc, DNP APN-BC, CNS, CPN, CNE; Linda Campbell, PhD, CNE[†]; Traci Snedden, PhD (c), RN, CPNP, CNE[‡].

Curricular Innovation To Integrate The Concepts Of Evidence-Based Practice

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BACKGROUND: Evidence-based practice contains the elements of clinical expertise, patient preferences, and research evidence. However it is often challenging for nursing students to appraise complex research evidence. A defined visual art experience lends itself to application of this concept an important component of evidence based practice and an essential element of baccalaureate nursing education. Word cloud software such as Tagxedo© and Wordle©, uses web-based technology to create a visual weighted summary of text data, appropriate for this art experience. **PURPOSE:** Word cloud software was used as a teaching/learning strategy to contextualize quantitative research evidence from current nursing literature. This application exercise supported students' ability to utilize contemporary technology while appraising the evidence related to clinical practice. The outcome of this exercise yielded a planned practice change.

METHODS: Journal clubs were formed to create a word cloud describing an appraisal of a quantitative research study selected by each group from current nursing literature. The word cloud provided fellow students with summary representations of each team's work, meeting multiple objectives within course requirements.

RESULTS/OUTCOMES: Student feedback and course evaluations documented students' ability to integrate critical concepts of evidence-based using this technology. A team approach to the project allowed for delegation of responsibilities, and collaboration was especially evident project presentations. (Examples will be presented via poster presentation). The visual outcomes facilitated additional inquiry and experiential learning with the tools of evidence-based practice, such as synthesizing evidence and planning a practice change with integration of skills and clinical expertise. The visual representations also eliminated some of the common barriers to evidence-based practice, such as time constraints and difficulty understanding concepts.

IMPLICATIONS FOR PRACTICE: This methodology is conducive for educational initiatives in both the academic and clinical arenas by providing learning strategies associated with the tools of evidence-based practice. In support of the paradigm shift from traditional and intuitive-driven practice to evidence-based practice, the creative utilization of word cloud technologies supports the conscientious use of current best evidence in making decisions about patient care.

Shawn Mazur, Michele R. Hanselin, Pharm.D.[†], Michael Marroquin, Pharm.D., Robert Haight, MPA[#], and Rebecca Moote, Pharm.D.[‡]. Incidence Of Hypoglycemia And Associated Risk Factors In Patients Presenting To An Emergency Department With Diabetic Ketoacidosis

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Purpose: Diabetic ketoacidosis (DKA) is a life-threatening complication of diabetes mellitus characterized by hyperglycemia and ketone accumulation leading to metabolic acidosis. Treatment for DKA includes aggressive fluid replacement, insulin therapy, and electrolyte repletion. Hypoglycemia, defined as serum glucose < 70 mg/dL, from insulin therapy is a serious complication of DKA treatment that can lead to convulsions, coma, and death. Minimal literature describes predictors of hypoglycemia in patients initially presenting with DKA. The purpose of this study is to determine the incidence and predicting factors of hypoglycemia in patients with DKA.

Methods: A retrospective case-control observational study was conducted at a federally funded level one trauma center. The primary outcome of the study was to determine the incidence of hypoglycemia in patients presenting with DKA between January 1, 2008 and March 1, 2012. The secondary outcomes included identification of predictors of hypoglycemia. Logistic regression was used to identify significant predictors of hypoglycemia. Patients were included in the study if they were between 18 and 80 years of age and received an International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnostic code for DKA during emergency or hospital admission. Patients on hemodialysis or patients with pancreatitis or pancreatic cancer were excluded. Chart review was used to collect all patient data.

Results: A total of 795 emergency and hospital admissions for DKA were identified representing 506 individual patients. Mean age of the patients was 44 years and 66% were male. The majority of patients were Hispanic/Latino (44%) or Caucasian (36%). Payer source was predominately Medicaid (20%) or state Indigent Care Program (38%). The mean initial serum glucose on admission was 517 mg/dL. Hypoglycemia occurred during 377 (47.4%) emergency or hospital admissions for DKA. A total of 47 patients had two or more separate admissions for DKA complicated by confirmed hypoglycemia. Factors that increase the risk of developing hypoglycemia include initial serum glucose value ≥ 500 mg/dL (OR 1.5, 95% CI 1.08-2.12; $p = 0.015$) and initial anion gap >12 (OR 4.4, 95% CI 2.02-9.59; $p < 0.001$). Higher initial phosphorus level resulted in an increased likelihood of hypoglycemia (OR 1.1, 95% CI 1.01-1.21; $p = 0.024$). Higher HbA1c level on admission resulted in a decreased likelihood of hypoglycemia (OR 0.9, 95% CI 0.85-0.97; $p = 0.005$). Hospital length of stay >5 days was associated with increased risk of hypoglycemia (OR 3.2, 95% CI 1.96-5.26; $p < 0.001$). Age, gender, and ethnicity were not significant predictors of hypoglycemic events (p values >0.2).

Conclusion: The incidence of hypoglycemia in patients presenting with DKA in this study was 47.4%, placing patients at increased risk of serious complications. It is important to be aware of possible predicting factors of hypoglycemia in patients presenting with DKA. Initial elevations in serum glucose, anion gap, and phosphorus were associated with significantly increased risk of hypoglycemia. Higher HbA1c was associated with lower risk of hypoglycemia. Elevated anion gap > 12 was the strongest predictor of developing hypoglycemia.

Katharine Meyer*; Rebecca Betjemann, PhD[†]. Interview Techniques for Eyewitness Memory of Facial and General Features

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Problem or Major Purpose:

Police use different types of questions when interviewing witnesses to a crime. They all have the same goal in mind when interviewing witnesses: to get the most accurate description of the offender. Currently there is no one accepted technique to interview witnesses, leading to at least 200 wrongly convicted people in the last 30 years from eyewitness testimony (Garrett, 2008). Research shows that closed-ended questions (such as multiple choice or fill-in-the-blanks), can lead to false memories (Otgaar, Verschuere, Meijer, & van Oorsouw, 2012; Schaaf, Alexander, & Goodman, 2008). Furthermore, much of the previous research on eyewitness memory and question types relates to children (Aldridge, 1999; Henry, 2007; Krakow, 2010). The current study expanded upon the previous research by investigating three different types of questioning techniques on memory. Open-ended questions like, "What did they look like?" could lead to general answers such as tall or nice but not the specific details that police are looking for. On the other hand, closed-ended questions, such as "did he have a beard?" can lead to no answers or false details (Covell, Sidani, & Ritchie, 2012; Hassan, 2012).

Furthermore, the type of physical features remembered could be differentially affected by the different questioning techniques. In police questioning, full body features are beneficial once there is a perpetrator apprehended because they can confirm that someone like them was in the area, while facial features are more beneficial when trying to identify a specific suspect. Also full body features are more easily remembered by witnesses because distance is not as much a factor as it is for facial features.

Procedure:

Design: This project had a 2 x 3 mixed factorial design. The first independent variable was within subjects and was feature type, comparing facial and full body features. The second independent variable was between subjects and was question type, comparing closed ended, open ended and modified open ended questions. Three dependent variables were measured: hits (correct answers), misses (incorrect answers), and no answers (not given or was not known).

Participants: Forty-two undergraduate psychology students participated in the study.

Tasks:

- Questioning Techniques

1. Closed-Ended questions were based off of the Facial Feature Adjective List (FFAL; Ellis, 1986) and were originally designed to help witnesses describe suspects' faces.
2. Open-Ended questions were from the Cognitive Interview (CI; Geiselman et al., 1984) and were designed to help witnesses describe the 'general' full body features of the suspect, such as height, weight, age, race, etc.
3. The Modified-Open-Ended questions were from the Person Description Interview (PDI) (Demarchi & Py, 2009) and were designed to help witnesses describe both the facial features and the full body features of suspects.

- Picture Stimuli

Pictures were taken of eight Caucasian males between the ages of 18 and 25. Both a face picture and a full body picture were taken of each male. The pictures were counterbalanced so that each participant saw only a face or full body picture of each target male.

- Distraction stimuli

Participants watched one minute of a video of a generic street corner in black and white with no sound.

- Procedure:

Participants looked at a picture of a subject, either face or whole body, for five seconds. Then they watched a minute of the distraction stimuli after which they answered questions depending on their randomly assigned question type condition. All participants completed this task with eight different pictures. All answers were scored using the same scoring rubric, regardless of questioning technique condition.

Results:

Significant main effects were found on Question type within all three dependent variables; Hits ($F(2, 39) = 40.38, p < .001$), for Misses ($F(2, 39) = 64.95, p < .001$), and for No Answers ($F(2, 39) = 99.85, p < .001$). Post hoc pairwise comparisons, using a Bonferroni correction, shows that the Closed ended question type versus the Open ended question type had a significant effect in all three dependent variables ($p < .001$). In the Closed-ended question condition not only were more features recalled but also more correct features were recalled than both Modified and Open ended but more incorrect features were also recalled than the Modified and Open ended conditions. Closed ended questions versus Modified Open ended questions were also significant across all dependent variables ($p < .001$). Modified Open ended questions versus Open ended questions was not significant in any of the dependent variables ($p = .23 - 1.0$). There was not a significant main effect of Feature Type for Hits ($F(1, 39) = .34, p = .57$), Misses ($F(1, 39) = .14, p = .72$), or No Answers ($F(1, 39) = .14, p = .42$). There was a significant interaction between Question Type and Feature Type for Hits ($F(2, 39) = 5.426, p = .008$) but there was not a significant interaction for Misses ($F(2, 39) = 1.17, p = .32$) or No Answers ($F(2, 39) = 2.50, p = .10$).

Conclusions and implications:

The current project shows that the type of question asked does influence the number of picture components reported. Although the questions asked were more on a scale of question type rather than directly open or closed, Closed ended questions still provided the most accurate

information. Feature type was important in the research, although it was difficult to measure the levels separately without complicating the consistency of the experiment and thus the rubrics for the question conditions had to be the same leading to not finding significance in the data. Overall the type of question asked does determine the amount of information received and the accuracy of the information. The police should take this information into account when interviewing eyewitnesses and definitely not ask leading questions.

Nicolette Mineo*, Mallory Moscovitch[†], Amy L. Schreier, PhD[‡], Nancy L. Barrickman, PhD[†]. Development Of Feeding And Social Behavior In Wild Mantled Howler Monkeys (*Alouatta Palliata*)

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**URSC Student Travel Grant Recipient*

The juvenile period is a risky developmental stage in which individuals must both ensure survival and gain the skills necessary to survive and reproduce during adulthood. In this study we examined the contrast between the development of feeding and social behavior in a population of mantled howler monkeys (*Alouatta palliata*) on Ometepe Island, Nicaragua. We hypothesized that juveniles would feed more frequently than adults because they lack extensive knowledge of preferred foods and their masticatory apparatus has not yet developed adequate strength to process their highly folivorous diet. We also hypothesized that juveniles would associate most frequently with age mates in order to practice social behaviors and avoid adversarial relationships with adults. In July and August 2013, we conducted instantaneous scan sampling of focal individuals, including adults, juveniles, and infants, and collected a total of 60 hours of data. We recorded activity (feeding, rest, travel) and nearest neighbor. Our results show that juveniles fed less frequently than adult males and adult females, but more frequently than infants. Juveniles associated most frequently with adult females, and rarely associated with other juveniles, infants, or adult males. This pattern of association contrasts considerably with that of adult males, who associated most frequently with adult females and rarely with any other age/sex class, and adult females, who associated most frequently with infants and juveniles. These findings suggest that juveniles are sufficiently competent at feeding and foraging, but have not yet transitioned away from strong associations with their mothers.

Nader Nassar; Renee Papageorgiou; Mallory McCullough; Janon Khedir Al-tiae; Micheline Goldwire, PharmD, BCPS[†]. Assessment Of Drug Information Resource Preferences And Curriculum Preparedness By Pharmacy Students

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Objectives:

The intent of this study is two-fold. First to determine pharmacy student preferences for drug information resources and if these preferences differ according to year in pharmacy school and second to determine if drug information skills are taught early enough in the curriculum and if students feel prepared to answer DI questions on their introductory pharmacy practice experience (IPPE) and advanced pharmacy practice experience (APPE) rotations.

Methods:

Pharmacy students at Regis University School of Pharmacy have access to four online drug compendia: Clinical Pharmacology, Facts & Comparisons, Lexicomp and Micromedex. Students are introduced to drug information resources their first semester in pharmacy school through one 2-hour laboratory session and class lecture in the Introduction to Pharmacy Practice class. Students begin IPPE rotations their second semester of their P1 year. However, drug information skills are taught the fall of the P2 year in the Integrated Literature Evaluation course. To determine student preferences for drug information resources and perception of preparedness to answer drug information questions, a 22-item survey instrument was distributed to pharmacy students at Regis University School of Pharmacy (n=275). One rank-based question and 13 multiple-choice questions assessed student preferences for DI resources; 5 curriculum questions were answered with yes or no possible responses. The remaining questions gathered demographic information. Descriptive statistics were used to analyze demographic data.

Results:

A total of 181 (66%) student surveys were completed. Fifty percent of all students chose Micromedex as the preferred database when answering drug information questions. A total of 103 (61%) students had previous pharmacy experience, whether this data correlates to a preferred choice of database will be determined. As students progressed through the program, they felt more adequately prepared to answer drug information questions. Results of the logistic regression between pharmacy classes are forthcoming.

Nader Nassar; Renee Papageorgiou; Mallory McCullough; Janon Khedir Al-tiae; Micheline Goldwire, PharmD, BCPS[†].
Assessment Of Drug Information Resource Preferences And Curriculum Preparedness By Pharmacy Students For Clinical Rotations

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Purpose:

The intent of this study is two-fold: 1) to determine pharmacy student preferences for drug information (DI) resources and if they feel prepared to answer DI questions while at their experiential sites and 2) to identify drug compendia available for use at clinical sites in the Denver metro area. Identification of drug compendia within the metro area will ensure students become familiar with compendia available in the community. There are currently no studies that have been conducted to show if DI resources taught at the academic level parallel drug compendia offered at the clinical level.

Methods:

Pharmacy students have access to four online drug compendia: Clinical Pharmacology, Facts & Comparisons, Lexicomp and Micromedex. Students are introduced to DI resources their first semester through one 2-hour laboratory session and class lecture in the Introduction to Pharmacy Practice class. While students begin introductory pharmacy practice experience (IPPE) rotations their second semester of their first year (P1), formal DI skills are not taught until the fall of the second (P2) year in the Integrated Literature Evaluation (ILE) course. To determine student preferences for DI resources and perception of preparedness to answer DI questions, a 22-item survey was distributed (n=275). One rank-based question and 13 multiple-choice questions assessed student preferences for DI resources; 5 curriculum questions were answered with yes or no responses. The remaining questions gathered demographic information. Additional research was conducted to determine drug compendia availability at metro area clinics and hospitals. Clinics and hospitals that are owned by the same corporation were counted only once. This information was gathered through survey of practice site faculty and students and through online research via hospital and clinic websites.

Results:

A total of 176 pharmacy students ranked their preference of drug compendia when answering DI questions (45% Micromedex, 28% Lexicomp, 16% Clinical Pharmacology, 11% Facts and Comparisons). When students (n = 179) were surveyed about which drug compendia were easiest to use, Micromedex ranked highest (Micromedex 48%, Lexicomp 28%, Clinical Pharmacology 13%, Facts & Comparisons 11%). Practice site faculty and students at seven metro area health clinics and hospitals were surveyed about drug compendia availability. Most sites offer access to Lexicomp (71%), followed by Micromedex 29%, Facts & Comparisons (29%), and Clinical Pharmacology (14%). Students were asked if they were prepared to answer DI questions prior to IPPE and APPE rotations, 66% responded they were well prepared or very well prepared. This compares to 52% of the P1 class and 0% of the P4 class who felt they were somewhat prepared or not prepared to answer DI questions.

Conclusion:

By the time students complete the pharmacy curriculum, they feel prepared to answer DI questions, although students earlier in the curriculum did not feel as prepared. The preferred drug database for pharmacy students was Micromedex, while Lexicomp was more readily available in hospital and clinic practice sites in the Denver metro area, which validates the importance of teaching more than one drug compendium to students.

Michael Nelson, PhD, RPh; Simon Tweddell[†]; David Clark, PharmD[‡]. Team-based Learning in Pharmacy: The Faculty Experience

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BACKGROUND

Regis University School of Pharmacy introduced a new highly-integrated PharmD program in 2009 delivered predominately by team-based learning (TBL). Given the increased pedagogical complexity of TBL relative to lecture-based learning, it is likely that the experiences of TBL implementation on pharmacy faculty differs from the experiences associated with more traditional learning models. This study uses qualitative research methodology to explore the faculty experience and lessons learned from a large-scale implementation of TBL in a pharmacy curriculum.

DESCRIPTION

Following IRB approval, 19 faculty at Regis University School of Pharmacy participated in a 30-minute one-one semi-structured interview. The interview explored faculty perceptions, experiences and lessons learned from introducing TBL as the main instructional method in the PharmD program. Interviews were transcribed and the data analyzed with qualitative methodology (thematic analysis) using qualitative and mix-method research software (NVivo).

RESULTS

Faculty perceived TBL to be beneficial to student learning. Students came to class prepared, ready to take the RATs, participate in and are actively engaged in problem solving through application exercises. TBL is helping students develop the softer skills needed in the workplace. There was some concern amongst faculty that students might rely too much on team-work and not be able to work as well independently.

Faculty perceptions were that TBL is more work for them than traditional methods, especially in the first iteration of a course/unit. The two areas faculty found most challenging and require most development are writing effective application exercises and the development of skills required to facilitate discussion between students and teams rather than delivering content. Faculty's understanding of pedagogical approaches and educational theory improved as a result of using TBL.

CONCLUSION

Despite the challenges there was resounding support for TBL among faculty, leading to the conclusion that the benefits of TBL far outweighing the challenges. The study identified a number of lessons learned that may be of benefit to other educators considering introducing TBL in pharmacy curricula.

Daniel Ng*; Renee Papageorgiou, Micheline Goldwire, PharmD, MS, BS, BCPS[†]. Evaluating the Utilization of a School-Specific Mobile Site for Accessing Drug Databases in Pharmacy Practice.

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**URSC Student Travel Grant Recipient*

Purpose: With the growth of mobile technology, pharmacists have access to their preferred drug databases via personal computers and/or mobile devices. As the Pharmacy Practice Model Initiative (PPMI) acknowledges the importance of integrating technology, it is imperative to understand how mobile devices can impact patient care and medication safety. This two-fold study focuses on determining the preferred method(s) of database access and how often those databases are accessed via personal computers and/or mobile devices. The study specifically assesses the usage of drug information (DI) resources accessed through a school-specific mobile site among members of a school of pharmacy (SOP).

Methods: A fourth-year pharmacy (P4) student developed a SOP mobile site, which centralizes resources commonly used by the SOP students and faculty such as DI databases, school calendars and news, class schedules and class management systems (E-Value and Desire2Learn). The mobile site, released in August 2013, can be accessed by any mobile device with a web browser.

In September 2013, in conjunction with the pilot mobile site study, a five-question survey was distributed to the SOP students and faculty to assess perceptions of the mobile site since its launch. In November 2013, a survey will be distributed to P4 students and faculty (n = 83). This survey will identify: 1) how often DI resources are accessed via the SOP mobile site while on rotations and/or in practice, and 2) what device(s) users prefer to use when accessing their DI resources at their designated pharmacy setting(s). Analytics (e.g. identifying sources of traffic, the number of page views and unique visitors) from both the library website and the SOP mobile site will be collected to compare access from personal computers and mobile devices, respectively. Descriptive statistics will be used to analyze the survey results.

Kevin Pyatt, PhD. Use of Chemistry Software to Teach and Assess Model-based Reaction and Equation Knowledge

Associate Professor, School of Education, College for Professional Studies

This study investigated the challenges students face when learning chemical reactions in a first-year chemistry course and the effectiveness of a curriculum and software implementation that was used to teach and assess student understanding of chemical reactions and equations. This study took place over a two year period in a public suburban high-school, in southwestern USA. Two advanced placement (AP) chemistry classes participated, referred to here as study group A (year 1), N = 14; and study group B (year 2), N = 21. The curriculum for a first-year chemistry course (group A) was revised to include instruction on reaction-types. The second year of the study involved the creation and implementation of a software solution which promoted mastery learning of reaction-types. Students in both groups benefited from the reaction-type curriculum and achieved proficiency in chemical reactions and equations. The findings suggest there was an added learning benefit to using the reaction-type software solution. This study also found that reaction knowledge was a moderate to strong predictor of chemistry achievement. Based on regression analysis, reaction knowledge significantly predicted math achievement for both groups.

Jillian Ramer*; Andrea Brodie; Melissa Burgemeister; Melanie Conley; Erin Greiner; Katie Weathers; Erika Nelson-Wong, PT, DPT, PhD[†]; Alice Davis, PT, DPT[‡]. Are Active Hip Abduction, Active Straight Leg Raise, And Bent Knee Fall Out Valid Assessment Tools To Determine A Relationship Between Lumbopelvic Control And Low Back Pain In Pregnant Women?

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Pregnancy related low back pain (LBP) and pelvic girdle pain (PGP) has significant physical and psychological impacts on women, but there is a lack of comprehensive knowledge on diagnosis and treatment. This study is designed to look at the reliability of three simple clinical tests as they relate to lumbopelvic control and how this control may or may not be related to low back pain during pregnancy. Lumbopelvic control can be defined as the ability to control the relationship between the lower back and the pelvis during movement. The three clinical tests that will be implemented in this study are the active hip abduction test (AHAbd), the bent knee fallout test (BKFO), and the active straight leg raise (ASLR). Both controlled and pregnant subjects will perform these tests on their back or side. They will be recorded while performing the clinical tests for evaluation, but without any identifying features. Variables that will be considered are: weeks of pregnancy, circumference of waist and pelvis, pain intensity, and quality of movement in performing the clinical tests. This research is designed to establish a BKFO scoring criteria, validity for the clinical tests, and inter-rater reliability for the three clinical tests. The benefit of this research will be to develop a quick screening process for healthcare providers working with pregnant women and may be useful in early identification and management for women who are "at-risk" for developing LBP or at risk for increased pain and disability during this period.

Susan Scherer, PT, PhD*; Marjorie Zielke, PhD[†]. Prototype Modeling And Assessment Of Game-Based Simulation For Virtual Clinical Education In Health Care

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Face to face clinical experiences are a critical component of health care education in nursing, pharmacy and physical therapy, yet are a scarce resource. Simulation has the potential to address clinical competencies; however, criteria for what constitutes a simulated clinical experience are not explicit. Further, virtual, game-based simulation is an innovative way forward. This project is focused on creating a prototype module of a game-based simulation based on preliminary criteria and assessing the responses of students and faculty to the use of a game-based simulation as a virtual clinical experience. This work occurs in tandem with investigation of criteria for developing simulated clinical experiences, and will facilitate development of this innovative educational strategy and related scholarship.

Wesley Thorton*; Cassidy Pieratt; Greg Bourgeois; Chris DeGrandis; Nathan Hamilton; Ian Kirven; Erika Nelson Wong, PT, DPT, PhD[†]. Neuromuscular Strategies During Frontal Plane Movement In A Subgroup Of Subjects With Low Back Pain: Implications Of Poor Lumbopelvic Control

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Purpose/Hypothesis: Treatment Based Classification (TBC) is used to categorize patients with low back pain (LBP) into subgroups. This has led to improved outcomes, however predicting response to stabilization exercise is only moderate with LR+ of 4.0. This suggests there may be other factors that should be considered to improve sub-classification. Currently assessment of frontal plane lumbopelvic control is not included in the TBC algorithm. Frontal plane control deficits identified by Active Hip Abduction (AHAbd) test performance are associated with LBP that responds favorably to stabilization exercise. Previous work has shown case/control differences in neuromuscular strategies during AHAbd test, however not all individuals with LBP have positive test findings (Sn = 0.74, Sp = 0.5). The purpose of this study was to investigate neuromuscular differences between those who score positive and negative on the AHAbd test in a subgroup of people with LBP who meet the TBC criteria for Stabilization.

Number of Subjects: 7

Materials/Methods: Subjects w/LBP (2 male, 31.8±11 yrs) who met TBC Stabilization criteria were included in this study. Electromyography (EMG) data was collected from bilateral internal/external oblique (IO/EO), erector spinae (ES), gluteus maximus (GMx), gluteus medius (GMd), and rectus femoris (RF) muscles during 2 bilateral trials of the AHAbd test. Each trial was simultaneously scored by 3 trained raters. A score of 2 or 3 indicated poor control (+) and score of 0 or 1 indicated good control (-). Cross-correlation was used on the normalized and linear enveloped EMG data to calculate phase lags between muscles. Phase lags were entered into t-tests with a between factor of +/- test score for each trial.

Results: 20 of 28 (71.4%) trials resulted in + test scores. Subjects with + tests demonstrated distal to proximal sequencing (p < .05) during AHAbd test compared to subjects with - tests. GMd activated 0.13±0.15 s prior to EO in subjects with + tests compared with 0.22±0.04 s after EO for those with - tests.

Conclusions: Previous work has shown case/control differences in muscle activation strategies during AHAbd test performance, with cases showing distal to proximal sequencing strategy compared to controls. Subjects with LBP in these prior studies were a heterogenous sample with no attempts at sub-classification. The current findings show differences in neuromuscular strategies during frontal plane movement within subjects that all meet the TBC stabilization criteria. These preliminary data are part of a larger study investigating response to stabilization exercise.

Clinical Relevance: Lumbopelvic control with frontal plane movement could be an important factor to include in the clinical decision making process for sub-grouping patients with LBP. These findings suggest that not all patients subgrouped into TBC Stabilization using current criteria should be expected to respond equally to the same intervention given differences in neuromuscular strategies within the subgroup.

Shu-Yi Wang, PhD, RN, CNS; Chia-Chin Lin, PhD, RN[†]; Chun-Ming Tsai, MD[‡]. Changes in Symptom Severity in Taiwanese Lung Cancer Patients after Receiving Gefitinib Treatment: A Pilot Study

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Aim. The purpose of this study was to investigate symptom severity in advanced non-small cell lung cancer patients prior to gefitinib treatment and at one-, three-, and six-month intervals after starting treatment. Methodology. Fifty-seven patients completed the Taiwanese version of the MD Anderson Symptom Inventory. The data was analyzed using descriptive statistics, the Friedman non-parametric test, and Pearson correlation coefficients. Results. Symptoms of nausea, difficulty remembering, lack of appetite, sadness and vomiting increased at one month after treatment started. Pain and shortness of breath increased at three months; and symptoms of disturbed sleep, drowsiness and numbness increased after six months. Fatigue and dry mouth increased at three months after treatment started and then decreased. Only distress decreased throughout the course of treatment. Conclusion. The findings may lead to the development of better clinical guidelines and improved information for patients on when to expect the greatest impact from their symptoms during the course of treatment.

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