

RESEARCH POSTERS

Nick Skladnev



Design Tips

- “Elevator pitch”
- Lure
- Bait & Hook
- Line



Development steps

> Conceptualise

- Audience
- Guidelines
- Materials

> Development

- Sizing
- Outline of content
- Design
- Layout & flow

> Review

- Outside perspective & feedback

COVID era considerations – Digital Posters

- > Take advantage of zoom function
- > Embedded audio/video
- > Hyperlinks

Tips for Designing Effective Presentations

A poster with the main title in 1 1/2" sans serif

Developed by D. Shong, C. Deryuc, W. Kelly, B. Immal, and K. Wink
with materials donated by Penn State's Education Technology Services

Get the audience's attention and communicate your message quickly and succinctly.



Layout your design clearly. This is a column of six design tips regarding content, branding, title, abstract, references, and how to arrange it.

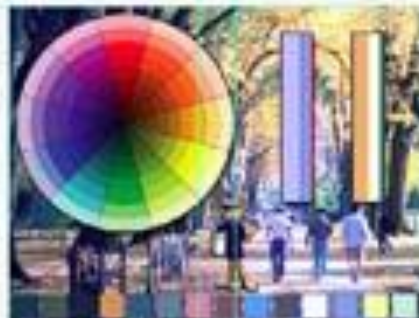
A successful poster session can add your work clearly and professionally. It showcases the abstract in way to attract the most relevant. This poster is 11" wide, 34" high.

Planning

Keep it simple
Develop an effective hierarchy
Think visually

Developing a Layout

The most important thing on the poster is a good to keep your layout and design.
Use a color hierarchy
Use a column format
Try to keep 40% of the poster area empty of text and images
Create clear flow of content and text
Organize your content and then think to work after.



If you think of the design you can find gaps in the colors that could be better. Consider a color wheel for a poster. It's a good color to consider. Consider number of colors.



Consider the color hierarchy that you use on the poster.

Choosing and Using Color

Consider a color hierarchy
Some backgrounds, colors, green, and blue colors help highlight information that matters.
The height, content, color, spacing
Large amount of text, color, or image can overwhelm your design.

Selecting Fonts and Using Text

The poster will have to look like you can read from the side.
The text on the poster should be clear.
Consider font appearance and content.
The larger font than the smaller font.
The text should be clear and readable.
The text should be clear and readable.



Font size is the size of the text on the poster. The text should be clear and readable. The text should be clear and readable.



The poster should be clear and readable. The text should be clear and readable.

Judges Checklist

Remember, the following should be clearly presented and readable. There is a list of 11 items.

1. Title of the poster
2. Author's name
3. Collaboration, address, and department
4. Funding sources
5. Equivalency statement approval of the sponsor or institution (if applicable)
6. Abstract
7. Equivalency in the field
8. Equivalency in content to poster
9. Abstract
10. Results
11. Organization of results and conclusions
12. Statement for future research

Using Images

The most important thing to remember is that images should be used to support the message of the poster. The poster should be clear and readable. The text should be clear and readable.



Viewers reading this line demonstrate the poster's success!

Continuous positive airway pressure treatment and systemic inflammation in obstructive sleep apnoea: a systematic review and meta-analysis

N. Skladnev¹, P. Marsden¹, S. Phan¹, & D. Zheng²

¹Sydney Medical Program, The University of Sydney; ²Centre for Big Data Research in Health, University of New South Wales.

BACKGROUND

- Obstructive sleep apnoea (OSA) is an increasingly prevalent condition of sleep disordered breathing that has been shown to exacerbate systemic inflammation, which in turn contributes to the plethora of metabolic and cardiovascular sequelae associated with OSA.
- There has been interest in determining whether the mainstay of therapy for OSA, continuous positive airway pressure (CPAP), can also reduce levels of systemic inflammation, though existing evidence is mixed.

OBJECTIVE

- This systematic review and meta-analysis took advantage of newly published randomised controlled trials (RCTs) in order to further elucidate the effect of CPAP therapy on inflammatory biomarkers in OSA.

METHODS

- Systematic review:** MEDLINE, EMBASE, CINAHL, and CENTRAL databases, along with relevant reference lists were searched for RCTs up to 8th March 2018.
- Studies were restricted to OSA patients with an apnoea-hypopnoea index >5 via polysomnography, undergoing CPAP treatment of >4 weeks, and with inflammatory biomarkers obtained both pre- and post-treatment.
- Primary Outcomes: Serum levels of TNF α , IL6, IL10, and CRP.
- Meta-analysis** using Review Manager version 5.3.
- I² statistic for heterogeneity and sensitivity analyses conducted.
- Risk of bias assessed using Egger's & Begg's test, and Cochrane tool for risk of bias reporting in RCTs.

RESULTS

- A total of ten studies involving 1,411 OSA patients were included in the meta-analysis. Eight studies were pooled for CRP, six for IL6, four for TNF α , and one for IL10.
- Meta-analysis was inappropriate on IL10 as only one study was identified.
- There was significant heterogeneity detected in CRP post-treatment ($I^2=7$, $p<0.0001$, $I^2=90\%$) which was identified by sensitivity analyses to be due to three individual studies. There was no significant heterogeneity detected in any other endpoints.
- Risk of bias assessments detected no significant bias in any of the primary outcomes, and the quality of included articles was high overall.

RESULTS

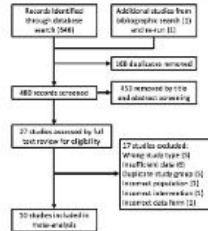


Figure 1. Flow diagram depicting study selection.

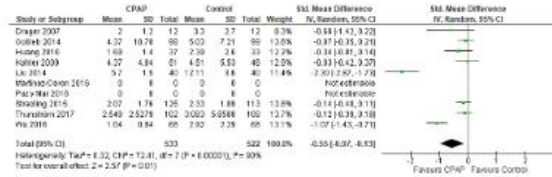


Figure 2. End of study comparison of CRP levels between CPAP and control groups.

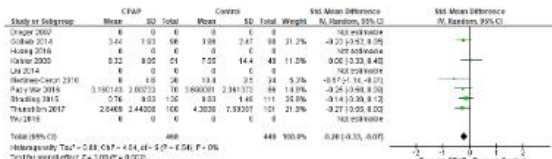


Figure 3. End of study comparison of IL6 levels between CPAP and control groups.

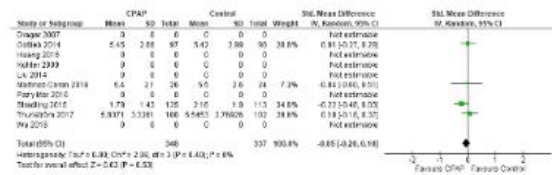


Figure 4. End of study comparison of TNF α levels between CPAP and control groups.

CONCLUSION

CPAP therapy can suppress levels of the inflammatory biomarkers CRP and IL6 in patients with OSA. Though given the variability amongst studies, further investigation is warranted.



Neuroprotective pre-conditioning with dietary saffron: how much and how come?

Nicholas Skladnev, Jonathan Stone, Dan Johnstone

Discipline of Physiology, University of Sydney

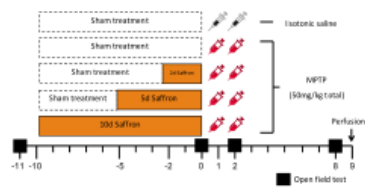
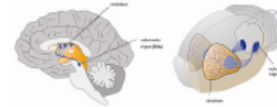
Introduction

- Neurodegenerative diseases continue to rise in prevalence but remain without effective treatment
- Novel neuroprotectants are thus needed to slow or stop disease progression
- Rapidly growing body of laboratory and clinical evidence for the ability of saffron to stabilise degeneration
- Recently demonstrated neuroprotective effect in MPTP neurotoxin model of Parkinson's disease (PD)
- Dose response relationships and underlying protective mechanisms are yet to be elucidated, and are the subject of this research



Methods

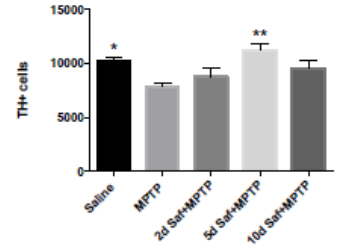
- Disease model** – MPTP mouse model of PD
- Treatment regime** – Pre-conditioning with dietary saffron (0.01% via water supply) for 2, 5, or 10 days
- Outcome measures:** Open field tests (OFT) for assessing locomotive deficit; immunohistochemistry (TH) for dopaminergic neurons in substantia nigra (SNc), striatal neurons exhibiting abnormal firing (Fos)



Results

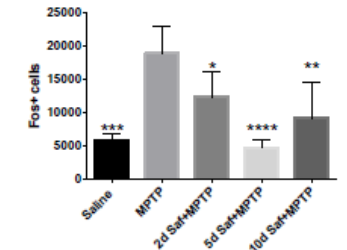
Can saffron mitigate dopaminergic cell loss in the SNc?

- MPTP intoxication causes significant reduction (~20%) of dopaminergic cells compared to saline controls ($p=0.01$)
- 5 days saffron preconditioning best attenuates dopaminergic cell loss ($p=0.001$)



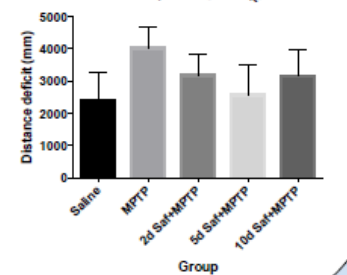
Can saffron mitigate increased abnormal firing activity in the striatum?

- MPTP intoxication causes significant increases (~300%) in Fos expressing cells
- All saffron doses significantly mitigate this increase ($p<0.05$)
- However, 5 days saffron pre-conditioning shows the strongest protective effect (~75% reduction) against MPTP



Can saffron mitigate locomotive deficits?

- Changes in total distance travelled pre vs post-injections
- Trend seems to match cellular pathology, but non-significant



* = $p<0.05$, ** = $p<0.01$, *** = $p<0.001$, **** = $p<0.0001$, versus MPTP

Conclusions

- Saffron can protect against MPTP-induced Parkinsonian Neuropathology
- 5 days of saffron pre-conditioning is optimal
- The mechanisms behind this will next be explored by RNA microarray



The action of capsaicin in porcine coronary artery vasodilation

Niamh Ramsay
Supervisor: Dr Peter Johnson

Introduction

Capsaicin, the active component of the chilli peppers, is responsible for producing the heat characteristic of chilli. It is a highly selective agonist for transient receptor potential vanilloid type 1 (TRPV1) receptors expressed in sensory neuronal tissue. Its actions on vascular tissue have shown to cause a vaso-dilatory response, indicating possible therapeutic benefit for certain cardiovascular pathologies such as hypertension. (Ching et al, 2011)

As the role of capsaicin sensory nerves and TRPV1 in cellular mechanisms under normal and pathological conditions remains unconfirmed, this study aimed to clarify previous conflicting evidence. It has been previously determined that low dose capsaicin caused an enhanced relaxation despite application of TRPV1 antagonists, however, while it was speculated that this was achieved by nitric oxide synthase release, the release of NO was not quantitated. Thus it is yet to be ascertained that NO is entirely responsible for this mediation.

This study examined the effects of capsaicin on normal and denuded porcine coronary artery vasorelaxations and measured nitric oxide release following capsaicin application, thus aiming to determine the source of NO production thought to be responsible for such tissue relaxation.

Methodology

To ascertain NO release as the cause for capsaicin evoked vasorelaxations, and to also determine if results were endothelium dependent, this study examined the effects of capsaicin application on normal and denuded tissue. Porcine coronary artery rings were suspended in organ baths, and pre-contracted with either KCl or U46619, a stable thromboxane receptor agonist. The changes in isometric tension of the samples were then evaluated in response to capsaicin administration on tissue. Following this, a fluorometric analysis of nitric oxide levels in the organ bath effluent was performed to quantify the level of NO release in response to capsaicin application.

Discussion

It was found that applications of capsaicin resulted in dose-dependent vaso-relaxations of the porcine arteries. Furthermore, it was determined that these relaxations occurred in tissue despite removal of the endothelium, yet, not to the same extent as normal samples. This result was seen to be much more evident in tissue pre-contracted with KCl, indicating that the NO release mediating such reactions were from a non-endothelial source.

Following fluorometric analysis, it was determined that an increase in capsaicin concentration caused a greater yield of nitrate/nitrite from the tissue sample. This response was seen in both normal and denuded artery rings, however, greater nitrate/nitrite production was seen in normal samples. From these results, it was speculated that an alternate source of NOS, outside the endothelium, was responsible for such NO release, supporting previous the findings of previous studies (Fuller, 2012; Hans et al, 2012). It was recommended that future studies adopt methods to detect the presence of NOS isoforms in an attempt to ascertain the location of NOS causing NO production in response to capsaicin application.

References

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- Han, J. A., Seo, E. Y., Kim, H. J., Park, S. J., Yoo, H. Y., Kim, J. Y., ... Kim, S. J. (2012). Hypoxia-augmented constriction of deep femoral artery mediated by inhibition of eNOS in smooth muscle. *American Journal of Physiology – Cell Physiology*. doi: 10.1152/ajpcell.00176.2012

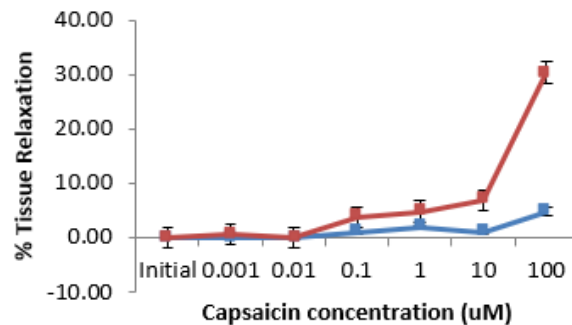


Figure 1: U46619 pre-contracted tissue % relaxation responses to capsaicin application, n=2.

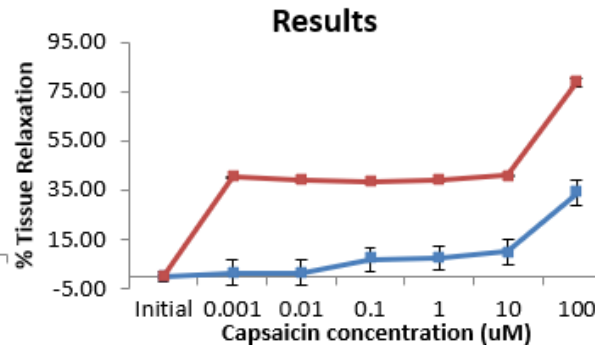


Figure 2: KCl pre-contracted tissue % relaxation responses to capsaicin application, n=2.

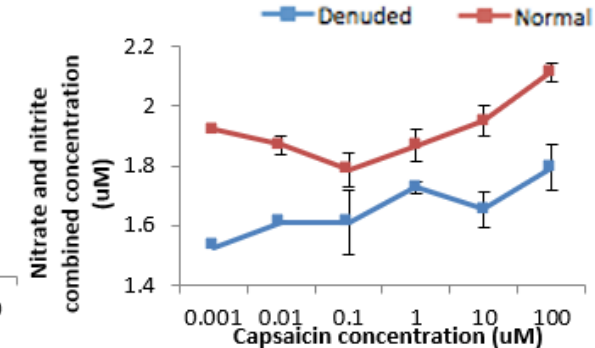


Figure 3: Fluorometric assay results of normal and denuded tissue samples, n=3.

Pre-implementation of Point of Care Testing in a General Practice Surgery

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²Inala Primary Care, Inala, QLD, 4007



INTRODUCTION

The burden of chronic disease on the individual and community highlights the need to improve patient management. In Australia, a considerable proportion of the population is affected by chronic disease, with specifically 4% of people affected by Type 2 Diabetes (T2D) (Bayram 2009). There are serious health risks associated with this disease, such as coronary heart disease and chronic kidney disease, as well as the risk of mortality being substantially increased in patients with T2D (Ali, Narayan & Tandon 2010; Shephard 2011).

Key to the management of diabetes is the regular monitoring of compliance with treatment; however, GPs face many barriers to achieving this. Lower socioeconomic status and language barriers are associated with patients having poorer health literacy, defined as the skills enabling access to, understanding and use of information in ways which promote and maintain good health (Nutbeam 2009). This results in problems with completing pathology testing and complying with treatment of their disease. It is thought that by introducing a better means of managing chronic disease whereby patients can more easily access treatment and monitor their disease, such as Point-of-Care Testing (PoCT), that this may be overcome and improve disease outcomes (Gialamas et al 2009; Laurence et al. 2008; Gill & Shephard 2010). If implemented effectively, PoCT could aid the primary care management of chronic diseases such as diabetes, hyperlipidemia and metabolic syndrome (Gill & Shephard 2010). As a result, this could alleviate stress on general practice and improve patient compliance with disease management, potentially leading to better health outcomes.

This study examines the different factors affecting the introduction of PoCT in four general practice (GP) clinics of differing socioeconomic areas with particular focus on patient pathology request compliance and staff perceptions of this new way to perform testing.

METHODS

1. The rate of patient compliance with pathology testing was examined. Three general practice clinics were involved in this part of the study and over the course of three months several factors pertaining to patient compliance of completing pathology testing was recorded. Specifically, gender, the number of times each patient was contacted, nationality, first language and, in the cases where it applied, the reasons for not completing requested pathology were recorded. These results were then compared between the sites.
2. Following this, patient workflow at each clinic was mapped to determine the processes including the time spent by staff when ensuring pathology requests had been completed by patients prior to their follow-up appointment.
3. Interviews were next conducted with several staff members from each clinic to examine the different approaches to patient recall, preconceptions of patient medication and pathology request compliance, views on PoCT, workplace culture and concerns of specific patient groups.

DISCUSSION

An issue that became apparent over the course of this investigation was the level of patient non-compliance with pathology request. The major reasons supplied for this included language barriers in communication between patient and provider, socioeconomic disadvantage and poor health literacy such as forgetting appointments, losing pathology forms and not showing up to appointments. These reasons highlighted that such patients do not prioritise the monitoring of their chronic disease, possibly due to a lack of understanding of the importance such management has on their health.

Patient compliance with pathology requests could have also been affected by the practice's workflow protocols. These workflows evolved independently at each practice to deal with the need to have pathology results available at the time of consultation. When reviewing obtained rates of pathology non-compliance, it was seen at Jimboomba Medical Centre that these dropped from 31% to 6% as a result of nurse follow-up.

Medical staff expressed positive perceptions of PoCT including the possibility of faster results obtained than with conventional testing, less stress for the patient and a great potential for doctors to manage patient treatment. However, staff were concerned with the limited range of testing currently available, staff training and the cost of the PoCT system as well as the impact the implementation of this technology would have on patient health involvement. This study found that 80% of staff interviewed believed that PoCT had potential in a GP setting, with the highest percentage of staff from practices in lower SES areas. Collectively, GPs believed that PoCT would improve health outcomes in cases where pathology compliance was poor and extensive workflow was required to overcome this process.

RESULTS

Practice Site	Perceived Percentage	Actual Percentage
Inala Primary Care	77%	77%
Jimboomba Medical Centre	75%	91%
Limestone Street Medical Centre	81%	70%

Table 1: Perceived versus actual pathology request compliance at each practice.

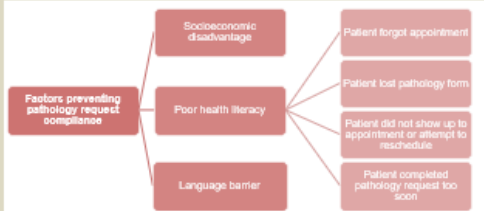


Figure 1: Actual reasons preventing pathology request compliance at GP.



Figure 2: Patient workflow processes at GP.

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Gialamas, A., Willard, J.M., Ryan, P., Wilson, E., Laurence, C.D., Babine, T.C., Tideman, P. & Bellby, J. 2009, 'Does point-of-care testing lead to the same or better adherence to medication? A randomised controlled trial: the PoCT in General Practice Trial', *Med J Aust*, vol. 191, no. 9, pp. 487-91.

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Shephard, N.D. 2011, 'Point-of-Care Testing and Creative Measurement', *Clin Biochem Rev*, vol. 32, no. 2, pp. 103-14.

TRANSMISSION DYNAMICS OF WATERBORNE PATHOGENS IN AUSTRALIA

Niamh Ramsay, Edward Waters
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INTRODUCTION



The incidence of gastrointestinal illness, defined as two or more associated cases of diarrhoea and/or vomiting in a 24 hour period, has been increasing over the last decade in Australia.^{1,2}



Waterborne pathogens are commonly responsible for outbreaks of gastroenteritis. *Giardia intestinalis* and *Cryptosporidium* spp. are common protozoan suspects, as well as Norovirus, a viral pathogen.^{3,4}



While most waterborne illnesses are mild, some can result in hospitalisation and, rarely fatalities.¹ Although recognised as important public health issues, transmission dynamics remain poorly studied.⁵



Literature currently assumes that viral and protozoan pathogens differ in transmissibility and seasonality.⁵ This study examines these assumptions to further characterise trends with the expectation that other factors are at play.

METHOD

TWO DATA SETS:

HOSPITAL CASES OF GASTROENTERITIS

Stool samples positive for protozoan pathogens for patients in four Sydney-based hospitals from Jan 2007 – Dec 2010.⁶

• Seasonal trends for both *Cryptosporidium* spp. and *G. intestinalis* were analysed using Chi square test (Yates corrected).

HOUSEHOLD CASES OF GASTROENTERITIS

Cluster data from 600 households over a 15-month period prior to 2009, with stool samples collected during gastroenteritis episodes throughout the study.⁷

• Within household transmission dynamics determine using mean crowding based indices.⁸

RESULTS



Figure 1: Monthly time series of *G. intestinalis* hospitalisations.

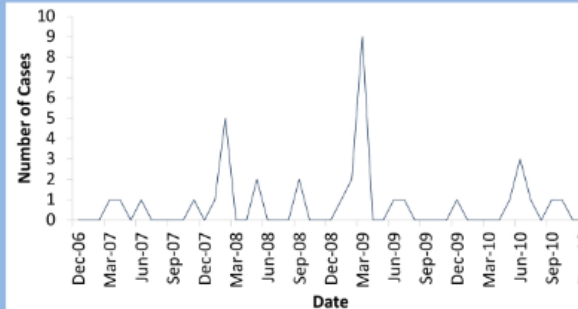


Figure 2: Monthly time series of *Cryptosporidium* spp. hospitalisations.

Pathogen	Pathogen Transmissibility $\rho(\infty)$	Number of people across all households	Number of Households
Cryptosporidium	0.62	9	2
Giardia	0.73	14	3
Multiple Infections	0.61	44	9
Norovirus	0.63	125	26

Table 2: Analysis of household transmission for a variety of waterborne pathogens, using the mean crowding based indices.

MAJOR FINDINGS

- Contrary to previous research, seasonality was not equally important for all protozoan based pathogens.⁹
- *G. intestinalis* showed increased incidence but no seasonality (Figure 1), yet *Cryptosporidium* spp. showed significant Summer-Winter ratio trends (Figure 2).
- Protozoan, bacterial and viral pathogens did not differ with regards to within-household transmissibility (Table 2).

CONCLUSIONS



Findings of this study contradicted previous epidemiological and clinical observations.^{4,9,10} Despite small sample sizes, the probability of results emerging by chance was very low (<0.05).



Different seasonal trends between protozoan pathogens indicated different transmission dynamics. As the life cycles of both protozoan pathogens are similar, this suggests further research into behavioural and environmental factors may better identify populations that are at imminent risk of infection.



Analysis of within-household data suggests that the number of secondary cases does not differ by type of pathogen. Quantitative microbial risk assessment protocols should be reevaluated based on within-household transmission results.

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Influence of host-associated factors on the gut microbiota of adolescents from geographically distant populations

Shreyas V. Kumbhare^{1,2*}, Himanshu Kumar¹, Somak P. Chowdhury¹, Dhiraj P. Dhotre¹, Akshay Endre¹, Anura Mahajan¹, Arthur C. Owen-Smith¹, Samir Radwan¹, Ruth J. Kelly¹, Vikramjit P. Patil¹, Ramesh K. Patil¹, Esha Mishra¹, Anshu K. Sankar¹, Suman Sankar¹, Rajeev K. Shinde¹

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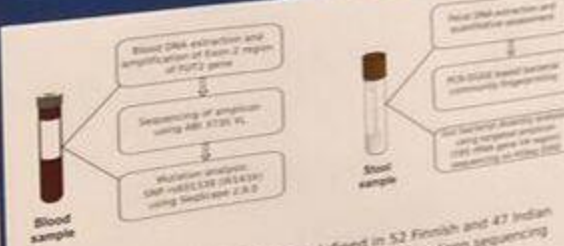
*Correspondence: Shreyas V. Kumbhare, Email: shreyas.kumbhare@ncscs.ac.in

Background



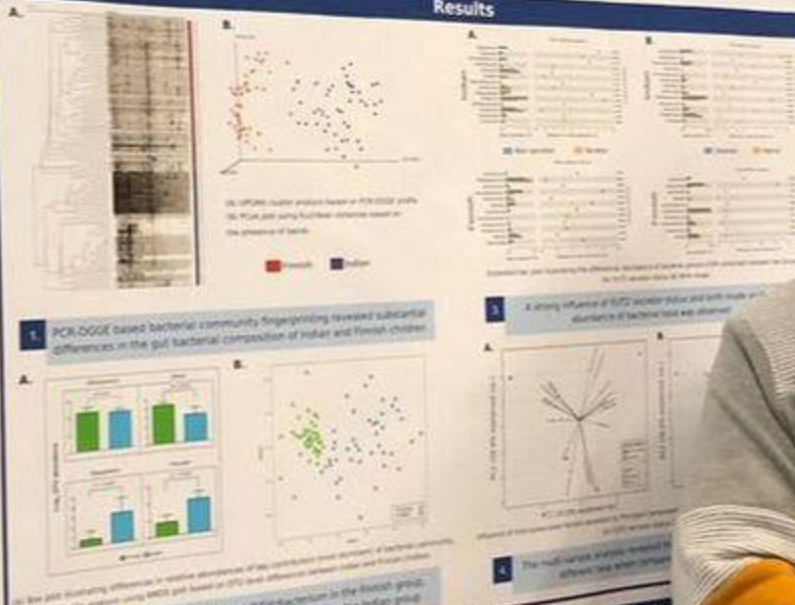
- *FUT2* (fucosyl transferase-2) secretor status and birth mode are key determinants of the compositional development of gut microbiota in Western pediatric populations.
- But, these observations may not be representative of other populations globally. The potential interaction and persistence of these effects in later life also remain poorly understood.
- We compared Finnish and Indian adolescents, to understand geographic variation in the impact of *FUT2* secretor status and birth mode on gut microbial composition.

Methods



Fecal microbial communities were defined in 52 Finnish and 47 Indian adolescents (aged 13-14) using PCR-DGGE and amplicon sequencing. SNP analysis was carried out to determine

Results



Conclusions

- We found substantial differences in the gut microbial composition of the Indian and Finnish adolescents.
- This study also revealed the differences in the influence of host factors in shaping the microbial community within two distinct populations.

Acknowledge





Metformin inhibits epithelial-to-mesenchymal transition in an *in vitro* model of posterior capsule opacification

Jade Lasiste, Denise Miyamoto, Pablo Zoroquiain, Christina Mastromonaco, Sabrina Bergeron, Miguel N. Burnier, Jr.
 MUHC McGill University Ocular Pathology Laboratory, McGill University, Montreal, QC, Canada



Introduction

- Posterior capsule opacification (PCO) is the most common complication of cataract surgery, causing a recurrence in visual decline in 3%-50% of patients up to 10 years postoperatively.
- PCO is caused by lens epithelial cells undergoing epithelial-to-mesenchymal transition (EMT), which primarily involves increased proliferation and secretion of extracellular matrix components.
- EMT is characterized by changes in cell morphology and the loss of epithelial markers, and the gain of mesenchymal markers.
- EMT is also associated with increased cell migration and cell death.

Results

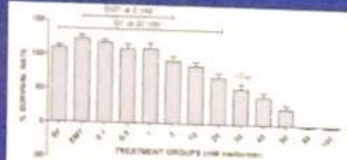


Figure 1. Metformin decreased HLE-B3 viability. The lethal concentration of metformin that reduced survival by half (LC_{50}) was 30 μ M.

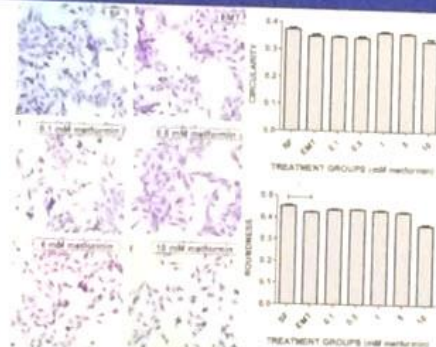
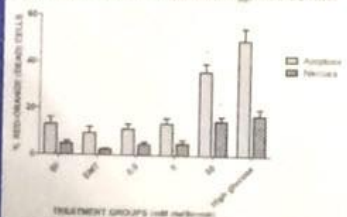


Figure 3. Metformin maintained LEC morphology. Circularity measures shape and roundness approximates symmetry. Both parameters are maintained with 1 μ M metformin.

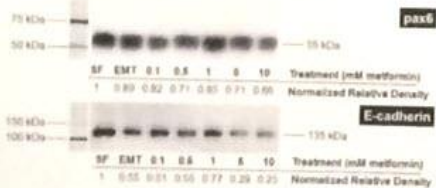


Figure 5. Metformin preserved epithelial marker expression. Increased expression of pax6 and E-cadherin was noted only at 1 μ M metformin, and at levels less than untreated cells (SF).

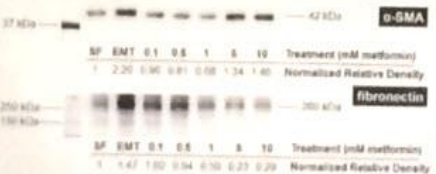


Figure 6. Metformin decreased expression of mesenchymal markers. Even low concentrations of metformin inhibited expression of α -smooth muscle actin and fibronectin.

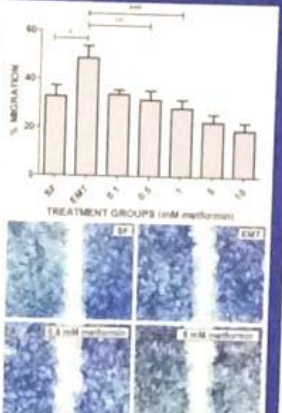


Figure 4. Metformin inhibited LEC migration. Migration was inhibited ($P < 0.05$) at low concentrations.



Figure 7. Metformin uptake and mechanism. HLE-B3 expressed SLC22A1. Metformin was associated with decreased Akt activation.

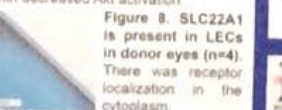


Figure 8. SLC22A1 is present in LECs in donor eyes (n=4). There was receptor localization in the cytoplasm.

Discussion

- This is the first study to: (1) demonstrate the direct effect of metformin on LECs; (2) analyze changes in LEC morphology via automated and qualitative parameters; (3) and establish the presence of the SLC22A1 receptor in the ocular lens epithelium.
- The data show that metformin inhibits EMT in LECs, resulting in decreased viability and the induction of apoptosis; preservation of the LEC phenotype, as seen in maintained epithelial marker expression and cell morphology; and reduced mesenchymal marker expression and cell migration.
- That the human ocular lens epithelium expresses SLC22A1 highlights the clinical significance of this study, as the receptor renders the lens capable of responding to metformin. The correlation between metformin use for other indications and PCO development can be studied in a prospective trial.
- Since metformin inhibits EMT in LECs and EMT is the pathophysiology underlying PCO, it is logical to conclude that metformin may be effective against PCO. Its efficacy as well as the doses, routes and timing of administration, should be validated *in vivo*.
- Furthermore, metformin has an excellent safety profile, is inexpensive and readily available. A topical ophthalmic formulation of metformin exists and has been used in rabbits with no reported adverse effects on the cornea. In addition, its ocular pharmacokinetics in rabbits has been established.

Conclusions

- Metformin inhibits EMT in LECs at concentrations ranging from 0.1 to 1 μ M. This effect is most likely mediated through uptake via the SLC22A1 receptor and decreased Akt phosphorylation. The human ocular lens epithelium expresses SLC22A1 and thus may respond to metformin.
- Metformin is safe, effective and accessible, making it a suitable potential pharmacologic adjunct in PCO prevention strategies.



Jade Lasiste
 McGill University Health Centre



Fluorescent *in situ* Hybridization-Flow Cytometry A Method for Analyzing Gene Expression

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University of California, San Diego

ABSTRACT

The objective of this project is to study cell cycle-dependent events by combining fluorescent *in situ* hybridization (FISH) with flow cytometry (FC) to obtain data for a computational cell cycle model which can simulate molecular population distributions. This combined technique can analyze cell cycle-dependent gene expression and transcriptional versus translational regulation better than methods based on Northern and Western blots. FISH allows for the simultaneous detection of multiple substances within individual cells. Flow cytometry allows the measurement of individual cell fluorescence with high accuracy and speed. Conversely, large cell populations can be statistically characterized and rare cells isolated.

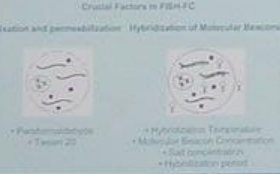
OBJECTIVE

The aim of this project is to study the expression of the protein kinase RNA dependent (PKR). This involves labeling the DNA, the mRNA transcript, and the protein using fluorescent dyes (e.g. DAPI, fluorescent anti-ovine antibodies, and fluorescent antibodies). The analysis on PKR was then compared to genes with known expression patterns, such as Histone, glyceraldehyde-3-phosphate dehydrogenase (GAPDH), and β -actin, to detect and study similarities and differences. In addition, test studies were performed to determine the practicality of molecular beacons over conventional oligonucleotides. Molecular beacons are hairpin-shaped hybridization probes that can be used to target mRNA with fluorescence.

FISH-FC



METHODS



MOLECULAR BEACONS



CHARACTERIZATION OF MOLECULAR BEACONS

In an effort to determine if the designed molecular beacons hybridize preferentially to a target sequence, 100-molar PKR mRNA was developed as a fluorescent probe and measured at a fraction of a temperature. The shape of the curve (Fig. 1) agrees with previous experiments performed by Tsai, et al. and it indicates that the fluorescence of PKR mRNA increases with temperature.

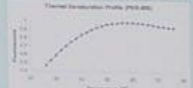


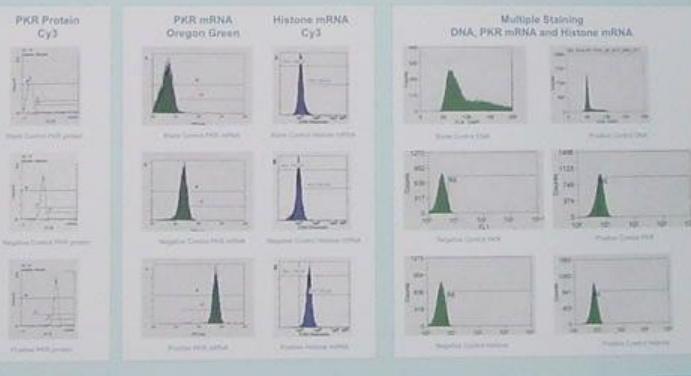
Figure 1 Thermal Denaturation Profile (PKR mRNA)

In addition, the temperature at which the molecular beacons hybridize to its target was determined. This was done by first extracting RNA from human cells (to 2 days old cells). Then, a mixture of molecular beacons and RNA was prepared and hybridized for a period of 20 minutes at different temperatures. The fluorescence for each sample was measured. The shape of the curve (Fig. 2) agrees with previous work and the optimal annealing temperature for the PKR mRNA was determined to be 35°C.



Figure 2 Binding Temperature Profile (PKR mRNA)

RESULTS



UCSD logo and other small text on the left side of the poster.

UNIVERSITY of GUELPH

Research Team⁴, & Sherilee Harper^{1,4}

Team; ¹McGill University, Montreal, Quebec, Canada

Discussion & Next Steps

Main sources of drinking water changed significantly over time, yet secondary water sources remained consistent. Although originating from the same surface water source (a local lake), ratings of ADWS water were more frequently rated as "good" or "very good" than tap water; further analysis is required to understand these perceptions, and the degree to which aesthetic appeal and perceptions of safety influence choice of drinking water.

Next steps include linking the surveys by individual ID to assess individual changes and patterns of drinking water consumption over time. Multivariable regression models will be used to identify potential factors contributing to daily volume of water consumption and use of various water sources.



Acknowledgements

Sincere thanks to the people of Rigolet, RICF, and the dedicated work of local surveyors including Charlie Flowers, Marilyn Baile, and the IK-ADAPT and Indigenous Health Adaptation team. For more information on these projects, see www.ihacc.ca

IK adapt

Poster Presenters

Participatory methods in Rigolet: Evaluation of Inuit health programs and collaborative development of a whiteboard video for health promotion

Manpreet Saini¹, Inez Shiwak², Steven Roche¹, Andrew Papadopoulos¹, Michele Wood³, Rigolet Inuit Community Government², Nunatsiavut Government³, IHACC Research Team⁴ and Sherilee Harper^{1,4}

¹University of Guelph, Guelph, Ontario, Canada; ²Rigolet Inuit Community Government, Rigolet, Nunatsiavut, Labrador, Canada; ³Nunatsiavut Government, Happy Valley-Goose Bay, Nunatsiavut, Labrador, Canada; ⁴Indigenous Health Adaptation to Climate Change Research Team

Background

Indigenous populations face great health disparities within all countries which can be attributed to differences in social, cultural, political and economic factors^{1,4}. Public health interventions that are culturally and locally relevant often lead to greater success than ones that are not^{5,9}. Inuit culture is heavily oral and visual, and this is important for effective programs and interventions⁸. Using both these cultural aspects and community participation can generate culturally relevant interventions and tools such as digital storytelling or whiteboard animation videos^{2,3,7}.

Community: Rigolet, Nunatsiavut

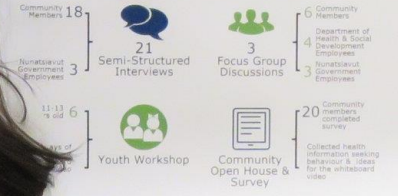
Rigolet is a small, remote community located in Nunatsiavut, Labrador. It has a population of about 305 people and 85% of the population identify as Inuit¹⁰. Incidence rates of acute gastrointestinal illness (AGI) in Rigolet are some of the highest reported in the global literature⁶.

Research Objectives

- Co-develop a whiteboard video with Inuit youth and community members to share public health information
- Co-develop an evaluation framework for Inuit health programs using participatory methods
- Assess the development and use of the video using the evaluation framework

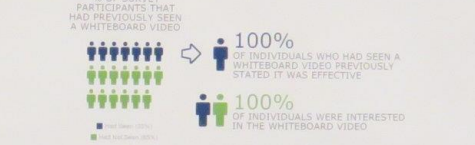
Methods

This project involves qualitative research and participatory methods to (i) explore perspectives on community participation in public health program evaluation and (ii) receive feedback and input on the whiteboard video about AGI.



Preliminary Results

Based on the surveys, whiteboard videos were considered interesting & effective.



Interview and focus group participants expressed positive responses (e.g. "like", "interesting", "good") to the whiteboard video. Larger text indicates word was used more often.



Discussion & Implications

Preliminary results indicate the whiteboard video is an interesting and potentially useful medium to share health information. The whiteboard video has been found useful in disseminating research results when developed with community participation¹. Evaluation of the video, once it is produced, will indicate (i) its effectiveness in sharing health information and (ii) key factors that make it effective or ineffective. Discussion with community members and government employees has indicated evaluation and the ability for community members to provide feedback on health programs is essential. Continued analysis of the data will provide insight into the extent of community participation in the evaluation framework.

Overall, the whiteboard video evaluation can inform the use of community focused public health interventions and the use of novel tools to share public health information. Additionally, it can demonstrate the potential use of whiteboard videos in other Northern Inuit communities to address health disparities. The evaluation framework could help governments demonstrate impact of these interventions and refine future policy and practice initiatives.

Next Steps



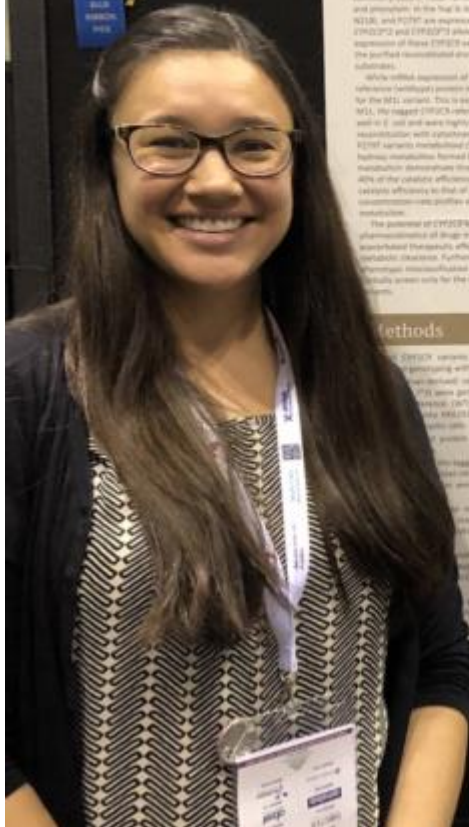
Acknowledgements

Special thanks to the community of Rigolet, the youth in Rigolet, Rigolet Inuit Community Government, Nunatsiavut Government, and the Nunatsiavut Government for their support and without whom this project would not be possible. Thanks to Na King for her assistance in hosting community events and collecting data. And finally thanks to the funders: the National Centre for Inuit Health and Changing Environments, IHACC, CIHR, NSERC and the Indigenous Health Adaptation to Climate Change and Arthur G. Lerner.



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B145



Functional Characterization of Novel *CYP2C9* Variants Found in an Alaska Native Population

SCHOOL OF PHARMACY



Lindsay M. Henderson¹, Matthew G. McDonald², Sutapa Ray³, Amanda L. Johnson³, Catherine K. Young³, Allan Riettle³, Kenneth E. Thummel¹
¹Departments of Pharmaceutics and ²Medicinal Chemistry, and ³Pharmacy, University of Washington, Seattle, WA

Abstract

Dating region variants of *CYP2C9* can differentially influence the pharmacokinetics and drug response of therapeutically agents, an important clinical consideration for commonly used *CYP2C9* drugs. Pharmacokinetic studies involving 10 warfarin and propofol in the Hadik Alaska Native population (ANP) *CYP2C9* variant (M1, N128, and P170) are expected with higher frequency than the well-characterized *CYP2C9* and *CYP2C9* alleles. This study's purpose was to determine the relative expression of these *CYP2C9* variants in HepG2 cells and to characterize the function of the purified recombinant enzymes expressed in *E. coli*. Specific novel *CYP2C9* drug substrates.

While initial expression of the *CYP2C9* M1, N128, and P170 gene variants and the reference (wildtype) protein in HepG2 cells were similar, the protein levels (measured for the M1 variant). This is expected. And in comparison of the start codon in *CYP2C9* M1, the novel *CYP2C9* reference protein and N128 and P170 variants expressed well in *E. coli* and were highly purified after affinity chromatography following recombinant with cytochrome P450 reduction and cytochrome b₅. The N128 and P170 variants methylated (2) warfarin, but not (2) warfarin, to the propyl-2, and a hydroxy metabolite formed by the reference enzyme. Kinetic studies of (2) warfarin metabolism demonstrate that the N128 variant has reduced function, with less than 40% of the relative efficiency of reference enzyme, while the P170 variant had similar relative efficiency to that of reference *CYP2C9*. Similar, although not identical, substrate-inhibition profiles were obtained for propofol, butalbital and roxatidine.

The potential of *CYP2C9* M1, N128, and perhaps even P170 alleles to alter the pharmacokinetics of drugs metabolized by *CYP2C9* has not been fully characterized. Further clinical investigations for the Alaska Native population include pharmacogenetic studies to identify *CYP2C9* variants and their impact on drug response.

Methods

CYP2C9 variants were identified for larger sequencing followed by genotyping with the Hsp90a primers (1999-2010). The M1, N128, and P170 variants were generated using synthetic nucleotide substituted primers (M1, N128, and P170) and wild type genes were cloned into pET28a vector. The M1, N128, and P170 variants were also used to generate HepG2 cells. Some expression was determined by RT-PCR.

Relative protein concentrations were determined using carbon monoxide binding assays. *CYP2C9* M1 and variants expressed in *E. coli* were purified using Ni-NTA chromatography and Superdex and molecular weight was determined using SDS-PAGE.

Enzymes were incubated with warfarin, propofol and roxatidine and metabolites were determined using HPLC. Kinetic studies were performed with 10 μ M of warfarin, 10 μ M of propofol, and a variable concentration of enzyme. The Michaelis-Menten constants (K_m) and maximum velocity (V_{max}) were determined from Lineweaver-Burk plots. The relative efficiency of the variants was determined by comparing the V_{max}/K_m ratio of the variant to that of the reference enzyme.

Substrate-inhibition studies were performed with warfarin and propofol. The substrate-inhibition constant (K_{si}) and maximum velocity (V_{max}) were determined from non-linear regression analysis of the data.

Results

Figure 1 and Table 1. The human *CYP2C9* gene and variants located (200,000,000-200,000,000) bp on chromosome 10q24. The M1, N128, and P170 variants identified in an Alaska Native population. Gene names, accession numbers, and positions are shown. The M1 variant was found in 100% of the Alaska Native population (ANP) in the Hadik population and is compared to other populations from 1000 Genomes in Table 1.



Population	M1	N128	P170	WT
Hadik (ANP)	100	0	0	0
1000 Genomes	0	0	0	100
Other	0	0	0	100
Reference	0	0	0	100

Figure 2. *CYP2C9* variant expression in HepG2 cells. The relative expression of *CYP2C9* M1, N128, and P170 variants was determined by comparing expression to that of the reference enzyme. The relative expression of the variants was determined by comparing the V_{max}/K_m ratio of the variant to that of the reference enzyme.

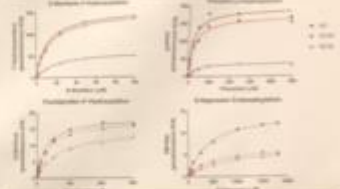


Table 1. Purified *CYP2C9* M1 and variant enzyme characteristics, measured from these relative quantities. 10 μ M of warfarin was used for the kinetic studies in Figure 1 and Table 1.

Variant	K_m (μ M)	V_{max} (pmol/min/mg)	V_{max}/K_m (min ⁻¹)
M1	1.2	1.2	1.0
N128	1.5	0.5	0.33
P170	1.2	1.2	1.0

Results

Figure 3 and Table 2. Kinetic studies of propofol metabolism by *CYP2C9* M1, N128, and P170 variants and the reference enzyme. The relative efficiency of the variants was determined by comparing the V_{max}/K_m ratio of the variant to that of the reference enzyme.



Variant	K_m (μ M)	V_{max} (pmol/min/mg)	V_{max}/K_m (min ⁻¹)
M1	1.2	1.2	1.0
N128	1.5	0.5	0.33
P170	1.2	1.2	1.0
WT	1.2	1.2	1.0

Conclusions & Future Directions

- The M1, N128, and P170 variants of *CYP2C9* were found in the Hadik Alaska Native population (ANP) in the Hadik population and is compared to other populations from 1000 Genomes in Table 1.
- The M1, N128, and P170 variants were highly purified after affinity chromatography following recombinant with cytochrome P450 reduction and cytochrome b₅.
- The N128 and P170 variants methylated (2) warfarin, but not (2) warfarin, to the propyl-2, and a hydroxy metabolite formed by the reference enzyme.
- Kinetic studies of (2) warfarin metabolism demonstrate that the N128 variant has reduced function, with less than 40% of the relative efficiency of reference enzyme, while the P170 variant had similar relative efficiency to that of reference *CYP2C9*.
- Similar, although not identical, substrate-inhibition profiles were obtained for propofol, butalbital and roxatidine.

References

- Thummel KE, et al. (2000) Pharmacokinetics of propofol. *Pharmacokinetics and Biopharmaceutics*, 2nd ed. pp. 100-110. Wiley: Hoboken, NJ.

Acknowledgments

This work was supported by the National Institutes of Health (NIH) grant R01HL120000 and the University of Washington.

Making data sharing the new normal: progress and challenges

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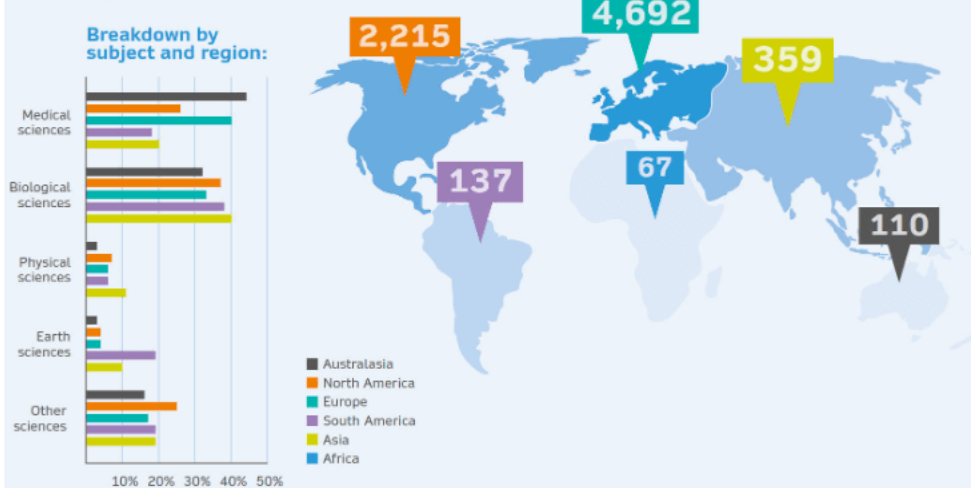
Abstract:

The case for open data to support good research practice is increasingly inarguable. Open access to research data can help speed the pace of discovery and deliver more value by enabling reuse and reducing duplication. Good data practice also makes research more efficient, effective and fulfilling for researchers. A survey conducted in 2017 by Springer Nature with more than 7,000 researchers found that, despite the known benefits, there is still a significant proportion of data that is not being shared. The survey explored some of the main challenges for researchers in data sharing, including how data is organised; knowledge of copyright and licensing; knowledge about repositories; time; and costs. This poster will summarize the findings of this survey, and our considered views on increasing data sharing amongst researchers.

Related:

Full survey dataset (CC-BY 4.0): <https://doi.org/10.6084/m9.figshare.5971387>; Whitepaper based on the results of this survey (CC-BY 4.0): <https://doi.org/10.6084/m9.figshare.5975011>

Survey respondents

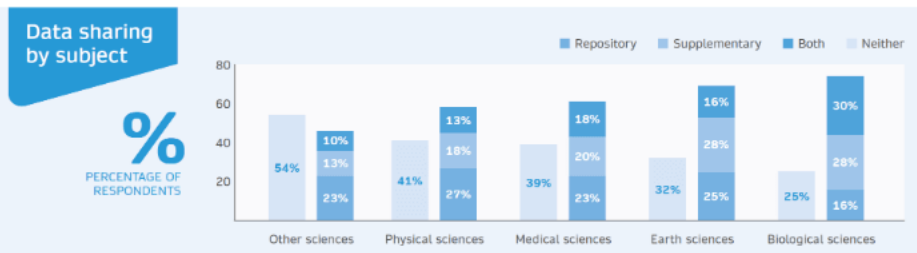


Main challenge to data sharing is organising data in a presentable and useful way

Almost half of all respondents (46%) said that **organising data** was a challenge, followed by **confusion around copyright** (37%) and **not knowing where to share data** (33%)

Small datasets are the least likely to be shared

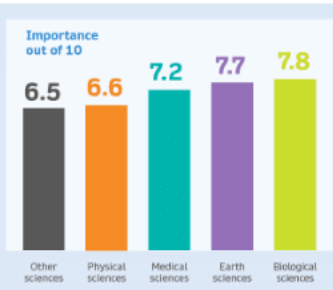
Researchers that generated the smallest sized data files (<20MB; n = 2,036) had the **highest proportion of data** that were neither shared as supplementary information nor deposited in a repository (42%)



Importance of data discoverability

76% of respondents highly rate the importance of their data being discoverable: most popular ranking was 10/10

Region	Importance out of 10
South America	7.7
Asia	7.6
Europe	7.3
North America	7.2
Australasia	6.9



Majority of researchers share their data in some way

63% of respondents stated that they generally **submitted data files as supplementary information**, deposited the files in a **repository**, or both

What can be done to increase data sharing?

Improving education and support on good data management, particularly at early stages of researchers' careers

Creating faster, easier routes for sharing data - making data easily accessible and usable by researchers

Research
 Poster #292 Rounding With Teams:
 An Evaluation Of Interprofessional Collaborative Practice

Rounding with Teams: Evaluation of Interprofessional Collaborative Practice

Aletha Rowlands Ph.D. RNFA, CNOR, WVU School of Nursing; Kari Sand-Jecklin EdD, MSN, AHN-BC, WVU School of Nursing; Jon Wietholter PharmD, BCPS, WVU School of Pharmacy; Shanthi Manivannan PhD, MD, WVU School of Medicine; Kayla McCormick, MA, WVU School of Nursing

Purpose

To compare and present the observational findings surrounding with four different medical and surgical teams over a two-month period to the authors from the perspective of teamwork during their care.

Research Questions Explored:

- How well do medical/surgical teams use interprofessional teamwork during patient rounds?
- How do patients perceive their teamwork?

Study Background

Over the past 25 years, much attention has been placed on how interprofessional teams can improve the quality of care. Improved teamwork is now a near universal goal in health care. This NIOSA funded study (Sand-Jecklin et al. 2014). "Team Education, Practice, Quality, and Outcomes in Interprofessional Collaborative Practice", recognizes patients as members of the interprofessional team, as suggested by Reeves et al. (2012) and seeks to improve health care outcomes for vulnerable care patients through an academic partnership.

Specific Grant Aims include: Improving access to safe quality care by increasing an interprofessional partnership, increasing the numbers of nurses, nurse leaders, other health professionals, and students delivering interprofessional collaborative care while strengthening the capacity to sustain and evaluate interprofessional collaborations, preparing prepared nurse leaders to facilitate team building opportunities.

Methodology

Theoretical Framework

The Quality Health Outcomes Model (QHOM) supports that teams with IPHC (interprofessional education or collaboration) can improve patient outcomes.

Observations

- 5 researchers (2 joint) rounded with 4 medical/surgical and one OR team and completed a prepared observation tool aimed using the 5 established IPHC core competencies.
- A total of 28 observations were completed in 24 observation days spanning over a three-month period (April and May).
- The tool aimed asked observers to evaluate and rate the teams using a Likert Scale (1=never, 2=fairly, 3=occasionally, 4=fairly, 5=always).

Patient Evaluations

- After rounds, the Patient Manager visited each patient/family (74 total) provide him or her an opportunity to evaluate their care team's interprofessional teamwork.
- Data was collected via Qualtrics on a tablet device.
- 5 questions representing the same core competencies and Likert scale used in the observer instrument with an opportunity for comments at the end.

Quantitative Results

Both researchers and patients/family members rated the medical teams' teamwork skills highly (range 4.25-4.85). Overall, teams mostly or always exhibited the established core competencies for interprofessional teamwork and collaboration.

The quantitative results show very positive displays of teamwork, however, qualitative comments opportunities represent varied variations in teamwork behaviors.

Observer Evaluations of Teamwork (n=28 observations)			
Core Competencies	Observation Instrument of Items	Median	Mean
Values and Ethics	1. Each member of the team appears to value and respect the opinions of other members.	5	4.92
	2. Each member of the team appears to respect the dignity of patients and families (or community).	5	4.40
	3. Each member of the team appears to act with honesty and integrity towards team and patients/family members.	5	4.25
	4. Each member of the team seems prepared to discuss patient's current health using his/her professional knowledge.	5	4.74
Roles and Responsibilities	1. Each member of the team seems to know who is responsible for what on the team.	5	4.65
	2. Each member of the team seems to know who to consult for assistance when needed and appropriately utilizes team resources.	5	4.77
	3. Team members appear to work actively to one another and encourage others' ideas and opinions.	5	4.95
Interprofessional Communication	1. Team communicates together and with patients/families in an easily understandable manner.	5	4.50
	2. Team members express knowledge and opinions to others with confidence, clarity, and respectful language.	5	4.54
	3. Team members work cooperatively with the public team (including patients).	5	4.46
Team & Teamwork	1. Team members work cooperatively with the public team (including patients).	5	4.46
	2. Team members are available to others to inform effective teamwork and team based practice.	5	4.76
Patient Centricity	1. Each member of the team seems to regard patients' wishes about their care and share patient preferences at the center of care delivery.	5	4.75
	2. Team members appear to know to one another.	5	4.87

Qualitative Results: Thematic Analysis of Comments for Improvement

Observer Comments by competency (28 total):

- **Values and Ethics**
 - Team with confidence/competence
 - Respecting/valuing full team's opinions
- **Roles and Responsibilities**
 - Role confusion/confusion or unpreparedness
 - Full team not involved. Was not present or speaking up, silent, disinterested
- **Interprofessional Communication**
 - Talking over each other/patient, side conversations, not listening
 - Other ideas not encouraged, poor engagement
- **Team and Teamwork**
 - Little nurse involvement
 - Insufficiently

Emergent Theme: Critical Role of Leadership in Facilitating Teamwork and Engagement

- Other attendees encouraged rounds and actively solicited participation, members were more engaged
- If not, conversations were dominated by assertive and experienced members.

Takeaways/Other Findings:

- Announcement of Teams on the unit for rounding is imperative for nurse (full team) involvement
- Qualitative data for Teams and Teamwork (most positive comments from patients) was consistent with high ratings in both quantitative data sets
- High patient census and the staffing and affected teamwork
- OR teams showed exemplary teamwork skills including active listening, knowing roles, and respectful talking

Patient Evaluations of Teamwork (n=74 patients surveyed)

Core Competencies	Survey Questions	Median	Mean
Values and Ethics	Each member of the team appears to value and respect the opinions of other members.	5	4.46
	Each member of the team seems prepared to discuss patient's current health using his/her professional knowledge.	5	4.45
	Team members appear to know to one another.	5	4.57
	Team members engage in friendly interaction with one another.	5	4.42
Team & Teamwork	Team members appear to know to one another.	5	4.42
	Each member of the team seems to regard the wishes about their care.	5	4.45

Conclusion and Implications

Overall, the major priority of teamwork are being identified.

- This study shows the value of engaging patient perspective in research measuring interprofessional teamwork
- Statistics on teams indicated the importance of leadership in facilitating teamwork
- Emphasis should be placed on providing rounds to increase nurse involvement
- Patient perspectives must show some minor/prior efforts to be made between units when patients are transferred or shift change
- A culture of teamwork should be established by educating new hires and existing employees of all disciplines, including leadership positions
- Exemplary teamwork seen at OR teams may exist interprofessional (nurse, interprofessional) teams should study their example techniques





AUGUSTA UNIVERSITY

Operating Room Utilization Variability Across Weekdays

Cheryl Elliott-Darwo, MA, MSN, RN, CNOR

Jonas Scholar | Cohort V 2016-2018

College of Nursing, Augusta University, Augusta, Georgia



INTRODUCTION

Identification and control of variability can aid peroperative leaders in effectively managing the operating room (OR).¹

On the one hand, scheduling complicated cases early in the week can lessen the chance of patients being in the hospital over the weekend and can reduce the need for weekend rounds, but this practice can also add stress on the system early in the week.^{1,2}

Research shows that the day of the week surgery occurs has an effect on patient outcomes and cost.^{3,4} Few studies have examined the effect of weekday on OR utilization.

The purposes of this study were to examine the differences in OR utilization across weekdays and to delineate the sources of variability.

Research Questions:

- How does OR utilization differ across weekdays?
- What are the sources of variability in OR utilization across weekdays?

Hypothesis:

Differences in OR utilization across days of the week can be accounted for by changes in late starts, delays, and site time.



Figure 1: Conceptual Framework

METHODS

- The investigation was part of a larger study on OR utilization that was approved by the IRB and was deemed non-human subject research.
- An initial power analysis indicated that a sample size of 216 daily measurements of each condition would be sufficient to detect effect sizes.
- Fifty-five months of data were extracted from an academic medical center surgical data repository located in the southeast region of the United States.
- Performance metrics of late start, site time, delay, and OR utilization were calculated for each day of the week, Monday through Friday.
- ANCOVAs were used to compare OR metrics across weekdays. All statistical tests were conducted using the 0.05 level of significance.

RESULTS

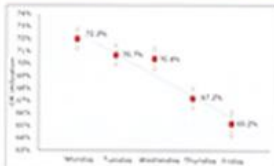


Figure 2: Impact of Day of the Week on OR Utilization

Notes: OR Utilization differed across days of the week ($F = 29.72, p < 0.0001$). Each day of the week represents a significant decrease in OR utilization except Wednesdays which did not differ from Tuesdays. Bars represent the 95% confidence interval.



Figure 4: Percent of Available OR Staffed Minutes Lost due to Delay

Notes: The percent of available minutes lost due to delay differed across days of the week ($F = 3.09, p < 0.0001$). Delays on Mondays and Tuesdays were significantly less than delays on Wednesdays, Thursdays, and Fridays. Bars represent the 95% confidence interval.



Figure 3: Percent of Available OR Staffed Minutes Lost due to Late Start

Notes: The percent of available minutes lost due to late start differed across days of the week ($F = 2.38, p = 0.05$). Late start on Mondays was significantly lower than other days of the week. Tuesdays through Fridays were not significantly different from one another. Bars represent the 95% confidence interval.



Figure 5: Percent of Available OR Staffed Minutes Lost due to Site Time

Notes: The percent of available minutes lost due to site time differed across days of the week ($F = 24.43, p < 0.0001$). Mondays, Tuesdays, and Wednesdays were not different from one another. Thursdays had significantly more site time than earlier days of the week, and Fridays had significantly more site time than Thursdays. Bars represent the 95% confidence interval.

DISCUSSION

- There was a significant decline in OR utilization over the course of the week. Relative to a high performing OR with 85% utilization, the average costs associated with unused OR staffed minutes in this study ranged from \$57,275 for each Monday to \$93,768 for each Friday.
- The source of the variability in OR utilization was attributed to significant effects of three performance metrics across weekdays.
- Late starts on Tuesdays through Fridays were significantly longer than those that occurred on Mondays.
- Delays on Wednesdays through Fridays were significantly longer than those that occurred on Mondays and Tuesdays.
- Finally, site times for Thursdays were significantly longer than those recorded Monday through Wednesdays, and site times on Fridays were significantly longer than those found on Thursdays.

IMPLICATIONS & CONCLUSIONS

- Declines in OR utilization across weekdays are due, in part, to compounding significant shifts in late start, delay, and site times as the week progresses.
- These findings suggest that the examination and careful consideration of the timing of shifts in OR performance metrics can, in part, account for OR utilization variability across weekdays.
- Identifying the sources of OR utilization variability can assist managers in developing appropriate strategies that enhance outcomes for patients, minimize costs, and maximize revenue for the organization.

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ACKNOWLEDGEMENTS

The author wishes to thank Dr. Julie Edrinsky and Dr. Joe Chen for their guidance and advice along with Ms. Chesley Lemons for assistance with formatting this poster.



Achieving High Reliability in High-Level Disinfection of Flexible Endoscopes at Walter Reed National Military Medical Center

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Daniel K. Inouye Graduate School of Nursing, Uniformed Services University of the Health Sciences, Bethesda, MD



Significance of the Problem

- 18 million procedures annually performed using flexible endoscopes in the US
- Primary cause associated with endoscope-associated infections is human error related to high level disinfection (HLD) reprocessing
- HLD is a complicated, multi-step process involving over 65 actions with no safety nets and lacks standardized verification processes
- Missing even a single step in the HLD process places patients at risk for exposure to potentially life-threatening infections
- 99% of the time one or more HLD steps are skipped/incorrectly performed
- Missing one step in the process can lead to death with infection rates ranging from 1 to 14 per 1000 endoscopes performed (18,500-28,500 per year)
- Hospital Acquired Infections (HAIs), including those transmitted from contaminated endoscopes, are considered "lower priority" by The Joint Commission
- Costs associated with HAIs are \$16.8 billion annually (approx. \$10,000 per patient) and often result in an extended length of hospital stay
- "Lower Events" are the responsibility of the healthcare organization and not reimbursed by Centers for Medicare and Medicaid Services

Purpose

Walter Reed National Military Medical Center (WRNMMC), will an evidence-based HLD process for a program evaluation of HLD, compared to current practice, support its readiness organizations (RHO) goal to achieve quality, safety, and continuous process improvement.

Project Design

Assessment of HLD process, practices, equipment, at WRNMMC included activities that perform HLD on flexible endoscopes. Requiring audits conducted over an 11-month period (Oct 2017 to Sept 2018). HLD steps evaluated across 6 phases of HLD: point of use cleaning, leak testing, manual cleaning, W/D, drying and storage, and reprocessing. Donabedian's Lasting Framework for Healthcare Quality (LFHQ) Quality Loop: guided the structure supporting the audit/feedback process. LFHQ Framework for Program Evaluation guided the audit process steps. HLD Goals used to evaluate the outcomes achieved related to quality, safety, and continuous process improvement.

Organizing Framework

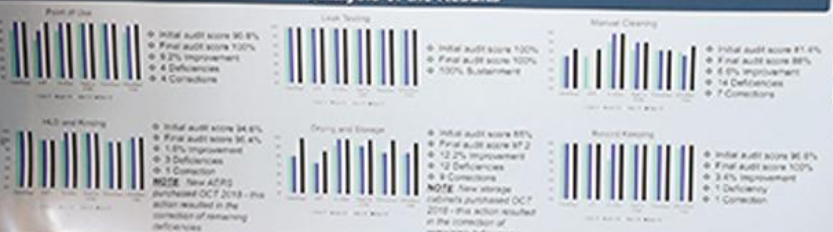
Donabedian's Lasting Framework for Healthcare Quality



Project Results

- Overall HLD percentage compliance with 65 steps across 5 clinic, initial audit: 91.4%, second audit: 93.1%, third audit: 96.2%, fourth audit: 96.3% (total deficiencies identified: 34)
- Overall performance improvement of 5.9%
- Leadership risk assessment initial audit score was 96.6% (total deficiencies identified: 6)
- During the second, third and fourth audits, audit scores were 100%
- Culture of Safety audit score 100% at each audit indicating staff's perception of leadership being fully engaged in support of safety, quality, and continuous process improvement
- 40 total HLD/Leadership risk assessment/Culture of safety deficiencies identified; 28 corrections made
- 22 system/process/leadership initiatives; 135 impacted areas across the organization (41 areas of reach) outside of the 5 HLD clinics

Analysis of the Results

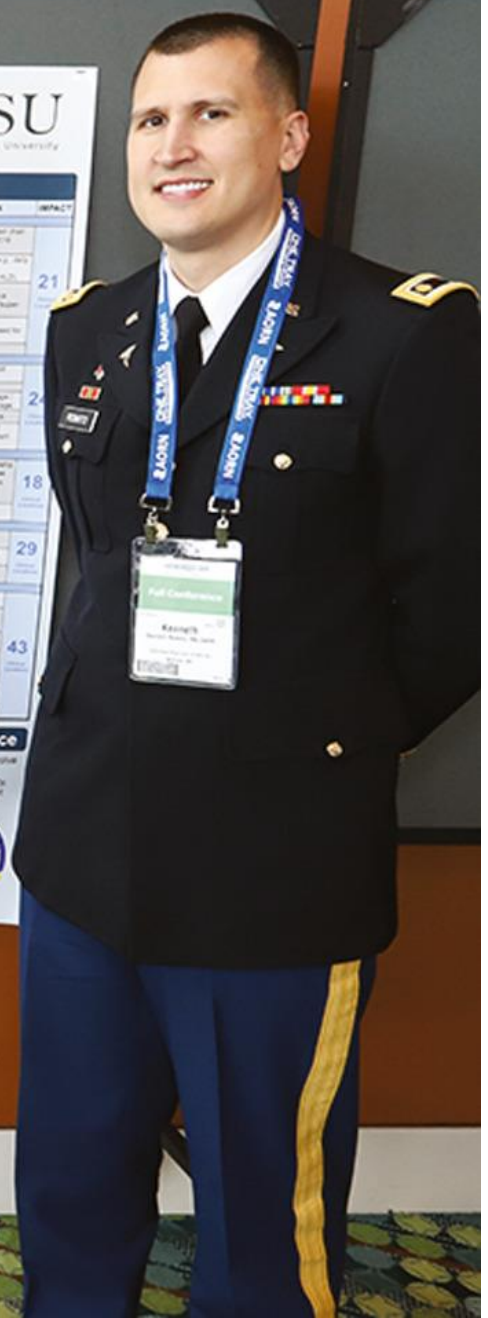


Organizational Impact

HLD GOALS	INITIATIVES IMPLEMENTED ACROSS THE ORGANIZATION	IMPACT
QUALITY	Operational Practice Improvement • Standardized HLD steps and HLD verification with implementation of an HLD control system. (Identified on: Jan 2018 to Feb 2018) • Standardized HLD process across the organization (e.g., HLD process steps, implementation of endoscope control system) with each step being standardized across all HLD clinics. (Identified on: Feb 2018 to Mar 2018) • Standardized HLD process across the organization (e.g., HLD process steps, implementation of endoscope control system) with each step being standardized across all HLD clinics. (Identified on: Mar 2018 to Apr 2018) • Standardized HLD process across the organization (e.g., HLD process steps, implementation of endoscope control system) with each step being standardized across all HLD clinics. (Identified on: Apr 2018 to May 2018)	21
SAFETY	Leadership Engagement • Standardized HLD process across the organization (e.g., HLD process steps, implementation of endoscope control system) with each step being standardized across all HLD clinics. (Identified on: May 2018 to Jun 2018) • Standardized HLD process across the organization (e.g., HLD process steps, implementation of endoscope control system) with each step being standardized across all HLD clinics. (Identified on: Jun 2018 to Jul 2018) • Standardized HLD process across the organization (e.g., HLD process steps, implementation of endoscope control system) with each step being standardized across all HLD clinics. (Identified on: Jul 2018 to Aug 2018)	18
CONTINUOUS PROCESS IMPROVEMENT	Process Improvement • Standardized HLD process across the organization (e.g., HLD process steps, implementation of endoscope control system) with each step being standardized across all HLD clinics. (Identified on: Aug 2018 to Sep 2018) • Standardized HLD process across the organization (e.g., HLD process steps, implementation of endoscope control system) with each step being standardized across all HLD clinics. (Identified on: Sep 2018 to Oct 2018) • Standardized HLD process across the organization (e.g., HLD process steps, implementation of endoscope control system) with each step being standardized across all HLD clinics. (Identified on: Oct 2018 to Nov 2018)	43

Future Directions for Research and Practice

- **Future Research:** Identify healthcare procedures that lack safety nets but show critical steps requiring 100% compliance with each step of the process.
- **Future Practice:** Implement an HLD program across the Defense Health Agency, inclusive of inpatient audits, to create HLD's throughout the enterprise and meet Military Health System's Quality Assurance related to HLD.
- **Better Care:** Achieved by implementing evidence-based, standardized HLD practices.
- **Better Health:** Achieved by creating an environment and culture by which safe endoscopic procedures are free of contamination exposure.
- **Lower Cost:** Achieved by avoidance of contaminated HAIs.
- **Increased Readiness:** Achieved by rapid return to duty following endoscopic procedures without infection.



ESSENKOWER HEALTH

Cultivating Positive Change: Improving Stress Management for Staff in Surgical Services

Gera Salamone BSN, RN, PHN, CNOR, NE-BC, OCN, RACP

Clinical Issue

The team noted that a common complaint of staff in the department was stress and feeling overwhelmed by conflict. Stress can cause feelings of exhaustion, increase personal illness, decrease quality of sleep, and impact judgment.

Description of Team

The team was led by the Perioperative 131 administrator and consisted of a group of Perioperative 131 nurses, other perioperative staff, service line leadership, and materials management staff.

Objectives

- Reduce stress in the surgical services department
- Educate staff on methods for stress reduction such as:
 - Mindfulness
 - Guided Imagery
 - Music
- Provide insight and understanding about self and coworkers communication styles through personality type analysis

Preparation and Planning

- A review of the literature revealed that stress in a surgery workplace increases incidents of medication errors, wrong site surgeries, and related surgical items.
- The group wanted to work on a project to improve the stress management, conflict resolution skills, and resources for the staff in surgical services.

Assessment

Staff Survey Question	Initial Response
Overwhelmed with conflict in the workplace	53%
Has been knowledgeable of healthy ways to manage stress	48%
Wants to learn methods for stress management	96%
Feels comfortable with communication skills when resolving conflict	79%
Feels stress affects overall performance at work	46%
Feels rested and ready to start the day	41%

Implementation

The team developed a multifactorial approach including education on working resources, providing new resources, training on conflict resolution, and crucial communication skills.

Education topics included:

- Crucial communication and conflict management
- Personality assessment testing with education on strengths, communication styles, and stress reducing methods based on personality types
- Relaxation techniques
- Stress management and mental health resources offered by the organization

The team also provided a safe place within the department for staff to access on their breaks to decompress. A low budget relaxation station was created with a sound machine, aromatherapy, low lighting, and massage chairs.

Results

Survey assessments of stress levels, knowledge of stress reduction techniques, and comfort levels with crucial communication and conflict resolution were collected pre and post education and relaxation station implementation.

Staff Survey Question	Post Implementation Survey Results
Overwhelmed with conflict in the workplace	33%
Ease of new methods for stress management	81%
Ease of relaxation station	89%
Feels interventions helpful for reducing stress	78%
Feels comfortable with communication skills when resolving conflict	75%
Feels stress affects overall performance at work	73%
Feels rested and ready to start the day	68%

Staff was also surveyed on their self-rated stress levels prior to using the relaxation station and post use of the relaxation station. On a scale of 1 (not stressed) to 5 (very stressed), survey results showed an average decrease of stress levels by 59% after 18 minutes in the relaxation station.

Stress Level Before Using Relaxation Station

Stress Level After Using Relaxation Station

Implications for Nursing

Proactive management of stress in conjunction with self awareness and improved communication techniques with team members can improve the working environment for perioperative staff which improves patient safety and patient outcomes.

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Development and Implementation of Active Shooter Plan

Bryan Mehalick, RN, BS St. Luke's University Health Network, Bethlehem, PA

Background

- Due to the prevalence of active shooter situations in the United States, emergency preparedness is essential.
- Healthcare facilities must have plans in place to meet the challenge of an active shooter situation.
- Preparing for an active shooter should follow the same rigorous training as other life threatening events such as fires or weather emergencies.

Aim

- Increase staff member awareness and preparedness for an active shooter situation within the OR environment as well as resolve misconceptions on staff members' roles during such an event.

Methods

- Facility member committee examined the department for security weaknesses as well as areas of refuge.
- Staff interviews were conducted to determine the extent of their knowledge regarding their role in an active shooter situation.
- Concurrently, an extensive literature search was performed, seeking to find any information related to active shooter situations where vulnerable patients are involved, such as the OR or ICU.
- A guideline was developed that utilized the Run, Hide, Fight protocol set forth by numerous Federal Agencies (FEMA, FBI).
- The committee thoroughly reviewed the guideline prior to delivering the information to the staff.
- An Active Shooter Drill was performed in conjunction with XG, PACU, anesthesia providers and physicians.
- Drill participants were debriefed at the conclusion of the exercise and given a survey to reflect their thoughts as well as provide suggestions.

Active Shooter Drill Action Plan

- Notifications of the drill were given to local law enforcement, hospital administration and bystanders.
- The exercise environment was cleared and maintained with signs displaying an active shooter drill was in progress.
- All participants were required to sign in and wear a badge indicating that they were participating in the drill.
- Participants were assembled outside of the OR and briefed on the drill procedure.
- Participants were allowed access to the OR and instructed to gather in groups in various ORs to simulate a normal work day.
- An actor, playing the role of the active shooter and using a blank gun, moved throughout the OR firing the replica weapon.
- Participants were encouraged to follow the Run, Hide, Fight protocol which utilized already established fire exits and newly created Areas of Refuge or "safe rooms".
- Once participants left the exercise area they were not permitted to return until the drill was completed.
- The drill was concluded after ten minutes and the participants assembled in a predetermined area for debriefing.



Drill Participants preparing for the drill to commence

Marker above door designating the room as Area of Refuge

Acknowledgment

Active Shooter Preparedness Committee: Andy Bunker, MD, MPH, Cecil A. Szymanski, MD, MSW, MBA, Kelly L. Loughlin, MD, Victoria M. Ruffolo, MD, Bryan Mehalick, RN, BS, Barbara A. Zimlich, MD, MPH, CHSE, Sarah Quisenberry, PhD, Phyllis C. G. Carls, PhD, Richard R. Miller, MD, PhD, Robert L. Miller, MD, PhD, Laura M. D'Amico, MD, MPH, MPH, CNOR, Beth Weiss, MD, BS.

Survey Results

- Positive feedback provided from staff members in regards to the necessity of exercise and the information provided.
- 90% response rate to staff survey.
- Staff state an improved recognition of their role in an active shooter situation and how to properly respond.

100% of staff that this active shooter drill gave the an understanding of my role during an incident



Figure 1. Sample question used in post-drill briefing

Future Plans

- Areas for improvement were identified and promptly followed up on:
 - Staff needed additional education on proper usage of room intercoms.
 - Physicians were not familiar with escape routes.
- Active Shooter situations to be scaled down and drilled annually to refresh staff on Run, Hide, Fight protocol and areas of refuge.

Conclusions

- A multidisciplinary team created a plan that has brought an increased awareness to the staff as well as promoted conversations on the need for preparedness.



ВНИМАНИЕ!

Graphic design ≠ User Experience Design

Rethinking poster presentations at large-scale scientific meetings – is it time for the format to evolve?

Nicholas Rowe¹ and Dragan Ilic²

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² Department of Epidemiology & Preventive Medicine, School of Public Health & Preventive Medicine, Monash University, Melbourne, Australia

Introduction

Conferences have been recorded since the mid-1600s [1], and form a key professional practice in scientific and other academic/professional domains. Conference events range in scale from small local affairs to vast international gatherings, but their underlying objectives are the same: to allow like-minded people to gather and exchange knowledge and views, and to promote networking within the field. The motivations for attending conferences are both intrinsic and extrinsic. As individuals, we like to learn more about our fields of study, meet our peers, and also revitalize ourselves away from our daily routines. Additionally, as a presenter, you may formally contribute your knowledge to the community, which has both altruistic and personal motivations. As individuals, the benefits of con-

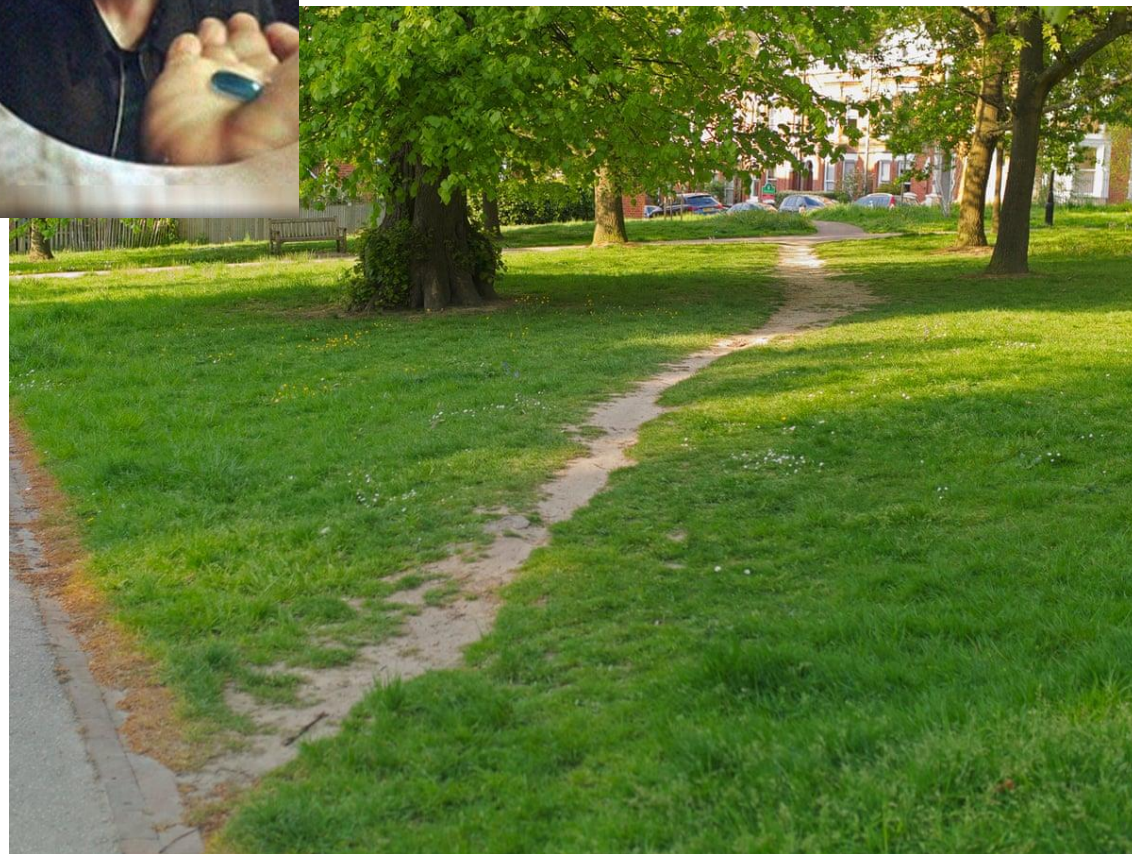
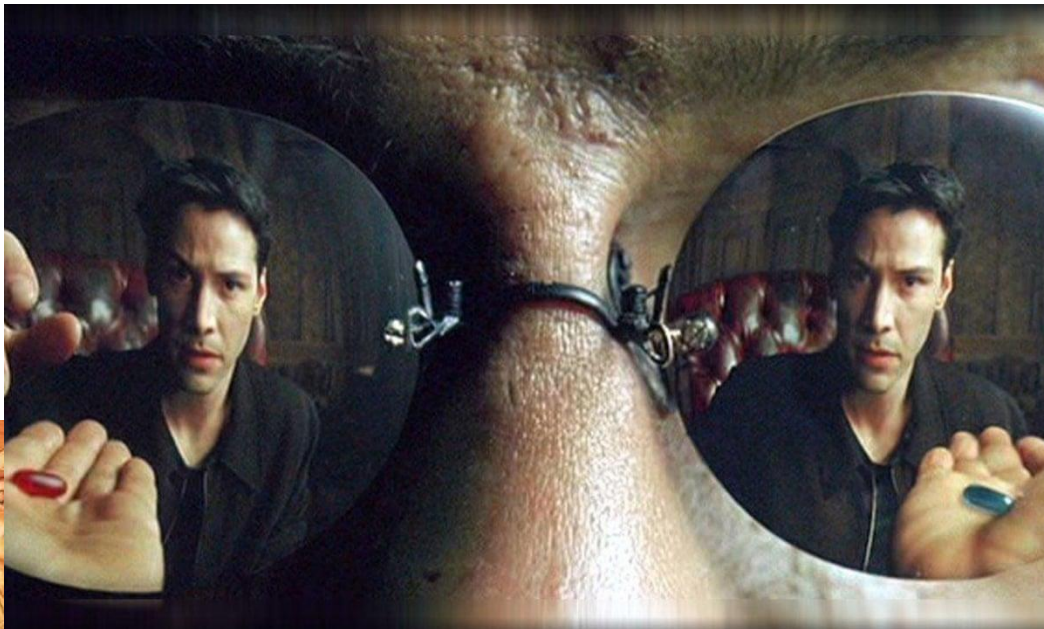
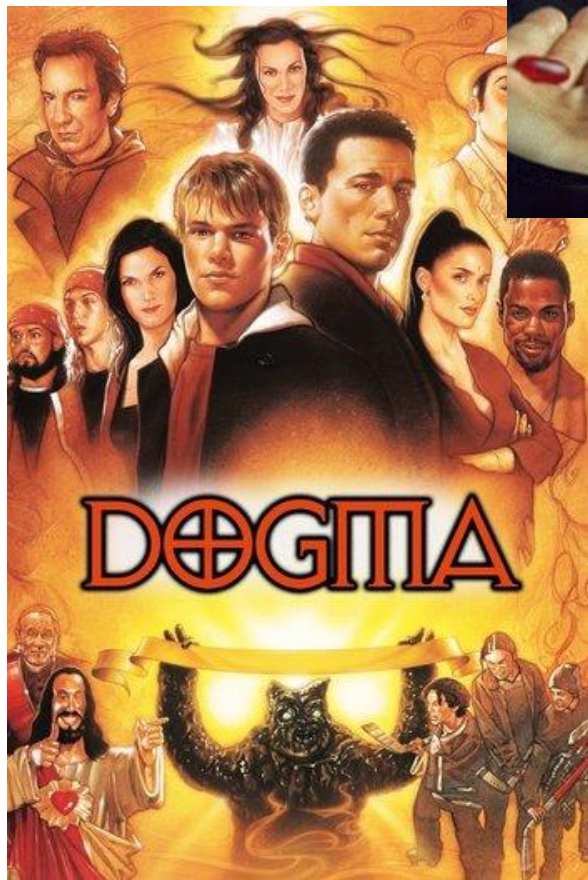
As an example of the growth of poster presentation and its accommodation, the 1969 FEBS meeting [6] was the first recorded example of an international scientific poster-type display session. It hosted 105 posters over 4 days, with 12 h dedicated to the sessions (averaging 1.5 h per display period and 13 posters on display per session). In contrast, the 2014 FEBS/EMBO conference [7] hosted 2098 posters over 4 days, but only 6 h were dedicated to the sessions. Whilst the latter meeting also allocated 1.5 h per scheduled display period, an average of 525 posters were on display at each session – more than 40 times the number presented in 1969 (Fig. 1).

On the surface, this appears to be a positive indication that members of the scientific community are

Gleamed wisdom

- Perspectives: presenter/attendee
- Theories of consumption
- Information foraging theory, cognitive load, working memory
- Interaction cost
- Click bait





<https://www.youtube.com/watch?v=agtgnJP3KoQ>

<https://www.youtube.com/watch?v=SYk29tnxASs>

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 - twitterposter.pptx

#betterposter

Page: 4 of 32 Automatic Zoom

PRESENTER
Lem Hewitt

Background

Who cares? Explain why your study matters in the fastest, most brutal way possible (feel free to add graphics!).

Methods

N=564
Adult full-time workers

EXPERIMENT GROUP: Given iPad Touch with a special app that pings them throughout the day with quick surveys.

Wait list (CONTROL GROUP)

Mood Survey (4x per day): Participants notified by the iPad at random times to take a short mood survey assessing current mood and attention.

End-of-week Survey: Assessed overall performance for the week.

PLM analysis: Used to relate within-person mood to differences in performance.

Extra results

Assume they already read your punchline, and now include a little extra detail.

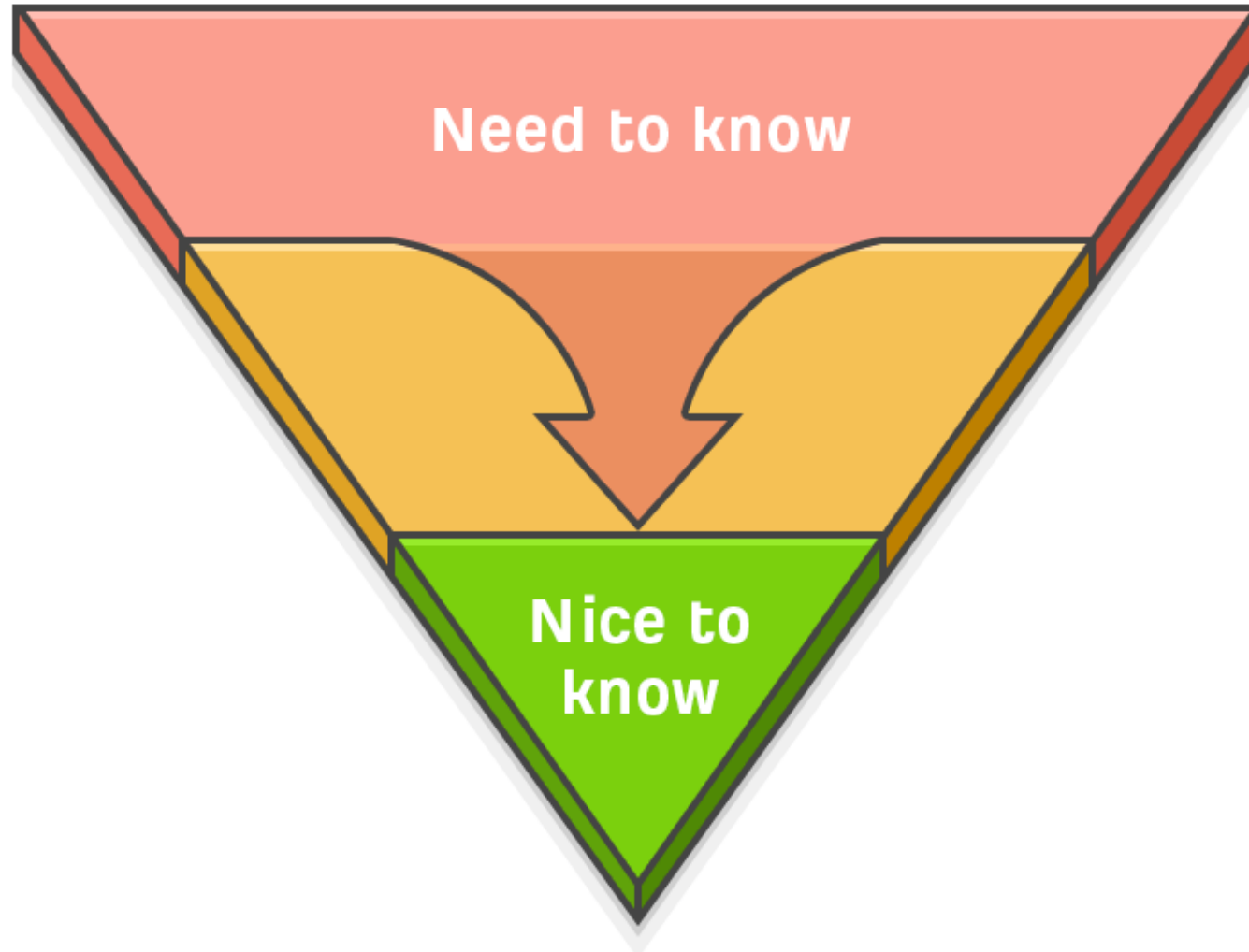
The slide features a cartoon scientist pointing to a large text area. Below the text is a line graph with four data series (green, blue, orange, purple) plotted against a y-axis from 0 to 400. Each series has a callout box. At the bottom, there are four colored circles, each labeled '100'. A QR code is located in the bottom left corner.

LEM HEWITT, Phillip Merman, Ted crisp,

**“Perfection is not when you have nothing to
add.**

Its when you have nothing to take away.”

The Inverted Pyramid Method





Non-Cognitive Predictors of Student Success: A Predictive Validity Comparison Between Domestic and International Students

Jacob Smith, Dr. Thea Schofield, Dr. Antonio Ibarra, Ianis Choi, Benn Mullins, Dr. Emily Williams



Michigan State University

Abstract

Given increasing interest in utilizing non-cognitive predictors in the college admissions process and rising enrollment of international students, research is warranted to compare the predictive validity of these measures across domestic and international students. Results indicate some predictive validity differences do exist, and an explanation for this differential validity, as well as a moderator of these relationships, are tested.

Background

- Though cognitive predictors of student success (e.g. ACT, HSGPA) remain popular, there is increasing interest in non-cognitive predictors of student success (e.g. situational judgement, adaptability), and these have been found to predict student performance (Oswald et al., 2004; Keeney et al., 2009).
- From 05/06 to 15/16 academic year, the number of international students studying in U.S. increased yearly. In 2016, 5.2% of students international with over 1 million enrolled (Institute of International Education, 2016).
- Previous work by Prasad and colleagues (2016) found mean differences in non-cognitive measures across Chinese and Caucasian American students, along with differential validity for a Perseverance non-cognitive measure.
- The current research is an extension of Prasad et al., 2016, exploring differential validity in two large samples of students, testing an explanation for these differences in validity, and testing a possible moderator of these relationships between non-cognitive predictors and GPA.

Research Question & Hypotheses

Research Question 1: Will non-cognitive measures display differential validity between domestic and international students?

- Non-cognitive measures may be functioning as a proxy for English ability.
H1: Differential validity will be accounted for by English proficiency.
- Non-cognitive predictors may be more important for individuals from a more culturally distant country, as adjustment may be more difficult necessitating greater non-cognitive abilities.
H2: Non-cognitive measures will exhibit greater validity for international students from more culturally distant countries.

Method

Samples

- Sample 1:* 7702 students at large, Midwestern university
 - 54.1% (4163) female
 - 11.2% (859) international (8.2% Chinese)
- Sample 2:* 7683 students at large, Midwestern university
 - 52.8% (4060) female
 - 13.7% international (10.4% Chinese)

Method (cont.)

Measures:

- Biographical Data* - Standardized inventory of an individual's experiences, attitudes, and behavioral tendencies relevant to college student experience and performance.
 - Consists of seven scales: Knowledge, Leadership, Social Responsibility, Adaptability, Perseverance, Continuous Learning, Academic Ethics.
- Situational Judgement Test (SJT)* - Presents typical situations college students would face and possible responses to situation, utilized to measure individuals ability to judge and react appropriately.
- GPA* - 1st semester cumulative GPA on 0.0 to 4.0 scale.
- TOEFL* - Standardized test to measure "ability to use and understand English at a university level" (ETS.org).
- International Status* - Dichotomous variable representing international status of student (Sample 1 - Based on residence code, Sample 2 - Based on residence country).
- Cultural Distance* - Euclidian distance between individual's residence country and United States, based on nine GLOBE cultural dimensions (House et al., 2004).
- Perceived Cultural Distance* - 12-item scale measuring perceptions regarding cultural differences between U.S. and home country on variety of aspects (e.g. values and beliefs, family life) (Demes & Goeraert, 2014)

Results

- Correlations between non-cognitive predictor scores and 1st semester GPA (Table 1) indicate stronger relationship for international students on seven of eight measures
- Regression results (Table 2) indicate consistent differential validity for international students for SJT, Continuous Learning, Social Responsibility, and Perseverance.
- Including TOEFL scores in regression, available for a subset of 663 individuals from Sample 1, did not substantially alter standardized regression weights ($\Delta B = -.012$ to $.018$) (Results not shown).
- Multilevel regression was utilized to test if cultural distance via GLOBE moderated validity for non-cognitive predictors utilizing subset of 765 international students from Sample 1 from 10 countries. Results indicate culture distance did not significantly moderate validity ($p > .05$) (Results not shown).
- Utilizing subset of 73 international students from Sample 2, did not find that perceived cultural distance moderated validity of non-cognitive predictors ($p > .05$) (Results not shown)
- Correlation between GLOBE cultural distance and perceived culture distance $r = -.113$, ($n.s.$)

Table 1: Relationship Between Non-Cognitive Predictors and 1st Semester GPA by Sample.

	Overall Sample 1	Overall Sample 2	Domestic Sample 1	Domestic Sample 2	International Sample 1	International Sample 2
SJT	0.14	0.18	0.08	0.10	0.21	0.24
Knowledge	0.15	0.15	0.13	0.13	0.18	0.19
Leadership	0.06	0.10	0.03	0.06	0.06	0.11
Social Responsibility	0.08	0.10	0.07	0.07	0.02	0.04
Adaptability	0.04	0.07	0.01	0.03	0.06	0.10
Perseverance	0.10	0.12	0.02	0.02	0.16	0.17
Learning	-0.05	-0.05	-0.06	-0.08	0.15	0.14
Academic Ethics	0.11	0.12	0.07	0.09	0.25	0.16
N	7701 to 7702	7683	6842	6632	859	1051

** Bold numbers indicate significant relationships ($p < .05$)

Table 2: Moderated Regression Results for Non-Cognitive Predictor Relationships with 1st Semester GPA.

	Sample 1		Sample 2	
	Step 1	Step 2	Step 1	Step 2
SJT	0.08	0.04	0.12	0.06
Knowledge	0.19	0.22	0.17	0.20
Leadership	0.04	0.03	0.07	0.07
	0.05		0.03	0.05
Social Responsibility		0.06		
Adaptability	-0.05	-0.03	-0.03	-0.02
Perseverance	0.02	-0.06	0.04	-0.06
Learning	-0.19	-0.18	-0.22	-0.20
Academic Ethics	0.03	0.00	0.02	
International Status		-0.15		-0.15
SJT X Int		0.04		0.08
Lead X Int		-0.01		0.00
Learn X Int		0.09		0.08
Know X Int		-0.04		-0.02
Adapt X Int		-0.04		0.00
SR X Int		-0.05		-0.06
Pers X Int		0.06		0.07
Ethics X Int		0.08		0.01
R Squared	0.06	0.09	0.08	0.12
N	7700	7700	7670	7670

** Bold numbers indicate significant relationships ($p < .05$)

Discussion

- Results indicate consistent differential validity for some non-cognitive measures for international students, specifically for SJT, Continuous Learning, Social Responsibility, and Perseverance.
- Differential validity for international students does not seem to be the results of functioning as a proxy for English language ability.
- Cultural distance does not seem to moderate validity of non-cognitive measures.

Implications

- Non-cognitive abilities may be useful in predicting international student performance, but differential validity may be an issue.
- Negative, non-significant relationship between cultural distance via GLOBE scores and perceived cultural distance warrants caution in generalizing country-level scores to individuals.
- More research is warranted to explain differential validity for international students.

Acknowledgements

I would like to thank Sergio Marquez for assistance in data collection, as well as Jason Huang and Rick DeShon for advice regarding data analyses.

Non-Cognitive Predictors of Student Success: A Predictive Validity Comparison Between Domestic and International Students

Jacob Smith, Dr. Thea Schofield,
Dr. Antonio Ibarra, Ianis Chol, Bern Mullins,
Dr. Emily Williams

INTRO

- Increasing interest in utilizing non-cognitive predictors in the college admissions process
- Rising enrollment of international students

METHODS

- We compare the predictive validity of these measures across domestic and international students.
- Results indicate some predictive validity differences do exist and an explanation for this differential validity, as well as a moderator of these relationships, are tested.

RESULTS

- Consistent differential validity for some non-cognitive measures for international students, specifically for SJT, Continuous Learning, Social Responsibility, and Perseverance.
- Differential validity for international students does not seem to be the results of functioning as a proxy for English language ability.
- Cultural distance does not seem to moderate validity of non-cognitive

DISCUSSION

- Non-cognitive abilities may be useful in predicting international student performance, but differential validity may be an issue.
- Negative, non-significant relationship between cultural distance via GLOBE scores and perceived cultural distance warrants caution in generalizing country-level scores to individuals.
- More research is warranted to explain differential validity for international students.



For international students, perseverance and a sense of social responsibility are extra important for predicting first-year GPA.



Table 2. Moderated Regression Results for Non-Cognitive Predictor Relationships with 1st Semester GPA

	Sample 1		Sample 2	
	Step 1	Step 2	Step 1	Step 2
SJT	0.08	0.04	0.12	0.04
Knowledge	0.18	0.12	0.17	0.24
Learning	0.04	0.03	0.07	0.07
	0.05		0.03	0.05
Social Responsibility		0.06		
Adaptability	-0.05	-0.03	-0.03	-0.02
Perseverance	0.12	0.06	0.04	0.04
Learning	0.18	0.18	0.22	0.24
Academic Ethics	0.03	0.03	0.02	0.02
International Status		-0.15		-0.15
SJT X Int		0.04		0.08
Learn X Int		-0.02		-0.03
Learn X Int		0.09		0.08
Learn X Int		0.04		-0.02
Adapt X Int		0.04		-0.03
Per X Int		0.05		0.04
Per X Int		0.06		0.07
Ethics X Int		0.05		0.03
R Squared	0.08	0.09	0.08	0.12
N	7702	7702	3670	3670

Table 3. Relationships Between Non-Cognitive Predictors and 1st Semester GPA by Sample

	Sample 1	Sample 2	Sample 1	Sample 2	Sample 1	Sample 2
SJT	0.10	0.08	0.06	0.10	0.12	0.04
Knowledge	0.15	0.09	0.10	0.12	0.14	0.24
Learning	0.08	0.08	0.05	0.06	0.04	0.07
Social						
Perseverance	0.08	0.08	0.07	0.07	0.02	0.04
Adaptability	0.04	0.07	0.03	0.03	0.03	0.04
Perseverance	0.10	0.02	0.02	0.02	0.04	0.07
Learning	0.04	0.05	0.06	0.08	0.03	0.04
Academic Ethics	0.02	0.02	0.02	0.02	0.02	0.04
N	7702	7702	3670	3670	3670	3670

Method

Samples

Sample 1: 7702 students at Inga, Malheur university
 - 54.2% (4187) female
 - 11.2% (873) international (5.2% Chinese)

Sample 2: 3670 students at Inga, Malheur university
 - 52.8% (1938) female
 - 13.7% international (10.4% Chinese)

Title

Authors

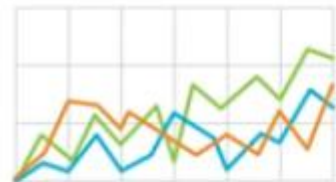
Intro

- [Redacted]
- [Redacted]
- H1 [Redacted]
- H2 [Redacted]

Methods

1. [Redacted]
2. [Redacted]
3. [Redacted]
4. [Redacted]

Results



- [Redacted]
- [Redacted]
- [Redacted]

Discussion

More research is needed, but...

- [Redacted]
- [Redacted]
- [Redacted]



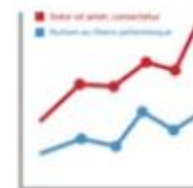
Main finding goes here,
translated into **plain english**.
Emphasize the important
words.



Extra Tables & Figures



A table with a header row and approximately 15 rows of data. The columns are not clearly labeled, but the table appears to contain numerical or categorical data arranged in a structured format.



A table with a header row and several rows of data. The columns are not clearly labeled, but the table appears to contain numerical or categorical data arranged in a structured format.

GOLDEN RULES:

- 1/ Don't put thing in that people will likely ignore**
- 2/ People will ignore most things**

Resources

- <https://osf.io/6ua4k/> . (Template)
- <https://www.youtube.com/watch?v=1RwJbhkCA58>. (Gen 1)
- <https://www.youtube.com/watch?v=SYk29tnxASs> . (Gen 2)
- <https://febs.onlinelibrary.wiley.com/doi/full/10.1111/febs.13383>
- <https://onlinelibrary.wiley.com/doi/full/10.1111/hir.12015>
- <https://www.medthink.com/pdfs/predictive-analytics-for-effective-poster-design.pdf>
- <https://www.morressier.com/post/designing-a-better-digital-poster> . (Digital posters)
- <https://www.sheffield.ac.uk/ssid/301/study-skills/communication/poster-presentations> . (Traditional posters)