

23rd Annual Obstetrics, Gynecology & Women's Health Resident and Fellow Research Day



University of Hawai'i
John A. Burns School of Medicine
Department of Obstetrics, Gynecology & Women's Health

re-search¹ /ri'sɔ:tʃ/

[plural]

1 serious st

discover new facts

*The University of Hawai'i Department of Obstetrics, Gynecology & Women's Health
would like to extend our deepest mahalo to all the people who made this 2018 Research Day possible.*

Research Day Committee:

*Karen Akiyama
Janica Dement
Jennifer Elia, Dr.P.H., M.P.H.
Rachel Fujikawa
Mark Hiraoka, M.D., M.S.
Darlene Hubbard
Ginny Kamikawa
Krysten Kawamata
Bliss Kaneshiro, M.D., M.P.H.
Lisa Kellett
Reni Soon, M.D., M.P.H.
Dena Towner, M.D.
Steven Ward, Ph.D.*

And all of the mentors, assistants and everyone else, who made these projects possible.

*A Special Thanks to:
Thomas Kosasa, M.D. for sponsoring us at the Waialae Country Club.*

May 24, 2018

Welina mai!

We welcome you to the 23rd Annual Department of Obstetrics, Gynecology and Women's Health, John A. Burns School of Medicine, University of Hawai'i Research Day symposium. This event, created and organized through the combined efforts of our faculty, fellows and residents, aims to improve women's health and inspire discovery. Our Research Day provides a forum for residents and fellows to present their current research and recognizes our faculty's recently published and presented research. The research projects presented today have given our residents and fellows experience conceiving, conducting and presenting original research and provide an opportunity to generate discussion around advancing women's health. The knowledge and skills our residents and fellows gain will allow them to critically analyze medical literature and determine optimum evidence based practice to benefit their patients. We hope this experience encourages them to continue to explore basic science, translational and clinical research opportunities in the future.

This year we would like to dedicate Research Day to Dr. Bliss Kaneshiro. Dr. Kaneshiro is one of the most prolific members of JABSOM's faculty, with dozens of peer-reviewed publications, and over 2 million dollars in research grants brought into the department. She is recognized nationally and internationally in the area of family planning for her rigorous, high-quality and impactful research. In addition, Dr. Kaneshiro has been a research mentor to dozens of medical students, graduate students, residents, fellows and faculty. This outstanding mentorship is being recognized by the Society of Family Planning with the prestigious Robert Hatcher Family Planning Mentor award. One cannot think of research at the UH Department of OB/GYN without thinking of Dr. Kaneshiro.

A special thanks goes to the entire Research Day Symposium Planning committee and to our distinguished visiting professor Dev Maulik, M.D., Ph.D. We hope that you will find this research symposium to be informative and inspiring. Please share your thoughts about our department's research day strengths with us and any suggestions for next year's program.

We dedicate this year's Departmental Research Day to Bliss Kaneshiro, M.D., M.P.H.:



Bliss Kaneshiro, M.D., M.P.H.
*Associate Professor
Family Planning Fellowship Director
Family Planning Division Chief
Department of Obstetrics, Gynecology
& Women's Health
University of Hawai'i
John A. Burns School of Medicine*



Reni Soon, M.D., M.P.H.
*Assistant Professor
Director of Resident Research
Department of Obstetrics, Gynecology
& Women's Health
University of Hawai'i
John A. Burns School of Medicine*



Ivica Zalud, M.D., Ph.D.
*Professor and Chair
Kosasa Endowed Chair
Department of Obstetrics, Gynecology
& Women's Health
University of Hawai'i
John A. Burns School of Medicine*

GUEST SPEAKER & JUDGE

May 24, 2018



Dev Maulik, MD, PhD, FACOG, FRCOG

Professor and Chair, OB/GYN, Truman Medical Center
Senior Associate Dean of Women's Health, University of Missouri-Kansas City School of Medicine
Professor of Basic Science, University of Missouri-Kansas City School of Medicine
Chair, Maternal Fetal Medicine, Children's Mercy Hospital, Departments of OB/GYN and Maternal Fetal Medicine
Editor-in-Chief, The Journal of Maternal Fetal and Neonatal Medicine

Selected Publications:

Maulik, D. (Editor): "Doppler Ultrasound in Obstetrics & Gynecology", Springer-Verlag Publishers, New York & Heidelberg, Third edition, In preparation.

Maulik D, Nanda NC, Maulik D, Vilchez G. A brief history of fetal echocardiography and its impact on the management of congenital heart disease. *Echocardiography*. 2017 Dec;34(12):1760-1767. doi: 10.1111/echo.13713. Erratum in: *Echocardiography*. 2018 Apr;35(4):581. PMID: 29287130

Ge S, **Maulik D**. Introduction: From fetal echocardiography to fetal cardology: A journey of over half a century. *Echocardiography*. 2017;34(12):1757-59. PMID 2987140.

Bahado-Singh RO, Syngelaki A, Mandal R, Han B, Li L, Bjorndahl TC, Wang N, **Maulik D**, Dong E, Turkoglu O, Tseng CL, Zeb A, Redman M, Wishart DS, Nicolaides KH. First-trimester metabolomic prediction of stillbirth. *J Matern Fetal Neonatal Med*. 2018 Apr 30:1-7. doi: 10.1080/14767058.2018.1465552. [Epub ahead of print] PMID:29712497

Mlynarczyk M, Chauhan SP, Baydoun HA, Wilkes CM, Earhart KR, Zhao Y, Goodier C, Chang E, Lee Plenty NM, Mize EK, Owens M, Babbar S, **Maulik D**, DeFranco E, McKinney D, Abuhamad AZ. The clinical significance of an estimated fetal weight below the 10th percentile: a comparison of outcomes of <5th vs 5th-9th percentile. *Am J Obstet Gynecol*. 2017 Aug;217(2):198.e1-198.e11. doi: 10.1016/j.ajog.2017.04.020. Epub 2017 Apr 20. PMID:28433732

Huang P, Lee Jr MW, Heruth D, Zhang LQ, **Maulik D**, Ye SQ. NAMPT-based Inhibition of Endothelial Permeability And Inflammation. *Drug Des Devel Ther*. 2017 Mar 3;11:629-641. doi: 10.2147/DDDT.S125349. eCollection 2017. PMID 28424540

Wednesday, May 23, 2018 Kapi`olani Medical Center for Women & Children, The Nan Inc. Auditorium:
7:30 a.m. - 8:30 a.m. Ob/Gyn Research Day Lecture: " *Fetal Growth Restriction: An Update* "

Thursday, May 24, 2018 Waialae Country Club
7:45 a.m. - 1:30 p.m. Ob/Gyn Research Day Program

Friday, May 25, 2018 Kapi`olani Medical Center for Women & Children, Nan Inc. Auditorium:
8:00 a.m. - 11:00 a.m. Review & Advise: Ongoing 2nd Year Resident's Research Projects in Progress
12:00 Noon Thesis Defense: Ryan Schlueter, D.O. " *Cord Blood Metabolomics are Associated with Maternal Pre-Pregnant Obesity in a Prospective Multi-Ethnic Cohort* "

Friday, May 25, 2018 Kapi`olani Medical Center for Women & Children, Room 815:
1:30 p.m. - 2:30 p.m. Lecture to Fellows- " *Possibilities* " ~Perspective of an Editor-In-Chief – What constitutes an excellent, publishable paper?
~ How to become a peer reviewer and how to do a good peer review for a journal

RESEARCH DAY PROGRAM

Thursday, May 24, 2018

- 7:30 a.m. Registration and Continental Breakfast *Wi-Fi Internet Access: 4997kahala*
- 8:00 a.m. Welcome Remarks by Ivica Zalud, M.D., Ph.D., Professor & Chair, Kosasa Endowed Chair
- 8:15 a.m. Greetings by Jerris R. Hedges, M.D., M.S., M.M.M., Dean and Professor of Medicine, John A. Burns School of Medicine
- 8:20 a.m. Recognize Judging Panel and Moderators, Presentation Rules by Reni Soon, M.D., M.P.H
- 8:30 a.m. Introduction of Residents by Corrie Beth Miller, D.O. and Ghazaleh Moayedi, D.O.
- | TIME | PRESENTER | ABSTRACT |
|-------------|--|--|
| 8:35 a.m. | Tiffany Phillips, D.O. | An Effective, Low Cost Suture Training Session for the Novice Learner |
| 8:50 a.m. | Meryl Ueno, M.D. | Association Between Second Trimester Maternal Serum Analytes and Gestational Diabetes |
| 9:05 a.m. | Sally Yin Zhen, M.D. | Pregnant Women's Expectations of the Routine Obstetric Screening Ultrasound |
| 9:20 a.m. | Sally Markee, M.D. | Tumor Suppressor Gene and Mismatch Repair Protein Expression in Uterine Sarcomas and Carcinosarcomas |
| 9:35 a.m. | Katherine Huang, M.D. | Evaluating Reproductive Health Services in Primary Care Settings at Waianae Coast Comprehensive Health Center: A Needs Assessment |
| 9:50 a.m. | Kurt Yoshino, M.D. | Examining the Validity of a Predictive Model for Vaginal Birth After Cesarean |
| 10:10 a.m. | Introduction of Ryan Schlueter, D.O. by Dena Towner, M.D., Maternal Fetal Medicine Fellowship Program Director | |
| 10:15 a.m. | Ryan Schlueter, D.O. | Metabolomics Profile of Umbilical Cord Blood is Associated with Maternal Pre-pregnant Obesity in a Prospective Multi-ethnic Cohort |
| 10:30 a.m. | Introduction of Ghazaleh Moayedi, D.O. by Bliss Kaneshiro, M.D., M.P.H., Family Planning Fellowship Program Director | |
| 10:35 a.m. | Ghazaleh Moayedi, D.O. | Intranasal Fentanyl for Pain Control During First-Trimester Uterine Aspiration: A Randomized Controlled Trial |
| 10:55 a.m. | Introduction of Tiana Fontanilla, M.P.H. by Reni soon, M.D., M.P.H. | |
| 11:00 a.m. | Tiana Fontanilla, M.P.H. | Perspectives of College Students on Sex Education Received in Middle and High School |
| 11:15 a.m. | Introduction of Shandhini Raidoo, M.D. by Reni Soon, M.D., M.P.H. | |
| 11:20 a.m. | Shandhini Raidoo, M.D. | Impact of State-Specific Insurance Coverage for Abortion in Hawaii on Gestational Age at Presentation and Type of Abortion |
| 11:35 a.m. | Introduction of Stacy Tsai, M.D. by Reni Soon, M.D., M.P.H. | |
| 11:40 a.m. | Stacy Tsai, M.D. | Effects of Maternal Diabetes on Pregnancy Outcomes |
| 11:55 a.m. | Buffet Lunch and Judges' Deliberations | |
| 12:50 p.m. | Presentation of Awards | |
| 1:00 p.m. | Closing by Mark Hiraoka, M.D., M.S., Ob-Gyn Residency Program Director | |

2018 JUDGING PANEL:



Dev Maulik, MD, PhD, FACOG, FRCOG
 Professor & Chair, Truman Medical Center
 Senior Associate Dean of Women's Health,
 UMKC School of Medicine
 Professor of Basic Science,
 UMKC School of Medicine
 Chair, Maternal Fetal Medicine,
 Children's Mercy Hospital, Depts. of
 OB GYN & Maternal Fetal Medicine
 Editor-in-Chief, The Journal of Maternal Fetal
 and Neonatal Medicine



Victoria Fan, Sc.D.
 Assistant Professor
 Health Policy & Management
 Office of Public Health Studies
 University of Hawai'i
 Honolulu, Hawai'i



Richard Yanagihara, M.D., M.P.H.
 Professor
 Department of Pediatrics &
 Department of Tropical Medicine, Medical
 Microbiology & Pharmacology
 John A. Burns School of Medicine, University of Hawai'i
 Honolulu, Hawai'i

Tiffany Phillips, D.O.

*University of Hawai`i John A. Burns School of Medicine, Honolulu, Hawai`i
Ob-Gyn Residency Program Honors/Awards:*

**2017: Second Year Resident Excellence in Teaching Award*

*Des Moines University College of Osteopathic Medicine
Medical School Honors/Awards:*

**2013-2014: Edward & Amanda Miller Scholarship*

**2013: Community Service Scholarship for Student Osteopathic Surgical Association*

**2012-2013: Edward & Amanda Miller Scholarship*

B.S. in Food Science Human Nutrition, University of Hawaii, Manoa, HI

Undergraduate Honors/Awards:

**2010: Harold Au & Alexander Kim Scholarship*

**2009: Sachi-yuki Matsumoto Scholarship, Graduate Test Prep Award*

Language Fluency other than English: Basic Korean

Hobbies & Interests: I enjoy reading, hiking, and watching Korean dramas during my spare time.

Place of Birth: Mobile, Alabama

Future Plans upon Graduation: Generalist OB/GYN



An Effective, Low Cost Suture Training Session for the Novice Learner

Tiffany Phillips, D.O.; Caroline Lau, M.D.; Jennifer Wong, M.D.; Mark Hiraoka, M.D., M.S.

Objective: To enhance medical and pre-medical student's basic surgical skills training by providing low-cost, do-it-yourself (DIY) suture training and knot tying practice.

Design: Cohort (pretest-posttest)

Methods: We recruited first and second year John A Burns School of Medicine (JABSOM) medical students and pre-medical students from the Medical School Mentorship Program in March 2018. A pretest was administered prior to the suture and knot tying training video. Quality of the two-handed knot tying and simple interrupted suture with instrument tie were evaluated using a 5-point and 15-point scoring system. After watching a video that demonstrated the knot tying and suture tying techniques, each individual was given time to practice using a low-cost suture training kit. A posttest was then administered in the same format as the pre-test. Students who opted out of the pretest were assigned the maximum time for knot tying and suturing (120 seconds and 300 seconds, respectively) and 0 points for both assessments. Secondary outcomes included an assessment of confidence levels, measuring time and quality of the two-handed knot tying technique, and time and quality of performing a three simple interrupted with instrument tie. A paired t-test and Spearman correlation statistics were performed.

Results: Of the 20 medical and pre-medical students who participated, 17 opted out of taking the pretest assessment. On a scale from 0 to 10, mean confidence levels improved for the two-handed knot tying (1.55 vs 7.15, $p < 0.0001$), suturing (1.75 vs 6.95, $p < 0.0001$) and the instrument tie (1.50 vs 6.95, $p < 0.0001$). The mean time to complete the two-handed knot tying (116.03 vs 52.85 seconds, $p < 0.0001$) and suturing with instrument tie (300.00 vs 181.05 seconds, $p < 0.0001$) both decreased. The mean points obtained increased for both knot tying (0 vs 4.25 out of 5, $p < 0.0001$) and suturing with instrument tie (0 vs 13.1 out of 15, $p < 0.0001$). Self-recorded student practice time between the pretest and posttest for each technique did not show a significant correlation with either the knot tying or suturing results.

Conclusions: This study demonstrated that a standardized, low cost suture and knot tying on-line course could significantly increase medical and pre-medical students' confidence and skill levels. This may better prepare them for their clinical experiences allowing them to potentially utilize these basic skills intra-operatively during their short clinical clerkships. Further directions may include a follow-up assessment to demonstrate long term impact of the training and adding videos for the one-handed knot tying technique and other forms of suturing.

Support: University of Hawai'i John A Burns School of Medicine, Department of Obstetrics, Gynecology, and Women's Health

Acknowledgements: Biostatistics support from Dr. Hyeong Jun Ahn, Department of Complementary & Integrative Medicine; Christina Buchanan M.D.; Aiwa Ono MS3

Meryl Ueno, M.D.

*University of Hawai'i John A. Burns School of Medicine, Honolulu, Hawai'i
Ob-Gyn Residency Program Honors/Awards:*

**2017:*

-North American Society & Adolescent Gynecology (ASPAG) Best Resident Award

-Second Year Resident Excellence in Teaching Award

M.D. Georgetown University School of Medicine, Washington, D.C.

Columbia University Teachers College, New York, New York

Graduate Honors/Awards:

**M.A.E. in Teaching of Social Studies*

**2006: Minority Scholarship*

B.A. in Communication Studies, University of California, Los Angeles, Los Angeles, California

Undergraduate Honors/Awards:

**2004: Graduated Cum Laude*

Language Fluency other than English: Conversational Japanese

Hobbies & Interests: Playing soccer, snowboarding, cooking, traveling, spending quality time with the family

Place of Birth: San Jose, California

Medical Interests: Gestational diabetes, obesity and pregnancy, hypertensive disorders of pregnancy

Future Plans upon Graduation: Maternal Fetal Medicine Fellowship

Research Experience:

British Pregnancy Advisory Service (BPAS), London, England. Created a literature review discussing the risks of obesity and pregnancy with plans to be published to their website.

Georgetown University, Department of Infectious Disease, Washington, DC, with Seble Kassaye, MD, investigated the extent to which preventive screenings and quality measures in HIV+ women > 18 years of age seen in the Georgetown University Infectious Disease Clinic from January 2011- December 2012 were being performed and to evaluate areas of potential improvement.

Research Assistant, Columbia University, Department of Infectious Disease, New York, NY, with Michael Yin, MD, investigated lower peak bone mass and abnormal trabecular and cortical microarchitecture in men with congenital HIV.

Research Assistant, Columbia University, Pediatric Emergency Care Applied Research Network (PECARN), New York, NY, with Deb York, MPH, recruited pediatric emergency patients for multiple studies and performed data entry for a quality improvement study made to ascertain whether or not correct medications and dosages were being prescribed to patients presenting to the emergency department.

Abstract Presentations:

Ueno M, Lee A, Kassaye S, Plankey M. The analysis of HIV core clinical measures being documented by the medical team within the GUH infectious disease clinic. Poster presentation at George M. Kober Student Research Day 2015, Washington, DC.

Yin, M., Broun E., Shah J., Zhang CA., Foca M., Neu N., Nishiyama K.K., Zhou B., Guo XE., Nelson J., Bell DL., Arpadi SM., **Ueno M.** (2013). Lower peak bone mass and abnormal trabecular and cortical microarchitecture in young men infected with HIV early in life. Poster presented at the 20th Conference on Retroviruses and Opportunistic Infections, Atlanta, GA., March 3-6, 2013.



Association Between Second Trimester Maternal Serum Analytes and Gestational Diabetes

Meryl Ueno, M.D.; Dena Towner, M.D.; James Davis, Ph.D.; Kelly Yamasato, M.D.

Objective: To evaluate the association between second trimester maternal serum sequential/ quadruple screen analytes (alpha-fetoprotein [AFP], free beta-human chorionic gonadotropin [beta-hCG], inhibin, estriol) and gestational diabetes (GDM).

Design: Retrospective cohort study

Methods: We included women with singleton pregnancies who had quadruple or sequential screen results in EPIC and delivered at Kapi'olani Medical Center for Women & Children between November 2009 and April 2017. Women with pregestational diabetes, delivery < 28 weeks gestation, and fetuses with known genetic anomalies and neural tube or abdominal wall defects were excluded. Only the first delivery was included for women with multiple deliveries during the study interval. We documented second trimester serum sequential screen or quadruple screen analyte multiple of the medians (MoM), specifically AFP, beta-hCG, estriol, and inhibin. Clinical data extracted included GDM, maternal age, race, and body mass index (BMI) at the time of the serum screen blood draw. Gestational diabetes was identified by ICD codes. Logistic regression was used to examine the association between analyte levels and GDM and to adjust for the potential confounders that are routinely collected at the time of serum screening (maternal age, BMI, and race). Chi-square tests were used to evaluate potential cutoffs of <0.5 or >2.0 MoM based on the continuous associations between analytes and GDM. We also determined the optimal logistic regression predictive model (ie: calculator) for GDM using available data at second trimester serum screening (analyte levels and age, BMI, race). This study received institutional review board exemption by the Hawaii Pacific Health Research Institute.

Results: Of the 34,952 eligible deliveries during the study interval, 5709 had sequential or quadruple screen results available and were included in the final analysis. Of these women, 660 (11.8%) had GDM. Increasing AFP was associated with a decreasing risk of GDM (OR 0.78 [95%CI 0.63-0.96]), which persisted after controlling for confounders (aOR 0.76 [95%CI 0.60-0.95]). The same was true for estriol (OR 0.52 [95%CI 0.39-0.67], aOR 0.67 [95%CI 0.50-0.89]). Increasing beta-hCG was associated with a decreasing risk for GDM only after adjustment (OR 0.89 [95%CI 0.78-1.02], aOR 0.84 [95%CI 0.73-0.97]). There was no association with inhibin (OR 1.09 [95%CI 0.95-1.25], aOR 0.93 [95%CI 0.80-1.09]). A cutoff of < 0.5 MoM was not significantly associated with GDM for AFP (P=0.75), beta-hCG (P=0.16), or estriol (P=0.37). The most predictive GDM calculator included beta-hCG and estriol in addition to the clinical variables of age, BMI, and race.

Conclusions: Increasing second trimester maternal AFP, beta-hCG, and estriol are associated with a decreasing risk of gestational diabetes, with hCG and estriol appearing to improve the predictive ability for GDM when added to well-established clinical risk factors of age, BMI, and race. These serum markers may have the potential to improve our risk stratification for the development of gestational diabetes.

Support: University of Hawai'i John A Burns School of Medicine, Department of Obstetrics, Gynecology, and Women's Health

Acknowledgements: Andrea Siu, Hawaii Pacific Health Research Institute

Sally Y. Zhen, M.D.

*University of Hawai'i John A. Burns School of Medicine, Honolulu, Hawai'i
Ob-Gyn Residency Honors/Awards:*

**2017: Second Year Resident Excellence in Teaching Award*

*University of California, Davis, School of Medicine
Medical School Honors/Awards:*

**2014: Gold Humanism Honor Society*

**2012: Medical Student Research Fellowship Recipient*

**2013-2014 MS3 Clerkship Honors: Obstetrics & Gynecology, Pediatrics*



B.S. in Neuroscience, Psychobiology at the University of California, Los Angeles

**2008: Graduated cum laude with College Honors*

**2007: Undergraduate Research Center's (URC) Undergraduate Research Scholarship Recipient*

**2004: Freshman Alumni Scholarship*

Language Fluency (other than English): Chinese

Hobbies & Interests: Hot Yoga, Hiking, Acting, and Running

Place of Birth: Nanjing, China

Medical Interests: Obstetric ultrasound, Contraception

Future Plans Upon Graduation: Generalist in Hawaii

Publications:

Katz A, Mirzatoni A, **Zhen Y** (name changed), Schlinger BA. Sex differences in cell proliferation and glucocorticoid responsiveness in the zebra finch brain. *European Journal of Neuroscience*. 2008, Jul; 28(1): 99-106. Cited in PubMed; PMID: 18662338.

Mirzatoni A, Dong SM, Guerra M, **Zhen Y** (name changed), Katz A, Schlinger BA. Steroidal and gonadal effects on neural cell proliferation in vitro in an adult songbird. *Brain Research*. 2010, Sep; 1351(1): 41-49. Cited in PubMed; PMID: 20637746.

Spence RD, **Zhen Y** (name changed), White S, Schlinger BA, Day LB. Recovery of motor and cognitive function after cerebellar lesions in a songbird- role of estrogens. *European Journal of Neuroscience*. 2009, Mar; 29(6): 1225-1234. Cited in PubMed; PMID: 19302157.

Huddleston AJ, **Zhen SY**, Qi L, Rash DL, Scudder SA, Leiserowitz GS, Mayadev JS. The utility and impact of a vaginal brachytherapy boost to pelvic radiation in stage 3 endometrial cancer. *Journal of Contemporary Brachytherapy*. 2015, Apr; 7(2): 122-127. Cited in PubMed; PMID: 4444456.

Abstract Presentations:

Zhen SY, Huddleston AJ, Qi L, Rash DL, Scudder SA, Leiserowitz GS, Mayadev JS. (2013). The impact of additional vaginal brachytherapy boost in stage III endometrial cancer Poster presented at: UC Davis School of Medicine Student Poster Day; Sacramento, CA .

Zhen Y (name changed), Katz A, Mirzatoni A, Schlinger BA. (2008). The effect of steroid hormones in regulating neurogenesis in the ventricular zone of the adult avian brain Poster presented at: UCLA Neuroscience Undergraduate Poster Day; UCLA 11th Annual Science Poster Day; Los Angeles, CA .

Pregnant Women's Expectations of the Routine Obstetric Screening Ultrasound

Sally Yin Zhen, M.D.; Ingrid Chern, M.D.; Jennifer Elia, Dr.P.H., M.P.H.; Hyeong Jun Ahn, Ph.D.; Marguerite Lisa Bartholomew, M.D.

Objective: To assess pregnant women's expectations and experiences during the routine obstetric screening ultrasound with respect to provision of keepsakes, sharing via social media, level of anxiety, and level of satisfaction.

Design: Cohort study

Methods: The Western IRB approved this study. We recruited 210 women from the Fetal Diagnostic Center at Kapiolani Medical Center for Women & Children. Adult women in their 2nd or 3rd trimester of pregnancy, who were English-speaking, non-incarcerated, and scheduled for routine screening ultrasound were approached for inclusion in the study. The women completed a pre-ultrasound survey, followed by a post-ultrasound survey immediately after the ultrasound. The surveys queried demographic information and contained questions pertaining to the 4 areas noted in the primary objective. McNemar's Test was used to compare responses for 3 questions that were appropriate for pre and post comparisons.

Results: Of the 210 total women, 14 were excluded. Reasons for exclusion included incomplete survey data (6), incorrect ultrasound type (5), age under 18 (2), and intrauterine fetal demise (1). The majority of women (63.5%) felt that checking baby's health was most important, followed by identifying baby's sex (32.0%), obtaining due date (4.1%), and getting keepsake pictures (1.5%). Women most strongly desired 3-D printed photos (52.8%), followed by 2-D photos (28.9%), computer disks (10.2%), and video recordings (7.1%). One woman did not want any pictures. Approximately 24.4% used social media during or immediately after the ultrasound to share information. There was no significant difference in the desire to share photos on social media before versus after the ultrasound ($p=0.1031$). The majority of women (50.3%) felt it was "absolutely" important to discover baby's sex at the ultrasound. Only 15.7% felt it was "not at all" important to discover the sex. The majority of those surveyed (90.4%) wanted to discover baby's sex before birth and 52 women (26.4%) "absolutely" wanted to discover baby's sex later at an event such as a gender reveal party or another gathering. After the ultrasound, 89.3% of women answered either "absolutely" or "quite a lot" when asked if they understood the ultrasound pictures. Overall, 84.8% of women were "absolutely satisfied" with the ultrasound experience. There was significantly less worry about the ultrasound results after the ultrasound ($p<0.0001$). There was a significant increase in feeling bonded with baby after the ultrasound versus before the ultrasound ($p=0.0032$).

Conclusions: There was a strong preference for 3-D photos, social media usage, and desire to know about baby's health and sex during the routine obstetric ultrasound. Satisfaction with the experience was high. Overall, anxiety decreased and the feeling of maternal bonding increased after the ultrasound.

Support: Lakshmi Devi and Devraj Sharma Endowment, University of Hawai'i John A Burns School of Medicine, Department of Obstetrics, Gynecology, and Women's Health

Acknowledgements: Andrea Siu, M.P.H., R.A.C., Aileen-Ann Patoc, REDCap data capture system

Sally K. Markee, M.D.

University of Hawai'i John A. Burns School of Medicine, Honolulu, Hawai'i

Medical School Honors/Awards:

**2013 – 2014: Clerkship Honors*

- Ob-Gyn, Pediatrics, Psychiatry, Family Medicine

*B.S. in Biology, minor in Business Administration, Loyola Marymount University,
Los Angeles, California*

**2011: Graduated Summa Cum Laude*



Hobbies & Interests: yoga, hiking, beach days, snorkeling, traveling, pop culture

Place of Birth: Honolulu, Hawai'i

Medical Interests: Minimally Invasive gynecologic surgery, Single-site laparoscopy

Future Plans upon Graduation: Generalist OB/GYN

Research Experience:

Researcher- Is Swimming in Water Increasing Morbidity: A new wave of postoperative recovery. Markee S, Wong J, La V, Carney M. Project in progress. 2017-2018.

Research Assistant-The risk of neonatal respiratory distress syndrome as a function of gestational age and lamellar body count. Scogin KN, Killeen J, Kawelo R, Bartholomew L, Markee S, Tsai PS. 20th Annual Obstetrics, Gynecology & Women's Health Resident and Fellow Research Day presentation on May 21, 2015.

Abstract Presentation:

Kuleck G, Dorsey J, Leary C, **Markee S**, Bodewig K, Evans M, Gardner L, George A, Nihei J. Developing methodologies to analyze microbial population dynamics and the prevalence of antibiotic resistance genes (ARG) in bacteria in the Ballona wetlands. Poster presentation: 3rd Annual Undergraduate Research Symposium, Loyola Marymount University, March 19, 2011.

Tumor Suppressor Gene and Mismatch Repair Protein Expression in Uterine Sarcomas and Carcinosarcomas

Sally Markee, M.D.; Koah Vierkoetter, M.D.; David Shimizu, M.D.; Hyeong Jun Ahn, Ph.D.; Keith Terada, M.D.

Objective: Loss of expression of p53, ARID1a, MLH1, PMS2, MSH2, and MSH2 are commonly seen in endometrial adenocarcinomas. The objective of our study was to delineate the incidence of loss of expression of these genes in uterine sarcomas and carcinosarcomas. Our secondary objective was to perform an exploratory comparison of clinical characteristics of those with mismatch repair (MMR) expression loss to those with intact expression.

Design: Descriptive study

Methods: IRB approval was obtained from Queens Medical Center. All cases of uterine sarcoma and carcinosarcoma diagnosed at Queen's Medical Center from January 1, 2000 to December 31, 2014 were reviewed. Clinical characteristics including age, BMI, and ethnic group were documented. Tissue microarrays were created and evaluated for loss of nuclear staining following immunohistochemical analysis with antibodies against MLH1, PMS2, MSH2, MSH6, p53, and ARID1a. Exploratory analyses were performed for age, ethnicity and survival months and the results were summarized by mean with standard deviation for age and survival months and percentages for ethnicity. To obtain preliminary comparison findings between MMR and control group, age was assessed by two sample t test, ethnicity by Fisher's exact test, survival by Kaplan-Meier curves.

Results: Of our sample size of 104 cases, 12 cases were identified to have loss of expression of these genes. An exploratory comparison was also performed between the group with loss of MMR expression to the group with intact expression. We identified 2 cases with loss of MLH1 and PMS2, 1 case with PMS2 and ARID1a loss, 1 case with only ARID1a loss, 1 case with MSH6 loss, and 7 cases with p53 loss. Ten out of 51 carcinosarcomas (19%), 1 out of 23 leiomyosarcomas (4%), and 1 out of 3 of undifferentiated sarcomas (35%) showed loss of expression of at least one of these genes. Average survival in the cases with loss was 26.9 months compared to 47.2 months in the group with intact expression ($p=0.051$). About half of cases in each group presented in early stage; 45% Stage I with MMR loss compared to 53% Stage I in those with intact expression. There was no difference in ethnic group or age at diagnosis between the groups.

Conclusion: As tumor molecular biology becomes increasingly important in new treatment options, delineating MMR loss may have important clinical implications for these aggressive tumors. The PD-1 inhibitor pembrolizumab is approved for MMR deficient tumors and there is some evidence that ARID1a deficient tumors may benefit from treatment with PARP inhibitors. Previous literature published on sarcomas showed a possible association with loss of expression of MLH1, PMS2, MSH2, and MSH6, however in this study there were found in very few cases of MMR deficiency in sarcomas. Loss of expression of these genes in carcinosarcomas may be clinically significant, however further research is needed. Survival was decreased in those with loss of expression compared to those with intact expression, however this is a heterogeneous group and causes for this may be multifactorial.

Support: Lakshmi Devi and Devraj Sharma Endowment, University of Hawai'i John A Burns School of Medicine, Department of Obstetrics, Gynecology, and Women's Health, Queens Medical Center Department of Pathology

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Project Leader, Department of Obstetrics and Gynecology Los Angeles, CA.

A cross-sectional survey studying the use of smartphone/tablet applications in pregnancy. September 2014.

Medical Student Fellow, Summer Urban Health Fellowship at Harbor-UCLA Los Angeles, CA. A cross-sectional survey looking at the Mental Health Status of Day Laborers in Los Angeles County. June-July 2012.

Student Researcher, Revlon/UCLA Breast Center Los Angeles, CA. A retrospective investigation examining the clinical significance of axillary lymph node removal following a sentinel lymph node biopsy in regards to the long-term prognosis for breast cancer patients. January -June 2012.

Masters Student Researcher, JHBrown Lab - UCSD Department of Pharmacology San Diego, CA. Characterization of PHLPP 1 in Adult Mouse Ventricular Myocytes. September 2007-September 2009.

Publications:

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Elia J., Soon R., McKenzie P., Hanashiro S., Kanana L., **Huang K.**, Hayashi C. (2016). Evaluating reproductive health services in primary care settings at Waianae Coast Comprehensive Health Center: a needs assessment. He Huliau: International Indigenous Health Symposium; Honolulu, HI.

Huang K., Quiroz A., Cervantes A., Schuster A., Puvvula J., Granados G. (2012). A Look at the Mental Health Status of Day Laborers in Los Angeles County Poster presented at: Josiah Brown Poster Fair; Los Angeles, CA.

Oral Presentation:

Huang K. (2009). Characterization of PHLPP 1 in Adult Mouse Ventricular Myocytes Oral Presentation presented at: UCSD Master's Thesis Defense; San Diego, CA.

Evaluating Reproductive Health Services in Primary Care Settings at Waianae Coast Comprehensive Health Center: A Needs Assessment

Katherine Huang, M.D.; Celina Hayashi, B.S.; Reni Soon, M.D., M.P.H.; Jennifer Elia, Dr.P.H.

Objective: Despite recommendations to integrate family planning services into primary care, this integration remains rare. For adolescents in particular, this lack of integration translates into many “missed opportunities” for reproductive health care. Waianae Coast Comprehensive Health Center (WCCHC) serves a predominantly low-income, Native Hawaiian population disproportionately impacted by unintended pregnancy and sexually transmitted infections (STIs). Reproductive health case managers (RHCMs), non-clinicians trained in reproductive health topics, could expand access into primary care settings. This needs assessment aimed to: 1) assess the availability of reproductive health resources in Wai‘anae; and 2) evaluate the utility and acceptability of the RHCM model among primary care providers (PCPs) and community members.

Design: Qualitative research study

Methods: After obtaining approval from WCCHC IRB, between January 2016 to March 2016 we interviewed WCCHC PCPs from various departments (pediatrics, family medicine, adult medicine, women’s health), and conducted focus groups with teenagers (age 13-19 years) and adults (age 20+) currently living in Wai‘anae. Semi-structured guides included questions about currently available resources, what information and services are wanted, and their thoughts about teenagers accessing reproductive health care in primary care settings via an RHCM model. Audio recordings were professionally transcribed, and transcripts were reviewed for accuracy. Using ATLAS.ti software, transcripts were analyzed by the research team through the iterative process of content analysis to identify themes.

Results: We interviewed 10 PCPs and held 2 teen focus groups (n=11) and 3 adult FGs (n=12). School, media, and peers were identified as primary sources of teenagers’ sexual and reproductive health information. Community members and professionals both acknowledge the need for and importance of ensuring accurate information is being taught to teenagers. PCPs support an RHCM model, as it may overcome time constraints and alleviate some provider barriers. Adults feel that teens need more information about how to prevent pregnancy and STIs, and that an RHCM model could help address this deficiency. Adults also feel that parents should primarily provide this information to their children, and that they could benefit from more education themselves, to bridge the communication gap with their children regarding reproductive health choices and access. Teens like having confidential services and would want to learn about reproductive health from trusted individuals in a secure setting. While adults acknowledge that confidentiality concerns can discourage teens from accessing services, they think parents would object if RHCMs saw teens without their knowledge.

Conclusions: Expanding reproductive health care information and services is recognized as a community need, and providers and community members are open to the RHCM model. Using results from this needs assessment project, future programs can be developed and implemented at WCCHC in collaboration with the community to provide accurate reproductive health education to teenagers through increased counseling opportunities via a RHCM model, and to provide parents with resources to talk with their children about these topics.

Support: Clinical Translational Research Infrastructure Network (CTR-IN) mini grant

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Research Fellow with Mark Hiraoka, M.D. Department of Obstetrics, Gynecology & Women's Health, Honolulu, Hawaii, 2014-2015.

Student Researcher with William Yarbrough, M.D. Queen's Medical Center, Honolulu, Hawai`i. Participated in a summer research internship for undergraduates interested in a career in medicine, which was funded by the Queens Medical Center. June-August 2009.

Student Researcher with David Shimizu, M.D. Queen's Medical Center, Honolulu, Hawai`i. Worked and participated in research in the department of pathology over the summer of 2008.

Publications:

Yamasato K, **Yoshino KD**, Chang AL, Caughey AB, Tsai PJ. "Cesarean delivery complications in women with morbid obesity". *The Journal of Maternal-Fetal Medicine & Neonatal Medicine*. Volume 29, 2016, Issue 23.

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Examining the Validity of a Predictive Model for Vaginal Birth After Cesarean *Kurt Yoshino, M.D.; Hyeong Jun Ahn, Ph.D.; Ann Chang, M.D., M.P.H.*

Objective: To examine the validity of the Maternal-Fetal Medicine Units (MFMU) Network Vaginal Birth After Cesarean (VBAC) calculator in a multi-racial cohort

Design: Retrospective cohort study

Methods: This was a retrospective chart review of women who underwent a trial of labor between January 1st 2010 and December 31st 2016 at Kapiolani Medical Center for Women & Children. This study was deemed exempt from the Institutional Review Board review by the Hawaii Pacific Health Research Institute. We included women with term, live singleton pregnancies and a history of one or two prior cesarean deliveries. The MFMU prediction model incorporating information available at the time of hospital admission was used to calculate each subject's predicted success rate for a VBAC. The candidates were broken down into quartiles based on their predicted success rate (<25%, 26-50%, 51-75%, >75%). For each quartile, we compared the actual success rate to the mean predicted VBAC success rate.

A receiver operating characteristic curve was then used to evaluate the predictive power of the MFMU model in our study population. The area under the curve (AUC) and 95% confidence intervals (CI) were calculated.

Results: There were 1604 patients who met study criteria (1519 with one prior cesarean, 85 with two prior cesareans). The success rate for those with one prior cesarean was 80.7% (1226/1519), and compared to the success rate for those with two prior cesareans which was 70.6% (60/85). The overall success rate was 79.1%.

Actual VBAC success rates were similar to predicted rates in the lowest and highest quartile groups, 18.2% vs. 21.2% (n=11) and 87.0% vs. 88.5% (n=1090), respectively. For the group with predicted success rates of 51-75% (n=394), the actual VBAC rate was higher than the predicted rate (69.9% vs. 65.5%), but this finding did not reach statistical significance (p=0.07). In the group with a predicted success rate of 26-50% (n=109), however, the actual success rate was significantly higher than the predicted rate (54.6% vs. 39.6%, p=0.002).

The area under the receiver operating characteristic curve for this study was significantly lower than the AUC in the original MFMU model, 0.72 (95% CI 0.69-0.75) vs. 0.77 (95% CI 0.76-0.78), p=0.0003.

Conclusions: The predicted VBAC success rates using the MFMU calculator are comparable to the actual success rates if the predicted success rate is greater than 50%. However, the calculator is inaccurate for those with a predicted success rate of 50% or lower, as the actual success rate was much higher than the predicted rate. Caution should be taken when applying the model in this group as it may dissuade patients from TOLAC due to a falsely lower predicted success rate.

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2014:

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2009-2011: American Osteopathic Foundation (AOF) Welch Scholars Grant recipient

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Publications:

Schlueter R, Arnett C, Huang C, Burlingame J. Successful quintuplet pregnancy of monochorionic male quadruplets and single female after double embryo transfer: case report and review of literature. *Fertil Steril*. 2017 Dec 12. PMID: 29246561.

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Schlueter R, Benny P, Al-Akwaa F, Gurary A, Garmire L. "Metabolomics analysis of umbilical cord blood in maternal obesity: pilot results." Abstract presented at 2017 UH Biomedical Sciences and Health Disparities Symposium, Honolulu, HI, April 20-21, 2017.

Benny P, **Schlueter R**, Al-Akwaa F, Gurary A, Lum-Jones A, Peplowska K, Tiirikainen M, Garmire L. "Differential epigenetic profile analysis in cord blood stem cells from offspring of obese and normal weight mothers in a multi-ethnic cohort." Abstract presented at 2017 UH Biomedical Sciences and Health Disparities Symposium, Honolulu, HI, April 20-21, 2017.



Metabolomics Profile of Umbilical Cord Blood is Associated with Maternal Pre-pregnant Obesity in a Prospective Multi-ethnic Cohort

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Background: Maternal obesity has become a growing global health concern that impacts fetal health, predisposing the offspring to certain medical conditions later in life. Pre-pregnancy body mass index (BMI) has been well associated with adverse maternal and fetal outcomes. The link between abnormal fetal metabolomic profiles and maternal obesity has not yet been fully elucidated. In this study, we analyzed the newborn cord blood metabolomes of obese and non-obese mothers to identify potential metabolomic biomarkers associated with maternal obesity.

Method: A case-control prospective study was carried out at Kapiolani Medical Center for Women & Children from June 2016, through July, 2017. Healthy women undergoing scheduled non-labored Cesarean section were recruited and cord blood was collected from cases and controls. Case women had BMI>30.0 while controls had BMI 18.5-25.0. Cord blood plasma samples from 28 obese and 29 normal weighted mothers were analyzed by gas chromatography mass spectrometry (GC/MS) and liquid chromatography mass spectrometry (LC/MS). A penalized logistic regression model was used to identify metabolites which classify babies born from obese and non-obese mothers. We adjusted metabolites for ethnicity, gravidity, parity and maternal age. Consensus Pathway database (CPDB) online tool was used for metabolomics pathway analysis.

Results: Maternal age, paternal age, gestational age (weeks) and net gestational weight gain (pounds) were all not significantly different between case and controls. Compared to mothers of normal pre-pregnant BMI, obese mothers have significantly higher pre-pregnancy BMI (33.51 +/- 4.49 vs 21.89 +/- 1.86 kg/m², p<0.05). Fetal weight differed significantly in case versus controls (3.54 kg vs 3.29 kg, p<0.05). Maternal ethnicity was significantly different between the groups with a majority of cases being Native Hawaiian Pacific Islander (n=17) and controls being Asian (n=16). Of 230 detected metabolites, 29 were selected by the elastic net penalized regression method. Partial least squares derivative analysis (PLS-DA) demonstrated clear separation of metabolic compounds identified in control and case mothers. The accuracy of the logistic regression model using 29 metabolites from the elastic net (obese versus normal) trained on 80% of the samples and tested on 20% showed an AUC=0.97. Adjustment for maternal and paternal ethnicity, gravidity and parity displayed strong correlation with separation of case and control metabolome profiles (AUC=0.94). In the obese samples, 17 metabolites were increased, and 12 were decreased. Galactonic acid and 2-hydroxy-3-methylbutyric acid were identified as the most important predictor of obese-normal status in our cohort. Pathway analysis reflected increase in alanine and aspartate metabolism as well as SLC-mediated transmembrane transport.

Conclusion: The study identified multiple metabolites related to maternal obesity. These metabolites could potentially serve as early-life biomarkers indicative of transgenerational effects of maternal obesity. Future studies that focus on pre-pregnancy lifestyle interventions and long-term follow up of obesity exposed infants may help to further characterize intrauterine epigenetic modification.

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Grants Awarded & In Progress:

June 2017 - Present Principal Investigator: Streamlining TelAbortion using an Educational Video Intervention, \$12,436-Gynuity Health Projects Grant

January 2017 - Present Principal Investigator: Intranasal Fentanyl for Pain Control During First-Trimester Uterine Aspiration – A Randomized Controlled Trial (of 106 patients to determine if 100 mcg of intranasal fentanyl decreases pain compared to placebo during ambulatory uterine aspiration, \$93,190 - Society of Family Planning Grant

Peer Reviewed Publications in Press: Moayed G, Tschann M. "Pain Management for First Trimester Uterine Aspiration." Obstetrical and Gynecological Survey. Accepted February 2018.

Abstract Presentation: Ho-Lastimoso I, Chung-Do J, Amshoff Y, Beebe K, Bradley A, Casson N, Kim I, Moayed G, Protzman R, Radovic T, Lastimoa B, Ho K, Spencer M. "Promoting Native Hawaiian Wellness through the use of Aquaponics." American Public Health Association 2017 Annual Meeting & Expo; 2017 Oct 4-8; Atlanta, GA.

National/ International Invited Conference & Symposium Presentations:

"Analgesia and sedation for first trimester abortion: a review of the literature and emerging trends." Moayed G. Planned Parenthood 14th Annual Medical Directors Council Update on Reproductive Health and Medical Leadership; 2018 Feb 25; Salt Lake City, UT.

"Emerging Research in Contraception." Moayed G, Bullock H, Crabtree D, Nguyen A, Ross C. American Society for Reproductive Medicine 73rd Scientific Congress; 2017 Oct 31; San Antonio, TX. [Moderator].

"Tackling Difficult Intrauterine Device Removals." Moayed G. American Society for Reproductive Medicine 73rd Scientific Congress; 2017 Oct 30; San Antonio, TX. [Roundtable].

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"Post-partum Contraception." Moayed G, Raidoo S. Centers for Disease Control and Prevention International Conference, Training to Increase Access to and Awareness of Contraception: Pacific Islands Training; 2017 Jun 28; Honolulu, HI.

"Contraceptive Myths and Misperceptions." Moayed G. Centers for Disease Control and Prevention International Conference, Training to Increase Access to and Awareness of Contraception: Pacific Islands Training; 2017 Jun 28; Honolulu, HI.

Intranasal Fentanyl for Pain Control During First-Trimester Uterine Aspiration: A Randomized Controlled Trial

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Objective: The primary objective of this study is to compare the pain reported on a 100 mm Visual Analog Scale (VAS) immediately after uterine aspiration between patients receiving 100 mcg of intranasal fentanyl (INF) and those receiving placebo. Secondary objectives include comparing reported post-procedural pain between the intervention and control groups and comparing satisfaction with procedural pain control between the groups.

Methods: We are conducting a double-blind, randomized controlled trial of 100 mcg of INF compared to placebo administered 15 minutes prior to uterine aspiration. Patients fourteen years and older requesting office-based uterine aspiration at 14-weeks gestation or less are being recruited for study participation. Participants are being recruited from the University of Hawai'i Women's Options Center in Honolulu and Planned Parenthood Columbia Willamette in Portland. All women are receiving 600 mg of oral ibuprofen at least 30 minutes prior to procedure start and receiving 20 mL of 1% lidocaine as a four-site paracervical block prior to cervical dilation. The primary outcome is the pain score reported on a 100-mm VAS immediately after uterine aspiration. Based on prior studies and our assessment of a clinically significant difference in pain scores, this study was powered to detect a 15 mm difference on the 100 mm VAS. To detect this difference with 80% power and a two-sided alpha of 0.05, we are recruiting 53 participants per arm for an N of 106 participants. This accounts for a possible 3% loss to follow-up rate. Mean VAS scores between the two groups will be analyzed with the student's t-test if the data is normally distributed and with the Mann-Whitney U test if not normally distributed. An exact p value will be calculated and a $p < 0.05$ will be considered significant.

Preliminary Results: Recruitment is ongoing and anticipated to be complete by May 2018. Currently, 79 of 106 participants have been recruited.

Support: Society of Family Planning

Acknowledgements: Tiana Fontanilla, M.P.H.; Steph Lee, R.N.; Sydney Proctor; Kate Stevens, PA-C

Perspectives of College Students on Sex Education Received in Middle and High School

Tiana Fontanilla, M.P.H.; Mary Tschann, Ph.D., M.P.H.



Background: Teens in Hawaii have higher than the national average rates of pregnancy and sexually transmitted infections and the lowest rates of condom use in the nation. School-based sex education (sex ed) has been recognized as a key tool in improving these indicators. Since June 2015, Hawaii's Department of Education has required public middle and high schools to provide opt-out instead of opt-in sexual health education. Currently there is no statewide assessment of sex ed curriculum quality. To better understand deficiencies and areas for improvement, the Hawaii State Department of Health partnered with the University of Hawaii (UH) OBGYN Division of Family Planning and the UH Women's Center to anonymously survey college students about the content and quality of sex ed received in middle and high school in Hawaii.

Methods: The survey was emailed to 610 students enrolled in undergraduate courses across five UH campuses.

Results: 315 surveys were returned. Among respondents who attended middle and/or high school in Hawaii (N=235), 64% received middle school sex ed and 64% received high school sex ed. Sex ed was not uniformly provided across middle and high schools, regardless of institution type (public/private) and religious affiliation. Sexually transmitted infections, contraception methods, and healthy relationships were popularly identified as ideal topics to cover in sex ed.

Conclusions: Additional surveying of undergraduate college students may serve as a useful approach in providing insight on sex ed efficacy, ensuring consistency of specific content and implementation of sex ed curricula statewide, and helping policy makers and educators refine sex ed policies.

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Impact of State-Specific Insurance Coverage for Abortion in Hawaii on Gestational Age at Presentation and Type of Abortion

*Shandhini Raidoo, M.D., M.P.H.; Mary Tschann, Ph.D., M.P.H.;
Bliss Kaneshiro, M.D., M.P.H.; Tetine Sentell, Ph.D.*



Context: Insurance coverage for abortion varies between states, and in Hawaii most private insurance companies and state Medicaid provide coverage for abortion. Very few patients pay out-of-pocket for an abortion in Hawaii.

Methods: We examined the differences in gestational age at time of presentation for abortion and type of abortion (medical, in-office procedure, or hospital facility procedure) chosen between patients presenting to a major abortion provider in Hawaii from 2010 to 2013 based on payment method: private insurance, state Medicaid, and self-pay.

Results: Self-pay patients were demographically similar to those using private insurance with respect to age, race, and gestational age at time of presentation for abortion. Medicaid patients presented for care at a gestational age almost two weeks later than private insurance or self-pay patients even when controlling for age, race, prior parity, and prior abortion. Types of abortion differed between the insurance category groups, however these differences were no longer significant when stratified by gestational age categories based on eligibility for different types of abortion.

Conclusion: State Medicaid patients present for abortion care almost two weeks later than those with private insurance or who pay out of pocket. There are likely additional factors that contribute to the different in gestational age at time of presentation for abortion, and it is necessary to elucidate these factors to ensure timely abortion care for all patients.



Effects of Maternal Diabetes on Pregnancy Outcomes

Stacy Tsai, M.D., M.P.H.; Yasuhiro Yamauchi, Ph.D.; Jonathan M. Riel, Ph.D.; Kialanei Geralde-Machida; Monika A. Ward, Ph.D.



Background: Women with diabetes mellitus (DM) are known to have increased risk of adverse perinatal outcomes, including carrying a fetus with congenital malformation, intrauterine fetal demise, intrauterine growth restriction, macrosomia, and postnatal metabolic disturbances. One mechanism of these adverse outcomes may be alterations in fetal epigenome, such as modifications in DNA methylation patterns. These alterations may originate from the oocyte of the diabetic mother, from her intrauterine environment, or from both. To distinguish between these possibilities we are using a mouse model of reciprocal embryo transfer. In this model embryos produced with oocytes from diabetic (DMOD) or non-diabetic (COD) oocyte donors are transferred to diabetic (DMS) or non-diabetic (CS) surrogate mothers. Using this model we will investigate the effects of DM on placental and fetal DNA methylation with the overall goal to identify modifiable interventions for diabetic mothers that can decrease the risk of adverse perinatal outcomes. In this preliminary study we focused on testing the effects DM on fertilization and preimplantation and postimplantation embryo development.

Methods: Diabetes was induced by intraperitoneal injection of streptozotocin 200mg/kg into 5 weeks old CD-1 mice. Upon reaching sexual maturity diabetic females were used as oocyte donors for in vitro fertilization (IVF) or as surrogate mothers for embryo transfer.

Results: Diabetic oocyte donors yielded similar number of oocytes after ovarian stimulation as non-diabetic females (16.8 ± 4.3 vs. 13.8 ± 3.7 ; $P=0.61$). These oocytes became fertilized and cleaved with similar efficiency ($\%$, 29.3 ± 12.4 vs. 52.2 ± 13.9 ; $P=0.37$) and had similar potential to develop to blastocyst in vitro ($\%$, 69.9 ± 18.1 vs. 55.6 ± 16.5 ; $P=0.66$) as oocytes from non diabetic females. The diabetic surrogate mothers had similar ability to carry pregnancy as non-diabetic surrogates, evidenced as percentage of pups delivered from embryos transferred ($\%$, 51 ± 5 vs. 62 ± 8 ; $P=0.33$). Although placental weight was similar between two groups (g, 0.11 ± 0.00 ; $P=0.81$), fetal weight was significantly decreased in offspring from diabetic females (g, 1.06 vs. 1.41 $P<0.0000$).

Conclusions: We conclude that diabetic status does not affect female ability to produce developmentally competent oocytes and does not interfere with female ability to carry pregnancy. However, decreased body weight of fetuses that were derived from oocytes from non-diabetic females but were undergoing development in uterus of diabetic surrogate suggests that pregnancy environment is causative of adverse perinatal outcomes associated with diabetes.

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Resident & Fellow Research Day 2018
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Department of Ob-Gyn Abstract Presentations, May 2017-May 2018

Faculty, Fellows, Former Fellows, Residents and Staff

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1. Landmarks in Fetal Biometry: Is Visualization of the Cavum Septi Pellucidi (CSP) Essential for Accurate Measurement of the Biparietal Diameter (BPD) and Head Circumference (HC)?

Akiyama, M., Jackson D., Lua L.

OBJECTIVES: In fetal biometry, biparietal diameter (BPD) and head circumference (HC) have traditionally been measured at a level including the cavum septum pellucidum (CSP) and thalami. A “three-line” landmark is frequently seen at a plane just inferior to the CSP plane. Our primary objective is to determine if the “three-line view” and the traditional biometry plane with CSP are statistically equal for the EDC assignment.

METHODS: Non-syndromic singleton pregnancies between 16 and 38 weeks who had fetal biometry at the maternal fetal medicine imaging department of University of Nevada School of Medicine in the year 2015 were prospectively recruited. After informed consent was obtained, two sets of measurements (one at the level of the three-line landmark and one at the level of the CSP and thalami) were obtained from each patient. All images were obtained by RDMS certified ultrasonographers and reviewed by a Maternal Fetal Medicine specialist. Data was analyzed for comparison of β -coefficient, Z score assessments, scatter plots, regression analysis, and standard deviation formulas for best fit comparisons between the traditional cavum septum pellucidum plane and three-line plane.

RESULTS: Visualization and measurement of the BPD and HC at the three-line landmark was obtainable in 100% of the 275 patients studied. After statistical analysis, there were no significant differences in absolute measurements, gestational age calculations, standard deviations, or best fit formulas between levels.

CONCLUSIONS: Our study affirms that equal biometric accuracy exists for BPD and HC measurement when the “three line” level is utilized. We conclude that, although separate documentation of the cavum septum pellucidum is mandatory for evaluation of fetal anatomic CNS integrity, the three line level can be used for fetal biometry for fetal growth evaluation and EDC establishment.

Oral presentation at the 2018 American Institute of Ultrasound in Medicine (AIUM) Annual Convention, New York City, NY, March 24-28, 2018.

2. Abnormal Placental Cord Insertion and the Association with Small for Gestational Age Infants

Beair J., Towner D., Broady A.

OBJECTIVES: To determine whether ultrasound findings of velamentous and marginal insertions (within 2 cm of the placenta edge) are associated with an increased rate of small for gestational age (SGA) infants at delivery.

METHODS: The study was comprised singleton gestations having both fetal anatomic survey at 17 to 27 weeks performed at Kapiolani Medical Center for Women & Children (KMCWC) from April 2010 to June 2015 and delivery at KMCWC. Cases had an abnormal placenta cord insertion (CI) and controls were identified as the next closest screening ultrasound assessment at the same gestational age with a normal CI. We evaluated the rates of SGA, as well as other maternal and fetal comorbidities. One hundred patients in each arm provide this study a 95% power (with $\alpha = 0.05$) to detect a 3-fold increase in SGA with an abnormal placental CI insertion.

RESULTS: The SGA rate was 18 of 120 (15%) in cases of marginal CI versus 14 of 120 (11.7%) in the controls ($p > 0.05$). For the velamentous CI, there were no SGA infants in either group (NS but underpowered). There was no difference in preterm birth or NICU admissions ($p > 0.05$, for both marginal and velamentous). Marginal CI was associated with an increased rate of pregnancy-related hypertensive disease ($p = 0.045$), as well as an increased rate of diabetes (combined pregestational and gestational) ($p = 0.049$). Logistic regression revealed that only marginal CIs of < 1 cm more than double the rate of SGA (RR = 2.6, $p = 0.041$) as does maternal hypertension (RR = 4.3, $p = 0.01$).

CONCLUSIONS: Marginal cord insertion < 1 cm from the placental edge identified on 2nd trimester US is associated with SGA and warrants a follow up US. However, if the CI is 1-2cm, follow up growth US may not be necessary.

Poster presentation at the 2018 American Institute of Ultrasound in Medicine (AIUM) Annual Convention, New York City, NY, March 24-28, 2018.

3. Racial Representation in United States/Australian Obstetric Research

Ingrid Chern I., Yamasato K., Lee M.

Introduction: To describe racial/ethnic composition in United States (US)/Australian obstetric research, represented by the Maternal-Fetal Medicine Units Network (MFMU) and Australian Research Centre for Health of Women and Babies (ARCH) trials.

Methods: MFMU studies were identified through PubMed and ARCH studies through their online publication listing from 2011 to 2016. Observational and randomized cohorts and primary and secondary data analyses were included. Studies with racial/ethnic-based enrollment were excluded.



Racial composition was expressed as the mean racial percentages among studies (ie: studies weighted equally regardless of sample size). Racial percentages in MFMU studies were compared to US registered births (2015) and ARCH compared to Australian census ancestry data (2016).

Results: 38 MFMU studies included 580,282 women. Racial/ethnic composition (% [SD]) included White 41.7 [12.3], Hispanic 28.1 [15.4], Black 26.2 [12.3], Asian 3.6 [2.3], and American Indian/Alaskan Native (AI/AN) 0.2 [0.02]. No studies reported Native Hawaiian/other Pacific Islanders (NHOPI) separately. Comparatively, registered US births (%) were White 75.7, Hispanic 28.1, Black 16.1, Asian/Pacific Islander 7.1, and AI/AN 1.1. 20 ARCH studies included 51,873 women. The most reported groups were White (76.5 [17.4]), Asian (15.2 [14.8]), and Aboriginal/Torres Strait Islander (13.9 [30.5]), compared to the estimated population of White 88.7, Asian 9.4, and Aboriginal/Torres Strait Islander 2.8. No studies reported Black race separately.

Conclusion: There is diverse racial/ethnic representation in studies by MFMU and ARCH, with possible opportunities to increase enrollment, or the reporting of Asian, AI/AN, and NHOPI races in US studies and Black race in Australian studies.

Poster presentation at the 2018 American College of Obstetricians and Gynecologists (ACOG) Annual Clinical and Scientific Meeting, Austin, TX, April 27-29, 2018.

4. The TelAbortion Project: Delivering the Abortion Pill to Your Doorstep by Telemedicine and Mail

Chong E., Raymond E., **Kaneshiro B.**, Baldwin M., Priegue E., Winikoff B.

BACKGROUND: In the United States, many women struggle to obtain an abortion due to ever-increasing barriers to access. The TelAbortion Project provides medical abortion directly to women in their homes using telemedicine and mail, enabling them to receive services without going to a clinic. We will report data from the pilot phase of this project, which will be completed by October 2017.

METHODS: TelAbortion was available in Hawaii, New York, Oregon, and Washington. Interested women contacted implementing sites and interacted with clinicians by videoconference. After obtaining screening tests at radiology and lab facilities close to them, eligible women were mailed packages containing mifepristone and misoprostol. Women took the medications at home, obtained follow-up tests and had another consultation with the clinician.

RESULTS: Through August 2017, 105 women had a videoconference, 93 had received abortion drugs, and 60 had completed follow-up. Among women who took mifepristone and misoprostol, one had a surgical completion, and no serious adverse events were reported. All women reported being very satisfied or satisfied, and 59 of 60 would recommend this service to a friend. Convenience and privacy were commonly valued features.

CONCLUSIONS: Direct-to-patient telemedicine abortion is feasible and can potentially increase access to abortion care in a safe and acceptable manner. Although telemedicine bans and other restrictions are on the rise, more than 60% of all abortions in the US are currently performed in states where this service would be legally feasible. Going forward, we plan to scale up this service to women in other states.

Poster presentation at the 2018 American College of Obstetricians and Gynecologists (ACOG) Annual Clinical and Scientific Meeting, Austin, TX, April 27-29, 2018.

5. Discharge Analgesics After Vaginal or Cesarean Section Delivery

Molero Bravo, R., Wright, T.

INTRODUCTION: The first exposure to opioids for many women is after delivery. We seek to evaluate the rates of opioid prescriptions written at the time of discharge after delivery at Kap'iolani Medical Center for Women and Children (KMCWC) for the year 2016, and how these rates changed after new opioid prescribing guidelines were distributed by the CDC in March 2016

METHODS: We conducted a review of all deliveries at KMCWC during the months of January and September for the year 2016. Deliveries in which the baby was admitted to the NICU were excluded. Both cesarean and vaginal deliveries were assessed and the quantity of prescribed opioids at the time of discharge.

RESULTS: There were a total of 907 deliveries that met inclusion criteria, 456 during January and 451 during September. There were 104 (22.8%) cesarean sections during the month of January and 352 (77.2%) vaginal deliveries. In September, there were 90 (20.0%) cesarean sections and 361 (80%) vaginal deliveries. The percentage of vaginal deliveries which received opioids at the time of discharge decreased from January to September (29% vs. 22%, $p < 0.05$). The mean number of prescribed pills was significantly lower for cesarean sections (30.5 vs. 28.6, $p = 0.0049$) and a decrease for vaginal deliveries (26.5 vs. 25.5, $p = 0.35$).

CONCLUSION: The numbers of opioids prescribed decreased from January compared to September 2016, showing that behavioral change can occur in the teaching hospital setting. Even though this data is reassuring, more work needs to be done to help alleviate the opioid epidemic.

Poster presentation at the 2018 American College of Obstetricians and Gynecologists (ACOG) Annual Clinical and Scientific Meeting, Austin, TX, April 27-29, 2018.

6. Prophylactic Pregabalin to Decrease Pain During Medical Abortion: A Randomized Controlled Trial Friedlander E., Soon R., Salcedo J., Davis J., Kaneshiro B.

OBJECTIVES: To evaluate whether prophylactic pregabalin reduces pain experienced with medical abortion.

METHODS: We conducted a randomized, double-blind, placebo-controlled trial of women initiating a medical abortion with mifepristone and buccal misoprostol up to 70 days gestation. Participants were randomized to take pregabalin 300mg or a placebo immediately prior to misoprostol. All participants were dispensed ibuprofen and oxycodone with acetaminophen for analgesia to take as needed. Electronic surveys were sent via text message link at six time points over 72 hours to assess the primary outcome of maximum pain on an 11-point numerical rating scale, as well as analgesic use and adverse effects.

RESULTS: From June 2015 to October 2016, 110 women were randomized and 107 provided pain scores. Demographic characteristics were similar between groups. The mean maximum pain score in the pregabalin group was 5.0 ± 2.6 versus 5.5 ± 2.2 in the placebo group ($p=0.32$). No ibuprofen was taken by 27% of the pregabalin group versus 12% placebo ($p=0.04$). No narcotic was taken by 69% of the pregabalin group versus 50% placebo ($p=0.04$). Satisfaction scores for the abortion were higher in the pregabalin group (very satisfied: 41% versus 22%; $p=0.03$), as were satisfaction scores for the analgesic regimen (very satisfied: 47% versus 22%; $p=0.006$).

CONCLUSIONS: Maximum pain scores were not significantly different between the pregabalin and placebo groups, though women who received pregabalin were less likely to require any ibuprofen or narcotic, and were more likely to report higher satisfaction with the analgesic regimen.

Oral presentation at the 2017 North American Forum on Family Planning, Atlanta, GA. , October 14-16, 2017.
Awarded "Outstanding Researcher-In-Training"

7. Text Message Link to Online Survey: A New Highly Effective Method of Longitudinal Data Collection Friedlander E., Soon R., Salcedo J., Kaneshiro B.



OBJECTIVES: To evaluate use of a text message link to an online survey as a method of data collection over the course of a medical abortion. **Methods:** We conducted a randomized, double-blind, placebo-controlled trial of women initiating a medical abortion up to 70 days gestation. For data collection during this trial, electronic surveys were sent to participants via text message link at six specified time points over 72 hours (baseline, 2-, 6-, 12-, 24-, and 72-hours). Messages were automated through the Android application "SMS Scheduler," sent from a phone dedicated to the trial, and held by an investigator. The text provided a link to a secure online survey where participants could enter information without storing any data on their phones. Participants were remunerated with electronic gift cards for every survey response, with a bonus for completing all surveys.

RESULTS: From June 2015 to October 2016, 110 women were randomized. Three women (2.7%) were lost to follow-up after enrollment. Participants had a mean age of 27 years. Out of 241 women screened for inclusion, three (1.2%) were excluded due to lack of access to a cellular phone or the Internet. All six surveys were completed by 93.6% of participants. All women who responded gave a response at the 24-hour mark. Over three-quarters of all responses were received within two hours of the requested time.

CONCLUSIONS: In this population of young women seeking medical abortions, text message link to online survey response appears to be an effective mode of data collection.

Poster presentation at the 2017 North American Forum on Family Planning, Atlanta, GA, October 14-16, 2017.

8. The Longitudinal Experience of Pain During Medical Abortion Friedlander E., Soon R., Salcedo J., Davis J., Kaneshiro B.



OBJECTIVES: Pain with the evidence-based, mifepristone-misoprostol medical abortion regimen has been described using retrospective data collection. We present the first study where real-time pain scores were collected to describe the pain experience.

METHODS: As part of a randomized, double-blind, placebo-controlled trial of women using pregabalin at the time of a medical abortion up to 70 days gestation (described separately), we collected real-time data on pain (11-point numerical rating scale) experienced in the placebo group. All participants were dispensed ibuprofen and oxycodone with acetaminophen for analgesia. Electronic surveys were sent via text message link at six specified points over 72 hours to assess pain, analgesic use, and adverse effects in real-time.

RESULTS: From June 2015 to October 2016, 110 women were randomized and 54 were assigned to the placebo group. Two women were lost to follow-up. Participants anticipated a maximum pain score of 6.8 ± 2.0 but experienced a mean maximum pain score of 5.5 ± 2.2 . The mean time of maximum pain was 3.7 ± 2.4 hours after misoprostol. By hour 12 after misoprostol, 61% reported no pain, which increased to 77% at 24 hours and 82% at 72 hours. Median ibuprofen usage was two 800mg tablets (IQR 1-3) and 0.5 oxycodone/acetaminophen 5/325mg tablets (IQR 0-1).

No ibuprofen was used by 11% of participants, and 50% did not use a narcotic.

CONCLUSIONS: Using real-time data collection, pain scores were lower than previously reported for medical abortion, and the duration of pain was shorter. Analgesic use was lower than previously described.

Poster presentation at the 2017 North American Forum on Family Planning, Atlanta, GA, October 14-16, 2017.

9. Comparison of Blastocyst Expansion Morphokinetics in Euploid Versus Aneuploid Embryos from Infertility Patients

Huang, D., Leung, M., Yin, C., **Kosasa, T., Huang, C.**, Arnett, C., Ahn, H.J., **Huang, T.**

STUDY QUESTION: Can the morphokinetics of blastocyst expansion distinguish euploid from aneuploid embryos and provide a basis for embryo ranking and selection for transfer?

SUMMARY ANSWER: Of several morphokinetic parameters obtained from time-lapse imaging, blastocyst expansion dynamics best distinguished euploid from aneuploid embryos.

WHAT IS KNOWN ALREADY: Without preimplantation genetic screening (PGS), the laboratory must rank embryos for transfer based on morphology. Compared to traditional grading, time-lapse imaging offers new possibilities, but applying this approach to embryo selection remains controversial. Blastocoel expansion rate is a new metric recently described using donor egg embryos having known positive implantation data (Huang et al., 2016); however, there is no information describing expansion in autologous embryos from infertility patients or how expansion correlates to karyotype after PGS. Results reported here describe these features and suggest how expansion metrics can be applied to embryo selection.

STUDY DESIGN, SIZE, DURATION: This was a retrospective observational study initially involving 188 (non-donor) blastocysts biopsied from 34 infertility patients having preimplantation genetic screening for aneuploidy. The study period involved sequential biopsy cases from June 2014-June 2016 using a single laboratory (Genesis Genetics).

PARTICIPANTS/MATERIALS, SETTING, METHODS: The median age of study patients was 35.0 yrs (sd = 5.7). Retrievals averaged 9.6 mature and 7.1 fertilized eggs. After ICSI, embryos were cultured in an Embryoscope (Vitrolife) with laser hatching on D3 and biopsy on D5-D6. Blastocoel expansion was defined as the cross-sectional area of trophoctoderm enclosed space both within and herniated outside of the ZP (in μ^2) and measured hourly for 10 hours beginning at blastocyst formation (Tb).

MAIN RESULTS AND THE ROLE OF CHANCE: Of 188 blastocysts from 34 PGS cycles analyzed, 89 (47.3%) were euploid and 99 (52.6%) aneuploid. The euploids' expansion slope (756.3) was statistically higher than for aneuploids (503.3) beginning 6 hours from Tb ($p < 0.004$). A scatter plot correlating Tb with expansion cross sectional area (CSA) at 8 hours from Tb showed a similar distribution of euploids and aneuploids at an intermediate expansion CSA of 15,000-20,000 μ^2 (euploid = 58%; aneuploid = 54%). In contrast, a greater percentage of all euploid cells (29%) showed more robust expansion $> 20,000 \mu^2$ versus aneuploids (12%). Conversely, a higher proportion of all aneuploids (32.3%) expanded more slowly ($< 15,000 \mu^2$) versus euploids (12.3%). Based on these findings, individual blastocyst expansion slopes were used to rank embryos for hypothetical transfer within each patient's cohort. The percent euploid was highest in embryos ranked 1 or 2 (61.7% and 62.5%). Euploidy decreased in embryos ranked 3 or 4 (34.4% and 30.7%). Notably, 27/34 (79.4%) patients had at least one embryo ranked 1 and 2 and were euploid. No clear differences between euploid and aneuploid embryos were apparent in several earlier morphokinetic parameters (t2, t3, t4, t5, t6, Tsb, Tb).

LIMITATIONS, REASONS FOR CAUTION: This was a retrospective observational study. It is also limited by the sample size of both patients and blastocysts. In addition, this is the first application of a new metric of blastocyst expansion to biopsied embryos which limits wider comparison of results and power analysis.

WIDER IMPLICATIONS OF THE FINDINGS: Morphological selection of single embryos for transfer remains challenging. Results are the first to describe a new metric of blastocyst expansion rate in embryos from infertility patients undergoing PGS. Results suggest that expansion rate correlates with euploidy and describe its application to embryo ranking for transfer with or without PGS.

TRIAL REGISTRATION NUMBER: No trial registration.

Poster Presentation at the ESHRE Annual Meeting in Geneva, Switzerland on July 2nd-5th, 2018.

10. Blastocoel Expansion as a Morphokinetic Marker of Genetic Quality in Embryos from Donor Eggs

Huang, T., Kiehm, S., Yin, C., Leung, M., Ahn, H.J., Kosasa, T., & Kessel, B.

STUDY QUESTION: How does blastocyst formation time and the rate of subsequent blastocoel expansion correlate with euploidy in donor embryos having genetic screening?

SUMMARY ANSWER: Euploid embryos tend to form blastocysts sooner and expand more rapidly than aneuploids, enabling a morphokinetic analysis identifying subgroups enriched for euploidy.

WHAT IS KNOWN ALREADY: Egg donation is an important option for infertile couples. Embryo ranking for single embryo transfer remains a central challenge to minimize risks from multiple pregnancy. Without preimplantation genetic screening (PGS), the laboratory must rank embryos based on morphology. Time-lapse imaging offers a new approach, but its value in embryo selection remains controversial. Blastocoel expansion rate has recently been described in donor egg embryos forming sustained pregnancies (Huang et al. 2016), but there is no information correlating

expansion rates with karyotype in wider embryo cohorts. Results here support the hypothesis that expansion rate assessments can improve euploid embryo selection.

STUDY DESIGN, SIZE, DURATION: This was a retrospective observational study utilizing 91 blastocysts from 15 consecutive egg donation cycles performed in 2016.

PARTICIPANTS/MATERIALS, SETTING, METHODS: The median age of donors was 24.3 yrs. Retrievals averaged 16.3 mature and 14.2 fertilized eggs. After ICSI, embryos were cultured in Embryoscope (Vitrolife, USA) with laser zona drilling on D3 and biopsy on D5-D6. Blastocoel expansion was measured as the cross-sectional area (CSA, in μ^2) of trophectoderm-enclosed space both within and herniated outside of the ZP. It was measured hourly for 10 hours beginning at blastocyst formation (tB).

MAIN RESULTS AND THE ROLE OF CHANCE: Of 91 embryos biopsied, there were 51 (56.0%) euploid, 30 (33.0%) aneuploid, and 10 (11.0%) mosaic cells. Euploid blastocysts exhibited a statistically greater expansion curve regression slope over the first 10 hours than either aneuploids or mosaics (560 vs. 347 vs. 420, respectively; $p < 0.04$). Euploids also formed blastocysts (tB) earlier (102.4 vs. 111.2 vs. 117.9 hrs. respectively; $p < 0.001$). There were no statistical differences between mosaics and aneuploids in tSB or tB ($p > 0.05$). Based on expansion curve results, a scatter analysis was performed correlating tB with expansion CSA at 8 hours from tB, where 86.7% of all euploids formed blastocysts < 112 hours from fertilization. Euploidy was increasingly enriched in subgroups showing increasingly expanded blastocoels. This ranged from 63.6% (at cutoff CSA $> 14,000\mu^2$) to 79.3% (CSA $> 16000\mu^2$) to 85.8% euploid (CSA $> 18000\mu^2$). Although few total euploid embryos (13.3%) formed blastocysts at > 112 hours, they showed remarkably productive expansion with CSA's $> 16,000\mu^2$ 8 hours into the expansion period; in contrast, aneuploid/mosaics embryos expanded comparatively more slowly and were distributed more broadly across tB times and CSA range (11,000-23,000 μ^2).

LIMITATIONS, REASONS FOR CAUTION: This was retrospective observational study and further limited by the sample size of both patients and blastocysts. In addition, this is the first application of a new metric of blastocyst expansion to biopsied embryos which limits comparison of results and power analysis.

WIDER IMPLICATIONS OF THE FINDINGS: The value added by morphokinetic analysis for ranking of embryos for transfer remains challenging and controversial. The results reported here in egg donor PGS cases suggest that both the time of blastocyst formation and a new metric describing blastocoel expansion may be useful for objective, non-invasive embryo selection algorithms.

TRIAL REGISTRATION NUMBER: No trial registration.

Poster Presentation at the ESHRE Annual Meeting in Geneva, Switzerland on July 2nd-5th, 2018.

11. Rapid Diagnosis of Chorioamnionitis by Urinalysis Reagent Strip

Kurata N., Pangilinan M., Yamasato Y., Shaha S., Killen J., Aeby T.



OBJECTIVE: To evaluate amniotic fluid leukocyte esterase (LE), measured by urinalysis reagent strips, as a predictor of histologic chorioamnionitis in term pregnancies.

STUDY DESIGN: In this pilot study, women with singleton pregnancies at > 37 w0d gestation undergoing cesarean delivery were recruited. Amniotic fluid was aspirated at the time of amniotomy during the cesarean and tested for LE using a urinalysis reagent strip. A LE result of $> 1+$ was considered positive. All placentas were examined for histologic chorioamnionitis by a pathologist blinded to the LE results. Clinical chorioamnionitis was defined as > 2 of the following: maternal temperature > 38.0 C, maternal heart rate > 100 bpm, or fetal heart rate baseline > 160 bpm. Sensitivity, specificity, positive predictive value, and negative predictive values of amniotic fluid LE for histologic chorioamnionitis were calculated.

RESULTS: A total of 40 women were recruited, 20 with and 20 without clinical chorioamnionitis. Women without clinical chorioamnionitis underwent cesarean prior to labor/rupture of membranes while the women with clinical chorioamnionitis underwent cesarean after onset of labor/rupture of membranes. Amniotic fluid leukocyte esterase was highly predictive of histologic chorioamnionitis (Table 1).

CONCLUSION: Amniotic fluid leukocyte esterase, when measured by urinalysis reagent strips, may be highly predictive of both clinical and histologic chorioamnionitis. Further study is needed to assess the effect of labor/ruptured membrane status on this potential diagnostic tool.

Table 1: Diagnostic Performance of Clinical Chorioamnionitis versus Amniotic Fluid Leukocyte Esterase for Histologic Chorioamnionitis (% [N])

	<u>Sensitivity</u>	<u>Specificity</u>	<u>Positive Predictive Value</u>	<u>Negative Predictive Value</u>
Clinical Chorioamnionitis	94.7 [18/19]	90.5 [19/21]	90.0 [18/20]	95.0 [19/20]
Amniotic Fluid Leukocyte Esterase	94.7 [18/19]	90.5 [19/21]	90.0 [18/20]	95.0 [19/20]

Poster presentation at the 2018 Society for Maternal-Fetal Medicine (SMFM) Annual Meeting, Dallas, TX

12. Use of Active Learning Booster Sessions to Improve Information Retention in Forceps Training Nagamine K., Hiraoka M., Olson H., Aeby T.



PURPOSE: To quantify the benefits of “active learning booster” sessions on the retention of information deemed vital for safe and effective use of forceps during operative vaginal deliveries.

BACKGROUND: At the University of Hawaii (UH), we designed an interactive didactic and simulation program to increase resident comfort with and use of obstetric forceps. While some short-term benefits were noted, the improvements faded with time. Since active learning has been shown to increase mastery and retention of educational content, we added “just-in-time” refresher training on the labor and delivery unit.

METHODS: Our Forceps Training Task Force designed a curriculum emphasizing the core principles, practices and techniques that should be mastered for safe and effective use of forceps. The 25 residents of the UH OB/GYN program were tested for baseline mastery of the concepts using an online exam and simulation scenario. An interactive workshop covering indications, techniques, informed consent, pelvimetry and hands-on simulation was followed by a test of knowledge and technical skill acquisition at 1 week and 6 months following the event. Additionally, a subset of residents also received simulation training just prior to an actual forceps delivery using the same trainer. Online and simulation exams were then performed on all residents to measure retention of information.

RESULTS: Residents exposed to “active learning booster sessions” showed significantly better performance on both written and simulation assessments.

DISCUSSION: Use of a readily available, high-fidelity simulation model in the clinical arena may improve trainee retention of knowledge and technical skills.

Poster presentation at the 2018 Council on Resident Education in Obstetrics and Gynecology (CREOG) and Association of Professors of Gynecology and Obstetrics (APGO) Annual Meeting, National Harbor, MD., February 28-March 3, 2018.

13. Implementation of Obstetric Hemorrhage Protocol for Quality Improvement Schlueter R., Keo BR., Kimata C., Burlingame J.



OBJECTIVE: The aim of this study is to improve our anticipation and preparation for postpartum hemorrhage by identifying opportunities for antepartum and intrapartum risk assessment. In order to achieve this we implemented an education program, changed order sets and provided risk screening cards posted in labor and delivery. We evaluated quantitative changes in laboratory orders for type and screen for known risk factors in preparation for postpartum hemorrhage. Secondly, we evaluated and compared the accuracy of estimated blood loss (EBL) and quantitative blood loss (QBL) with respect to differential drop in hemoglobin and hematocrit.

STUDY DESIGN: The study is a prospective quality improvement project with comparison before and after implementation of an obstetric hemorrhage education program started in March of 2017. Type and screen orders were compared for patients with known risk factors for obstetric hemorrhage including but not limited to magnesium sulfate administration, induction of labor and chorioamnionitis before and after the education program from January 2017 through May 2017. Comparisons were performed with t-tests at 95% CI and $p < 0.05$ significance. All cesarean section patients with estimated blood loss (EBL) and quantitative blood loss (QBL) during the study period were compared with the use of differential drop in hemoglobin on best fit regression plot to assess accuracy with AIC and adjusted r-square values.

RESULTS: Type and screens were ordered on chorioamnionitis patients 522/867 (60%) before and 72/126 (57%) after the education program ($p=0.56$), in induction of labor patients 859/1629 (53%) before and 105/222 (47%) after ($p=0.13$), and in patients with magnesium sulfate administration 486/649 (75%) before and 59/76 (78%) after ($p=0.68$). There were no significant differences observed before and after the education program. In evaluation of accuracy of both EBL and QBL in regards to hemoglobin drop for cesarean section patients ($n=56$) during the study period QBL demonstrated an AIC=181.0 with adjusted r-square=0.029 ($p=0.11$); EBL demonstrated an AIC=182.1 with adjusted r-square=0.0076 ($p=0.45$). While the AIC in QBL was smaller and increased r-square in QBL was larger reflecting better accuracy of QBL in assessing blood loss, this was not statistically significant.

CONCLUSION: The implementation and use of risk based obstetric bundles in anticipation and preparation for postpartum hemorrhage is crucial to identifying patients in high risk groups. In our study we likely need more time to assess influence of education on provider orders for type and screen in preparation for hemorrhage. QBL is a promising measure that deserves further attention on labor and delivery to more accurately assess blood loss. Provision for obstetric hemorrhage may help to reduce maternal morbidity and mortality.

Poster presentation at the 2017 Pacific Coast Obstetrical and Gynecological Society (PCOGS) Annual Meeting, Palm Desert, CA., November 1-5, 2017.

14. Placental Density and Morphology in Term Preeclampsia

Schlueter R., Chem I., Ahn H., Kurata N., Towner D.

OBJECTIVE: The aim of this study is to compare placental density with mathematical modeling and morphologic characters in term preeclampsia and control pregnancies.

STUDY DESIGN: The study is a retrospective chart review of women delivering at Kapiolani Medical Center for Women and Children from February, 2011 through February, 2016. Charts were abstracted for case patients with ICD-9 diagnosis of preeclampsia and normal deliveries were used as control. Only subjects with a pathology report were included. Maternal and fetal demographics were recorded. Placental measurements of weight (g), length (L), width (W), and height (H) as well as histologic characteristics were documented. Volume (cm³) of the placenta was assessed by using a cylinder where $v = \pi r^2 h$, mean r was calculated from placental dimensions to assume circular shape of placental disc. The density was calculated in (g/cm³). Continuous variables were compared with t-tests and Wilcoxon rank sum. Categorical variables were compared with Chi-square tests at 95% CI.

RESULTS: During the study period a total of 306 controls and 139 women with preeclampsia were identified. No significant difference in age existed between the groups (28 vs 28 years) ($p=0.6243$). In regards to gravidity women in the preeclampsia group reflected 2.3 versus control of 3.0 ($p<0.0001$), parity of preeclampsia 1.8 versus control 2.3 ($p<0.0001$) and gestational age in preeclampsia 38.2 weeks versus control of 38.7 weeks ($p<0.0001$). The birth weight in the control group was 7.1 pounds and in the preeclampsia population was 6.7 pounds ($p=0.0002$). There was no significant difference in the APGAR score or cord gases. Placental weight was 475.5 g in the control group and 474.5 g in the preeclampsia group ($p=0.93$). The volume in preeclampsia placentas was 792.9 cm³ and 855.6 cm³ in the control group, so while less was not statistically significant ($p=0.06$). Density was calculated as 0.62 g/cm³ in preeclampsia and 0.57 g/cm³ in the control group which was significantly different ($p=0.03$). When stratified for severe preeclampsia the density in the control group was still 0.57 g/cm³ versus 0.62 g/cm³ in severe preeclampsia which was significant ($p=0.03$).

CONCLUSION: Our study demonstrates that women with preeclampsia tend to have decreased gravidity, parity and neonatal birth weight. Placentas from mothers with preeclampsia are smaller in volume and appear to have higher density. The results support that preeclampsia has an origin intrinsic to placental dysfunction. Further attention should be given to identifying morphologic parameters that have the potential to aide in prenatal diagnosis with such innovations as 3D ultrasound modeling or placental elastography.

Poster presentation at the 2018 Society for Reproductive Investigation (SRI), San Diego, CA., March 6-10, 2018.

15. Perspectives of College Students About Sex Education in Middle and High School

Sumida M., Fontanilla T., Tschann M.



BACKGROUND: Teens in Hawaii have higher than the national average rates of pregnancy and sexually transmitted infections while also having the lowest rates of condom use in the nation. School-based sex education (sex ed) has been recognized as a key tool in improving these indicators. Since June 2015, Hawaii's Department of Education has required public middle and high schools to provide opt-out instead of opt-in sexual health education. Currently there is no statewide assessment of sex ed curriculum quality in Hawaii. We aimed to describe the perspectives of college students regarding the content and quality of the sex ed they received in middle and high school in Hawaii to better understand deficiencies and areas for improvement.

METHODS: The Hawaii State Department of Health partnered with the University of Hawaii (UH) John A. Burns School of Medicine Division of Family Planning and the UH Women's Center to survey college students briefly about the sex ed they received before entering college. An anonymous online survey was sent via email to 564 students enrolled in undergraduate courses across five University of Hawaii campuses from February 2017 through October 2017. Participants could decline to answer any questions they did not feel comfortable responding to and were provided a small gift card for their time.

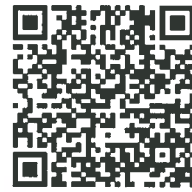
RESULTS: A total of 307 surveys were returned. Respondents were 70% (N=214/307) female and reflected the racial diversity of Hawaii, with about 26% (N=80/307) identifying as multi-racial. The majority of respondents were between 17 and 23 (N=219/281, 78%). Among students who attended middle and/or high school in Hawaii (N=234), 64% (N=127/199) of respondents reported receiving middle school sex ed and 64% (N=136/212) reported receiving high school sex ed. Reports of receiving sex ed were roughly 65%, regardless of the type of school (public/private) or religious affiliation of the institution. Among the respondents who received no sex ed in middle or high school, the three topics indicated that would have been most helpful to cover were sexually transmitted infections (STIs) (N=28/29, 97%), birth control methods (N=26/29, 90%), and healthy relationships (N=24/29, 83%). Among those who did receive sex ed, the three topics selected as most important were birth control methods (N=162/205, 79%), STIs (N=158/205, 77%), and healthy relationships (N=153/205, 75%).

CONCLUSIONS: Respondents reported that sex ed was not uniformly provided across middle and high schools in Hawaii, irrespective of school type (public vs. private) and religious affiliation, and were able to identify topics that would be ideal to include in sex ed curricula. Additional surveying of undergraduate college students may serve as a useful approach in providing insight on sex ed efficacy, ensuring consistency of specific content and implementation of sex ed curricula statewide, and helping policy makers and educators refine sex ed policies.

Poster presentation at 2018 North American Society for Pediatric and Adolescent Gynecology (NASPAG) Annual Meeting, West Palm Beach, FL, April 12-14, 2018.

16. Updating Fetal Foot Length to Gestational Age References: A Chart Review of Abortion Cases from 2012 to 2014

Stevens K., Elia J., Kaneshiro B., Salcedo J., Soon R., Tschann M.



BACKGROUND: Pathologists routinely use fetal foot length (FFL) to estimate the gestational ages (GA) of aborted fetuses. However, there is no standard formula. We aimed to develop an updated FFL-to-GA reference range from patient reported last menstrual period (LMP), ultrasound estimate, and best estimate for GA based on American College of Obstetricians and Gynecologists' criteria in our patient population. After determining a reference range, we compared our measurements to those of previously published, commonly referenced FFL tables, which may not represent the ethnic diversity, or increasing BMI of current patient populations.

METHODS: Retrospective chart review of 628 dilation and evacuation (D&E) clinical records and procedure pathology reports from October 2012 to December 2014 in Honolulu, HI.

Results: A linear relationship exists between FFL and GA in our population. Linear regression analysis of three pregnancy dating methods demonstrated that ultrasound derived dating provided the best-fit regression formula: $FFL (mm) = 496 * (GA \text{ in days}) - 34.53$ with an R2 value of .916. Patient race/ethnicity and BMI did not affect these equations in regression analysis. Our mean FFL differed from historically referenced ranges by .36-3.92mm, dependent on GA. Our FFL by GA was similar to ranges more recently endorsed by the National Abortion Federation despite differences in population racial and ethnic backgrounds.

CONCLUSION/IMPLICATIONS: If post-abortion FFL measurement is utilized for GA estimation, then updated, modern ranges should be referenced to better reflect the diversity of abortion patients nationwide.

Poster presentation at the 2018 American College of Obstetricians and Gynecologists (ACOG) Annual Clinical and Scientific Meeting, Austin, TX, April 27-30, 2018.

17. Thirty Day Readmission Following Surgery for Cancer of the Ovary

Terada K., Kim R., Carney M., Jun Ahn H.



OBJECTIVE: Identify diagnoses and procedures for patients readmitted within 30 days following surgery for cancer of the ovary.

METHODS: This study utilizes data from the Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project. Readmission data was abstracted from the 2014 Nationwide Readmissions Database. This database utilizes data from 22 states representing 51.2% of the United States population, and 49.3% of hospital admissions. Index admissions were identified for patients with a primary diagnosis of cancer of the ovary, undergoing oophorectomy, hysterectomy, or other therapeutic procedure of the female organs. The subset of patients requiring readmission within 30 days from discharge were then identified. Primary diagnoses and therapeutic procedures associated with readmissions were examined.

RESULTS: For 2014, there were 7485 index admissions in the database for patients with carcinoma of the ovary undergoing a gynecologic procedure. There were 882 (11.8%) patients requiring readmission within 30 days of discharge. 656 (74.4%) of admissions were classified as elective; 226 (25.6%) of admissions were classified as non-elective. The most common primary diagnoses for readmission were: complications of surgery or care (32% of patients), septicemia or other infection (14.7%), ovarian cancer or secondary malignancy (11.9%), and intestinal obstruction (10.3%). Most common primary procedure codes were: cancer chemotherapy (18.5%), paracentesis or thoracentesis (16.7%), blood transfusion (13.2%), vascular catheterization (10.6%). Total hospital charges were significantly higher for patients readmitted than for patients that were not readmitted ($p < 0.0001$). No patients undergoing readmission died during hospitalization.

CONCLUSION: As payers have focused on reducing readmissions as a cost saving measure, 30 day readmissions are now perceived as a surrogate indicator for quality of care. Cancer of the ovary, however, is a complex disease; and post-operative care often requires management of both surgical issues, and symptoms related directly or indirectly to the disease burden. Hospital readmission may be required to address patient well-being and disease control. Reducing readmissions may be challenging in this population.

Poster presentation at the Society of Gynecologic Oncology, March 24-27, 2018, New Orleans, Louisiana.

18. Circumvallate Placenta and the Association with Fetal Growth Restriction

Towner D., Akiyama M., Churn I., Broady A.

OBJECTIVES: Circumvallate placenta is associated with multiple perinatal complications such as small for gestational age (SGA), premature rupture of membrane (PPROM), placental abruption, preterm delivery, and oligohydramnios. On prenatal ultrasound, an uplifted edge of the placenta and membranes has been proposed to be a marker for a circumvallate placenta. The sensitivity and specificity of this ultrasound marker have not been validated. The goal of this study is to evaluate if incidental finding of uplifted edge of placenta at the time of anatomy ultrasound is associated with SGA and other aforementioned perinatal complications.

METHODS: A retrospective chart review was performed on all patients who were diagnosed with circumvallate placenta at the Fetal Diagnostic

Center at Kapiolani Medical Center for Women and Children between May 2009 and May 2015. Ultrasound images were taken by RDMS certified ultrasonographers and interpreted by maternal fetal medicine specialists. A random cohort of fetuses with normal placentas and matched for gestational age and biparietal diameter was chosen as a control in a 1:1 ratio. Growth percentile was determined based on the US birth weight nomogram. Data was analyzed by Chi-square, ANOVA, Fisher's exact, and logistic regression. 164 patients in each arm would provide this study with a 95% power ($\alpha=0.05$) to detect a 2.5-fold increase in SGA with circumvallate placenta.

RESULTS: Circumvallate placenta was found in 166 patients with no statistically significant association found with the rate of SGA, PPROM, cesarean delivery, placental abruption, NICU admission, preterm delivery, or overall growth percentile. Circumvallate placenta was associated with decreased chance of developing GDM ($P=.054$, $CI=0.18-1.01$) and multiparity ($P=.029$).

Conclusions: The presence of uplifted placental edge suggestive of circumvallate placenta identified on second trimester ultrasound is not associated with fetal growth abnormality and does not warrant serial growth ultrasound.

Oral presentation at the 2018 American Institute of Ultrasound in Medicine (AIUM) Annual Convention, New York City, NY, March 24-28, 2018.

19. A Comprehensive Reproductive Health Needs Assessment for Syringe Exchange Program Participants

Tschann M., Elia J., Salcedo J., Soon R., Kaneshiro B.



OBJECTIVES: We aimed to describe the reproductive health needs of female participants in Hawaii's syringe-exchange program (SEP).

METHODS: We conducted a written survey of female SEP participants as part of a three-armed needs assessment, which also included a participant focus group and community stakeholder interviews. Our survey's convenience sample consisted of female SEP participants recruited at the SEP site.

RESULTS We received surveys from 50 program participants, after which point it was determined that all female SEP participants had been approached. The majority of respondents were homeless or had temporary housing (74%, $n=37$) and 34 (68%) were of reproductive age. Participants ranked their overall health needs as 1) hygiene/cleanliness, 2) physical safety, and 3) STI/HIV testing. The majority of reproductive-aged respondents (62%, $n=21/34$) did not want to become pregnant in the next year, but 81% ($n=17/21$) reported using no current contraceptive method. Participants were interested in a contraceptive method that lasted months, rather than days or years. Because menstrual hygiene and personal security are challenges for SEP participants, bleeding pattern and method storage requirements were important considerations when choosing a contraceptive.

CONCLUSION: While SEP participants did not include contraception as a primary healthcare concern, the majority endorsed unmet contraceptive needs. These survey results are being used to inform the other phases of the needs assessment. Collectively, the findings from the three arms of this assessment will be analyzed to identify interventions that could comprehensively address the reproductive, safety, and general healthcare needs expressed by female SEP participants.

This research was funded by a grant from the Society of Family Planning Research Fund. The views expressed here are those of the authors and do not necessarily represent the views or opinions of the Society of Family Planning.

Poster presentation at the 2017 North American Forum on Family Planning, Atlanta, GA, October 14-16, 2017.

20. Assessing the Effectiveness of Patient-centered Non-pharmacologic Pain Management Techniques on Pain During First Trimester Aspiration Abortion: A Randomized Controlled Trial

Tschann M., Salcedo J., Soon R., Kaneshiro B.



Objectives: We aimed to determine if a patient-centered approach to non-pharmacologic pain management lowers pain scores during first-trimester aspiration abortion. We hypothesized that engaging patients in the development of a personalized adjunctive pain-management strategy would reduce the impact of known mediators of pain such as anxiety, depression, and isolation.

Methods: We randomized women seeking first-trimester aspiration abortion at the University of Hawaii to standard care or to standard care plus personalized non-pharmacologic pain management. The treatment group was offered a choice of non-pharmacologic techniques (ambient music, physical contact, guided breathing, visualization exercise, or provider procedure narration) and encouraged to personalize their pain management strategy. Pain was measured on a 100mm VAS scale immediately post-procedure. The study was powered to detect a 20mm difference in pain scores.

Results: Seventy-four women participated in the trial. We found no difference in mean pain scores between those provided their choice of non-pharmacologic interventions [63.3 (SD28.5)] and the control group [60.6 (28.8)]. We noted no differences in procedure time, complications, provider-perceived case difficulty or patient satisfaction with pain management between groups. The most common intervention selected by

treatment group patients was ambient music (59%). Forty-one percent (15/37) of participants chose to have multiple interventions during the procedure.

Conclusions: Allowing patients to create a tailored non-pharmacologic pain management strategy did not decrease the pain experienced with first trimester surgical abortion. Procedure time and difficulty were not affected by adding non-pharmacologic interventions. Providing women with these options could be a low-cost, low-risk mechanism for providing more personalized abortion care.

Poster presentation at the 2017 North American Forum on Family Planning, Atlanta, GA, October 14-16, 2017.

21. Postpartum Shock Index as a Predictor of Postpartum Hemorrhage Morbidity

Welsh A., Savala M., Lai B., Kimata C., Soon R.



BACKGROUND: Shock index has been established as a marker for clinical severity, morbidity, and mortality in trauma literature. More recently, shock index has been evaluated in obstetrics. This study sought to evaluate the relationship between immediate postpartum shock index and clinically relevant postpartum hemorrhage

METHODS: A retrospective cohort study was conducted using all deliveries occurring at Kapiolani Medical Center from January 1, 2013 to December 31, 2015. The primary independent variable was maximum shock index in the two hours immediately following delivery. The primary outcome was a composite of: a decrease in hemoglobin from hospital admission to postpartum of at least 3 g/dL, blood transfusion, or admission to the adult telemetry or intensive care unit. A multivariate regression model was developed to estimate the likelihood of clinically relevant postpartum hemorrhage adjusting for demographic and clinical variables.

RESULTS: Delivery records for 17,522 patients were included in the final analysis and 127 were excluded because vital sign data in the immediate postpartum period were not available. The mean maximum postpartum shock index for this group was 0.84 ± 0.18 . Clinically relevant hemorrhage (composite hemorrhage outcome) complicated 1,332 (7.6%) of these deliveries. Risk factors for hemorrhage included an immediate postpartum maximum shock index of 0.9 or greater, grandmultiparity, chorioamnionitis, receiving an epidural, and receiving oxytocin for more than 12 hours. There were 5,497 deliveries in which the maximum shock index was 0.9 or greater, and 12.97% of these were found to have the composite hemorrhage outcome. Of the 12,025 deliveries in which the maximum shock index was less than 0.9, 5.15% were found to have the composite hemorrhage outcome ($p < 0.0001$). After adjusting for chorioamnionitis, epidural, mode of delivery, grandmultiparity, and oxytocin greater than 12 hours, women who had a maximum shock index of 0.9 or greater were 2.5 times more likely ($aOR = 2.5$ [CI 2.32-2.84]) to experience either a hemoglobin decrease of 3 g/dL, blood transfusion, or admission to telemetry or the ICU.

CONCLUSION: Our results suggest that evaluation of shock index, particularly in the immediate postpartum period, may assist in identifying patients at greatest risk for developing adverse hemorrhage-related outcomes. Consideration may be given for early intervention in this group.

Poster presentation at the 2018 American College of Obstetricians and Gynecologists (ACOG) Annual Clinical and Scientific Meeting, Austin, TX, April 27-29, 2018.

22. Implementation of a Hospital Protocol to Prevent Retained Vaginal Packing in Obstetrical Patients

Wong J., Lau C., Suetsugu T., Saito-Tom L.



BACKGROUND: Retained vaginal packing can be associated with serious psychological and physical complications. The purpose of this study was to enhance patient safety by implementing an obstetrical vaginal packing protocol and to evaluate its efficacy. The study occurred in a tertiary maternity center with roughly 6,000 deliveries a year.

METHODS: A vaginal packing protocol that incorporated adding a "vaginal packing" button in the delivery summary of the electronic health record that prompts a notification when the patient's chart is subsequently opened and a note documenting the removal of the packing was instituted. A retrospective chart review of compliance with the protocol was performed on all deliveries that occurred during a 1-year period after it was implemented.

RESULTS: Of the 6,118 deliveries, 91% (5625/6118) completed the vaginal packing section of the delivery summary. Vaginal packing was placed in 1% (63/5625) of the deliveries in which the delivery summary was completed. A note documenting removal of the packing occurred in 73% (46/63) of the deliveries. There were no cases of retained vaginal packing.

CONCLUSIONS: This is an effective and sustainable protocol to prevent retention of vaginal packing. This process could be adopted in the gynecologic setting and among many hospitals.

Accepted for a poster presentation at the University of Hawaii John A. Burns School of Medicine Symposium on Biomedical Research and Health Disparities, April 18-19, 2018.

PAST RESEARCH DAY GUEST SPEAKERS

- 2017 **Eve Espey, M.D., M.P.H.** Professor & Chair, Department of Obstetrics & Gynecology, Division of Family Planning and Family Planning Fellowship Director, University of New Mexico, "*Teen Pregnancy Options Counseling and Some Contraception Too!*"
- 2016 **Hayward L. Brown, M.D., FACOG**, F. Bayward Charter Professor & Chair, Obstetrics and Gynecology Department/Division: Obstetrics/Gynecology/Maternal-Fetal Medicine Duke University School of Medicine, Durham, North Carolina, "*The Obstetric Bundles*"
- 2015 **Barbara S. Levy, M.D.**, Vice President for Health Policy, Advocacy Division at the American College of Obstetricians and Gynecologist (ACOG), "*Vaginal Hysterectomy: Removing the Engine thru the Tailpipe*"
- 2014 **Daniel M. Breitkopf, M.D.**, Associate Professor & Ob/Gyn Residency Program Director, Department of Obstetrics & Gynecology, Mayo Clinic, Rochester, Minnesota, "*Hysteroscopy and Abnormal Uterine Bleeding: What's New?*"
- 2013 **Aaron B. Caughey, M.D., M.P.A., M.P.H., Ph.D.**, Professor and Chair, Department of Obstetrics & Gynecology. Oregon Health & Science University, Portland, Oregon, "*The Cesarean Epidemic: Etiologies, Outcomes, & Potential Solutions*"
- 2012 **Deborah A. Wing, M.D.**, Professor of Clinical Obstetrics & Gynecology, Director, Division of Maternal-Fetal Medicine & Director, Maternal-Fetal Medicine Fellowship, University of California, Irvine, "*Updates in Cervical Ripening and Labor Induction*"
- 2011 **Andrew Berchuck, M.D.**, Director of Gynecologic Cancer Research, Professor of Gynecologic Oncology, Department of Obstetrics and Gynecology, and is Co-Director of the Duke Comprehensive Cancer Center Breast/Ovarian Cancer Program, Duke University Medical Center, Durham, North Carolina, "*Prospects for Individualized Treatment and Prevention of Ovarian Cancer*"
- 2010 **Leo R. Brancazio, M.D., FACOG**, Vice Chair for Patient Safety & Quality and Associate Professor, Duke University Department of Obstetrics and Gynecology, Duke University Medical Center, Durham, North Carolina, Medical Director at Duke University Hospital Labor and Delivery, Durham, North Carolina, "*The Ideal Cesarean Section Rate*"
- 2009 **Ruth Word, M.D., FACOG**, Professor of Obstetrics and Gynecology & Director, Urogynecology Research and the Human Biologic Fluid and Tissue Acquisition Core Laboratory, University of Texas Southwestern Medical Center, Dallas, Texas, "*New Insights into the Pathophysiology of Pelvic Organ Prolapse*"
- 2008 **Charles W. Weems, Ph.D.** Professor of Animal Science, CTAHR Animal Reproduction Research Laboratory, College of Tropical Agriculture and Human Resources, Department of Human Nutrition, Food & Animal Science, University of Hawaii, "*Establishment of Pregnancy*"
- 2007 **Robert Taylor, M.D., Ph.D.** Professor, and Vice Chair for Research, Department of Gynecology and Obstetrics, and Professor, Department of Cell Biology, Emory University School of Medicine, "*Cellular and Molecular Pathophysiology of Preeclampsia*"
- 2006 **Professor Warwick Giles, MB. BS(NSW), FRACOG, Ph.D(Syd.) DDU.CMFM** Conjoint Professor, The University of Newcastle, Callaghan, NSW, Australia and Director, John Hunter Hospital, Newcastle NSW, Australia, "*Fibronectin and other Markers of Preterm Delivery*"
James M. Roberts, M.D. Senior Scientist and Director, Magee-Women's Research Institute, Professor and Vice Chair (Research), Obstetrics, Gynecology and Reproductive Sciences, University of Pittsburgh, "*Whither Toxaemia*"
- 2005 **Robert B. Jaffe, M.D., M.S.** Fred Gellert Endowed Chair in Reproductive Medicine & Biology, University of California, San Francisco, "*Angiogenesis and Ovarian Cancer*"
- 2004 **Diana W. Bianchi, M.D.** Chief of the Division of Genetics in the Department of Pediatrics at Tufts-New England Medical Center, Natalie V. Zucker Professor of Pediatrics and Obstetrics and Gynecology "*Circulating Fetal Nucleic Acids in Maternal Blood: Origin and Diagnostic Applications*"
- 2003 **Roy M. Pitkin, M.D.** Former Editor, *Obstetrics and Gynecology*, *Clinical Obstetrics and Gynecology*, Emeritus Professor and Chairman of Obstetrics and Gynecology, University of California, Los Angeles School of Medicine, "*Obstetric-Gynecologic Research, 1953 - 2002*"
- 2002 **James R. Scott, M.D.** Professor, University of Utah, Department of Obstetrics and Gynecology, Editor of *Obstetrics & Gynecology*, Co-Editor of *Clinical Obstetrics and Gynecology*, "*Pregnancy in Transplant Patients*"
- 2001 **William Droegemueller, M.D.** Clinical Professor and Chairman Emeritus, University of North Carolina, Department of Obstetrics and Gynecology, Associate Editor of *Obstetrics and Gynecology*, "*Don't Look Back...Someone is Gaining on You, A Discussion of Mentoring*"
- 2000 **Robert Israel, M.D.** Chief of Gynecology, University of Southern California, Department of Obstetrics and Gynecology, Associate Editor of *Obstetrics and Gynecology*, "*Endometriosis: A Continuing Conundrum*"
- 1999 **David A. Grimes, M.D.** Vice President of Biomedical Affairs Family Health International, Associate Editor, *Obstetrical and Gynecological Survey*, *Contraception*, Former Professor and Vice-Chairman, Department of Obstetrics, Gynecology and Reproductive Sciences, University of California, San Francisco, "*Evidence-based Medicine in Obstetrics and Gynecology: the Paradigm for the Next Century*"
- 1998 **Roy M. Pitkin, M.D.** Editor, *Obstetrics and Gynecology*, Editor, *Clinical Obstetrics and Gynecology*, Former Professor & Chairman of Obstetrics & Gynecology, University of California, Los Angeles School of Medicine, "*The Peer Review System in Medical Publishing*"
- 1997 **John T. Queenan, M.D.** Professor and Chairman of Obstetrics and Gynecology, Georgetown University School of Medicine & Chief of Georgetown University Hospital since 1980, Editor-in-Chief of *Contemporary Obstetrics and Gynecology*
- 1996 **Moon Kim, M.D.** Richard L. Neiling Chair, Professor & Vice-Chairman of Obstetrics and Gynecology, Ohio State University, University Medical Center, Associate Editor, *The American Journal of Obstetrics and Gynecology*, "*Fertility and Environment*"

PAST RESEARCH DAY AWARD RECIPIENTS

First Place Award

- 2017 **Charlie K.M. Wang, M.D.** "Utility of Routine Collection of Chlamydia & Gonorrhea in Antepartum Patients"
2016 **Sara C. Harris, M.D.** "Levonorgestrel Intrauterine Device Expulsion in Patients with Abnormal Uterine Bleeding"
2015 **Melissa Kuwahara, M.D.** "Interpregnancy Interval and Subsequent Pregnancy Outcomes After Dilation and Evacuation"
2014 **Michelle Tsai, M.D.** "Oxidative Stress & Compensatory Anti-Inflammatory Mechanisms in the Placentas of Gravid Marijuana Smokers"

Audience Choice Award

- 2017 **Charlie K.M. Wang, M.D.** "Utility of Routine Collection of Chlamydia & Gonorrhea in Antepartum Patients"
2016 **Sara C. Harris, M.D.** "Levonorgestrel Intrauterine Device Expulsion in Patients with Abnormal Uterine Bleeding"
P. Gordon McLemore, Jr., M.D. Utilization of Abdominal Circumference (AC) Measurement in Fetal Biometry in the Late Second and Early Third Trimesters in the Prediction of Small for Gestational Age (SGA) Infants
2015 **Holly Bullock, M.D.** "Access to Ulipristal Acetate in Hawaii: Is a Prescription Enough?"
2014 **Michelle Tsai, M.D.** "Oxidative Stress & Compensatory Anti-Inflammatory Mechanisms in the Placentas of Gravid Marijuana Smokers"

Most Outstanding Award

- 2013 **Jaimie M. Johnson, M.D.** "Men's Attitudes, Beliefs, & Roles in Pregnancy & Childbirth: An Ethnographic Study in Nepal"
Scott A. Harvey, M.D., M.S. "Choice of Effective Contraception Among Native Hawaiian Women"

Audience Choice Award

- 2013 **Lynne Y. Saito-Tom, M.D., M.S.** "Intrauterine Device Use in Overweight and Obese Women"

Best Overall Research Project Award

- 2012 **Justin C. Bohrer, M.D.** "Obstetrical Outcomes in Patients with Low-lying Placenta in the Second Trimester"
2011 **Judy A. Honegger, D.O.** "Rates of Elective Induction Between 34 0/7-38 6/7 Weeks Gestation at Kapiolani Medical Center for Women & Children"
2010 **Pai-Jong Stacy Tsai, M.D., M.P.H.** "Racial Differences in Perineal Body Length in First Stage of Labor"
2009 **Shera L.C. Sugibayashi, M.D.** "Effectiveness of Examining Amniotic Fluid Arborization in Diagnosing PPROM in Early Pregnancies"

Most Potential to Impact Clinical Practice Award

- 2012 **Maxine Karimoto, M.D.** "Improving HPV and Pap co-testing screening rates for women 30 years and older in the Kapi'olani Women's Obstetrics and Gynecology Outpatient Clinic"
2011 **Kassandra S. Grzankowski, M.D.** "Microsatellite Instability in Endometrial Cancer in Patients with HNPCC"
2010 **Celeste S. Adrian, M.D.** "Assessment of the Accuracy of Information Regarding Emergency Contraception on the Internet"
2009 **Karen A. Soules, M.D.** "Does Cell Phone-Bluetooth Technology for the Outpatient Management of Diabetes in Pregnancy Improve Patient Compliance and Satisfaction when Compared with Traditional Methods of Blood Sugar Reporting?"

Best Study Design Award

- 2011 **Lauren Millet, M.D.** "Rates of Bacteriuria in Laboring Women with Epidural Analgesia-Continuous vs. Intermittent Bladder Catheterization"
2010 **Pai-Jong Stacy Tsai, M.D., M.P.H.** "Racial Differences in Perineal Body Length in First Stage of Labor"
2009 **Maria G. Barrett, M.D.** "Knowledge and Misconceptions of Intrauterine Devices in Adolescent Patients"

First Place Award

- 2008 **Chrystie K. Fujimoto, M.D.** "The Effect of Methamphetamine Use on the Placenta"
2007 **Aya Sultan, M.D., Ph.D.** "Association of Ovarian Cancer and Atypical Endometriosis"
2006 **Reina M. Ahern, M.D.** "Knowledge and Attitudes of Emergency Contraception in Hawaii's Adolescents"
Renee L. Sato, M.D. "Antepartum Seafood Consumption and Mercury Levels in Newborn Cord Blood"
2005 **Reni A. Y. Soon, M.D.** "Comparison of Active Phase and Second Stage of Labor in Adolescents and Adults"
2004 **Scott D. Eaton, M.D.** "EKG Changes Occuring with Magnesium Administration for Preterm Labor"
2003 **Sapna M. Janas, M.D.** "Rate of Complication from Third Trimester Amniocentesis Performed at the Fetal Diagnostic Center"
2002 **Ian A. Oyama, M.D.** "Local Anesthetic for use in Colposcopic Biopsies"
Melissa J. Lawrence, M.D. "Impact of Fetal Fibronectin Testing at Kapi'olani Medical Center"
2001 **Seema Sidhu, M.D.** "Randomized, Double-Blind Trial of Rectal Misoprostol Versus Oxytocin in Management of the Third State of Labor"
2000 **Deborah D. Geary, M.D.** "TDx Surfactant/Albumin Ratio and Lamellar Body Count: Effect of Blood and Meconium Contaminants on Fetal Lung Maturity Assays"
1999 **Steven M. Nishi, M.D.** "Sample Adequacy of Endocervical Curettage (ECC) Compared with Endocervical Brush"
1998 **Julie Ann Henriksen, M.D.** "Nitric Oxide in the Human Placenta"
1997 **Cheryl Leialoha, M.D.** "Uriscreen, a Rapid Enzymatic Urine Screening Test for the Detection of Bacteriuria in Pregnancy"
1996 **Christine Brody, M.D.** "Vaginal Birth After Cesarean Section in Hawaii: Experience at Kapi'olani Medical Center for Women & Children"



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