1	Abbate	Antonio	MD	Internal Medicine	905-0965	abbatea@yahoo.com

Poster Title: **REDUCED POST-INFARCTION MYOCARDIAL APOPTOSIS IN WOMEN: A CLUE TO THEIR DIFFERENT CLINICAL COURSE?**

Authors: Antonio Abbate, George W. Vetrovec

Departments: VCU Pauley Heart Center

Background: Heart failure is less prevalent and has a better prognosis in women than in men. Moreover, when presenting with heart failure symptoms, women are more likely to have preserved left ventricular ejection fraction while men have more often left ventricular dysfunction.

Objectives: Aim of the current study was to analyze whether a difference in the rate of myocardial apoptosis, or programmed cell death, could explain the differences in functional and clinical heart failure characteristics after an acute myocardial infarction.

Methods: We selected 6 females and 15 males who had died after an acute myocardial infacrction with permanent occlusion of the infarct-related artery. The in situ end labelling of DNA fragmentation (TUNEL) was used to identify apoptotic myocytes in the peri-infarct region. Immunohistochemistry was used to detect expression of activated caspase-3 and bax.

Results: Myocardial apoptosis (defined as colocalization of TUNEL and activated caspase-3) correlated significantly with parameters of unfavorable left ventricular remodelling, such as LV diameter to wall thickness ratio [R=+0.56, P=0.008). Myocardial apoptosis was 10-fold higher in men than in women (12.9% [9.0-14.3] vs 1.3% [0.3-7.1], P=0.003). A similar difference was found in the expression of bax, a promoter of apoptosis (55% [44-61] vs 14% (2-42), P=0.012).

Conclusions: Myocardial apoptosis in the peri-infarct areas is higher in males than in females. As apoptosis is responsible for cell loss and progression toward ischemic cardiomyopathy, these findings may explain the more aggressive course of post-infarction remodelling in men and the relatively benign remodelling in women, potentially suggesting an increased resistance to ischemia in females. The recognition and thorough characterization of the influences of gender in cardiac disease may indeed provide keys to cardiovascular pathophysiology, which may eventually benefit both sexes.

2	Aggarwal	Arpita	MD, MSc	Internal Medicine	828-5323	aaggarwal@mcvh-vcu.edu

Poster Title: **DEPRESSIVE SYMPTOMS AND CANCER SCREENING IN POSTMENOPAUSAL WOMEN: THE WOMEN'S HEALTH INITIATIVE**

Authors: A. AGGARWAL; K. FREUND2; A. SATO3; B. WALLACE4; A.M. LOPEZ5; J.K. OCKENE6; L.L. ADAMS-CAMPBELL7; L.S. LESSIN8; C. WILLIAMS7; D. BONDS9.

Departments: 1Virginia Commonwealth University, Richmond, VA; 2Boston University, Boston, MA; 3Fred Hutchinson Cancer Research Center, Seattle, WA; 4University of Iowa, Iowa City, IA; 5Arizona State University, Phoenix, AZ; 6University of Massachusetts Medical School (Worcester), Worcester, MA; 7Howard University, Washington, DC; 8Washington Cancer Institute

Background: Women with depressive symptoms may have lower utilization of preventive services and poorer health outcomes.

Objectives: Our objective was to investigate the association of depressive symptoms on cancer screening rates among a cohort of post- menopausal women.

Methods: 93,676 women in The Women's Health Initiative Observational Study were followed on average for 7.6 years. Depressive symptoms were measured at baseline and at 3-years using a 6-item scale from the Center for Epidemiological Studies Depression scale (CES-D). Current breast cancer screening was defined as mammogram within last 12 months. Current colorectal screening was defined as annual fecal occult blood test (FOBT) or lower endoscopy or barium enema within last 5 years. We calculated a screening rate expressed as a proportion of the years that women were current with recommended screening over years in the study. The association between depressive symptoms and a woman's average breast or colorectal cancer screening rate was estimated using linear regression, adjusting for pertinent variables.

Results: 15.8% (12,621) women were positive for depressive symptoms at baseline and 6.8% (4777) were positive at both baseline screening and at 3 years. The average screening rate was 71% for breast cancer and 53% for colorectal cancer. The breast cancer-screening rate was 1.9% (1.3%, 2.4%), less among women who reported depressive symptoms at baseline than those who did not. The breast cancer-screening rate was 2.5% (1.7%, 3.4%) less among women who reported depressive symptoms both at baseline and at 3 years, than women who did not report depressive symptoms at either time point. Women who were White, had lower educational attainment, lower household income, had no health insurance, reported no alcohol consumption, no hormone replacement therapy use and had no first degree relative with breast cancer had lower breast cancer screening rates. Depressive symptoms were not a predictor for colorectal cancer screening. Lower rates of colorectal cancer screening were associated with the Black race, lower educational attainment, household income, no health insurance, and no first-degree relative with colorectal cancer.

Conclusions: Among a healthy and self-motivated cohort of women, self-reported depressive symptoms were associated with lower rates of screening mammography but not colorectal cancer screening. With a widely available breast cancer screening services, the causes of poor screening among depressed women should be further explored.

3	Alvanzo	Anika	Assistant Professor	Internal Medicine	828-8360	aahardie@vcu.edu

Poster Title: **FACTORS ASSOCIATED WITH BETTER OSTEOPOROSIS KNOWLEDGE IN WOMEN 65 AND OLDER**

Authors: 1) Anika Alvanzo, MD 2) Ghada Mitri, MD

Departments: 1) Internal Medicine, VCU 2) Internal Medicine, Scranton Temple Residency Program

Background: Half of all postmenopausal women will have an osteoporosis-related fracture during their lifetime. Yet, adherence to screening guidelines is low. Increased patient osteoporosis knowledge may result in increased screening rates.

Objectives: The purpose of this report was to determine factors associated with better osteoporosis knowledge in women ≥65 years old.

Methods: Women were recruited from 12 academic internal medicine clinics as part of a multi-site study of the effect of patient and physician education on osteoporosis screening rates. Inclusion criteria were age ≥65 and at least one clinic visit in the previous 2 years. Exclusion criteria were acute illness, cognitive impairment, or hospice enrollment. Participants completed a survey that included demographic questions and 30 items assessing knowledge of osteoporosis and related risk factors. An osteoporosis knowledge score was calculated by assigning 1 point for each correct answer and 0 points for all other responses. Stepwise multiple linear regression was used to determine factors associated with a higher knowledge score.

Results: The results from 369 women with a mean age of 74.3 (SD 6.21) are presented. Thirty-nine percent of women were White, 49% were African American and 10% were Hispanic. The mean osteoporosis knowledge score was 15.9 (SD 5.74) of a possible 30. Factors included in the regression model were age, education level, income, race/ethnicity, history of fracture in previous 10 years, physician counseling regarding osteoporosis prevention, personal history of osteoporosis, source of health information (doctor, media, other persons), ability to name primary care doctor, and whether patient usually saw the same provider. In the regression analyses, variables associated with a lower osteoporosis knowledge score were African American race ($p < .001$), Hispanic ethnicity ($p = .022$), and education < high school ($p < .001$), ($R2 = 0.195$). There was a trend for older women to have lower knowledge scores, but it did not reach statistical significance ($p = .076$).

Conclusions: The findings suggest that women at risk for osteoporosis have limited knowledge about osteoporosis and its risk factors and that racial, ethnic, and educational disparities in osteoporosis knowledge exist. Further research is needed into optimal strategies for improving women's osteoporosis knowledge, and educational interventions for women who are African American, Hispanic, and with less formal education appear warranted.

4	Alvanzo	Anika	Assitant Professor	Internal Medicine	828-8360	aahardie@vcu.edu

Poster Title: **DIFFERENCES IN CHARACTERISTICS OF VICTIMS OF SEXUAL ASSAULT, DOMESTIC VIOLENCE, AND OTHER VIOLENT CRIMES WHO PRESENT FOR FORENSIC EXAM**

Authors: 1. Anika A. H. Alvanzo, MD, MS, 2. Anita Boykins, DNSc, APRN, BC, 3. Stacey Plichta, ScD, 4. Monica Leisey, MSW, PhD(c), 5. Janett Forte, MSW, LCSW, 6. Susan Carson, RN, FNE

Departments: 1. VCU-Internal Medicine 2. University of Memphis School of Nursing 3. Old Dominion University School of Community Health Professions, 4. VCU- Social Work, 5. VCU- Psychiatry, 6. VCU-Emergency Medicine

Background: Interpersonal violence is a major public health problem affecting millions of Americans annually. Many victims of violence will present to the emergency department, and a proportion of these victims will have a forensic exam. A need exists to more fully describe the demographic, health, and assault characteristics of victims who present for a forensic exam and the motivated and skilled forensic nurse examiner (FNE) can serve as an invaluable resource for the criminal justice system, the healthcare system, and the patient.

Objectives: The study aim is to compare victims of sexual assault and domestic violence to other victims who present for a forensic exam in an urban emergency department.

Methods: Data was abstracted via retrospective chart review of patients who had a forensic exam between January 2002 and December 2004. Patients were classified into 3 groups based on documented reason for exam: sexual assault (SA), domestic violence (DV), and other (e.g. gunshot wound, assault, etc.). Data was analyzed using chi-square for categorical variables and ANOVA for continuous variables.

Results: 1,376 patients had a forensic exam. One-hundred ninety-six (14.2%) were victims of SA and 189 (13.7%) were victims of DV. SA and DV victims were more likely to be female ($p < .0001$); 95.4% and 87.8%, respectively, when compared to other victims (28.3%). African American and White women were overrepresented ($p < .001$) in both cases of SA (54.1% and 38.8%) and DV (64.0% and 27.0%) when compared to those whose race was other or unknown (7.2% and 9.0%). SA victims were more likely ($p < .0001$) to have used alcohol or illicit drugs (48.5%) than DV (17.5%) or other victims (19.7%). Assailants in cases of SA (40.3%) and DV (21.7%) were more likely ($p < .0001$) to have used alcohol or illicit drugs than assailants in other cases (5.7%).

Conclusions: Our findings indicate that victims of sexual assault and domestic violence differ from other victims presenting for forensic exams and that substance use plays an important role in SA and DV.

5	Arthur	Christopher	Mr.	Pharmacology and Toxicology	arthurcr@vcu.edu

Poster Title: **AUTOPHAGIC CELL DEATH INDUCED BY A NOVEL CLASS OF SUBSTITUTED PYRROLES IN THE BREAST TUMOR CELL**

Authors: Christopher Arthur, Xu Di, John Gupton, Andrew Yeudall, Glen E. Kellogg, Myles Cabot, David A. Gewirtz.

Departments: Pharmacology/Toxicology

Background: Two major drawbacks to the effectiveness of cancer chemotherapy are the limited selectivity of many drugs for the tumor versus normal host tissues and the development of drug resistance.

Objectives: Our current work is directed towards the development of substituted pyrroles for the treatment of breast cancer, based on their structural similarity to agents derived from marine organisms and their tubulin-disrupting properties.

Methods: Our lead compound, JG-03-14, was screened against MCF-7 (p53 wild type), MDA-MB 231 (mutant p53), and MCF-7/ADR (multidrug resistant) breast tumor cell lines. Cell death was assessed with several assays including: TUNEL, acridine orange staining, beta-galactosidase staining, crystal violet, and flow cytometry.

Results: The substituted pyrrole JG-03-14 induces time dependent cell death in the MCF-7, MCF-7/ADR and MDA-MB 231 cell lines. In the MCF-7 cells, a residual surviving cell population was found to be senescent. Utilization of the acridine orange dye staining assay revealed extensive upregulation of autophagy in both MCF-7 and MDA-MB231 cells, while the TUNEL and FLOW assays revealed only a small percentage of apoptotic cells in these cell lines. Cell-cycle analysis indicated that JG-03-14 induced a substantial early G2M arrest 24 hours following treatment in MCF-7 cells. JG-03-14 also demonstrated pronounced anti-proliferative activity in the MCF-7/ADR cell line that is resistant to Adriamycin.

Conclusions: Substituted pyrroles are promising agents, in part, because of their ease of synthesis and susceptibility to structural modification. Furthermore, preliminary studies in vivo using a prostate tumor xenograft model indicate that these compounds are relatively nontoxic and therefore may prove to be relatively selective in terms of targeting the tumor. The observation that the substituted pyrroles retain activity in breast tumor cells expressing the multidrug resistance pump indicates that these pyrroles hold promise in the treatment of breast cancer. Current Studies: Extensive studies looking at the mechanism(s) of cell death and the upregulation of autophagy in response to JG-03-14 are currently under way. This will be done with siRNA knockdowns of Atg proteins and inhibition of the acidification process with Bafilomycin. Future studies to examine the mechanism of this upregulation as well as other possible targets for JG-03-14 such as DNA damage are also planned

6	Azadi	Nazanin	Medical Student	Internal Medicine	240-305-6062	azadin@vcu.edu

Poster Title: **EFFECT OF GASTRIC BYPASS SURGERY ON HEART RATE RECOVERY IN OBESE WOMEN**

Authors: Nazanin Azadi*, James Arrowood*, Robert Franco†, Ronald Evans†, Dale Bond†, Jill Meador+, James Maher+, John Kellum+

Departments: Department of Internal Medicine*, Department of Health and Human Performance†, Department of Surgery+

Background: A decrease in heart-rate recovery (HRR) or a delayed decrease in heart-rate (HR) after a graded exercise test has been shown to be an independent predictor of cardiovascular and all-cause mortality. Immediately after the cessation of exercise, there is a drop in heart rate which is the result of reactivation of the parasympathetic nervous system. An increase in vagal activity is associated with reduced mortality and the rate of recovery of the HR immediately after exercise is therefore of important prognostic value. Obese women (BMI ≥ 30 kg/m2) are at an increased cardiovascular risk and gastric bypass surgery has been employed to treat obese individuals by reducing excess weight through surgical techniques. The effect of gastric bypass surgery on HRR in obese women has not been well studied.

Objectives: The purpose of this study was to determine the effect of weight loss through gastric bypass surgery on HRR after exercise in obese women.

Methods: HRR (defined as the decrease in HR from peak exercise to that measured 1 minute after a standardized graded treadmill test) and HR deceleration (slope of HR vs. time relationship after exercise) were measured in 6 individuals 2 weeks prior and 12 weeks after gastric bypass surgery. Participants in the study were women, ages 18-50 yo, with BMI ≥ 35 kg/m2. Data are presented as mean ± SD. Comparison between pre and post surgery response variables were determined by paired t test.

Results: Data collected shows a change in weight from 116.4 ± 11.6 to 91.8 ± 12.1 kg, change in BMI from 42.3 ± 2.6 to 33.4 ± 3.1 kg/m2, and a change in waist circumference from 107.7 ± 5.1 to 92.8 ± 7.2 cm (all significant differences, $p<.05$). HRR at 1 minute improved from 24.1 ± 7 .6 to 31.0 ± 6.2 beats/min ($p = 0.021$). HR deceleration increased from -0.431 ± 0.099 to -0.540 ± 0.126 beats/sec ($p = 0.037$). There was no change in peak VO2 ($p = 0.5$) suggesting no change in cardio respiratory fitness. In this initially small data sample, no meaningful correlations were present between HRR and the parameters above.

Conclusions: Data from the initial 6 subjects in this study suggest that surgical weight loss results in an improvement in HRR after exercise in obese women. The improvement in HRR could not be attributed to any change in fitness since cardio respiratory fitness did not change. Given that gastric bypass surgery is associated with a decrease in cardiovascular mortality, these data suggest that the decrease in mortality may in part be due to an increase in vagal tone.

7	Barrett	Daniel		Department of Obstetrics and Gynecology	986-4507	dbarrett@vcu.edu

Poster Title: **FACTORS THAT DETERMINE THE CHOICE OF CAREERS FOR SENIOR MEDICAL STUDENTS**

Authors: Daniel M. Barrett M.S., Sonya R. Lawson Ph.D., John G. Pierce, Jr. M.D.

Departments: Obstetrics and Gynecology

Background: For almost a decade, the percentage of all U.S. medical school seniors matching into an Ob/Gyn residency program has declined. It has steadily decreased from 7.9%, in 1997, to 5.5% in 2004. These statistics indicate a significant shift in U.S. medical student interest in Ob/Gyn. Several theories have been proposed to explain this shift. Theories include reasons such as the unpredictability of lifestyle, declining reimbursement, percentage of women in the field, and increasing medical liability. This problem has garnered widespread attention and several studies and initiatives have been directed towards understanding and improving the situation. This study has taken a general, exploratory, single institution approach to examining factors involved with career choice of senior medical students.

Objectives: To investigate factors that influence senior medical students' choice of career in Obstetrics and Gynecology (Ob/Gyn).

Methods: Recent 4th year medical students (class of 2007) at Virginia Commonwealth University (VCU) were asked to complete a questionnaire about their career choice and factors that led them to choose Ob/Gyn or other specialties.

Results: 122 of 173 medical students completed the survey. 11% (85% female) were planning on pursuing Ob/Gyn as a career. 92% ranked their 3rd year Ob/Gyn rotation as average, above average, or great. 57% previously held interest in Ob/Gyn. Of those who previously held interest in Ob/Gyn, 36% are planning on pursuing a different field, directly listing medical liability or malpractice premiums as a factor. Of all students surveyed, 76% overestimated the average malpractice insurance premium for practicing in Ob/Gyn. Of all the students surveyed, the following percentage of students ranked the below factors as very important or most important; interest in field (100%), lifestyle (65%), continuity of care (53%), performing procedures/surgery (52%)

Conclusions: The cost of malpractice insurance and the potential to get sued appears to be a factor in medical student field selection. It has negatively impacted medical students who at some point considered Ob/Gyn. The students in this survey grossly overestimated the average cost of malpractice insurance. This may suggest medical students sense that the current medical liability environment is worse than it actually is.

8	Burr	Sarah	Pharmacy Student	Pharmaceutics	(W) 8-6215	burrsa@vcu.edu

Poster Title: **FACILITATED DETECTION OF EFFLUX TRANSPORT ACTIVITY OF ABC TRANSPORTERS IN HUMAN PLACENTAL VILLOUS TISSUE**

Authors: Sarah A. Burr, Phillip M. Gerk

Departments: Pharmaceutics

Objectives: To optimize a protocol which can use fluorescence detection to determine the ability of ATP-Binding Cassette (ABC) transporters within human placental tissue to efflux xenobiotics in the absence and in the presence of transport inhibitors.

Methods: Human placental villous tissue fragments collected from normal pregnancies within 15 minutes of birth were cultured over night in M199 cell culture medium. Tissue samples were incubated in a 100 uM concentration of the probe drug in Dulbecco's Phosphate Buffered Saline (DPBS) at 10 C to load the tissue with the drug. The tissue was rinsed in DPBS and then the tissue sample was incubated in DPBS (efflux buffer) at 37 C without or with inhibitors to evaluate efflux from the tissue at variable time intervals. The efflux buffer was then assayed through fluorescence detection using a fluorescence plate reader. Tissue samples were homogenized, total protein was determined, and fluorescence of the tissue sample was also determined. Each phase of the protocol was experimentally evaluated for efficacy to optimize accurate detectability of transport activity. The data was evaluated with appropriate pharmacokinetic and statistical tests. Calcein was used as a probe for ABC isoform C2 (ABCC2), and Rhodamine 6G was used as a probe for ABCB1. Sodium Orthovanadate was used as an ATPase inhibitor to differentiate diffusion versus active transport.

Results: To optimize the protocol, it was determined that the tissue is best saturated with drug after 10 minutes of incubation in a 100uM concentration. In addition, the tissue needs to be rinsed three times in fresh DPBS to remove drug surrounding the tissue that has not penetrated the villous tissue. During efflux, the tissue is moved into fresh efflux buffer at time intervals of 1, 2, 5, 10, and 20 minutes to determine the rate of efflux. Efflux of Calcein and Rhodamine 6G were significantly inhibited by Sodium Orthovanadate, consistent with the transport activity of ABCC2 and ABCB1, respectively. The mass of drug occurring within the efflux buffer was sufficient to be detected on the fluorescent plate reader.

Conclusions: Typical methods for determining the activity of ABC placental transporters are be complicated, tedious, and expensive. This method is an effective and efficient way of identifying drug-transporter interactions in vitro. This knowledge provides insight into how to safely administer drugs for certain disease states in pregnant women.

9	Burston	James	Mr.	Pharmacology and toxicology	828-8443	james.burston@gmail.com

Poster Title: **THE EFFECT OF ANTIPSYCHOTIC COMPOUNDS ON THE CANNABINOID SYSTEM**

Authors: James J. Burston, Jenny L. Wiley, Dana E. Selley, and Laura J. Sim-Selley

Departments: Department of Pharmacology & Toxicology

Background: Previously we have shown that repeated administration of the antipsychotics Clozapine and Haloperidol result in a decrease in CB1 G-protein activity in the striatum and prefrontal cortex of adult female Long-Evans rats but not in adult male rats. As neither antipsychotic binds to CB1 receptors there is likely an indirect mechanism for the decreased G-protein activity seen. One possible explanation is that these antipsychotic compounds may increase the levels of the endocannabinoid 2-AG (2-arachadonyl glycerol), which, if continually elevated, may be responsible for the decrease in CB1 G-protein activity

Objectives: Therefore the continuing aims of this project are to determine if there are any behavioral correlates to these molecular findings and secondly to determine if the mechanism for the molecular findings is via modulation of endocannabinoid tone

Methods: Membrane homogenates were prepared from the prefrontal cortex, striatum and ventral midbrain, and CB1 receptor-mediated G-protein activity was assessed using WIN55,212-2-stimulated [35S]GTPgS binding. The behavioral component consisted of treating Wild type female and male mice as well as CB1 knockout mice with the antipsychotic compounds and then monitoring food intake over a 3 and 21hour period..

Results: The results of the molecular studies show that the antipsychotic clozapine decreased CB1 G-protein activity in the prefrontal cortex and striatum of female but not male Long evans rats. The Feeding study results show that both clozapine and Haloperidol stimulate feeding in female ICR mice, moreover this hyperphagic effect appears to be mediated through the CB1 receptor. Take together these results may suggest that these antipsychotics modulate the CB1 receptor system by increasing the tone of the endogenous system.

Conclusions: Clinically these results are of interest as various research has linked the cannabinoid system to schizophrenia, and as the mechanisms through which antipsychotic compounds treat schizophrenia is not fully understood, it may be that this antipsychotic mediated modification of the cannabinoid system, may be partially responsible for the usefulness of these antipsychotics or may be responsible for the side effect profile.

10	Campbell	Samuel	MD	Obstetrics and Gynecology	828-8614	scampbell@mcvh-vcu.edu

Poster Title: **INTRAUTERINE DEVICE USE IN A HIGH-RISK POPULATION: EXPERIENCE FROM AN URBAN UNIVERSITY CLINIC.**

Authors: Samuel J. Campbell MD*, Karen L. Cropsey PsyD**, and Catherine A. Matthews MD*

Departments: * Department of Obstetrics and Gynecology and **Douglas Wilder School of Government and Public Affairs,

Background: Intrauterine devices (IUDs) offer a high level of contraceptive effectiveness, a lack of associated systemic metabolic effects, and the need for only a single act of motivation for long-term use. Despite these advantages, IUD use is significantly less common in the United States than in other parts of the world, possibly reflecting the widespread concern regarding health risks associated with this method. The American College of Obstetricians and Gynecologists (ACOG) recommendations IUDs in low risk women defined as "nulligravid or multiparous women at low risk for sexually transmitted diseases who desire long-term, reversible contraception are good candidates." The World Health Organization (WHO) classifies the IUD as Category 3 (use of method not usually recommended unless other more appropriate methods are not available or not acceptable) when a patient has a high risk of STDs or AIDS. In addition, the product labeling for IUD's continues to list a history of pelvic inflammatory disease, sexually transmitted diseases, and high risk sexual behaviors as contraindications for insertion. These restrictions have significantly limited the use of IUDs in high risk patients who need reliable long term contraception, who may then choose other birth control options that are less effective or less convenient methods, prematurely requesting sterilization (with possible later regret) or risk an unwanted pregnancy.

Objectives: To evaluate the acceptability, efficacy, and complication rates of the Paragard IUD and the Mirena IUS in a high risk patient cohort attending an urban, university-based obstetrics and gynecology resident clinic.

Methods: A retrospective chart review was conducted for 194 women who had an IUD/IUS inserted between January 2000 and December 2005.

Results: A third of women who received either IUD had a history of STD prior to insertion. No differences were found between women with Paragard IUD or Mirena IUS regarding demographics, obstetric and gynecologic history prior to IUD insertion. Paragard IUD was associated with significantly higher rates of herpes and N. gonorrhea infections, complaints of expulsion, and unintended pregnancy post-insertion. No increased risk of PID was associated with IUD use.

Conclusions: IUD/IUS use appears to be safe, acceptable, and feasible in high-risk patients. The Mirena IUS had lower rates of complications and greater acceptability than the Paragard IUD.

11	Cheang	Kai "Annie"	Assistant Professor	Pharmacy	828-9698	kicheang@vcu.edu

Poster Title: **RISK OF CORONARY ARTERY DISEASE IN MOTHERS OF WOMEN WITH PCOS**

Authors: (1) Kai I. Cheang, Pharm.D., (2) John E. Nestler, M.D., (3) Walter Futterweit, M.D.

Departments: Department of Pharmacy (1) and Internal Medicine (2), Virginia Commonwealth University, VA, and Department of Medicine (3), Mt. Sinai Medical Center, NY

Background: Women with PCOS have a higher prevalence of cardiovascular disease (CAD) risk factors (e.g. dyslipidemia, hypertension and diabetes), and subclinical CAD (coronary calcification and carotid intima-media thickness), as compared with normal women. However, whether women with PCOS are at a higher risk of clinical CAD events is debated. While several studies reported higher risks of CAD and fatal myocardial infarction (MI) in women with PCOS, death certificates of PCOS women in UK did not show increased CAD mortality compared with the expected rate from actuarial tables.

Objectives: The purpose of this study was to assess the prevalence of CAD in postmenopausal PCOS women. To capture such a population, the presence of CAD in PCOS and non-PCOS mothers of women with PCOS was determined.

Methods: In a single endocrine clinic, 270 women with PCOS were surveyed about their mothers' medical history. The survey covered menstrual history, fertility, clinical signs of hyperandrogenism (i.e. hirsutism, alopecia, acne), onset of CAD risk factors (e.g. hypertension, dyslipidemia, diabetes), age of incident CAD, fatal and non-fatal MI, and age of death. About 60% of the daughters' initial history was verified by personal interviews with the mothers. Presence of PCOS in the mothers was defined as relative difficulty in achieving pregnancy, presence of irregular menses, and clinical signs of hyperandrogenism. Presence of CAD was defined as any percutaneous coronary intervention, angina that necessitated emergency room visits, or fatal or nonfatal MI.

Results: Among the 270 women with PCOS, 60 had mothers with probable PCOS while 210 mothers did not meet the PCOS criteria. Complete cardiovascular history was successfully obtained from 39 PCOS mothers and 75 normal mothers. The mean age of PCOS mothers at the time of survey did not differ from that of non-PCOS mothers (58.6 + 1.3 vs. 58.6 + 0.7, respectively). Including only those mothers whose cardiovascular histories were available, 13 of 39 (33.3%) PCOS mothers had CAD compared with 1 of 75 (1.3%) normal mothers ($p<0.0001$). Eight of 39 (20.5%) PCOS mothers had suffered an MI compared with 1 of 75 (1.3%) normal mothers ($p<0.0001$). Notably, all PCOS mothers who had an MI were 65 years old or younger at the time of their incident MI.

Conclusions: PCOS mothers of women with PCOS are at a higher risk of CAD events compared with non-PCOS mothers, and MI appears to occur at an earlier than expected age in PCOS mothers.

12	Clawser	Rory	MD	OBGYN	828-0951	raclawse@mail2.vcu.edu

Poster Title: **HYSTERECTOMY WITH OR WITHOUT PROPHYLACTIC BILATERAL SALPINGO-OOPHORECTOMY: AN AUDIT OF PRACTICE PATTERNS AT A UNITED STATES UNIVERSITY TEACHING HOSPITAL**

Authors: Rory Clawser MD, Catherine Matthews MD

Departments: OBGYN

Background: Hysterectomy is the most common non-pregnancy related surgical procedure for American women with 100.5 hysterectomies performed per 10,000 women between the ages of 30 and 54. Significant controversy exists regarding the subject of prophylactic BSO at the time of hysterectomy for benign disease and practice patterns vary widely according to geography, sub-specialty training, and surgeon preference. The principal reasons cited for prophylactic removal is the reduced risks of ovarian cancer and need for subsequent pelvic surgery for ovarian or fallopian tube pathology. However, the reduced risk of ovarian cancer and future surgery must be weighed against the possible benefits of ovarian preservation that include improved sexual function, bone health, reduced cardiovascular disease, improved lipid profiles, and less severe menopausal symptoms such as hot flushes. The goals of this study were to determine the current practice patterns regarding prophylactic ovarian removal at the time of hysterectomy amongst the gynecology faculty at our institution in women aged 40 or older. In addition, we sought to determine what factors were associated with this elective surgical practice. The results of this study may assist with preoperative counseling and patient advocacy regarding prophylactic ovarian removal versus preservation.

Objectives: To determine the rate of prophylactic bilateral salpingo-oophorectomy (BSO) in women $\geq$40 undergoing hysterectomy and identify which variables correlate with this practice.

Methods: A retrospective chart review of women $\geq$40 years undergoing hysterectomy for benign disease except endometriosis, chronic pelvic pain, pelvic infection, or history of breast cancer between 1/2002 and 1/2004 was performed.

Results: 266 patients were included. A significant increase in prophylactic BSO occurred in women aged 45-49 compared to those aged 40-44 (52% vs 17%, $p<.001$) but not in those $\geq$50 ($p=.197$.) Route of surgery was correlated with BSO in women 45 or older: 66% with TAH versus 38% with TVH, $p=.003$. Male surgeons were more likely to perform BSO in women aged 45-49(60% versus 32%, $p=.012$)

Conclusions: Prophylactic BSO increases at age 45 and is correlated with route of hysterectomy and surgeon gender.

13	Depcrynski	Amy	Graduate student	Human Genetics	827-0510	andepcry@vcu.edu

Poster Title: **DEFINING THE REGULATORY MECHANISMS UNDELRYING THE HSP90/TELOMERE ASSOCIATION IN BREAST CANCER**

Authors: Amy N. Depcrynski, Lynne W. Elmore, Shawn E. Holt

Departments: Department of Human Genetics, Department of Pathology, Department of Pharmacology and Toxicology

Background: Breast cancer is a leading cause of death in women and, although the death rate is declining, research still is needed to discover new treatments and methods of detection. As opposed to traditional radiation- and chemo-therapies, new treatments for breast cancer are being developed to target specific proteins up-regulated in breast cancer. This will provide specific adjuvant treatment combined with conventional modalities to ensure total tumor cell death and reduce adverse side-effects. Therefore, finding additional protein targets would potentially allow for the development new clinically relevant therapeutic approaches. Presently there are drugs used in adjuvant breast cancer therapy that target the molecular chaperone protein, Hsp90, which has been found to be associated with breast cancer progression.

Objectives: The current study examines the interactions between telomere binding proteins and molecular chaperones proteins to determine the mechanisms for telomere function and structure. In addition, we hypothesize that Hsp90 associates with other telomere binding proteins in breast tumor cells, suggesting that blocking Hsp90 function may result in the disruption of telomere structure. Inhibition of Hsp90 either pharmacologically or genetically will be assessed as to how Hsp90 affects telomere associated proteins and the telomeric structure.

Methods: Methods used in this study include chromatin immunoprecipitation, in vitro transcription translation rabbit reticulocyte lysate, co-immunoprecipitation and western blot, and immunocytochemistry.

Results: Preliminary data suggests that Hsp90 and its co-chaperone protein p23 associate with the telomere independently of their known association with telomerase, suggesting a role for chaperones in the maintenance of telomere structure and function. Recent experiments have shown an interaction between TRF2 and Hsp90, Hsp70, and p23 in the MCF7 breast cancer cell line through immunoprecipitation and Western blotting using Hsp90, Hsp70, and p23 specific antibodies. An in vitro transcription translation system has also identified an interaction between TRF2 and Hsp90, Hsp70, and p23.

Conclusions: The overall goal for this project is to define the telomeric consequences of blocking Hsp90 function with the hope of utilizing chaperone inhibition as an adjuvant therapy to sensitize breast cancer cells to less toxic doses of conventional therapies.

14	Durrette	Monica	Doctoral student	Counseling Psychology	337-4943	durrettemm@aol.com

Poster Title: **BENEFIT-FINDING, OPTIMISM, AND COPING AMONG MOTHERS OF HOSPITALIZED, PREMATURE INFANTS**

Authors: Durrette, Monica; Foster, Rebecca; Joiner, Melissa; Kanotra, Surbhi; & Stern, Marilyn

Departments: Department of Counseling Psychology

Background: Babies born prematurely require hospitalization in a neonatal intensive care unit (NICU), an event that increases a mother's risk for postpartum distress. Maternal adaptation to an infant's NICU hospitalization is linked to long-term maternal and infant outcomes. At discharge, positive expectancies for her baby's future predicted optimal infant development 18-months later; coping via positive reinterpretation impacted subsequent maternal well-being; and maternal identification of benefits resulting from NICU hospitalization predicted optimal outcomes for both mother and baby. Benefit-finding (BF), i.e., beliefs about benefits resulting from adversity, has not been examined among mothers of premature infants while the baby was still hospitalized.

Objectives: This study examines the relationship of benefit-finding to coping processes during maternal adaptation to an infant's NICU hospitalization; explores maternal optimism in early stage BF; and explores the relationship between BF and benefit-reminding to identify aspects of each construct and ways they uniquely operate during an infant's NICU hospitalization.

Methods: 119 mothers (M age = 29.63 years; 63% Caucasian; 26.9% African American; 5% Asian; 3.4% Hispanic; and 73.9% with some college education) of hospitalized infants (M birth weight = 4.32 lbs; M gestational age = 32.7 weeks)were surveyed in the NICU on measures of BF, optimism, and coping strategies.

Results: Infant gestational age, birth weight, number of days in the NICU, nor length of respiratory support were significantly linked to any main variables. 32% of mothers rated the NICU experience as the most stressful life event ever experienced (M = 7.70, SD 2.39). BF significantly relates to maternal optimism ($r = .31$, $p = .006$) and positive reinterpretation coping (PRC; $r = .39$, $p < .001$). BF is related to benefit-reminding as a coping strategy. Optimism and BF accounted for a significant portion of variance in the use of PRC $R^2 = .23$, $p < .001$). BF partially mediated the relationship between maternal optimism and PRC.

Conclusions: Examining maternal benefit-finding pre-discharge will increase our understanding of a construct linked to better adaptive outcomes for both mother and child. Benefit-finding may be an important area of focus to aid in the design and implementation of supportive care to foster optimal maternal adaptation to an infant's hospitalization. Cognitive-based group interventions have been successful in increasing benefit-finding among medical patients.

15	Fitzgerald	Angela	Department of Psychology	240-393-1743	fitzgeralday@vcu.edu

Poster Title: **ETHNIC IDENTITY AND GENDER ROLE BELIEFS AS PREDICTORS OF CONDOM COMMUNICATION SELF-EFFICACY AMONG AFRICAN AMERICAN WOMEN**

Authors: Kristen Gastrock & Angela Fitzgerald

Departments: Department of Psychology and Center for Cultural Experiences in Prevention

Background: HIV is the leading cause of death for African American women between the ages of 25-34. It is estimated that many of these women are contracting the disease during their teens or early twenties. Additionally, the rates of infection for these women are increasing most rapidly from heterosexual contact. The most widely advocated and endorsed method through which women are able to protect themselves during sexual encounters has been the male condom. Condom communication is reliant upon the gender role beliefs that a woman takes on within the context of her romantic relationship. It is suggested that ethnic identity influences African American women's gender role beliefs, and can influence women's ability to communicate effectively about sexual issues with a main partner.

Objectives: This study will examine the influence of ethnic identity on African American women's gender role beliefs, and the subsequent effect that ethnic identity and gender role beliefs have on condom communication self-efficacy.

Methods: African American women over the age of 18 were recruited from community and college settings in Richmond, Virginia to participate in an HIV prevention program. These analyses used pre-test data collected prior to the intervention. Several measures of drug and sex attitudes and use were collected from over 400 women. Analyses were only performed on women who were between the ages of 18-35.

Results: Age and ethnic identity were found to be significant predictors of independence. Ethnic identity significantly contributed to assertiveness. Age, level of education and ethnic identity were shown to significantly predict condom communication self-efficacy.

Conclusions: The findings from this study have implications for understanding factors that can increase African American women's risk of contracting HIV.

16	Hampton	Carol	Associate Dean	Faculty and Instructional Development	828-6594	carol.hampton@vcu.edu

Poster Title: **ESTABLISHING WOMEN IN MEDICINE AND SCIENCE STUDENT ORGANIZATIONS: SUPPORTING FUTURE WOMEN PHYSICIANS AND SCIENTISTS**

Authors: TL Beck, E Geraymovych, TB Kelly, BM Lovell, AC Racanelli, JK Sullivan, MD Truong, JM Ziobro (medical students), L Hull, A Hollander, E Boice, K Wells, A Forrest, A Pandya, J Sturgill, J Fetweis (graduate students), W Klein, C Helderg, M Whitehurst-Cook, R Shiang, H Fillmore, J Chlebowski, C Hampton (faculty)

Departments: VCU School of Medicine, MCV Campus

Background:

Objectives: At the VCU School of Medicine, women make up 48% of medical students, and 62% of graduate students. With support from faculty and the Women in Science, Dentistry and Medicine Faculty Organization (WISDM), these students have developed organizations to promote the advancement of women in medical and science education, to help address obstacles facing women in professional careers, and to promote leadership skills, visibility and academic policies required for success.

Methods: Two student organizations have been created: Women in Medicine Student Organization (WIMSO) supporting career development of medical students, and Women in Science (WIS), serving graduate students and other trainees involved in scientific research. Each group has by-laws, officers, and specific goals and objectives. They conduct educational programs, provide support and networking, provide community outreach and philanthropic activities, and work with advisors from WISDM.

Results: WIMSO has been active in promoting women's health issues through a lecture series and an awareness day. They have also sponsored events to encourage networking among students, faculty, and community physicians, and to address training issues and work-life balance. A mentorship program for minority high school students has been established which will culminate in an annual health education event. WIS was created in 2006, and conducted their first seminar on career possibilities. The 2006-07 seminar series includes topics on working in different lab environments as a postdoc; mentoring relationships; networking; career success, and writing workshops. Upcoming events include fundraising for a clinic in Bolivia and working with local Girl Scouts on Science Day.

Conclusions: Student organizations in medical schools facilitate communication and networking among its members and provide needed support of women students and trainees. Active faculty leadership for such groups promotes mentorship and positive role modeling. These groups can help achieve increased representation, participation and leadership of women in medical and scientific disciplines. (Go to http://www.womeninmedicine.vcu.edu for more information)

17	Harris	Jennifer	Research Associate, MS	School of Education; Partnership for People with Disabilities	827-0200	jlharris@vcu.edu

Poster Title: **A GENDERED APPROACH TO BODY IMAGE AND SELF-ESTEEM**

Authors: Jennifer Harris

Departments: Sociology

Background: Due to societal changes such as the feminist movement, increased consumerism by men, and the popularity of plastic surgery, it is now possible that men experience body image and self-esteem problems too. Research on males can provide new insights and contribute to the existing research on women with eating disorders and body image insecurities.

Objectives: Based on a review of the literature, it is proposed that men who feel comfortable with their body image will feel less insecure and have higher levels of self-esteem, and vice versa. It is also proposed that media exposure will have both a direct and indirect effect (through body image) on self-esteem.

Methods: 76 male college students completed a standard questionnaire format, ages 18 to 24. The survey consisted of 10 questions on self-esteem, taken from the Rosenberg Self-esteem Scale, which addresses different facets of self-esteem. Also included were 10 questions on body image. The researcher used the Body Dissatisfaction Scale as a framework, but reworded the questions to be applicable to males and their unique body image concerns. Questions on media exposure, standard demographics, sports participation, exercise habits and the use of diet supplements rounded out the survey.

Results: Using SPSS, frequencies, descriptive statistics and standard multiple regression analysis was performed between the dependent variable (self-esteem) and the independent variable (body image). A second model (model 2) included media exposure as an additional independent variable. A third equation (model 3) was run with the addition of three other predictor variables: exercise, use of diet supplements, and sports participation. Model 1 showed that body image had a large positive effect (b=.842) on self-esteem. The adjusted R-squared was .349 and significant at the .001 level. The addition of media exposure as a predictor in Model 2, explained more of the variance (adjusted R-sq. = .444) than body image alone. Model 3 explained the most variance with an adjusted R-sq. of .458 and body image maintained a strong relationship to self-esteem (b=.842).

Conclusions: The analysis provided support for the hypothesis, which asked if a relationship will exist between overall body image and self-esteem scores in males. Results showed that body image consistently exhibited a significant relationship with self-esteem. Therefore, it is reasonable to state that men's insecurities with their bodies affect their self-esteem in the same manner as it does females.

18	Hurst	Carol	Doctoral Candidate	VCU School of Social Work	(434) 823-1533	hurstcg@vcu.edu

Poster Title: **SEXUAL PERCEPTION AS A CONSTRAINT ON LOW-INCOME MOTHERS' BREASTFEEDING CHOICES**

Authors: Carol Grace Hurst

Departments: VCU School of Social Work

Background: The choice to breastfeed a baby, or not, is a woman's health behavior with impact reaching beyond each individual mother and child to longer term health outcomes for society. Prior research has identified constraints on the practice of breastfeeding. In the United States this includes the perception of women's breasts as sexual rather than nurturing, the belief that breastfeeding in public spaces is inappropriate, and cultural attitudes that assume formula feeding as the acceptable social norm. Breastfeeding is a health disparity issue, with the lowest breastfeeding rates found disproportionately among low income groups. Knowledge of sexual perception as a constraint on the choice to breastfeed is relevant to helping society meet breastfeeding targets articulated by Healthy People 2010.

Objectives: 1). Validation of a new scale to measure sexual perceptions related to breastfeeding. 2.) To test whether breastfeeding initiating and formula feeding only mothers demonstrate significant differences on discomfort with public breastfeeding, concerns about breastfeeding and sexuality, and the right to breastfeed. 3.) To test whether sexual perception variables are significant predictors of study mothers' breastfeeding choices.

Methods: A cross-sectional survey design examined breastfeeding barriers felt by mothers served by the WIC program in Virginia. WIC is the federal nutrition support program for low income pregnant women, infants, and young children. Multi-stage cluster sampling was used to select 140 mothers with babies aged 6 to 18 months at eight different Virginia WIC clinic sites to complete a structured interview or questionnaire. Factor analysis was used to explore the dimensions of the new scale measuring sexual perceptions of breastfeeding. T-tests were used to show differences between breastfeeding initiating and formula feeding mothers. Linear multiple regression was used to model sexual perceptions multi-variate contribution to breastfeeding duration for study mothers.

Results: Factoring the new scale yielded a three factor instrument with promising initial reliability and validity values. Study results show significant sexual perception differences between breastfeeding initiating and formula feeding only study mothers. Discomfort with breastfeeding in public was a significant negative predictor of length of study mothers' breastfeeding duration.

Conclusions: Greater knowledge of laws protecting public breastfeeding may assist low income breastfeeding.

19	Joiner	Melissa	Undergraduate Honors Student	Psychology Honors Program	(540) 219-9647	joinerm@vcu.edu

Poster Title: **MATERNAL SOCIAL COMPARISON INSIDE THE NEONATAL INTENSIVE CARE UNIT**

Authors: Melissa Joiner, Monica Durrette, Becky Foster, Surbhi Kanotra, & Marilyn Stern, Ph.D.

Departments: Psychology Honors Program; Department of Counseling Psychology

Background: Research shows mothers of premature infants who rated their infants as doing better than the average premature baby exhibit better adjustment. This finding corresponds with Taylor's theory of cognitive adaptation to trauma which states that during threatening events, positive illusions, which involve positive distortions of reality, seem to have protective psychological effects.

Objectives: This study expands on previous research by Blanchard & colleagues by examining the relationship between social comparison, maternal depression, and maternal perceptions in order to see if a mother's depression level is related to how she compares her infant to other infants in the NICU and her overall perception of premature infants.

Methods: Eighty-eight mothers of premature infants hospitalized in a NICU participated in an initial interview focusing on how the mother had adapted to the NICU experience. Mothers completed a set of questionnaires that included a measure of social comparison, depressed mood, and an objective assessment of the infant's health status. To assess the perceptions of premature infants, mothers viewed a short DVD depicting two infants. One infant was labeled prematurely born and the other infant was described as full-term. Mothers were asked to rate their impression of the infants.

Results: Most mothers rated their infant as better than average (56%). A one-way analysis of variance (ANOVA) revealed significant differences in maternal social comparisons of infant health based on an objective assessment of the infant's prognosis, $F(2,83) = 5.75$, $p = .005$. No significant difference in the depression levels of mothers making downward comparisons compared to mothers making upward comparisons. However, rating of the baby as worse, average, or better was significantly correlated with depression. Mothers' perception of infants labeled premature was not related to differences in maternal social comparisons.

Conclusions: Although social comparison was not significantly related to depression or perceptions, there was a significant correlation between social comparison and infant health status. Mothers tend to rate their infants better than average, especially when objective, supportive evidence is lacking. This supports Taylor's theory of cognitive adaptation to trauma in that mothers tend to foster positive illusions via downward social comparisons of their infants. Future research is needed to further understand how this process may impact subsequent maternal well-being and infant development.

20	Jones	Dr. Jenny L.	Assistant Professor	Social Work	828-0732	jljones2@vcu.edu

Poster Title: **THE PREVALENCE OF HIV AMONG SUBSTANCE ABUSING AFRICAN-AMERICAN WOMEN: A QUALITATIVE INVESTIGATION**

Authors: Jenny L. Jones

Departments: Social Work

Background: Substance abuse and its influence on HIV risk affects African American women at increasingly alarming rates. African American women represent the fastest growing segment of the population of individuals who are infected with HIV in the United States. The basic contextual factors that influence the risk for drug use, along with other social and contextual factors that make women vulnerable for HIV infection are discussed.

Objectives: The underlying purpose of this study was to describe the process of how life situations and events relating to illicit drug use influences HIV risk in African American women who reside in an inner-city neighborhood in a metropolitan U.S. city.

Methods: Data used in the current analyses were collected as a part of a study aimed at assessing the impact of maternal HIV/AIDS diagnosis on the mental health needs of affected children and families, which included a supplemental qualitative analysis on HIV disclosure and coping. The study included HIV positive women who received care services,(i.e., health care and case management from various AIDS Service Organizations (ASOs) throughout metro Atlanta, Georgia). To be eligible for inclusion in the study, the women must have identified as HIV infected and have a child living with them between the ages of 4-18.

Results: A substance abuse history was self-disclosed by 70% of the women. Several themes emerged from the analyses that have relevance to a feminist perspective. All of them attributed their HIV diagnosis to their past drug use. Another theme that emerged related to the ongoing use of illicit drugs and HIV/AIDS was that many of the women's families had suffered the loss of a loved one from HIV/AIDS, therefore the women were quite conscious of HIV/AIDS.

Conclusions: African-American women represent disproportionate numbers of women with HIV infection and AIDS. Several factors related to economics, poor health, access to healthcare, and other social and environmental factors impact the lives of African-American women and increase their risk for contracting HIV. Because of these factors, the development and implementation of appropriate strategies to address these issues may be a great challenge for practitioners. Efforts to reach women who are substance users and at risk for HIV must be culturally responsive and they must include approaches that will address the social and environmental factors affecting these women's lives.

21	Joyner	Sarah	Cardiology Fellow	Department of Internal Medicine	828-9989	sej1@hotmail.com

Poster Title: **HIGHER PREVALENCE OF UNSTABLE ANGINA COMPARED TO NON-ST ELEVATION MI IN WOMEN IS IN PART EXPLAINED BY SMALLER MI SIZE**

Authors: Sarah E. Joyner, Michael C. Kontos, F. Philip Anderson, James L. Tatum, Joseph P. Ornato, Robert L. Jesse

Departments: Internal Medicine Division of Cardiology, Pathology, Radiology, Emergency Medicine

Background: Prior studies that have included patients (pts) with non-ST elevation myocardial infarction (NSTEMI) and unstable angina (UA) have reported a higher prevalence of UA rather than NSTEMI in women (W) compared to men (M). An important limitation of most prior studies was using CK or CK-MB to define MI. However, using the more sensitive cardiac marker troponin (TnI) is now recommended for diagnosing MI. We hypothesized that the higher prevalence of UA is in part due to smaller MIs in women than men, and therefore are less likely to meet traditional criteria for MI based on CK or CK-MB.

Methods: Pts admitted for possible MI were admitted to the CCU and undergo serial sampling of myocardial markers which include CK, CK-MB and TnI at 0 and 8 hours, with further sampling until markers peaked in those with elevations. Pts were separated into categories based on peak CK (upper limit of normal 200 U/L) and CK-MB (8 ng/ml).

Results: Over a 6 year period, a total of 1286 consecutive pts were diagnosed with NSTEMI (676 men [53 %], 610 women [47%]). Peak CK (median 290 U/L vs 195 U/L) and CK-MB (median 53 ng/ml vs 34 ng/ml) were higher for men compared to women. Using an elevated CK-MB rather than TnI to define MI, 44% of women compared to 36% of men (p=0.006) had small MIs and were diagnosed by TnI only, and thus would not have met traditional CK-MB criteria for MI (table). When an elevated CK was used to define MI, the differences were even greater; only 1/3 of men had small MIs; in contrast, ½ of women would have been considered to have UA rather than MI.

Conclusions: Women have smaller MIs compared to men. The use of less sensitive cardiac markers in prior studies likely contributed to the higher prevalence of UA found in women.

22	Karjane	Nicole	Assistant Professor	Obstetrics and Gynecology	828-1804	nkarjane@mcvh-vcu.edu

Poster Title: **MEDICATION COMPLIANCE IN WOMEN WITH PCOS**

Authors: Nicole W. Karjane, M.D., Gabriela Mandolesi, M.D., Kai I. "Annie" Cheang, Pharm.D., BCPS, and Dale W. Stovall, M.D.

Departments: Obstetrics and Gynecology, Pharmacology

Background: Polycystic Ovary Syndrome (PCOS) is the most common endocrinopathy in women, affecting at least 5-7% of women of reproductive age. Clinical manifestations of this syndrome include hirsutism, menstrual irregularities, obesity, and infertility, as well as increased risk for diabetes, cardiovascular disease, and endometrial cancer. In the United States, the two most commonly prescribed medications for PCOS are oral contraceptive pills (OCP's) and metformin. Although there has been extensive research regarding treatment options for PCOS, little is known about patient compliance.

Objectives: This project is designed to study patient compliance with OCP's compared to metformin in a university clinic population. We hypothesize that women are more likely to comply with OCP's than with metformin given the more favorable side effect profile and more predictable improvement of hyperandrogenism and menstrual irregularity.

Methods: We conducted a retrospective cohort study of women with PCOS,defined as oligo- or amenorrhea in conjunction with clinical or biochemical evidence of hyperandrogenism, who were treated in the PCOS clinic of the Women's Health Center at Virginia Commonwealth University between 2004 and 2006. We reviewed charts and abstracted data on demographics, medical history, anthropometrical measures, desire for pregnancy, prescribed treatment, and patient report of compliance with treatment at 3, 6, and 12 months. The primary outcome measure was compliance with treatment.

Results: 119 subjects were included in the study. Demographic characteristics did not differ significantly between the groups. 57.1% were compliant with OCP's, and 57.8% were compliant with metformin at 3 months (P=0.93). At 6 months, 38.1% were compliant with OCP's compared to 43.9% with metformin (P=0.46). At 12 months, only 21.7% were compliant with OCP's compared to 32.2% with metformin (P=0.19). Subjects were significantly more likely to be compliant with OCP's at 3 months compared to at 6 and 12 months (P<0.01). Likewise, they were more likely to be compliant with metformin at 3 months compared to 6 and 12 months (P<0.01).

Conclusions: Women with PCOS show similar compliance rates with OCP's compared to metformin. Compliance with either mediation decreased significantly with time; therefore, it is essential to educate patients about the importance of long-term adherence to medical treatment for PCOS.

23	Kiken	Laura	703-517-0371	lgkiken@vcu.edu

Poster Title: **KNOWLEDGE AND PERCEIVED AMBIGUITY OF PHYSICAL ACTIVITY RECOMMENDATIONS AND PHYSICAL ACTIVITY IN MEN AND WOMEN IN THE UNITED STATES.**

Authors: Laura G. Kiken, M.P.H., May G. Kennedy, Ph.D., M.P.H., Diane B. Wilson, Ed.D., M.S., R.D.

Departments: Department of Social & Behavioral Health

Background: The majority of Americans – especially women – do not meet physical activity recommendations. Having physical activity goals has been associated with physical activity participation, and physical activity recommendations set by public health experts can be viewed as externally set goals. However, past research has shown that goals that are specific rather than ambiguous are more likely to be achieved, and variations in recommendations over time and across sources may have created perceived goal ambiguity.

Objectives: This study aimed to (1) examine the extent of physical activity recommendation knowledge among adults in the United States, (2) quantify perceptions of the ambiguity of these recommendations, (3) determine whether knowledge of physical activity recommendations is associated with physical activity level, and (4) investigate whether perceived ambiguity of recommendations moderates the relationship between recommendation knowledge and activity. An additional objective was to explore demographic differences in any associations detected.

Methods: SUDAAN was used to weight data from the 2005 Health Information National Trends Survey (HINTS) (N=5,586) to represent the U.S. population. Descriptive statistics were calculated, and logistic regression was used to determine crude and adjusted odds ratios.

Results: An estimated 31% of Americans had accurate knowledge of recommendations, and 35% reported engaging in physical activity at the recommended level. An estimated 75% perceived the recommendations as ambiguous. The odds of reporting accurate knowledge of recommendations were significantly higher among women than among men (OR 1.53, 95% CI 1.22-1.93), but accurate knowledge of recommendations was associated with physical activity at the recommended level only among men (OR 1.67, 95% CI 1.06-2.64). Perceived ambiguity did not moderate the association between knowledge and activity level in any analysis.

Conclusions: These findings support disseminating updated physical activity recommendations as indicated by the scientific evidence base. Future research should explore: (1) how to boost knowledge of recommendations, particularly in men, (2) factors that would enable women to act on such knowledge, and (3) gender differences in other determinants of physical activity.

25	Kota	Dena	Graduate Student	Pharmacology and Toxicology	828-8061	heathdm@vcu.edu

Poster Title: **NICOTINE REWARD AND WITHDRAWAL DIFFERS WITH AGE AND SEX IN A MOUSE MODEL**

Authors: D. Kota, B.R. Martin, S.E. Robinson, and M.I. Damaj

Departments: Pharmacology and Toxicology

Background: Tobacco use is the leading cause of premature death in the United States. Over 3000 adolescents start smoking every day in the United States (Gilpin et al., 1999). The commencement of smoking at a young age is thought to increase addiction and decrease the probability of successful cessation (Chassin et al., 1990; Chen and Millar, 1998; Colby et al., 2000; Kandel and Chen, 2000). This evidence suggests that adolescence is a critical period for the initiation and maintenance of tobacco use.

Objectives: The objectives of this study were to evaluate the differences in nicotine reward and withdrawal in adolescent and adult mice of both sexes. Furthermore, we sought to account for these differences by using an in vitro assay to evaluate nicotinic receptor functionality.

Methods: The rewarding effects of nicotine was measured through a conditioned place preference model. After seven days of chronic nicotine infusion, animals were tested in a precipitated withdrawal model using four measures of withdrawal signs. Acute sensitivity to nicotine was assessed through four behavioral tests including two analgesic measures, a test for hypothermia, and a test for hypoactivity. Finally, a rubidium efflux assay was used to evaluate differences in nicotinic receptor functionality.

Results: Male and female animals were found to have opposing results in both reward and withdrawal models. Adolescent female mice displayed enhanced withdrawal effects, yet attenuated rewarding effects in response to nicotine. In contrast, male mice demonstrate increased reward and decreased withdrawal symptoms. In the acute sensitivity testing, it was found that male and female mice also have differing sensitivities to nicotine and that age can play a role in these differences as well. Male adolescent mice had a lower sensitivity in pain testing as compared to adult counterparts while female adolescents displayed the opposite effect. Finally, our results from the rubidium efflux assay indicate that male and female adolescent animals are more sensitive to nicotine stimulation as compared to adults.

Conclusions: Our results indicate that adolescence should be considered a critical time-frame for the ability to acquire nicotine dependence. Furthermore, males and females have differing sensitivities to nicotine. It will be important to understand the underlying mechanisms behind difference in nicotine dependence in order to develop better smoking cessation therapies that are specifically targeted for certain groups.

26	Kuntz	Kristin	Postdoctoral Fellow in Clinical Health Psychology	Consultation-Liaison Psychiatry	804-827-0054	kkuntz@mcvh-vcu.edu

Poster Title: **EFFECTS OF A SUPPORT GROUP ON QUALITY OF LIFE IN WOMEN WITH CONGESTIVE HEART FAILURE**

Authors: Kristin Kuntz, Ph.D.*, Jamie Jackson, M.A.**, Charles Emery, Ph.D.**

Departments: *Consultation-Liaison Psychiatry, VCU Medical Center, ** Department of Psychology, The Ohio State University

Background: Congestive Heart Failure (CHF) is marked by symptoms of fatigue, decreased exercise tolerance, and edema which often lead to limitations in daily functioning. Research has demonstrated a relationship between low perceived social support and poor outcomes in women with CHF.

Objectives: The purpose of this study was to evaluate a social support intervention among women with heart failure. It was hypothesized that women with CHF who participated in a support group would report enhanced quality of life (QOL) compared to usual care patients.

Methods: Thirty-four women with CHF completed the Minnesota Living with Heart Failure (MLHFQ) Questionnaire and the RAND 36-Item Health Survey. They were then randomly assigned to either a support group condition (N=15) or a usual care condition (N=19). Participants in the support group met for one hour each week over the course of eight consecutive weeks during which they discussed topics related to living with CHF. All participants again completed the questionnaires 8 and 16 weeks after the group began. Usual care subjects did not receive an intervention during the 16-week study but were referred to a local support group at the conclusion of the study. Primary outcomes at each time of measurement included general health-related QOL and heart failure-specific emotional and physical QOL.

Results: Data were analyzed with repeated measures ANOVAs with time as a within subject factor and condition as a between subject factor. Results indicated no significant effect of the intervention for general health-related QOL, but there was a trend for enhanced emotional functioning in the support group at 16 weeks, as reflected by improvement on the MLHFQ ($p = .058$).

Conclusions: This is the first randomized controlled study of the effect of social support on QOL among women with CHF. Although there appeared to be only limited effects of the intervention on QOL, the results suggest that this may be a promising area for further research.

27	Kurdziel	Karen	Assistant Professor	Radiology/Nuclear Medicine	827-4984	kurdziel@vcu.edu

Poster Title: **1ST IN HUMAN IMAGING MULTIDRUG RESISTANCE IN BREAST CANCER WITH 4-[18F] FLUOROPACLITAXEL (FPAC)**

Authors: Kurdziel KA, Kalen JD, Hirsch JI, Wilson JD, Bear HD, Barrett D, Agarwal R, McCumiskey J.

Departments: Radiology and Surgical Oncology

Background: Multidrug resistance (MDR) is a cause of treatment failure in many cancer patients. MDR refers to a phenotype whereby a tumor is resistant to a large number of natural chemotherapeutic drugs. Having prior knowledge of the presence of such resistance would decrease morbidity from unsuccessful therapy and allow for the selection of individuals who may benefit from co-administration of MDR inhibiting drugs. The Tc-99m labeled single photon emitting radiotracers sestamibi and tetrofosmin have shown some predictive value. However, positron-emitting (PET) radiotracers, which allow for dynamic, quantitative imaging, hold the promise of more accurate and specific identification of MDR tumors.

Objectives: To obtain human safety data, to demonstrate imaging feasibility with FPAC, to obtain human biodistribution and to obtain preliminary evidence of breast tumor uptake concordance with response to therapy.

Methods: We performed dynamic 4-[18F] fluoropaclitaxel (FPAC) PET imaging in 3 normal volunteers. This data was used to calculate internal dosimetry and establish preliminary normal tissue variability estimates for various organs. Additionally, to date we have performed dynamic PET imaging of 1 breast cancer patient. Initial dosimetry calculations using OLINDA software. Normal tissue uptake variablity and varaince of tumor to background ratio over time were calculated.

Results: The gall bladder was the organ receiving the highest dose (mean 1.2 rem/mCi) followed by the upper large and small intestine (mean 0.33 and 0.30rem/mCi respectively) with a mean effective dose of 0.05 rem/mCi. PET imaging of the breast tumor showed constant tumor uptake with time and gradual decrease in brackground activity. The maximal tumor to background ratio was 6:1 at110 minutes post injection. The tumor was shown to respond to chemotherapy, consistant with expectations. There were no adverse events or clinically significant variations in vital signs following FPAC administration.

Conclusions: The preliminary 1st in human data show that FPAC PET imaging is feasible, the dosimetry is within the range of other clinically used tracers, and that uptake differences between normal breast tissue and drug sensitive breast tumors can be detected.

28	Larson	Nicole	Department of Health and Human Performance	827-0828	larsonny@vcu.edu

Poster Title: **EVALUATION OF PHYSICAL ACTIVITY PARTICIPATION DURING THE EARLY POST-GASTRIC BYPASS SURGERY PERIOD**

Authors: Nicole Y. Larson, M.S., Ronald K. Evans, Ph.D., Dale S. Bond, Ph.D., Luke Wolfe, M.S., Jill Meador, B.S.N., James Maher, M.D., John Kellum, M.D.

Departments: Department of Health and Human Performance and Department of Surgery

Background: Physical activity (PA) participation is thought to be an important contributor to weight loss and maintenance following gastric bypass surgery (GBS). However, PA patterns during the early post-surgical period and perceived PA obstacles have not been evaluated.

Objectives: The purpose of this study was to evaluate pre-surgical PA barriers and PA participation before and 3-mos after GBS.

Methods: The International Physical Activity Questionnaire (IPAQ) was administered to 128 GBS patients (89.8% female, 79.7% Caucasian) to assess 1) time spent sitting (min/day), 2) time spent in vigorous, moderate, and walking activities (min/wk), and 3) total PA (MET-min/wk) before and 3-mos post-GBS. Patients rated the importance of individual PA barriers on a scale of 0 (never) to 4 (very often). Average ratings were calculated for each barrier based on response frequency. PA participation was analyzed using paired-samples t-tests.

Results: There was a significant increase by paired t-test ($p<0.05$) in vigorous (+45.0 min/wk), moderate (+118.8 min/wk), and walking (+111.6 min/wk) activities and in total PA (+1209.5 MET-min/wk) at 3-mos. A significant decrease ($p<0.05$) in time spent sitting (-127.2 min/d) was seen at 3-mos. Four PA barriers ("lack of equipment", "bad weather", "afraid in my neighborhood", and "do not know how") averaged a rating ≥3.0 (often) with "do not know how" having the highest average rating (3.6 ± 0.7).

Conclusions: While time spent in PA was increased and sedentary time was decreased after surgery, patients perceived their knowledge of how to exercise as a primary pre-surgical PA barrier. These data support inclusion of pre- and post-surgical educational/intervention programs to specifically address appropriate PA behaviors.

29	Li	Guo	Postdoctoral	Department of Medicinal Chemistry	828-6458	gli3@vcu.edu

Poster Title: **THE TOTAL SYNTHESIS OF ANIBAMINE, A NOVEL NATURAL PRODUCT AS CHEMOKINE RECEPTOR CCR5 ANTAGONIST**

Authors: Guo Li and Yan Zhang

Departments: Department of Medicinal Chemistry

Background: The number of women living with AIDS increases year by year. At present, nearly half of the 40 million people currently living with HIV/AIDS are female. The chemokine receptor CCR5, a G-protein-coupled receptor, has been identified as an essential co-receptor for HIV virus entry to host cells. Therefore, an antagonist of CCR5 receptor to inhibit the cellular entry of the human immunodeficiency virus type I (HIV-1) provides a new therapy choice for the treatment of HIV infection.

Objectives: Anibamine, a novel pyridinyl quaternary alkaloid was recently isolated from Aniba sp. has been found to effectively bind to the chemokine receptor CCR5 with IC50 at 1 μm in competition with 125I-gp120, which is a HIV viral envelop protein binding to CCR5 with high affinity. So far, all the known antagonists to CCR5 have been developed by optimization of the lead compounds from the high-throughput screenings. Anibamine is the first and the only natural product that has been identified as CCR5 antagonist with high affinity. With no doubt, anibamine possesses a novel structural skeleton compared with all the other CCR5 known antagonists. The chemical synthesis of anibamine and its analogs may lead to a brand new type of AIDS therapeutic agents.

Methods: Based on the retrosynthetic analysis, Anibamine was designed to be synthesized through the intermediate, 2-hydroxy-3,5-dicyano-4,6-dimethylpyridine, which can be synthesized from acetylacetone and cyanoacetamide.

Results: Anibamine was synthesized from acetylacetone and cyanoacetamide in 10 steps and 14.2% overall yield.

Conclusions: Such far this is the first report of the total synthesis of anibamine. The above synthetic routes also offer the opportunity to prepare the anibamine analogues for the further biologocal evaluation and SAR study for their anti-HIV activity.

30	Liu	Malissa	Graduate Student	Human Genetics	827-0510	mcliu@vcu.edu

Poster Title: **EXPRESSION OF TELOMERASE-ASSOCIATED CHAPERONES DURING BREAST CANCER PROGRESSION**

Authors: Malissa Liu, Michael Idowu, Katherine Kimmelshue, Shawn E. Holt, Lynne W. Elmore

Departments: Human Genetics, Pathology, Pharmacology/Toxicology, Massey Cancer Center

Background: Our laboratory has previously shown that Hsp90 and its co-chaperone, p23, remain stably associated with active telomerase to ensure proper assembly. Using an experimental prostate cancer system, telomerase activity increases during malignant progression due to an upregulation of chaperone proteins, rather than hTERT itself. This finding was supported in clinical prostate specimens, in which normal and benign prostatic hyperplasia displayed low levels of chaperones while carcinomas showed elevated levels.

Objectives: Since the role of chaperone proteins have not been well-defined during mammary carcinogenesis, the present study examines protein expression and localization patterns of Hsp90 and p23 in clinical specimens of benign, ductal carcinoma in situ, and invasive breast carcinomas to ascertain whether previous observations are prostate-specific.

Methods: Tissue microarrays containing normal, DCIS, and invasive breast tissue, including cancer cell lines and non-breast specific cores, were immunohistochemically stained for Hsp90 and p23. These cores were scored for staining reactivity (>10% is considered positive), intensity, and/or localization (nuclear, cytoplasmic, or both) and statistical analyses were performed to assess significant differences at various malignancy stages.

Results: It is possible that p23 protein expression changes during tumorigenic conversion. However, although we may not observe an overall change in Hsp90 expression, there may be a shift in the cellular localization of the protein, from predominantly cytoplasmic to nuclear during breast cancer progression, consistent with what was found in prostate tumors.

Conclusions: These tissue microarrays may serve as the preliminary data underlying mechanistic studies on the role of chaperones during cancer progression. Defining these roles in clinical specimens may provide critical information on the utility of targeting these proteins as a form of adjuvant cancer therapy.

31	Mazzeo	Suzanne	Associate Professor	Psychology	828-1708	semazzeo@vcu.edu

Poster Title: **A PARENT INTERVENTION TO PREVENT OBESITY AND EATING DISORDERS IN CHILDREN: A PILOT STUDY**

Authors: Suzanne E. Mazzeo, Ph.D., Rachel Walker Gow, M.A., Clarice Gerke, M.S., Marilyn Stern, Ph.D. Cynthia Bulik, Ph.D.

Departments: Psychology

Background: The percentage of overweight children in the U.S. between the ages of 6 and 11 has nearly tripled in the last three decades. Despite the urgent need for pediatric overweight interventions, outcomes of some of the most rigorous treatments are, at best, mixed. Although research has found that including parents in interventions for pediatric overweight has positive effects on outcomes, parental involvement is usually limited.

Objectives: This study aimed to 1) identify specific concerns of mothers with EDs and weight concerns through focus groups to 2) inform the development of an intervention for parents concerned about their child's eating and weight related behaviors and 3) evaluate the effectiveness of the intervention.

Methods: A pretest-posttest wait list control group design was used. Participants (N = 20) were randomly assigned to either the control (n = 10) or intervention group (n = 10). Topics included in the 8 session intervention were an overview of childhood eating problems and contributing factors, the feeding relationship, family meals, mindful eating, physical activity, the role of advertising in the media, body image, and teasing.

Results: Fifty percent of participants' children were overweight and 14% were at risk for overweight at the start of the study, while 80% of participants (caregivers) were overweight. The intervention effectively increased physical activity among parents. The intervention also reduced CFQ Pressure to Eat scores, indicating that parents reduced their tendency to pressure their children to eat more food, usually at meal times. Parents reported higher dietary restraint in their own diets after participating in the intervention compared to parents in the control group. Intervention parents increased their fiber intake more than control group parents.

Conclusions: These findings have important implications for future interventions with parents concerned about their children's eating behaviors and BMI.

32	McMillan	Jennifer	Ph.D. candidate	Microbiology and Immunology	225-4121	mcmillanjl@vcu.edu

Poster Title: **ANALYSIS OF THE TBPA PLUG DOMAIN OF NEISSERIA GONORRHOEAE**

Authors: Jennifer L. McMillan and Cynthia N. Cornelissen

Departments: Microbiology and Immunology

Background: Neisseria gonorrhoeae is an obligate human pathogen. In women, gonorrhea commonly presents as cervicitis or urethritis, but infection is often asymptomatic and can lead to serious downstream sequelae, including pelvic inflammatory disease, ectopic pregnancy, and infertility. Although gonorrhea is treatable, the incidence of antibiotic resistance is rising. Vaccine attempts have been unsuccessful in preventing gonococcal infection. However, the components of the Neisseria transferrin-iron uptake system serve as potential vaccine candidate because they are expressed in 100% of clinical isolates and required to initiate infection. The transferrin-iron uptake system is composed of two transferrin binding proteins: TbpA and TbpB. TbpA is a TonB-dependent, outer membrane transporter, while TbpB is a surface-exposed lipoprotein that functions in transferrin binding. The precise mechanism by which TbpA mediates iron uptake has not been elucidated, but requires iron removal and transport across the outer membrane. TbpA is thought to be composed of two distinct domains: a b-barrel and plug domain. Previous studies suggest that the plug plays a role in iron transport; however, that role has not yet been defined.

Objectives: We hypothesize that the plug domain of TbpA may function in the iron stripping from transferrin and/or iron transport across the membrane. Our objective is to identify conserved residues within the plug domain of TbpA that are critical for these functions.

Methods: Alanine mutagenesis was employed to generate single and triple alanine plug mutants in wild-type and TbpB- backgrounds. These mutants were analyzed for transferrin binding and growth on transferrin as a sole iron source.

Results: The single alanine mutations did not alter TbpA's ability to internalize transferrin-bound iron. The triple alanine mutant in the wild-type background maintained the ability to bind and utilize transferrin. However, in the TbpB- background, the triple alanine mutant demonstrated a significant decrease in transferrin binding and was unable to utilize transferrin as a sole iron source.

Conclusions: These data suggest that residues 144 -146 of the plug domain are important for transferrin binding and utilization; however, the function provided by this region can be compensated for by the presence of TbpB.

33	Mohanraj	Lathika	PhD Student	Department of Biochemistry	827-1376	mohanrajl@vcu.edu

Poster Title: **CROSSTALK BETWEEN MDM2 ABD NFkB PATHWAY IN HUMAN LUNG CANCER**

Authors: L Mohanraj1, 5, C Dumur2, 5, MA Ellis1, 5, Mahesh Ramamoorthy1, M Scian1, C Garrett2, V Ramakrishnan3, J Roberts4, Lynne Penberthy4, S Deb1 and SP Deb1

Departments: 1Department of Biochemistry and Massey Cancer Center, 2Department of pathology and Clinical Support center, 3Department of Biostatistics, Virginia Commonwealth University, 4Department of Medicine

Background: Lung cancer is the leading cause of cancer death and deaths in women has significantly increased (150%) over the last twenty years. Research shows that women are 1.5 times more susceptible to lung cancer than men. The rising trend in female lung cancer death relates with cigarette smoking in women. Cancer is a disease of multiple genetic abnormalities and identification of abnormally expressed genes can serve as a prognostic marker. It is essential to identify a group of markers to predict prognosis and drug response. Human oncoprotein MDM2 is often overexpressed in human cancers. Amplification of the mdm2 gene and enhanced translation of mRNA are mechanisms of MDM2 overexpression. MDM2 interacts with growth suppressors and these are perceived as possible mechanisms for oncogenic function of MDM2.

Objectives: To determine the frequency of MDM2 overexpression and identify abnormal gene expression that co-occurs with MDM2 overexpression. To determine whether elevated levels of NFκB2 contributes to oncogenic properties such as enhanced growth. We determined the levels of MDM2,status of p53 mutation and expression of mutant p53 inducible genes such as NFκB2 (p100) and c-myc in human non-small cell lung cancer samples.

Methods: Lung cancer samples from patients have been tested for MDM2 levels, p53 status and expression of NFκB target genes by QPCR.MDM2 overexpression was statistically correlated with the expression of these target genes in the presence/absence of p53. A lung cancer cell line with WT p53, has been transfected with MDM2 plasmid, to observe any corresponding increase in NFkB2 and c-myc at the protein and RNA levels. NFκB2 expression in lung cancer cells were silenced using siRNA in the presence/absence of MDM2 overexpression and their growth rate was determined.

Results: p53 mutation and/or MDM2 overexpression was detected in 30% lung cancer samples. MDM2 overexpression was found in cancers harboring WT/mutant p53. Elevated expression of two mutant p53 inducible genes, NFκB2 and c-myc, showed significant statistical correlation with MDM2 overexpression in samples that harbored WT p53. Consistent with this finding, a cultured lung cancer cell line with WT p53 showed elevated expression of NFκB2 and its target c-myc. Downregulation of MDM2 overexpression using MDM2 siRNA in lung cancer cells harboring WT p53 proportionally downregulated NFκB2 expression.

Conclusions: We can conclude that MDM2 upregulates expression of NFκB2 and its target gene c-myc and in turn enhances cell proliferation.

34	Nguyen	Anh	Psychology Graduate Department	402-9526	nguyenab@vcu.edu

Poster Title: **THE PREDICTORS OF BREAST AND CERVICAL CANCER SCREENING AMONG VIETNAMESE IMMIGRANT WOMEN**

Authors: Anh Bao Nguyen

Departments: Psychology

Background: Cervical cancer is the most common form of malignancy among Vietnamese American women with an incidence rate of 43 per 100,000 while their white counterparts had an incidence rate of 8.7 per 100,000 (National Cancer Institute, 1996). 67% of Vietnamese American women reported receiving at least one Pap test in their lifetime (Jenkins, McPhee, & Bird, 1999). In regards to breast cancer, Vietnamese women are at a lower risk with an incidence rate of 37.5 per 100,000 while their white counterparts had a much higher incidence rate of 111.8 per 100,000 (Centers for Disease Control and Prevention, 2005). However, research has shown that as Vietnamese women become increasing accultured, their incidence rates of breast cancer increase as well (Ziegler, Hoover, Pike, et al., 1993).

Objectives: It was predicted that low SES, lack of health insurance, rate of tenure, marital status, acculturation, and knowledge of cancer screening will predict intention and receipt of breast and cervical cancer screenings

Methods: 70 Vietnamese female immigrants were recruited. Participants were asked to complete surveys that accessed demographic variables, frequency and intention of receiving mammogram and Pap tests, knowledge of female cancers, and acculturation among the participants on pen and paper.

Results: The predictors of receipt of mammogram were possession of a regular physician, sex of the physician, employment, marital status, and health insurance. $G^2 = 2.913$, $p = 1.00$. The entropy value was .350. The predictors of intent of getting a mammogram were acculturation, length of tenure, and knowledge of where to get a mammogram. The Omnibus test revealed $\chi^2 = 12.303$, $p < .05$; $R^2 = .532$. The predictors of receipt of Pap smear were possession of a regular physician, sex of the physician, employment, marital status, and health insurance. $G^2 = 8.50$, $p = 1.00$. The entropy value was .243. The predictors of intent of getting a Pap smear were knowledge of where to get a Pap smear and length of tenure. The Omnibus test revealed $\chi^2 = 31.438$, $p < .05$

Conclusions: Forty-five percent of the participants in the study had previously received a mammogram which was lower than national rates for different racial or ethnic groups(American Cancer Society, 2005). Fifty-eight percent of the participants in the study had previously received a Pap smear which was low compared to national rates for different racial and ethnic groups (American Cancer Society, 2005).

35	Ochsner Margolies	Skye	Graduate Student	Clinical Psychology	ochsnersm@vcu.edu

Poster Title: **EFFECT OF PTSD STATUS & COVERT HOSTILITY ON CARDIOVASCULAR RESPONSE TO RELIVED ANGER IN FEMALES WITH PAST TRAUMA EXPERIENCE**

Authors: Scott R. Vrana[1], Skye Ochsner Margolies[1], Michelle F. Dennis [2] , Jean C. Beckham[3]

Departments: [1]Psychology, Virginia Commonwealth University, [2] Durham VA Medical Center, [3] Duke University Medical Center and Durham VA Medical Center

Background: Cardiovascular response increases when people recall anger memories. People with Post-Traumatic Stress Disorder (PTSD) report greater anger and hostility than people without PTSD.

Objectives: This study explores the cardiovascular response to anger and hostility in trauma-exposed females with and without PTSD.

Methods: Participants:72 PTSD and 52 non-PTSD females who have experienced trauma (veterans and non-veterans). Procedure: After collecting 10 minutes of baseline heart rate and blood pressure data with an Ohmeda Finapres (pre-anger baseline), participants relived, through imagery, a self-identified anger memory. Because of the disparity in time of this task, the last 30 seconds were chosen for analysis (relived anger). Participants then watched a 90-second clip of ocean waves (anger recovery) after which they provided anger and anxiety ratings. Cardiovascular responses (systolic blood pressure, diastolic blood pressure and heart rate) were collected during the relived anger task and the recovery from relived anger.

Results: Compared to the non-PTSD control group, females with PTSD had greater resting heart baseline. No group differences were found in systolic blood pressure and diastolic blood pressure. During the relived anger task, participants diagnosed with PTSD reported feeling more anger and anxiety than those without PTSD, although no group differences in cardiovascular activity were obtained. In a result similar to that found in a previous study with male veterans (Beckham et al., 2002), a significant relationship was found between covert hostility and heart rate during recovery from relived anger for the PTSD group, but not the control group.(Covert hostility variable was determined with factor analysis of several anger & hostility questionnaires.)Specifically, within the PTSD group greater covert hostility was associated with greater HR during recovery from the relived anger task. Participants in the PTSD group reported greater levels of covert hostility and hostile beliefs compared to their non-PTSD counterparts.

Conclusions: Female participants with PTSD reported greater anxiety and anger during the relived anger task and were measured as having greater resting heart rate baseline. PTSD participants also presented greater trait covert hostility and this hostility is predictive of greater heart rate during recovery from relived anger. Finally, female PTSD participants, compared to female controls without PTSD, differ in their response to anger that is not directly trauma related.

36	Patterson	Jennifer	Ms.	Microbiology and Immunology	828-9699	pattersonjl2@vcu.edu

Poster Title: **CHARACTERIZATION OF GARDNERELLA VAGINALIS BIOFILMS AND THEIR ROLE IN BACTERIAL VAGINOSIS**

Authors: Jennifer L. Patterson1, Philippe Girerd2, Nicole Karjane2 and Kimberly K. Jefferson1

Departments: Departments of Microbiology and Immunology1, and Obstetrics and Gynecology2, Virginia Commonwealth University, Richmond, VA

Background: In the healthy vagina, Lactobacillus species such as L. crispatus predominate and prevent colonization by pathogenic anaerobes from the gastrointestinal tract. The most common vaginal disorder worldwide is bacterial vaginosis (BV) and it is characterized by a decrease in healthy lactobacilli species and a concomitant increase in a variety of anaerobic species, specifically Gardnerella vaginalis. It was recently demonstrated that G. vaginalis forms a biofilm on the vaginal epithelium, which likely confers a survival advantage to G. vaginalis and other biofilm associated anaerobes and may be an important component of the pathogenesis of BV.

Objectives: The purpose of the study was to characterize G. vaginalis biofilms.

Methods: We compared the amounts of total extracellular carbohydrate, nucleic acid, and protein in biofilms versus planktonic cultures to determine the composition of the extracellular matrix of G. vaginalis biofilms. In order to isolate adhesins involved in biofilm formation, we attempted to produce a biofilm negative strain by UV mutagenesis and constructed a plasmid library of G. vaginalis total genomic DNA.

Results: Biofilm extracts contained 4 times as much total carbohydrate as compared to planktonic bacteria. Blots probed with various lectins suggest that the compound N-acetylglucosamine is a component of the biofilm matrix. Despite the elevated carbohydrate composition within biofilms, sodium metaperiodate failed to disperse the bacteria, whereas proteases effectively disrupted the biofilms.

Conclusions: We concluded that, because biofilms are dispersed by proteases, the major biofilm adhesin is a protein. We hope to elucidate this protein with our G. vaginalis DNA library or by UV muatgenesis. This could lead to the identification of agents that are able to dissolve the biofilm matrix, allowing release of the bacterial cells into a planktonic state which could be more effectively targeted by current antibiotic therapy.

37	Price	Sarah	Assistant Professor	School of Social Work	828-0579	skprice@vcu.edu

Poster Title: **"SO I'M DEPRESSED...NOW WHAT?"**

Authors: Sarah Kye Price, PhD, MSW

Departments: School of Social Work

Background: This study presents findings from a community-based participatory research pilot to improve depression screening and treatment for rural women of reproductive age. Specifically, this study explores the psychosocial and demographic factors associated with multi-sector mental health service utilization. Keeping with the CBPR methodology, active consumer and provider participation occurred during all stages of the pilot project.

Objectives: The aims of this study are 1) to assess to what degree supportive social work services were utilized when offered 2) to assess demographic and psychosocial factors related to utilization of social work services, and 3) to explore factors associated with additional mental health service utilization across multiple sectors of care.

Methods: Community depression screening was conducted using the PRIME-MD. All referred participants (N=206) had elevated depressive symptoms and participated in baseline psychosocial assessment. Intervention participants (N=96) received supportive counseling and case management to overcome both tangible and intangible barriers to care in the specialty mental health, primary care and/or informal self-help sectors. Women who did not choose to participate (N=110) received psychoeducational materials and usual care. Statistical analysis of factors influencing service use was conducted using chi-square cross-tabulation and logistic regression in SPSS 12.5.

Results: Supportive social work services were utilized by 47% of women initially referred. There were statistically significant associations between receipt of social work services for those receiving TANF, Medicaid, having children, as well as for women of color. There were no significant differences between groups based on depressive symptom severity. The self-selected intervention group had significantly higher co-morbidities including smoking, substance abuse, domestic violence and other mental health issues and concerns. High overall rates of service utilization in the intervention group resulted in little demographic or symptomatic variance by sector of care.

Conclusions: In this pilot study, the social work intervention was successful in linking women to mental health services across multiple sectors of care. Once women engaged with the social worker, use of additional community mental health services was also high. Further research efforts are needed in order to further clarify the benefit of social work services as a gatekeeper for mental health services utilization.

38	Qiao	Liya	Assistant Professor	Physiology	828-8504	lqiao2@vcu.edu

Poster Title: **DIFFERENTIAL CHANGES IN THE PHOSPHORYLATION OF EXTRACELLULAR SIGNAL-REGULATED KINASES (ERK) IN MALE AND FEMALE MICTURITION REFLEX PATHWAY AFTER CHEMICALLY-INDUCED CYSTITIS IN RAT**

Authors: Liya Qiao

Departments: Physiology

Background: Interstitial cystitis, a chronic inflammatory bladder disease characterized by increased urinary frequency, urgency and pelvic pain, impacts the lifestyle of millions of Americans. Although it affects both men and women, 90% of cases are in women. Previous studies show that activation of ERK in rat spinal cord and peripheral organs is essential for pain perception and physiological function after inflammation.

Objectives: The aim of this study is to compare changes in the phosphorylation (reflecting activation) of two ERK isoforms ERK5 and ERK1/2 in the urinary bladder, dorsal root ganglia (DRG) and spinal cord from male and female rats before and after cystitis.

Methods: Cystitis was induced in rats by injection of cyclophosphamide (150mg/kg, i.p.). The urinary bladder, lumbosacral DRG and spinal cord (L1-L2 and L6-S1 segments) from control or treated rats were homogenized for western blot analysis of phospho-ERK5 or -ERK1/2. Rats were also killed by intracardiac perfusion with 4% paraformaldehyde, and L1-L2 and L6-S1 DRG were sectioned for immunohistochemistry with specific antibody against phospho-ERK5 or -ERK1/2.

Results: After cystitis, the activation of ERK1/2 and ERK5 showed differential changes in the urinary bladder, DRG and spinal cord from male and female rats. The level of phospho-ERK1/2 but not phospho-ERK5 was increased in the bladder; the level of phospho-ERK5 but not phospho-ERK1/2 was increased in DRG; and the level of phospho-ERK1/2 but not phospho-ERK5 was increased in lumbar spinal cord following cystitis compared to control. Cystitis-induced up-regulation of phospho-ERK1/2 and phospho-ERK5 was time-dependent and showed similar pattern in female and male rats with a more persistent changes in male rats. The level of phospho-ERK1/2 in bladder was increased at 2-8 hr after cystitis; the level of phospho-ERK5 in DRG was increased at 8-48 hr in female and up to 10 days in male rats after cystitis; and the level of phospho-ERK1/2 in lumbar spinal cord was increased at 48 hr after cystitis. Cystitis (48 hr) increased the number of neurons immunoreactive to phospho-ERK5 but not phospho-ERK1/2 in L1 (2.7-fold increase, $p<0.05$) and L6 (1.9-fold increase, $p<0.05$) but not S1 DRG compared to control.

Conclusions: The results that phospho-ERK5 was exclusively increased in DRG neurons while phospho-ERK1/2 was increased in the spinal cord and the urinary bladder after cystitis suggest a region-specific effects of neurotrophins on micturition and pain pathways following bladder inflammation.

39	Quillin	John	Assistant Professor	Human Genetics	628-1925	jquillin@mcvh-vcu.edu

Poster Title: **CANCER WORRY, PERCEIVED RISK AND HEREDITARY RISK IN DAUGHTERS OF MOTHERS WITH BREAST CANCER**

Authors: Quillin JM, Wilson DB, McClish DM, Bodurtha JB

Departments: Human Genetics, Internal Medicine, Biostatistics, Massey Cancer Center

Background: Having a family history of breast cancer can increase perceived risk and worry which may predict genetic counseling referral and uptake of genetic testing. Most daughters of women with breast cancer will not have hereditary risk, since only about 5% of breast cancers are strongly hereditary. Cancer control and decision-making will be optimal if perceived risk is tiered appropriately, yet many women may overestimate risk.

Objectives: These analyses explored the relationships between worry, perceived risk for breast cancer, genetic counseling/testing, and family history of breast cancer for women whose mothers had breast cancer.

Methods: Analyses involved a community-based phone survey of perceived risk and cancer prevention practices among women whose mothers had breast cancer. Hereditary risk was defined as “low” (no other family history of breast cancer), “high” (meeting USPSTF criteria for genetic testing referral), and “intermediate” (all others). The Lerman breast cancer worry scale measured worry. Three measures of perceived risk were examined - 1) how likely participants were to get breast cancer, 2) risk compared to other women, and 3)perceived risk on a scale from 1 to 100. ANOVA assessed the difference in mean worry and perceived risk (scale of 1 to 100) by familial risk. Chi-square analyses investigated differences in the other risk perception variables and uptake of genetic counseling/testing. P-values less than 0.05 were considered statistically significant.

Results: 150 women participated. Mean age was 38 years, and most (81%) described themselves as Caucasian. 89 (59%) had low hereditary risk, 37 (25%) had intermediate risk, and 24 (16%) were high risk. There were no significant differences in worry about breast cancer or perceived risk by hereditary risk category. Most (91%) high-risk women had not spoken with a genetic counselor and none had genetic testing. 5 (6%) women with no other family history beyond their mothers' cancers had met with a genetic counselor. There were no significant associations between hereditary risk category and talking with a genetic counselor or having genetic testing.

Conclusions: These findings suggest a substantial number of women are excessively worried and overestimate their risks. Furthermore, genetic counseling and genetic testing are not associated with variation in family history of breast cancer. There is a need for effectively stratifying and communicating risk in the community and providing tailored reassurance or referral for high-risk assessment.

40	Salloum	Fadi	Postdoctoral Associate	Internal Medicine	827-2340	fnsalloum@vcu.edu

Poster Title: **CHRONIC INHIBITION OF PDE-5 WITH SILDENAFIL (VIAGRA) ATTENUATES ISCHEMIC CARDIOMYOPATHY AND IMPROVES LEFT VENTRICULAR FUNCTION IN MICE**

Authors: Fadi N. Salloum, Antonio Abbate, Jon-Erik Houser, Colin A. Mudrick, Sion K. Roy, William R. Brown, Ian Z. Qureshi, Shashi Prabhakar and Rakesh C. Kukreja

Departments: Internal Medicine/Cardiology

Background: Recent studies have shown that erectile dysfunction drug sildenafil has potent cardioprotective effect against infarction, apoptosis and doxorubicin-induced cardiotoxicity in animal models.

Objectives: In the present study, we hypothesized that chronic treatment with sildenafil would attenuate myocardial infarction (MI)-induced cardiomyopathy and improve left-ventricular (LV) function.

Methods: MI was induced by permanent occlusion of coronary artery in ICR mice and treated with sildenafil (0.71 mg/kg; BID). Doppler Echocardiography was performed using the Vevo770TM imaging system (VisualSonics Inc., Toronto, Canada) just prior to surgery (baseline), on day 7 and 28 after surgery prior to sacrificing the animal.

Results: Infarct size was smaller in sildenafil treated group (40.0 ± 4.6%) as compared to saline treated controls (69.6 ± 4.1%) within 24 hr after LAD ligation. L-NAME, a non-selective NOS inhibitor, blocked the infarct-limiting effect of sildenafil (infarct size 60.2 ± 1.6% , $P<0.05$ vs saline) suggesting a role of NO in protection. Chronic treatment with sildenafil reduced apoptosis on 7 and 28 days post MI. The apoptotic index was 2.4 ± 0.3% in the saline group versus 1.2 ± 0.1% in the sildenafil-treated animals ($P<0.05$) on day 7 post MI and 2.0 ± 0.2% for saline versus 1.2 ± 0.1 for sildenafil ($P<0.05$) on day 28 post MI. Left ventricular end-diastolic diameter (LVEDD) increased from 3.6 ± 0.1 mm to 5.2 ± 0.2 mm and 5.5 ± 0.1 mm on 7 and 28 days post MI in the saline group. This dilatation after infarction was less pronounced in the sildenafil-treated animals which increased from a baseline value of 3.6 ± 0.1 mm to 4.4 ± 0.2 mm and 4.4 ± 0.1 mm day 7 and 28 post MI, respectively. Fractional shortening (FS) decreased from at baseline value of 47 ± 2% to 15 ± 3% and 18 ± 3% on day 7 and 28 post MI in the saline-treated group. However, the decrease in FS in the sildenafil-treated animals was subtle (from 46 ± 2% to 28 ± 3% and 30 ± 3% on day 7 and 28 post MI respectively). Mortality rate was higher in the saline group (64.1%) as compared to the sildenafil group (6.7%)

Conclusions: For the first time, these studies suggest that sildenafil attenuates ischemic cardiomyopathy in mice by limiting necrosis, apoptosis and enhancing LV function possibly through NO dependent pathway. We propose that sildenafil and class of PDE-5 inhibitors can be promising drugs for treatment of heart failure in patients with coronary artery disease.

41	Shickle	Lisa	Clinical Data Analyst	Massey Cancer Center	628-1927	lmshickle@vcu.edu

Poster Title: **BETWEEN THE HYPOTHESIS AND THE CONCLUSION: USING SECONDARY DATA TO EVALUATE BREAST CANCER PATIENTS' TREATMENT REGIMENTS AND COMPLETION RATES**

Authors: Lisa M. Shickle, MS, Cathy J. Bradley, PhD (Primary Investigator for funded research), Nicholas Farrell, MD

Departments: Massey Cancer Center

Background: Secondary data sources rich with clinical information exist; and yet they remain largely untapped research repositories. Secondary data are useful to researchers for initial exploration and hypothesis generation and datasets created specifically for analysis may produce robust results.

Objectives: To use Virginia Commonwealth University Health System (VCUHS) secondary data sources, including cancer registry, hospital and physician administrative claims data and other available previously-collected data to identify and quantify cancer-directed treatment for female breast cancer patients. Stratify the patient population by demographic and diagnosis characteristics to explore treatment patterns and variations among different groups, in particular between insured and uninsured women.

Methods: Women aged 21 to 64 who were diagnosed with breast cancer between 1999 and 2005 were identified from the VCUHS cancer registry and were merged with hospital and physician administrative billing claims using patient medical record numbers (MRN). The MRNs, along with breast cancer diagnosis dates from the registry, were used to extract all billing claims between 3 months prior to and 12 months following the breast cancer diagnosis date in order to capture full first course treatment data. The claims data were then analyzed for these patients to determine cancer-directed surgery, cancer treatment regimen, number of days from diagnosis to surgery and chemotherapy initiation, whether the chemotherapy regimen was completed and number of days to complete chemotherapy treatment. Logistic and ordinary least squares (OLS) regression models were used to evaluate for differences between insured and uninsured patients.

Results: Based on our cancer registry and claims data merge, we discovered that 90% of the patients who were included in the cancer registry received at least some portion of their treatment following diagnosis at VCUHS. To evaluate the effectiveness of using claims data to identify and evaluate treatment, an oncologist randomly selected and manually audited the medical records from 15% of the patients that received chemotherapy. The information (e.g., chemotherapy protocol, dates of services) in the medical record corresponded exactly to the billing records 91% of the time. With minor corrections to our coding of the billing data, we achieved a 100% match between the billing data and the medical record audits. Statistical analysis revealed significant differences with respect to treatment duration and completion between insured and uninsured women. A paper describing the study and its results is currently under review with *JAMA.*

Conclusions: The clinical information including diagnosis, treatments and outcomes—which can be found among secondary health data sources—contains valuable information regarding health care delivery and may be effectively used to evaluate for discrepancies in care among groups of patients.

42	Shivy	Victoria A.	Associate Professor	Psychology	828-0294	vshivy@vcu.edu

Poster Title: **HEALTH-RELATED NEEDS OF FEMALE EX-OFFENDERS REENTERING THE WORKFORCE**

Authors: Victoria A. Shivy, J. Juana Wu, Anya E. Moon, Jo G. Holland, and Christine Eacho

Departments: VCU Psychology and Virginia Department of Corrections

Background: Incarceration rates for U.S. residents have increased 700% between 1970 and 2005, and are forecasted to climb an additional 13% in the next 5 years (Public Safety Performance Project, 2007). Each year about 650,000 individuals across the U.S. face the personal and social challenges associated with the transition back to life and work outside of a correctional facility (Office of Justice Programs, 2006). The Bureau of Justice Statistics reports that between 1990 and 1998 national incarceration rates for women increased by 88%, and the number of women under parole supervision grew by 80% (BJS, 2001). Policy makers have identified several key challenges surrounding prisoner reentry, including ex-offender substance abuse, physical and mental health, employability and workforce participation, and housing (Travis et al., 2001). However, little is known about specific, health-related reentry concerns of female ex-offenders.

Objectives: We wished to examine the healthcare-related concerns and life circumstances of this economically and occupationally disadvantaged group, from their own perspective, and in their own words. All participants were receiving supervision and services from a Day Reporting Center (DRC) wherein probation and parole officers are responsible for enforcing mandatory curfews, performing random drug testing, and monitoring ex-offenders in their efforts to search for, obtain, and keep a job.

Methods: This study used qualitative research methods to examine experiences of non-violent felony offenders as they endeavor to return to the workforce. We analyzed data from two 90-minute focus groups: one for male (N = 6) and another for female (N = 9) non-violent felony ex-offenders who discussed their reentry-related experiences.

Results: Eleven themes were identified in our data. Many of these themes (e.g., Understanding the role of positive and negative social networks; Recognizing stress and challenges, finding motivators; Dealing with substance abuse issues; Addressing basic needs; Having children impacts reentry) have implications for healthcare policy and providers. Researchers and practitioners well may have underestimated the degree of stress that ex-offenders experience (Haney, 2006), especially female ex-offenders.

Conclusions: Our data suggest that research attention should be paid to the unique stressors and healthcare concerns of female offenders reentering society. Healthcare practitioners should sensitize themselves to the concerns of this large and growing population of individuals.

43	Shukla	Juhi	Physiology	828-0119	juhishukla@gmail.com

Poster Title: **THE NEUTROPHIL PRODUCTS, MYELOPEROXIDASE AND MATRIX METALLOPROTEINASE 8, ARE INCREASED IN SYSTEMIC VASCULATURE OF PREECLAMPTIC WOMEN**

Authors: Juhi Shukla, Sonya Washington, and Scott W. Walsh

Departments: Physiology and OB/GYN

Background: Neutrophils infiltrate systemic vascular tissue in women with preeclampsia. Neutrophils produce reactive oxygen species, inflammatory cytokines, and other compounds that can be toxic to tissue. For example, myeloperoxidase (MPO) could cause oxidative stress by producing hypochlorous acid, and matrix metalloproteinase 8 (MMP8) could cause a loss of cell integrity by degrading collagen.

Objectives: Our objective was to determine if systemic vascular tissue of preeclamptic women will have a significant presence of MPO and MMP8 as a result of neutrophil infiltration.

Methods: Subcutaneous fat, which is highly vascularized, was obtained at abdominal surgery from 5 normal non-pregnant (NNP), 5 normal pregnant (NP) and 5 preeclamptic (PE) women. Formalin fixed, paraffin embedded 8 μm sections of fat biopsies were stained using immunohistochemistry with specific antibodies for MPO and MMP8. Data were evaluated for intensity of vessel staining by visual score (0-4), density of staining using image analysis software, and % vessels with neutrophil staining, diffuse staining and vascular smooth muscle staining. Resistance-sized vessels (10-200 μm) were evaluated.

Results: Intensity of vessel staining assessed by visual score was significantly greater for PE than NP or NNP. Density measurements were highly correlated with visual score for both MPO and MMP8 ($r = 0.98$, $r = 0.99$). The % vessels with neutrophils stained for MPO and MMP8 was significantly greater ($P<0.001$) for PE than NP or NNP: MPO (88±5 vs. 66±4 vs. 24±18%); MMP8 (88±3 vs. 54±16 vs. 31±9%), as were % vessels with diffuse staining: MPO (79±5 vs. 44±13 vs. 13±12%); MMP8 (80±13 vs. 38±14 vs. 19±9%), and % vessels with vascular smooth muscle staining: MPO (49±7 vs. 18±14 vs. 3±6%); MMP8 (55±14 vs. 10±6 vs. 2±2%).

Conclusions: In women with PE, there is increased presence of MPO and MMP8 in systemic vasculature as a result of neutrophil infiltration. We speculate that MMP8 by causing cellular matrix breakdown could account for vascular inflammation, and MPO by inactivating nitric oxide could be responsible for vasoconstriction leading to hypertension in PE. HL069851

44	Smith	Katherine	Chief Resident	Psychiatry	827-3016	ksmith9@mcvh-vcu.edu

Poster Title: **PSYCHIATRIC ASPECTS OF BREAST CANCER IN WOMEN**

Authors: Katherine Smith

Departments: Psychiatry

Background: Breast cancer is the number one form of cancer in women, and the number two leading cause of cancer death among women in North America. A growing body of evidence suggests that there are many psychiatric implications of the diagnosis and treatment of breast cancer.

Objectives: This paper reviews the current literature on the psychiatric impact of breast cancer regarding mastectomy, oophorectomy, chemo and radiation therapy, selective estrogen receptor modulators, sexuality and body image and fertility, as well as current psychiatric treatment options

Methods: This report reviews studies on breast cancer in women, looking at overall quality of life, prevalence of psychiatric diagnoses throughout the course of breast cancer diagnosis and treatment, and the impact of oophorectomy and mastectomy on women with breast cancer. Studies are reviewed regarding the psychological implications of radiations therapy, and mood alterations from selective estrogen receptor modulators. Articles are also researched looking at the impact of sexuality and body image, the impact of breast cancer and chemotherapy on fertility, and current psychiatric treatment options.

Results: A review of the literature suggests a wide range of psychiatric implications for women with breast cancer. Evidence suggests the most common disorders among woman are mood and anxiety disorders. The psychological impact of mastectomy depends upon a woman's self image and sense of womanliness prior to her surgery. Evidence suggests that oophorectomies cause an abrupt drop in estrogen and can precipitate menopause, which can exacerbate an underlying psychiatric illness, or even resemble depression bipolar or anxiety disorders. Chemotherapy has been found to cause mild cognitive impairment in up to forty percent of patients, and lead. to memory loss, lack of attention or concentration. In terms of sexuality and body image, younger women tend to experience more difficulties, and they tend to be long-term. There is also a lower pregnancy rate for women with breast cancer, and fertility after chemotherapy depends on a woman's age and ovarian suppression. There are a variety of treatment approaches to women with breast cancer, and include individual as well as group psychotherapy. Self-help as well as web-based support groups have become popular. The evidence shows the pharmacological management of night sweats and hot flashes with SSRI's is the treatment of choice. There is data lacking for the treatment of mood and anxiety disorders in women with breast cancer.

Conclusions: The psychiatric aspects of breast cancer are multi-faceted and prevalent during all stages of diagnosis and treatment. It is important for clinicians to be aware of the psychiatric comorbidities which accompany breast cancer and screen all women with breast cancer for mood and anxiety disorders.

45	Stansbury Clipp	Eryn	Medical Student (M2)	School of Medicine	303-910-4024	stansburyek@vcu.edu

Poster Title: **INFUSING PASSION AND PRENATAL CARE INTO THE 2ND YEAR MEDICAL STUDENT CURRICULUM**

Authors: John G. Pierce, Jr., MD, Catherine S. Schuller, M2, Eryn K. Stansbury Clipp, M2

Departments: Obstetrics and Gynecology, Women's Health

Objectives: To encourage second year medical students' interest and involvement in obstetrics through a model of prenatal care, Centering Pregnancy®.

Methods: The Centering Pregnancy® model brings women into small groups for prenatal care after the initial intake is completed. The goals of the program are to incorporate patient assessment, education and group support into prenatal care. Using the Centering Pregnancy Program®, two groups of expectant mothers, one of 8 patients and the other of 6 patients, were followed throughout their pregnancies by two second-year medical students. The groups were organized and facilitated by a midwife and/or an attending physician. The students kept a journal of their experience during the prenatal care sessions (approximately 10), the deliveries, and the postpartum visits.

Results: During the group sessions, students were exposed to and participated in the care of multiple pregnant patients from various backgrounds. Students learned about prenatal care via direct patient contact with history taking, obstetric exams ("belly checks"), laboratory assessment, patient counseling, and education. Educational topics that were covered included breast feeding, nutrition, newborn care, birth control methods, and anatomy. The women in the groups shared their fears, joys, concerns, and struggles in pregnancy as the medical students sat amongst them and participated in the discussions. The students were present at every session where they observed the group dynamics and witnessed the doctor-patient relationship in prenatal care. The time commitment for the students was approximately 40 hours spread over a 10-month period of time.

Conclusions: Centering Pregnancy ® is a prenatal care approach that utilizes everyone's knowledge, recognizes and addresses concerns, creates a support group for pregnant women, and offers second-year medical students an invaluable experience in obstetric care prior to third-year clerkships. The medical students participating in this unique setting learned not only from the other healthcare providers, but more importantly from the diverse women in the group. The students empathized with the concerns of expectant mothers, learned skills to respond to emotions and fears, and gained a new understanding of the important aspects in patient care. This experience peaked the students' interests and further motivated them in medical school. Centering Pregnancy® can be a helpful tool to foster interest in the field of obstetrics and gynecology.

46	Trace	Sara	M.S.	Psychology	615-554-2927	tracese@vcu.edu

Poster Title: **THE RELATIONSHIP BETWEEN EATING DISORDERED BEHAVIOR AND SMOKING IN BLACK AND WHITE COLLEGE WOMEN**

Authors: Sara E. Trace [1, 2], Karen S. Mitchell [1, 2], Rachel Walker Gow [1], & Suzanne E. Mazzeo [1, 3]

Departments: [1] Department of Psychology, [2] Virginia Institute for Psychiatric and Behavioral Genetics, [3] Department of Pediatrics

Background: A variety of detrimental health behaviors, including disordered eating and smoking, are significant problems for Black and White college women. In addition, these two negative health behaviors have been found to frequently co-occur. Specific hypotheses have been proposed to explain the mechanisms of the relationship between smoking and problematic eating behavior. In the current study, two models, one for full and one for partial mediation were tested using Structural Equation Modeling (SEM). The full model tested whether the relationship between general distress and smoking were fully mediated by body dissatisfaction, restraint and binge eating. The model for partial mediation hypothesized that the relationship between general distress and smoking was partially mediated by body dissatisfaction, restraint, and binge eating. Lastly, it has been suggested that smoking may be a result of a different model of co-morbidity for Blacks than for Whites. Thus, the invariance of these two models was tested.

Objectives: The purpose of this study was to examine the relationship between eating disordered behavior and smoking in Black and White college women using a multivariate model.

Methods: Participants were 624 female undergraduates recruited at a large southeastern university. On average it took students 30 minutes to complete a varity of measures assessing general distress, binge eating, body dissatisfaction, restraint, and smoking.

Results: This study found that the relationship between general distress and smoking is fully mediated by body dissatisfaction, restraint, and binge eating in undergraduate women. Although these findings need to be replicated in a longitudinal study, they suggest that anti-smoking and/or smoking cessation interventions should target women with high binge eating and body dissatisfaction. This study also found that there were no significant differences in the relationships among the variables across these Black and White women.These findings may have implications for eating disorder treatment and prevention across these two ethnic groups. In particular, smoking cessation programs targeted at women might be enhanced by including additional components on body dissatisfaction and disordered eating.

Conclusions: Future research should aim to address the limitations of this study by using longitudinal designs, collecting data from clinical as well as community samples, and examining these relationships in men and more ethnically diverse samples.

47	Tracy	Kelly	Postdoctoral Fellow	Human Genetics	628-4771	tracyka@vcu.edu

Poster Title: **THE IMPACT OF FAMILY HISTORY OF BREAST CANCER AND CANCER DEATH ON WOMEN'S BREAST HEALTH PRACTICES AND BELIEFS**

Authors: K Tracy, J Bodurtha, J Quillin, J Borzelleca, R Jones, D McClish, T Orr, D Wilson

Departments: Department of Human Genetics, Department of Biostatistics, Department of Epidemiology & Community Health, Department of Obstetrics and Gynecology, Department of Internal Medicine,

Background: The integration of family history information in health care remains a theoretical and practical challenge. A positive family history may reflect genetic susceptibility and potentially both a perceived and actual strong risk factor for the disease. It might motivate a woman to adhere to recommended health screening practices. Alternatively, it might contribute to worry and reduce a woman's compliance with screening recommendations. Multiple studies have shown somewhat inconsistent results in the capacity of perceived risk to adjust belief in actual risk as a stimulus to appropriate health screening behavior. While there has been evidence that a family history of breast cancer increases perceived risk and worry about cancer, death in a family member due to cancer may further influence these factors.

Objectives: This report summarizes the impact of having a family history of breast cancer and cancer death on self-reported breast cancer screening practices and beliefs.

Methods: Self-report survey data concerning breast health practices and beliefs were collected from a cross-sectional analysis of a half-minority sample of 899 non-pregnant women 40 years of age and older without breast cancer.

Results: Women who had a first-degree relative die with breast cancer had their last mammogram more recently than women with a family history but no breast cancer death and women who had a second-, or third-degree relative die. Women with a family history but no death endorsed higher levels of belief in a cure for breast cancer and belief that the breast can be saved with early detection.

Conclusions: Self-reported family history of breast cancer had an impact on mammography adherence, communication with family about breast cancer, and beliefs about outcomes with early detection. Death of a family member with breast cancer may be a more accurate predictor of beliefs about breast cancer detection and cure then just family history alone. This finding may have implications for how screening and risk information is communicated to patients with different family history experiences.

48	Vaidya	Soniya	Graduate Student	Department of Pharmaceutics	828-6215	vaidyass@vcu.edu

Poster Title: **HUMAN PLACENTAL EXPRESSION OF ATP-BINDING CASSETTE TRANSPORTERS: INFLUENCE OF PREECLAMPSIA AND OXIDATIVE STRESS**

Authors: Soniya S. Vaidya, Deaette M. Smith, Scott W. Walsh and Phillip M. Gerk

Departments: Departments of Pharmaceutics and Obstetrics and Gynecology

Background: Diseases of pregnancy such as preeclampsia and gestational diabetes are associated with oxidative stress. Oxidative stress may alter the expression of ATP-binding cassette (ABC) transporters such as isoforms B1 (ABCB1 or p-glycoprotein), C2 (ABCC2) and G2 (ABCG2) as well as nuclear receptors such as pregnane X receptor (PXR), which control the expression of ABC transporters. These changes in protein expression may alter the disposition of endogenous substances and xenobiotics in pregnancy.

Objectives: Assess the expression of ABC transporters ABCB1, ABCC2, ABCG2 and nuclear receptor PXR in human placental tissue obtained from patients with normal pregnancy or preeclampsia.

Methods: Placental tissue from patients with normal pregnancy (n=4) or preeclampsia (n=4) was obtained upon delivery at the MCV hospital. Tissue samples were minced, agitated and fractionated by centrifugation to yield crude membrane extracts. Nuclear extracts were obtained using a commercially available nuclear extract kit (Active Motif). Western blotting was performed by electrophoresis of membrane or nuclear extracts (15-20µg/well). Membrane protein (0.5-5µg total protein) from Sf9 insect cells over-expressing ABCB1, ABCC2 or ABCG2 was used as a positive control for the respective transporters and â-actin or actin were used as housekeeping controls. The bound complex including a fluorescent-labelled secondary antibody was detected using the Odyssey Infrared Imaging System (Li-Cor). Individual band intensities were quantified using Odyssey Application Software v 1.2 and normalized to the corresponding actin or â-actin band intensities.

Results: Expression of ABCB1 and ABCG2 appeared higher while that of PXR appeared lower in preeclamptic vs normal human placental tissue; although these differences were not statistically significant. Expression of ABCC2 was variable and no difference was detected between the two groups.

Conclusions: Placental expression of ABC transporters ABCB1, ABCC2, ABCG2 and nuclear receptor PXR may be altered under conditions of oxidative stress. The regulation of expression of these proteins is complex, and differences are likely obscured by interpatient variability. Future studies would require more patients or alternate methods.

49	Walker	Rachel	Predoctoral Student	Psychology	827-9211	rwalker5@vcu.edu

Poster Title: **CHANGES IN BMI AMONG FIRST SEMESTER COLLEGE STUDENTS**

Authors: Rachel Walker Gow, Sara E. Trace, Suzanne E. Mazzeo

Departments: Psychology

Background: Nearly two-thirds (65.1%) of U.S. adults over age 20 are overweight or obese. Obesity has increased most rapidly among individuals ages 18 to 29. The transition to college has been identified as a critical period for weight gain; however, only a limited number of studies have examined this phenomenon.

Objectives: To quantify changes in BMI in first year students during their first semester of college and to examine factors associated with weight gain, including eating behaviors, physical activity, and body shape ideals.

Methods: Participants were recruited from introductory psychology courses. Time 1 of the study yielded 212 participants and 156 (73.6%) returned for Time 2 (12 weeks later). There were 35 males and 121 females who completed the study. Participants completed questionnaire packets and height and weight were measured at Time 1 and 2.

Results: Significant changes in weight were detected between Time 1 and 2 with a mean weight gain of 1.24 kg. The percentage of participants categorized as overweight increased from 23.1% to 31.4%. Regression models did not reveal significant predictors of weight gain. Significant decreases in disinhibition, binge eating, and number of days of physical activity over the semester were detected. Body image dissatisfaction increased with weight gain.

Conclusions: First year students gain a significant amount of weight in the first semester of college and experience greater body dissatisfaction with increased weight. This underscores the need for more studies on factors related to weight gain and prevention efforts in the college population.

50	Walker	Teneille	Graduate Student	Pharmacology and Toxicology	628-2002	s2tdwalk@vcu.edu

Poster Title: **ELUCIDATION OF SIGNALING PATHWAYS ASSOCIATED WITH STRESS-INDUCED SENESCENCE BY ADRIAMYCIN IN BREAST TUMOR CELLS**

Authors: Teneille Walker, Xu Di, Lynne W. Elmore, Alan Eastman, Robert Shiu and David A. Gewirtz

Departments: VCU Department of Pharmacology and Toxicology, VCU Department of Pathology, Dartmouth College Department of Pharmacology, University of Manitoba Department of Physiology, VCU Department of Pharmacology and Toxicology

Background: Recurrence of breast cancer (as well as other malignancies) may be related to a subset of the tumor cell population that undergoes a senescent-like growth arrested state after chemotherapy or radiotherapy, later to recover proliferative capacity and regenerate the tumor.

Objectives: Our current studies are designed to investigate the signaling pathways associated with senescence induced in breast tumor cells by the antitumor drug, Adriamycin (AdR).

Methods: MCF-7 (p53 wild type) and MDA-MB231 (p53 mutant) breast tumor cells and HCT116 colon cancer cells (either p53 wild type or with knockdown of p53 or p21) were exposed to a clinically relevant dose of Adriamycin (0.75-1μM exposure for 2 hours). Senescence was monitored based on beta-galactosidase staining and cell morphology. Cdc2 levels were monitored by western blot analysis over the course of 2-14 days.

Results: Senescence was evident in p53 wild type MCF-7 cells as well as in MDA-MB231 breast tumor cells lacking functional p53 that evaded apoptosis and in p53 -/- HCT-116 colon carcinoma cells, suggesting that the senescence response is not exclusively dependent on p53. In contrast, Adriamycin fails to induce senescence in p21-/- HCT116 cells. cdc2: cdc2 was down regulated in MCF-7 and HCT-116 wild type cells but not in MDA-MB231 cells.

Conclusions: Adriamycin-induced senescence is not dependent on wild-type p53 function since a subpopulation of MDA-MB231 and p53-/- HCT-116 cells senesce. However, p53 may play a role in the down-regulation of cdc2 and/or in facilitating senescence. Down regulation of cdc2 may be involved in Adr-induced senescence, but this work also suggests the existence of alternative signaling pathways. Induction of p21 may prove to be important for senescence in both in p53 wild type and p53 mutant cells. Neither reactive oxygen species nor suppression of c-myc appears to regulate AdR-induced senescence.The roles of ATM, CHK1, and CHK2 in AdR-induced senescence are under investigation using both pharmacologic and genetic approaches in breast tumor and colon carcinoma cells. Efforts are also underway to develop cell lines with knock-down or overexpression of cdc2 as well as abrogated p21 function. Our long term goals are to identify signaling pathways that could be selectively targeted to prevent tumor escape from chemotherapy induced senescence.

51	Wang	Xiaoyin	Postdoctoral Research Associate	Internal Medicine	828-9508	xwang3@vcu.edu

Poster Title: **ESSENTIAL ROLE OF MITOCHONDRIAL CA2+-ACTIVATED K+ CHANNELS IN TRIGGERING AND MEDIATING SILDENAFIL-INDUCED DELAYED CARDIOPROTECTION**

Authors: Xiaoyin Wang, Patrick W. Fisher, Lei Xi, Yuko Takenoshita, Rakesh C. Kukreja

Departments: Internal Medicine

Background: Sildenafil (SIL), a phosphodiesterase type-5 (PDE-5) inhibitor used in the treatment of male erectile dysfunction and now pulmonary hypertension is known to induce cardioprotection via mitochondrial ATP-sensitive K+ (mitoKATP) channels in cardiomyocytes. Recently, mitochondrial Ca2+-activated K+ (mitoKCa) channels have also been demonstrated to mediate cardioprotection. However, the role of mitoKCa and relationship between mitoKCa and mitoKATP channels in SIL-induced cardioprotection remains elusive.

Objectives: Because SIL induces vasorelaxation in vascular smooth muscle via protein kinase G (PKG)-dependent activation of KCa channels, the present study investigated the mechanism of SIL-induced delayed cardioprotection and the relationship, if any, that may exist between the mitoKCa and mitoKATP channels in mediating SIL's action on mitochondrial bioenergetics in the murine heart.

Methods: Adult ICR mice were pretreated with SIL (0.71mg/kg,i.p.) 24h prior to 20 min of global ischemia followed by 30 min of reperfusion in Langendorff mode. Paxilline (PX,50μg/kg for i.p.; 1μM for intracoronary infusion), a blocker of KCa channels, or 5-hydroxydecanoic acid (5-HD,1.2mg/kg for i.p.; 100iM for intracoronary infusion), a mitoKATP channel blocker, was administered either 30 min before SIL injection or via intracoronary infusion for 10 min prior to ischemia.

Results: SIL-pretreated in mice resulted in significant cardioprotection 24 h later, i.e., infarct size was reduced. The infarct-limiting protection by SIL was completely abolished by administration of either PX or 5-HD. We further examined the effect of in vivo gene knockdown of â1-subunit of KCa (KCa-â1) channels using small interfering RNAs (siRNAs). Mice were treated with siRNAs (4mg/kg,i.p.) 48h before SIL injection. The SIL-induced protection was completely abolished by siRNA targeting KCa-â1. Furthermore, Western blot and confocal microscopy confirmed the efficacy of in vivo KCa-â1 gene knockdown using siRNAs at mitochondrial membrane protein levels. Both Western blot and confocal microscopy confirmed the localization and expression of KCa-â1 on mitochondrial membrane of mouse cardiomyocytes.

Conclusions: MitoKCa channel plays a critical role in triggering and mediating SIL-induced delayed cardioprotection. Our results illustrate a novel protective mechanism by which SIL operates via an integrative contribution of both mitoKCa and mitoKATP channels in maintaining mitochondrial homeostasis in the presence of ischemic insult.

52	Yin	Chang	Dr	Cardiology / Internal Medicine	273-0407	cyin_cyin@hotmail.com

Poster Title: **ENDOGENOUS MICRORNAS REDUCE MYOCARDIAL INFARCT SIZE FOLLOWING ISCHEMIA/REPERFUSION INJURY**

Authors: Chang Yin, Xiaoyin Wang and Rakesh Kukreja

Departments: Internal Medicine

Background: Preventive and therapeutic strategies against cardiac infarction are important to woman's health. Here, we report a novel approach to reducing ischemic injuries in mouse heart model.

Objectives: microRNAs (miRNAs) have emerged as important gene regulators. The present study tested the hypothesis that endogenous miRNAs protect hearts against ischemia / reperfusion (I/R) injury

Methods: ICR mice were heat-shocked (HS) at 42oC for 15 minutes. miRNAs were isolated from HS-mice using chemical and solid phase extraction techniques. The extracted miRNAs were injected into non-HS mice. Twenty-four hours later, hearts were isolated and subjected to 30 min of global ischemia and 30 min of reperfusion in Langendorff mode. Infarct size (IS) was determined by tetrazolium staining.

Results: Heat shock increased miRNA-1 (78%), miRNA-21 (103%) and miRNA-24 (61%) as compared to non-HS controls ($p<0.05$, $n=3$). Injection of the miRNAs into non-HS mice reduced infarct size as compared to non-miRNA treated group (Figure). Chemically synthesized miRNA-21 also reduced infarct size, which was abolished with methylated antisense miRNA-21. miRNA treated mice showed 113% increase in anti-apoptotic gene, BAG3 and 58% repression in pro-apoptotic gene, Fas ($p<0.05$, $n=3$).

Conclusions: miRNAs induced in vivo by heat shock protect the hearts against I/R injury. The protection can be blocked by miRNA's specific inhibitor. Endogenously induced miRNA offers a potential therapeutic strategy for preventing and treating heart attack.

53	Yin	Chang	Dr	Cardiology / Internal Medicine	273-0407	cyin_cyin@hotmail.com

Poster Title: **SILENCING HSF-1 DISRUPTS TRANSCRIPTION NETWORK BALANCE AND PROMOTES CARDIAC APOPTOSIS IN MOUSE HEART**

Authors: Chang Yin and Rakesh C. Kukreja

Departments: Cardiology / Internal Medicine

Background: Heat shock response (HSR) is a well known protective strategy against cardiac ischemia. HSR is mediated by heat shock factor 1 (HSF1).

Objectives: Heat shock response (HSR) is a well known protective strategy against ischemia. HSR is mediated by heat shock factor 1 (HSF1). We hypothesized that targeted knockdown of HSF-1 would disrupt transcription network equilibrium and promote cardiac apoptosis.

Methods: ICR mice were injected with either amine (vehicle) or siHSF1 (small interfering RNA specific to HSF1, 1.5 ìg/gm body weight, ip). 72-hours later, mice were subjected to heat shock (HS) at 42oC for 15 minutes. Nuclear proteins and RNA were extracted and large scale protein and mRNA measurements of transcription factors (TF) and TF-DNA binding were made using protein-DNA microarrays and DNA chips. Protein and mRNA of certain key TF and other apoptosis mediators were measured by Western blots, RT-PCR and DNA chips. To confirm Gfi-1's cardiac existence, six hearts were perfused on Langendorff system for 10 minutes to completely eliminate blood contamination.

Results: Following HS, siHSF1-group showed reduced expression of HSF1 (mRNA, -72.4%; protein, -78.3%), mRNAs of HSP70 (-73.8%), HSP40 (-63.1%), HSP105 (-62.0%), HSC70 (-50.7%), HSP86 (-45.1%), HSP25 (-39.4) and HSP84 (-16.0%), compared with controls ($P<0.05$, $n=3$). HSP70 was reduced 81.3%. HSP down regulation was associated with changes in 46 TF including Gfi-1 (-50.2%), GATA4 (-61.3%), GATA6 (-78.6%), MEF-3 (-46.4%), AP3 (-47.8%), AP4 (-56.3%), Elk1 (-68.4%), E4F/ATF (-73.4%), Pax3 (-38.7%), Pax4 -resp element (-83.1%).□(-66.8%), ZIC (-40.3%), HBS/xbp1 (-74.3%) and Furthermore, HSF-1 knockdown increased protein and mRNA of proapoptotic mediators, Bax (+68.7% & +58.4%) and Bak (+54.7% & +43.8%) but not Bcl-2 (-4.2% & +2.3%), leading to an increase in Bax:Bcl-2 ratio (+38.6%). Gfi-1 is a transcriptional repressor and can repress Bax and Bak expression through direct binding to their promoters. GATA-4 and Gfi-1 are both zinc finger TF and they can cooperate on regulating apoptosis. Gfi-1 represses pro-apoptotic genes while GATA-4 up regulates anti-apoptotic genes, such as Bcl-x. The loss of HSP decreased both Gfi-1 and GATA-4, thus leading to apoptosis.

Conclusions: Silencing HSF1 by RNAi blocks HSP expression, shifts TF equilibrium towards cardiac apoptosis. Additionally, the Gfi-1 exists in mouse hearts, which may play a role in maintaining anti-apoptotic equilibrium.