

Donald Miller, Pharm.D. **Professor and Chair, Pharmacy Practice Dept.** Sudro 118A 231-7941 Donald.Miller@ndsu.edu

Research Interests

- Pedagogy and critical thinking
- Rheumatology drugs
- Public health
- Health literacy



Table 4: Learner characteristics assoc	iated with a change in score	
Characteristic	Change in score, points (95% CI)	p value
Baseline score*	-0.66 (-0.74 to -0.58)	< 0.001
Sequence of Berlin Questionnaire†		
Set A first	-0.43 (-0.85 to -0.02)	0.04
Set B first	Reference	
Occupation†		0.001
Direct patient care provider	Reference	
Academic (epidemiology, public health)	-0.34 (-1.21 to 0.53)	
Administrator	-2.88 (-4.4 to -1.39)	
Medical publishing or pharmaceutical		
industry personnel	1.04 (-0.07 to 2.14)	
Student or not reported	-0.28 (-0.89 to 0.33)	
Previous experience as a tutor†		0.008
Yes	2.2 (0.58 to 3.84)	
No	Reference	
Self-rated knowledge†		0.020
None	0.08 (-0.57 to 0.73)	
Little	Reference	
Average	0.56 (0.04 to 1.09)	
Advanced	1.09 (-0.04 to 2.14)	
Not reported	-1.61 (-3.14 to -0.08)	
CI = confidence interval.		

† Change in score compared with the reference category.

Note: Regression analysis was conducted on change in knowledge score. A positive value indicates an increase in knowledge compared with the reference category and a negative value indicates a decrease in knowledge compared with the reference category. For example, assuming that all other parameters stayed the same, learners with previous experience as a tutor improved their knowledge by 2.2 more points than learners who did not have this experience.

Kunz R, et al. Determinants of knowledge gain in evidence-based medicine short courses: an international assessment. Open Medicine 2010 http://www.openmedicine.ca/article/view/299/291

Working with department faculty and McNair student scholar on evaluating brief assessments of health literacy in the pharmacy.



Wendy Brown Pharm.D, PA-C, AE-C

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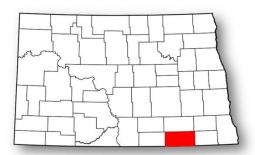
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Research Expertise

- Medication Therapy Management,
 Disease Management/Prevention
- Telehealth/Telepharmacy
- Asthma











Funding Sources:

- Dean's Grant
- North Dakota Pharmacy Services Corporation

Collaborations/Partners:

North Dakota Pharmacist Association About The Patient Association of Asthma Educators



Amy Drummond, Pharm.D. Pharmacy Practice College Of Pharmacy, Nursing, and Allied Sciences Sudro 118Q 701.231.6547 Amy.Drummond@ndsu.edu PharmD, B.S. P.Sci., Chemistry Minor

Research Expertise

- Pediatric and neonatal pharmacy
- Immunizations

Research Projects

Perceptions of Pharmacist-Administered Immunizations to Pediatric Patients

Collaboration

- Sanford Children's Hospital
- Red River Valley Immunization Coalition
- North Dakota Immunization Advisory Board



Mark Dewey, Pharm. D., CGP, FASCP

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Research Expertise

- Geriatrics
- Long Term Care
- Medication Therapy Management
- Assisted Living
- Interdisciplinary Teams
- Transitions in Care



Table 1. Recommendations Made by the Pharmacist				
	Recommendations, n (% of			
Intervention	total)			
Indication and appropriateness for all medications	2(1.6)			
Appropriateness of doses	30(24)			
Drug-drug interactions	2(1.6)			
Drug contraindications or drug allergies	2(1.6)			
Appropriateness of length of therapy	4(3.2)			
Missing drug therapy	31(24.8)			
Therapeutic duplications	3(2.4)			
Appropriateness of laboratory monitoring	15(12)			
Adverse drug reactions or compliance issues	20(16)			
Cost issues	15(12)			
Miscellaneous	1(0.8)			
Maack B, Miller DR, Dewey M. Economic Impact of a Pharmacy Resident in an Assisted Living Facility–Based Medication Therapy Management Program. Ann Pharmacother. 2008 Nov;42(11):1613-20.				

Collaborations and Funding Sources

- -Lake Region Healthcare Fergus Falls, MN
- -Consultant Pharmacist Inc.
- -Land of the Dancing Sky Area Agency on Aging
- -Minnesota Department of Health
- -University of Minnesota







Heidi Eukel, PharmD
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Research Expertise

Innovations in teaching and learning

✓ Contemporary pharmacy practice, medication therapy management, simulation, self-care medications, patient consultation

Current research in progress:

- ✓ Comparison of student and pharmacist identification of potential drug therapy problems prior to medication therapy management encounters
- ✓ Essential pharmacy skills for doctor of pharmacy graduates (national collaboration)
- √ Simulation in the pharmacy classroom
- ✓ The use of a faculty-developed acronym to train professional pharmacy students to identify potential drug therapy problems





Alicia Fitz, PharmD, RPh Assistant Professor Pharmacy Practice Pharmacist-in-charge, Student Wellness Center Pharmacy 701-231-6355 Alicia.Fitz@ndsu.edu

RESEARCH:

- °Health Literacy
- Teaching Innovation
- Ambulatory Care





Funding Sources:

•College-level grants, foundation money

Collaborative Partners:

∘Family Healthcare Center, Brody Maack, Don Miller, Jane Loueng (McNair Scholar)





Rebecca Focken, PharmD, CGP Director, Introductory Pharmacy Practice Experiences; Assistant Professor

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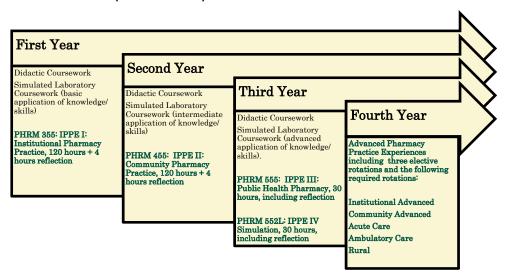
Education/Training: ASHP Accredited PGY1 Pharmacy Practice Residency, U of MN 2005; Doctor of Pharmacy (PharmD), NDSU 2004; B.S. Pharmaceutical Sciences NDSU 2002; B.S. Biology BSU 2000.

<u>Licensure/Certifications:</u> Registered Pharmacist in MN and ND, Board Certified Geriatric Pharmacist (CGP)

Research Expertise

 Experiential Education, Workplace Learning, Pharmacy Student Education, Patient Education, Pharmaceutical Care, Ambulatory Care Pharmacy Practice.

NDSU NORTH DAKOTA STATE UNIVERSITY As outlined in the image below, in the four year professional pharmacy program curriculum, experiential education (identified in green text) in the form of introductory and advanced experiences occurs throughout the curriculum. My research interests include how pharmacy students learn in the classroom, how learning translates from the classroom to the practice (work) environment, how students learn best in practice (work) environments, and the impact student pharmacists can have in driving practice initiatives related to the provision of pharmaceutical care services.



Funding Sources/ Grants Received:

- 2013 Million Hearts/NACDS Foundation "Heart to Heart Community Health Fairs" Grant
- 2008 NDSU Development Foundation Grant



Jeanne Frenzel, PharmD, RPh

Associate Professor Department of Pharmacy Practice College of Pharmacy, Nursing, and Allied Sciences Sudro Hall118F / 701-231-8546 Jeanne.Frenzel@ndsu.edu Bachelor of Science Microbiology, NDSU 2000 Bachelor of Science Pharmaceutical Sciences, NDSU 2001 Doctor of Pharmacy, NDSU 2003 Doctor of Philosophy Adult Education, NDSU - ABD

Research Expertise

- Assessment of pharmacy student learning
- Assessment of learning activities for pharmacy Heidi Eukel, PharmD students
- Validation of grading rubrics





Thrifty White **Concept Pharmacy**



Funding Sources

- North Dakota State University Development Foundation Instructional **Development Grants**
- Pharmacy Practice research seed grants
- Medication donations for instructional use In kind

Collaborations

NDSU Colleagues

- Elizabeth Skoy, PharmD
- Alicia Fitz, PharmD

United States Colleagues

- Shana Castillo, PharmD, MBA, Creighton University
- Krista Donohoe, PharmD, Virginia Commonwealth University
- Mandy Jones, PharmD, PA-C, University of Kentucky
- Jennifer Kirwin, PharmD, Northeastern University
- Ashlee McMillan, PharmD, West Virginia University
- Michael W Neville, PharmD, University of Georgia
- Jeffrey Tingen, PharmD, MBA, University of Michigan
- Elizabeth M Urteaga, PharmD, University of the Incarnate Word



Dan Friesner, Ph.D.

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Research Expertise

- Health Economics
- Applied Management Science/Operations Research in Health Care
- Applied Econometrics
- Community Economic Development



Representative Publications:

- "Medication Error Reporting in Rural Critical Access Hospitals in the North Dakota Telepharmacy Project," *American Journal of Health-System Pharmacy*, 2013, forthcoming (with David Scott, Ann Rathke and Shelley Doherty-Johnsen).
- "Inferring the Incidence of Industry Inefficiency from DEA Estimates," *European Journal of Operational Research*, 2013, Vol. 224, No. 2, pp. 414-424 (with Robert Rosenman and Ron Mittelhammer).
- "Characteristics of Information Content in Business Sentiment Surveys," *American Journal of Business*, 2013, Vol. 28, No. 1, pp. 19-37 (with Tim Schibik and Mohammed Khayum).
- "Differentiation of Prostate Cancer Cells using Flexible Fluorescent Polymers," *Analytical Chemistry*, 2012, Vol. 84, No. 1, pp. 17-20 (with Michael Scott, Rinku Dutta, Manas Haldar and Sanku Mallik).
- "Measuring Shared Efficiency between Hospital Cost Centers," *Medical Care Research and* Review, 2011, Vol. 68, No. 1, Supplement, pp. 55-74 (with Sean Murphy, Robert Rosenman and Matthew McPherson).
- "Patients' Perceptions and Treatment Effectiveness," *Applied Economics*, 2011, Vol. 43, No. 24, pp. 3275-3288 (with Sean Murphy, Robert Rosenman and Jon Yoder).

Current Funding:

"Patient-Centered Care: The Impact of the Community Pharmacist-Provided Medication Management Services on Patient Health Outcomes in Medical Homes or Accountable Care Organizations – The North Dakota MediQHome Project" National Association of Chain Drug Stores Foundation. 2012 (with David Scott, Thomas Christensen, David Lessard, Patty Kumbera and Justin Heiser), Amount: \$606,034 (over 2 years). Role: Co-PI.

Other Partnerships:

I am currently collaborating with the Intracranial Hypertension Research Foundation on an unfunded project to measure the economic costs associated with idiopathic intracranial hypertension.



Andrea Huseth-Zosel:

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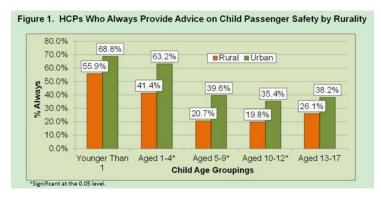
MS - Sociology (2000)

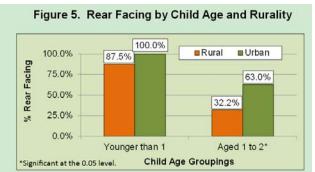
PhD Candidate in Gerontology (anticipated 2015)

Research Expertise

- Injury prevention
- Anticipatory guidance provision in a health care setting
- Child passenger safety
- Older drivers
- Would like to expand into gender, aging issues, education and public health







<u>Table 3.</u> Acknowledgement of Medication Use to Alleviate Menopause Symptoms by Postmenopausal Women

Variables	%	Odds Ratio (95% CI)
Overall (n=267)	12.4	
Employment Status*		
Not Working ^a (n=213)	9.9	1.00
Working (n=75)	21.3	2.48 (1.22-5.06)*
Occupation		
White Collar ^a (n=95)	15.8	1.00
Blue Collar (n=160)	10.0	0.59 (0.28-1.26)
Not Working (n=12)	16.6	1.07 (0.21-5.36)
Education		
High School or Lessa (n=215)	11.6	1.00
Some College or More (n=72)	16.6	1.52 (0.72-3.20)

a Referent *p<0.05

Current funding sources:

Dept of Transportation

ND appropriated funds (MPH program)

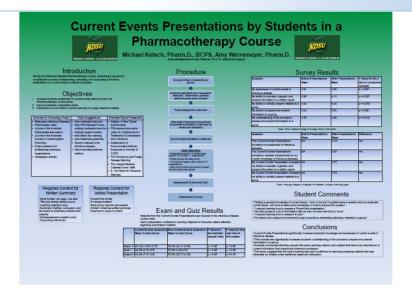


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Research Expertise

- Pharmacy Education
- Infectious Diseases





Research collaborators include other pharmacy practice faculty at NDSU.



Brody Maack, Pharm.D.

- Assistant Professor
 - Department of Pharmacy Practice, College of Pharmacy, Nursing and Allied Sciences
 - 118Q Sudro Hall
- · Clinical Pharmacist, Ambulatory Care
 - · Family HealthCare, Fargo ND

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Research Expertise

- Ambulatory Care Clinical Pharmacy
 - Medication Therapy Management
 - Patient-Centered Medical Home
 - Cardiovascular Disease Treatment and Pharmacotherapy
 - Health Literacy and underserved populations

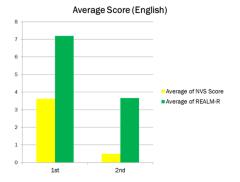
NDSU NORTH DAKOTA STATE UNIVERSITY

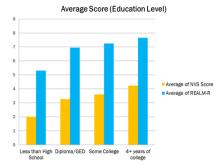
Evaluation of Two Brief Literacy Prediction Tools for Predicting Understanding of a Prescription Label

	NVS Score	REALM-R Score	Syringe	Supply
NVS Score	1.00000	0.37718 (p<.0001)	0.04960 (0.5467)	0.40224 (p<.0001)
REALM-R	0.37718 (p<.0001)	1.00000	0.07498 (0.3618)	0.28394 (0.0004)
Syringe	0.04960 (0.5467)	0.07498 (0.3618)	1.00000	0.02115 (0.7973)
Supply	0.40224 (p<.0001)	0.28394 (0.0004)	0.02115 (0.7973)	1.00000

Label	#1	#2	#3	#4
Correct	93.55%	74.42%	88.57%	92.66%

Education Level	# of Patients	Mean NVS	Mean REALM-R	Supply correct	Syringe correct
Less than High School	16	2	5.31	0%	68.75%
Diploma/G ED	40	3.28	6.95	40.0%	92.5%
Some College	59	3.61	7.25	44.07%	94.92%
4+ years of college	35	4.23	7.66	62.86%	74.29%





- Collaborations:
 - Trio-McNair Scholars program
 - Dr. Maack is co-mentor of a McNair scholar who serves as a research investigator
 - Family HealthCare
 - Clinic site where literacy surveys/study participants are hosted
- Funding Sources (grants hosted by Family HealthCare):
 - Fargo-Cass Public Health: Grant for Homeless Health Tobacco Cessation
 - ND Department of Health: Grant for Dental Tobacco Cessation program



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Care Hospital"

Previous experience in collaborative projects with PGY-1 Pharmacy Practice Residents (most recent) "An Evaluation of Medication Reconciliation with Assessment of the Pharmacist's Role Upon Patient Admission to a Tertiary

NDSU NORTH DAKOTA STATE UNIVERSITY Current project: proposing to use exam questions from the most recent pathophysiology course as a tool to assess the related knowledge of pharmacists practicing in a variety of settings. The goal is to determine if they know the material at the depth that we attempt to impart to students and whether our assumptions with respect to course rigor match the expectations of those same practitioners. The same tool will also be utilized to assess knowledge retention of pathophysiology course content as students progress through the pharmacy curriculum.



Elizabeth Skoy, PharmD
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Research Expertise

- Pharmacy Education
- PhotoVoice methodology
- Medication Therapy

Funding Sources

National Association of Boards of Pharmacy District V grant

Collaborations

Gina Kelly, PhD, NDSU Sociology Amy Werremeyer, PharmD, NDSU Pharmacy Practice





Tara Schmitz, Pharm.D., R.Ph Assistant Professor / Department of Pharmacy Practice Dept 2660 / PO Box 6050 Fargo, ND 58108-6050 p:701.367.9183 / f:701.231.7606



- Self Care Consultation via Telepharmacy
- Specialty Asthma Care

In collaboration with North Dakota telepharmacy project, evaluating remote management of asthma



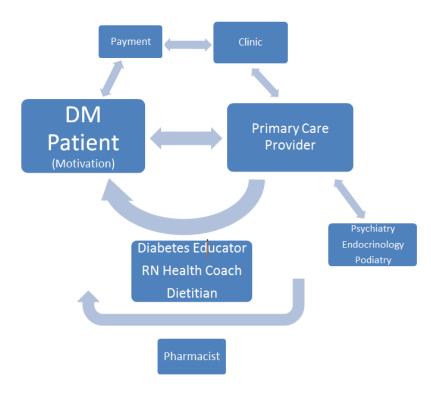
Mark A. Strand, PhD
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Practice and Master of Public
Health Program.

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Research Expertise:

- Epidemiology of Chronic Disease
- Chronic Disease Management
- Global Health
- Health Behaviors

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Diabetes Management Model

Funding:

- Pathway to Health: A Lifestyle Intervention to Prevent Diabetes (International Diabetes Federation funded, 2012-14).
- Prevalence of Metabolic Syndrome Among Middle-age Urban Chinese (longitudinal study 2008 to 2016).

Collaborations:

- University of Texas at San Antonio
- Chinese Health Partners, P.R. China



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Research Expertise

- Public health and drug policy
- Telepharmacy
- Pharmaceutical care and MTM
- Educational assessment



BIBLIOGRAPHY (N=95 publications) – partial listing)

Friesner DL, Scott DM, Rathke AM, Peterson CD, Anderson HA: Do Remote Community Telepharmacies Have Higher Medication Error Rates than Traditional Community Pharmacies: Evidence from the North Dakota Telepharmacy Project. <u>JAPhA</u> 2011, 51(4);48-58.

Naughton CA, Friesner D, Scott D, Miller D, Albano C. Designing a Master of Public Health Degree within a Department of Pharmacy Practice. <u>AJPE</u>, 2010, 74, Article 186.

Petersen CD, Scott DM, Rathke A, Killingsworth P, Hill G. Establishing a Central Order Entry Site for Delivering Telepharmacy Services to Remote Rural Hospitals. <u>J Phar Tech</u>. 2010:26:179-86.

Scott DM, Friesner DL, Dewey M, Johnson T, Kessler M: Preliminary Evaluation of Medication Therapy Management Services in Assisted Living Facilities in Rural Minnesota. <u>The Consultant Pharmacist</u>. 2010;25(5):96-309. Friesner DL, Miller DR, Scott DM, Naughton CA, Albano CB. Rural Public Health Education as a Pharmacist-led Team Endeavor. <u>JAPhA</u>, 2010;50:207-213.

Scott DM: Assessment of Pharmacists' Perception of Patient Care Competence and Need for Training in Rural and Urban Areas of North Dakota. <u>J Rural Health</u>, 2010; 26:91-97.

GRANT SUPPORT- FUNDED (N=40, for a total of \$5,460,473 including 19 as Principal Investigator (\$1,102,685), 5 as Co-Principal Investigator (\$2,195,615) and 16 as Co-investigator (\$2,162,173) - partial listing

Scott DM (PI), Friesner D (Co-PI). The North Dakota MediQHome Project. NACDS Foundation, \$606,034, 2 year grant. December 15, 2012- December 31, 2014.

Brown W (PI), Friesner D (Co-PI), Scott DM (Co-PI), Rathke A. North Dakota Telepharmacy Project - Breathe ND: Bringing Specialty Asthma Care to Rural North Dakota. \$25,000, 2-year grant, Pharmacy Practice Seed Grant, September 1, 2011 – August 31, 2013, funded.

Peterson CD (PI), Scott DM (Co-PI), Rathke A, Anderson H. North Dakota Telepharmacy Project. \$813,535 (Year 5) 5-year grant, Department of Health and Human Resources, Health Resources and Services Administration, Office of TeleHealth, September 1, 2008 – August 31, 2011.



Robert K. Sylvester, PharmD
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Research Expertise

- Applied clinical research in discipline of pharmacy practice, setting of oncology and palliative care
- Basic genotyping patients receiving temozolomide for predictive toxicity profile

No pertinent illustrations – pertinent citations:

- Sylvester RK, Steen P, Tate JM, Mehta M, Petrich R, Berg A, Kolesar J. Temozolomide-induced severe myelosuppression: analysis of clinically-associated polymorphisms in two patients. Anti-Cancer Drugs. 2011;22:104-10.
- Sylvester RK, Schauer C, Thomas J, Steen P. Weisenberger A. Evaluation of methadone absorption after topical administration to hospice patients. Journal of Pain and Symptom Management. 2011;41:828-35.
- Sylvester RK, Roberg J, Roden W, Smithson K. Pharmacy Student Assessment of a Hospice-based Advanced Pharmacy Experience. American Journal of Pharmaceutical Education 2009; 73(3) Article 44.

Funding: internal – departmental small grants

Collaborators: Sanford medical oncologists, Hospice of the Red River Valley, Jill Kolesar, PharmD UW Madison



Donald Warne, MD, MPH
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Research Expertise

- Health Disparities
- Public Health
- American Indian Health
- Health Policy Research
- Diabetes, Cancer

Current Projects

- 1. Sanford One Care—funded by CMS, partnership with Sanford Health
- 2. Community Transformation Grant—funded by CDC, partnership with ND Dept. of Health
- 3. Native American Research Center for Health—funded by NIH and IHS, partnership with Great Plains Tribal Chairmen's Health Board and 5 Tribal Colleges in ND

Pending Projects (applications submitted)

- 1. Robert Wood Johnson Foundation Investigator Award in Health Policy Research, Proposed textbook on American Indian Health Policy
- 2. Verizon Foundation—Community Health Worker Training Grant, Partnership with National Rural Health Association
- 3. CDC—Tribal Public Health Capacity
 Building and Quality Improvement, partnership
 with Three Affiliated Tribes in ND





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Research Expertise

- Photovoice (qualitative, participant action-oriented, focus group research) with mental health patients
- Photovoice research with pharmacy students (pedagogical research)
- Impact of Patient medicationeducation groups in mental health

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Mental health participant-elicited photo



Mental health participant quote using SHOWED interview technique

S: "No caption needed because it is self explanatory that meds are expensive." H: "Well when I was laid off, [I wasn't filling my meds]... I have [never] not filled my prescriptions before." O: "I am not putting any money into the family so I did not want to take anything out." W: [no response] E: "I think that people know meds are already expensive." D: "I have changed to generic drugs to help with costs."

Collaborator: Gina Aalgaard-Kelly, PhD (NDSU Sociology Department)

Collaborators: Lisa Goldstone, MS, PharmD, BCPP, University of Arizona; Shannon Saldana, PharmD, BCPP, Primary Children's Hospital, Salt Lake City, UT.

Funding: 2013 District V NABP/AACP grant