

SENSITIVE ISSUES IN AGRI-HEALTH: TRAINING AGENTS IN ACADEMIC DETAILING TO ENGAGE FARM FAMILIES ON RURAL HEALTH DURING THE OPIOID CRISIS

Marion W. Evans, Jr. PhD, MCHES
Mary Nelson Robinson, PhD, CHES
Eki Wari, MPH, MBBS
David Buys, PhD, CPH, FGSA

Abstract: Farm stress and opioid misuse is common in rural agricultural communities. This study assessed an education program to train Cooperative Extension agents to recognize and engage farm families on topics such as opioid misuse and mental health using academic detailing; a medical and health-based education tool. Although a majority (>75%) had not heard of this method prior, agents agreed they had used similar methods in the past and felt confident they could employ these methods related to academic detailing in the future. Academic detailing should be considered a useful tool in training agents on engaging clients on topics considered sensitive in nature.

Keywords: Rural Health, Opioid Misuse, Academic Detailing

INTRODUCTION

On May 8, 1914, the Smith-Lever Act established the Cooperative Extension Service (CES), which became the mechanism of outreach used by the land-grant university systems of America (Mississippi State University Extension, 2022). The premise was that this service could “extend” the knowledge of university scientists into the hands of farmers, and eventually, other stakeholders throughout a state so that years of costly research could be more easily applied and adopted as quickly as possible. This translation of knowledge and technology transfer has occurred since then to help eradicate pests, weeds, blights, and to educate consumers on best practices in everything from finances to health and nutrition. Local agents who operate out of regional or county offices are embedded in the communities they serve (Association of Public and Land Grant Universities, 2022). This one-on-one approach can assist in relaying critical information and may be improved upon by adopting methods used by other disciplines, including healthcare.

Academic Detailing

Academic detailing (AD) is a technique that has been utilized by the pharmaceutical industry for decades and was formally described in a clinical trial by Avorn and Soumerai (1983) as a means of educating physicians face-to-face to try and address knowledge gaps in office-based prescribing patterns. Interestingly, initial studies on AD indicated that investigators were not trying to increase prescribing rates for medications but rather attempting to reduce the over-prescribing of three drugs: the analgesic Darvon; cerebral and peripheral vasodilators that were common

to atherosclerosis management; and the antibiotic, Keflex. The first two were considered to have low effectiveness, and the antibiotic Keflex at the time was considered expensive, and no better than less costly alternatives for many conditions for which the drug was being used. Avore and Soumerai (1983) found that information pieces such as flyers and brochures were often ineffective, but when paired with direct, one-on-one education for short periods of time in the doctor's office, could be statistically more effective in changing those prescribing behaviors. Since then, more wide-spread use of AD has been shared and papers published on its use. It has been applied to encourage primary care physicians to recommend breast cancer screenings for patients (Gorin et al., 2006), to promote discussion of tobacco cessation in dental offices (Albert et al., 2004), to change use patterns for drugs such as diuretics in the management of hypertension (Stafford et al., 2010), and to help improve the cost-effectiveness of prescribing of drugs on a variety of levels (Popish, 2013). The use of AD in medical practices to translate practice guidelines into practice patterns has also been fairly well-established (Tomson et al, 1997; Weingarten, 2000).

Often, pharmacists or pharmaceutical salespersons are trained to use AD in medical settings. However, Grumbach and Mold (2009) described an idea to successfully model knowledge transfer in primary care and community medicine with that of the CES. They suggested that small farms in the early years of the CES were actually very similar to small, primary care practices in that they may be geographically situated outside of a city, have poor resources to facilitate change, and could be ineffective in adopting techniques and changes that would be vital to

Corresponding Author: Marion W. Evans, Jr. PhD, MCHES, Executive Associate Dean, College of Nursing and Health Professions, The University of Southern Mississippi, 118 College Drive, Hattiesburg, MS 39406, Email: will.evans@usm.edu

their success. These authors suggested in 2009 that the CES model could serve as the basis for a national primary care cooperative CES. They further reported on a few such entities that were operating similar to a CES. Therefore, the parallels of educating a sole practitioner or a few practitioners in a small medical practice has been compared to educating the small, rural farmer.

Typical Medical Application of AD Compared to Traditional Agriculture Extension Education

In a medical office, the pharmaceutical representative schedules a time to call on the physician (Weingarten, 2000). They may bring incentive-based items or gifts to the front desk to encourage them to allow them to see the doctor in between patient sessions. These items typically promote the use of a drug or medical technique (Siegel et al, 2003). Physician incentives to influence their decision making, have been found to significantly change behaviors (Hillman et al., 1990; Tomson et al., 1997). Time with the busy physician is very limited so the information and knowledge translation effort must be delivered quickly. The representative will often supply the doctor and medical staff with “leave-behind” items as well. Those may include information sheets or brochures, and samples of the drug being marketed to hand out to patients for whom they are appropriate to try (Siegel et al., 2003). This is comparable to the role of the traditional CES Ag agent. They have a rapport with the rural farmer. They may stop by and deliver new information they have learned or schedule a visit in response to a request from the farmer. The farmer will often have a very busy schedule. Perhaps they are on the tractor or cultivator and are hundreds of yards from the road. They may see the CES truck approach the farm and when an agent reaches that area, the farmer may step off of the machine and spend a few minutes with the agent to learn the latest information on fertilizer, crop protection, preventive measures, rotation practices, and so on. The roles of the agent and the pharmaceutical representative are at least somewhat similar. Both visits are based on established rapport, trust, and the need to learn from recent academic innovations. Historically, both educators have likely made major differences in medical and agricultural practices that have aided the stakeholder. This in turn, has helped the patient or consumer as well.

Basic Principles of AD

According to the United States Centers for Disease Control and Prevention (CDC), academic detailing is based on a structured visit by trained professionals to deliver a tailored message and technical assistance to help the recipient apply “best practices” (National Center for Chronic Disease Prevention and Health Promotion, 2015). In addition, the CDC states that the application is relationship-based, allows the recipient to explore alternative approaches, and seeks to improve the well-being of citizens. The most important techniques for use of AD are as follows (Soumerai & Avorn,1990):

- Focusing programs on specific categories for recipients (as well as on their opinion leaders)
- Using concise, graphic education materials
- Highlighting and repeating the essential messages
- Establishing credibility through a respected organization identity
- Referencing authoritative and unbiased sources of information and presenting both sides of any controversial topics
- Stimulating active involvement in the detailing process
- Providing positive reinforcement of improved practice in follow-up visits

Table 1 includes similarities of medical education settings, as well as possible agricultural applications. In addition, the Cochrane Collaboration lists many effectiveness studies on AD (Academic Detailing, 2022).

The purpose of this manuscript is to compare this model with the agent’s role in the CES and suggest ways in which AD could be applied to both the agricultural and health and family/consumer sciences missions of CES. Secondly, to assess agent knowledge of AD prior to learning about it, and then assessing their reported post-education self-efficacy related to perceived ability to implement it along with likelihood of use.

Material and Methods

A workshop included the use of AD as a part of the PROMISE Initiative which trained agents in Mental Health First Aid and opioid risk awareness and intervention focused on agricultural families and communities. The AD overview was also coupled with Motivational Interviewing (MI) techniques in order to help agents engage stakeholders on sensitive topics such as mental health and drug misuse (Miller & Rollnick, 2013). As a side note, MI seeks to have participants state their own need to modify a problem behavior and has a unique interview style of conversation associated with it. Specifically, the featured workshop on AD provided the history and definition of the techniques, and asked participants to think of ways they had used similar methods, to share those, and think of ways they could use AD in future presentations. A total of 4 workshops were presented to cover all CES agents in the state. There were two sessions in the workshop related to AD; one that also introduced MI, and a second one to allow for overnight reflection and reporting on how they might apply AD. After session two, participants were assessed as to prior knowledge, self-efficacy, and perceived usefulness with a questionnaire. The questionnaire was assessed for face validity with experts in the assessment unit of the CES. The initiative received exempt status from the Institutional Review Board. Descriptive and chi-square tests were analyzed using SPSS Version 25.0 software (IBM Corp. Released 2017. Armonk, NY).

Table 1. Similarities in medical and agricultural education techniques applying AD		
Medical or Agricultural	Topic Discussed	Ideas for Application and Delivery
Medical	Prescription knowledge	Pamphlet on new drug and reasons for its use; pen with drug name on it, cookies for front desk at doctor's office, samples of new drug, discount coupons for patient
Dental	Increase tobacco cessation advising rates	Surgeon General's 5 A's, dental specific brochures to hand patients; laminated card with graphic risks associated with gum disease and tobacco use for patients; cards with state Quit-line number and webpage
Agricultural	New herbicide use	Information sheet on use and why it is better as well as risks of wind-drift and best practices for application, baseball cap with logo on it, discount coupon for first order, key contacts at Extension Service for experts on the topic
Family and Consumer Science	Increase breast feeding in SNAP-Ed	Brochures for new mothers, handout on health benefits including reduced costs as it supplements formula, discount coupon for breast pump
Family and Consumer Science/ Medical	Opioid education and take-back program	Information on risks associated with opioid use on consumer level, expiation of take-back programs in area, best-practices on safe keeping of drugs
Medical	New surgical technique	Information on new procedure, latest CE opportunities to learn new methods, reasons method is better, needed equipment and trade in options on new, updated surgical instruments or equipment, plus, same methods for front desk personnel as above

RESULTS

Of the 4 state-wide trainings, 141 agents participated, with most completing all parts of the assessment. One-hundred-thirty-three participants completed all AD-specific questions in the post-workshop assessment. Seventy-six percent were White, versus other racial groups and 63% were female. Family and Consumer Agents made up the majority of the sample at 73%.

Among workshop participants, 78.2% had not heard of AD prior to the session but 79.7% agreed they had used a similar method with stakeholders in the past. Among agents, 85% stated after training they were confident, they could use AD on a 10-point Likert scale to the 6-point or higher level. Approximately 70% stated they were likely to use

AD in the future related to the mental health and drug awareness education training they received and about 73% stated they would use it with content other than what was presented. In aggregate, 85.7% stated that learning AD was useful. Table 2 provides additional details on participants, knowledge translation, and self-efficacy levels.

Chi-square (1,N=133/131, $\alpha = .05$) analyses demonstrated that there were no statistically significant differences in knowledge translation, self-efficacy, and perceived use of AD by sex, race, rurality, region, or specialty. Table 3 provides additional specific details on the relationships between sex, race, rural status, region of state, and Extension agent type with knowledge translation, self-efficacy levels, and perceived usefulness of academic detailing.

Table 2. Demographics, knowledge translation, and self-efficacy of extension agents										
	Used something similar to AD within Extension (N/%)		Confidence in ability to use AD (self-efficacy) (N/%)		Likelihood to use AD with content presented (N/%)		Likelihood to use AD with other content (N/%)		Usefulness of AD training (N/%)	
	No	Yes	Low	High	Not Likely	Likely	Not Likely	Likely	Useless	Useful
Total (n=133)	27/20.3	106/79.7	20/15.0	113/85.0	40/30.1	93/69.9	36/27.1	97/72.9	19/14.3	114/85.7
Sex (n=131)										
Male	9/6.9	40/30.5	9/6.9	40/30.5	19/41.5	30/22.9	15/11.5	34/26.0	5/3.8	44/33.6
Female	16/12.3	66/50.4	10/7.6	72/55.0	19/14.5	63/48.1	19/14.5	63/48.1	12/9.2	70/53.4
Total	25/19.1	106/80.9	19/14.5	112/85.5	38/29.0	93/71.0	34/26.0	97/74.0	17/13.0	114/87.0
Race (n=132)										
White	19/14.4	80/60.6	15/11.4	84/63.6	27/20.5	72/54.5	26/19.7	73/55.3	16/12.1	83/62.9
Other	7/5.3	26/19.7	5/3.8	28/21.2	12/9.1	21/15.9	9/6.8	24/18.2	2/1.5	31/23.5
Total	26/19.7	106/80.3	20/15.2	112/84.8	39/29.5	93/70.5	35/26.5	97/73.5	18/13.6	114/86.4
Rurality (n=115)										
Urban	3/2.6	27/23.5	5/4.3	25/21.7	10/8.7	20/17.4	9/7.8	21/18.3	3/2.6	27/23.5
Rural	18/15.7	67/58.3	10/8.7	75/65.2	24/20.9	61/53.0	22/19.1	63/54.8	11/9.6	74/64.3
Total	21/18.3	94/81.7	15/13.0	100/87.0	34/29.6	81/70.4	31/27	84/7.0	14/12.2	101/87.8
Region (n=115)										
North	14/12.2	49/42.6	9/7.8	54/47.0	16/13.9	47/40.9	17/14.8	46/40.0	10/8.7	53/46.1
South	7/6.1	45/39.1	6/5.2	46/40.0	18/15.7	34/29.6	14/12.2	38/33.0	4/3.5	48/41.7
Total	21/18.3	94/81.7	15/13.0	100/87.0	34/29.6	81/70.4	31/27.0	84/73.0	14/12.2	101/87.8
Specialty (n=133)										
FCS Agent	19/14.3	78/58.6	15/11.3	82/61.7	31/23.3	66/49.6	27/20.3	70/52.6	17/12.8	80/60.2
Non-FCS Agent	7/5.3	27/20.3	4/3.0	30/2.6	9/6.8	25/18.8	9/6.8	25/18.8	2/1.5	32/24.1
Missing	1/0.8	1/0.8	1/0.8	1/0.8	1/0.8	2/1.5	-----	2/1.5	-----	2/1.5
Total	27/20.3	106/79.7	20/15.0	113/85.0	40/30.1	93/69.9	36/27.1	97/72.9	19/14.3	114/85.7

Table 3. Extension agent type with knowledge translation, self-efficacy, and AD usefulness

	Used something similar to AD within Extension		Self-efficacy in ability to use AD		Likelihood to use AD with content presented		Likelihood to use AD with other content		Usefulness of AD training	
	χ^2	p	χ^2	p	χ^2	p	χ^2	p	χ^2	p
Sex	0.03	0.87	0.94	0.33	3.63	0.06	0.88	0.35	0.53	0.47
Race	0.06	0.8	< .001	1	0.98	0.32	0.01	0.91	2.14	0.14
Rurality	1.86	0.17	0.47	0.49	0.28	0.6	0.19	0.66	0.18	0.67
Region	1.47	0.23	0.19	0.66	1.16	0.28	< .001	0.99	1.78	0.18
Specialty	1.12	0.57	2.12	0.33	1.23	0.54	0.78	0.68	3.13	0.21

DISCUSSION

There are similarities and parallels between AD and traditional Extension education, particularly when comparing the agricultural education aspects of Extension. Agents seemed to be comfortable with the techniques and thought they would be easy to apply. Academic Detailing in particular provides a framework for messages to be delivered with brief, well-designed approaches with the appropriate leave-behind information that is graphically detailed. Since no significant differences were noted among Extension agent’s self-efficacy levels or possible future use, and generally high levels of self-efficacy were observed, we believe that generic training programs featuring AD could be most appropriate for a variety of field based CES agents. For example, Agricultural agents and FCS agents both stated they benefited from the sessions. Due to the traditional, historical roles CES agents play in agricultural education, they are excellent candidates to apply these simple methods. Based on our initial assessment self-efficacy in AD can be established in order to deliver a variety of outreach activities with minimal training involved. Eighty-five percent felt a high level of self-efficacy when it came to the potential to apply it. Further, in general, a majority of the agents regardless of gender, race or rurality showed no statistically significant differences in their perceived abilities to employ AD. This is a favorable indicator that ease of use could increase the application of this method.

As noted above by Soumerai and Avorn (1990), specific techniques encompassed by the AD framework include focusing on specific categories for recipients, using concise, graphic education materials, repeating essential messages, establishing credibility through a respected organization identity, referencing authoritative and unbiased information sources of information and presenting both sides of any controversial topics. They have also demonstrated

that stimulating active involvement in the detailing process and providing positive reinforcement can improve practice in follow-up visits. All of these approaches are similar to methods common to Extension.

This educational program was a part of a training workshop to increase CES agent’s comfort levels in speaking with and offering resources regarding mental health and wellbeing as well as opioid misuse in rural, agricultural communities. Each topic can be difficult to discuss but CES agents have a unique perspective with these constituents and this training should be useful.

CONCLUSION

The use of AD in a medical setting is similar to techniques Extension agents have employed over the years. Specific methods unique to AD can be taught to agents and a high degree of self-efficacy can be established. The likelihood of employing these methods among our participants was very favorable. Therefore, we believe the application of AD can be useful for consideration in CES organizations throughout the country. Further research on the application of AD could be in the areas of specific knowledge transfer on topics from traditional agricultural practices to mental health and wellbeing messaging in an agri-health setting.

Funding

The research was supported by Rural Health and Safety Grant No. 2020-46100-32841 from the United States Department of Agriculture and the National Institute of Food and Agriculture Rural Opioids Technical Assistance Grant No. 5H79TT1083275-02 via DHHS Substance Abuse and Mental Health Services Administration.

References

- Academic Detailing [database online]. London, UK: Cochrane Library; 2022. Available from: <https://www.cochranelibrary.com/search>
- Albert, D.A., Ahluwalia, K.P., Ward, A., & Sadowsky, D. (2004). The use of academic detailing to promote tobacco-use cessation counseling in dental offices. *Journal of the American Dental Association*; 135, 1700-1706. <http://www.readabstracts.com/Health/The-use-of-academic-detailing-to-promote-tobacco-use-cessation-counseling-in-dental-offices.html>
- Association of Public and Land-Grant Universities. (2022). Cooperative Extension Section (CES). <http://www.aplu.org/members/commissions/food-environment-and-renewable-resources/board-on-agriculture-assembly/cooperative-extension-section/>. Accessed March 24, 2022.
- Avorn, J., Soumerai, S.B. (1983). Improving drug-therapy decisions through educational outreach. *New England Journal of Medicine*, 308,1457-1463. <https://www.nejm.org/doi/pdf/10.1056/NEJM198306163082406>
- Gorin, S.S., Ashford, A.R., Lantigua, R., Desai, M., Troxel, A., & Gemson, D. (2006). Effectiveness of academic detailing on breast cancer screening among primary care physicians in an underserved community. *Journal of the American Board of Family Medicine*, 19, 110-121. <https://link.springer.com/article/10.1186/1748-5908-2-43>
- Grumbach, K., & Mold, J. W. (2009). A health care cooperative extension service: Transforming primary care and community health. *Journal of the American Medical Association*, 301(24), 2589–2591. https://www.researchgate.net/publication/26314433_A_Health_Care_Cooperative_Extension_Service_Transforming_Primary_Care_and_Community_Health
- Hillman, B. J., Joseph, C. A., Mabry, M. R., Sunshine, J. H., Kennedy, S. D., & Noether, M. (2010). Frequency and costs of diagnostic imaging in office practice: A comparison of self-referring and radiologist-referring physicians. *New England Journal of Medicine*, 323(23), 1604-1608. <https://www.nejm.org/doi/full/10.1056/NEJM199012063232306>
- Miller, & Rollnick, S. (2013). *Motivational interviewing: helping people change* (3rd ed.). Guilford Press.
- Mississippi State University Extension. (2022). About extension. <http://extension.msstate.edu/about-extension>.
- National Center for Chronic Disease Prevention and Health Promotion. 2015. Academic detailing: frequently asked questions. Center for Disease Control and Prevention. https://www.cdc.gov/tobacco/quit_smoking/cessation/pdfs/academic-detailing-faq508.pdf.
- Popish, S.J. (2013). Academic detailing: Using clinical evidence to improve care. *Mental Health Clinician*, 2(12), 392-394. <https://mhc.cnpn.org/doi/full/10.9740/mhc.n155291>.
- Siegel, D., Lopez, J., Meier, J., Goldstein, M. K., Lee, S., Brazill, B. J., & Matalka, M. S. (2003). Academic detailing to improve antihypertensive prescribing patterns. *American Journal of Hypertension*, 16(6), 508–511. [https://doi.org/10.1016/S0895-7061\(03\)00060-8](https://doi.org/10.1016/S0895-7061(03)00060-8)
- Soumerai, S. B., & Avorn, J. (1990). Principles of educational outreach (academic detailing) to improve clinical decision making. *Journal of the American Medical Association*, 263(4), 549–556. <https://jamanetwork.com/journals/jama/article-abstract/380405>
- Stafford, R. S., Bartholomew, L. K., Cushman, W. C., Cutler, J. A., Davis, B. R., Dawson, G., Einhorn, P. T., Furberg, C. D., Piller, L. B., Pressel, S. L., & Whelton, P. K. (2010). Impact of the ALLHAT/JNC7 dissemination project on thiazide-type diuretic use. *Archives of Internal Medicine*, 170(10), 851–858. <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/415972>
- Tomson, Y., Hasselström, J., Tomson, G., & Åberg, H. (1997). Asthma education for Swedish primary care physicians- a study on the effects of “academic detailing” on practice and patient knowledge. *European Journal of Clinical Pharmacology*, 53(3–4), 191–196. <https://europemc.org/abstract/MED/9476030>
- Weingarten, S. (2000). Translating practice guidelines into patient care: Guidelines at the bedside. *Chest*, 118(2), 4S-7S. <https://www.sciencedirect.com/science/article/abs/pii/S0012369215328610>