

# **An Innovative EMS Health Care Delivery System**

A Program Development Using  
Pender's Health Promotion Model



*Presented by  
Tonya Shanahan, DNP, FNP-BC*

# Objectives

1

Define the problem

2

Explain the evidence of the problem

3

Describe the significance of the problem

4

Define the purpose of the project

5

Recall frameworks for the project

6

Explain Pender's HPM

7

Recognize the adaptation of Pender's HPM

8

Summarize the review of literature

# Importance of the Project

## ❖ Health Care Reform

- Leaders
- Prospective PCP shortage
- Health care cost
- EMS system identified
- Theoretical Program development



# The Problem



An innovative program with a lack of structure prohibits implementation of a paramedic health care delivery system.

# Evidence of the Problem

- ❖ Inappropriate use of the EMS system
  - ❖ “the wrong care in the wrong place at the wrong time”
- ❖ Innovative programs

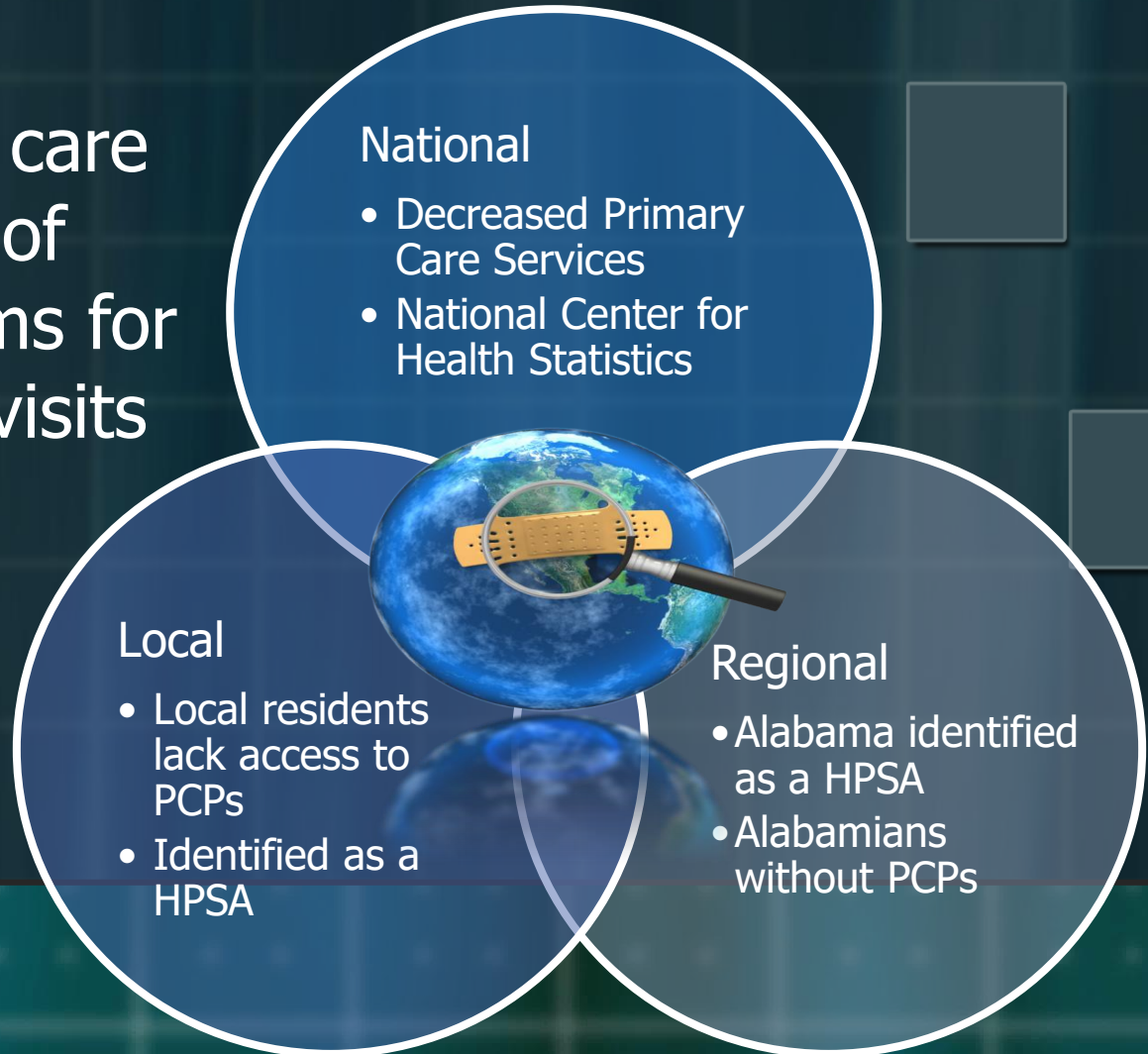


NEHI, 2010

# Evidence of the Problem

Lack of primary care  
and the misuse of  
emergency rooms for  
nonemergency visits

NEHI, 2010





# The Purpose of the Project

Development of a EBG to be  
used in an innovative health care  
delivery program  
for patients with  
CHF



# Introduction

- ❖ HF-EBG program contents
  - A 2-day paramedic lesson plan
  - 2 EBG notebooks – paramedic and patient version
- ❖ HF-EBG delivered by paramedics
  - 10-week structured program



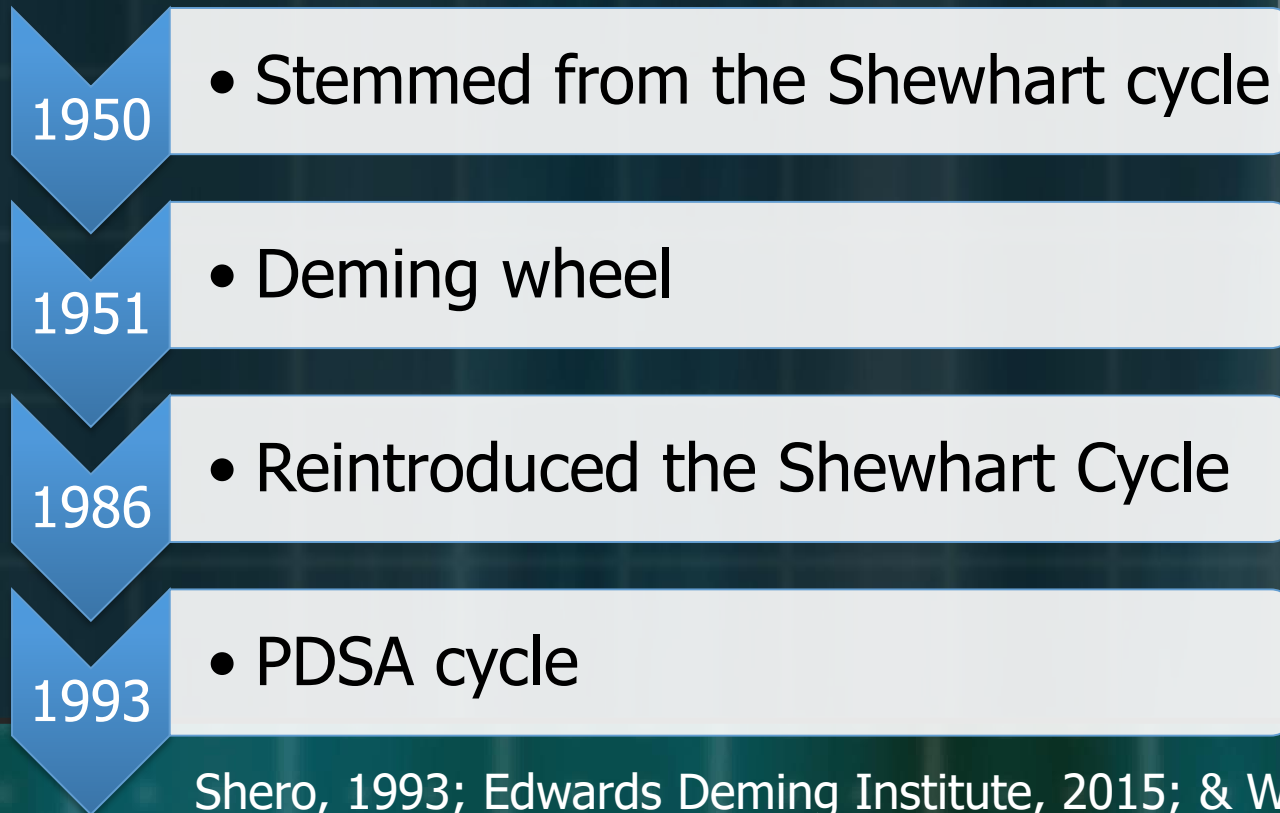
# Frameworks Used

## ❖ PDSA Model & Pender's HPM

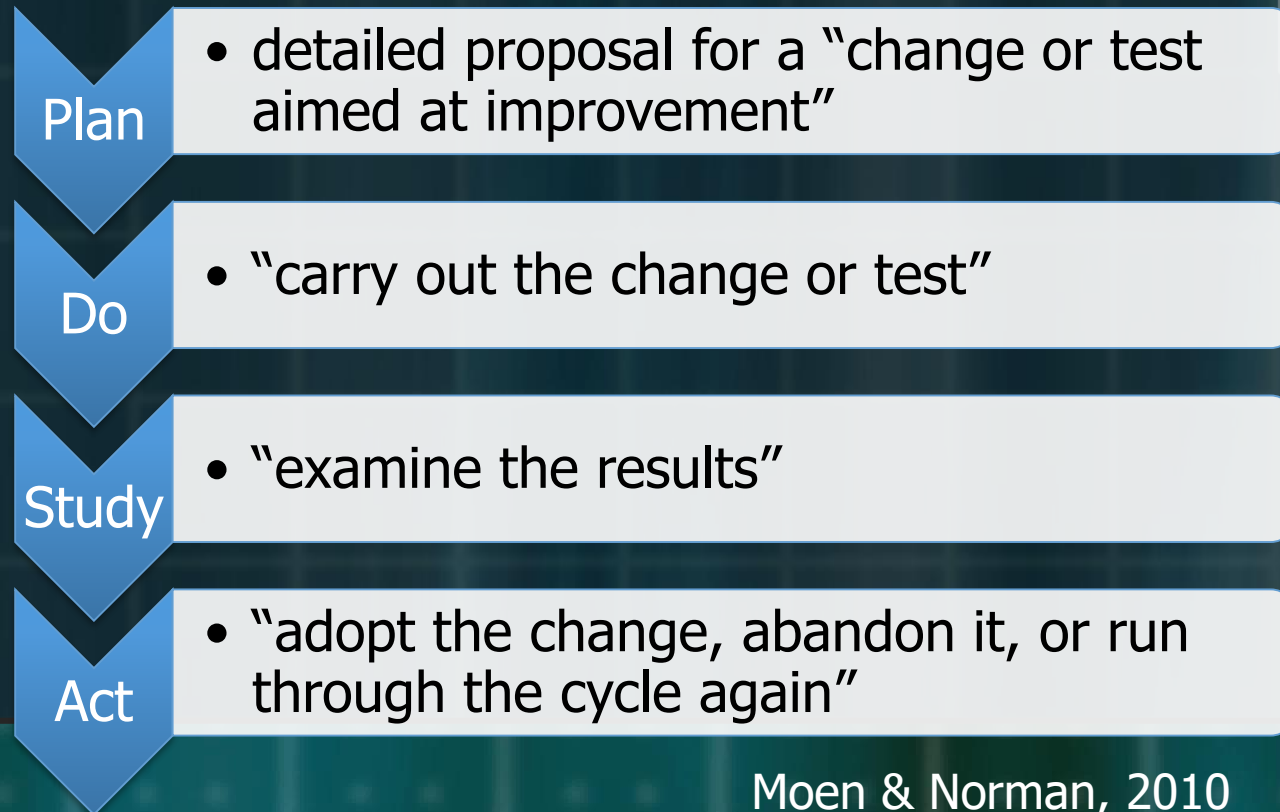
- Review of Literature
  - ✓ Framework
  - ✓ Applying the Framework
- Adaptation of the Framework

# PDSA: Review of Literature

## Ongoing Process



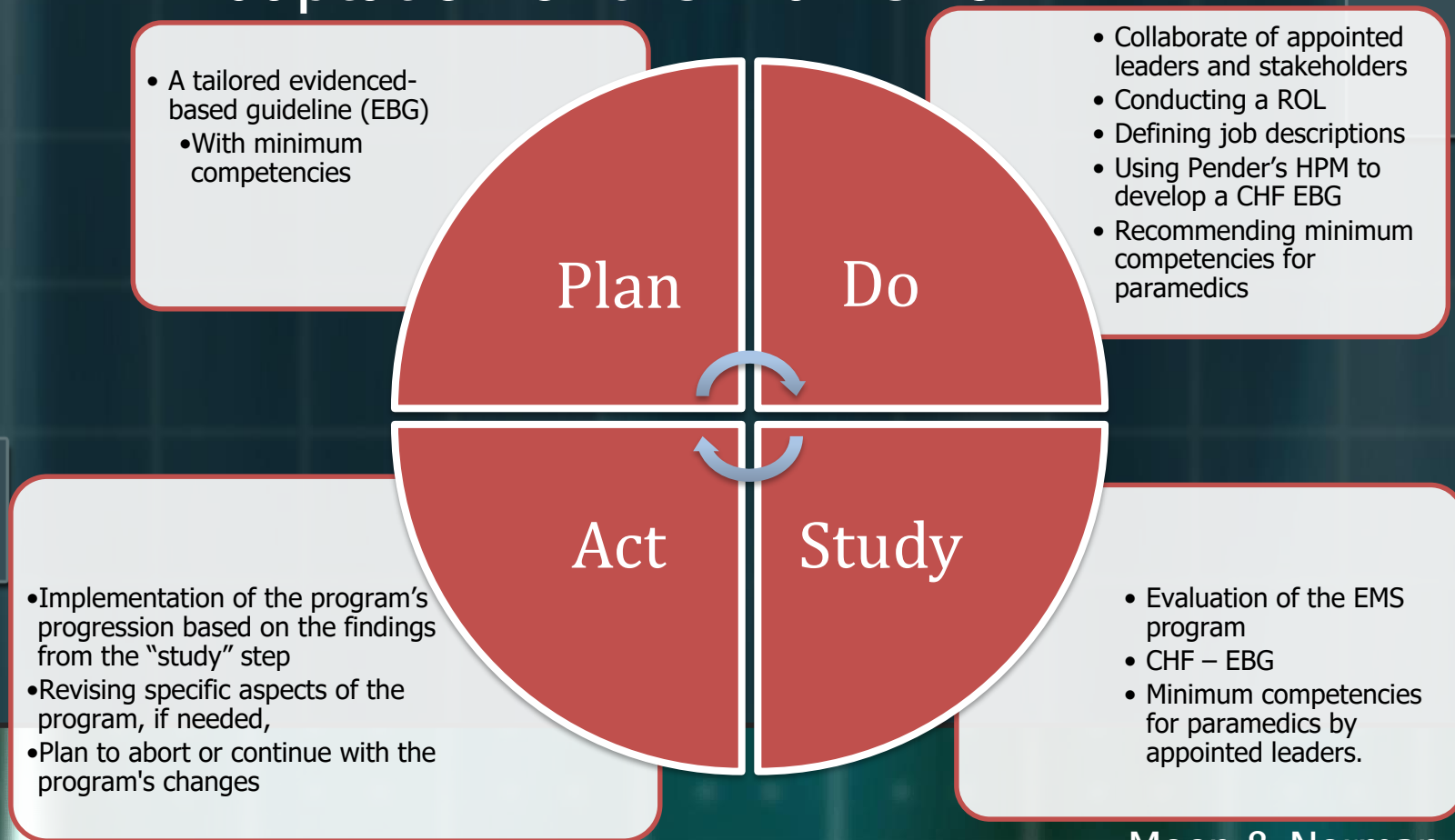
# PDSA: Applying the Framework



Moen & Norman, 2010

# PDSA: Review of Literature

## Adaptation of the Framework



Moen & Norman, 2010

# Pender's HPM: Review of Literature

- ❖ Engage in behaviors that lead to HP
- ❖ Published in 1982; revised in 1996
- ❖ Consist of 3 constructs, 11 major concepts
- ❖ Construct #1 two major concepts
- ❖ Construct #2 six major concepts
- ❖ Construct #3 three major concepts

Individual  
Characteristics  
and  
Experiences

Behavior-  
specific  
Cognitions and  
Affect

Behavior  
Outcome

# Pender's HPM: Applying the Framework

## Constructs #1

### Individual Characteristics and Experiences

Prior related behavior

"frequency of the same or similar behavior in the past"



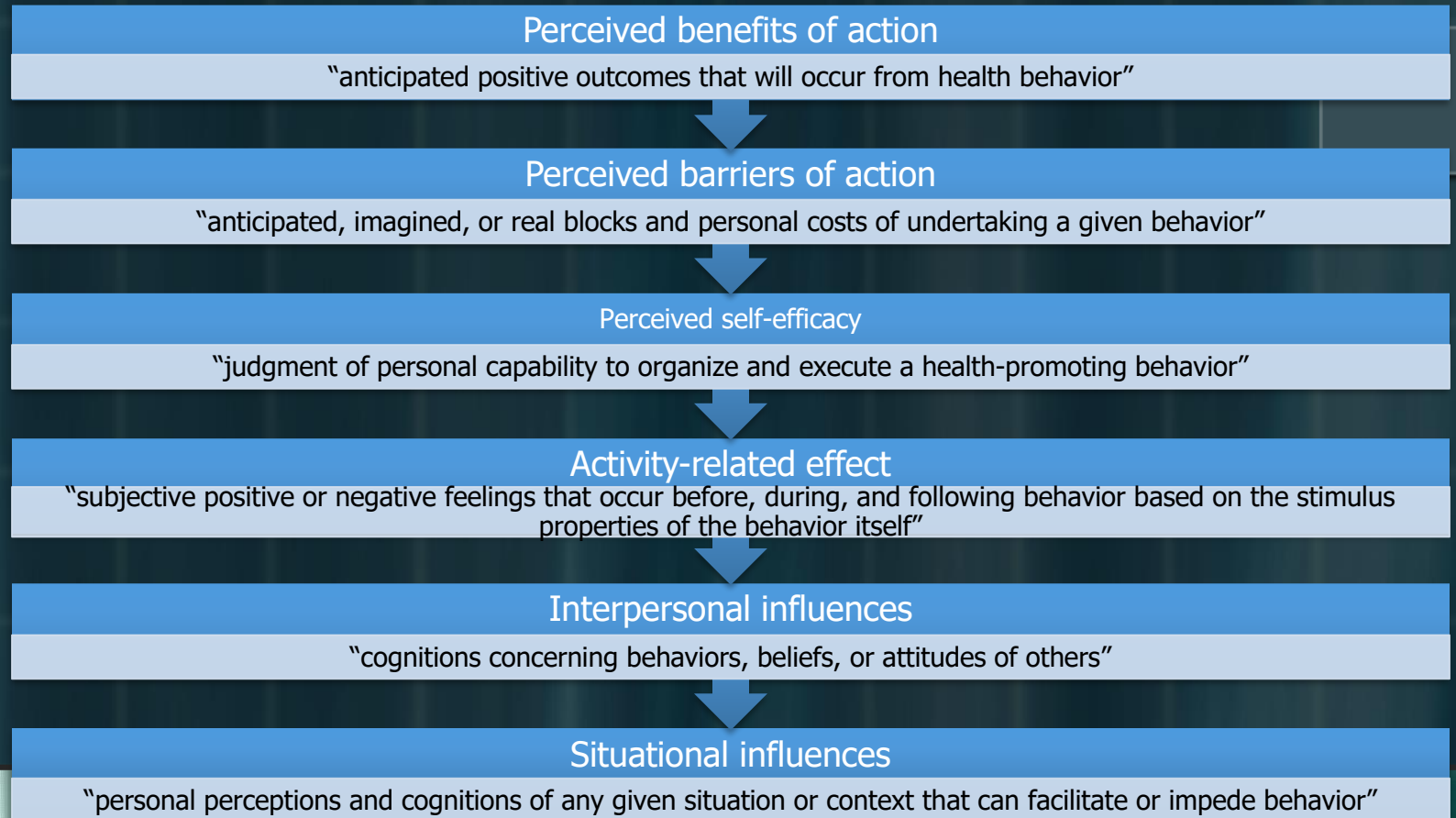
Personal factors

"predictive of a given behavior and shaped by the nature of the target behavior being considered"

Sakraida, 2002

# Pender's HPM: Applying the Framework

## Construct #2 Behavior-specific Cognitions and Affect



Sakraida, 2002



# Pender's HPM: Applying the Framework

## Construct #3 Behavior Outcome

Commitment to a plan of action

"the concept of intention and identification of a planned strategy [that] leads to implementation of health behavior"



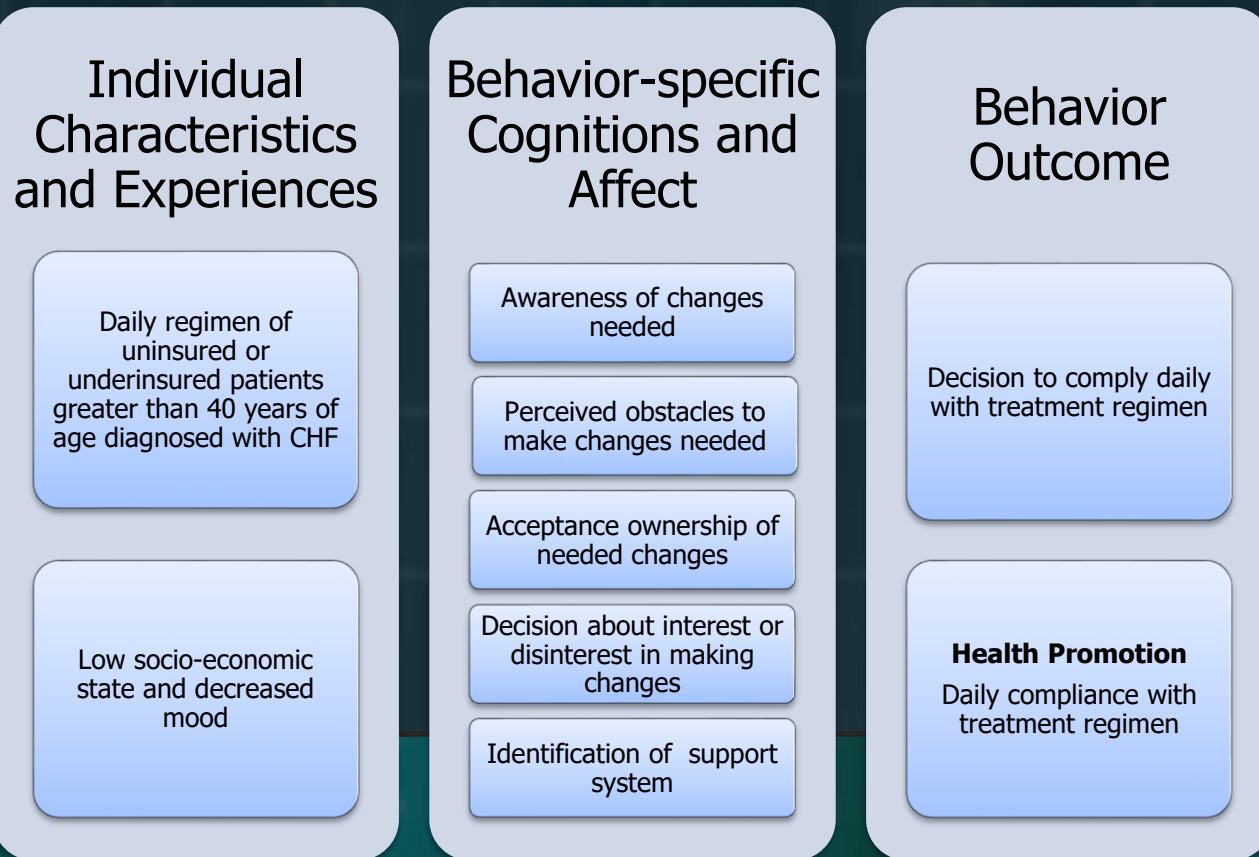
Health-promoting behavior

"endpoint or action outcome directed toward attaining positive health outcomes"

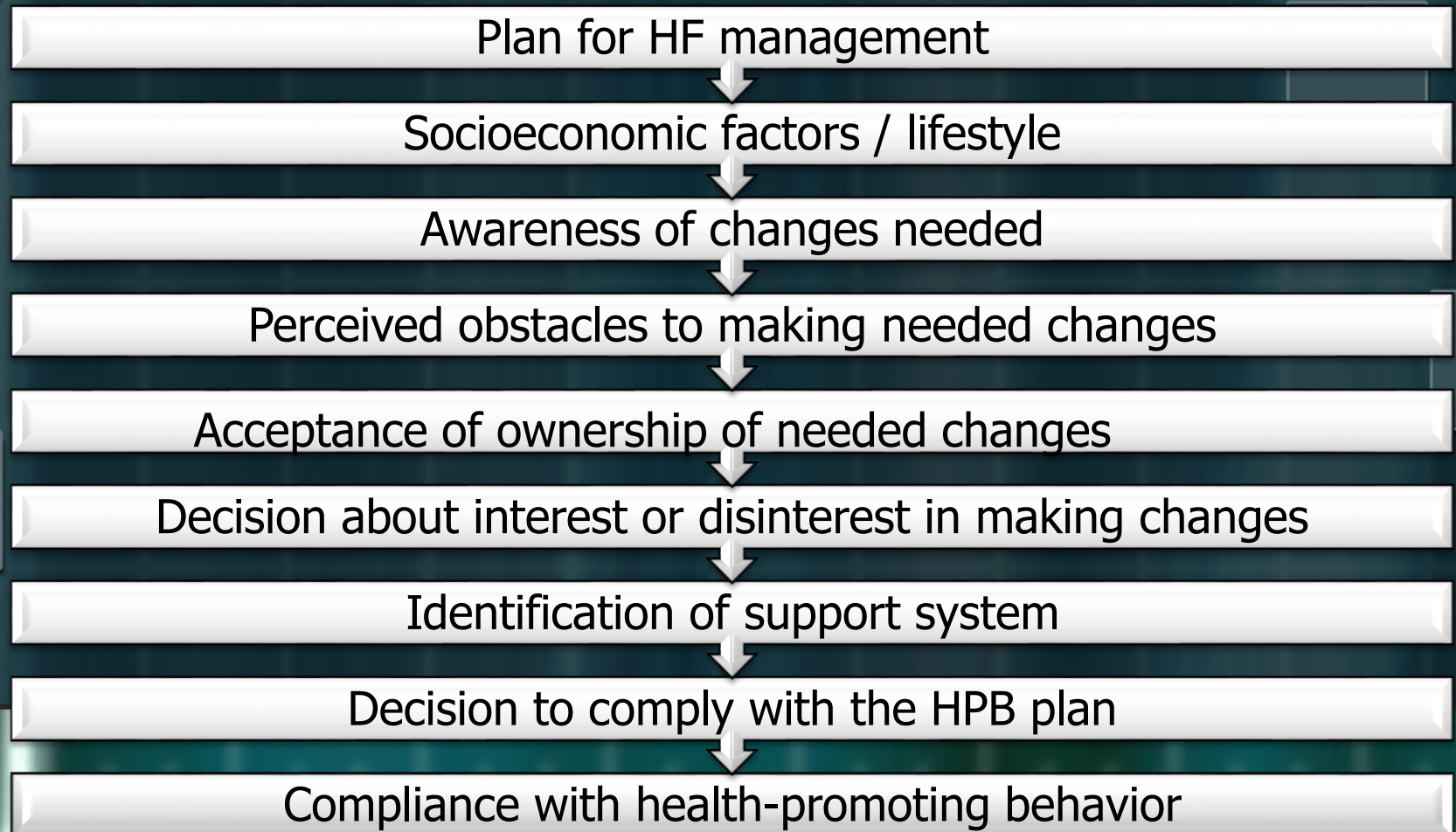
Sakraida, 2002

# Pender's HPM: Review of Literature

## Adaptation of the Framework



# HF-EBG Framework:

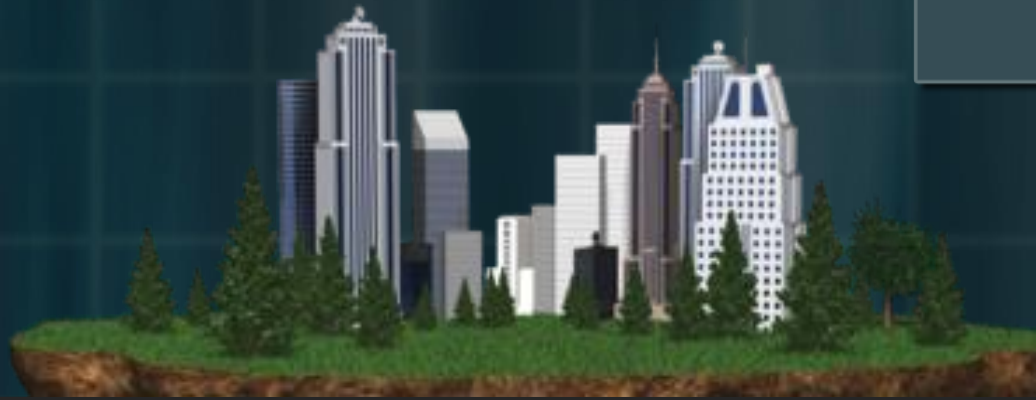


# HF-EBG Framework: Pender's HPM

- Ini** • Informed Consent/Initiate HF-EBG Plan of Care
- 1** • Compliance with the Medication Plan
- 2** • Monitoring Weight
- 3** • Monitoring Healthy Diet/Limiting Salt Intake
- 4** • Monitoring Fluid Intake
- 5** • Being Active
- 6** • Monitoring Symptoms of Heart Failure
- 7** • Modifying Risk
- 8** • Attending All Scheduled Appointments
- 9** • Assessing Implementation of HPB 1–6
- 10** • Assessing Implementation of HPB 7–8/Discharge

# Project Setting

- ❖ A city in western central area of Alabama
- ❖ 70 square mile area
- ❖ Metropolitan area
- ❖ Progressive FRS
- ❖ One hospital



# Population

## ❖ Interprofessional Disciplines

- FRS administrators
- EMS MD
- EMS personnel
- Paramedics
- PCP providers

## ❖ CHF patients



# Review of Literature

- ❖ Defined Key Concepts
- ❖ Reflection of Synthesis





# Defined Key Concepts

- ❖ Expanding the role of paramedics
- ❖ Challenges to this expanded role
- ❖ Training and development
- ❖ Screening outcomes

# Reflection of Synthesis

## Expanding the role of paramedics

- ❖ Heightened attention within paramedics' communities to assist individuals in multiple areas with the potential to cut healthcare costs
  - primary care
  - health promotion
  - minor conditions
  - management of chronic disease

(Agarwal et al., 2015; Bigham, Kennedy, Drennan, & Morrison, 2013; Mason, Knowles, Freeman, & Snooks, 2008).

# Reflection of Synthesis

## Challenges to the expanded role

- ❖ not clearly defined
- ❖ leads to role confusion
  - an inadequately defined role identity
  - insufficient organizational development for paramedics
  - a perceived absence of accountability with programs

(Bigham et al., 2013; Brydges, Spearen, Birze, & Tavares, 2015).

# Reflection of Synthesis

## Training and development

- ❖ Sufficient program training and development should support paramedics in their expanding role
- ❖ outcome evaluations must be implemented for a program to be sustainable

(Agarwal et al., 2015; Bigham et al., 2013; Brydges et al., 2013; Mason et al., 2007; Mason et al., 2008; Shah et al., 2010).

# Reflection of Synthesis

## Screening outcomes

- ❖ Screening tools are being implemented in community health awareness programs by emergency medical services (CHAP-EMS) for the purpose of health outcomes evaluation as part of their assessment (Agarwal et al., 2015; Shah et al., 2010).

# Conclusions

## Lessons Learned

- ❖ Communication barrier
- ❖ Maintaining a patient focus

## Limitations

- ❖ Paramedic's scope of practice
- ❖ Lack of resources to develop a statewide infrastructure
- ❖ Minimal funding opportunities

# Conclusions

## Barriers

- ❖ Stakeholders with opposing views
- ❖ Legal and regulatory barriers

## Conclusion

- ❖ Environmental assessment
- ❖ Early support of stakeholders
- ❖ Program design
- ❖ Additional need for research



# Summary

- ❖ Clinical significance
- ❖ Innovative methods for health care reform
- ❖ Evidence of the problem
- ❖ Paramedics
- ❖ Synthesis of literature
- ❖ Defined topics
- ❖ Review of literature
- ❖ Recommendations
- ❖ Conclusion

# Questions?



# References

- Agarwal, G., Angeles, R. N., McDonough, B., McLeod, B., Marzanek, F., Pirrie, M., & Dolovich, L. (2015). Development of a community health and wellness pilot in a subsidized seniors' apartment building in Hamilton, Ontario: Community health awareness program delivered by emergency medical services (CHAP-EMS). *BMC Research Notes*, 8, 113. doi:10.1186/s13104-015-1061-8
- Altieri, M. F., Copes, W. S., Davidson, S. J., Dawson, D., Eastes, L., Gough, J.E., . . . Swor, R. (1997). *A leadership guide to quality improvement for emergency medical services systems*. Washington, DC: National Highway Traffic Safety Administration. Retrieved from <http://www.nhtsa.gov/people/injury/ems/leaderguide/index.html>
- American Association of Colleges of Nursing. (1999). *Defining scholarship for the discipline of nursing*. Washington, DC: American Association of Colleges of Nursing. Retrieved from <http://www.aacn.nche.edu/publications/position/defining-scholarship>
- American Nurses Association. (2012). *Care coordination and registered nurses' essential role*. (ANA Position Statement: Approved June 2012.) Retrieved from <http://www.nursingworld.org/MainMenuCategories/Policy-Advocacy/Positions-and-Resolutions/ANAPositionStatements/Position-Statements-Alphabetically/Care-Coordination-and-Registered-Nurses-Essential-Role.html>
- American Nurses Association. (2014). *ANA's essential principles for utilization of community paramedics*. Retrieved from <http://www.nursingworld.org/MainMenuCategories/ThePracticeofProfessionalNursing/NursingStandards/ANAPrinciples/EssentialPrinciples-UtilizationCommunityParamedics.pdf>

# References

- Blair, A., & Carnes, J. (2010). *Critical condition: Primary health care in Alabama*. Retrieved from [http://arisecitizens.org/index.php/component/docman/doc\\_view/437-alabama-s-health-care-provider-shortage?Itemid=44](http://arisecitizens.org/index.php/component/docman/doc_view/437-alabama-s-health-care-provider-shortage?Itemid=44)
- Bigham, B. L., Kennedy, S. M., Drennan, I., & Morrison, L. J. (2013). Expanding paramedic scope of practice in the community: A systematic review of the literature. *Prehospital Emergency Care, 17*, 361–372. doi:10.3109/10903127.2013.792890
- Bodenheimer, T., & Pham, H. (2010). Primary care: Current problems and proposed solutions. *Health Affairs, 29*, 799–805. doi:10.1377/hlthaff.2010.0026
- Boyer, E. L. (1992). Scholarship reconsidered: Priorities of the professoriate. *Issues in Accounting Education, 7*, 87–91.
- Brydges, M., Spearen, C., Birze, A., & Tavares, W. (2015). A culture in transition: Paramedic experiences with community referral programs. *Canadian Journal of Emergency Medicine, 1*-8. Retrieved from <http://dx.doi.org.ezproxy.samford.edu/10.1017/cem.2015.6>
- Bush, V. (1945). *Science, the endless frontier; a report to the President on a program for postwar scientific research*. National Science Foundation. Retrieved from <http://ia700408.us.archive.org/18/items/scienceendlessfr00unit/scienceendlessfr00unit.pdf>

# References

Centers for Medicare and Medicaid Services. (2014). *National health expenditures 2013 highlights*. Baltimore, MD: CMS.gov. Retrieved from <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/downloads/highlights.pdf>

City of Tuscaloosa. (2015). *Government: Tuscaloosa Fire and Rescue Services*. Retrieved from <http://www.tuscaloosa.com/Government/Departments/Fire-&-Rescue/fire-and-rescue>

Cross, K. P. (1981). Toward a model for adult motivation for learning. In K. P. Cross (Ed.), *Adults as learners: Increasing participation and facilitating learning* (pp. 109–131). Washington DC: Jossey-Bass.

Edwards Deming Institute. (2015). *Theories and teaching: The PDSA cycle*. Retrieved from <https://www.deming.org/theman/theories/pdsacycle>

Fisher, E., & Riley, T. (2005). Fostering the scholarship of discovery and integration for advanced practice education. *Nursing Education Perspectives*, 26, 348–350.

Gindi, R. M., Cohen, R. A., & Kirzinger, W. K. (2012). Centers for Disease Control and Prevention. Emergency room use among adults aged 18–64: Early release of estimates from the National Health Interview Survey, January–June 2011. Retrieved from [http://www.cdc.gov/nchs/data/nhis/earlyrelease/emergency\\_room\\_use\\_january-june\\_2011.pdf](http://www.cdc.gov/nchs/data/nhis/earlyrelease/emergency_room_use_january-june_2011.pdf)

Graham, R., Mancher, M., Wolman, D. M., Greenfield, S., & Steinberg, E. (2011). *Institute of Medicine: Clinical practice guidelines we can trust*. Retrieved from <http://www.iom.edu/Reports/2011/Clinical-Practice-Guidelines-We-Can-Trust/Standards.aspx>



# References

- Hines, A.L., Barrett, M. L., Jiang, H. J., & Steiner, C. A. (2014). HCUP Statistical Brief #172. Conditions with the largest number of adult hospital readmissions by payer, 2011. *Agency for Healthcare Research and Quality*, Rockville, MD. Retrieved from <http://www.hcup-us.ahrq.gov/reports/statbriefs/sb172-Conditions-Readmissions-Payer.pdf>
- Hodge, J. G., Orenstein, D. G., & Weidenaar, K. (2014). *Expanding the roles of emergency medical services providers: A legal analysis*. Arlington, VA: Association of State and Territorial Health Officials. Retrieved from <http://www.astho.org/preparedness/astho-ems-and-law-report/>
- King, K. (2002). American College of Emergency Physicians issue paper: Personnel expanded scope of practice. Retrieved from <http://www.acep.org/workarea/DownloadAsset.aspx?id=8890>
- Kizer, K., Shore, K., & Moulin, A. (2013). *Community paramedicine: A promising model for integrating emergency and primary care*. Sacramento, CA: Institute for Population Health Improvement. Retrieved from <http://www.naemt.org/Files/MobileIntegratedHC/UC%20Davis%20Community%20Paramedicine%20Report.pdf>
- Mason, S., Knowles, E., Colwell, B., Dixon, S., Wardrope, J., Gorringer, R., . . . Nicholl, J. (2007). Effectiveness of paramedic practitioners in attending 999 calls from elderly people in the community: Cluster randomized controlled trial. *British Medical Journal*, 335, 919–925.
- Mason, S., Knowles, E., Freeman, J., & Snooks, H. (2008). Safety of paramedics with extended skills. *Academic Emergency Medicine*, 15, 607–612. doi:10.1111/j.1553-2712.2008.00156.x
- McEwen, M. (2014). Introduction to middle range nursing theories. In M. McEwen & E. M. Wills, (Eds.), *Theoretical basis for nursing* (4th ed.; pp. 213–228). Philadelphia, PA; Lippincott Williams & Wilkins.

# References

Moen, R. (2011). *Foundation and history of the PDSA cycle*. Retrieved from [https://www.deming.org/sites/default/files/pdf/2015/PDSA\\_History\\_Ron\\_Moen.pdf](https://www.deming.org/sites/default/files/pdf/2015/PDSA_History_Ron_Moen.pdf)

Moen, R. D., & Norman, C. L. (2010). Circling back: W. Edwards Deming's plan-do-study-act cycle continues to evolve and remains relevant for today's problem solvers. *Quality Progress*, 43(11), 22–29.

National Conference of State Legislatures. (2015). *Beyond 911: State and community strategies for expanding the primary care role of first responders*. Retrieved from <http://www.ncsl.org/research/health/expanding-the-primary-care-role-of-first-responder.aspx>

National Highway Traffic Safety Administration, Office of the Assistant Secretary for Preparedness and Response, Health Resources and Services Administration. (2013). *Innovation opportunities in EMS: A draft white paper*. Retrieved from [http://www.ems.gov/pdf/2013/EMS\\_Innovation\\_White\\_Paper-draft.pdf](http://www.ems.gov/pdf/2013/EMS_Innovation_White_Paper-draft.pdf)

New England Healthcare Institute. (2010). *A matter of urgency: Reducing emergency department overuse*. Retrieved from [http://www.nehi.net/writable/publication\\_files/file/nehi\\_ed\\_overuse\\_issue\\_brief\\_032610final edits.pdf](http://www.nehi.net/writable/publication_files/file/nehi_ed_overuse_issue_brief_032610final edits.pdf)

Peterson, K., & Stevens, J. (2013). Integrating the scholarship of practice into the nurse academician portfolio. *Journal of Nursing Education and Practice*, 3(11), 84–92. doi:10.5430/jnep.v3n11p84



# References

Sakraida, T. J. (2002). The health promotion model. In A. Marriner-Tomey & M. Alligood (Eds.), *Nursing theorists and their work* (6th ed.; pp. 624–639). St. Louis, MO: Mosby/Elsevier.

Shah, M. N., Caprio, T. V., Swanson, P., Rajasekaran, K., Ellison, J. H., Smith, K., . . . Katz, P. (2010). A novel emergency medical services-based program to identify and assist older adults in a rural community. *Journal of the American Geriatrics Society*, 58, 2205–2211. doi:10.1111/j.1532-5415.2010.03137.x

Shero, M. J. (1993). *Determining successful approaches for a total quality management training program for Tripler Army Medical Center Hawaii*. Retrieved from <http://www.dtic.mil/dtic/tr/fulltext/u2/a278772.pdf>

Stanek, M. (2013). *Federal and state policy to promote the integration of primary care and community resources*. Retrieved from [http://www.nashp.org/sites/default/files/Federal\\_and\\_State\\_Policy\\_to\\_Promote\\_the\\_Integration\\_of\\_Primary\\_Care\\_and\\_Community\\_Resources.pdf](http://www.nashp.org/sites/default/files/Federal_and_State_Policy_to_Promote_the_Integration_of_Primary_Care_and_Community_Resources.pdf)

U.S. Department of Human Health & Resources. (2012). *The Health Resources and Services Administration: Data warehouse*. Retrieved from <http://datawarehouse.hrsa.gov/tools/analyzers/HpsaFindResults.aspx>

# References

U.S. Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis. (2013). *Projecting the supply and demand for primary care practitioners through 2020*. Rockville, Maryland: U.S. Department of Health and Human Services. Retrieved from

<http://bhpr.hrsa.gov/healthworkforce/supplydemand/usworkforce/primarycare/projectingprimarycare.pdf>

Walker, S. N. (1995). *Background: Letter to colleague*. Personal communication. Retrieved from [http://deepblue.lib.umich.edu/bitstream/handle/2027.42/85349/HPLP\\_II-Background\\_and\\_Permission.pdf?sequence=1&isAllowed=y](http://deepblue.lib.umich.edu/bitstream/handle/2027.42/85349/HPLP_II-Background_and_Permission.pdf?sequence=1&isAllowed=y)

Walker, S.N., & Hill-Polerecky, D.M. (1996). *Psychometric evaluation of the Health-Promoting Lifestyle Profile II*. Unpublished manuscript, University of Nebraska Medical Center. Retrieved from [http://deepblue.lib.umich.edu/bitstream/handle/2027.42/85349/HPLP\\_II-Dimensions.pdf?sequence=2&isAllowed=y](http://deepblue.lib.umich.edu/bitstream/handle/2027.42/85349/HPLP_II-Dimensions.pdf?sequence=2&isAllowed=y)

White, R. & Wingrove, G. (2012). *National Rural Health Policy Brief: Principles for community paramedicine programs*. Retrieved from <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB4QFjAAahUKEwj-y7v617bHAhVHHB4KHXSUBnE&url=http%3A%2F%2Fwww.ruralhealthweb.org%2Findex.cfm%3Fobjectid%3D24480DBA-3048-651A-FE808A7FF0AC5CFE&ei=NUXVVb7dK8e4ePSomogH&usg=AFQjCNHBlvV13VnsJuVRf9qzZlsQQ9Sbdw&bv=m=99804247,d.dmo>

Walton, M. (1986). Point fourteen: Take action to accomplish the transform. In M. Walton (ed.), *The Deming management method* (pp. 86–88). New York: Putnam Publishing Group.