EVALUATION OF A SKILL-BASED FAMILY PHYSICIAN EDUCATION PROGRAM: DIAGNOSIS OF COPD

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BACKGROUND

- 24 million U.S. adults have some evidence of impaired lung function
- 11.4 million adults aged 18 and over diagnosed with COPD

Under-diagnosis

- COPD fourth leading cause of death in America[1]
- Annual cost for COPD in 2004[2]: $37.2 billion, including:
  - Direct healthcare expenditures $20.9 billion
  - Indirect morbidity costs $7.4 billion
  - Indirect mortality costs $8.9 billion
- Diagnosis and treatment of asthma and COPD difficult[3,4,5]
  - Limited testing
  - Comorbidities
  - Differential diagnosis: similarities between the two diseases
- The Global Initiative for Chronic Obstructive Lung Disease (GOLD) has stated that spirometry is the gold standard for the diagnosis and assessment of COPD and that all healthcare workers should have access to it.[6]

  "Spirometry is essential for diagnosis and provides a useful description of the severity of pathological changes in COPD"[6]

NEEDS ASSESSMENT

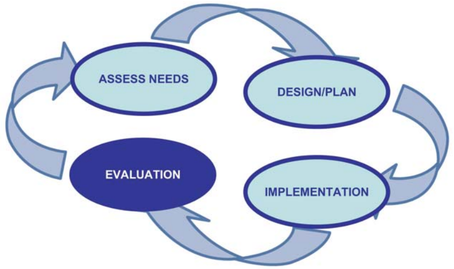
> GAP ANALYSIS NJAFP AND AXDEV

- Use of spirometry to confirm the presence of airway obstruction is a substantive gap

> NJAFP PROGRAM LEARNER FEEDBACK

- Spirometry remains the most significant barrier to diagnosis and assessment of COPD in the Family Medicine office

THE WORKSHOP >EDUCATION PROCESS



Education Need →	Domain/ Type →	Education Principle
Employ spirometry for diagnosis / treatment of COPD	• Behavior • Attitude • Skill	• Interactive exchange to develop willingness to use spirometry • Analyses of cases to translate knowledge into practice
Demonstrate appropriate technique for a spirometer	• Behavior • Attitude • Skill	• Practice facilitates translation of skill into clinical activities • Tactile learning develops skill • Repetitive tactile learning develops confidence
Apply appropriate procedures and codes to receive payment for spirometry in a family practice setting	• Knowledge • Behavior	• Review of actual codes, procedures facilitates translation of knowledge into practice • Knowledge that ensures payment reduces stress of adopting new techniques

Outcome	Level of Evaluation	Method
1. Efficacy and quality of program	**Level I** > Reaction Formative evaluation	• Following each activity • Continuous monitoring of program progression, participation, and costs
2. Change of knowledge, skills, attitudes related to targeted COPD gaps	**Level II** > Learning	• Time-series design (Baseline, immediately post activities, and 3-6 months post activities)
3. Change in performance related to using spirometry, assessing respiratory conditions, and treating according to guidelines	**Level III** > Behavior	• Time-series design (Baseline, immediately post activities, and 3-6 months post activities)
4. Change in practice	**Level IV** > Impact on healthcare practice	• Time-series design (Baseline, immediately post activities, and 3-6 months post activities)

>THE PROGRAM

- Provided by 20 state chapters of the American Academy of Family Physicians
- Learning methods consistent with American Academy of Family Physicians' CME standards

PROGRAM COMPONENTS

1. Knowledge- and skill-based workshop (NJAFP)
- Case-based, multi-media presentation of material
  - Situate knowledge and skill in actual clinical setting
  - Multiple learning opportunities
    - > Respond to multiple learning styles
    - > Reinforce learning
- Interactive lecture
  - Knowledge transfer with interactive exchange
- Demonstration of spirometry
  - Skill transfer
- Hands-on manipulation
  - Skill translation to practice through tactile learning and repetition
- Interpretation and application of spirometry results

2. Enduring material syllabus
- Self-learning

3. E-learning module
- Interactive, case-based

4. Behavioral program evaluation (AXDEV)

5. Quality Improvement Organizations partnerships

>PROGRAM WORKSHOP LEARNING OBJECTIVES

At the end of this program, the participants will have the necessary knowledge and skill to:

- Appropriately use a spirometer to diagnose patients with COPD
- Appropriately integrate spirometry into the management of patients with COPD
- Accurately interpret the results of spirometry in patients with COPD
- Apply appropriate procedure codes to receive payment for the use of spirometry in diagnosing COPD

PROGRAM EVALUATION

Conduct a credible, IRB-approved program evaluation in order to:
- Determine program effectiveness and efficiency
- Evaluate changes in knowledge, skills, and attitude related to targeted COPD gaps
- Characterize changes in performance related to using spirometry to:
  - > Assess and diagnose respiratory conditions
  - > Treat and manage COPD according to evidence-based guidelines
- Ascertain changes in clinical practice
- Distinguish indicators of change in patient outcomes

EVALUATION METHODS >PROGRAM EVALUATION DESIGN

	Phase I Baseline Data Collection (Pre-program attendance)	Phase II Post-program Assessment (Immediate post-program)	Phase III Outcome Data Collection (3 months post-program attendance)
Objective	To assess the knowledge, skill, attitudes, clinical practice behaviors, and current patients care practices of family physicians prior to participating in the CHE skill-based workshop	To assess the participants' initial satisfaction and reaction (Level 1) and knowledge gain (Level 2) with regards to the program content, materials and speakers	To assess the change in participants' knowledge, skill, attitude, clinical practice behaviors (Level 3), and patient care practices 3 months following program participation (Level 4)
Target Audience			
	Family Physicians	Family Physicians	Family Physicians
Sample Size Selective Sampling			
Family Physicians Target n = 40	8 participants from 5 chapter sites	8 participants from 5 chapter sites (repeated sampling)	8 participants from 5 chapter sites (repeated sampling)
Patients Matched sample Target n=20	—	—	1 patient / 2 participating Family Physician (matched sampling)
Data Collection Methods Mixed Method			
Family Physicians	5 discussion groups conducted in local centers (1/2 day duration)	Post-program questionnaires (Self-assessment)	40 semi-structured interviews conducted by telephone (1 hour duration)
Patients Matched sample	—	—	*Two Chapters* 2 discussion groups conducted in local centers (1/2 day duration) (n=8) *Three Chapters* 12 semi-structured interviews conducted by telephone (1 hour duration)

EVALUATION ANALYSIS >KEY DOMAINS

- **Program Design**
  - Collaborative issues among designers and contributors
  - Content development
  - Program format
- **Program Deployment (Level 1)**
  - Recruitment and enrolment of physicians
  - Recruitment and enrolment of patients
  - Setting and logistics
  - Speakers, workshop materials, technology deployment
  - Timing of program
- **Program Content**
  - Relevance to practice
  - Relationship to learning objectives
  - Link with participants' expectations
  - Level of program appropriate for family physician clinical practice
- **Program Impact, Changes in:**
  - Knowledge (Level 2)
  - Skills (Level 2)
  - Attitude (Level 2)
  - Confidence (Level 2)
  - Readiness to change (Level 2)
  - Performance related to spirometry in the assessment, diagnosis, treatment and management of COPD (Level 3)
  - Changes in clinical practice (Level 3)
  - Changes in patient outcomes (Level 4)

EVALUATION SUMMARY

- Level I – IV evaluation of a skill-based, multi-media educational initiative
- Time series design
- Mixed method approach
- Sampling
  - Selective sampling
  - Matched physicians / patients sampling

REFERENCES

1 Chronic Obstructive Pulmonary Disease (COPD) Fact Sheet. (Chronic Bronchitis and Emphysema). American Lung Association. Available at *http://www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=35020#5*. Updated August 2006. Accessed April 2007.

2 Trends in Chronic Bronchitis and Emphysema: Morbidity and Mortality. American Lung Association. Epidemiology & Statistics Unit, Research and Program Services. July 2006.

3 Mohan A, Premanand R, Reddy LN, Rao MH, Sharma SK, Kamity R, Bollineni S. Clinical presentation and predictors of outcome in patients with severe acute exacerbation of chronic obstructive pulmonary disease requiring admission to intensive care unit. *BMC Pulm Med.* 2006 Dec 19;6:27.

4 Sin BA, Akkoca O, Saryal S, Oner F, Misirligil Z. Differences between asthma and COPD in the elderly. *J Investig Allergol Clin Immunol.* 2006;16(1):44-50.

5 Dahlin C. It takes my breath away: end-stage COPD. Part 1: a case study and an overview of COPD. *Home Healthc Nurse.* 2006 Mar;24(3):148-55.

6 Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease. Global Initiative for Chronic Obstructive Lung Disease. 2007. Available at *http://www.goldcopd.com/Guidelineitem.asp?l1=2&l2=1&intId=989*. Updated December 2007. Accessed April 2008.

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