TEACHING EBM IN RESOURCE-POOR SETTINGS: Obstacles and Future Directions
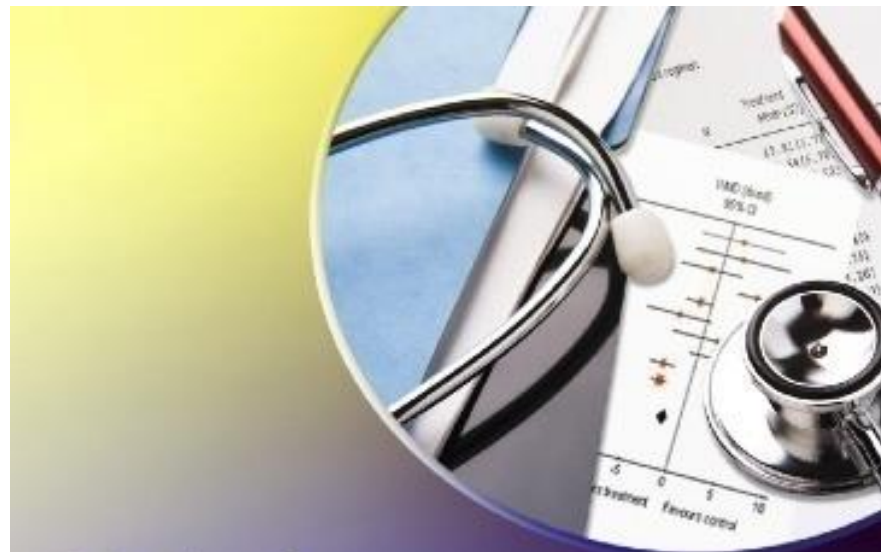
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Painless
Evidence-Based
Medicine

Editors Antonio L. Dans, Leonila F. Dans
and Maria Asuncion A. Silvestre

OUTLINE

1. Problems Implementing EBM
2. Approach to Teaching
3. A Sample Training Program
4. Future Directions

PROBLEMS IMPLEMENTING EBM

	1991
ASK	
ACQUIRE	
APPRAISE	
APPLY	

PROBLEMS IMPLEMENTING EBM

	1991	2009
ASK	Disrespectful	Not anymore
ACQUIRE	No access	Very limited
APPRAISE	Nothing to appraise	Some improvement
APPLY	Common problem	Applicability Guides

DATA ACCESS IN THE PHILIPPINES

- DATA FROM COCHRANE WE NEED TO PAY, DATA FROM DRUG COMPANIES ARE FREE
- Rare instance: WE are NOT a poor country!

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APPROACH TO TEACHING

	WHAT WORKED	**WHAT DIDN'T**
MIGHT WORK		**Short Workshop**
MIGHT NOT	**SGD, PBL** **Drs made to pay**	**Lectures** **Self-Directed Learning**

APPROACH TO TEACHING

	WHAT WORKED	WHAT DIDN'T
MIGHT WORK	**NO reading**	**Short Workshop Trainor's Training**
MIGHT NOT WORK	**SGD, PBL** **Drs made to pay**	**Lectures** **Self-Directed Learning**

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USER'S GUIDES	PAINLESS EBM
Are the results valid?	Directness
	Validity
What are the results?	Results
How can I apply the results?	Applicability
	Individualization

Users' Guides to the Medical Literature

XIV. How to Decide on the Applicability of Clinical Trial Results to Your Patient

Antonio L. Dans, MD; Leonila F. Dans, MD; Gordon H. Guyatt, MD, MSc; Scott Richardson, MD;
for the Evidence-Based Medicine Working Group

CLINICAL SCENARIO

You are the attending physician on

to this drug, trying to locate the best trial or, if possible, a meta-analysis. Using

applicability, which involves the implications of the trial results for patient

TACKLE BOXES

Tackle Box: Comparing the results of a test with a reference standard when the test has two or more results, e.g. positive, intermediate or negative

Instructions: Standard symbols are used in the 2xn table below. a = the number of persons with disease and a positive result; b = the number of persons without disease but a positive result; c = number of persons with disease and an intermediate result; d = number of persons without disease and an intermediate result; e = number of persons with disease and but a negative result; f = number of persons without disease and a negative result. There may be more cells depending on how many intermediate results there are. Go through the formulae below to discover different ways of reporting concordance between the test and the gold standard.

Test Result	Reference Standard		Row Total
	Disease Present	Disease Absent	
Positive	a	b	(a + b)
Intermediate	c	d	(c + d)
Negative	e	f	(e + f)
Column Total	(a + c + e)	(b + d + f)	

Notes:

1) At this point, it is important to distinguish between probabilities and odds. Probabilities are portions of the whole, while odds are the ratio of portions. Say that again? Well, if we were talking of a pie (figure in right), probability would be a piece of the pie divided by the entire pie, i.e. a/(a+b). Odds, on the other hand, would be a piece of the pie divided by the rest of the pie, i.e. a/b. To convert from probability to odds, we simply subtract the numerator from the denominator. For example: 7/100 (probability) becomes 7/93 (odds); 92/100 (probability) becomes 92/8 (odds).
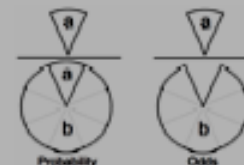
2) The odds of disease when the test is positive is the ratio of a to b. This is written as a;b or a/b. It is read as "a is to b". Similarly, the odds of disease when the test is intermediate is c/d. When the test is negative, the odds is e/f. There may be g/h, i/j and so forth depending on the number of intermediate results. The overall odds of disease regardless of the test results is (a+c+e)/(b+d+f).

3) These odds may be used to estimate likelihood ratios (LRs) for each result. The LR is nothing more than the odds of disease given a test result (**the post-test odds**), divided by the overall odds of disease (**the pre-test odds**). Thus for a positive test, the LR is (a/b) ÷ [(a+c+e)/(b+d+f)]. For an intermediate test, the LR is (c/d) ÷ [(a+c+e)/(b+d+f)]. Finally, for a negative test, the LR is (e/f) ÷ [(a+c+e)/(b+d+f)]. (If you cannot perform any of the above operations because the denominator is 0, impute a value of 1 for that cell and adjust the corresponding column or row total.)

4) If the LRs are not provided, you may need to compute on your own by reconstructing a 2xn table from the data provided. If sensitivity and specificity are reported, reconstruct the 2xn table by assigning a=sensitivity, b=100-specificity, c=100-sensitivity, and d=specificity.

5) Because LR is the ratio of post-test to pre-test odds, it is an expression of change in the odds of disease. Thus an LR of 10/1 represents a 10-fold increase in the odds of disease, while an LR of 1/10 (or 0.1) expresses a 10 fold drop in the odds of disease. Similarly, an LR of 1/1 (or 1.0) represents a test result that does not change the odds of disease. Thus, the further away from 1.0 the LR is, the greater the rise or fall in odds of disease.

Exercise: 1) Assume a=35, b= 10, c=10, d=20, e=5 and f=70. Calculate for a) LR of a positive test result, b) LR of an intermediate test results and c) LR of a negative test result. 2) If Sn=90 and Sp=60, what would be the LR of a a)positive test and a b)negative test? Clue – reconstruct the 2xn table as advised in note #4 above.

APPROACH TO TEACHING

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EBM RESIDENCY PROGRAM:
Teaching Strategies

1. Annual EBM Workshop

2. Bedside Rounds

3. Outpatient Audits
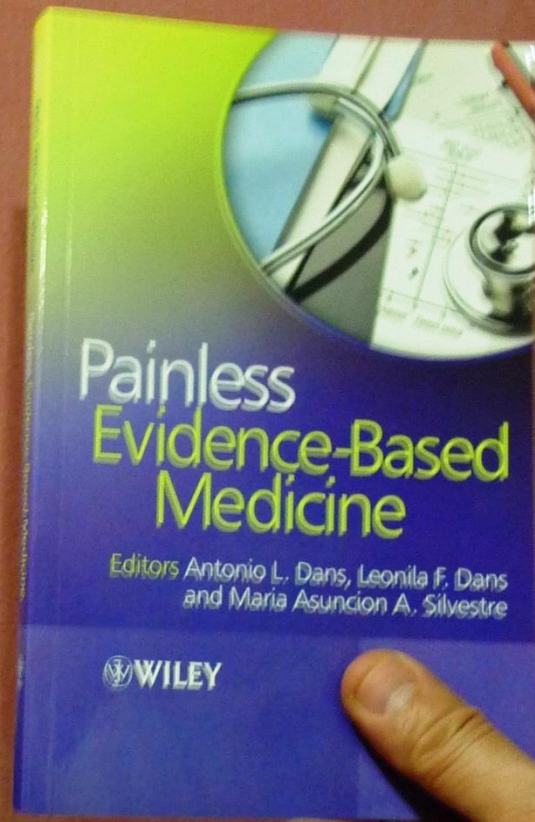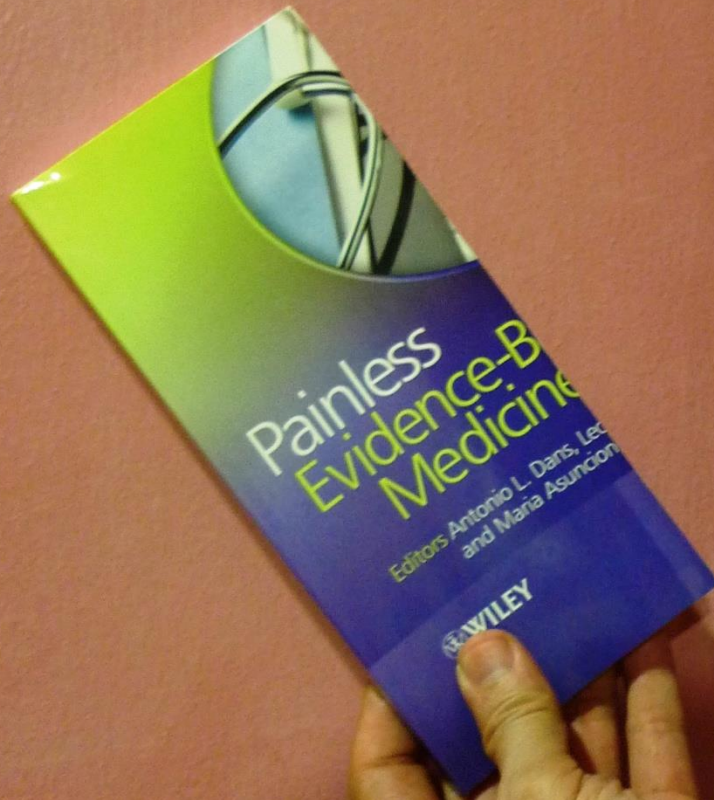
4. Weekly Journal Clubs

5. Dissemination Strategies

OBJECTIVE STRUCTURED CLINICAL EXAM (OSCE)

Station 1   - History and Physical exam

Station 2   - Laboratory and Interpretation

Station 3   - Management

Station 4   - Literature Search

Station 5   - (Time to Appraise)

Station 6   - Discussion of Appraisal

Station 7-9   - 2nd case
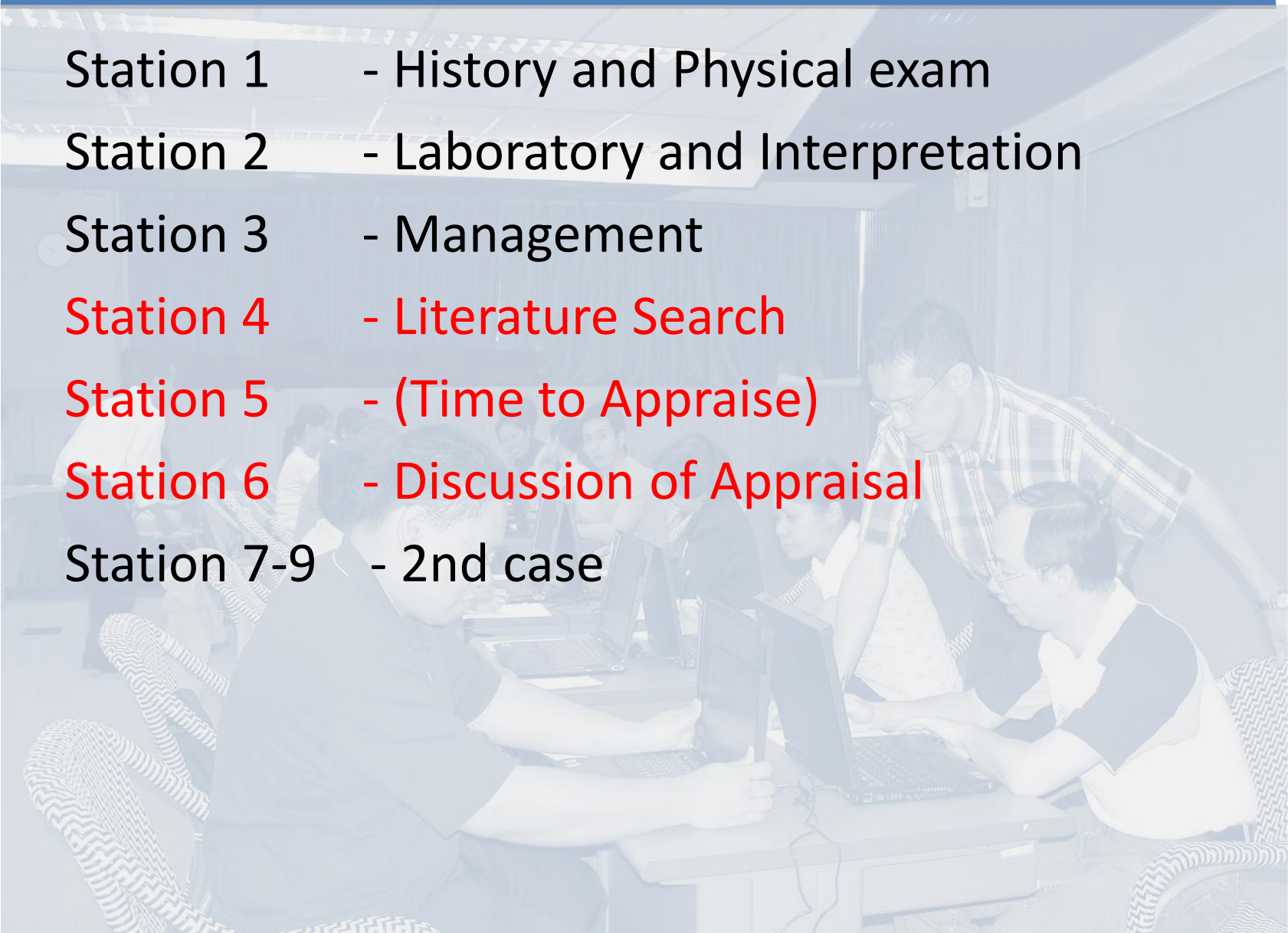
FUTURE DIRECTIONS

- Publish Locally

FUTURE DIRECTIONS

- Publish Locally
- Learn From Other Countries
- Continue Faculty Development
- Infiltrate CPG Development
- Infiltrate Public Health Insurance
- Lay Education
- Inequities in Info Access
- Retire (the paradigm shift is completed)

CONCLUSION

1. Problems Implementing EBM:
   Data Access

HOW RELEVANT IS EBM IN RESOURCE-POOR SETTINGS?

THE
FILIPINOS NEED
YOUR HELP

The worst flood has devastated the entire capital and its surrounding cities.

Rains have started again.
Family members are still missing.
Many are still stranded
without water and food.

You can help.

Go to **www.google.com/landing/typhoon-ondoy.html** for information on volunteering and on how to donate.

Poverty should NOT be
an obstacle to EBM.

It's the reason for EBM!