CHAPTER V

PRESENTATION

I presented the overall view of my thesis on the topic "Improving physician's rational use of antibiotics in children under five years old with acute respiratory infection (ARI) through face-to-face education and implementation of standard treatment guidelines in Bavi District Hospital, Vietnam" on December 14, 2000 to the examination Committee. The presentation was divided into three parts : Essay, Proposal and Data Exercise.

In the essay part, I presented the problem addressed in the thesis, evidences, reasons and consequences for the problems and the conclusions of the issue. I presented the situation of prescribing practices in Vietnam as well as Bavi District Hospital and a conceptual framework of factors affecting irrational use of antibiotic of prescriber. I also presented possible approaches for improving rational use of antibiotic at Bavi District Hospital.

In the proposal part, I presented the study design as well as cyclical medical model through which I will conduct this study step by step. I also presented the process by which I can follow each of steps describes in the model. Moreover, I presented my activity plan including the amount of money that I need to conduct this study.

The third part of my presentation covered data exercise. I presented my objectives and described about data collection method and some results from data exercise. I also presented limitations I faced and lesson learned during the collection of data.

After the oral presentation, the examination committee members asked me questions about my thesis and I tried to answer the queries with my best ability and knowledge. Similarly, the committee member gave me advises to improve my study and I have incorporated those advises into my thesis.

The slides were prepared on Microsoft PowerPoint program and use for the presentation. The contents of the slides are mentioned as follows sequentially as shown to the examination committee.

Title of Thesis

Improving physician's rational use of antibiotics in children under five years old with acute respiratory infection through face-to-face education and implementation of standard treatment guidelines in Bavi District Hospital, Vietnam
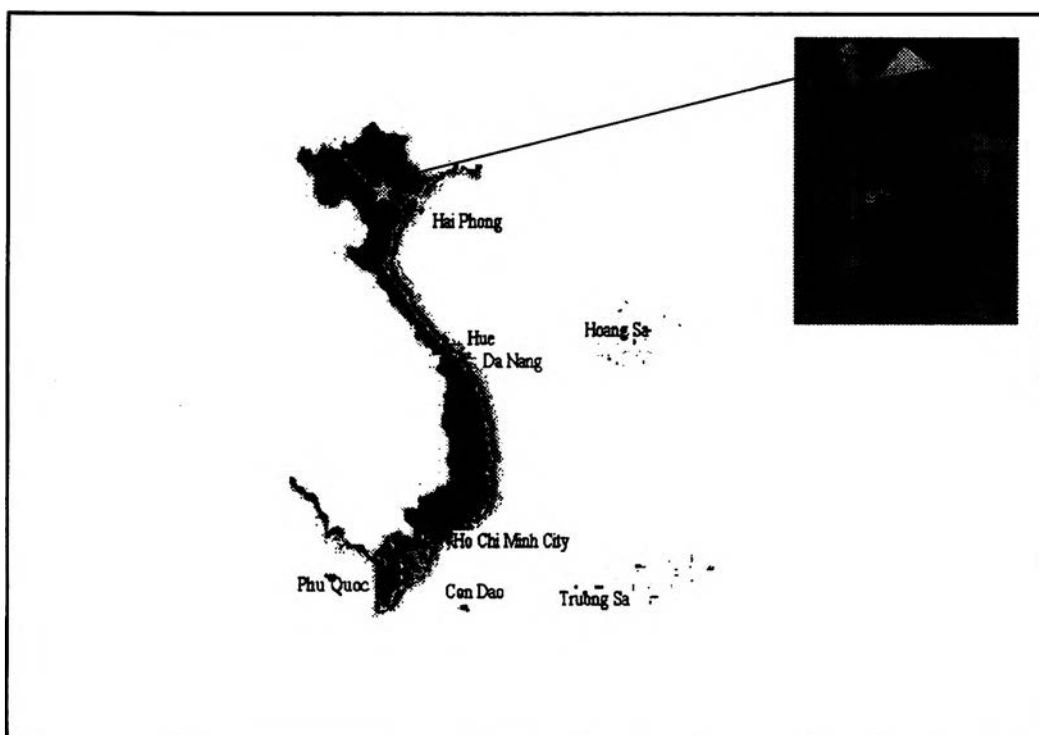
Contents

- 1. Essay
- 2. Proposal
- 3. Data Exercise

Issue

Irrational use of antibiotics in children
under five years old with acute
respiratory infection (ARI) in Bavi
District Hospital, Vietnam

Definitions and Concepts

● What is rational use of drugs?

● What is irrational use of drugs?

● What is irrational use of antibiotics?

● What is acute respiratory infection?

What is rational use of drugs?

Rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time.
(Modify from WHO Nairobi in 1985)

● Appropriate indication

● Appropriate drug

● Appropriate patient

● Appropriate information

● Appropriate monitoring

What is irrational use of drugs?

- The use of drugs when no drug therapy is indicated
- The use of wrong drugs for a specific condition requiring drug therapy
- The use of drugs with doubtful or unproven efficacy
- The use of drugs of uncertain safety status
- Failure to prescribe available, safe, & effective drugs
- Incorrect administration, dosages, or duration

Source:Managing Drug Supply, 1997

What is irrational use of antibiotics?

- The use of unnecessary antibiotic or excessive use of antibiotic
- The ineffective dose
- The inappropriate use of antibiotic together
- The use of antibiotic with wrong indication
- * *The term irrational use of antibiotic in this study is based on standard treatment guideline of ARI developed by WHO and adopted by National ARI program*

What is ARI?

Acute respiratory infection (ARI) is infection in any area of the respiratory tract, including the nose, middle ear, throat (Pharynx),voice box (Larynx), windpipe (Trachea); air passage (bronchi or bronchioles) and lungs.

(WHO)

- Acute upper respiratory infection(AURI)
- Mid respiratory infection
- Acute lower respiratory infection (ALRI)

Why is this study targeted on children under five years old with ARI?

- ARI is the leading cause of morbidity and mortality in children under five years old in both community and hospital
- Irrational use of antibiotic in children under five years old with ARI makes them antibiotic resistant. Consequences of antibiotic resistance lead to increase morbidity and mortality rate in children with ARI

Leading infection killers, 1998 estimate children under five years old in the world (WHO, 1999)

Annual deaths (Millions)

Legend:
- ARI
- AIDS
- Diarrhea
- TB
- Malaria
- Measles
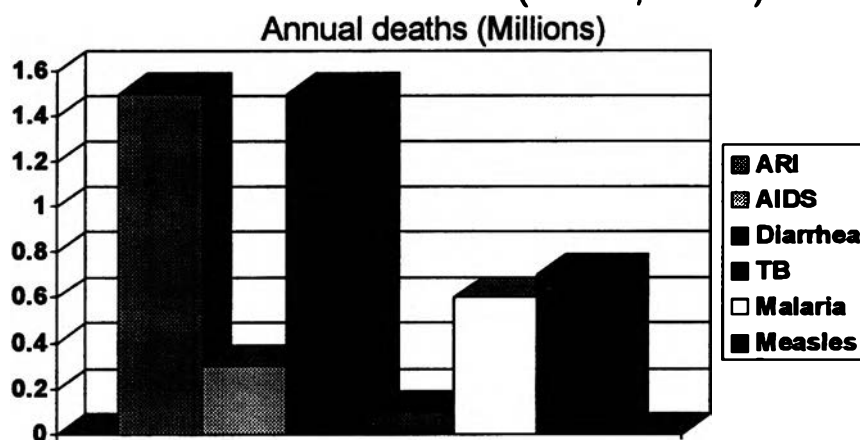
ARI in Vietnam

- Every child under five years old suffer 4 -7 episodes of ARI per year in rural Vietnamm
  (National ARI program, 1995)

- ARI in children under five years old is cause of 40% of hospital admissions in Vietnam (SIDA;UNICEF Vietnam)

- Deaths due to ARI in children under five years old are among top-ten leading causes of mortality in Vietnam: 1.15/P.1000 (National ARI program)
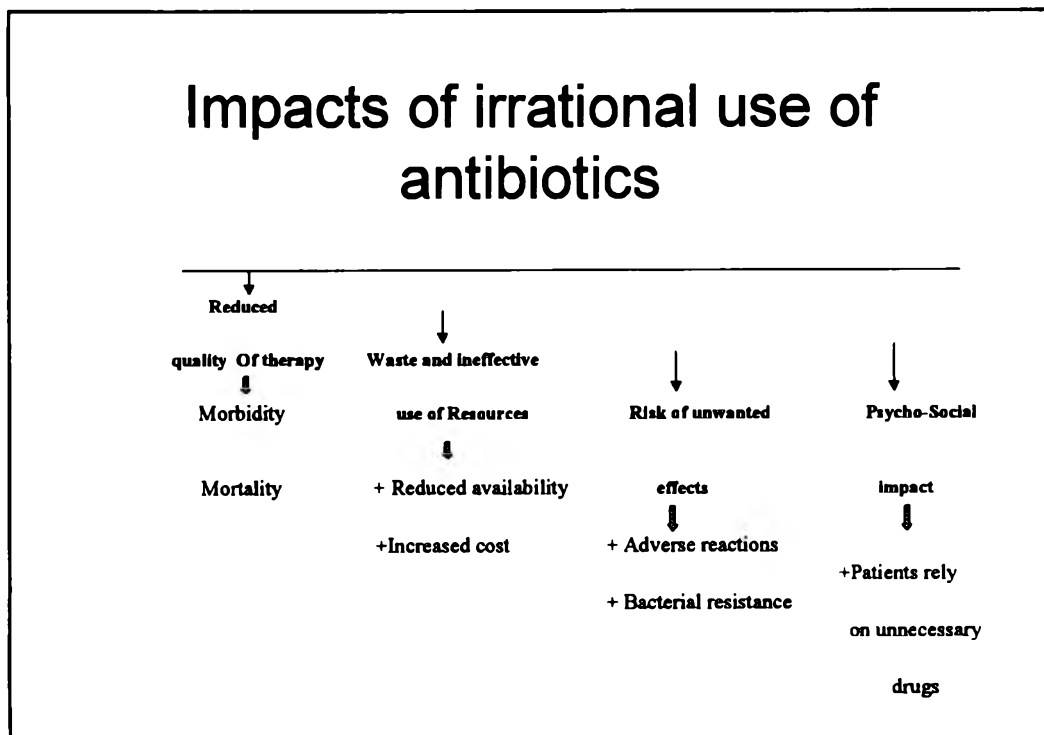
Evidence of problem

● * <u>23%</u> of cases of children under five years old with ARI in District Hospitals had used antibiotics with wrong STG. (National ARI Program,1995)

● * <u>84%</u> of children who had received antibiotic prescriptions had positive C-Reactive protein (CRP) indicating non-bacterial infections
(Survey in Bavi Hospital,1998)

Evidence of problem (continued...)

● * <u>91%</u> of cases of children under five years old with ARI used antibiotics for <u>3 days or less</u>. Only <u>2.7%</u> got right dosage, <u>1.3%</u> got higher dosage and <u>96%</u> got lower dosage.
(Hoang Hiep et al,1995)

● * Children under five years old with ARI in Bavi District used antibiotics frequently <u>(91%)</u> and short course <u>(3.4 days in average)</u>
(Survey in Bavi District, 1998)

Main causes of the problem
Source:Adopted from Finer & Tomson 1992

Dispenser
- Poor training
- No supervision
- Shortage of material
- Patient load
- Financial

Prescriber
- Lack of training
- Poor role models
- Inadequate information
- Financial interest

Irrational use of antibiotics in children < 5 years old with ARI in Bavi, Vietnam

Patient and community
- Lack of printed information
- Prescriber attitude
- Short consulting time
- Cultural beliefs
- Poverty

Drug supply system
- Wrong antibiotic
- Antibiotic shortage
- Expired antibiotic
- Unreliable supply

Impacts of irrational use of antibiotics

Reduced

quality Of therapy

Morbidity

Mortality

Waste and Ineffective

use of Resources

+ Reduced availability

+Increased cost

Risk of unwanted

effects

+ Adverse reactions

+ Bacterial resistance

Psycho-Social

Impact

+Patients rely

on unnecessary

drugs

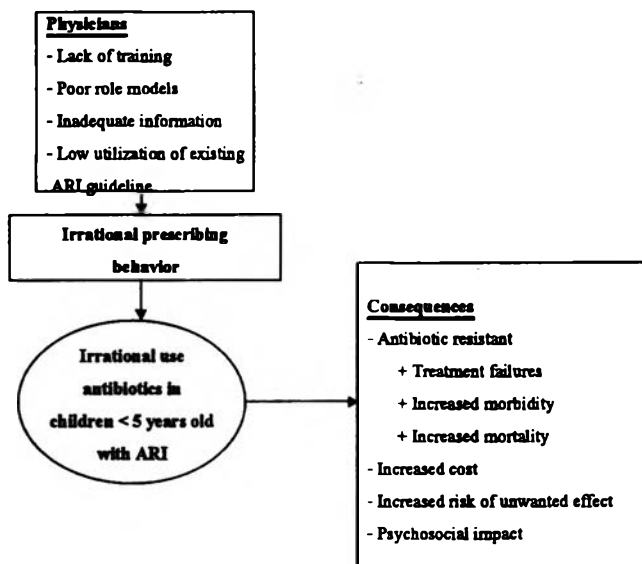# Developing strategies to improve antibiotic use

- Identify the problem
- Identify underlying causes of inappropriate prescribing of physicians
- Possible strategies to improve antibiotic use
- Choose intervention
- Conduct intervention
- Evaluation

(Adopted from Quick et al. 1991)

Identify problem
(Focus on physicians)

- 84% of children who had received antibiotic prescription had positive C-Reactive protein (CRP) indicating non-bacterial infections
  (survey in Bavi Hospital,1998)
- 76% of physicians were aware of ARI standard treatment guideline and 33% of physicians were willing to apply STG (survey in Bavi hospital,1999)
- The physician group is most influenced, and the impact on physicians is better
- Limitation of time, human resources and budget .

Conceptual Farmework
(causes and consequences of problem)

Physicians
- Lack of training
- Poor role models
- Inadequate information
- Low utilization of existing ARI guideline

↓

Irrational prescribing behavior

↓

Irrational use antibiotics in children < 5 years old with ARI

→

Consequences
- Antibiotic resistant
  + Treatment failures
  + Increased morbidity
  + Increased mortality
- Increased cost
- Increased risk of unwanted effect
- Psychosocial impact

Strategies to improve rational use of antibiotics

Educational

To inform or persuade

Managerial
To structure or
guide decisions

Regulatory
To restrict or limit
decisions

List of Possible Intervention

- Educational:
  +Training of prescribers
  + Printed material
  + Approach based on face-to-face contact
- Managerial:
  + Approaches to selection, procurement, and distribution
  + Prescribing and dispending approaches
  + Financing

List of possible intervention (continued...)

- Regulatory:
  + Drug registration
  + Limited drug list.
  + Prescribing restrictions.
  + Dispensing restrictions.
  (Managing Drug Supply, 1997)

Advantages of STG

- For patients:

  + Reduces confusion in patients & increases compliance

- For providers:

  + Gives expert consensus on most effective , economical treatment for a specific setting
  + Provider can concentrate on correct diagnosis
  + Provide a standard to assess quality of care
  + Can also provide a simple basis for monitoring and supervision.

- For Managers and Health Policy Makers:

  + Serve as a basis to control & compare quality of care and control cost

  (Prof. Chitr Sitthi-amorn)

Disadvantage of STG

Ineffective when implemented alone
(Kafuko et al., Wiedenmayer et al.)

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Face-to-face education-The best way to introduce
STG and supervise implementation of STG
because:

- **Organizational & cultural feasibility:**
  + STG of ARI already exists in Bavi District Hospital.
- **Technical feasibility:**
  + No need of sophisticated communication systems or equipment.
- **Likelihood of success:**
  + Two way, participatory & interactive discussion
  + Assesses specific motivation & adopt messages to relate to this motivation
  + Creates verbal agreement & fits better with existing supervisory system
- **Economic feasibility:**
  + Other strategies like training are costly & need wide range of resources

Proposal

Improving physician's rational use of antibiotics in children under five years old with acute respiratory infections (ARI) through face-to-face education and implementation of standard treatment guidelines in Bavi District Hospital, Vietnam
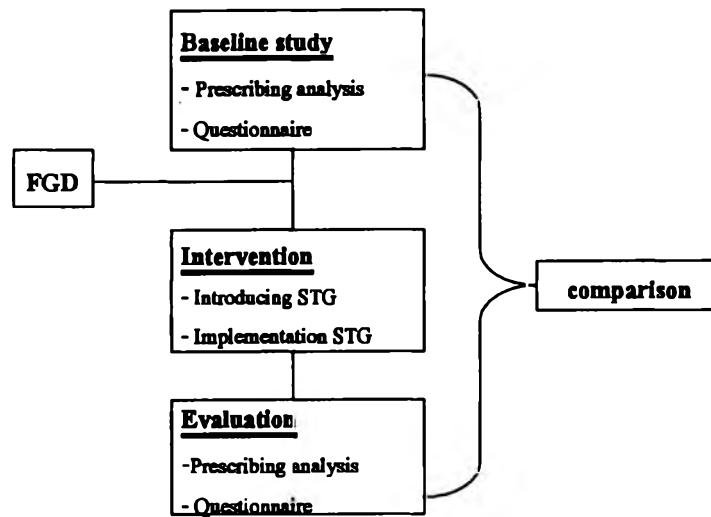
Objectives

- **General Objective:**

  + To improve rational use of antibiotics by Bavi District Hospital physicians in the treatment of acute respiratory infection for children under five years old.

- **Specific Objectives:**

  + To describe ARI prescribing behavior of physicians for out-patients in Bavi District Hospital.
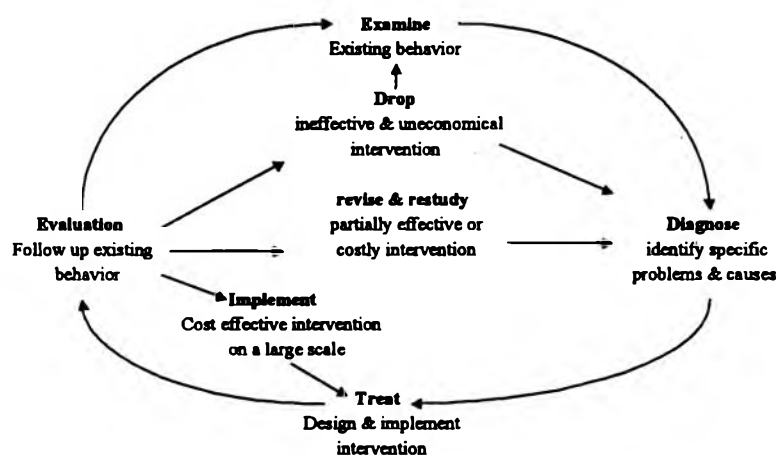
Objectives(Continued...)

+ To increase the knowledge and awareness of the physicians of Bavi District Hospital in the treatment of ARI in children under five years old.

+ To reduce irrational use of antibiotics in the treatment of ARI for out-patients in Bavi District Hospital.

The Progress of the Study Design

Baseline study

- Prescribing analysis

- Questionnaire

FGD

Intervention

- Introducing STG

- Implementation STG

comparison

Evaluation

-Prescribing analysis

- Questionnaire

Steps of determining existing practices & their causes & approaches to solving problems

Examine
Existing behavior

Drop
ineffective & uneconomical intervention

revise & restudy
partially effective or
costly intervention

Evaluation
Follow up existing
behavior

Diagnose
identify specific
problems & causes

Implement
Cost effective intervention
on a large scale

Treat
Design & implement
intervention

Source: Adapted from Laing R. : PRDU CD-ROM Training Program, WHO, DAP, INRUD

Process

*Examination of the existing behavior

+ Collection and analysis of prescription encounters

+ A KAP survey of all physicians

* Diagnosis the motivating factors and/or underlying causes:

+ One FGD will be conducted in Bavi District Hospital.

*Treatment:

+ Introduce STG

+ Establish monthly supervising implementation of STG.

* Evaluation of project:

+ A KAP survey of all prescribers

+ Collection and analysis of prescription encounters

Variable Table

Construct	Variables	Measures/Indicators	Data collection method	Source
Reason for low utilization of existing ARI guidelines	Qualitative assessment of reasons	Description	FGD	Health manager, clinical doctor, chief of nurses, drug dispenser
Knowledge and attitude of doctors about ARI treatment and existing STG	knowledge of doctors about ARI treatment and existing STG Attitude of doctors about existing ARI STG	Knowledge score Attitude score	Questionnaire	Doctors
Appropriate prescribing	Treatment of ARI	% of encounters having antibiotic % of encounters having 1 antibiotic % of ant. encounter having > 2 Ant. % of encounter with Ant. recommended by STG % of encounters having injected Ant. % of encounters having oral Ant. % of encounters having Ant. used by other administration % of Ant. encounters with full dosage of Ant. (Base on STG)	Prescribing analysis	Out-patient ward

Time Plan(2001)

Activity	1	2	3	4	M 5	O 6	N 7	T 8	H 9	10	11	12
1.Discussion with Bavi DH director& Program director	▬											
2.Approval for the study and funds	▬											
3. Forming research team	▬											
4.Evaluation study before intervention		▬▬										
5. Conduct focus group discussion		▬										
6. Develop motivating references			▬									
7. Collection & copying National & WHO guidelines			▬									
8. One workshop in Bavi DH for introducing guideline & evaluation				▬								
9. 24 supervisions with prescribers: 1 time/ month for each ward				▬▬▬▬▬▬								
10. Evaluation study after intervention										▬▬		
11. Analysis & report writing												▬

Budget

Activity	Budget Allocation
1. Per diem: - Preparation phase - Intervention phase - Evaluation, analysis, reporting, dissemination	500$ 1,410$ 3,170$
2. Travel: - Preparation phase - Intervention phase - Evaluation, Analysis, Reporting, Dissemination	120$ 1,120$ 160$
3. Others	500$
Grand Total	6,980$ + Administration (10%) 698$ = 7,678$

Data Exercise

Objectives

- To test the data collection technique.
- To develop the researcher's data management skills.

Data collection Method

* Data collection technique:

+ A KAP survey of prescribers in Bavi District Hospital was conducted in September 2000.

+ A prospective study was conducted in Bavi District Hospital for collection prescription encounters in September 2000.

* Instruments for Data Collection:

+ Questionnaire

+ Prescription encounter analysis form

Findings from Data Exercise

No	Variables	n	%
1	**Indicators of knowledge**		
	- Right answer	348	75
	- Wrong answer	116	25
	- Total questions	464	100
2	**Indicators of attitude**		
	- Full agreement with ARI standard treatment guideline	12	72.7
	- Partial agreement with ARI standard treatment guideline	4	27.3
	- No agreement with ARI standard treatment guideline	0	0
	- Total physicians	16	100
3	**Indicators of practices**		
3.1	**% of encounters having antibiotics:**		
	- # of encounters having antibiotics	29	96.7
	- # of encounters not having antibiotic	1	3.3
	- Total encounters	30	100

Findings from Data Exercise(Continued...)

No	Variables	n	%
3.2	% antibiotic encounters having more than 2 antibiotics on antibiotic encounter		
	-# of encounters having 1 antibiotic	25	86.2
	-# of encounters having 2 or more	4	13.8
	- Total encounters	29	100
3.3	% of antibiotic encounters prescribing recommendation by guideline		
	-# of encounters with antibiotic recommended	23	79.3
	-# of encounters without recommended	6	20.7
	-Total encounters	29	100
3.4	% of antibiotic encounters with right indication		
	-Right indication	20	69.0
	-Wrong indication	9	31.0
	-Total encounters	29	100
3.5	% of antibiotic encounters with full dosage		
	-Full dosage	26	89.7
	-Insufficient dosage	3	10.3
	-Total encounters	29	100

Lessons Learned & Limitations

● Pre-field activity (Questionnaire, schedule meetings etc.)

● Timing of data collection

● Doctor's written prescriptions are often unclear.

● This data exercise use only quantitative method

● Improved estimate for time needed for data collection