THE EFFECTIVENESS OF IMPLEMENTING THE EXPANDED PROGRAM ON IMMUNIZATION FOR INFANT OF HEALTH CENTERS IN CHAIYAPHUM PROVINCE

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Reongchai Boonpool

THE EFFECTIVENESS OF IMPLEMENTING THE EXPANDED PROGRAM ON IMMUNIZATION FOR INFANT OF HEALTH CENTERS IN CHAIYAPHUM PROVINCE

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ABSTRACT

The Expanded Program For Immunization (EPI) for infants program implemented in Chaiyaphum Province during the 2003 fiscal year did not cover the original number of infants. This study aimed at assessing the effectiveness of health centers in implementing the EPI for infants and analyzed the relationships between managerial resources and knowledge, managerial processes, and program effectiveness. A total of 167 health center personnel responsible for the EPI for infant were selected to answer a self-administered questionnaire. One hundred and twenty seven completed questionnaires were returned (76.05%) for statistical analysis which included percentage, mean, standard deviation, Fisher's Exact test, and Pearson Product Moment Correlation Coefficient.

It was found that the effective coverage of the EPI for infants was mostly at a good level (93.70%). A little more than a half of health center personnel (56.69%) had a medium level of knowledge. Manpower and materials were said to be sufficient at 64.57 and 74.80 percent respectively. However, the budget was said to be insufficient (61.42%). The overall managerial process was rated between medium (40.94%) and good (44.09%) levels. However, planning, directing, controlling, and organizing were at a good level, 81.80%, 74.80%, 57.48%, and 55.12% respectively, but staffing was at a medium level (48.03%). The adequacy of budget and material maintenance was statistically and significantly related to the effectiveness of health centers in implementing the EPI for infant in Chaiyaphum Province at p-value < 0.05.

It is suggested from the study that administers and heads of health centers put more emphasis on a training program for health center personnel responsible for the EPI for infants. Creation of a manual for EPI operation is also recommended along with adequate provision of support materials such as health education materials, refrigerators as well as incentives, expendable costs, and per diem for follow-up activities.

KEY WORDS : EFFECTIVENESS/EXPANDED PROGRAM ON IMMUNIZATION (EPI)

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ประสิทธิผลการดำเนินงานสร้างเสริมภูมิคุ้มกันโรคในเด็กอายุต่ำกว่า 1 ปี ของสถานีอนามัย ในจังหวัดชัยภูมิ (THE EFFECTIVENESS OF IMPLEMENTING THE EXPANDED PROGRAM ON IMMUNIAZTION FOR INFANT OF HEALTH CENTERS IN CHAIYAPHUM PROVINCE)

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บทคัดย่อ

การดำเนินงานสร้างเสริมภูมิคุ้มกันโรคในเด็กอายุต่ำกว่า 1 ปี ในจังหวัดชัยภูมิ ปีงบประมาณ 2546 มีปัญหาการบรรลุเป้าหมายไม่ครอบคลุมทุกพื้นที่ การวิจัยครั้งนี้มีวัตถุประสงค์ เพื่อประเมินประสิทธิผลการดำเนินงานสร้างเสริมภูมิคุ้มกันโรคในเด็กอายุต่ำกว่า 1 ปี และวิเคราะห์ความสัมพันธ์ระหว่างทรัพยากรการบริหาร ความรู้ และกระบวนการบริหารจัดการกับประสิทธิผลการดำเนินงานสร้างเสริมภูมิคุ้มกันโรคในเด็กอายุต่ำกว่า 1 ปี เก็บรวบรวมข้อมูลจากรายงานความครอบคลุมของการได้รับวัคซีน ปี 2546 ของสำนักงานสาธารณสุขจังหวัดชัยภูมิ และใช้แบบสอบถามกับเจ้าหน้าที่สาธารณสุขระดับสถานีอนามัยที่รับผิดชอบงานสร้างเสริมภูมิคุ้มกันโรค จำนวน 167 คน ได้รับแบบสอบถามคืนมา 127 ชุด คิดเป็นร้อยละ 76.05 จากนั้นวิเคราะห์ข้อมูลด้วยสถิติ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน ใช้สถิติฟิชเชอร์เอ็กแซค วิเคราะห์ความสัมพันธ์ระหว่างทรัพยากรการบริหารกับประสิทธิผลการดำเนินงาน และใช้สถิติสัมประสิทธิ์สหสัมพันธ์แบบเพียร์สัน วิเคราะห์ความสัมพันธ์ระหว่างกระบวนการการบริหารจัดการกับประสิทธิผลการดำเนินงานสร้างเสริมภูมิคุ้มกันโรค

ผลการวิจัยพบว่า ประสิทธิผลการดำเนินงานสร้างเสริมภูมิคุ้มกันโรคของสถานีอนามัยส่วนใหญ่มีประสิทธิผล ระดับดี (ร้อยละ 93.70) ความรู้ของเจ้าหน้าที่ผู้รับผิดชอบงานสร้างเสริมภูมิคุ้มกันโรค ส่วนใหญ่อยู่ระดับปานกลาง (ร้อยละ 56.69) ส่วนทรัพยากรการบริหารในด้านบุคลากร วัสดุอุปกรณ์ มีความเพียงพอ ร้อยละ 64.57 และ 74.80 ตามลำดับ และด้านการเงินไม่เพียงพอถึงร้อยละ 61.42 สำหรับกระบวนการบริหารจัดการในภาพรวมอยู่ในระดับปานกลางถึงระดับดี (ร้อยละ 40.94 และ 44.09 ตามลำดับ) รายด้าน พบว่า ส่วนใหญ่ทั้งการวางแผน การอำนวยการ การควบคุม และการจัดองค์การ อยู่ในระดับดี (ร้อยละ 81.8, 74.80, 57.48 และ 55.12 ตามลำดับ) แต่ด้านการบริหารงานบุคคลส่วนมากอยู่ในระดับปานกลาง (ร้อยละ 48.03) และพบว่าความพอเพียงของงบประมาณและการบำรุงรักษาวัสดุอุปกรณ์มีความสัมพันธ์กับประสิทธิผลการดำเนินงาน อย่างมีนัยสำคัญที่ระดับ 0.05

ข้อเสนอแนะในการวิจัย คือ ควรจัดอบรมให้ความรู้เกี่ยวกับงานสร้างเสริมภูมิคุ้มกันโรคให้แก่ผู้รับผิดชอบงานสร้างเสริมภูมิคุ้มกันโรคในประเด็นที่เป็นส่วนขาด และจัดทำคู่มือการดำเนินงานสร้างเสริมภูมิคุ้มกันโรค พร้อมทั้งสนับสนุนวัสดุอุปกรณ์ เช่น สื่อสุขศึกษา ตู้เย็น อีกทั้งค่าตอบแทน ค่าเบี้ยเลี้ยง และค่าใช้สอยในการติดตามงาน

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CHAPTER 1
INTRODUCTION

1. Background and Statement of Problems

An Expanded Program on Immunization (EPI) has been recognized as an important target in Thailand by the World Health Organization (WHO) since 1976. The Ministry of Public Health (MOPH) has included a control measure strategy for vaccine-preventable diseases in the national health development plan since 1977 (MOPH, 1995: 1). This systematic EPI program has been integrated into health care delivery system by using 5 basic vaccines, namely BCG (against Tuberculosis), DPT (against Diphtheria, Whooping Cough, and Tetanus), and OPV (against Poliomyelitis) under supports from the Department of Health. At present, the Department of Communicable Diseases has taken full responsibility with 2 objectives including (1) to reduce morbidity and mortality of vaccine preventable diseases, and (2) to promote EPI services (Mahidol University, 1991: 30-32). Since 1984, the measles vaccine has been added into the EPI plan for 9 months old children who have never got sick (Manit Teratontiganonta et al., 1992: 1). From 1992 the program has expanded to cover hepatitis-B vaccine (HBV) for newborn and infant (0-1 year) throughout Thailand (Supamitra Chunhasuttiwatana, 1996: 182).

The Department of Communicable Diseases Control, MOPH has expanded the EPI program by adopting an Acceleration of Expanded Program on Immunization (AEPI) according to the government policy. In order to be consistent with the aim of UNICEF that every child is completely received all vaccination under the Universal Child Immunization (UCI) program by 2000. This program aimed to increase vaccination coverage and to reduce the drop out rate for reducing morbidity and mortality from vaccine preventable diseases.

In Chaiyaphum province, there are 167 health centers covering 15 districts and 1 sub-district. The coverage rates of EPI for infant in Chaiyaphum province for BCG, HBs, DPT, OPV, and measles were 100.00, 98.98, 99.09, and 90.08 percent respectively. When considering separately according to vaccine types and districts, it was found that the lowest coverage rate as compared to the target was BCG (37.92%) in Bumnejnarong district, HBV_3 (63.99%), DPT (57.85%), OPV (57.85%), and measles (61.195) in Jaturat district. However, when considering the MOPH policy that said, " every child should receive complete does of vaccination", especially BCG, HBV, DPT, OPV, and measles in a number of 9, 7, 7, 7, and 9 districts respectively. The coverage rates for EPI for infant in many districts of Chaiyaphum province are not met the MOPH target. Therefore, there is a high chance that some infants may get sick from Diphtheria, Whooping cough, Tetanus, Poliomyelitis, Hepatitis B, Tuberculosis, or Measles. If infants get sick from these kinds of vaccine preventable diseases, the symptoms are normally severed and difficult to treat. The patients may become handicapped or died if not receiving a proper care in time. The impact may not limit to only a child but also their family in terms of some economic and social burdens as well as to overall aspects of quality of life. Therefore, it was necessary that some critical factors for EPI program improvement be studied to meet the target established by the MOPH. Only knowledge and ability of health personnel would not guarantee for achieving the target. Managerial process and administrative resources such as money and materials are important for carrying out the EPI for infants by health centers throughout Chaiyaphum province. The findings from this study would be useful for improving or solving problems and difficulties in order to increase its effectiveness in the future.

2. Research Questions

This study was conducted to answer the following questions.

2.1 How was the effectiveness of health centers in implementing EPI for infant in Chaiyaphum province?

2.2 How were the administrative resources utilized in managing EPI for infant program in Chaiyaphum province?

2.3 How would the effectiveness of EPI for infant relate to administrative resources and managerial process in Chaiyaphum province?

3. Research Objectives

3.1 General Objectives

To evaluate the effectiveness of health centers in implementing EPI for infant in Chaiyaphum province in 2003.

3.2 Specific Objectives

3.2.1 To measure the effectiveness of health centers in implementing EPI for infant in Chaiyaphum province in 2003.

3.2.2 To explain managerial resources including manpower (human resources), money (budget), and materials of health center as well as knowledge of responsible personnel in implementing EPI for infant in Chaiyaphum province in 2003.

3.2.3 To explain the managerial process including planning, organizing, staffing, directing, and controlling of health centers in implementing EPI for infant in Chaiyaphum province in 2003.

3.2.4 To analyze the relationships between managerial resources and managerial processes, and the effectiveness in implementing EPI for infant of health centers in Chaiyaphum province in 2003.

4. Research Hypotheses

4.1 There were relationships between managerial resources included manpower (human resources), money (budget), materials, and knowledge of responsible personnel and the effectiveness of health centers in implementing EPI for infant in Chaiyaphum province in 2003.

4.2 There were relationships between managerial process included planning, organizing, staffing, directing, and controlling aspects and the effectiveness of health centers in implementing EPI for infant in Chaiyaphum province in 2003.

5. Research Variables

5.1 Independent Variables

5.1.1 Managerial resources

5.1.1.1 Manpower (Human resources)

5.1.1.2 Money (budget)

5.1.1.3 Materials

5.1.1.4 Knowledge

5.1.2 Managerial process

5.1.2.1 Planning

5.1.2.2 Organizing

5.1.2.3 Staffing

5.1.2.4 Directing

5.1.2.5 Controlling

5.2 Dependent Variables

The effectiveness of health centers in implementing EPI for infant in Chaiyaphum province in 2003, which, was 100 percent goal achievement according to MOPH policy.

6. Assumption

The performance of health center in carrying out EPI for infant has been contributed by all personnel but this study would focus only on one staff who was assigned to be responsible for EPI in the health center because of his/her knowledge and representative roles.

7. Operational Definitions

7.1 The effectiveness of EPI for infant means goal achievement based on the MOPH policy stated that 100 percent vaccination coverage in all areas (sub-district/ village).

7.2 The EPI for infant means that every infant received all vaccines as follows:

BCG	1 time (at birth)
Hepatitis B	3 times (at birth, 2 months, 6 months)
DPT	3 times (2 months, 4 months, 6 months)
Poliomyelitis	3 times (2 months, 4 months, 6 months)

7.3 Managerial resources mean manpower (human resource), money (budget), materials, and knowledge needed or available for implementing EPI for infant.

7.4 Manpower mean health officers responsible for EPI for infant in Tambon, who had received basic training appropriated to working with community.

7.5 Money means all budget provided for implementing EPI for infant by the health center including general expenses, wage, and material costs from both public and private capital resources.

7.6 Materials mean necessary tools and expendable materials used in implementing EPI for infant including needles and syringes, vaccines, supplies, refrigerator, icepack, vaccine cooler, thermometer, and application forms, in term of adequacy and timely for allocation, maintenance, and dispensing.

7.7 Managerial process means a systematic application in implementing the EPI for infant, which included planning, organizing, staffing, directing, and controlling.

7.8 Planning means a process of data and situation analysis for setting objectives and operational methods in implementing the EPI for infant.

7.9 Organizing means an establishing of scope, line of command and delegation of authority for carrying out the EPI for infant.

7.10 Staffing means choosing and assigning competent personnel to carry out the EPI for infant through selecting, orienting, training, and developing activities.

7.11 Directing means making decisions to solve problems, delegating responsibility and authority, participating in operation, and coordinating with other agencies for implementing the EPI for infant.

7.12 Controlling means checking the performance of the EPI for infant against the plan by investigating monthly reports and solving necessary operational problems.

8. Conceptual Framework

Based on research issues and literature reviews on systems theory, the conceptual framework of the study could be formulated as follows.

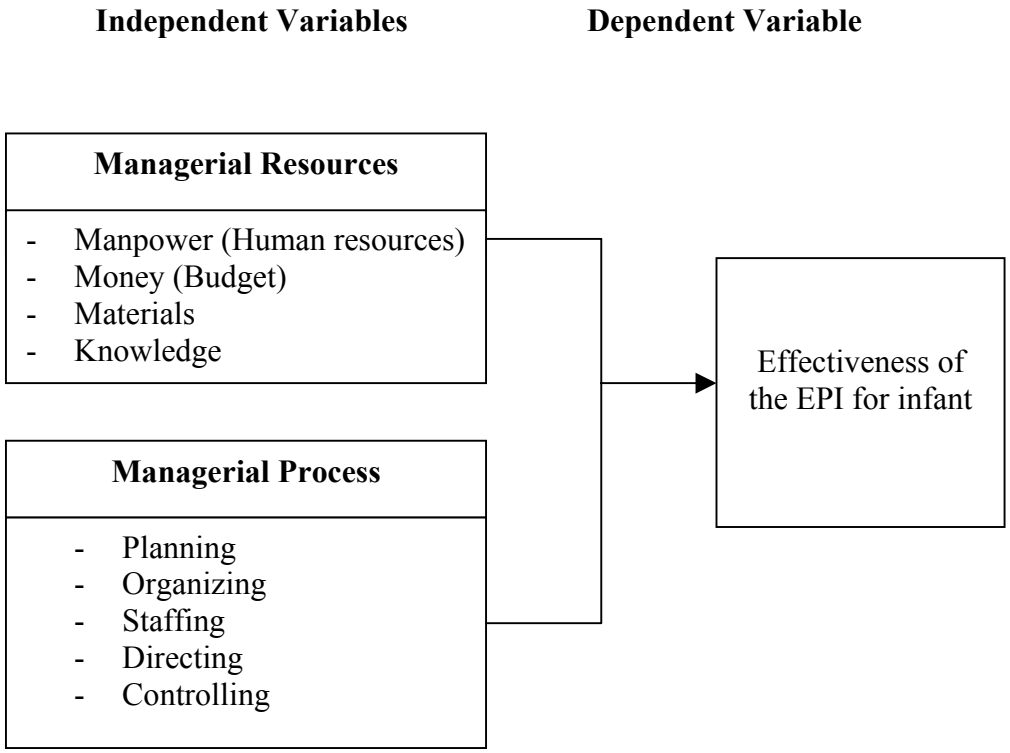


Figure 1. Conceptual framework

CHAPTER 2
LITERATURE REVIEW

This research was to study the effectiveness of in implementing health centers EPI for infant in Chaiyaphum province. Literature review on related theory, articles, and researches were summarized and divided into 4 parts as follows.

Part 1 Guideline on Expanded Program on Immunization (EPI) implementation

Part 2 Evaluation concepts

Part 3 Management theory and concepts

Part 4 Related researches

Part 1 Guideline on Expanded Program on Immunization (EPI) Implementation

1. EPI policy in health center

Obtaining all required vaccines is a basic right for every infant in Thailand responsible by the MOPH. Therefore, all related organizations and personnel should be aware of the MOPH policy on EPI for its effectiveness and efficiency as follows.

1.1 Every child in Thailand must obtain all vaccines and boosters required by the MOPH as a basic right.

1.2 Vaccination services must be strictly performed on the basis of convenience and safety by responsible personnel with continuous service quality improvement.

1.3 All vaccines used for this EPI must have good quality confirmed by assigned laboratories and always kept in an appropriate temperature.

1.4 EPI activities must be carried out to cover all target population with high priority and continuously.

1.5 EPI activities will try to protect most people from vaccine preventable diseases by increasing a number of vaccines appropriated to epidemiological patterns of diseases and national health manpower.

1.6 EPI activities must be carried out in all areas consistent to other health plans and programs such as health for all and a half-century for Thai children program in order to improve highest efficiency and benefits for the population.

1.7 EPI activities will provide knowledge to general population about vaccine preventable diseases and various types of vaccine.

2. Schedule for EPI from Birth to 1 year.

Age	Vaccine	Suggestion
Newborn	BCG	Not for HIV positive infant with AIDS symptoms
	HBV_1	1. given within 24 hours after delivery or within 7 days if delivery at home 2. If mother is a carrier of HB, should give HBIG to infant
2 months	DPT_1, OPV_1	/
	HBV_2	If mother is a carrier of HB, should give HBV_2 at 1 month
4 months	DPT_2, OPV_2	/
6 months	DPT_3, OPV_3 HBV_3	/
9-12 months	MMR_1	If missing during 9-12 months, follow-up and give vaccine as quickly as possible

Part 2 Evaluation Concepts

1. Definition of Evaluation

To evaluate means to find out the value of something. The word "evaluate" is similar to estimate, assesses, and appraise. An evaluation is a part of managerial process for health development. It is the result of monitoring of policy, strategies, and action plans as well as efficiency, effectiveness, and impact (Thonglaw Dejthai, 1999: 324).

Many people had defined an evaluation in the same direction as follows:

1.1 Evaluation is the comparison between the performance and expected outcomes (Dror, 1968: 25; Good, 1973: 209).

1.2 Evaluation is the process of modeling, collecting, and analyzing useful data for making decision on operational plans or programs or projects (Weiss, 1972; Morris and giblon, 1978; Chambers, Wedel and Rodwell, 1992).

1.3 Evaluation is an activity of collecting data, analyzing the meaning for identifying facts in order to find ways to improve and mange the effectiveness and efficiency of programs/ projects (Suchman, 1967: 67; Seriven, 1973; Franklin and Thrasher, 1978: 24; Ratnan, 1977).

Thompson (1975: 14) summarized the meaning of an evaluation as a process to identify value or achievement according to predetermined objectives. The steps are (1) to set objective of an evaluation, (2) to establish standards to measure are achievement, (3) to set and define the level of achievement, and (4) to suggest for future project activity.

Ananta Gatuwonge (1991: 556) summarized that an evaluation was a matter of investigating the result of various activities by using objectives as tools.

Therefore, an evaluation was the process of actions that had a specific purpose of its own.

Rungsan Mahasantana (1990: 739) stated that an evaluation was a comparison between the result of real practices and expected outcomes or targets, which had 5 important issues as follows.

(1) Some things to evaluate
(2) Some things to compare
(3) Indices and indicators
(4) Methods used to obtain data or evaluation methods
(5) Analyzing and translating

Jindaluk Wattanasin (1992: 682) defined an evaluation as the process of systematic consideration with reasonable relations about efficiency, effectiveness, and impact of activities according set objectives. The evaluation was an organizational process established for improving present implementation and helps the management in planning, putting some details, and making decision for the future.

Somchai Durongdej (1999: 4) defined an evaluation as a systematic process of analysis and identifying values. Because evaluation is a part of planning and implementing various projects or activities, there must be clear criteria and indicators for value comparisons.

In summary, evaluation could be defined as a scientific and systematic process that had specific objectives for collecting and analyzing data to meet predetermined achievement or related standards in term of adequacy, effectiveness, and efficiency for judging values as well as diagnosing alternatives to improve and increase programs/ projects efficiency and effectiveness.

2. Program/Project Evaluation

There are three types of program/ project evaluation according to practical process as follows:

2.1 Ex-ante Evaluation. This is done during the program/ project preparation in order to analyze for the feasibility of program/ project implementation by considering all related aspects such as a number of manpower, ability to perform their job, techniques and materials, source of funds, and other social factors as well as potential outcomes. This type of evaluation is commonly known as the feasibility study.

2.2 Ongoing Evaluation/Formative Evaluation/ Monitoring/ Progress Evaluation. This type of evaluation is done after launching the program/ project for a period of time to make that the program/ project progress correctly and completely, especially the process and activities.

2.3 Ex-post Evaluation/ Summative Evaluation. This type of evaluation is done at the time of finishing the program/ project. It is an overall collecting of program/ project analysis and results in order to provide some suggestions for future improvement. This evaluation will be conducted according to program/ project components, criteria, standards, and indicators as well as limitations and important assumptions.

3. Method of Evaluation

3.1 Components of Evaluation

In any evaluation, there are some specific components that should be taken into account with varying degrees of emphasis as follows (WHO, 1981: 51-52).

3.1.1 Relevance It relates to the rationale for adopting health policies in terms of their response to social and economic activity, and to having programs/ projects, activities, services or institutions, in terms of their response to essential human needs and social and health policies and priorities.

3.1.2 Adequacy. It implies that sufficient attention has been paid to certain previously determined courses of action, such as those that have to be considered during program/project formulation.

3.1.3 Progress. It is concerned the comparison of actual with scheduled program/ project delivery, the identification of reasons for achievements or shortcomings.

3.1.4 Efficiency. It is an expression of the relationships between the results obtained from a health program/ project or activity and the efforts expanded on it in terms of manpower (human), money (financial), and other resources, health processes and technology, and time.

3.1.5 Effectiveness. It is an expression of the desired effect of a program/ project, service, institution, or support activity in reducing a health problem or improving an unsatisfactory health situation. It measures the degree of attainment of the predetermined objectives and targets of the program/ project, services, institutions, and support activities.

3.1.6 Impact. It is an expression of the overall effect of a program/ project, services, or institution on health development and on related social and economic development.

3.2 Indicators

Indicators are variables, which help to measure changes, directly or indirectly. In the field of medical and health according to systems theory, a number of indicators must be designed to measure each component as follows.

3.2.1 Input Indicator measures for quality and quantity of resources.

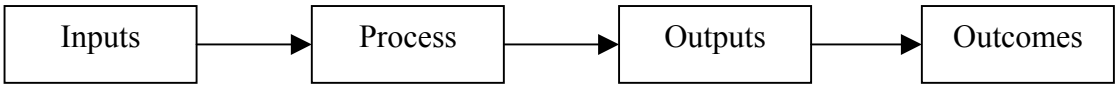
3.2.2 Process Indicator measures the manner and extent of carrying out the program/ project.

3.2.3 Output Indicator measures the accomplishments of the program/ project objectives.

3.2.4 Effect Indicator measures the outcomes of service provision.

3.2.5 Impact Indicator measures the outcome/ effect of the program/ project in terms of health status improvement.

Based on the systems theory approach, there is a diagram worth considering as follow:



When talking about an outcomes, there are three elements involved, especially in the field of medical and health, including outputs/services, effects, and impacts. Output/service is an immediate outcome while effect is an intermediate outcome, and impact is an ultimate outcome.

Outputs/ products/services are immediate results produced by activities or the process of program/project implementation.

Effects are benefits that individuals and groups received after finishing the program/project in terms of knowledge, attitudes, and behavior changes.

Impact can be reflected by the effect of the program/ project on the population beyond efficiency and effectiveness but in terms of degrees of improvement in the overall health and socioeconomic situation and quality of life.

From the above concept, it can be summarized for a better understanding as the following formula.

Outcomes = Outputs/ Products/ Services + Effects + Impacts

However, there five types of indicators of progress that should be considered to evaluate the program/ project as follows:

(1) Health policy indicators such as political commitment, allocation of resources, community involvement, organizational and managerial framework.

(2) Health status indicators such as weight of the newborn, weight/ age ratio in children, mortality rate, morbidity rate, disability, and socio-psychopathology.

(3) Social and economics indicators such as population growth, gross national products (GNP), gross domestic productions (GDP), income distribution, unemployment, literacy and housing.

(4) Provision of health care indicators such as availability, utilization of services, and quality of care.

(5) Health care coverage indicators such as level of health literacy, availability of services, availability of essential drugs, and referral institutions.

In the preliminary evaluation, inputs indicators, process indicators, outputs indicators, effect indicators, and outcome indicators are necessary for assessing the status of the program/ project in terms of direction and outcomes. Comparing outcomes with set criteria and standards can do this overall evaluation.

4. Meaning Of Effectiveness

An evaluation in the managerial context should be a continuous process focusing on solving problems and improving health care services consistent with the situations to increase efficiency and effectiveness. It may cover the basic foundation consideration and is able to summarize clearly for its validity, relevancy and sensitivity (Chainat Jittawatana, 1997: 4).

Effectiveness is a measure of the benefits (degrees of attainment of the objective) that result from the allocation of resources toward a health problem. It is an expression of the desired effect of a program/ project, service or institution in reducing a health problem or improving an unsatisfactory health situation. It measures the degree of attainment of the predetermined objectives and targets of the program/ project, service or institutions (WHO, 1981: 17). Another word, the effectiveness is the degree to which a stated objective is being achieved (Thonglaw Dejthai, 1999: 330).

The MOPH (1997: 8) defined an evaluation as the comparison between results and targets or objectives of organization.

From the above definitions, the effectiveness, in this study, means the achievement of EPI implementation as compared to predetermined targets that all children receive complete basic vaccination according to criteria.

5. Effectiveness Evaluation

At present, there are different methods used for evaluation depending upon situations, objectives, and evaluators themselves. In the field of medical and public health or social sciences, the most favorite method for evaluation is the systematic decision-oriented evaluation (Nawarat Suwannapong, 1998: 51).

Effectiveness evaluation is focused mainly on goals or objectives as a good- based approach to make systematic decision. It is the final stage of program/ project implementation, which is done after finishing the operation. However, effectiveness evaluation needs to have clearly stated policy, strategies, plans, and activities in terms of manpower, money, and materials. Problems are prioritized correctly, response to community needs, and consistent with socioeconomic development.

Purachai Peamsomboon (1987: 42) stated that effective evaluation did not care whether a project operate as planned but it focused on the measurement of results in term of objectives achievement.

Anan Katuwong (1991: 579) explained that effective evaluation could be done by considering the following three elements.

(1) Objective is a comparison between actual and expected achievement.

(2) Resource is a comparison between a number or quantity of resources needed and actual practice in using resources.

(3) Activity is a comparison between planned activity and actual activity.

For this research, the effectiveness evaluation on EPI for infant implementation of health center in Chaiyaphum province was measured by using the MOPH criteria of 100 percent coverage.

Part 3 Management Concepts and Theories

1. Definition of Management

Administration and management are used interchangeably because the ultimate goal is to get things done but may be used differently depending upon the settings. Administration is commonly used in the public setting, while management is common in the private setting. However, some experts had tried to differentiate between the two by saying that administration would deal with implementing the policy and plans (Thonglaw Dejthai, 1999: 50).

Somyos Mavigarn (1995: 17-18) stated that giving the meaning of administration and management was complicated because there was no generally acceptable definition. But Mary Parker Follett gave the most popular one. Follett defined administration or management as “an art of getting work done by other people”. This means that administration or manager did not do the work but would facilitate others to work to achieve objectives.

Administration or management might be defined as a process of planning, organizing, commanding, and controlling the efforts of organizational members and resources utilization for achieving predetermined goals.

Suthee Suthisomboon (1987) defined management as an implementation to achieve goals and objectives by using resources such as man, money, materials, and methods. Another word, management was to get things dine by others.

Kreitner (1986: 6) summarized that management was a process of working with and by others for achieving organizational objectives under constant changing environment by using limited resources effectively and efficiently. Therefore, administration or management must have 4 important components as follows:

(1) working with and by others to achieve organizational objectives;

(2) with efficiency and effectiveness;

(3) by making the most out of limited resources; and

(4) under constant changing environment.

Thonglaw Dejthai (1999:52) mentioned that administration or management had many different definitions but the most acceptable one was that "management" is getting things done". This definition emphasized on work achievement with a specific focus on operational objectives. Therefore, an administration or management would have 5 characteristics as follows:

(1) Goals or objectives.

(2) People as an important factor

(3) Using resources such as man, money, materials, and methods

(4) Implementation process

(5) Working cooperatively with groups of people to achieve objectives

In summary, administration is the science and art of getting administrative resources such as man, money, and materials to assembly according to administrative process for achieving predetermined objectives by being aware of efficiency, effectiveness, economy, fair, honesty, responsibility, and services sufficient to needs of population.

2. Managerial Resources

Sompongse Kasemsin (1983: 7) gave the meaning of managerial resources as important resources consisting of 4 factors including manpower, money, materials, and method known as 4 M's. All these factors were recognized as important resources because they were utilized by every organizations with no exception whether public or private enterprises. At present, managerial resources are expanding to cover more than 4 factors. William T. Greenwood explained that managerial resources had 7 factors including Manpower, money (financing), materials, authority, time, will, and other facilities. Special emphasis was put on the importance and necessity of authority and time in such a way that without authority nothing would be possible. Also timing was everything that should be appropriated and sufficient for making things happen to meet work requirements. In business administration, administrative resources were known as 6 M's including man, money, material, method, machine, and marketing.

In any case, even though there were some additional factors and details on resources, the 4 M's connotation was still valid as basic managerial resources for any kinds of management and organizations.

In summary, managerial resources were administrative factors for achieving predetermined objectives, which included man, money, material, and knowledge for this study.

2.1 Man

It has been recognized that "man" is the most important factor in administering work and organizations because man can use all other resources. Therefore, if organizations can recruit good persons who are knowledgeable and capable for work and can motivate them to work, such organizations will, no doubt, progress to prosperity with effective and efficient goals achievement. However, in order to recruit good employees with full competence and retain them, organizations must have excellent personnel administration system.

Piyathida Tridech (1993: 15) stated that health managerial resources were generally included four factors, namely man, money, materials, and management or 4M's. But due to present organizational expansion, new technologies have been applied with increasing concerns about feelings and needs of employees, and introducing human labor replacing machines and tools. Therefore, managerial resources are also expanded to include another 3 M's, namely marketing, morale, and machine. This would add up to 7 M's for managerial resources. However, administrators will have to consider what kinds of resources are necessary for their work depending upon types of work and situations.

Somyos Naveegarn (1995: 450) mentioned that the personnel management process had eight consecutive steps as follows.

(1) human resources planning
(2) recruitment
(3) selection
(4) induction and orientation
(5) training and development
(6) performance appraisal
(7) transfer, promotion, demotion
(8) separation

Thonglaw Dejthai (1999: 238-239) mentioned that recently "human resource management" had replaced the word "personnel administration" but steps remained the same. This human resource management duty would be carried out by the human resource (HR) unit or section to fulfill the needs for manpower requirements according to organizational structure and responsibility. The general process would include acquisition, retention and separation. The HR unit or section had to coordinate with all other units in the organization to develop HR policy appropriated for every employees, assist administrators and other units to identify HR needs in terms of number of staff, skills, and competencies. The HR unit would also help motivate unity among employees, and develop the quality of products and services through continuous training and development. Normally, HR managers

would be senior staff that could influence administrators and employees on policy formulation and implementation as well as integration of all HR activities consistent to organizational strategies.

Vigit Srisa-arn (1991: 5) explained that every agency had important missions to perform and achieve. To be effective in implementing the missions, each agency must have qualified personnel sufficient for work. Therefore, personnel would be the most important factor of all resources.

Swing Suwan (1991: 173) summarized that personnel management generally consisted of 3 concepts as follows:

2.1.1 Obtaining concept relates to three activities.

2.1.1.1 Planning for quality and quality of personnel

2.1.1.2 Recruitment and selection

2.1.1.3 Orientation

2.1.1.4 Retaining concept relates to two activities

2.1.1.5 Training and development

2.1.2 Safety and health promotion

2.1.3 Retaining concept relates to four activities

2.1.3.1 Promotion

2.1.3.2 Transferring

2.1.3.3 Reward and compensation

2.1.3.4 Guidance and discipline

From the above theories and concepts, this research on the EPI for infant would focus on training, adequacy, and related knowledge of health personnel with health centers.

2.2 Money

Money is one of important resources for management and administration. Every administrator must understand how to mange monies for achieving organizational objectives. Misuse of monies without considering other social factors would be very critical for the delay and failure in the overall operation of organizations. Therefore, it is necessary that administrators give more attention to organizational budget because any mistakes would create serious flaws for all involved parties without exceptions. For these reasons some administrator may not trust any subordinates about money matter by handling it alone. This might not be the right thing to do because good administrators must be able to apply administrative knowledge and skills appropriately no matter what, money or other resources. Teamwork must be considered and used for all activities under the direction and guidance of administrators or supervisors (Piyathida Tridech, 1990: 755-756).

Kanongyuth Karnjanakool (1991: 267) mentioned that health financing was related to ways of acquiring or operating to secure money as a capital for carrying out health activities or health services. However, a prolonged problem faced by health centers was an inadequate amount of budget due to a small ratio allocated by the MOPH through the Provincial Health Office. While the bigger ratio of budget was still allocated to hospitals. This inadequate amount of budget would contribute a great deal to officers' morale as well as the efficiency and effectiveness of health centers.

From the concepts mentioned above, money help support for smooth operation as incentives and can also be used to buy necessary materials. In this research, money means all expenses sent for implementing the EPI for infant activities, which includes expendable costs, incentives, material costs as well as capitals received from other sources besides the amount allocated by provincial health office. However, in carrying out the EPI activities, health center will receive support from the provincial health office in terms of materials and medical supplies but not cash.

2.3 Materials

Materials consist of supplies and tools necessary for health management to achieve predetermined objectives. In any operation, materials are as important as manpower and money to carry out various activities. Even more so in the field of health because every step needs materials and medical supplies such as tools and medicine.

2.3.1 Piyathida Tridech (1987: 239-240) described that materials were one of important managerial resources that managers had to monitor for its economic use and efficiency. All materials must be secured in sufficient amount and in time. However, materials must be obtained as needed to avoid the burden of storing. Therefore, there were steps in managing materials as follows.

2.3.1.1 Plan or set project in terms of structure, size, and duration, which could be used as guidelines for future implementation.

2.3.1.2 Identify needs mean predicting the needs for materials, which should be matched with actual use.

2.3.1.3 Procurement means method of getting materials based on ministerial bureau's regulations and laws on obtaining materials.

2.3.1.4 Issuing means materials control using accounting system and storage procedures.

2.3.1.5 Maintenance means protecting or repairing materials for future use.

2.3.1.6 Separating means expending broken and out of order materials due to depreciation or lost by deleting from material inventory lists.

2.3.2 Thonglaw Dejthai (1991: 20-21) stated that materials were all necessary things needed in organizations for implementing activities. There were two types of materials as follows.

2.3.2.1 Durable materials refer to equipment and other materials that have long life span, and are normally expensive.

2.3.2.2 Expandable materials refer to supplies or materials that have short life span, and are normally cheap.

2.3.2.3 Somchart Toruksa (1999: 25-26) stated that materials were organizational durable and expendable materials including land, building, structure, equipment, and supplies.

2.3.2.4 These materials were most valuable resources of the organization, which would increase in the amount as time, go by (except nearly collapsed organizations).

It is concluded from the above concepts that materials are important factors in carrying out work activities within health offices. These may include syringe and needle, vaccine, medical supplies, cooler, refrigerator as well as report forms. These materials are important for improving performance of individuals and organization. In this research, studied variables are adequacy, in time, maintenance, and separating.

3. Managerial Process

Professors Gulick and Urwick had summarized the popular managerial process know as POSDCORB, which included 7 functions, namely planning, organizing, staffing, directing, coordinating, reporting, and budgeting. While Henri Fayol proposed five major functions of managers including planning, organizing, command, coordination, and control (Thonglaw Dejthai, 1999: 56).

Again Thonglaw Dejthai (1996: 56-57) has summarized that at present, experts in management propose that most managers have eight functions detailed as follows.

(1) Planning. Commonly recognized as the primary management function, planning is related to the design of future courses of action around predetermined objectives.

(2) Decision Making. To make decision means to choose among alternative courses of action. It is a today's complex challenge of all managers.

(3) Organizing. To organize means to consider about the organizational structure in terms of chain of command, division of labor, and assignment of responsibility to ensure the efficient use of human resources.

(4) Staffing. To staff means to ensure that the right people are put in the right place at the right time. This consists of recruiting, training, and developing people. Organizations are no good without good people in them.

(5) Communicating. Communication is very critical for making people understand what is expected for management and employees regarding technical knowledge, instructions, rules, and information to get the job done. Good communication must be a two-way process.

(6) Motivating. Manager must be able to motivate individuals and groups to pursue collective objectives by satisfying needs and trying to meet expectations through meaningful actions.

(7) Leading. Managers must inspire organizational shared values or vision among employees and the public, and act as role models by adapting their management style to the demands of the situation.

(8) Controlling. Managers must take corrective actions in order to keep thing on track through making comparison on desired results and actual results.

Terry (1964: 50-52) stated that the management process consisted of four continuous functions as follows.

(1) Planning. This included setting objectives, formulating policy, planning action plans.

(2) Organizing. This included division of labor, delegating responsibility and authority.

(3) Actuating. This included utilizing of leadership, communicating, and motivating.

(4) Controlling. This included reporting, comparing results and expected targets, controlling costs and expenses.

Koontz and O'Donnel (1972: 20-21) summarized that managerial process consisted of five functions as follows:

(1) Planning involves with forecasting the situations, setting organizational goals and objectives, developing tactics and strategies to use limited resources consistent with policy to achieve organizational objectives.

(2) Organizing involves arranging organizational structure, division of labor and responsibility, assigning functions, and establishing appropriate qualifications needed.

(3) Staffing involves selection, training, and developing personnel by putting the right man in the right job.

(4) Directing involves making decisions, delegating, motivating, coordinating, and facilitating for participation.

(5) Controlling involves reporting system, setting work standards, measuring results, and make corrections.

It could be summarized from the above concepts that this research would focus on common managerial functions found in Gulick and Urwick, Henri Fayol, Terry, Koontz, and O'Donnell in which Tongchai Sontiwong (1990: 77-78) had put together as planning, organizing, staffing, directing, and controlling for carrying the EPI activities in Chaiyaphum Province.

Part 4 Related Researches

It was found from the reviews that there were quite a number of researches conducted on the effectiveness health center personnel in carrying out many different works such as EPI, MCH, acute communicable disease control and prevention, and communicable disease control and prevention. Therefore, a number of variables were reviewed for research designs as follows.

Jitima Panichkij (1997: 114-119) studied factors related to the performance of health center personnel for measles immunization in Nakornsawan province. The results showed that the performance of 174 health personnel were good. Overall motivation and individual aspects such as income work environment and

characteristics, opportunity to grow, and inadequate materials were positively related to the performance.

Yaowares Wisutrayothin (1992) studied administrative factors affecting the EPI coverage in Pisanuloke province. The results showed that overall managerial resources (manpower, money, and materials) had no relationship with the coverage rates of EPI activities. But money for incentives had the highest effect on the coverage rate of EPI and followed by selecting personnel.

Arpasara Womgsampanchai (1995) studied the relationships between personal factors and MCH performance of Tumbon health personnel in Burirum province. The results showed that work knowledge, training, and satisfaction were positively related to the MCH performance in terms of quantity and quality of work.

Hareuthai Tobwongsri (1997) studied managerial factors affecting the performance of heads of health centers according to acute respiratory infection prevention and control plans. The results showed that knowledge and experience, adequate budget and materials, and factors on administrative control were related to the EPI program in children. But manpower adequacy, sources of budget, resources allocation, financial regulations, and administrative factors including planning, organizing, staffing, and directing had no relationships with their performance.

Rattigarn Juntawongse (2001) studied the effectiveness on MCH activities of health centers in Pijit province. The results showed that the overall performance on MCH activities was good (65.1%) as well as management (53.2%). However, managerial resources and managerial process did not have any relations with the effectiveness of MCH program of health centers.

Pratuan Satayaseu (199) studied the effectiveness of EPI for children under five years of health center personnel in Karnjanburi province. The results showed that the effectiveness was very good (40.0%) with sufficient personnel (73.6%), materials (42.1%), and in time (65.7%). The majority of personnel had medium level of work

knowledge (62.9%) with good level of overall management (60.7%). Planning and organizing were positively related to the effectiveness levels. Manpower, money (budget), and materials were not significantly related to the effectiveness of EPI for children under five years.

Sarawuti Ngimhuang (1999) studied managerial factors affecting the effectiveness of health center in Suphanburi province. The results showed that adequate personnel, knowledge and skill, funding resources, managerial process both overall and each aspects had significant relations to the effectiveness of health centers.

Pasuk Kalaya-Jareug (1999) studied service provision for cancer cell investigation of uterus at health center personnel at Tumbon level in Suphanburi province. The result showed that variables that had positive relations to the effectiveness of health center personnel were overall managerial process and each aspects including planning, directing, and controlling as well as motivational factors such as achievement, recognition, respect, and work itself. However, organizing, staffing, and opportunity to grow did not have significant relations to the effectiveness of health center personnel.

Anchalee Aimwattana (1987) studied EPI planning for infant by using epidemiological data at Tambon level in Chonburi province. The results showed that knowledge and attitudes of health personnel were positively significant related to the coverage rate of EPI at p-value < 0.05, as well as a written plan of action and supervision. However, the distance from health centers had negative relations to the coverage rate of EPI.

Varurat Sunthornsuk (1999) studied the effectiveness of MCH program of health centers in Kampangpet province. The results showed that training did not have any significant relationships to the effectiveness of MCH program of health center. However, the managerial process was positively related to the effectiveness of health center in implementing the MCH program.

Pongsepak Choosri (1987) studied factors affecting the effectiveness of cataract operation service of hospitals under the jurisdiction of MOPH. The results showed that managerial factors including manpower, financial resource, physical resources, and information were significantly related to the effectiveness of services. However, motivational factors were not associated to the effectiveness of services. Manpower, financial resource, and information had the highest effect on the effectiveness service respectively.

Chainarong Surachaipanya (1999: 70) studied the effectiveness assessment on hemorrhagic fever prevention and control program of health center personnel in Lei province. The results showed that manpower, and organizing was positively related to the effectiveness of the program implementation.

Karnjana Intaraksa (2002: 88-91) studied the effectiveness of hemorrhagic fever prevention and control program of health center personnel in Saraburi. The results showed that the effectiveness of the program was good (76.6%) with a low level in financial resource (48.6%), a high level in materials (69.2%). The managerial process was at high level with significant relationship to the effectiveness of the program.

From the above findings, this research framework was formulated from the system approach concept consisting of inputs, process, and outputs/ outcomes. Inputs would include man (man power), money (budget), materials, and knowledge. The managerial process would include planning, organizing, staffing, directing, and controlling. Output/outcome would be an achievement according to targets established by the provincial health office. Even though some variables were inconsistent in a particular study but might be included in this study in order to compare the results.

CHAPTER 3
METHODOLOGY

1. Research Design

This explanatory research was designed to evaluate the effectiveness health centers in implementing EPI for infant in Chaiyaphum province in 2003.

2. Research Population

The population of this research was consisted of 167 health center officials responsible for EPI for infant in Chaiyaphum province in the fiscal year of 2003. Details on a number of respondents from each Amphoe (district) and Ging-Amphoe (sub-district) were shown as follows.

Amphoe Muang Chaiyaphum	= 21	Amphoe Kasetsomboon	= 16
Amphoe Phukeaw	= 15	Amphoe Gengeror	= 15
Amphoe Nongbaudang	= 13	Amphoe Bumnetnarong	= 11
Amphoe Jaturas	= 11	Amphoe Thepsatit	= 10
Amphoe Kornsawan	= 9	Amphoe Kornsarn	= 9
Amphoe Ban- Khao	= 9	Amphoe Ban-Tan	= 6
Amphoe Nongbuarahaew	= 6	Amphoe Phakdi-Chumphon	= 6
Amphoe Nernsa-nya	= 6	Ging- Amphoe Supyai	= 4

3. Research Tool

The tool of this research was questionnaire developed by the researcher based on literature review on management theory, effectiveness evaluation's concept, managerial resources' concept, guideline on immunization implementation, and

public health performance appraisal. The questionnaire was consisted of 4 parts as follows:

2.1 Part 1 General characteristic questions consisted of 6 items including gender, age, marital status, education, present position, and work experience.

2.2 Part 2 Managerial resource questions consisted of 34 items on managerial resources for EPI for infant implementation as follows.

2.2.1	Manpower aspect	5	items,
	and Immunization knowledge	20	items
2.2.2	Money aspect	5	items
2.2.3	Material aspect	4	items

2.3 Part 3 Managerial process of EPI for infant questions consisted of 30 items as follows:

2.3.1	Planning	6	items (No. 1-6)
2.3.2	Organizing	6	items (No. 7-12)
2.3.3	Staffing	6	items (No. 13-18)
2.3.4	Directing	6	items (No. 19-24)
2.3.5	Controlling	6	items (No. 25-30)

2.4 Part 4 Effectiveness evaluation questions consisted of 5 items on criteria and achievements for BCG, DPT, HBV, OPV, and Measles.

4. Standardization of the Tool

Research tool was standardized as follows.

4.1 Validity test

Based on reviewing the relevant theories and researches, and the conceptual framework of the study, the first draft questionnaire was conducted. Thesis advisors and 3 experts (shown in appendix A) were consulted to assess its content validity and construct validity. Then, the questionnaire was revised.

4.2 Reliability test

Approved questionnaire was tried out with a total of 35 health center officials responsible for EPI program in Muang District, Monjakeeree District,

and Kockpohchai District of KhonKhan Province. The Cronbach's alpha coefficient method was employed to assess the reliability of try out questionnaires. The result of the reliability test was 0.77.

5. Data Collection

5.1 Request for cooperation in data collection was made by sending official letters from the Dean of Graduate Studies to the Provincial Chief Medical Officer (PCMO), Chaiyaphum province. Then, the official letters of Provincial Health Office (PHO) and the self-administered questionnaires were sent to the health center officials responsible for immunization implementation through the District Health Offices.

5.2 The first round, there were 62 questionnaires returned. Then, 65 questionnaires were returned after making personal contracts by the researcher.

5.3 Part IV of the questionnaire, the evaluation of immunization effectiveness were collected from the 2003 fiscal year report of the immunization performance appraisal of Chaiyaphum province.

5.4 Checked questionnaires for its completeness were provided by the researcher before data.

6. Data Analysis

Scoring and criteria were detailed as follows.

6.1 Part 2 Managerial Resources

6.1.1 Manpower aspect and knowledge on immunization

6.1.1.1 Question numbers 1 to 5 were as follows.

1 = ever, essential, adequate, and yes

2 = never, non-essential, inadequate, and no

6.1.1.2 Knowledge on immunization questions

There were 20 yes-no questions. Scored 1 for correct answer, and 0 for wrong answer. An interpretation of results of knowledge was categorized into 3 levels, which detailed as follows.

16-20 scores = High level
12-15 scores = Medium level
<12 scores = Low level

6.1.2 Money (budget) aspect

There were 4 closed-end questions. Scored 1 for receiving and adequate, and 0 for not receiving and inadequate. The categorized criteria of result were based on Best (1977: 174); the detail was described as follows.

$$\text{Internal scale} = \frac{4 - 0}{3} = 1.33$$

According to the above internal scale, there were 3 levels of scoring as follows:

2.67 – 4.00 scores = Adequate level
1.34 – 2.66 scores = Medium level
0.00 – 1.33 scores = Low level

6.1.3 Material aspect

A total of 50 subtopics from the 4 questions were designed to ask about materials. Score 1 for adequate, yes, and expended answer, and 0 for inadequate, no, and not expended answer.

An interpretation on the scores were divided into 3 levels based Seree Lacharog (1994: 65-68) as follows:

80–100 percent = High level or adequate level
60-79 percent = Medium level
< 60 percent = Low level

6.2 Part 3 Managerial Process

There were 6 questions in each five dimensions of managerial process. Scoring of all dimension was score 2 for regularly practices, 1 for occasionally practice, and 0 for never practice answers.

There were three levels for interpretation on managerial process as follows.

$$\text{Interval scale} = \frac{12 - 0}{3} = 4.00$$

9 –12 scores = High or good level

5 – 8 scores = Medium level

<5 scores = Low level or must be improved

6.3 Part 4 The effectiveness of immunization program implementation

Scoring of the effectiveness of immunization program implementation for infant based on performance on achieving goal in the fiscal year of 2003. There were 4 vaccination periods for each type of vaccines. Then, the total scores were 20. The effectiveness of immunization program implementation was categorized into 2 levels based on the total scores as follows:

20 scores = Good effectiveness

< 20 scores = Must be improved

7. Statistical Analysis

7.1 Descriptive Statistics

Percentage, frequency, mean and standard deviation (S.D.) were performed to describe general characteristics of the population, managerial resources, managerial process, and effectiveness of infant immunization program implementation.

7.2 Analytical Statistics

The Fisher's Exact test was performed to analyze the correlation between managerial resources (manpower, money, and materials) and effectiveness of infant immunization program implementation. The Pearson's Product Moment Correlation Coefficient was performed to analyze the correlation between knowledge,

managerial process (planning, organizing, staffing, directing, and controlling), and effectiveness of infant immunization program implementation. The statistical significant level was an alpha value at 0.05 or less.

CHAPTER 4
RESULTS

This research was aimed to study the effectiveness in implementing EPI for infant of health centers in Chaiyaphum province during 2003 fiscal year. A total of 167 health center personnel responsible for the EPI program were included in the study and subjected for a self-administered questionnaire for data collection. There were 127 complete questionnaires returned (76.05%) fir statistical analysis. The findings were present in 5 parts as follows.

Part 1 Demographic characteristics

Part 2 Effectiveness of Health center in implementing EPI for infant

Part 3 Administrative resources (manpower, money, materials, and knowledge

Part 4 Managerial process including planning, organizing, staffing, directing, and controlling

Part 5 Correlation analysis

5.1 Relationships between administrative resources and the effectiveness of health center in Chaiyaphum Province during 2003 fiscal year.

5.2 Relationships between knowledge and managerial process, and the effectiveness of health center in implementing EPI for infant in Chaiyaphum province.

Part 1 Demographic Characteristics

Characteristics of health center officials responsible for implementing the EPI for infant Chaiyaphum province consisted of nearly equal ratio between male (48.82%) and female (52.18%). The majority of them were 31-40 years old with an average age of 38.87 years, married (81.10%) with bachelor degree and higher

(62.99%). They were mainly working as community health officers (44.88%) with an average working experience of 9.32 years or about 1-5 years (37.79%) and 6-10 years (29.23%). Please see details in Table 1

Table 1 Numbers and Percentage of Health Center Officials by Demographic Characteristics

Demographic Characteristics	Number (n=127)	Percent
Gender		
Male	62	48.82
Female	65	51.18
Age (years)		
21-30	40	31.50
31.40	62	48.81
41-50	25	19.69
$\overline{X}$ = 34.87, S.D. = 6.67, Min = 22, Max = 48		
Marital Status		
Married	103	81.10
Single	17	13.39
Divorced/ Separate/ Window	7	5.51
Education		
Bachelor and higher	80	62.99
Lower than Bachelor	47	37.01
Position		
Community Health Officer	57	44.88
Health Technician	28	22.05
Health Administrative Officer	27	21.26
Professional Nurse	12	9.45
Technical Nurse	3	2.36

Table 1 Numbers and Percentage of Health Center Officials by Demographic Characteristics (Cont.)

Demographic Characteristics	Number (n=127)	Percent
Working Experience in EPI		
1-5 years	48	37.77
6-10 years	37	29.13
11-15 years	13	10.24
16-20 years	20	15.75
21-25 years	9	7.09
$\overline{X}$= 9.32, S.D. = 6.81, Min = 1, Max = 26		

Part 2 Effectiveness of Health Center in Implementing EPI for Infant in Chaiyaphum Province During 2003 Fiscal Year

The overall performance of EPI program in Chaiyaphum province for 5 vaccines including BCG, HBV, DPT, OPV, and Measles were 98.43%, 99.21%, 98.43%, 97.64%, and 93.70% respectively as compared to the criteria. When considering the effectiveness levels of health centers in implementing the EPI for infant program, it was found that the majority (93.70%) had good effectiveness. Only 8 health centers out of 127 or 6.30% needed improvement in their performance. Please see Table 2 and Table 3 for details.

Table 2 Number and Percentage of Health Centers Meeting the MOPH Criteria in Implementing the EPI for Infant Program by Types of Vaccines in Chaiyaphum Province

Vaccine (Criteria 100%)	Number (n=127)	Percent
BCG	125	98.43
HBV	126	99.21
DPT	125	98.43
OPV	124	97.64
Measles	119	93.70

Table 3 Number and Percentage of Health Centers in Implementing EPI for Infant Program by Effectiveness Levels

Effectiveness Level	Number (n=127)	Percent
Good Effectiveness	119	93.70
Need Improvement	8	6.30
$\overline{X}$ = 19.84, S.D. = 074, min = 15, Max = 20		

Part 3 Managerial Resources (Manpower, Money, Materials)

1. Manpower

It was found that the majority of health center officials responsible for EPI for infant program agreed with the necessity of training (98.43%) but only about one-third (34.65%) have had their training for EPI. A number of personnel responsible for the EPI program were said to be adequate (64.57%). The majority said that their EPI for infant work was assigned in written form (74.02%). But nearly a half of them (48.03%) mentioned that because of some other job assignments caused some shortfalls for achieving the targets. As regard to their knowledge, it was found that a little over than a half (56.69%) was at a medium level and considerable number (34.65%) were at a low level. Please also see details in Table 4.4 - 4.6. However,

there were 7 questions that health center officials had some problems and could not get it right as follows:

3.1.1 Supervision activities to provide technical assistance

3.1.2 The two hours limit for BCG vaccine after mixing

3.1.3 BCG, OPV, MMR, and Measles could store in frozen compartment

3.1.4 Prolong duration for vaccination did not reduce the efficiency of vaccines

3.1.5 Abnormal immune child at birth should not be given an OPV

3.1.6 Children may have fever after receiving Measles vaccine 5 – 12 days

3.1.7 Giving HBV to a child of carrier mother at new born, 1 month, 6 months

2. Money (Budget)

It was found that health centers received budget from Provincial Health Office and every main contracting hospitals. However, overall picture showed that the budget were not sufficient (61.42%). Only one-fifth (19.69%) mentioned that they received incentives for follow-up on the EPI program. But only about one-tenth of them (11.87%) said that the amount of incentives received was sufficient. Expendable costs and per diem for implementing the EPI program were said to be very small. However, the budget were said to be enough for carrying out the EPI program, only 22.83 percent of respondents said it was insufficient. See details in Table 4

Table 4 Number and Percentage of Managerial Resources Classified by Man and Money

Managerial Resources	Number (n=127)	Percent
1. Man		
1.1 Receiving training during last year		
Yes	44	34.65
No	83	65.35
1.2 Training is important		
Necessary	125	98.43
Not necessary	2	1.57
1.3 Adequacy of Personnel		
Adequate	82	64.57
Inadequate	45	35.43
1.4 Written work assignment		
Yes	94	74.02
No	33	25.98
1.5 More activities		
Yes	61	48.03
No	66	51.97
2. Money		
2.1 Received budget for EPI program	127	100.00
2.2 Received incentives for follow-up	25	19.69
2.3 Sufficient Incentives	15	11.81
2.4 Received expendable cost	23	18.11
2.5 Received enough budget	29	22.83

Table 5 The Percentage of Personnel Responsible for EPI for Infant Program Who had the Right Answer on Working Knowledge Test

	Working Knowledge Item	Percentage of Right Answer (n=127)
1.	EPI supervision is for technical coaching	24.41
2.	Mixed BCG vaccine must be used in 2 hours	29.92
3.	BCG, OPV, MMR, and Measles can be kept in frozen compartment	35.45
4.	Prolong vaccination time does not decrease immune level	36.22
5.	Birth abnormality child should not be given OPV	39.37
6.	Fever will follow after 5-12 days of Measles vaccination	43.31
7.	HBV should be given to a child with carrier mother at birth, 1 month, and 6 months	49.61
8.	All vaccines should be put in a plastic or paper box before refrigerated	52.76
9.	A child receiving blood plasma less than 3 months, can get DPT	52.76
10.	Measles vaccine is given subcutaneous	59.06
11.	An Epilepsy history child from high fever can normally receive vaccines	63.87
12.	Vaccine with live virus must be given a minimum of 1 month a part if not given on the same day	68.50
13.	A child with mild fever can be vaccinated without rescheduling	70.87
14.	HIV positive child with symptoms should be refrained from BCG	74.02
15.	Premature newborn can receive vaccine like a normal newborn	82.68
16.	A child receiving BCG with a scar will have immune after 2 months	83.46

Table 5 The Percentage of Personnel Responsible for EPI for Infant Program Who had the Right Answer on Working Knowledge Test (Cont.)

Working Knowledge Item	Percentage of Right Answer (n=127)
17. HBV for hepatitis prevention must be given the first dose after 7 days of birth	85.04
18. Vaccine amount (size) can be considered from enclosed instruction	89.76
19. Infant must be vaccinated at the middle of femur and on the outside	96.06
20. Most vaccines are kept in refrigerator between 4-8 C	97.64

Table 6 Number and Percentage of Managerial Resources Classified by Money, Materials and Knowledge

Managerial Resources	Number (n=127)	Percentage
Overall Money Aspect		
Adequate	13	10.24
Medium Adequate	36	28.35
Low Adequate	78	61.42
$\overline{X}$= 2.51, S.D. = 0.68, Min = 1, Max = 3		
Overall Material Aspect		
Adequate	95	74.80
Medium Adequate	30	23.62
Low Adequate	2	1.58
$\overline{X}$= 43.50, S.D. = 5.77, Min = 16, Max = 50		
Work Knowledge		
High	11	8.66
Medium	72	56.69
Low	44	34.65
$\overline{X}$= 12.35, S.D. = 2.29, Min = 7, Max = 19		

3. Materials

It was found that about one-third of respondents (35.43%) said that health educational materials were the least sufficient (52.76%) followed by the report forms (74.80%). Maintenance was the least activities such as thermometer (91.31%). Please see details in Table 7

Table 7 Percentage of Materials Used in Management Classified by Adequacy, Timely, Maintenance, and Disposal (n=127)

Materials	Adequacy	Timely	Maintenance	Disposal
Refrigerator	88.19	89.76	100.00	66.14
Cooler	84.25	86.61	96.06	74.02
Ice Pack	85.04	85.83	93.70	74.80
Thermometer	81.10	81.10	91.34	70.87
Needle #25/ 1”	85.04	88.19	-	82.08
Syringes 1ml.	84.25	87.40	-	85.04
Audio Visual Aid	35.43	52.76	-	-
Report Forms	74.80	79.53	-	-
BCG	96.85	97.64	-	90.55
HBV	97.64	96.85	-	90.55
DPT	90.55	93.70	-	90.55
OPV	92.91	94.49	-	90.55
Measles	93.70	96.85	-	90.55

Part 4 Managerial Process for Implementing EPI for Infant of Health Center in Chaiyaphum Province

1. Planning

Most of planning activities for implementing the EPI for infant of health centers were found to be at good level (81.89%) followed by a medium level (17.32%) and a need for improvement (0.79%).

2. Organizing

A little more than a half of organizing activities for EPI for infant of health center were at good level (55.12%) followed by a need for improvement (44.88%).

3. Staffing

Majority but less than a half of personnel management activities were at medium level (48.03%) followed by a good level (42.52%) and a need for improvement (9.45%).

4. Directing

Most of directing activities for EPI for infant of health centers were at good level (74.80%) followed by a medium level (25.20%) without a need for improvement.

5. Controlling

A little more than a half of controlling activities for EPI for infant of health center were at good level (57.48%) followed by a medium level (41.73%) and a need for improvement (0.79%).

6. Overall Managerial Process

Less than a half of overall management activities for the EPI for infant of health center were at good level (44.09%) followed by a medium level (40.94%) and a need for improvement (14.96%). Please see details in Table 8.

When considering the details of each aspect of the management process, it was found that planning activities on EPI for infant had been carried out up to 81.89 percent as compared to the plan. Action plans had been regularly reviewed once a year at 71.65 percent. But about 11.81 percent of health centers did not post their plans of action for public to see.

In the organizing aspect, health centers had freedom to make decisions (78.74%) but less than a half of the health center personnel provided consultation to

their colleagues (48.03%) and did not post their responsibility at the health center (25.20%).

In the staffing aspect, more than a half (64.57%) of health center personnel responsible for EPI for infant informed their colleagues about new information on EPI activities. But only 34.65 percent of them received an orientation after being assigned their responsibility. A little less than one-forth of the staff had never been checked for their qualification before job assignment.

Table 8 Number and Percentage of Managerial Process for Implementing the EPI for Infant of Health Centers Classified by Individual and Overall Aspects

Managerial Process	Number (n=127)	Percentage
Planning		
Good	104	81.81
Medium	22	17.32
Need Improvement	1	0.79
$\overline{X}$ = 10.30, S.D.= 1.84, Min. = 3, Max. = 12		
Organizing		
Good	70	55.12
Medium	55	43.31
Need Improvement	2	1.57
$\overline{X}$ = 8.97, S.D.= 2.35, Min. = 4, Max. = 12		
Staffing		
Good	54	42.52
Medium	61	48.03
Need Improvement	12	9.45
$\overline{X}$ = 8.16, S.D.= 2.70, Min. = 0, Max. = 12		
Directing		
Good	95	74.80
Medium	32	25.20
Need Improvement	0	0.00
$\overline{X}$ = 9.70, S.D.= 1.81, Min. = 5, Max. = 12		

Table 8 Number and Percentage of Managerial Process for Implementing the EPI for Infant of Health Centers Classified by Individual and Overall Aspects (Cont.)

Managerial Process	Number (n=127)	Percentage
Controlling		
Good	73	57.48
Medium	53	41.73
Need Improvement	1	0.79
$\overline{X}$ = 9.07, S.D.= 2.16, Min. = 4, Max. = 12		
Overall Managerial Process		
Good	56	44.09
Medium	52	40.94
Need Improvement	19	14.97
$\overline{X}$ = 46.20, S.D.= 8.13, Min. = 24, Max. = 60		

In directing aspect, the majority of health center personnel were very receptive for any suggestions from colleagues (90.55%). Only 40.94 percent of health centers had the EPI agenda in their regular meeting schedules and less than a half coordinated with other health center (44.88%).

In the controlling aspect, the majority of health centers checked records after providing services (91.34%). Only about one-third of health centers (34.65%) gave suggestions for correcting problems to their bosses. About one-forth of health centers (26.77%) did not provide information on the EPI for infant. Please see details in Table 9.

Table 9 Percentage of EPI for Infant Practice of Health Centers Classified by Items and Aspects of Managerial Process

Managerial Process	Practices (n= 127)		
	Regular	**Sometime**	**Never**
1. Planning			
1.1 Implementing EPI for infant according to plan	81.89	18.11	0.00
1.2 Checking information before using for planning	74.80	22.30	2.36
1.3 Checking for consistency in objectives and targets with Provincial Chief Medical Officer	74.02	25.20	0.78
1.4 Collecting and analyzing data before formulating plans	73.23	25.98	0.79
1.5 Posting plans of action on EPI for infant clearly	73.23	14.96	11.81
1.6 Reviewing Plans of action once a year	71.65	25.20	3.15
2. Organizing			
2.1 Delegating authority to make decisions about work	78.74	19.69	1.57
2.2 Reporting results and problems to managers	62.99	35.43	1.58
2.3 Setting scope of work in writers	57.48	23.62	18.90
2.4 Posting job responsibility chart at health centers	54.33	20.47	25.20
2.5 Making your own decisions on work tactics	48.82	48.03	2.36
2.6 Colleagues asking you for suggestion when facing with problem	48.03	48.82	3.15
3. Staffing			
3.1 Informing new information to colleagues	64.57	33.86	1.57
3.2 Establishing a number of personnel in advance	51.18	37.01	11.81

Table 9 Percentage of EPI for Infant Practice of Health Centers Classified by Items and Aspects of Managerial Process (Cont.)

Managerial Process	Practices (n= 127)		
	Regular	**Sometime**	**Never**
3.3 Reviewing and studying textbooks to gain knowledge	50.39	48.03	1.57
3.4 Checking qualification of staff before starting work	46.46	29.92	23.62
3.5 Timing in EPI for Village Health Volunteer (VHV) every month	36.22	57.48	6.30
3.6 Receiving orientation about work after job assignment	34.65	42.52	22.83
4. Directing			
4.1 Willing to listen for suggestions from colleagues	40.55	9.45	0.00
4.2 Coordinating with VHV in EPI	84.25	11.75	0.00
4.3 Cooperating in solving problems for EPI	70.87	29.13	0.00
4.4 Defining objectives every time when delegating EPI job	54.33	40.16	5.51
4.5 Coordinating with other health centers	44.88	47.24	7.87
4.6 Having EPI agenda when meeting in health center every time	40.94	56.69	2.36
5. Controlling			
5.1 Checking information for recording after services	91.34	8.66	0.00
5.2 Sending monthly work report to district health office	79.53	17.32	3.15
5.3 Making corrections and improvement continuously on shortfalls	69.29	30.71	0.00
5.4 Presenting EPI work progress at health center	40.16	33.07	26.77

Table 9 Percentage of EPI for Infant Practice of Health Centers Classified by Items and Aspects of Managerial Process (Cont.)

Managerial Process		Practices (n= 127)		
		Regular	Sometime	Never
5.5	Supervising EPI work for VHV each month	37.80	54.33	7.87
5.6	Reporting problems and solving suggestions to manger	34.65	57.48	7.87

Part 5 Relationships Between Managerial Resources, Managerial Process, and Effectiveness of Implementing EPI for Infant in Chaiyaphum Province in 2003

1. Relationships between Managerial Resources and the Effectiveness of Implementing EPI for Infant

1.1 Manpower

It was found that training, adequacy, written work delegation, and multiple functions had no significant relationships with the effectiveness in implementing EPI for infant at p-value <0.05.

1.2 Money (Budget)

It was found that incentives for work follow-up, expendable cost and per diem had no significant relationships with the program effectiveness at p-value < 0.05.

1.3 Materials

It was found that adequacy, timely, and disposal had no significant relationships with the program effectiveness at p-value < 0.05.

Only adequacy of budget and maintenance of materials were found to have statistical significant relationships with the program effectiveness at p-value < 0.05. Please see details in Table 10.

2. Relationships between managerial Process and EPI Effectiveness

There were no statistical significant relationships between the managerial process and program effectiveness, as for overall picture and each aspect. Working knowledge of personnel also had no statistical significant relationship with the program effectiveness. Please see details in Table 11.

Table 10 Relationships between Managerial Resources Classified by Aspects and the EPI

Managerial Resources	Effectiveness Levels				Fisher's Exact test P-value
	Good		Need Improvement		
	Number	Percent	Number	Percent	
1. Manpower					
1.1 Training during last year					0.568
Yes	41	32.28	3	2.36	
No	78	61.42	5	3.94	
1.2 Adequacy					0.130
Yes	79	62.20	3	2.36	
No	40	31.50	5	3.94	
1.3 Written Delegation					0.679
Yes	87	68.50	7	5.51	
No	32	25.20	1	0.79	
1.4 Multiple Functions					0.999
Yes	57	44.88	4	3.15	
No	62	48.82	1	3.15	
2. Money (Budget)					
2.1 Incentives for Follow-up					0.656
Yes	23	18.11	2	1.58	
No	96	75.59	6	4.72	

Table 10 Relationships between Managerial Resources Classified by Aspects and the EPI (Cont.)

Managerial Resources	Effectiveness Levels				Fisher's Exact test
	Good		Need Improvement		
	Number	Percent	Number	Percent	P-value
2.2 Expendable Costs and Per diem					0.999
Yes	22	17.32	1	0.79	
No	97	76.38	7	5.51	
2.3 Adequacy of Budget					0.015
Yes	24	18.90	5	3.94	
No	95	74.80	3	2.36	
3. Materials					
3.1 Adequacy					0.999
Yes	101	79.53	7	5.51	
No	18	14.17	1	0.79	
3.2 Timely					0.999
Yes	101	79.53	7	5.51	
No	18	14.17	1	0.79	
3.3 Maintenance					0.032*
Yes	116	91.34	6	4.72	
No	3	2.36	2	1.58	
3.4 Disposal					0.239
Yes	85	66.93	4	3.15	
No	34	26.77	4	3.15	

* p-value < 0.05

Table 11 Relationships Between Managerial Resources and Process and Effectiveness in Implementing EPI for Infant of Health Center in Chaiyaphum Province in 2003

Variables	EPI Effectiveness (n=127)	
	r	p-value
Overall Managerial Process	-0.019	0.832
Planning	-0.039	0.664
Organizing	-0.058	0.520
Staffing	0.045	0.618
Directing	-0.031	0.728
Controlling	-0.012	0.890
Working Knowledge	-0.167	0.061

CHAPTER 5
DISCUSSION

This research was aimed to evaluate the effectiveness in implementing the EPI for infant program of health centers in Chaiyaphum Province in 2003. There were some significant findings that could be discussed as follows:

1. Effectiveness of EPI Program

Of all five vaccines required in the EPI for infant program under the responsibility of health centers in Chaiyaphum province, Measles was found to be the least effectiveness. Health centers could achieve the target (100.00%) only 93.70 percent, which was controversy with the study conducted by Jitima Panichkij (1997: 114-115), and Pratuan Satseu (1999: 72). In Jitima Panichkij study, measles was found to have a good level of achievement. In Pratuan Satseu study, the BCG vaccine was found to be the least effectiveness in the EPI implementation. Measles was also found to be the last vaccine that could be given to a child aged between 9-12 months. Parent and caretakers might assume that vaccination had been completed at the age of 6-7 months. This misunderstanding could contribute to the lower rate of measles immunization coverage in Chaiyaphum Province.

However, the most effective vaccination coverage rate was HBV followed by BCG because most delivery now was performed in hospitals. The first dose of BCG and HBV were given to all newborn. Therefore, the results of EPI for infant program in Chaiyaphum Province were consistent with Pratuan Satseu (1999: 65), and Karnjana Intaruksa (2002: 88-91) studied that the effectiveness of EPI program was at good and very good levels for all five vaccines as well as hemorhagic fever precaution and control.

2. Managerial Resources

2.1 Manpower

Managerial resources, especially personnel had received less training during the last year period along with low number of manpower (inadequacy) could cause some drawbacks for the program effectiveness. Manpower has been recognized as the most important managerial resource that could use other resources. Swing Suwan (1991: 173) summarized that manpower management needed planning for the quantity and quality of health manpower along with appropriate development and training. Somyos Naweekarn (1995: 450) also mentioned that manpower management was related to training and development. All health manpower were ready for all kinds of training because they viewed training high on the list of their needs.

2.2 Knowledge

Overall working knowledge of health center personnel responsible for the EPI program was found to be medium, which was consistent with Pratuan Satseu study. When considering the test results, there were 7 out off 20 questions that less than 50 percent of responsible personnel could answer correctly. This showed that the quality of the personnel responsible for the EPI program was questionable even though the overall knowledge was at medium level. Because vaccination is very important for the life of children, some small mistakes may be serious as life threatening practices. Vijit Srisa-arn (1991: 5) stated that every organization had main functions to perform. But to be effective, organizations must have good and qualified personnel sufficient to handle designated work effectively. Therefore, personnel are the most important managerial resource of all activities.

2.3 Money (Budget)

In the financial aspect, overall amount of budget received was found to be small consistent with Kanjana Intaruk study (2002). Somchart Toruksa (1999: 27) mentioned that money was a resource that had high influence on organizational operation because it helped motivate people to work. Therefore, it was necessary to manage money for the effectiveness and efficiency of organizations.

2.4 Materials

For material aspect, overall it was found that health centers had adequate material and timely for managing the EPI for infant program. Only health education materials and report form, adequacy, and timely were found to be at low level. All five vaccines were sufficient and timely but did not affect the levels of effectiveness in implementing the EPI for infant program. The reason behind this finding was that health centers could borrow vaccines from other health centers without postponing the set schedules. All expired vaccines would be destroyed without any questions. Piyathida Tridech (1987: 239-240) stated that materials were also an important resource that managers would have to manage it carefully in terms of its adequacy, timely, maintenance, and disposal. For this EPI program, refrigerator was a critical factor for vaccine quality, which could effect directly to children. Some side- effect or pain for nothing might be occur if poor quality vaccines were used.

3. Managerial Process

In managerial process, personnel management (staffing) was found to be the most critical that needed some improvement, which was consistent with Pratuan Satseu study. The main cause might be because there was only one personnel in health center responsible for the EPI program. Therefore, it was difficult for him or her to check for assistants assigned to help. Organizing and controlling were found to be at a medium level while planning and directing were at a good level, which was consistent with Pratuan Satseu study.

However, there were some practices that could be considered for discussion and improvement such as work presentation and working responsibility chart. Regular presentation on EPI activities would help motivate people and community to become aware about vaccination. Responsibility chart would also show that who was responsible for which could help improve communication patterns within health centers. In addition, parents and caretakers knew whom to consult about the problems associated with vaccination. Swing Suwan (1991: 173) concluded that in order to have good people suitable for work, orientation and coaching must be emphasized.

Training, adequacy of personnel (manpower), written division of labor, and multiple functions did not have significant relationships with the effectiveness in implementing the EPI for infant program of health centers. This might be explained that the EPI for infant program was a routine job, so training had no effect on their performance. The finding was consistent with the study of Wareeratana Soonthornsuk (1999) but contrary with the study of Arpasara Wongsampanchai (1995) both in quantity and quality. Adequacy of personnel did not have any relationships with the program effectiveness because of continuous follow-up and supervision as well as good community participation. Therefore, a number of personnel made no differences in their performance. Even knowledge did not have relationships with the program effectiveness because most personnel responsible for the EPI program had high working experience. Therefore, high or low knowledge did make any differences for the program effectiveness consistent with the study of Sarawuthi Ngimhuang (2001: 76).

Incentives for program follow up, expendable costs and per diem did not have any relationships with the program effectiveness because the EPI for infant program was a routine activity. Every involved personnel would share their responsibility to maintain the levels of performance regardless of budget availability. The finding was contrasted with the Yaowares Wisaetarayothin study (1992) that the financial factors, especially incentives were found to have the highest influence on the performance. However, the adequacy of operational budget had significant relations to the program effectiveness, which was consistent with the study of Pongpak Chusri (1997). This finding was contradicted with Pratuan Satseu (1999: 74) that personnel, money, and materials did not have any relationships with the effectiveness in implementing the EPI for 0-5 years child.

Materials in terms of adequacy, timely, and disposal did not have any significant relationships with the effectiveness of program implementation. The reason behind this finding was that health centers could borrow some resources from nearby health centers. The finding was consistent with the study of Rattigarn Chantawong (2001) that managerial resources were not related to the effectiveness of maternal and child health activities. But it was contradicted with the study of Jitima Panichkij (1997: 114-119) that insufficient materials was positively related to the

performance of measles vaccination program. However, the maintenance aspect was significantly related to the effectiveness of the EPI program. This meant that if health centers continuously maintained their equipment and made them ready for use at all time, their performance would be effective.

The managerial process as over and each individual aspect including planning, organizing, staffing, directing, and controlling in implementing the EPI for infant activities of health centers. The finding was consistent with the study of Rattigarn Chantawong (2001) that managerial resources and managerial process were not related to the effectiveness of maternal and child health activities. It was the same with the study of Pratuan Satsue (1999) that staffing, directing, and controlling were not related to the effectiveness of the EPI for 0-5 years children program. However, the finding was differences from the study of Chainarong Surachaipanya (1999) that organizing factor was positively related to the effectiveness of hemorrhagic fever prevention and control program. But it was contradicted with the study of Wareeratana Suntornsuk (1999) that the managerial process was positive related to the effectiveness of health centers in implementing the maternal and child health program.

CHAPTER 6
CONCLUSION AND RECOMMENDATION

1. Conclusion

This descriptive cross-sectional research was aimed to assess the effectiveness of health centers in implementing the EPI for infant in Chaiyaphum Province. A self-administered questionnaire with a validity and reliability of 0.77 was used to collect data from 127 health center personnel responsible for implementing the EPI for infant program. Descriptive statistics (percentage, mean, and standard deviation) and analytic statistics (Fisher's Exact test and Pearson's Product Moment Correlation Coefficient) were applied to analyze the data by limiting the level of significance at p-value < 0.05.

It was found that health center personnel responsible for the EPI for infant program in Chaiyaphum Province were nearly equal between male (48.82%) and female (51.18%). The main age group of them was 31-40 years (48.81%) with an average age of 35 years. The majorities of them were married (81.10%) and had a bachelor degree (69.99%). Almost a half of them (44.88%) were community health officers, and had a work experience of 1-5 years (37.79%) with an average of 9 years experience.

The overall effectiveness in implementing the EPI for infant of health centers in Chaiyaphum Province was at a good level (93.70%). The highest performance was the HBV (99.21%) and the lowest was the measles (93.70%).

Only about one-third of the personnel had ever received a training (34.65%). Most of them mentioned that they had adequate personnel to carry out their job (64.57%) with written division of labor (74.02%). Nearly a half of them (48.03%) had multiple responsibilities with a small amount of income (61.42%). The budget for expendable costs and per diem were said to be a very small by a little less

than 20 percent (18.11%) of the personnel while nearly one-fourth of them (22.83%) said that the budget were sufficient.

The overall aspect of material was also said to be sufficient (74.80%) but the most complained problems were focused on an inadequacy (64.57%) and timely (47.42%) of health education materials. The most neglected item for maintenance was the thermometer (91.34%).

A little more than a half of the personnel (56.69%) had a medium level of knowledge. However, number of personnel, training, adequacy, written division of labor, and multiple responsibilities had no relationships with the effectiveness of program implementation. Incentives for work follow up, expendable cost and per diem, adequacy, and timely of materials as well as disposal did not have any relationships with the effectiveness in implementing the EPI for infant program of health centers in Chaiyaphum province. However, budget adequacy and material maintenance were significantly related to the effectiveness of EPI program implementation of p-value = 0.015 and 0.032 respectively. This was consistent with the research assumption number1.

The overall managerial process of health centers was a little more at a good level (44.09%) than need improvement (40.94%). Planning, directing, controlling, and organizing were at a good level but difference in percentage as 81.89, 74.80, 57.46, and 55.12 respectively, while staffing was at per diem level (48.03%). However, the overall managerial process and each individual aspect including planning, organizing, staffing, directing, and controlling had no significant relationships with the effectiveness of EPI program implementation, which was contradicted with the research assumption number 2.

2. Recommendation

2.1 Recommendation from the Research Finding

There are some suggestions drawn from the study as follows.

2.1.1 Training should be offered for health center personnel responsible for the EPI program in the following areas.

2.1.1.1 real objectives of supervision

2.1.1.2 half-life period of vaccine

2.1.1.3 correct vaccine storage

2.1.1.4 duration of active immune for each vaccine

2.1.1.5 do and don't in vaccine utilization

2.1.1.6 side effects of each vaccine

2.1.1.7 criteria for vaccination in abnormal children

2.1.1.8 techniques and methods of vaccination

2.1.1.9 effectiveness of vaccine

2.1.2 A manual for EPI operation and evaluation should be available

2.1.3 Continuous provision of training on EPI program for village health volunteers

2.1.4 Posting EPI performance at health center and reporting problems and difficulties to higher authorities

2.1.5 Supporting necessary materials sufficient for EPI program operation such as cooler, ice pack, needle, syringe, and refrigerator

2.2 Recommendation for Further Study

Additional methods of data collection such as interviewing parents or care takers of children from newborn to 5 years old should be performed along with self-administered questionnaire. Checking health records of children from birth to 5 years old should be done as well as increasing JE1, JE2, and JE3 along with DPT4 and OPV4 into the EPI program.

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APPENDIX A

NAME LIST OF EXPERTS

Name List of Experts

1. Mrs. La-eiad Hudsadee	Health Officer Level 9 (Development Chaiyaphum Health Office
2. Mr. Weerachai Khonmanee	Health Administrator Level 7 Kasetsomboon Health District Chaiyaphum Province
3. Mrs. Kruatip Jantharathaneewat	Public Health Technicial Officer Level 7 Pathumthani Health Officer

APPENDIX B

QUESIONNAIRE

เลขที่แบบสอบถาม……..

แบบสอบถาม

ประสิทธิผลการปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรคในเด็กอายุต่ำกว่า 1 ปี ของเจ้าหน้าที่สาธารณสุขระดับสถานีอนามัย จังหวัดชัยภูมิ

<u>คำชี้แจง</u>

1. ผู้ตอบแบบสอบถาม คือ เจ้าหน้าที่ผู้รับผิดชอบงานสร้างเสริมภูมิคุ้มกันโรค ในระดับสถานีอนามัย
2. กรุณาตอบแบบสอบถามให้ตรงตามความเป็นจริง และครบทุกข้อ เพื่อประโยชน์ต่อการนำผลการวิจัยไปวางแผนแก้ปัญหา ให้สามารถปฏิบัติงานได้สอดคล้องกับความต้องการต่อไป
3. คำตอบของท่าน ผู้วิจัยถือว่าเป็นความลับและนำเสนอในภาพรวม ของจังหวัด จึงไม่มีผลกระทบต่อการปฏิบัติงานของท่านแต่อย่างใด
4. แบบสอบถามชุดนี้ประกอบด้วย 3 ส่วน ได้แก่

ส่วนที่ 1	แบบสอบถามคุณลักษณะส่วนบุคคล	จำนวน 7 ข้อ
ส่วนที่ 2	แบบสอบถามเกี่ยวกับทรัพยากรการบริหาร	จำนวน 34 ข้อ
ส่วนที่ 3	แบบสอบถามเกี่ยวกับกระบวนการบริหารจัดการ	จำนวน 30 ข้อ

ส่วนที่ 1 คุณลักษณะส่วนบุคคล

<u>คำชี้แจง</u> โปรดเติมเครื่องหมาย ✓ลงใน ( ) ตามความเป็นจริง และเติมข้อความในช่องว่าง

1. เพศ ( ) ชาย ( ) หญิง
2. อายุ …….. ปีบริบูรณ์
3. สถานภาพสมรส ( ) โสด ( ) คู่ ( ) หม้าย หย่า แยก
4. วุฒิการศึกษา ( ) ต่ำกว่าปริญญาตรี ( ) ปริญญาตรีหรือสูงกว่า
5. ตำแหน่งปัจจุบัน
   - ( ) เจ้าหน้าที่บริหารงานสาธารณสุข
   - ( ) เจ้าพนักงานสาธารณสุขชุมชน
   - ( ) พยาบาลวิชาชีพ
   - ( ) พยาบาลเทคนิค
   - ( ) นักวิชาการสาธารณสุข

( ) อื่น ๆ .....(ระบุ)

6. ระยะเวลาที่รับผิดชอบงานสร้างเสริมภูมิคุ้มกันโรค ……..... ปี

ส่วนที่ 2 ทรัพยากรการบริหาร

<u>คำชี้แจง</u> โปรดเติมเครื่องหมาย ✓ลงใน ( ) ตามความเป็นจริง และเติมข้อความในช่องว่าง

2.1 ด้านบุคลากร

1. ในรอบปีที่ผ่านมาท่านเคยได้รับการฝึกอบรมเกี่ยวกับงานสร้างเสริมภูมิคุ้มกันโรค หรือไม่

( ) เคย ( ) ไม่เคย

2. ท่านคิดว่าการได้รับการฝึกอบรมเพิ่มเติมเกี่ยวกับงานสร้างเสริมภูมิคุ้มกันโรค มีความจำเป็นต่อการปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรคหรือไม่

( ) จำเป็น ( ) ไม่จำเป็น

3. จำนวนเจ้าหน้าที่ในสถานีอนามัยของท่าน มีความเพียงพอในการให้บริการสร้างเสริมภูมิคุ้มกันโรค หรือไม่

( ) เพียงพอ ( ) ไม่เพียงพอ เนื่องจาก……..

4. ในสถานีอนามัยของท่านมีการแบ่งงานให้เจ้าหน้าที่ปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรค อย่างเป็นลายลักษณ์อักษร

( ) ใช่ ( ) ไม่ใช่

5. ท่านคิดว่าท่านและผู้ร่วมงานต้องปฏิบัติงานหลายอย่าง ทำให้การปฏิบัติงานสร้างเสริม-ภูมิคุ้มกันโรคไม่ค่อยประสบผลสำเร็จ

( ) ใช่ ( ) ไม่ใช่

แบบสอบถามความรู้ในงานสร้างเสริมภูมิคุ้มกันโรค

โปรดพิจารณาตอบแบบสอบถามแต่ละข้อ แล้วทำเครื่องหมาย ✓ลงในช่องว่าง ท้ายข้อความแต่ละข้อ ใช่ หมายถึง ข้อความถูกต้อง

ไม่ใช่ หมายถึงข้อความไม่ถูกต้อง

ข้อ	ข้อความ	ใช่	ไม่ใช่
1	เด็กอายุต่ำกว่า 1 ปี การฉีดวัคซีนเข้ากล้ามเนื้อตำแหน่งที่เหมาะสมที่สุดคือบริเวณกึ่งกลางต้นขาด้านหน้าค่อนไปด้านนอก		
2	การให้วัคซีนห่างเกินกว่าระยะเวลาที่นัดจะทำให้ภูมิคุ้มกันโรคเกิดน้อยลง		
3	เด็กที่ติดเชื้อ HIV และแสดงอาการ จะต้องยกเว้นการให้วัคซีน BCG		
4	การให้วัคซีนไวรัสชนิดเชื้อมีชีวิต สามารถให้พร้อมกันหลายชนิดในวันเดียวกัน แต่ถ้าไม่ได้ให้ในวันเดียวกัน ควรเว้นห่างกันอย่างน้อย 1 เดือน		
5	วัคซีน ส่วนใหญ่แนะนำให้เก็บในตู้เย็น ที่อุณหภูมิ 4 ถึง 8 องศาเซลเซียส		
6	วัคซีนที่เก็บในช่องแช่แข็งได้ ได้แก่ วัคซีน BCG, Measle OPV, MMR		
7	การฉีดวัคซีนป้องกันโรคหัดควรฉีดเข้าในผิวหนัง (Intradermal)		
8	เด็กที่ได้รับเลือดมาแล้วไม่ถึง 3 เดือน สามารถให้วัคซีน DPT ได้		
9	เด็กที่เจ็บป่วยเล็กน้อย หรือไข้ต่ำ ๆ ควรเลื่อนการให้วัคซีนออกไป		
10	ทารกที่คลอดก่อนกำหนด ควรให้วัคซีนเหมือนเด็กที่คลอดครบกำหนด โดยไม่ต้องพะวงถึงอายุครรภ์ก่อนกำหนด		

แบบสอบถามความรู้ในงานสร้างเสริมภูมิคุ้มกันโรค (ต่อ)

ข้อ	ข้อความ	ใช่	ไม่ใช่	
11	เด็กที่ได้รับวัคซีนป้องกันวัณโรคและมีแผลเป็น จะเกิดภูมิต้าน-ทานต่อเชื้อวัณโรคเต็มที่ ประมาณ 2 เดือน หลังจากได้รับวัคซีน			☐
12	เด็กที่มีประวัติชักเวลาไข้สูง สามารถให้วัคซีนได้เหมือนเด็กปกติทั่วไป			☐
13	จุดประสงค์ที่แท้จริงของการนิเทศงานสร้างเสริมภูมิคุ้มกันโรค เพื่อสอดส่องดูแลการปฏิบัติงานไม่ให้เกิดข้อผิดพลาด			☐
14	ในกรณีที่เด็กคลอดที่บ้าน ควรให้วัคซีนป้องกันตับอักเสบ บี เข็มแรกภายในไม่เกิน 7 วัน			☐
15	หลักการให้วัคซีน HBV แก่เด็กในรายที่ตรวจพบว่าแม่เป็นพาหะ คือ ให้ฉีดเมื่อแรกคลอด, 1 เดือน, และ 4 เดือน			☐
16	วัคซีน BCG ในกรณีผสมวัคซีนชนิดผงแห้งเป็นวัคซีนน้ำแล้ว ควรใช้ให้หมดภายในเวลา 6 ชั่วโมง ถ้าใช้ไม่หมดให้ทำลายทิ้งไป			☐
17	เด็กที่มีภูมิคุ้มกันผิดปกติแต่กำเนิด ไม่ควรให้วัคซีนป้องกันโรค โปลิโอ (OPV)			☐
18	เด็กที่ได้รับวัคซีนป้องกันโรคหัด จะมีอาการไข้หลังจากได้รับวัคซีนไปแล้วประมาณ 2-3 วัน (48-72 ชั่วโมง)			☐
19	ควรใส่วัคซีนทุกชนิดไว้ในกล่องพลาสติกปิดฝา หรือกล่องกระดาษปิดฝา ก่อนที่จะเก็บไว้ในตู้เย็น			☐
20	ขนาดวัคซีนที่ใช้หากเราปฏิบัติตามคำแนะนำที่มีไว้ในฉลากที่มากับวัคซีน ถือว่าถูกต้อง			☐

2.2 ด้านการเงิน

1. สถานีอนามัยของท่านได้รับงบประมาณในงานสร้างเสริมภูมิคุ้มกันโรค จากหน่วยงานใดบ้าง (ตอบได้มากกว่า 1 ข้อ)

( ) สำนักงานสาธารณสุขจังหวัด

( ) สำนักงานสาธารณสุขอำเภอ / กิ่งอำเภอ

( ) โรงพยาบาลศูนย์/โรงพยาบาลทั่วไป/โรงพยาบาลชุมชน

( ) อื่น ๆ (โปรดระบุ) .....

2. การออกติดตามกลุ่มเป้าหมายและการดำเนินงานให้บริการสร้างเสริมภูมิคุ้มกันโรคนอกสถานบริการ ในส่วนของค่าตอบแทนท่านได้รับหรือไม่

( ) ได้รับ ( ) ไม่ได้รับ

3. ในส่วนของค่าตอบแทนในการออกติดตามกลุ่มเป้าหมายและการดำเนินงานให้บริการสร้างเสริมภูมิคุ้มกันโรค นอกสถานบริการเป็นอย่างไร

( ) เพียงพอ ( ) ไม่เพียงพอ

4. ในส่วนค่าใช้สอยรวมถึงเบี้ยเลี้ยงในการปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรค สถานีอนามัยได้รับ งบประมาณสนับสนุนหรือไม่

( ) ได้รับ ( ) ไม่ได้รับ

5. งบประมาณที่ได้รับเพียงพอต่อการดำเนินงานสร้างเสริมภูมิคุ้มกันโรคหรือไม่

( ) เพียงพอ ( ) ไม่เพียงพอ

2.3 วัสดุอุปกรณ์

1. วัสดุอุปกรณ์ที่ใช้ในการปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรคในเด็กอายุต่ำกว่า 1 ปี เพียงพอหรือไม่

	เพียงพอ	**ไม่เพียงพอ**
- ตู้เย็น	( )	( )
- กระติกใส่วัคซีน	( )	( )
- Ice Pack	( )	( )
- เทอร์โมมิเตอร์	( )	( )
- เข็ม No.25 ยาว 1 นิ้ว	( )	( )
- Syringes 1 ml	( )	( )
- สื่ออุปกรณ์สุขศึกษา	( )	( )
- แบบฟอร์มรายงาน	( )	( )
- วัคซีน BCG	( )	( )
- วัคซีน HBV	( )	( )
- วัคซีน DPT	( )	( )
- วัคซีน OPV	( )	( )
- วัคซีน Measle	( )	( )

2. ท่านได้รับวัสดุอุปกรณ์ที่ขอเบิกตามกำหนดเวลาหรือไม่

	ทันตามกำหนด	**ไม่ทันตามกำหนด**
- ตู้เย็น	( )	( )
- กระติกใส่วัคซีน	( )	( )
- Ice Pack	( )	( )
- เทอร์โมมิเตอร์	( )	( )
- เข็ม No.25 ยาว 1 นิ้ว	( )	( )
- Syringes 1 ml	( )	( )
- สื่ออุปกรณ์สุขศึกษา	( )	( )
- แบบฟอร์มรายงาน	( )	( )
- วัคซีน B	( )	( )
- CG	( )	( )
- วัคซีน HBV	( )	( )
- วัคซีน DPT	( )	( )
- วัคซีน OPV	( )	( )
- วัคซีน Measle	( )	( )

3. วัสดุอุปกรณ์ที่ท่านได้รับ มีการเก็บบำรุงรักษาให้อยู่ในสภาพพร้อมที่จะใช้งาน ใช่หรือไม่

	พร้อมใช้	**ไม่พร้อมใช้**
- ตู้เย็น	( )	( )
- กระติกใส่วัคซีน	( )	( )
- Ice Pack	( )	( )
- เทอร์โมมิเตอร์	( )	( )
- เข็ม No.25 ยาว 1 นิ้ว	( )	( )
- Syringes 1 ml	( )	( )
- สื่ออุปกรณ์สุขศึกษา	( )	( )
- แบบฟอร์มรายงาน	( )	( )
- วัคซีน B	( )	( )
- CG	( )	( )
- วัคซีน HBV	( )	( )

- วัคซีน DPT	( )	( )
- วัคซีน OPV	( )	( )
- วัคซีน Measle	( )	( )

4. วัสดุอุปกรณ์ที่อยู่ในสภาพชำรุดหรือหมดอายุไม่พร้อมที่จะใช้งาน ท่านได้ทำการจำหน่ายหรือทำลายทิ้งหรือไม่

	จำหน่าย	**ไม่จำหน่าย**
- ตู้เย็น	( )	( )
- กระติกใส่วัคซีน	( )	( )
- Ice Pack	( )	( )
- เทอร์โมมิเตอร์	( )	( )
- เข็ม No.25 ยาว 1 นิ้ว	( )	( )
- Syringes 1 ml	( )	( )
- สื่ออุปกรณ์สุขศึกษา	( )	( )
- แบบฟอร์มรายงาน	( )	( )
- วัคซีน B	( )	( )
- CG	( )	( )
- วัคซีน HBV	( )	( )
- วัคซีน DPT	( )	( )
- วัคซีน OPV	( )	( )
- วัคซีน Measle	( )	( )

ส่วนที่ 3 กระบวนการบริหารจัดการในงานสร้างเสริมภูมิคุ้มกันโรค ในเด็กอายุต่ำกว่า 1 ปี

<u>คำชี้แจง</u> โปรดพิจารณาตอบแบบสอบถามแต่ละข้อ แล้วใส่เครื่องหมาย ✓ลงในช่องว่างท้ายตารางที่ท่านเห็นว่าตรงกับความเป็นจริงมากที่สุด

ข้อ	ข้อความ	ระดับการปฏิบัติ			
		สม่ำเสมอ	บางครั้ง	ไม่ปฏิบัติ	
ส่วนที่ 1 การวางแผน					
1	ท่านได้มีการทบทวนแผนปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรค อย่างน้อยปีละครั้ง				☐
2	ท่านได้ตรวจสอบความถูกต้องของข้อมูล ก่อนนำมาใช้ในการวางแผนปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรค				☐
3	ก่อนที่จะวางแผนปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรค ท่านได้มีการรวบรวมข้อมูลและวิเคราะห์เพื่อนำมาใช้ในการวางแผน				☐
4	การกำหนดวัตถุประสงค์และเป้าหมายงานสร้างเสริมภูมิคุ้มกันโรค ท่านได้ตรวจสอบความสอดคล้องกับวัตถุประสงค์ และเป้าหมายของอำเภอ จังหวัด				☐
5	มีแผนการให้บริการสร้างเสริมภูมิคุ้มกันโรคประจำเดือน ติดอยู่ในที่ประชาชนมองเห็นได้ง่าย				☐
6	การปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรคส่วนใหญ่เป็นไปตามแผนที่วางไว้				☐
ส่วนที่ 2 การจัดองค์การ					
7	ทำแผนภูมิแสดงหน้าที่รับผิดชอบงานสร้างเสริมภูมิคุ้มกันโรค ติดไว้อย่างชัดเจนในสถานีอนามัย				☐
8	ท่านได้กำหนดขอบเขตการปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรคไว้เป็นลายลักษณ์อักษร				☐
9	ท่านตัดสินใจในกลวิธีการดำเนินงานสร้างเสริมภูมิคุ้มกันโรคด้วยตัวท่านเอง				☐
10	เมื่อท่านมอบหมายงานให้ผู้อื่น ท่านจะให้เขาตัดสินใจในการปฏิบัติงานได้อย่างอิสระ ในขอบเขตความรับผิดชอบ				☐

ข้อ	ข้อความ	ระดับการปฏิบัติ			
		สม่ำเสมอ	บางครั้ง	ไม่ปฏิบัติ	
11	ผู้ร่วมงานมักจะขอคำปรึกษาจากท่านเมื่อมีปัญหาในการดำเนินงานสร้างเสริมภูมิคุ้มกันโรค				☐
12	ท่านรายงานผลการปฏิบัติงานรวมทั้งปัญหาอุปสรรคในการปฏิบัติงานให้ผู้บังคับบัญชาของท่านทราบ				☐
ส่วนที่ 3 การบริหารงานบุคคล					
13	ท่านกำหนดจำนวนบุคลากรที่จะร่วมปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรค ไว้ล่วงหน้า				☐
14	ท่านตรวจสอบคุณสมบัติของบุคลากรก่อนคัดเลือกเข้ามาปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรค				☐
15	ท่านเป็นผู้จัดอบรมให้ความรู้การสร้างเสริมภูมิคุ้มกันโรค แก่ อสม. ในเขตรับผิดชอบทุกเดือน				☐
16	ท่านได้ทบทวน ศึกษาตำราเพื่อพัฒนาความรู้ความสามารถเกี่ยวกับงานสร้างเสริมภูมิคุ้มกันโรค				☐
17	เมื่อท่านได้รับข่าวสารใหม่ ๆ เกี่ยวกับงานสร้างเสริมภูมิคุ้นโรค ท่านได้ชี้แจงให้เพื่อนร่วมงานทราบ				☐
18	ท่านได้รับการปฐมนิเทศหลังจากที่ได้รับมอบหมายให้ปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรค				☐
ส่วนที่ 4 การอำนวยการ					
19	ในการมอบหมายงานสร้างเสริมภูมิคุ้มกันโรค ท่านได้ชี้แจงวัตถุประสงค์อย่างชัดเจนทุกครั้ง				☐
20	ท่านยินดีที่จะรับฟังข้อเสนอแนะในการการปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรค จากเพื่อนร่วมงาน				☐
21	เมื่อเพื่อนร่วมงานมีปัญหาในการปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรค ท่านช่วยแก้ไขปัญหาให้ลุล่วง				☐
22	ท่านประสานงานกับ อสม. ในเขตรับผิดชอบเพื่อให้คำแนะนำชักจูงผู้ปกครองนำเด็กมารับวัคซีน				☐
23	ในการปกิบัติงานสร้างเสริมภูมิคุ้มกันโรคท่านได้มีการประสานงานกับสถานีอนามัยอื่น ๆ				☐

ข้อ	ข้อความ	ระดับการปฏิบัติ		
		สม่ำเสมอ	บางครั้ง	ไม่ปฏิบัติ
24	เมื่อมีการประชุมในหน่วยงานของท่าน แต่ละครั้งงานสร้างเสริมภูมิคุ้มกันโรค เป็นประเด็นหนึ่งที่ท่านและผู้ร่วมงานพูดถึง			
ส่วนที่ 5 การควบคุม				
25	ท่านทำการตรวจสอบความถูกต้องของข้อมูลเพื่อลงรายงานหลังจากให้บริการสร้างเสริมภูมิคุ้มกันโรคแล้ว			
26	ท่านประเมินผลการปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรค ส่งสำนักงานสาธารณสุขอำเภอ / กิ่งอำเภอทุกเดือน			
27	ท่านทำการนิเทศงานสร้างเสริมภูมิคุ้มกันโรค แก่ อสม. ในแต่ละเดือน			
28	ท่านมีการนำเสนอข้อมูลเกี่ยวกับการปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรค ติดไว้ที่สถานีอนามัย			
29	ท่านมักนำผลการประเมินมาวิเคราะห์เพื่อสรุปหาแนวทางในการปฏิบัติงานครั้งต่อไป เสนอผู้ต่อบังคับบัญชา			
30	ท่านได้ปรับปรุงแก้ไขโดยต่อเนื่อง เมื่อพบว่าการปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรคเกิดข้อผิดพลาดหรือไม่บรรลุเป้าหมายที่กำหนดไว้			

ส่วนที่ 4 แบบประเมินประสิทธิผลการปฏิบัติงานสร้างเสริมภูมิคุ้มกันโรค ในเด็กอายุต่ำกว่า 1 ปี

การปฏิบัติ	เกณฑ์ชี้วัด	เป้าหมาย	ผลงาน	ร้อยละ
1. ฉีดวัคซีน บีซีจี ในเด็กแรกเกิด	100 %			
2. ฉีดวัคซีน ดีพีที ครบ 3 เข็ม	100 %			
3. ฉีดวัคซีน ตับอักเสบบี ครบ 3 เข็ม	100 %			
4. หยอดวัคซีน โอพีวี ครบ 3 ครั้ง	100 %			
5. ฉีดวัคซีนหัด ในเด็กอายุ 9 – 12 เดือน	100 %			

BIOGRAPHY

NAME	Mr. Roengchai Bunpool
DATE OF BIRTH	19 September 1962
PLACE OF BIRTH	Chaiyaphum Province, Thailand
INSTITUTIONS ATTENDED	Mahidol University, 1994-1997: Bachelor of Public Health Mahidol University, 1999-2004: Master of science (Public Health) Major in Health Administration
POSITION AND OFFICE	*Position:* Health Officer Level 5 1997 – Present Kokphochai District Health Office Ministry of Public Health