

# Socialized task of cataract operation in Angiang province, Vietnam: Developing in output and outcome for over 2 decades

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## Abstract-

### Purpose:

1. To launch the mobile cataract surgery camps (MCS) from Provincial Ophthalmic Department of a southern province where the population with 2 million.
2. To report some results of MCS in the community at district hospital/remote area in reducing the backlog cataract over 2 decades.

### Patients and methods: Community Intervention Trials included:

1. Organise the MCS with 3 groups: Society  $\leftrightarrow$  Patients  $\leftrightarrow$  Medical Services
2. Four S (steps) of MCS: Statement; Selection; Surgery; Sequelea.
3. Four C in action: Cooperate; Coordinate; Change new instruments; Conclude after years- periods.

### Results and discussion: compare

1. Cataract surgical rate (CSR) during periods with MCS.
2. Cataract surgery cost.
3. Some considerations on MCS in sustainability.

### Conclusion:

1. MCS performed intracapsular cataract extraction, extracapsular cataract extraction implanted intraocular lenses, Phaco surgery; increased number of restored vision for cataract patients and this result can be interacted the awareness of community about magnitude of the problem in order to resolve this problem in higher level.
2. MCS kept the low cost or free fee for poor patients as well as provided high-tech such as phaco with low cost which is accepted by community. MCS also helps people living in the countryside having a right to get a part of high-tech.
3. MCS could be applied to other situations in much developing world for the benefit of thousands curable blind due to cataract while cataract surgeons are not enough and instruments are too expensive. For successful MCS specially training technical and non-technical groups were established.

**Key words:** Cataract surgery, developing country, backlog cataract, mobile cataract surgery camps, cataract surgery cost, income cataract surgery, outcome cataract surgery.

**Abbreviation:** MCS: Cataract surgery camps. CSR: Cataract surgical rate. Phaco: Phacoemulsification. ICCE: Intracapsular cataract extraction. ECCE/PIOL: Extracapsular cataract extraction with posterior intraocular lens. IOL: Intraocular lens.

## 1 INTRODUCTION

Today millions of people in the developing countries are condemned to a life of perpetual darkness because there are not enough facilities, surgeons to operate on them [1]. "Only in statistics do people go blind by the millions. Each person goes blind by himself": Sir John Wilson. According to statistics, there are today 16 to 20 million people who are blind cataract but there are only about 7 million cataract procedures per years in the world. Cataract surgery in the developed countries performs it with ever increasing sophistication but those in developing countries perform it with simple instruments.

In Vietnam with the population of 72 million, the prevalence of cataract is 3%-5%, the percentage of requiring cataract operation is 1%, annual cataract procedures: 39,291 and cataract occupies 70% of blind causes [2]. As many developing countries, in Vietnam most of the available ophthalmologists are concentrated in cities whereas most of the population lives in the countryside areas.

Angiang province lies in the south west of Vietnam, belongs to Mekong Delta. The total area of the province is 3.424km<sup>2</sup>, equal 1% of the whole country and the fourth of provinces of Mekong Delta. The population over 2 million habitants (1999), the average density was 584 habitants per km<sup>2</sup>. Over 80% of labors of the province are labors in farming, 10%-14% in commerce and service, 6%-10% in industries and construction.

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(According to Angiang Province's Service of Planning and Investments by the year 2.000). The growth rate of population is 1, 3%. Medical services include 2 provincial hospitals with 1,000 beds for inpatients, 11 district hospitals with 50 to 200 beds, and 136 the health stations of village for primary health care. The ophthalmic beds occupy 5 % to 10% of total hospital beds. The poor patients living in the remote areas find it difficult to travel to get cataract operation at the provincial hospital. From these reasons mobile eye camps were born in Angiang province, Vietnam from 1985-2006 with step-by-step in steady progress. The mobile cataract surgery camps (MCS) is basically a district hospital or village health station with minimum time and at low cost for each case [3], [4], [5].

In this paper we introduce our basic principles in organization of MCS at district hospitals and some primary results.

**2. MATERIAL AND METHODS:** Community Intervention Trials included

### 2.1. BASIC PRINCIPLES:

We based on following principles. A simple chart illustrated social scientific application in planning: **Society $\leftrightarrow$ Patients $\leftrightarrow$ Medical Services**

#### 2.1.1. Society:

-Government, non-government organizations (NGOs), national or international.

#### 2.1.2. Medical services:

-Technical and non-technical groups: improved the output and outcome for MCS

-Low cost, a partial fee for high-tech, e.g. phacoemulsification (Phaco) for patients' demand.

-Free fee for poor patients: Intracapsular cataract extraction (ICCE) or extracapsular cataract extraction with posterior intraocular lens (ECCE/PIOL)

#### 2.1.3. Patients:

- Patients without payment because of supporting from Government, NGOs...

-Patients' payment for patients'demand.

Community participation included society, medical services and patients [4]. The benefits of community participation have been demonstrated by:

- decreased per patient treatment cost.
- increased collaborative integration between health authorities and community structure.
- increased understanding of barriers uptake of services and final result is more important to continue and to perfect cataract surgery task [4]

## 2.2. ORGANISATION OF MOBILE CATARACT SURGERY CAMPS

A MCS is basically upon district hospital. It is really an expanding of provincial ophthalmic department. MCS was done with minimum time and at low cost for each case at district hospital [5]

### Personnel Organization:

MCS can be included two principal groups:

\*Technical group: doctors, assistants, nurses, opticians, parameters...

\*Non-technical group: Patients' relatives, Red-Cross members, patients' consellers, pre-operated cataract patients...

Both groups are actively in increasing of quantity and quality for MCS [4]

### 2.2.1 Four steps of MCS: There are 4 steps S1-S4 of MCS: (4S) [5]

**S1=Statement. Announcement cataract operating day:** On local newspaper, on radio and television about one month before.

**S2=Selection. Patients' registration:** Patients will register at district hospital where has selected operating patients and has done preoperative task. One-eye patients/pathologic cataract patients are excluded at MCS.

**S3=Surgery. Cataract surgery days:** From 2 days to 4 days depending on the number of cataract patient. There are 100 to 150 cataract surgery procedures per day which were done by cataract surgeons from central level hospital (Ho Chi Minh City) coordinated with local cataract surgeons (District, Province hospital).

**S4=Sequelea. Patients' follow-up:** The patients will discharge on the same day in the case of phaco and one day later in case of ICCE, ECCE/PIOL. The follow up for the post-operative patients was done by local ophthalmologists. "The plan without action is bad but the plan without evaluation is worse" we always think.

**2.2.2 Four Actions: 4C: Cooperate; Coordinate; Change new instruments; and conclude every year- periods.** Coordination and union all surgeons are necessary. Improved instruments must be done adequately. Conclusion with evaluation is the key for developing

## 2.3. SOME SPECIFICITY OF MCS:

### 2.3.1 Division of responsibility in surgical operation:

\*District ophthalmologists for ICCE

\*Provincial ophthalmologists for ECCE/PIOL

\*Central ophthalmologists (Ho Chi Minh City) for Phaco.

### 2.3.2 Step-by-step:

We have performed step-by-step from ICCE (1985-1995), ECCE/PIOL (1995-1999) to Phaco (1999-2006). High technics from central ophthalmology hospital will progressive transfer to local ophthalmologists (district and provincial ophthalmologists)

### 2.3.3 Surgical instruments:

\*Microscope: Scanoptic (Fred Hollow Foudation)

\*Portable Phaco: Quasar Opticon (Italy)

\*Ultrasound A: I 2100/Cima (USA)

\*Javal 4184 SIBIA (USA)

\*IOL: Fred Hollow, Cima, Alcon...

### 2.3.4 Surgical procedures:

Incision:

\*Nature: two or three steps for corneal incision, tunnel scleral incision

\*Position: corneal: 25% cases, scleralcorneal: 50% cases, scleral: 25% cases. Temporal incision: 70% cases, superior incision: 30% cases.

**5 Sterilization and disinfection of instruments:** by using facility of district hospital.

## 3. RESULTS AND DISCUSSION:

Population of province	2 million habitants
Population of a district	100,000 – 400,000 habitants
Growth rate of population	1,3%
Prevalence of cataract for subjects ≥50yo	33%(1998)
Number of ophthalmologists (doctors)	10
Provincial hospital	2
District hospital	11
Annual number of cataract procedures	2489 cases
ICCE+Glasses	414 cases
ECCE/PIOL	1,907 cases
PHACO	168 cases

## 3.1. CATARACT SURGICAL RATE:

(CSR: Number of cataract surgeries done per year per 1 million public sector dependent population. Numerator: Number of cataract surgeries done per year x 1 million) (Table 2)

Our Cataract surgical rate (Angiang province) is 1.245 (2489/2.000.000) (whole country is 900) in 1999. (Table 1)

Our CSR is higher China (500) but lower South East Asia (2400)

WHO/LAPB region	Population (millions)	Number of cataract operations	CSR (ops/mill/year)
Africa	650	0.20	300
Americas	800	2.15	2700
North	300	1.65	5500
Central and South	500	0.5	1000
Eastern Mediterranean	500	0.5	1000
Europe	900	2.1	2300
Western	400	1.6	4000
East and central	500	0.5	1000
South East Asia	1500	3.6	2400
India	1000	3.1	3100
Rest	500	0.5	1000
Western Pacific	1650	1.65	1000
Australia and Japan	150	0.8	5300
China	1250	0.6	500
Rest	250	0.25	1000
Total	6000	10.2	1700

## 3.2. CATARACT SURGERY COST:

**Cost:** ICCE with Glasses/ ECCE with Glasses: US\$20

ECCE/PIOL: US\$30-50 (depend on IOL)

PHACO : US\$50-100 (depend on IOL)

### Percentage of expenditure cataract surgery: (estimate)

-Government, NGOs for poor patients: 50%-100%

-Patients' payment : 0% - 50%

## 3.3. SOME CONSIDERATIONS ON MCS:

3.3.1. The proper evaluation of MCS should be undertaken to assess the acuity of vision. It is surprising that the percentage post-operative sepsis is low (1%), increased vision post operation is very high (90%), but the visual acuity over 0.3 (6/18) is low (6, 2% to 21, 3%) [5]. It is important to improve the quality (outcome) and quantity (output) by conferences, by staff [8], [9].

3.3.2. The percentage of refused operation is rare (1%). The rest of the cases were at different stage of progression and will be done by MCS in the next consecutive times [5], [9].

3.3.3. The poor patients who were operated cataract at MCS with lower money than at Provincial Hospital. Further, transportation and residency fee are not included. For example, with the same money at MCS the patients can be operated ECCE/PIOL but at Provincial Hospital they can be operated ICCE or ECCE without IOL. The cost benefit where by the cost (low cost) and benefit (outcome, output) associated with the MCS over time are identified, quantified and discounted [6], [9].

3.3.4. In addition the patients, especially the older ones, feel more secure and comfortable using their on bedding, eating they are used to. They also have a relative nearby to look after them whole the day, as well as return home soon is comfortable for them and low post-operative complications were rarely seen [5].

3.3.5. These statistics, even though they may not be scientifically accurate, are for practical and social purposes very encouraging.

#### 3.4. SUSTAINABILITY OF MCS:

3.4.1. It is important to maintain the MCS. Sustainability can be divided into 2 sectors:

3.4.1.1 Fee of surgery: from Government; NGOs; Patients.

3.4.1.2 Operational: Coordinate and unite all surgeons from central level to local level, include nontechnical workers become team works.

3.4.2 The development of MCS in such a way will be cost effective and sustainable. Because of with the same expenditure we can perform a greater number of patients at MCS compare with at Provincial Hospital. In the other hand MCS can do high-tech as phaco with low cost.

3.4.3 Under the existing conditions prevailing in our province, MCS is only the practical solution to tackle the problem of blindness due to cataract both quantity and quality.

#### 4. CONCLUSION:

4.1 MCS performed ICCE, ECCE /PIOL, PHACO: increased number of restored vision for cataract patients and this result can be interacted the awareness of community about magnitude of the problem in order to resolve this problem in higher level.

4.2 MCS kept the low cost or free fee for poor patients as well as provided high-tech such as phaco with low cost which is accepted by community. MCS helps people living in the countryside having a right to get a part of high-tech.

4.3 MCS could be applied to other situations in much developing world for the benefit of thousands curable blind due to cataract while cataract surgeons are not enough and instruments are too expensive. For successful MCS specially training technical and non-technical groups were established.

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