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Introductory Chapter: Colposcopy and Cervical Pathology in Cervical Cancer Screening Programs: Resource Effectiveness, Concepts, and Models of “Raj” ©

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Additional information is available at the end of the chapter

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1. Introduction

The author is pleased to share his experiences, the concepts, and models he evolved, during his role as the Principal Investigator of large-scale, cervical cancer screening programs, and Human Papillomavirus—HPV prevalence studies, in Tamil Nadu, India, during early 2000.

The resources available in any setting, region, community, and country need prudent management. Cost effectiveness and cost benefit are important strategies in health economics. Improving on these, the author introduces a strategy “Resource Effectiveness,” to be considered by the healthcare systems in general and healthcare planners in particular.

The research articles in this book, constructively contribute to the globally important topic “Colposcopy and Cervical Pathology,” especially in the context of cervical cancer screening programs, in low and limited resource settings. The two important services are yet to be planned for ideal use and optimum benefit. “Poverty in Abundance” situations are not uncommon. The author is pleased to make efforts for both ends to meet. The philosophy of “Lighted to Lighten” is applied for the beneficiary community and health system research. Sparking strategies, current concepts, and modifiable models are presented for the benefit of science globally and society worldwide.

I am greatly privileged to be the editor and also write this introductory review chapter as one of the team members to enrich and support the noble efforts of the INTECH publishers and

esteemed authors. The concepts and models, recommended here, are to be appropriated to suit individual situations, but the objective of this endeavor is to achieve the targets set by the “Cervical cancer prevention programs” in all settings, universally.

2. Concept 1: “RAM of RAJ for Resource effectiveness”

The resources as conceived by the experience of the author are classified as **T12** and means of achieving effectiveness for each resource input is explained. This model is called Resource Appropriate Management—**RAM of Raj**.

2.1. Resource appropriate management

(1)	Time	Single visit approach
(2)	Talent	Create local manpower
(3)	Team	Community health volunteers
(4)	Treasure	Community/self-supported
(5)	Technique	Integrated with available primary health care
(6)	Technology	Simple, affordable, e.g., via portable Colposcope cryotherapy—cold coagulation Affordable, acceptable, available
(7)	Technologist	Out sourcing contracts, part timers, volunteers from existing government hospitals, medical schools, and private and medical institutions
(8)	Technology transfer	Hemostats like silver nitrate crystals can be used instead of Monsel’s paste, which is expensive and not available in many countries, during LEEP/LLETZ
(9)	Trainings at home	Training programs at project sites and not abroad
(10)	Training places	Local establishment and in medical schools, government hospitals, E-learning
(11)	Translational research	Global health researches for inputs and research collaboration with local medical institutions
(12)	Task and talk	Advocacy and fund raising

3. Concept 2: “RISES” model of RAJ—for effective screening

Cervical cancer prevention—by Raj’s “RISES” model.

3.1. Raj’s interactive squares for effective screening—RISES model

The prevention strategies for cervical cancer are based on four levels and three stages, for all the intervention principles.

The four levels are as follows:

- 1. Primordial prevention
- 2. Primary prevention
- 3. Secondary prevention
- 4. Tertiary prevention

The three stages are as follows:

- 1. Individual stage
- 2. Family stage
- 3. Community stage

The interactions of these are presented in the 16-square table below.

		Stage 1	Stage 2	Stage 3
		Individual	Family	Community
Level 1	Primordial prevention Objective: Prevention of risk factors	Teenage girls—education about HPV infections and need for HPV vaccination	Education about HPV to all women in the household Condom use as a preventive measure for HPV transmission HPV vaccination for eligible women Participation in HPV/CaCx screening programs	Schools—education to teenage girls about menstrual hygiene, sexual hygiene Protection with HPV vaccination for eligible girls Plan and implement HPV/CaCx screening programs
Level 2	Primary prevention Objectives: Health promotion specific protection	To attend HPV/Ca Cx screening programs Compliance for colposcopy referrals. Diagnosis by cytology/ biopsy and have evidence of disease status. Regular follow up and treatment— understand the importance of cervical pathology services	All eligible women to be motivated to attend HPV/Ca Cx screening programs Compliance for colposcopy referrals. Diagnosis by cytology/ biopsy and have evidence of disease status. Regular follow up and treatment	To plan, implement screening programs - All eligible women to be motivated to attend HPV/Ca Cx screening programs Compliance for colposcopy referrals—encouraged and enhanced by community healthcare volunteers. Diagnosis by cytology/biopsy and have evidence of disease status. Regular follow up and treatment—encouraged and ensured by volunteers

		Stage 1	Stage 2	Stage 3
		Individual	Family	Community
Level 3	Secondary prevention Objectives: Early diagnosis and treatment of Cx Ca precursors	Self-empowerment for: Compliance in colposcopy referrals. Diagnosis by cytology/ biopsy and have evidence of disease status. To have regular follow up and treatment	Family empowerment for compliance in colposcopy referrals. Diagnosis by cytology/ biopsy and have evidence of disease status. To have regular follow up and treatment	Community empowerment for compliance in colposcopy referrals. Diagnosis by cytology/ biopsy and have evidence of disease status. To have regular follow up and treatment
Level 4	Tertiary prevention Disability Limitation and Rehabilitation	Being self-empowered to undergo colposcopy examinations cytology/ biopsy diagnostic procedures. Understand and accept the diagnosis. To have treatment done for diseases status—CaCx precursor stages. Compliance for regular follow-up services to attain disease cure status	Family empowered to undergo colposcopy examinations cytology/ biopsy diagnostic procedures. Understand and accept the diagnosis. To have treatment done for diseases status—CaCx precursor stages. compliance for regular follow-up services to attain disease cure status	Community empowered and program assurance colposcopy examinations cytology/ biopsy diagnostic procedures. Understand and accept the diagnosis. To have treatment done for diseases status—CaCx precursor stages. Compliance for regular follow-up services to attain disease cure status

3.2. RAJ's interactive squares for effective screening: RISES concept

This concept is diagrammatically represented in the above model—RISES.

The “RISES” concept is elaborative discussion about the strategies to be considered in HPV/ cervical cancer screening and treatment programs for improving community compliance for all the services of the program, especially for colposcopy referrals and precancer treatments. The HPV vaccination programs also can follow the concepts with tailored modifications.

The evaluation/cost-effective and cost benefit analysis should be aimed at reaching “Resource Effectiveness,” which could be the objective of the “Health Economy” of the program.

4. Interventions should start with teenage girls at school/community levels

It is very appropriate to start or plan for an HPV screening program for girls in their 12 years onward, from the school life. Menstrual hygiene and sexual hygiene lessons to be taught with planned, defined, focused, valid, and reliable syllabus. The lessons should be well prepared by the health service providers and the messenger, message, media, and effectiveness should be tailored according to the receivers and the micro/macroenvironment. Sanitary napkins may be provided by the healthcare system.

The use of male condoms is much advocated for its many benefits, such as birth control and prevention of transmission of sexual diseases, including HPV transmission.

HPV vaccination should be included as a private/public practice or policy. The efficacy of HPV vaccination should be assessed initially, concurrently, and periodically. Policies should be formulated and implemented by the local authorities.

Screening programs for HPV/cervical cancer, in many situations, face the problem of low compliance. Empowerment through education, socioeconomic inputs, and appropriate, affordable, acceptable, available healthcare services are important components to enhance compliance.

5. Concept 3: “RAIN-REACH” concept of RAJ for effective health education: health education

5.1. The RAIN–REACH concept of Raj

The RAIN criteria for health education are enlisted below:

- (1) R = Reliability
- (2) A = Adequacy
- (3) I = Innovative
- (4) N = Need–RAIN

5.1.1. R = Reliability

The reliability is for

- The health education message
- The health educator
- The health education system

5.1.1.1. Health education message

The “Message” should always be tailor made. The language should be local, simple, understandable, and supported by figures/photos/diagrams for the uneducated population. The use of complicated vocabulary, slogans, and jargons should be avoided. The message should be taint free of race/religion/caste/creed/ethnicity/politics. The use of scary and frightening messages, photos of advanced cancer stages of patients, photos of complicated surgeries, and medical instruments/procedures should be avoided. Pessimistic and negative statements should be avoided. It is very effective to have messages with positive attitude and pleasantness.

5.1.1.2. *Health educator*

The community is very receptive to people of their own identities. The educator should be taking into account the local beliefs, cultures, and custom. It is good to train “Local Health Volunteers –LHVs” to deliver the messages. The education should be an ongoing process and so it is suggested that the educators are from the community, of the community, and by the community. They should be living locally and thus ensure all time accessibility for the community for clarifications and explanations. This role of educator also involves counseling, especially in situations where one has to reveal the diagnosis and advice for further investigations like colposcopy and cervical pathology, from the hospitals. Thus, reliability of the educator helps in compliance.

5.1.1.3. *The health education system*

The cervical cancer screening programs, colposcopy, and cervical pathology services should be planned in such a way that they are integrated services of an ongoing healthcare system. In some countries, it is called the “Primary Health Care” system. Holistic care models are more effective and successful than “Organ specific health care services.” The healthcare system, which has addressed many health problems of morbidity, mortality, maternal outcomes, and control and prevention of communicable and noncommunicable diseases, provides an ideal platform, well-equipped and empowered, to take up the challenges faced in cervical cancer screening programs and the components of colposcopy and cervical pathology, thus ensuring success in achieving the goals of the programs.

5.1.2. *A = Adequacy/appropriateness*

The health education message should be adequate, starting from a normal stage to abnormal stage, explaining the gradual transition of the disease process, its reversibility and interventions/cure at each stage, as decided by the health education receiver. The message should not be depicting the advanced cancer stage clinical photos. Instead, details of the normal cervix, inflammations and treatment, changes in precancer stages and treatment, importance of colposcopy and cervical pathology services, the accessibility and affordability should be well explained and clarifications offered wherever needed.

5.1.3. *I = Innovativeness*

The people are more receptive to innovative and interesting messages which may stimulate them for action. For example, 10 tips for cervical health, top 10 screening and treatment methods for healthy cervix, and top 10 risk factors to be avoided for womb’s welfare can be used. It is advisable, not to use the word “cancer, no cure, but death” in the messages. The author has tried using a teaching model—whole apple fruit given to the woman. Each receives an apple and she keeps it in hand. We ask them to draw a small circle at one end of the apple and paint it white using crayons. It is explained that the apple is their uterus and the small circle they have painted white is the acetowhite area seen on their ectocervix on visual inspection after applying acetic acid, similar to the paint they have used. This is also the picture seen in colposcopy with a magnified image. We tell them that there is nothing to

worry but we take a small punch for cervical pathology, a bit of tissue taken for examination. They are also told to scrap a piece from the white area in their apple and we explain that it is called biopsy in medical terms. Then we lead them for further actions. We ask the whether they will throw away the full apple because of the white area or scrap away the white area and retain the whole apple. The usual answer is that they will retain the apple. In the same way, it is explained that their acetowhite area will be removed by cryotherapy/cryo-coagulation/laser ablation or loop electro excision procedure—LEEP, and the uterus is retained. The women get convinced. The health educators shall plan such innovativeness for their programs.

5.1.4. *N = Need*

The “felt need” of time/place/person. The providers of health education should take into consideration, the need of their program, in the context of time/place/person.

5.1.4.1. *Time*

The convenience of the beneficiaries should be kept in mind rather than the official working time of the program workers. It is suggested that the education programs can be conducted in the community during late evenings, when people are back from their work and are having time for education sessions. Appointments also can be fixed with individuals for health education slots.

5.1.4.2. *Place*

One may be surprised to find that very sensitive and personal messages are conveyed in public places. The health planners may have the idea that more people would see their messages displayed in public places like market, bus station, and other public gathering places. But to convey private issues like cervical cancer/breast cancer screening, the appropriate place would be in the privacy of the homes. This sort of precautions for privacy and confidentiality should be considered, especially in conservative communities.

5.1.4.3. *Person*

The methods such as child to parent education, satisfied customers’ word of mouth, and peer group education are successful strategies. Men to men and women to women education are also to be practiced in certain situations. Barriers of communication need to be kept in mind in gender-related education. We have discussed the RAIN concept for education to be successful, which is strategic approach for the healthcare providers.

6. “REACH” concept for healthcare beneficiaries

R = Reception/retain/recall/respond/react/recommend — R6, E = Effectiveness, A = Acceptability, C = Change in behavior, H = Health target achievement — REACH

6.1. The R6

6.1.1. Reception

The health education messages should be positive, pleasant, palatable, and practicable for the community, and the messages should not be frightening, scary, negative like telling about an advanced stage of cancer and how many deaths occur and likewise. Pleasant communication is the key for good reception.

6.1.2. Retain

Repeated messages and reproducible facts help the community to retain the essentials of what has been communicated. The strategy of “indoctrination” plays a major role for retention of the messages in the minds of healthcare beneficiaries.

6.1.3. Recall/respond/react

These are the links in the behavior change process and these depend on small group discussions, interactive teaching, and learning sessions.

6.1.4. Recommend

The best way of education in health programs would be by word of mouth from the satisfied customers. The ultimate goal that can be achieved in screening programs would be compliance and recommendation to other potential beneficiaries.

6.2. E = Effectiveness

The effectiveness of education in cervical cancer screening programs can be measured objectively by assessing the change in knowledge-attitude-practice, about the subject that has been focused during the education process. An increased level of knowledge leads to change in the attitude. But for the desired action to be achieved, there should be constant motivation by various means and methods. For example, a woman who never knew the benefits of cervical screening now understands the importance and offers herself for the screening tests.

6.3. A = Acceptability

The woman, who has been well educated and motivated, are now at the screening clinic. It is very important for the health planners to provide her “acceptability” at every stage of process and procedure. Providing all services under one roof is a good strategy. Services offered free of cost, at discounts, with incentives, cost benefit of the diagnosis, and treatment services like the colposcopy, cervical pathology, and precancer treatment modalities should be well explained to the beneficiary at the initial entry level and at all other stages and instant

clarifications of doubts, allay of fear, should be done, which largely comforts the women and greatly help in cooperation and compliance.

6.4. C = Change in behavior

The desired change in behavior of the healthcare beneficiaries is the expected goal of all the education programs. It is more important in cervical cancer screening programs. An individual who was illiterate, ignorant about cervical health is being educated, motivated and she accepts screening, understands her initial results. Then, she is referred for colposcopy if her primary tests like VIA/VILI/Pap smear results indicate a precancer condition. Those who are apprehensive, hostile, uncooperative, and noncompliant are now having a change in behavior and respond positively. The women subject themselves for colposcopy examinations and biopsy and treatment procedures. Effecting this change is the mark of success of the cervical screening programs.

6.5. H = Health for all

All the deliberations so far would eventually help in the process of attaining a level of health, which is socioeconomically productive for the individual. Attainment of this level of health, by the individual, leads to attainment at family level, community, and country level. This is the achievement of the goal “Health for all,” as envisioned by the World Health Organization (WHO).

7. Conclusion

Colposcopy and cervical pathology services, in screening programs, worldwide, are highly resource intensive. The resources which the author considers are as follows:

Time, talent, team, treasure, techniques, technology, technologists, transfer of technology, teaching and training sources, translational efforts and research, task and talk—the **T 12**.

Health management systems across the world need to plan for resource effective strategies for colposcopy and cervical pathology in cervical cancer screening programs, which are currently highly resource intensive components. In this chapter, the author has discussed about **REACT, RISES, and RAIN-REACH concepts of RAJ**. Hope that the publishers, readers, healthcare planners, healthcare providers, and most importantly the people are richly benefitted, and the united contribution pays its dividends.

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