

# Evaluation of Skill-oriented Training on Enhanced Syndromic Case Management (ESCM) of Reproductive Tract Infections/ Sexually Transmitted Infections (RTI/STIs) of Care Providers from Three-tier Health-care System of Gujarat

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## ABSTRACT

**Background:** Enhanced syndromic case management (ESCM) deals with reproductive tract and sexually transmitted infections. Capacity building of service providers not only boosts the program but also inputs from them improve the quality of services. **Objectives:** To (1) identify problem areas from providers' perspectives and the gaps in knowledge and application and (2) assess the gains (if any) through pre and post-training evaluation. **Materials and Methods:** A total of 121 participants (medical/para medical) from various medical colleges, district/sub-district hospitals/ community health centers, and urban dispensaries across Gujarat were trained at a teaching institute. Trainings were of 2-3 days duration involving different learning methodology. Pre- and post-training evaluation were done on a designed *pro forma* and data were entered in MS office Excel 2007. Gains in knowledge/skills if any were assessed by comparing pre-/post-evaluation responses and applying test of significance ( $\chi^2$  test). **Observations:** Out of total 121 participants, half (60) were doctors and the rest were paramedics [staff nurse (SN) and lab technicians (LT)]. Doctors revealed significant gain in basics of reproductive tract infections (RTI) and sexually transmitted infections (STI), syndrome identification, STI/HIV co-infection, and ESCM and less gain in asymptomatic STI/ complications, vulnerability, male reproductive organs, causes of vaginal/urethral discharge, STI complications, cervical cancer screening, and limitation of syndromic management. Gain was statistically significant in basics of RTI/STI amongst adolescent in paramedics; lab technicians showed significant gain in knowledge of laboratory-related areas. **Conclusion:** Assessment revealed (1) poor baseline knowledge and (2) gains following training sometimes significant and other times not significant even in core areas. Quality monitoring and contents/ methodologies modification are essential for robust trainings. Gains in skills could not be assessed through this evaluation.

**Keywords:** Enhanced syndromic case management (ESCM), reproductive tract infections (RTI), sexually transmitted infections (STIs), training evaluation

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## Introduction

Among women of reproductive age group from developing countries, sexually transmitted infections (STI) rank as second most common cause "for healthy life lost" next only to maternal morbidity and mortality.<sup>(1)</sup> India with an annual incidence of 5% and 30 million annual episodes of STI account for 8.8% of global load.<sup>(1,2)</sup> The State of Gujarat is vulnerable to STI transmission due to its huge migratory population and also responsible for about 1.8 million RTI/STI episodes per year.<sup>(3)</sup>

Pandemic of HIV and STDs has persuaded health system for developing enhanced syndromic case management (ESCM),<sup>(4)</sup> as it provides window of opportunity to prevent new infections.<sup>(5)</sup> In spite of phenomenal increase in human resources in health sector and efforts through various trainings, it is far from achieving the desirable status indicating the need for high level commitment and competence among the health personnel. Our conventional trainings so far more sort of classroom based impart more knowledge and transfer little skills and have scope of further improvement. There is a need to reexamine the status of various training to modify the strategic changes to achieve effectiveness.<sup>(6)</sup>

Gujarat State AIDS Control Society (GSACS) is a nodal agency looking after the implementation of various strategies of HIV/AIDS control in the state. As on 2015, GSACS has 60 STI clinics across the state that are located at CHCs/ sub-district/ district/medical college hospitals. These clinics are run jointly by GSACS and state health department to detect/treat/prevent RTI/STI; thus indirectly curtailing the HIV transmission. These clinics work amid general population and also provide services to high risk groups (HRGs). GSACS provide one-time grant to start clinic and recurring grant for procurement of consumables. It also provides drugs, information, education, and communication (IEC) materials and trainings to the staff working at STI clinic [whether the counselor provided by GSACS or other staff like medical officer, staff nurse (SN), or lab technician (LT) provided by health department].<sup>(3)</sup> Trainings are conducted at identified centers preferably at government medical colleges by involving the specialists from the Departments of Dermatology, Obstetrics and Gynaecology, Microbiology and Community Medicine. Training duration is 2-3 days and varies for different cadre.

Primary objective of this study was to identify the problem areas, gap between knowledge and its application and assess the gain (if any) from baseline knowledge through pre and post (training) evaluation.

It is expected that the findings of this study and the feedback received from the participants will help us to improve the content and methodology of these trainings.

## Materials and Methods

Total 5 trainings on ESCM of RTIs/STIs were conducted between October 2014 and February 2015, attended by 121 participants from 3 tiers health care delivery system from medical colleges, district/sub-district hospitals (D/ SD H), community health Center (CHC), urban health center (UHC) across Gujarat state. Trainings were conducted by Community Medicine Department along with departments of Microbiology, Skin and VD and Obstetrics Gynaecology of GMERS Medical College, Sola Ahmedabad in collaboration with GSACS with resource document provided by National AIDS Control Organisation (NACO).

These 121 participants including 60 doctors, 34 staff nurses (SN), and 27 lab technicians (LT) were drawn from functional STI clinics. Less number of SN and LT in the training was due to the fact that trainings were held in February-March 2015 when the state was battling with swine flu epidemic and therefore less numbers of them were deputed. Training duration was 2 days for SN/ LT and 3 days for doctors. Doctors were trained through lecture, group discussion, identification of syndrome with different case studies by participants. It was done with the aim provide comprehensive services in one package through enhanced syndromic approach, art of supportive supervision recording, and reporting along with evaluation by conducting visits to various centers, such as prevention of parent to child transmission (PPTCT), Anti retro viral treatment center (ARTC), Integrated counseling and testing center (ICTC), and Suraksha (STI) Clinic centers (by all these specialists) and how to face the interdepartmental issue by presentations. Staff nurses during their trainings were additionally trained for skills of communication/ counseling by role play and so also the LT were given demonstration of various RTIs/STIs related tests and infection control measures in microbiology lab. Many of these skill related aspects could not be assessed in post-test but trainer faculty pointed out missed areas, flaws and immediately corrected the participants.

Pre-training assessment was done using self-administered structured questionnaire followed by post-training assessment using same tool, questionnaire were separately designed for different cadre. Apart from general demographic information, questionnaire contained 28, 15, and 28 questions for doctors, SN, and LT, respectively. Appropriate STD interventions are known to reduce HIV transmission to the tune of 30-40%,<sup>(7)</sup> hence the study was undertaken to identify

the areas that need clarifications or strengthening. Focus of this communication is to identify problem areas (based on trainee's feedback) and suggest changes in the contents and/ or methodologies to make it more service oriented reflecting through better health outcomes. Questions primarily designed by National Control Organization (NACO) were as per health personnel skill and knowledge requirement were further modified. In each questionnaire, questions were segregated in to (STI/ RTI basic knowledge, signs/ symptoms, examination, identification of syndrome, enhanced syndromic approach, HIV related and other complications, management/ treatment and lab related (only for LT). Each correct response was awarded 1 mark and incorrect/ unattended response got 0. There was no drop out between pre and post-training evaluations. It was optional for the participant to write their name in questionnaire and further complete anonymity was ensured and no attempt at any stage was made to link a particular participant with his/her response.

### Statistical analysis

Data were coded, entered in MS Excel 2007, analyzed and  $\chi^2$  test was applied.

### Observations

#### Profile of participants

Out of total 121 participants who underwent this training, 60 were medicos and rest (61) were paramedics (34 staff nurse and 27 lab technicians). Mean age was comparable in all three groups (30.5-32.5) years and female dominance was evident in all 3 groups but was maximum (85.3%) among SN followed by doctors (65%) and LT (62%). Tertiary level care was represented by one third (33.3%) of doctors and more than half (55%) of them were qualified postgraduate. In categories of SN and LT, most participants were from DH/ SDH/ CHC. Mean years of work experience were also almost comparable and ranged between 5.4 years and 6.8 years [Table 1].

#### Doctors

##### Baseline assessment

Baseline knowledge was satisfactory for the basic knowledge (RTI/STI) and identification of syndrome only while it was poor in all other areas (signs/symptoms, examinations, management, enhanced syndromic approach, and HIV related and other complications). Correct response was highest in women vulnerability for infection (91.7%) and lowest for organism leading to sinus formation in groin region in males (8.3%) [Table 2].

##### Training impact

Baseline RTI/STI basic knowledge was high and there were no gains after training except for one to two questions. All questions about signs/ symptoms and examinations showed gains including significant in

**Table 1: Profile of participants**

Parameter	Staff categories		
	Doctors	Staff nurses	Lab technicians
Total	60	34	27
Age (years)			
<25	8 (13.3)	5 (14.7)	5 (18.6)
25-34	35 (58.3)	18 (52.9)	17 (62.9)
35-59	17 (28.3)	11 (32.4)	5 (18.5)
Mean±SD	32.5±9.3	31.2±6.8	30.5±8.6
Gender			
Male	21 (35.0)	5 (14.7)	10 (37.0)
Female	39 (65.0)	29 (85.3)	17 (62.0)
Work place			
Medical college	31 (51.6)	9 (26.4)	6 (22.2)
District/sub-district Hospitals	20 (33.4)	18 (52.9)	14 (51.9)
Community health centers/ trust hospitals	9 (15.0)	7 (20.6)	7 (25.9)
Designation			
Medical teachers/ specialists	14 (23.3)	Not assessed	Not assessed
Residents	19 (31.6)		
Medical officers	27 (45.0)		
Professional qualifications			
MBBS	27 (45.0)	Not assessed	Not assessed
Postgraduate degree/ diploma	33 (55.0)		
Work experience (years)			
<2	21 (35.0)	8 (23.6)	6 (22.2)
2-5	21 (35.0)	10 (29.4)	12 (44.5)
>5	18 (30.0)	16 (47.0)	9 (33.3)
Mean±SD	6.4±7.8	6.9±6.2	5.4±6.7

case of 3 (out of 5) questions. More or less similar was the situation in other areas too except the management/ treatment where baseline knowledge was poor and remained so even after the training [Table 2].

#### Staff nurse

##### Baseline assessment

Baseline knowledge was poor in all three areas of (1) basic knowledge; (2) signs/ symptoms, management, and prevention; and (3) HIV related and other complications [Table 3] as mean number of correct responses varied between 38% and 40%. Maximum correct responses were observed for questions about window period and diseases harmful to fetus (each 61.8%) while minimum correct responses were observed for need of blood testing prior to operation, commonest and use of condom in STI prevention (each 11.8%) [Table 3].

##### Training impact

All questions (except 1) per training the basic knowledge of STI/RTI showed gain including significant in case of two out of six questions. In the area of signs/ symptoms, etc., surprisingly either there was a

**Table 2: Pre- and post-training correct responses amongst doctors (N = 60)**

Questions	Correct response		Statistical interpretation	
	Pretest (%)	Post-test (%)	X <sup>2</sup> value	P value
<b>RTI/STI basic Knowledge</b>				
Rarely asymptomatic	50 (83.3)	52 (86.7)	0.26	0.6
Sometimes difficult to treat with antibiotics	44 (73.3)	33 (55.0)	4.39	0.04
If untreated may cause serious complications	44 (73.3)	45 (75.0)	0.04	0.8
Asymptomatic infections transmissible	55 (91.7)	57 (95.0)	0.13	0.7
Women more vulnerable for infection	55 (91.7)	58 (96.7)	0.61	0.4
Mean	(82.7)	(81.6)		
<b>Signs/ symptoms and examination</b>				
Easier to diagnose in women than in men	16 (26.7)	19 (31.7)	0.4	0.5
Both General and local examinations are must	46 (76.7)	47 (78.3)	0.05	0.8
Examination method for urethral discharge (men) - milking of ...	38 (63.3)	55 (91.7)	13.8	<0.01
Red beefy cervix with purulent discharge diagnostic of ....	13 (21.7)	20 (33.3)	2.05	0.1
Complains of pain and/or burning on passing urine suggestive of ...	24 (40.0)	43 (71.7)	12.2	<0.01
Mean	(45.7)	(61.3)		
<b>Syndrome identification</b>				
Commonest cause of vaginal discharge is ...	40 (66.7)	37 (61.7)	0.3	0.6
Commonest cause of urethral discharge (man)...	44 (73.3)	49 (81.7)	1.2	0.3
Cervical mucopurulent discharge, lower abdominal pain with no rebound tenderness/ guarding is diagnostic of ...	31 (51.7)	45 (75.0)	7.0	0.01
Swelling/ pain in scrotum can be due to ...	43 (71.7)	42 (70.0)	0.04	0.8
Mean	(65.8)	(72.1)		
<b>Enhance syndromic approach</b>				
Genital Herpes is caused by...	47 (78.3)	50 (83.3)	0.5	0.5
Organism leading to sinus formation in groin region (man)	5 (8.33)	9 (15.0)	1.3	0.3
Organism that does not cause any STI in men is...	32 (53.3)	40 (66.7)	2.22	0.1
Organism responsible for asymptomatic PID in woman...	22 (36.7)	24 (40.0)	0.14	0.7
Organism causing nongonococcus urethritis (NGU)...	29 (48.3)	44 (73.3)	7.9	0.01
Organism that does not cause painless ulcer on genitalia	31 (51.7)	40 (66.7)	2.8	0.09
Mean	(46.1)	(57.5)		
<b>HIV related/ complications</b>				
Genital ulcers facilitates HIV spread	38 (63.3)	54 (90.0)	11.9	0.01
Infection that does not increase the risk of HIV spread	32 (53.3)	42 (70.0)	3.53	0.06
Role of herpes screening in detection of cervical cancer	44 (73.3)	46 (76.7)	0.2	0.7
Untreated chancroid ulcer leads to tissue damage	24 (40.0)	28 (46.7)	0.54	0.5
Complications of RTIs/ STIs more in woman	28 (46.7)	30 (50.0)	0.13	0.7
Mean	(55.3)	(66.7)		
<b>Management/ Treatment</b>				
Multi-dose therapy is preferable over single dose therapy...	26 (43.3)	27 (45.0)	0.03	0.9
Syndromic management of RTI/ STI is based on...	29 (48.3)	36(60.0)	1.64	0.2
Syndromic management has limited utility in ...	7 (11.7)	4 (6.7)	0.9	0.3
Mean	(34.4)	(37.2)		

reduction in knowledge or a marginal gain, though all such changes were not significant. In HIV related and other complications as a whole there was gain in the knowledge. All questions showed gain (except 1 out of 4 with no significant decline). Maximum correct response was observed for correct understanding about window period of HIV to all participants (except 1) [Table 3].

### Lab technicians

#### Baseline assessment

Baseline knowledge was poor in three areas namely of:

1. Basic knowledge,

2. Signs/symptoms, examination, management/ treatment/ prevention, and

3. HIV related and other complications as mean correct response that varied between 21% and 39%.

In area of lab diagnosis response was better as mean correct responses were 54%.

#### Training impact

Baseline knowledge about basics of RTI/STI being poor the gains were impressive with significantly correct responses after training in three out of five questions. In

**Table 3: Pre- and post-training evaluation of staff nurses on RTI/ STI (N = 34)**

Questions	Correct response		Statistical interpretation	
	Pretest (%)	Post-test (%)	X <sup>2</sup> value	P value
<b>RTI/ STI basic Knowledge</b>				
Adolescent age group	9 (26.4)	28 (82.3)	21.4	<0.01
Commonest STI in men	6 (17.4)	11 (32.3)	1.96	0.1
Safe sex practices	13 (38.2)	16 (47.0)	0.54	0.4
Disease not transmitted due to unsafe sex	18 (52.9)	18 (52.9)	0	1
Not included in high risk group	16 (47.0)	23 (67.6)	2.95	0.08
Disease harmful to fetus in utero	21 (61.8)	25 (73.5)	1.08	0.2
Mean	(40.7)	(59.3)		
<b>Signs/ symptoms, examination, management/ treatment</b>				
Commonest cause of vaginal discharge	5 (14.8)	2 (5.9)	1.43	0.2
STI not required partner treatment	13 (38.2)	15 (44.1)	0.24	0.6
Correct and consistence use of condom	4 (11.8)	5 (14.7)	0.13	0.7
Most effective contraceptive to prevent STI	30 (88.2)	31 (91.1)	0.16	0.7
Mean	(38.2)	(22.2)		
<b>HIV related/ complications/</b>				
Organism causing cancer	19 (55.6)	24 (70.5)	1.58	0.2
syphilis screening is must for antenatal women	5 (14.8)	12 (35.2)	3.84	0.04
Functions of ICTC	12 (35.2)	15 (44.1)	0.55	0.4
Blood test not required before operation	4 (11.8)	2 (5.8)	0.18	0.6
Window period in HIV	21 (61.8)	33 (97.0)	12.99	<0.01
Mean	(40.1)	(53.2)		

**Table 4: Pre and post training evaluation of lab technicians on RTI/STI (N = 27)**

Questions	Correct response		Statistical interpretation	
	Pretest (%)	Post-test (%)	X <sup>2</sup> value	P value
<b>RTI/STI basic Knowledge</b>				
Define adolescent age group	4 (14.8)	19 (70.3)	17.04	<0.01
Commonest STI in men	7 (25.9)	6 (22.2)	0.1	0.7
Disease not transmitted due to unsafe sex	6 (22.2)	14 (51.8)	5.08	0.02
Disease harmful to fetus in utero	9 (33.3)	13 (48.1)	1.23	0.2
Persons not included in high risk group	12 (44.4)	24 (88.8)	12	<0.01
Mean	(28.2)	(52.2)		
<b>Signs/ symptoms, examination, prevention, management/ treatment</b>				
Commonest cause of vaginal discharge	2 (7.4)	2 (7.4)	0	1.0
Partner treatment not needed in which STI	4 (14.8)	23 (85.1)	26.74	<0.01
Correct and consistence use of condom	9 (33.3)	13 (48.1)	1.23	0.2
Most effective contraceptive to prevent STI	18 (66.6)	24 (88.8)	3.86	0.04
Mean	(21.3)	(38.2)		
<b>HIV related/complications</b>				
Organism causing cancer	9 (33.3)	11 (40.7)	0.32	0.5
True for syphilis screening	12 (44.4)	15 (55.5)	0.67	0.4
Mean	(38.9)	(48.2)		
<b>Lab diagnosis</b>				
Clue cell seen in wet mount microscopy	9 (33.3)	18 (66.6)	6	0.01
Nugent score in test	3 (11.1)	11 (40.7)	6.17	0.01
<b>Expand the followings</b>				
RPR	14 (51.8)	27 (100.0)	17.12	<0.01
VDRL	20 (74.0)	26 (96.3)	3.67	0.05
TPHA	7 (25.9)	14 (51.8)	3.82	0.05
FTA-abs	1 (3.7)	7 (25.9)	3.67	0.05
_____ is not a Treponema test	5 (18.5)	5 (18.5)	0	1.0
Mean	(54.1)	(57.1)		

the area of signs/ symptoms, etc., baseline knowledge was poor and remained so as reflected by minimal

gains in post-training evaluation. Questions about HIV related and other complications showed marginal

and nonsignificant gains. In the area of lab diagnosis, training did not deliver any gain as the knowledge remained more or less similar after the training as well [Table 4].

## Discussions

Continuing professional development of health professionals is a potential instrument for achieving optimum health outcomes.<sup>(8)</sup> STI clinics under NACO target general (adolescents, youngsters, and women of child-bearing age etc.) as well as HRG population with the aim to treat STI/RTI episodes through syndromic approach, prevent future occurrence by partner treatment, condom promotion and linking with HIV related services (HIV testing and antiretroviral therapy). These activities are undertaken by an integrated approach of team comprising of doctor, SN, LT, and counselor and also linking this with HIV related testing and treatment facilities. Capacity building of this man power makes more sense when workers are trained uniformly from various levels of health care and every team member is updated with uniform message as per guidelines. Assessment as done in this study has an intense effect on learning and directing the trainer in a meticulous way as well.<sup>(9)</sup> Feedback received from participant's in terms of tangible variables can be well captured through questionnaire based study but non-tangible variables such as case presentation, monitoring and supervision findings and presentations in doctors' group, role play in SN and laboratory based testing in LT with more impact on skill are difficult to quantify in such studies. Focus of this communication is to identify problem areas (based on trainee's feedback) and suggest changes in the contents and/ or methodologies to make it more service oriented reflecting through better health outcomes.

Overall, participants in these workshops were real assets as they were mostly from younger age group and were comparable in terms of age, gender, and mean years of experience, except doctors who were heterogeneous in terms of job experience. Training them is cost-effective as they have long period of service ahead.

Basic knowledge about STI/RTI is crucial for health functionaries as they have to provide the health education/counseling to community.<sup>(10)</sup> Basic rather elementary knowledge must be possessed by all workers irrespective of their place of work and designation but it was poor in this study among all and more so among SN and LT. It is alarming as SN are often involved in counseling of patients and imparting them the health education and LT do interact when collecting the test samples. In terms of service provision doctors, (many

being expert in their subject), even after training could not learn about management. As per the analysis, SN and LT too could not gain while they showed good response in all interactive sessions of presentations in all three groups. A study of representatives of NGOs found that even after the training only 2/3<sup>rd</sup> of them were aware of treatment of STI available at health center and had even more poor knowledge about complications, partner treatment, and window period.<sup>(11)</sup>

Based on the findings of this study, in consultation with GSACS, contents will be revised for the areas where the gains have been minimum or nil. Similarly in the areas where the knowledge has declined (?), probably due to the fact that training left the participants more confused. In such cases too, contents and methodologies will be relooked into.

## Conclusions and Recommendations

Tangible variables of knowledge are assessable through questionnaire but efforts are required to assess real practice/skills with objective criteria (difficult to achieve). As evident from this assessment, lacunae was seen in the ESCM of RTI/ STI – an effective tool in combating HIV/AIDS and at the end it still remained a problem area.

## Limitations

Small sample size and the fact that post-training evaluation was done immediately after the training are the limitations of the study. Further as mentioned earlier owing to a questionnaire-based study, it could not assess the gains (if any) in skills and attitudes of the participants following the training.

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## Conflicts of interest

There are no conflicts of interest.

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