



GOVERNMENT OF KARNATAKA

**CONCURRENT EVALUATION OF THE 104- AROGYA
SAHAYAVANI HEALTH INFORMATION HELPLINE
IN KARNATAKA AND PERSPECTIVE EVALUATION
OF ITS AUGMENTATION AND MODIFICATION**



ಕರ್ನಾಟಕ ಮೌಲ್ಯಮಾಪನ ಪ್ರಾಧಿಕಾರ
Karnataka Evaluation Authority

**KARNATAKA EVALUATION AUTHORITY
DEPARTMENT OF PLANNING, PROGRAMME MONITORING AND STATISTICS
GOVERNMENT OF KARNATAKA
DECEMBER 2018**

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OF ITS AUGMENTATION AND MODIFICATION,
DECEMBER - 2018**

PRINCIPAL INVESTIGATOR: DR. G V NAGARAJ

EVALUATION CONSULTANT ORGANISATION:



ICRA Management Consulting Services Limited

THE HEALTH & FAMILY WELFARE SERVICES DEPARTMENT



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CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA,
having solemnly resolved to constitute India into a
**SOVEREIGN SOCIALIST
SECULAR DEMOCRATIC REPUBLIC**
and to secure to all its citizens:
JUSTICE, social, economic and political;
LIBERTY of thought , expression,
belief, faith and worship;
EQUALITY of status and of opportunity;
and to promote among them all
FRATERNITY assuring the dignity of the
individual and the unity and
integrity of the Nation;
IN OUR CONSTITUENT ASSEMBLY
this twenty-sixth day of November, 1949, do
**HEREBY ADOPT, ENACT AND GIVE TO
OURSELVES THIS CONSTITUTION.**

Foreword

Health for all can be ensured by providing adequate access to health care services. 104 Arogya Sahayavani is a Health Information Helpline connected to a call centre to provide all the basic information on health ailments/ conditions, common remedies for it and the available medical facilities. It was launched in Hubballi in June 2013 and handles 20,000 calls a day from 100 seat facility centre. The facility has served over 1.44 crore users since inception. It is implemented through Piramal Swasthya Management Research Institute (PMSRI) Hubballi. The study on Concurrent Evaluation of 104 Arogya Sahaywani Health Information Helpline in Karnataka and Perspective Evaluation of its Augmentation and Modifications was initiated by the Department of Health & Family Welfare and was taken up by Karnataka Evaluation Authority (KEA). The evaluation study was outsourced by Karnataka Evaluation Authority to the Empanelled Consultant Organization –ICRA Management Consultancy Services.

The study is based on both secondary data from the department and primary data collected from a stratified random sample of 300 helpline users covering 250 callers for health advice and 50 callers for grievance redressal. Additional information was sought through focus group discussions and interviews with officials.

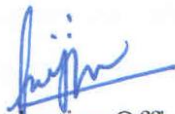
The findings of the study indicate that, the utilization of the Helpline is higher in Northern and Central districts of Karnataka. The calls have increased from 8.22 lakhs in 2013-14 to 63.07 lakhs in 2016-17 and these calls are more concentrated in urban areas. Awareness is a major factor impacting the utilization of helpline services. The share of female calls in total calls has declined from 12.53% in 2013-14 to 7.20 % in 2016-17. Grievance calls are a small proportion of total calls. In substance, the helpline has addressed the information needs related to minor ailments significantly. The major recommendations are - creation of awareness, optimization of services of medical officers, the amendment of Consumer Delight Index, development of 104 mobile application, expansion of capacity and provision of new value added services.

The study received constant support from Principal Secretary and Secretary Planning, Programme Monitoring and Statistics Department, Government of Karnataka. The study was supported by the officers of the department by providing inputs during discussions. The report was approved in 41st Technical Committee meeting held on 7th May 2018. The report was

reviewed by experts in KEA, Technical Committee, and an Independent Assessor and their useful insights and suggestions have contributed significantly to improve the draft. I duly acknowledge the assistance rendered by all in successful completion of the study.

I expect that the findings and recommendations of the study will be useful to the Government and the Health and Family Welfare Department for making the desired changes in project design and for effective implementation of the helpline in future to meet the growing health information requirements of the people.

12th December 2018


Chief Evaluation Officer
Karnataka Evaluation Authority

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1. Office of the Chief Evaluation Officer, Karnataka Evaluation Authority
 - a. Smt. Vanashree Vipin Singh, IFS
 - b. 41st Technical Committee, KEA
 - c. Consultants of KEA
2. Department of Health and Family Welfare, Government of Karnataka
3. Piramal Swasthya Management and Research Institute (PSMRI)
4. Primary survey respondents
 - a. District health officers
 - b. ASHA health workers
 - c. Individual users of 104 service

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LIST OF ACRONYMS

Acronym	Definition
AHT	Average Handling Time
ASHA	Accredited Social Health Activist
CO	Counselling officer
EMRI	Emergency Management and Research Institute
FGD	Focused Group Discussion
HAO	Health advising officer
HIHL	Health Information Helpline
IGMSY	The Indira Gandhi Matritva Sahyog Yojana
KEA	Karnataka Evaluation Authority
MCTS	Mother and Child Tracking System
MIS	Management Information System
MO	Medical officer
MoU	Memorandum of Understanding
OPD	Out Patient Department
PSMRI	Piramal Swasthya Management and Research Institute
RO	Registration officer
RSBY	Rashtriya Swasthya Bima Yojna
SIO	Service improvement officer
SLA	Service Level Agreement

1. Executive summary

Arogya Sahayavani 104, a Health Information Helpline (HIHL) is a health contact centre that was conceptualised primarily to ensure that people get basic information on health ailments/ conditions, common remedies for it and the available medical facilities. Any citizen having a health or medical complaint, those desirous of getting advice on medical matters, those who have any complaint to make against any government health facility can dial the toll-free number 104 and get these matters addressed/redressed. Launched in June 2013 in Hubballi, Karnataka, this service handles about 20,000 calls a day from the 100-seat facility in Hubballi. The facility has served over 1.44 crore users since inception. The Health & Family Welfare Services department, Government of Karnataka (GoK), has implemented the scheme through Piramal Swasthya Management and Research Institute (PSMRI), Hubballi.

The helpline utilisation is higher in Northern and Central districts Karnataka in comparison with the South and Coastal region. Similarly, the share of calls from females during 2016-17 has reduced to 7.20% from 12.53% in 2013-14 a declining trend that must be addressed appropriately. The option of providing the service of Female Health Advisory Officers (HAOs)/ Medical Officers (MOs) and Counselling Officers (COs) may be provided for female callers in addition to creating awareness. The average ratio of the urban to rural calls during the period 2013-14 to 2016-17 was 61%:39%. However, the rural calls share decreased from around 40% in 2013-14 to 35% in 2016-17.

As per the MoU between GoK and PSMRI, the Average Handling Time (AHT) of health advisory calls must be 3-4 Minutes. The actual AHT for 2016-17 of Health Advisory Officers (HAOs) is 2:41 minutes which when included with Registration Officer (RO) calls will be between 3-4 Minutes. However, for Counselling Calls the AHT stipulated is 10-15 Mins. Actual AHT is 4:33 Mins. Nuisance calls over the last four years have significantly increased from 37,171 calls in 2013-14 to 2.10 lakh calls in 2016-17.

Grievance calls are classified as ASHA, EPIDEMIC and GENERIC Calls. During 2014-15 to 2016-17, ASHA grievances have shown a decline while EPIDEMIC related grievances have shown an increase of 37%, while growth in GENERIC grievances has been flat. Analysis of grievances which took less than 30 days to resolve indicates that percentage of grievances which took less than 30 days have increased. Since 2014-15 which was the peak year for the

grievances have increased at a Compounded Annual Growth Rate(CAGR) of 33%. Grievance redressal mechanism has positively impacted ASHA workers.

Abandoned calls over the last four years have sharply increased from 1406 calls in 2013-14 to 8.31 lakh calls in 2016-17. Thus, there is a need to augment the call capacity, which is being taken up by operationalising another call centre in Bengaluru with 100 seats capacity.

Attrition rate during inception year was very high at 73 per cent. However, since then it has slowly reduced to 49 per cent in 2016-17. While attrition rate in case of Receiving Officer (RO), MO is lesser, HAO segment has higher attrition at 57%. As per Service Level Agreement(SLA) the doctors to HAOs ratio must be 1:6, however analysing the call load it is observed that ratio of total handling time of MOs to HAOs is ~1:9. Thus, it would be productive to reduce ratio of MOs to HAOs to 1:8.

The queries on health advisory received by 104 were analysed. The top 20 queries together amount to 47% of the total calls. From the analysis it is found that there are several queries such as Body Mass Index, Height, and Masturbation which are related to *General conditions* and these cannot be termed as *Ailments*. There are an estimated 40% of such calls which the HIHL receives which can be termed as *general conditions*.

In case of Customer Delight Index (CDI) three of the nine parameters were found to be not relevant and in case of one relevant parameter the weightage needs to be changed. Further it was also observed that CDI framework cannot be used for all the value-based services.

"The main objective of Arogya Sahayavani is to reduce the minor ailment load on the Public Health System and render qualitative service and grievance redressal mechanism. The pattern of OPD attendance has been mapped for the last five years along with HIHL call growth. The share of Total calls to OPD is at 8%, which also includes significant share of educational related calls. Thus, the share of ailment related calls would be approximately at 5%. The correlation between HIHL calls and OPD attendance has a very high positive correlation of 98% indicating that both have grown positively. During primary research over 81 percent people have indicated that they are delighted with 104 services, over 15 percent of the beneficiaries have indicated that they are satisfied and only around 2 per cent of the beneficiaries have indicated that they are dissatisfied with the service.

Therefore, it may be concluded that, while the load on public health system has not significantly impacted, while 104 has successfully addressed the latent needs on health education and minor ailments.

Based on the data analysis and findings the following are the recommendations:

Short term Recommendations (< 1 year):

The short-term recommendations which are focused on creation of awareness and improving processes are listed below:

- 1. Creation of awareness across segments:** Lack of awareness uniformly across the state has resulted in skewed usage of the helpline geographically. So, there is a need to create awareness across the state especially in South Karnataka which has lower call share. Similarly, the since the usage the helpline among women is very low at ~8% of the call share, it is an imperative not only to create awareness among women. Further visibility of 104 is lesser unlike 108, which is visible on ambulances. Therefore, 104 HIHL brand must be strengthened.

Since the primary objective of the helpline is to reduce the minor ailment load on Public Health System. Accordingly, hospitals will be a good point to start creating awareness and divert minor ailment sufferers from OPD to 104 HIHL. Hence it is recommended to

- Have Graphic display boards at OPD registration/doctors' room, dressing and nursing chambers about 104 HIHL for minor ailments.
- Have Graphic display boards about Grievance lodging in case of corruption at various places such as diagnostic chambers, laboratory, operation theatre, Drug dispensary and other locations where corruption grievances are frequent.
- Engage 3A's (ASHA, Anganwadi worker, Auxiliary Nurse Midwifery(ANM)) to create awareness among women to utilise the 104 HIHL through graphic pamphlets for distribution among villages.
- To reach the poor and needy other schemes targeting BPL may be leveraged. For e.g. Printing about 104 on BPL Card cover.
- HIHL brand may be strengthened by incorporating a strong tagline (e.g. Health in your Hands) for which it stands

- While 104 HIHL gets visibility in various radio advertisements related to other epidemics (e.g. Dengue), mandatory tag line about 104 HIHL may be incorporated in all the advertisements where 104 is used as information line.
- Wide publicity through mass media and folk media may to be given to improve the awareness
- The awareness programmes on specific areas covering preventive, women and child health, personal hygiene, communicable and non- communicable diseases may be conducted to enhance effectiveness. The suggested categories are:
 1. **Gastro intestinal:** Acidity, heartburn, indigestion, diarrhoea
 2. **Respiratory:** Cold, Asthma, breathlessness, cough, cough with sputum and sometimes blood
 3. **Genito urinary:** Burning urination, burning menstruation, white discharge, PMS, frequent urination, prolapsed uterus, bleeding
 4. **Mental health:** Epilepsy (Fits), psychosis, aggressiveness/violent behaviour
 5. **Vision related:** Specifically, for persons more than 45 years old – vision correction, cataract
 6. **General:** Body ache, joint pains, fever with chills, any rashes on the body, mouth ulcers, white patches (leukoderma), leprosy

Preventive steps/ early warning signals for increasing non-communicable diseases to be included are:

1. **Diabetes:** Over eating of fried foods, fats, sugar, coffee/tea, alcohol, and sedentary lifestyle
 2. **Cancer:** 7 danger signs of oral cancer, cervical cancer amongst women with many children, breast cancer and self-examination tips, smoking related (at least get basic X-ray examinations done)
 3. **Coronary:** Blood pressure/Hypertension, Stroke, Heart Attack
2. **Improvements in Grievance communication & review:** Currently once the grievance is registered, it is communicated to concerned DHO through email and a follow-up is done after 7 days by SIO. It is recommended that the communication of grievance is also sent to the concerned institute (PHC/THC/DHC/UHC) directly in addition to DHO and a follow up may start on the 3rd day of communicating the

grievance. A timeline matrix may be developed based on type of grievance in discussion with the Director, Health and Family Welfare. A monthly review meeting should be held to discuss those grievances which have not been resolved within stipulated time and necessary corrective and preventive actions may be taken in the meeting. In case of any changes in personnel managing these institutions, the Department of Health and Family Welfare Services must on a monthly basis, share the new contacts with the service provider.

3. **Optimisation of Medical officers engaged:** As per SLA the doctors to HAOs ratio has to be 1:6, however analysing the call load it is observed that ratio of total handling time of MOs to HAOs is ~1:9. Thus it would be productive to reduce ratio of MOs to HAOs to 1:8 accordingly number of medical officers may be reduced.
4. **Streamlining process to enable only female HAOs to address calls from female callers:** Only 8% of all the callers are female. During the primary research all the women callers have indicated their preference to women advisors. This would assist women callers to share their personal health problem without inhibitions. However, there is no option in the software to transfer calls from a women caller to women advisors. So necessary software system has to be developed/ procured to enable this facility. Similarly, male callers may be addressed by male advisors towards reducing the nuisance callers.
5. **Amendment of Customer Delight Index (CDI):** Some of the parameters used in CDI are not relevant and in some cases the weightage used needs to be amended. The recommended CDI structure is given in Table 25 of the recommendations section. Further the CDI questionnaire should standardised/translated into Kannada to ensure the feedback is consistent across the callers. Though this is a short-term measure it is suggested to have automated calling mechanism for feedback considering that medical conditions are personal in nature which is discussed under long term recommendations.
6. **Consolidate services between Hubballi/Bangalore centres:** Services across the two call centres may be consolidated based on the locational advantages. For e.g. Counselling may be gradually moved to Bangalore as availability of advisors with academic background in psychology is better, thus the quality of services may be

improved. Similarly, Grievance Services may also be moved to Bangalore as the department HQ is situated in Bangalore and reviews of grievances may be scheduled by health department personnel more frequently along with SIOs.

As per the SLA, the capacity of telephonic lines must be 25% more than peak handling capacity. In this regard one more PRI line may be added at Hubballi call centre to increase the capacity from 90 lines to 120 lines.

Long Term Recommendations (1-3 years)

The long-term recommendations which will augment the capacity of 104 services and improve service delivery are,

- 1. Automated feedback system on Customer satisfaction:** Considering the personal nature of health grievances automated feedback system may be deployed to take beneficiary feedback. In line with the feedback system deployed by IRCTC where in after the completion of each journey an automated call is received by the passenger about feedback on journey. Similarly, after each of the beneficiary call within 30 minutes an automated call can be made to the beneficiary and check if they are satisfied with the advice by pressing 1 for YES and 2 for NO on their phones. This will be less intimidating to the beneficiary and more responses may be expected since every caller will be requested feedback. The data thus received may be directly received from the system to Department of Health and Family Welfare Services. Based on the initial results continuous improvement goals may be set for improving customer service.
- 2. Development of 104 mobile application:** With smart phones becoming more prevalent and data charges falling the acceptability and usage of mobile application is increasing. 104 HIHL mobile application may be developed where in list of home remedies, option to register grievances, monitor grievances, lifestyle management tips may be provided. All the government doctors should also have this app installed, and grievances will directly be routed from a complainant to relevant health care officer for resolution thus simplifying transactions. This may also reduce the load as for ailments such as acne and educational queries, the beneficiary may access through the application.

3. **Qualification for Counselling officers to be amended:** In the SLA, the qualification specified for counsellor is BSc. Since all BSc courses may not train students in counselling/psychology, the same may be removed from SLA.
4. **New Value-added services:** New services may be included which cover areas of food adulteration, natural calamities, and environment/sanitation.

Recommendations requiring change in Policy

1. **Expansion of the capacity to 400 seats:** Currently 200 seats have been installed. Considering the low awareness across geography, gender and current growth rate, within 1 to 2 years the capacity deficit is expected to emerge once awareness is created. So, it is recommended to expand the capacity of HIHL within the existing units to 400 seats to make the health helpline more effective.
2. **Government doctor's employment on rotation:** Considering the unavailability of MOs in the working age of less than 60 years the option of deployment of government medical officers on deputation on rotation basis needs to be done. Officers with special needs may also be looked at for these roles.
3. **Complementary Human resources strategy to develop medical officers:** Alternative to Medical Officers (MOs) who have MBBS as qualification, complementary human resource strategy is the development MO Cadre for minor ailment. As specified under *National Health Policy 2017*. This can be done through appropriate courses like a B.Sc. in community health and/or through competency-based bridge courses and short courses. These bridge courses could admit graduates from different clinical and paramedical backgrounds like AYUSH doctors, B.Sc. Nurses, Pharmacists, GNMs, etc and equip them with skills to provide services at the sub -centre and other peripheral levels in addition to 104 call centres. These bridge courses may be developed and offered on PPP basis in medical colleges in Hubballi/Dharwad and Bangalore.

We understand from Department of Health and Family Welfare that capacity augmentation of 100 seats in Bengaluru has been operationalised now and some of the other measures suggested in this report like automated feedback system, mobile application development are being taken up under the RFP being floated for PPP partner to run the 104 HIHL services which is coming up for fresh bidding.

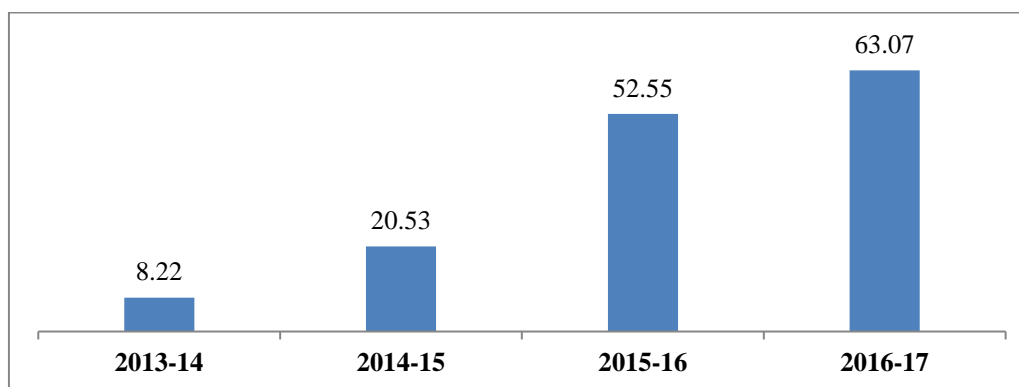
2. Introduction

The title of the study is “*Concurrent Evaluation of the 104 Arogya Sahayavani Health Information Helpline in Karnataka and perspective evaluation of its augmentation and modification*”.

Arogya Sahayavani 104, a Health Information Helpline (HIHL) is a health contact centre that was conceptualised primarily to ensure that people get basic information on health ailments/ conditions, common remedies for it and the available medical facilities. Any citizen having a health or medical complaint, those desirous of getting advice on medical matters, those who have any complaint to make against any government health facility can dial the toll-free number 104 and get these matters addressed/redressed. The helpline thus reduces the minor ailment load on the public health system in Karnataka. The Health & Family Welfare Services department, Government of Karnataka, has implemented the scheme through Piramal Swasthya Management and Research Institute (PSMRI), Hubballi. Qualified and trained paramedics, counsellors, and doctors utilize PSMRI’s software to triage callers. Medically validated algorithms and disease summaries provide paramedics and doctors with the support to drive this high level of standardized care forward. IN addition to the above, Accredited Social Health Activist (ASHA) workers can use 104 to register complaints against non-fulfilment of their contractual appointment conditions.

Launched in June 2013 in Hubballi, Karnataka, this service handles about 20,000 calls a day from the 100-seat facility in Hubballi. The facility has served over 1.44 crore users since inception. The users served by the helpline since inception is shown in Figure 1.

Figure 1: Total helpline users served since inception (Values in lakh users)



Source: PSMRI, IMaCS Analysis

Concurrent Evaluation of the 104 Arogya Sahayavani Health Information Helpline in Karnataka and perspective evaluation of its augmentation and modification

Arogya Sahayavani has provision (through 78 algorithms in the MIS(Management Information System)) to address 657 medical conditions ranging from minor acute to acute pertaining to skin, seasonal infections, fevers, and certain acute complications like heartburn, acute kidney failure, anal fistula etc.

Other key services of the helpline include counselling, eye donation support, blood on call, food safety, Vatsalyavani/Mother and Child Tracking System(MCTS), national and state health schemes (RNTCP, NLEP, Indradhanush etc)by assisting in services/schemes such as WhatsApp Grievance, Monsoon Precautions, Rashtriya Swasthya Bima Yojna (RSBY),108 Ambulance connectivity, Jyoti Sanjeevini, The Indira Gandhi Matritva Sahyog Yojana (IGMSY), Vajapayee Arogya Shree, Nagu Magu, BBMP Sahaya, Palliative Care, Currency Grievances, Rajeev Arogya Shree, Heat stroke advise, Suvarna Arogya Chaitanya, Dengue,/Malaria Follow-Up, Tobacco free Education, Rajeev Arogya Bhagya, H5N1 Avian Flu –H5N1 Bird Flu and directory information among others. This helpline has been utilised more in the rural districts of Kalburgi and Belagavi divisions with nearly 70per cent of the total calls in comparison to urban population in Bengaluru and Mysuru division which together constitute 30per cent of the total calls received. Since inception, the service has established itself as a mainstay programme to address minor acute and acute conditions of the people in these districts.

The total budgeted amount towards setting up and operating 104 helpline for the years 2012-13,2013-14,2014-15,2015-16 is Rs. 22.87 crore. The budget includes both recurring as well as non-recurring expenditure. Currently the Department has set up an additional 100 seat contact centre in Bengaluru to cater the increased demand of 104 services.

3. Theory of Change

The HIHL initiative has been analysed under the framework of Input, Process, Output and Impact, which has been detailed below:

Input: The activities carried out by the implementing agency towards making HIHL operational are as follows:

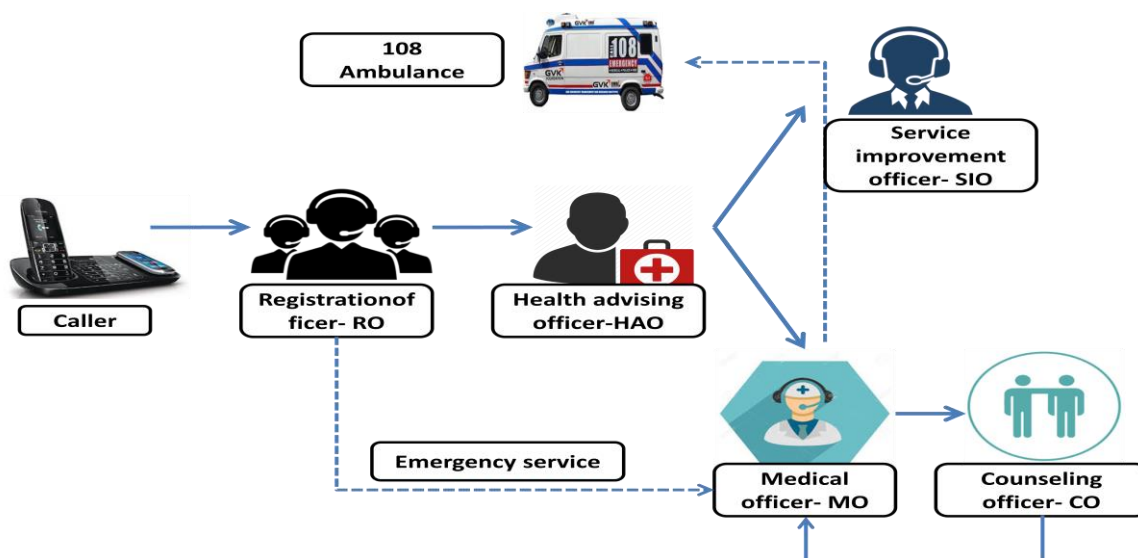
- Creating awareness through multiple channels through Information, Education & Communication (IEC) activities, Radio, Banners on Buses, Pamphlets and Conducting blind walks
- Registering Grievance on Govt. health institutes and reverting back to caller with resolution status of Grievance
- IVR played on different programs before the call is answered/kept on hold which creates awareness about various Govt. Health Programs
- Providing Health advisory services including counselling for the beneficiaries
- Addition of new value added services to Arogya Sahayavani platform to attract new callers which include eye donation support, blood on call, food safety, Vatsalyavani/Mother and Child Tracking System(MCTS), national and state health schemes (RNTCP, NLEP, Indradhanush etc) by assisting in services/schemes such as WhatsApp Grievance, Monsoon Precautions, Rashtriya Swasthya Bima Yojna (RSBY), 108 Ambulance connectivity, Jyoti Sanjeevini, The Indira Gandhi Matritva Sahyog Yojana (IGMSY), Vajapayee Arogya Shree, Nagu Magu, BBMP Sahaya, Palliative Care, Currency Grievances, Rajeev Arogya Shree, Heat stroke advise, Suvarna Arogya Chaitanya, Dengue,/Malaria Follow-Up, Tobacco free Education, Rajeev Arogya Bhagya, H5N1 Avian Flu –H5N1 Bird Flu and directory information among others
- Conducting User Satisfaction Index studies to enhance service delivery and satisfaction levels of beneficiaries, training the associates to better address the helpline users

Process: The call flow process of 104 Arogya Sahayavani helpline is as shown in the Figure 2. The beneficiary will reach the contact centre by dialling 104 a toll-free number. The registration officer (RO) greets the beneficiary and generates a unique registration ID. The RO transfers the caller to the requested service based on the caller requirement. The general health queries are passed on to Health advising officer (HAO) while the emergency queries

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are routed to a Medical officer (MO), who is a qualified doctor. Grievance related queries are passed on to service improvement officer (SIO) and the counselling requirements are addressed by a counselling officer (CO).

Figure 2: 104 Helpline Process Flow Chart (Source: PSMRI)



Output: The 104 helpline seeks to address the basic health queries and issues of people in Karnataka on a primary level. Thus, it saves the helpline user a visit to a nearby hospital in case of minor ailments. The initiative also channelizes the grievances related to the healthcare system in Karnataka.

Impact: The HIHL would impact the stakeholders of Karnataka across below mentioned dimensions:

- Integrated solution which can act as one stop for all the health care needs
- This directly aids in reducing dependency on public health systems minor ailments
- Saves cost to the beneficiaries
- Quality health care accessible especially to the rural population
- Better health profile of the beneficiaries

4. Progress review

Calls received on health advisory across districts of Karnataka are depicted in Table 1. The districts in North Karnataka which include Yadgir, Vijayapura, Raichur, Belagavi and Kalburgi have not only had high share of calls but also have witnessed high Compounded Annual Growth Rate(CAGR)¹. Overall the calls have registered a CAGR of 106%. Thus, a high growth has been witnessed in calls received by 104 HIHL.

Table 1: District wise call trends

S.No	District	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	Share of total Calls in 2016-17	CAGR 2014-15 to 2016-17
1	Yadgir	12403	30915	122338	548044	12%	321%
2	Vijayapura	40241	112556	336179	795735	18%	166%
3	Raichur	19271	52921	198022	268325	6%	125%
4	Bidar	11116	42618	156522	198002	4%	116%
5	Belagavi	33084	80207	229118	354204	8%	110%
6	Kalaburagi	43106	120957	387775	497591	11%	103%
7	Ballari	18835	53675	151249	197445	4%	92%
8	Gadag	12244	29750	66823	107208	2%	90%
9	Koppal	17159	50594	134159	179104	4%	88%
10	Bagalkot	27855	85180	236869	296846	7%	87%
11	Haveri	15757	33351	80415	113288	3%	84%
12	Davanagere	20385	64261	168215	217044	5%	84%
13	Shivamogga	7183	23005	52062	72656	2%	78%
14	Dharwad	20712	36881	80812	112373	2%	75%
15	Chikkaballapur	3618	4634	13915	14059	0%	74%
16	Chikkamagaluru	6366	14295	33476	42734	1%	73%
17	Udupi	2741	3639	6891	9929	0%	65%
18	Tumakuru	14062	29301	60807	72963	2%	58%
19	Chitradurga	25431	72987	165861	180903	4%	57%
20	Hassan	8070	15335	29684	36484	1%	54%
21	Mandya	6135	8663	16327	19547	0%	50%
22	Uttara Kannada	4017	9199	13226	19663	0%	46%

¹CAGR = $(X_n/X_1)^{1/(n-1)} - 1$

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23	DakshinKannada	5640	6766	13181	14321	0%	45%
24	Mysuru	11321	15285	28449	31609	1%	44%
25	Bengaluru Rural	2104	5373	10627	10138	0%	37%
26	Kodagu	2594	4300	7112	7570	0%	33%
27	Kolar	4204	6246	11576	10221	0%	28%
28	Chamarajanagar	2946	3000	5052	4851	0%	27%
29	Bengaluru	21092	37488	48709	53903	1%	20%
30	Ramanagara	3418	7218	8607	8792	0%	10%
	Total	4,23,110	10,60,600	28,74,058	44,95,552		106%

In addition to health advisory calls 104 also handles grievances. The grievance trend across all the districts of Karnataka is depicted in Table 2. Growth in overall number of grievances has been flat. The districts in North Karnataka has high share of calls as well as growth rate.

Table 2: Grievance trends across the districts in Karnataka

S.No	District	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	Share of total Calls in 2016-17	CAGR 2014-15 to 2016-17
1	Raichur	77	146	146	179	8%	11%
2	Kalaburagi	113	169	159	126	6%	-14%
3	Haveri	40	81	128	124	6%	24%
4	Ballari	70	108	144	118	5%	5%
5	Vijayapura	105	206	134	115	5%	-25%
6	Belagavi	105	157	133	106	5%	-18%
7	Bagalkot	40	65	118	103	5%	26%
8	Chitradurga	69	135	126	103	5%	-13%
9	Davanagere	70	87	93	99	5%	7%
10	Koppal	103	132	102	93	4%	-16%
11	Tumakuru	69	103	150	92	4%	-5%
12	Chikkaballapur	14	38	57	90	4%	54%
13	Dharwad	52	43	66	87	4%	42%
14	Yadgir	73	106	92	87	4%	-9%
15	Bengaluru Urban	52	61	99	84	4%	17%
16	Mysuru	118	89	79	68	3%	-13%
17	Bidar	30	33	67	65	3%	40%

18	Gadag	39	91	72	57	3%	-21%
19	Hassan	41	79	71	49	2%	-21%
20	Kolar	28	31	37	45	2%	20%
21	Mandya	56	46	49	44	2%	-2%
22	Bengaluru Rural	25	33	49	43	2%	14%
23	Shivamogga	28	36	37	41	2%	7%
24	Chikkamagaluru	30	38	31	30	1%	-11%
25	Uttara Kannada	47	86	31	29	1%	-42%
26	Ramanagara	18	52	42	28	1%	-27%
27	Kodagu	16	22	17	23	1%	2%
28	Chamarajanagar	29	41	13	21	1%	-28%
29	Dakshina Kannada	47	53	24	16	1%	-45%
30	Udupi	17	11	5	11	1%	0%
	Total	1621	2378	2371	2176		-4%

5. Problem statement

Analysis of health advisory calls indicates that the districts in North Karnataka have utilised 104 HIHL service more than other districts. So, the service is not being availed uniformly across the state due to awareness issues which needs to be addressed. Further the growth of health advisory calls has witnessed a CAGR of 108% which is significant and hence the capacity needs to be looked into to address the growing number of calls. Further the existing customer delight Index(CDI) needs to be evaluated for relevance. While Grievance calls growth has been flat, there is a need to create more awareness about 104 grievance redressal facilities.

6. Objectives and the issue of evaluation

In this section, we have highlighted the evaluation framework for this study by discussing the following issues: -

Purpose and objective of the study:

The study was undertaken to provide situational analysis of the performance of 104 helpline since the inception of the same.

- This evaluation seeks to outline the health scenario of pre and post 104 programs and establish causal relationships between initiatives and outcomes/outputs and suggest directions to improve the services
- The study also aims to calculate the User Satisfaction Index afresh and to suggest for augmentation and modification in the service delivery and management system.

The study has evaluated the performance of the 104 Helpline along the following parameters- efficiency of operations, constraints to operations, awareness among public, Quality of staff along with training and support provided to the staff, administrative/operational parameters such as capacity, infrastructure constraints, customer satisfaction among others.

Scope of evaluation:

The scope of the study covered the following aspects across all 30 districts of the State

- All the services rendered by health helpline
- Value additions taken up by health helpline to increase the service reach of helpline
- Service quality initiative taken up to improve delivery
- Adherence to Service Level Agreements (SLAs) (number of calls addressed, reduction in number of call drops, turnaround time in case of service unavailability etc.)
- Internet communication technologies implemented at the helpline
- Change brought by health helpline towards health seeking behaviour of helpline users and awareness on public health system

The reference period for the study is in effect from the date of the commencement of operations of 104 helpline.

Stakeholders of the study:

The **stakeholders** in this study have been identified as the following:

- Beneficiaries- General public (Any citizen having a health or medical complaint, those desirous of getting advice on medical matters, those who have any complaint to make against any government health facility), ASHA workers
- Facilitators – PSMRI Management, Staff and Department(EMRI)
- Other stakeholders – Doctors/Medical officers, Departmental staff

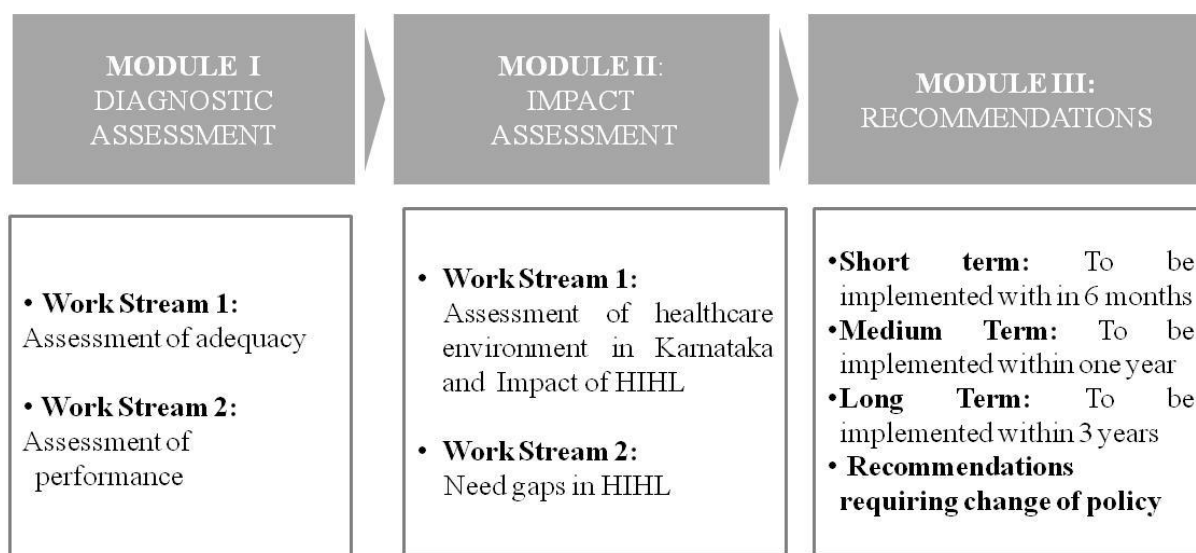
The limitations of this exercise are that it is restricted to data collation and the difficulty in obtaining valid responses from the respondent set. The sample size could also be a limitation to collating appropriate responses from the beneficiaries, since this exercise is also dependent on primary research for completeness.

7. Evaluation design

Approach to the Study:

The study was executed under three modules which are as shown in Figure 3 and explained subsequently.

Figure 3: Approach to the study



Module I: Diagnostic Assessment

Under the module the initiative was assessed for adequacy and performance was evaluated under the following work streams:

Work Stream 1: Under this work stream the following aspects were assessed for adequacy. While the Service Level Agreement (SLA) would be source of benchmarking in assessing the aspects, operational benchmarks were also developed based on the historical data available.

- Infrastructure:* The parameters such as capacity of the unit to take calls, seating, technology deployed, and other facilities available for employees and stakeholders were assessed.
- People:* The aspects such as total staff including Reception officers (RO), Health advisory officers (HAO), Counsellors (CO), Service Improvement Officers (SIO) among others were assessed for adequacy along with Organisation structure against the Service Level Agreement (SLA).

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- c. *Process*: The process followed at the centre was assessed towards creating awareness about 104 HIHL services, servicing the beneficiaries along with Quality management practices which also included continuous improvement initiatives.

By the end of Work stream 1 adequacy of various aspects mentioned above were assessed for adequacy.

Work Stream 2: Under this work stream the performance of the contact centre was assessed covering the following parameters

- a. Increase in Call handling including grievances
- b. Capacity Utilisation
- c. Average Handling Time(AHT) requirements as per SLA
- d. Reporting
- e. Call quality based on sampling by a designated committee
- f. Value added services

By the end of this work stream, the deviations both include positive and negative, if any with respect to the performance were assessed.

Module II: Impact Assessment

Under the module the findings from the Module I with respect to the performance was assessed for the impact against the external environment and need gaps in the initiative were assessed in two work streams which are as follows:

Work Stream 1: Under this work stream the impact of the initiative was assessed through

- 1. Customer Satisfaction
- 2. Assessment of savings to the beneficiaries
- 3. Assessment of trends in 104 helpline usage to OPD cases treated across the state in government healthcare facilities

Work Stream 2: Based on the inputs from Module I and Work stream 1 of Module II the need gaps were identified covering:

- 1. Infrastructure
- 2. People
- 3. Process
- 4. Customer Satisfaction Index

The need gaps were used as inputs for development of recommendations

Module III: Recommendations

Recommendations were developed based on the inputs covering the areas of Infrastructure, people, process and revised customer satisfaction index

- *Short term recommendations:* These are implementable within six months without policy/budgetary interventions. These include process changes
- *Medium term recommendations:* These are implementable within a year without significant policy/budgetary interventions. This may include tactical improvements.
- *Long term recommendations:* These are implementable in a Horizon of 4- 5 years which may be need significant budgetary support. These would include strategic improvements.
- *Recommendations requiring change in policy:* These are those which will need a lot of time, resources and procedure to implement.

8. Evaluation methodology

We have carried out this engagement through a mix of primary and secondary data.

A. Primary Data Collection Methods

1. Discussions with Piramal Swastya Management and Research Institute (PSMRI)
 - a. Visit to Facilities: Visits were made to the contact centres of PSMRI in Hubballi and Bangalore to assess the facilities covering, staff, infrastructure and processes
 - b. Discussion with management: Discussions with the management of PSMRI were held towards data collection as well as to receive feedback on staff, infrastructure and processes
 - c. Discussion with Staff: Discussions were held with the key staff on processes and key issues being faced
 - d. Focused Group Discussions(FGD): Two FGDs were conducted in Bengaluru and Hubballi covering staff, management and doctors following a structured Guidelines
2. Discussions with officials from Department of Health and Family Welfare
 - a. EMRI officials: Discussions were held with officials managing 104 Helpline on the progress made since inception and challenges being faced as well as to discuss the current and future plans
 - b. Other Departments: Officials from other departments were met to collect data related to healthcare infrastructure, disease patterns, patient inflow as well as to discuss the areas where opportunities exist to add/integrate their services with 104
3. Primary survey of beneficiaries: A total of at least 300 helpline users were interviewed over telephone using a structured questionnaire. The selection of helpline users was done using random sampling method and samples were stratified across geographies.
 - a. Health Advice: A total of 200 helpline fresh callers and 50 repeat callers.
 - b. Grievance Redressal: 50 persons interviewed over telephone for grievances redressal taken from ASHA health services and GENERIC health services and feedback on EPIDEMIC reporting were considered.

4. Discussions with Doctors/Officers in Public health facilities: Discussions with five doctors/ officers were held over the phone to receive their feedback on services of 104 and discuss the areas of improvement.

B. Secondary Data Collection Methods

We have conducted extensive secondary research and analysis for the engagement. Key sources of information were documents provided by PSMRI/Department such as Contract/Service Level Agreement, Data on the calls/Grievances addressed, internal audit/study, Process documents, Documents on human resources, etc. Additionally, references to external studies made on help lines were also be made. Data from the department related to healthcare infrastructure in Karnataka, OPD cases treatment, disease profile were also utilised. The secondary data was collected from the following sources:

Department: Key documents such as Service Level Agreement (SLA), demography details, statistics on healthcare pertaining to Karnataka and Government orders were collected from Department of Health and Family Welfare Services.

Implementing agency: The data pertaining to creating awareness, operations of the call centre, new services, scenario in other states etc., were collected from the implementing agency

Secondary sources: Other sources which were referred are

- Household Health Expenditures in India (2013-14), National Health Mission
- Annual Report(2013-14), Department of Telecommunication
- Quitline Activity in Rajasthan: India Gupta R1, Verma V, Mathur P.
- Information in the public domain about other State 104 Helpline performance

9. Brief overview of 104 helpline services in few other states

Maharashtra

The Government of Maharashtra along with NRHM set up an inbound domestic call centre for the convenience of the health staff. This Call Centre functions as a helpdesk providing information about health activity and medical care. Health Advice is given to callers who dial toll free 3-digit number 104 from landline or any mobile phone to take mobile consultation. The call Centre renders advice to ANMs, ASHAs, other Health staff and MOs at PHC by trained paramedical and Specialists. Treatment to common man who resides in Remote are-as is provided by assisting the health care professionals who reach out to them directly and monitor them on scheduled visits. As a design the Government of Maharashtra with NRHM a common man should approach through ASHA, ANM, MPHWS who are trained in medical line. A panel of specialists, in addition to the paramedical team, will be available at the call Centre round the clock throughout the year for giving telephonic advice to patients. This specialist doctors guide the health care providers in remote villages who in turn would provide timely referral, proper intervention and management of the patients.

The services are available in three languages, viz. Marathi, Hindi and English. The paramedics are well qualified as per the requirements of the Government of Maharashtra. Further, specialist doctors viz., Paediatrician, Obstetricians & Gynaecologist, General Surgeon, Physician and Public Health Specialist are available round the clock in the call Centre.

HIHL project is implemented by Health Management and Research Institute (HMRI), a registered not-profit organization based in Hyderabad, Andhra Pradesh. Within one years' operations HMRI grew by operating a 400 seated Call Centre for providing Health information to the vulnerable populations living in habitations where the public health systems could not reach and also handled 375 Mobile units for reaching out to the poor right at their door step.

Immediate Objectives:

- Manage the Health Advice Call Centre to provide round the clock uninterrupted services by putting in place robust technical and managerial support system
- Provide Medical advice by specialist doctors and paramedical staff for patient care

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- Provide guidance to the Medical and Paramedical Health Care Provider for School Health Program (Examination and Treatment)
- Provide Information to Health Care Providers for quick action in epidemic outbreak, disaster, natural calamities and in major accidents
- Provide Directory Information of Government hospitals/Institutes including Blood bank and Eye bank for proper and early referral

However, the Long-Term Objectives are stated as to integrate with other health initiative in the state such as:

- Emergency Medical Support
- Rajiv Gandhi Jeevandai Arogya Yojna
- Telemedicine
- Mobile Medical Unit.
- Any other State & National Health Programs.

The services are reaching the health care social workers or the doctors and other paramedics in the PHC of the state by systematic support extended by various departments. Clinical Team from HMRI consists of doctors who continually update the medical content and train the medical officers and the other staff at the Call centres. IT support team provides customised IT services to respective call centres by enabling all the applications running efficiently by ensuring data security and administration controls.

Health care professionals contact the Call Centre and obtain relevant advice from specialists enabling them to treat the patients with a better clarity. The specialists make use of the Algorithms to provide advice both for the social health workers and doctors at PHC to make the advice comprehensive. Algorithms are structured set of probing questions relevant to the concerned disease with robust validation by highly experienced and well qualified medical specialists who are professors at teaching hospitals. The application software used at Call centres is user friendly and compatible which is maintained by the IT services personnel based at Call Centre who is trained in network and software and is assisted by a team of software professionals from Head office. The Government of Maharashtra and NRHM coordinates with HMRI to ensure the services are provided to assist health workers viz., doctors, paramedics and volunteers on Medical information. Therefore, the concerned stakeholders are as follows:

- ✓ Citizens especially living beyond the reach of the physical infrastructure like PHC
- ✓ Paramedics (ASHA, ANM, MPHWS)
- ✓ Medical Officers
- ✓ Piramal Foundation
- ✓ Health department
- ✓ Medical Officers
- ✓ ANMs
- ✓ ASHAs

Application for call centre:

This application is a medical triage application, which assists the helpdesk paramedics in providing sound advice to the beneficiary. For example, a caller asks the paramedic what should be done if a specific condition exists. Then the paramedic refers to the proprietary algorithm and arrives at the probable condition and either gives advice or refers to specialist if required. The algorithm checks the severity levels and prompts to advise the patient to refer to emergency or escalates the call to the specialist. The application also includes a de-tailed MIS system for generating system logs. A typical call flow is described below:

Call Flow:

The call routing of any call coming to the call centre is the following:

- A beneficiary dials the three-digit 104 toll free telephone number.
- The call is received by a paramedic
- If the beneficiary needs emergency care, the call is routed to EMS helpline or to the various Health Institutes and their ambulance services
- The paramedic provides information to the beneficiary as per the data that is available with the helpdesk
- If the beneficiary asks for medical advice, then the paramedic will forward call to specialist doctor
- The Paramedic provides advice with the support of clinical decision support system available to him/her.

Figure 4: 104 Maharashtra - average calls services per speciality per day

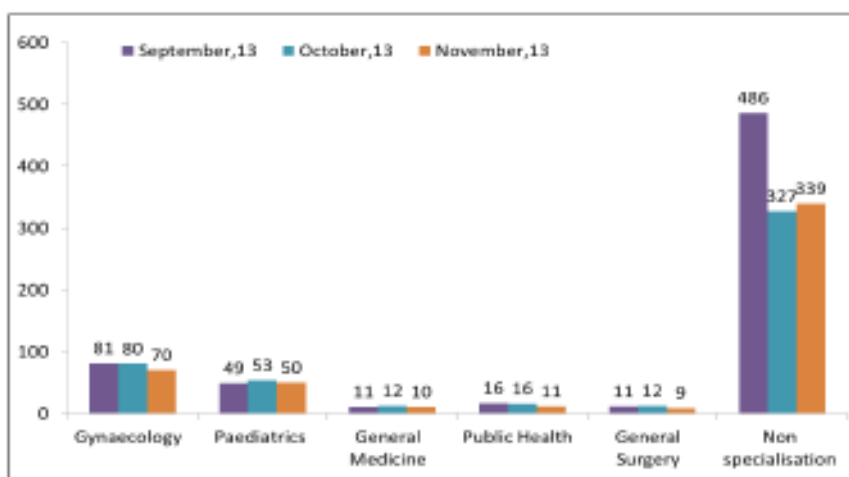
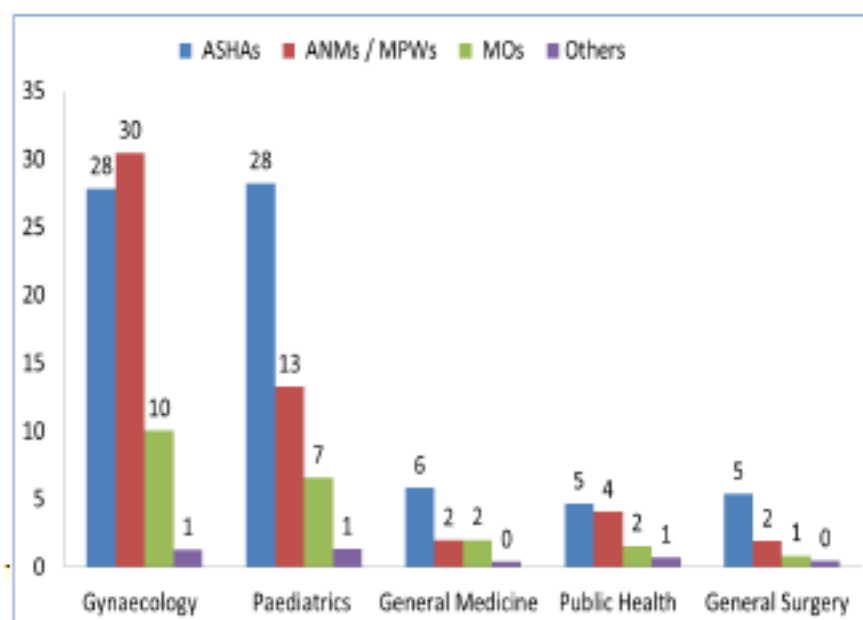


Figure 5: 104 Maharashtra –Avg. calls serviced per day by each specialty, Nov, 2013



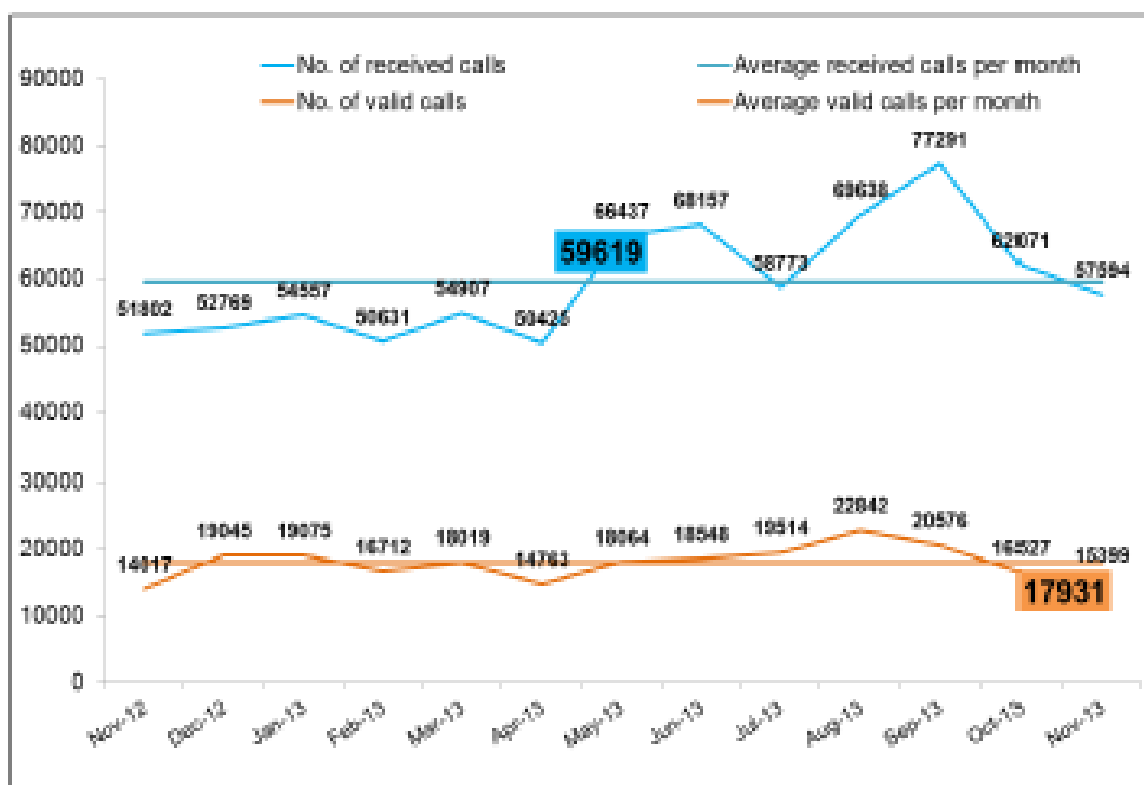
Quality Assurance and Service Level Agreements:

All calls received by the paramedics second by second are recorded, enabling electronic transfer of the recorded call (*.mp3 files) to the Department of Health via email within 24 hours upon request. These same recorded calls are also sent to the Department on CD-ROM when required. Such calls are also used for paramedic training and coaching for which supervisor will listen to calls for improving the performance of paramedics.

About 90,000 last mile Health Workers of Maharashtra such as Male Health Workers, Auxiliary Nurse and Midwives, Medical Officers are connected through this 104-call centre. This programme went live from January 2012 and the statistics of call volume is shown in the line

Figure 6 below.

Figure 6: 104 Maharashtra - average monthly call volumes handled



Issues and Challenges faced during Implementation

- Customization of the software to suit the local languages
- Validate and include additional health algorithms
- Set up in a short duration of 90 days
- Recruit and on boarding of paramedics, specialist medical officers
- Project Management
- Build and Operate model with stiff service level agreements

Assam

The Government of Assam under the National Rural Health Mission has been laying increasing focus on the preventive aspect of diseases. However, for prevention, it is important that information pertaining to diseases is readily accessible. What is important in a State like Assam is a hassle-free and single-window medical advice solution with round the clock availability.

With this objective the Government of Assam decided to put in place a helpline service for the people of the State that will enable free health counselling and medical advice from any mobile or landline phone. The Sarathi '104'- Health Information Helpline Service is a 24x7 source for answering all health queries that can be availed just by dialling the number '104'. The service seeks to reach out to three crores population of Assam through an integrated state-of-art Health Helpline. The initiative aims to provide health information in four different languages – Assamese, Bengali, Hindi and English.

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The services offered by the Initiative are:

- Medical Advice - is the primary service aimed at providing preliminary diagnosis of symptoms, and subsequent measures to be taken. A competent group of trained medical and para-medical personnel use specially designed decision support tools to assess a patient's condition and provide advice.
- Counselling Services - Trained Counsellors provide counselling to callers in matters of HIV / AIDS condition, matrimonial discord, depression, chronic diseases, psychological distress and suicidal tendencies. Medical officers determine the need for counselling and such cases are referred to qualified counsellors who render online services round the clock.
- Directory Information - This service provides information about health service providers, hospitals, diagnostic centres, pharmacists, etc.
- Service Improvement - This service is aimed at improving the delivery of existing public health services in the state of Assam. A caller can register a discrepancy in the existing system or alert regarding the requirement of medical action, which is notified to the government authorities.

Sarathi 104 (HIHL) has qualified doctors and paramedics on board, with present seating capacity of 50 per shift and total employee strength of over 180. This service is based on 150 directories, 84 algorithms and 608 disease summaries. The service is also well equipped to identify epidemics and escalate the problem to the concerned authorities.

The salient features of this helpline are:

- Authentic and standardized medical advice from skilled medical professionals
- SMS prescription of Over-the-Counter medicines
- Medical Advice using triage (classifying the caller's condition into 'critical', 'serious' or 'stable' states) and providing appropriate advice
- Information on all health aspects with priority to National Health programmes
- Counselling to callers for any health-related problems
- Information on healthcare facilities, providers and Health schemes
- Service improvement to capture concerns of citizens on healthcare delivery at public health facilities
- Registration of outbreak of diseases
- Registration of complaints and suggestion for improvement of public health system.

Table 3: Key performance statistics of Sarathi 104 HIHL - Assam

Call Details	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total
Total Calls Received	270511	1125771	1729104	2598817	2150794	1951556	1738608	11565161
Total Service Calls	108753	548693	673103	919689	691069	595719	525326	4062352
Medical Service Calls	106703	534615	650794	904118	660034	576903	509111	3942278
Counselling Calls	2043	7370	15446	16512	13229	12970	13200	80770
Information Calls	0	4955	5303	7974	5296	4125	2773	30426
Complaint Logging Calls	0	1636	1693	2406	1828	1091	895	9549
ASHA Helpline calls	0	1270	709	18985	8972	953	498	31387

Tamil Nadu

The 104 health helpline has been providing holistic health information, advice and service improvement to the public. The helpline is run by a service provider GVK-EMRI, Chennai that also operates the 108-ambulance service. The helpline is also providing suicide prevention counselling and advice to students, and also coordinates for arranging eye and whole-body donation. To make the facility more visible, awareness programmes across all 32 districts and taluks of the State have been organised.

On an average, it receives 2,600 calls a day. From December 2013 to June 2017, the Health Department's 104 helpline has received a total of 9,18,688 calls from across the State. From common cold to fevers such as dengue, details on symptoms, treatment and testing centres are provided. This helps in preventing self-medication.

10. Data collection, analysis and findings

10.1. Awareness:

Aarogya Sahayavani services have reported a consistent raise in number of calls received since inception. This rise in number of calls can be attributed to various efforts undertaken to increase the awareness of Aarogya Sahayavani services, prime among them being-

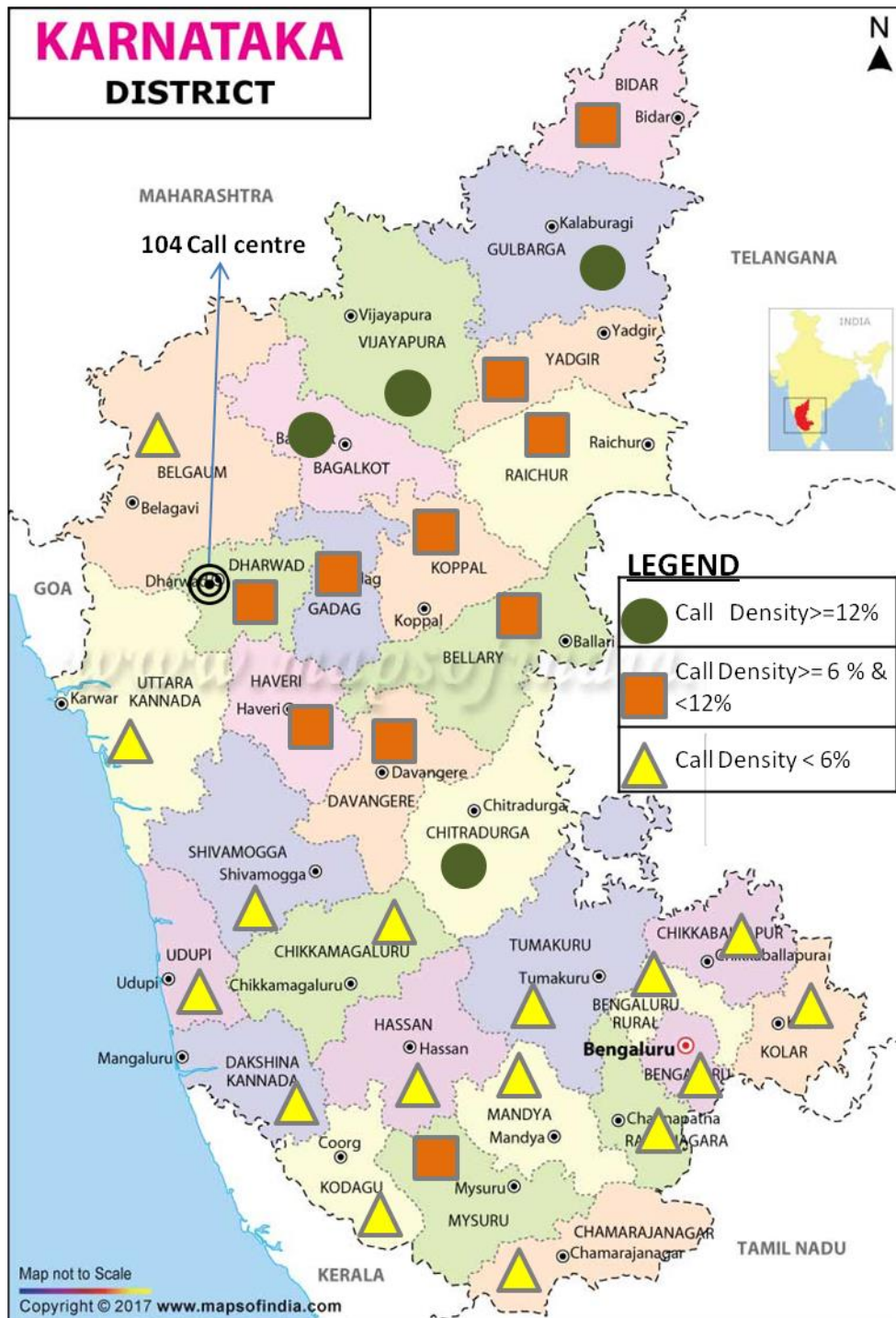
- Conducting monthly awareness program in villages/cities (District/Taluk) through IEC activity (Information, Education & Communication)
- Promoting 104 service through Radios, Banners on Buses & Pamphlets.
- Participation in 'Blind walk' to promote 104 services
- Addition of new services to Aarogya Sahayavani platform to attract new callers.
- IVR played on different programs before the call is answered/ kept on hold which creates awareness about various Govt. Health Programs.

The call density across all the districts in Karnataka is mapped in Figure 7. *Call density is defined as follows:*

CALL DENSITY= (TOTAL CUMULATIVE CALLS RECEIVED FROM THE DISTRICT FROM 2013-14 TO 2015-16) / (TOTAL POPULATION OF THE DISTRICT AS PER 2011 CENSUS)

As seen from Figure 7, the call density is higher in Northern and central Karnataka in comparison with the South and Coastal region. Average call density for the state emerged out to be 6%. Accordingly, the districts were classified for varied call densities.

Figure 7. Density of cumulative calls to 104 Arogya Sahayavani across all districts of Karnataka for the period 2013-14 to 2015-16



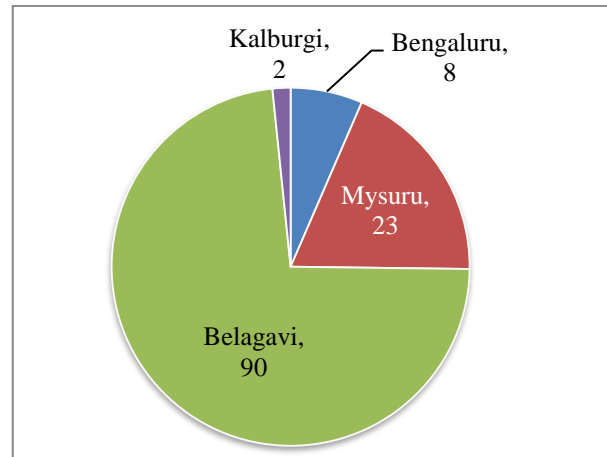
Source: PSMRI, IMaCS Analysis

Awareness activities

Awareness is primarily conducted through monthly awareness programs in villages/cities (District/Taluk) through IEC activity (Information, Education & Communication). The

division wise IEC activities conducted are depicted in Figure 8. Analysing the same we can infer that the IEC activities have been conducted mostly in Belagavi division, where the call centre is located.

Figure 8: Number of IEC Events conducted by PSMRI since inception till 2016-17



Source: PSMRI, IMaCS analysis (Note; Events are counted irrespective of no. of days the event was carried out)

Though IEC activities were conducted primarily in Northern Karnataka especially in Belagavi division. The growth rate in calls received has been highest in Kalaburgi as seen from Table 4.

Table 4: Compounded Annual Growth Rate(CAGR) in calls to 104 across divisions

Division	Four Year CAGR Growth in Calls (2013-14 to 2016-17)	Three Year CAGR Growth in Calls (2014-15 to 2016-17)
Belagavi	127%	116%
Kalaburagi	149%	132%
Bengaluru	86%	61%
Mysuru	52%	51%

Source: PSMRI, IMaCS Analysis

Further the data on calls received by gender was analysed, which is depicted in Table 5. As seen from the exhibit share of calls from females during 2016-17 has reduced to 7.20% from 12.53% in 2013-14. So, the declining trend has to be addressed appropriately.

Table 5: Gender-wise calls received to 104 HIHL

Gender	2013-14	2014-15	2015-16	2016-17	Cumulative calls since inception
Female	12.53%	10.96%	8.00%	7.20%	8.22%
Male	87.47%	89.04%	92.00%	92.80%	91.78%

Source: PSMRI, IMaCS Analysis

We also analysed the district wise telephone services penetration to check if there was any significant correlation between this and the calls received. As seen from Table 6, there is negligible correlation and therefore awareness is one of the key factors impacting utilisation of 104HIHL services.

Table 6: District wise telephone services penetration (2011 Census Data)

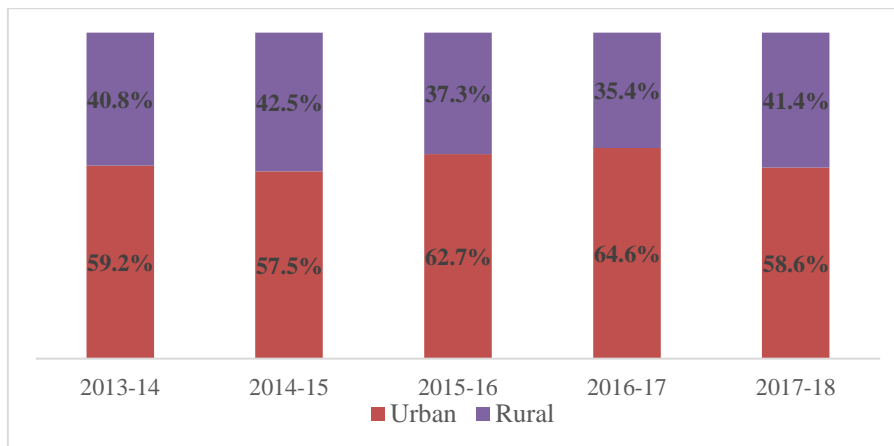
District Name	Households with landline phone (%)	Households with mobile phone (%)	Households with landline and/or mobile phone (%)	Ranking for Telephone services penetration	Ranking based on % share of calls made in 2016-17
Bengaluru Urban	8.91	67.73	76.64	1	17
Bengaluru Rural	4.86	65.40	70.26	2	26
Udupi	9.43	59.10	68.53	3	27
Vijayapura	5.26	61.19	66.45	4	1
Shivamogga	7.68	58.34	66.02	5	16
Hassan	9.46	55.78	65.24	6	19
Davanagere	5.87	59.16	65.03	7	7
Dakshina Kannada	9.91	54.41	64.32	8	29
Ballari	4.35	59.89	64.24	9	9
Raichur	5.21	58.97	64.18	10	6
Dharwad	6.52	56.84	63.36	11	13
Mysuru	5.47	57.54	63.01	12	16
Kalaburagi	6.36	56.25	62.61	13	3
Bagalkot	4.09	57.70	61.79	14	5
Belagavi	4.98	56.35	61.33	15	4
Kolar	7.20	53.51	60.71	16	25
Koppal	3.44	57.13	60.57	17	11

District Name	Households with landline phone (%)	Households with mobile phone (%)	Households with landline and/or mobile phone (%)	Ranking for Telephone services penetration	Ranking based on % share of calls made in 2016-17
Chikmagalur	14.07	45.23	59.30	18	18
Mandya	6.68	51.89	58.57	19	22
Kodagu	15.32	42.04	57.36	20	29
Yadgir	2.63	54.65	57.28	21	2
Uttara Kannada	10.86	46.22	57.08	22	21
Haveri	3.71	53.17	56.88	23	12
Gadag	5.01	50.29	55.30	24	14
Ramanagara	3.42	51.06	54.48	25	28

Source: PSMRI, Census 2011, IMaCS Analysis

Further the data on Urban and Rural calls received was analysed, which is depicted in Figure 9. As seen from the exhibit share of calls from Rural areas in 2016-17 has reduced to 35.41% from 40.76% in 2013-14. However, that this has improved in 2017-18 again to around 41.37%.

Figure 9: Calls received from Urban and Rural Areas



Source: PSMRI, IMaCS Analysis

Key findings related to Awareness:

The call density is higher in Northern and central Karnataka in comparison with the South and Coastal region. The key reasons being that the call centre is located in North Karnataka,

and Awareness programmes were primarily conducted in North Karnataka. The increase in the calls is primarily due to the spreading of awareness through word of mouth.

Further the data on calls received by gender was analysed, which is depicted in Table 5. As seen from that table, the share of calls from females during 2016-17 has reduced to 7.20 per cent from a low 12.53 per cent in 2013-14. There is a need to identify the reasons for the same and address them by way of awareness, infrastructure, process and people.

During the interactions with DHOs, all the DHOs have highlighted that the awareness levels of 104 health advisory services as well as grievance redressal services is very low.

10.2. Process and Outcome analysis

10.2.1. District wise analysis of ailment/grievance

The queries on health advisory received by 104 were analysed. The Top 20 queries are as mentioned in Table 7.

Table 7: List of Top 20 conditions/queries across the state

S.No	Query	No. of Calls Received	Percentage of Total Calls Received
1	Acne	301645	7%
2	Cold	195249	4%
3	Nocturnal Emissions	166212	4%
4	Pain with Sexual Intercourse	164321	4%
5	Migraine	99978	2%
6	Masturbation	99355	2%
7	Heart Burn	96789	2%
8	Headaches (Chronic Daily Headaches)	92609	2%
9	Erectile Dysfunction	91730	2%
10	Hair Loss (Alopecia)	91554	2%
11	Fungal Infections	88292	2%
12	Abdominal Pain	80655	2%
13	Influenza	80353	2%
14	Fatigue/Body Pains	78973	2%
15	Body Mass Index, Exercise and Fitness	69671	2%
16	Diarrhoea	68852	2%
17	Height (Stature)	63889	1%
18	Premature Ejaculation	60729	1%
19	Sinusitis	58060	1%
20	Body Mass Index	56257	1%

Source: PSMRI, IMaCS Analysis

The queries on health advisory received by 104 were analysed. The top 20 queries together amount to 47% of the total calls. From the analysis it is found that there are several queries such as Body Mass Index, Height, and Masturbation which are related to *General conditions* and these cannot be termed as *Ailments*. There are an estimated 40% of such calls which the HIHL receives which can be termed as *general conditions*

Further the list of Top 20 queries across each district was analysed. The pattern across the districts was mostly in line with the combined list of all districts. Few of the queries which were not in State Top 20 list were found in the lists across various districts which are mentioned in Table 8.

Table 8: Other queries in list of Top 20 queries from various districts

S.No	Condition/Query	Districts
1	All About Pregnancy	Bengaluru Rural, Chamarajanagar, Kodagu, Kolar, Udupi
2	Asthma	Chamarajanagar
3	Back Pain	Chamarajanagar, Chikkamagaluru, Chitradurga, Davanagere, Dharwad, Gadag, Haveri, Kalaburagi, Kodagu, Ramanagara, Shivamogga, Uttara Kannada
4	Contraception and Safer Sex	Bengaluru Rural, Dakshina Kannada
5	Decreased Sexual Desire	Dakshina Kannada, Hassan, Kodagu, Kolar, Mandya, Mysuru Shivamogga, Tumakuru, Udupi
6	Gas and Gas Pains	Chamarajanagar, Chikkaballapur
7	GERD (Gastro Esophageal Reflux Disease)	Ramanagara
8	Infertility - Female, Infertility - Male	Bidar
9	Labor, Delivery and Post-Delivery (Postpartum)	Udupi
10	Leg Pain	Kolar
11	Measles, Rubella	Bengaluru
12	Memory	Bagalkot, Ballari, Dakshina Kannada, Koppal, Raichur, Uttara Kannada, Vijayapura, Yadgir
13	Mouth Ulcers	Bagalkot, Gadag, Koppal
14	Sexually Transmitted Diseases (Overview)	Bengaluru Bengaluru Rural, Dakshina Kannada

Source: PSMRI, IMaCS Analysis

Again, several of the queries in the list are general conditions or educational in nature.

10.3. Analysis of Average Handling Time and Other Performance Indicators

Under this section the following indicators are being analysed;

- Average handling Time(AHT)
- Nuisance Call
- Timelines of Grievance Redressal
- User Satisfaction Index

Average Handling Time: AHT across different roles is captured in Table 9. As seen in the Table, AHT for HAO,MO and CO have seen improvement during last three years with reduced AHT. However, AHT of RO has marginally increased during the same time. One of the reasons for this increase is additional work carried out by ROs related to creation of awareness or dissemination of information from time to time; For e.g. awareness on Dengue/ measles and rubella.

Table 9: Average Handling Time (AHT) across different roles

S. No	Year	Average Handling Time(AHT):HH:MM:SS			
		Registration Officer(RO)	Health Advisory Officer (HAO)	Medical Officer(MO)	Counselling Officer(CO)
1	2013-14	00:00:49	00:03:23	00:03:23	00:06:44
2	2014-15	00:00:45	00:02:48	00:02:46	00:04:40
3	2015-16	00:00:50	00:02:41	00:02:27	00:04:31
4	Change in AHT	2%	-21%	-28%	-33%

Source: PSMRI, IMaCS Analysis

As per the MoU the AHT of health advisory calls must be 3-4 Minutes. The actual AHT for 2016-17 of HAOs is 2:41 minutes which when included with RO calls will be between 3-4 Minutes. However, Counselling Calls the AHT stipulated is 10-15 Mins. Actual AHT is 4:33 Mins.

Table 10: Average Handling Time as stipulated in MoU

S. No	Year	AHT
1	Health Advisory Calls	3-4 Min
2	Counselling calls	10-15 Mins

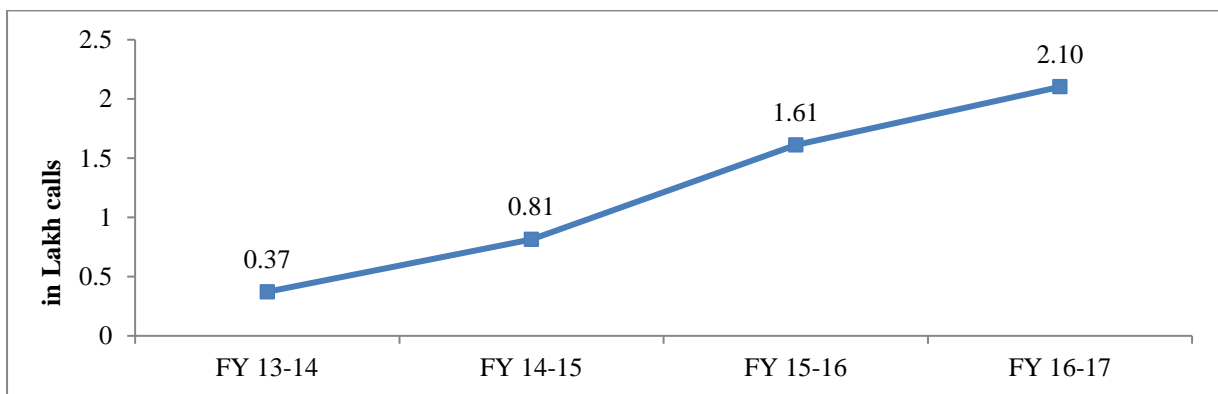
Source: PSMRI

The AHT would vary depending on the type of health advisory call. As can be observed from the analysis of top 20 ailments in the state, some of the calls are educational in nature,

which needs a detailed explanation about the condition. In some cases, the diagnostics time may be less, as in case of acne and where as in some cases the time required for diagnosis/prescription is higher. Similarly, the time required for counselling calls may vary depending on the issue, the caller (first time or repeated call) and the counsellor. By observing that the AHT for counselling calls is lesser than the time stipulated in MoU it can be assumed that productivity is higher.

Nuisance Calls: Nuisance calls over the last four years have significantly increased from 37,171 calls in 2013-14 to 2.10 lakh calls in 2016-17 which is depicted in Figure10. While absolute calls have increased in percentage terms it has reduced from 4.5% in 2013-14 to 3.7% in 2016-17.

Figure10: Trends in Nuisance Calls



Source: PSMRI, IMAcS Analysis

Nuisance calls are a bane to call centres. Nuisance calls affect the performance of a call centre in the following ways.

1. Reduces productivity
2. Underutilisation of infrastructure and manpower
3. Opportunity lost for genuine callers
4. De-motivates the call receiving personnel

Thus, nuisance calls not only increase the cost to government but also affects the quality of service. Nuisance calls over the last four years have significantly increased from 37,171 calls in 2013-14 to 2.10 lakh calls in 2016-17 which is depicted in Figure10. While absolute calls have increased there is a slight reduction in terms of the percentage of these nuisance calls from 4.5% in 2013-14 to 3.4% in 2016-17. Currently the service provider blocks the nuisance callers temporarily. However, several of them return after the numbers get

unblocked. There is a need to control the nuisance calls so that call capacity be freed up for the genuine callers. Often male callers create nuisance with female call receiving officers and the other way around female callers create nuisance with male call receiving officers albeit less. Nuisance calls may be reduced by:

1. Channelizing the calls to male or female receiving officer based on the gender of the caller.
2. Machine/pre-recorded voice responses for identified queries, which are the ones often nuisance callers opt for

10.4. Grievance redressal

In case of Grievances a total of 2318 grievances were received during 2016-17. The break-up of grievances district wise is provided under Table 11. The grievances related to non-payment of incentives/work place harassment which totalled to eighteen are included in the grand total of grievances. Service related grievances form the largest part of grievances followed by corruption related cases.

Table 11: District-wise Grievances in 2016-17

S. No	District	No. of Grievance Calls received in 2016-17	CAGR from 2013-14 to 2016-17	Share in total Infrastructure related Grievances	Share in total corruption related Grievances	Share in total service related Grievances
1	Bagalkot	105	38%	6%	2%	5%
2	Ballari	126	24%	2%	7%	5%
3	Belagavi	116	5%	4%	7%	5%
4	Bengaluru Rural	35	13%	1%	1%	2%
5	Bengaluru Urban	98	26%	6%	5%	4%
6	Bidar	73	36%	5%	3%	3%
7	Chamarajanagar	24	-1%	2%	0%	1%
8	Chikkaballapur	97	95%	9%	4%	4%
9	Chikkamagaluru	31	1%	-	1%	1%
10	Chitradurga	104	19%	4%	6%	4%
11	Dakshina Kannada	16	-29%	-	-	1%
12	Davanagere	106	17%	1%	4%	5%
13	Dharwad	93	23%	3%	2%	5%
14	Gadag	59	15%	2%	1%	3%

S. No	District	No. of Grievance Calls received in 2016-17	CAGR from 2013-14 to 2016-17	Share in total Infrastructure related Grievances	Share in total corruption related Grievances	Share in total service related Grievances
15	Hassan	49	9%	1%	1%	2%
16	Haveri	138	55%	3%	7%	6%
17	Kalaburagi	130	7%	11%	5%	6%
18	Kodagu	25	16%	3%	0%	1%
19	Kolar	45	19%	2%	1%	2%
20	Koppal	104	4%	6%	6%	4%
21	Mandya	46	3%	2%	2%	2%
22	Mysuru	74	-14%	1%	2%	4%
23	Raichur	189	41%	15%	11%	7%
24	Ramanagara	30	19%	-	-	2%
25	Shivamogga	48	21%	2%	1%	2%
26	Tumakuru	101	20%	1%	7%	4%
27	Udupi	12	-11%	2%	0%	1%
28	Uttara Kannada	31	-12%	1%	1%	1%
29	Vijayapura	119	5%	5%	5%	5%
30	Yadgir	94	11%	3%	4%	4%
	Total No.	2318²		105 (4.6%)	405 (17.7%)	1773 (77.7%)

Source: PSMRI, IMAcS Analysis

While there is no specific pattern of grievances observed across the districts, service related grievances form the largest part of grievances followed by corruption related cases.

Further the correlation between district wise share of corruption related grievances and service related grievances is positive at 0.86 indicating that the districts that have higher share of corruption has also have a higher share of service related grievances.

Timelines for grievance redressal: Grievance calls are classified as ASHA, EPIDEMIC and GENERIC Calls. The trends in grievance calls since inception are tabulated in Table 12. As shown in the exhibit the ASHA grievances have shown a decline while EPIDEMIC related grievances have shown an increase of 37%, while growth in GENERIC grievances has been

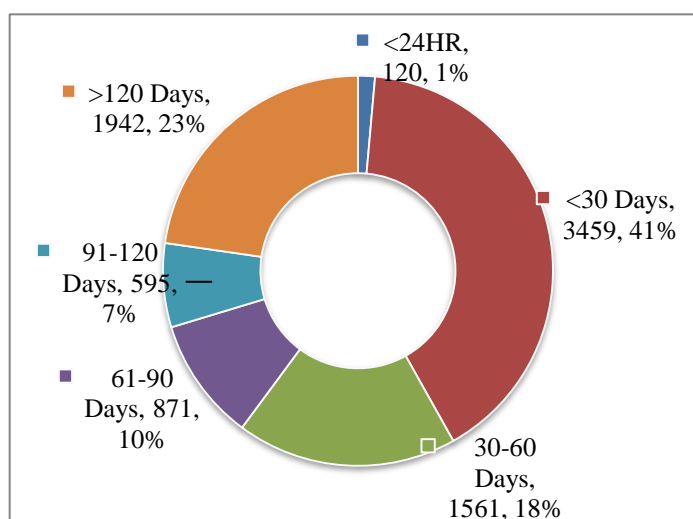
²Include 18 grievances related to non-payment of incentives/work place harassment

flat. The growth is calculated from 2014-15 and 2013-14 is not considered as it was inception year.

Table 12: Trends in Grievance calls since inception

Segment	2013-14	2014-15	2015-16	2016-17	CAGR from 2014-15 to 2016-17
ASHA	117	175	104	35	-55%
EPIDEMIC	104	65	93	122	37%
GENERIC	1400	2138	2174	2283	3%
Grand Total	1621	2378	2371	2440	1%

Figure 11: Timelines of resolution of Grievances since inception (Time line, No. of calls, percentage of total calls)



Source: PSMRI, IMaCS Analysis

The timelines of resolution of grievances since inception is mapped in Figure 11. As per the discussions with the Service provider the timeline for grievance redressal is 30 days. As seen from the Exhibit 60% of the grievances took more than 30 days to resolve, of these 23% of the grievances took more than 120 days.

The ASHA grievances have shown a decline of 55% while EPIDEMIC related grievances have shown a CAGR of 37% CAGR from 2014-15 to 2016-17. During primary research with ASHA workers 87% were delighted with 104 Grievance redressal service and 13% were satisfied. Thus, the Grievance redressal mechanism has positively impacted ASHA workers.

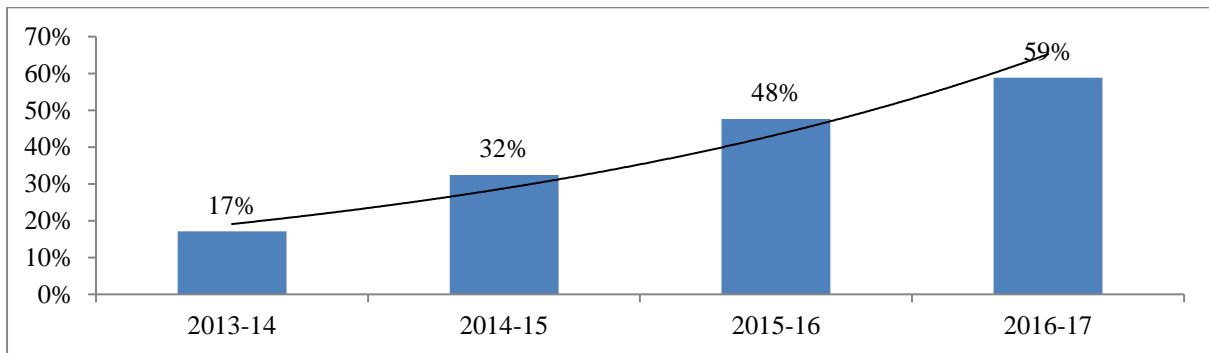
EPIDEMIC grievances have increased to 122 in 2016-17. However, this number is too low considering the prevalence of epidemics across Karnataka. Based on the primary research

with DHOs and other stakeholders lack of awareness about 104 grievance services is the key reason for lesser number of epidemic grievances.

GENERIC grievances form the largest share of grievances contributing ~95% of the calls. Growth of generic grievances has been flat during the last three years. Based on the primary research with DHOs and other stakeholders lack of awareness about 104 grievance services is the key reason for a smaller number of generic grievances.

Analysis of grievances which took less than 31 days to resolve are mapped in Table 13. The analysis indicates that percentage of grievances which took less than 30 days have increased.

Table 13: Trends in number of grievances which took less than 31 days for resolution



Source: PSMRI, IMaCS Analysis

Since 2014-15 which was the peak year for the grievances have increased at a CAGR of 33%. Thus, the overall the helpline is increasingly becoming efficient in resolution. Considering the grievances, the timeline required /estimated for resolution may vary. For e.g. grievance w.r.t to adding infrastructure may take longer time considering, policy changes required, budgetary allocation and implementation, when compared to correcting service issues with the existing manpower. However same yard stick is being followed for all the grievances. Thus, there is a need to stipulate the timelines for different type of grievances based on minimum estimated time for resolution and severity of the grievance. During the survey with DHO it was observed that the system needs to be strengthened to make grievance redressal system more efficient and effective. The adherence to timelines should be mandatory and escalation process should be strengthened. While the Service provider forwards the grievance to DHO on the same day of receipt, a follow-up call is being made on 11th day to get the feedback. To make the system efficient the follow-up system of the service provider may be made robust.

10.5. Customer Delight Index

User satisfaction Index is calculated using a Customer Delight Index (CDI) framework having nine parameters which are tabulated in Table 14.

Table 14: Customer Delight Index Parameters currently being used

S.No	Question	Attributes: Points	Weightage
1	Was the service provided empathetic & polite throughout the call?	Yes:100% No:0%	15%
2	Did you feel the agent understood and handled your health concern appropriately?	Yes:100% No:0%	15%
3	Did the advice gives you relief to your problem?	Yes:100% No:0%	10%
4	Will you use the services of 104 again?	Yes:100% No:0%	10%
5	Will you like to refer to 104 service to your relatives, friends and other?	Yes:100% No:0%	10%
6	Which facility would you have visited if 104 is not available?	PHC:100% Govt Hospitals:80% Local PMP/RMP:60% Qualified Pvt Doctor:20%	10%
7	Normally how much money you might have spent approximately for your problem, if you have to avail any private doctor	Less than 100:60% 100-300:40% 300-600:60% 600-1000:80% Greater than 1000:100%	10%
8	What is your recommendation on 104 to improve in our service?	Free text	10%
9	What was your overall experience when you last called 104?	Delighted:100% Satisfied:60% Not satisfied:10%	10%

Source: PSMRI, IMAcS Analysis

While the CDI frame work has weightage for different parameters, it was found that actual calculation was done using equated weightage. The CDI is being calculated after converting the satisfaction score to a scale of 5. Daily the quality team of the service provider will make 150 calls based on random selection and determining the CDI based on available responses.

The CDI was reviewed for relevance and appropriateness of weightage provided to each of the parameter. The remarks against each of the parameter are mentioned under Table 15. Three of the nine parameters were found to be not relevant and in case of one relevant parameter the weightage needs to be changed. Further it was also observed that CDI framework may not be used for all the value-based services. Therefore, there is a need to explore alternative mechanisms of taking customer feedback. Further sample of 150

responses will be less than 1% of the population of approximately 20000 calls per day. Thus, statistically the sample size should be significant

Table 15: Review of Customer Delight Index (CDI)

S.No	Question	Attributes: Points	Weightage	Remarks
1	Was the service provided empathetic & polite throughout the call	Yes: 100% No:0%	15%	Relevant and weightage needs to be changed
2	Did you feel the agent understood and handled your health concern appropriately	Yes: 100% No:0%	15%	Relevant and weightage needs to be changed
3	Did the advice gives you relief to your problem	Yes: 100% No:0%	10%	Relevant and weightage needs to be changed
4	Will you use the services of 104 again	Yes: 100% No:0%	10%	Relevant and weightage needs to be changed
5	Will you like to refer to 104 service to your relatives, friends and other	Yes: 100% No:0%	10%	Relevant and weightage needs to be changed
6	Which facility would you have visited if 104 is not available	PHC:100% Govt Hospitals:80% Local PMP/RMP:60% Qualified Pvt Doctor:20%	10%	Not relevant
7	Normally how much money you might have spent approximately for your problem, if you have to avail any private doctor	Less than 100:60% 100-300:40% 300-600:60% 600-1000:80% Greater than 1000:100%	10%	Not relevant
8	What is your recommendation on 104 to improve in our service	Free text	10%	Not relevant and Not used
9	What was your overall experience when you last called 104	Delighted:100% Satisfied:60% Not satisfied:10%	10%	Relevant; however, attributes need further evaluation, but weightage is appropriate

Source: Primary Survey, IMaCS Analysis

Amongst the questions that are not relevant, the issues are primarily the inconsistency and unwillingness of respondents to provide responses. In fact, one of the questions (No.8) is not being used at all. Hence these need to be dropped from the index. Therefore, it is suggested that the non-relevant questions be dropped from the index and accordingly, the following

questions are to be retained in the new CDI as given in Table 16. The weightages for each question are provided in the Recommendations Section of this report.

Table 16: Suggested Customer Delight Index Questions

S.No	Question	Attributes: Points
1	Was the service provided empathetic & polite throughout the call?	Yes: 100% No:0%
2	Did you feel the agent understood and handled your health concern appropriately?	Yes: 100% No:0%
3	Did the advice give you relief to your problem?	Yes: 100% No:0%
4	Will you use the services of 104 again?	Yes: 100% No:0%
5	Will you like to refer to 104 service to your relatives, friends and other?	Yes: 100% No:0%
6	What was your overall experience when you last called 104?	Delighted:100% Satisfied:60% Not satisfied:10%

Source: Primary Survey, IMAcS Analysis

Regarding the aspect of measuring the index from the perspective of each service availed, this can be derived at the back end by analysing the feedback provided by the user based on the nature of service sought and not by way of a separate CDI for each service.

10.6. Infrastructure:

The Health & Family Welfare Services department, Government of Karnataka, is implementing 104 HIHL through Piramal Swasthya Management and Research Institute (PSMRI), Hubballi. The call centre run by PSMRI has 100 seats which is operational 365 days and 24x7. In addition to work station, IT infrastructure, other facilities mentioned below are available;

- Cafeteria
- Medical Room to Take Rest in case on Minute Medical Emergency with First Aid Kit and Medicines
- Exclusive Rest Room for Female Employees
- Library
- Separate Toilets for Male & Female
- RO Water Facility
- Training facility

The bio-metric access has been deployed at the facility,

The IT infrastructure includes work station infrastructure such as PC, LAN and call centre management software. IT audit of the service provider was conducted during 2015-16. It was suggested during the IT audit that that the call centre use such banners to sensitise employees about the proper use and confidentiality of the data. It is also in compliance with section 43A of I.T. Act, 2000. The service provider has enabled Banner of IT Compliance in all working sections, they change the Desktop banner wallpaper whenever Wallpaper change request is sent by their Head Office and revert back to IT Compliance wallpaper as per policy.

Whether continuous awareness programmes are conducted for security awareness? The service provider has informed that IT Induction for every new joiner covers IT Security Policy and Compliance Seminar on Cyber Law & Security as per IT Audit policy. They have already taken IT Induction seminar for all the current employees. The service provider has informed that they are following all mentioned guide lines according to ISA and have maintained the reports for the same.

It was already mentioned that the Security is Strong enough, as the centre has Biometric access & CCTV surveillance for DC and they maintain a register for user in and out. There was an observation during the IT audit that CCTV video surveillance is not capturing all the vulnerable sections of the premises and Video footage storage capacity is of 3 months at this point of time. The service provider has mentioned that they have escalated the concern to Admin department on Procurement of extra CCTV cams and New high-end DVR and the same is under process. To ensure that call centre operate all the time in MoU under Schedule 4: Project Facilities, it is mentioned that the telephone system shall have an uptime of 99%. The annual down time since inception was found to be less than 1% or uptime to be more than 99%, which is tabulated in Table 17.

Table 17: Down time of telephone system at 104 HIHL centre

Year	Total down time	Down time(% of time)
2013	2:59	Less than 1%
2014	0:20	Less than 1%
2015	7:59	Less than 1%
2016	17:46	Less than 1%

Source: PSMRI, IMaCS Analysis

Abandoned calls over the last four years have sharply increased from 1406 calls in 2013-14 to 8.31 lakh calls in 2016-17 which is depicted in Table 18.

Table 18: Abandoned Calls

S.No	Year	Abandoned calls
1	2013-14	1406
2	2014-15	2663
3	2015-16	207411
4	2016-17	831459

Source: PSMRI, IMaCS Analysis

Initially the 100-seat call centre was set up to handle 10500 calls per day with an option of expanding seats to 300. However due to requisite approvals the service provider has not expanded the centre though the number of calls has crossed over 20000 calls per day and number of abandoned calls are very high at 8.3 lakh calls per year. Thus, there is a need to expand the capacity. In this direction a new centre has been established at Bangalore which is the process of starting operations, which would be able address the issue of abandoned calls.

In Hubballi centre the transportation is not being provided though it is a 24/7 operating unit. The night shift is being extended by two hours on rotation basis to avoid staff to arrive/leave office during late evening hours.

With respect to infrastructure to receive calls, the centre has 3 PRI (Primary Rate Interface) lines and each line can receive/send 30 calls. Thus, at any given instant, 90 lines are available for receiving/making calls. This is in-line with the seating capacity of the unit. Any future increase in lines should also be coupled with proportionate change in seating /manpower.

10.7. People:

The call centre in Hubballi employs 328 persons across all the shifts which are listed in Table 19. The share of male employees is around 51% and female employees share is 49%.

Table 19: Manpower Break up of 104 HIHL

Sl.No	Designation	Head Count
1	General Manager	1
2	Registration Officer	58
3	Health Advice Officer	190

4	Service Improvement Officer	4
5	Counselling Officer	9
6	Medical Consultant	30
7	Supervisor	10
8	Other Managerial and support staff	26
	Total	328

Source: PSMRI, IMAcS Analysis

For several roles the Service Level Agreement (SLA) specifies the qualification and experience. The qualification and experience were compared, and the findings are tabulated in Table 20.

Table 20: Qualification and experience of key personnel

S.No	Designation As per Service Level Agreement	Designations by PSMRI	Total employed	Number of staffs Qualified as specified in SLA	Number of staffs with minimum work experience as specified in SLA	Remarks
1	Call Forwarding Agents	Registration Officers	58	58	58	As per SLA
L2	Health advisory officers/Paramedics	Health Advise Officers	190	190	190	As per SLA
3	Doctors/Medical Officers	Medical Consultant	30	30	30	As per SLA
4	Counsellors	Counselling Officer	9	9	7	2 Counsellors were found to have less than 1 year of as specified in SLA
5	Supervisors		10	10	10	As per SLA
6	HR Manager		1	1	1	As per SLA
7	Networking Engineer	Not found				
8	Operations Head	General Manager	1	1	1	As per SLA
9	Support Staff(House Keeping, Drivers, etc)					
10	Others(Not specified in Agreement)		29	NA	NA	

Source: PSMRI, IMAcS Analysis

Among all the staff two counsellors were found to have less than 1 year of experience as specified in SLA while the qualifications were as per SLA. They were found to have 9 months of experience as per the information provided by the service provider.

Some of the issues faced by service provider with respect to the people are

- Attrition
- Lack of doctors willing to work in a call centre
- Lack of domain knowledge in case of HAO

Attrition rate across different years since inception is mentioned in Table 21.

Table 21: Annual attrition rate of the call centre since inception

Year	Annual Attrition rate
2014-15	73%
2015-16	48%
2015-17	49%

Source: PSMRI, IMAcS analysis.

Attrition rate during inception year was very high at 73%. However, since then it has slowly reduced. Considering the nature of the job the attrition in call centres is high. From various sources the attrition rate in Call centres/BPOs is in the range of 35-70%.

Table 22: Attrition rate across various roles in 2016-17

Skill Set	Attrition	Total Staff	Attrition Rate
RO Total	11	58	19%
HAO Total	109	190	57%
MO Total	9	30	30%

Source: PSMRI, IMAcS analysis.

Attrition rate across the key roles is shown in Table 22. While attrition rate in case of RO, MO is lesser, HAO segment has higher attrition at 57%. The reasons as understood from our discussions with the service provider that qualified and experienced young doctors are unwilling to work in 104 call centres. Further, especially for Staff with GNM (General Nursing and Midwifery) the reasons are

- Better opportunities in India and outside India in Government/private hospitals
- Preference of hospital environment over a Call centre environment for work

- Nuisance calls leading to lack of work satisfaction

HAOs are the heart of the health helpline considering the majority of the calls are related to minor ailments. There is a need to reduce attrition, which also results in increased cost of recruitment and training and may result in quality issues. Further HAOs having degree in life sciences are also being recruited. The challenge being faced with such candidates is lack of domain experience. So, there is a need to look at solutions to optimise the processes to improve the quality of work and reduce attrition.

Further it was observed that all the MOs are mostly retired doctors with an average age of ~70 years. This poses various age-related issues at work, which includes lack of productivity in addition to issues arising out of age-related cognitive decline. So, there is a need to address this issue to have MOs in working age in the call centre. The occupancy rate of MOs is relatively lesser than the other roles, though primary reason for the same is due to maintenance of ratio between Doctors and paramedics at 1:6 in MoU irrespective of demand for MO services.

With respect to the staffing the MoU has certain specifications regarding hiring of MOs and HAOs. Under Schedule 4, Point No. 1 HIHL interface, it is mentioned that '*the helpdesk staff will consist of doctors and paramedical staff in the ratio of 1 doctor for every 6 Paramedics/Call forwarding agents*'. There are 30 MOs (Doctors) and 190 HAOs (Paramedical staff). The ratio of just over 1:6 is being maintained by the service provider. However as per the agreement if Call forwarding agents are added, i.e. Ratio of MOs to HAOs/ROs then the ratio will be more at 1:8. So there is need for clarity with respect to this ratio. However, since MO's are already underutilised there is a need to relook at this ratio in reducing the number of doctors based on demand.

Further in the RFP one of the questions requested to be addressed is as following: "Government of India has suggested that registration officers in the service centre should be replaced by medical officer. The Evaluation Consultant Organisation to examine this issue and give suggestions?"

After discussions with the stakeholders it can be concluded that it is not suggested to replace Registration Officer (RO) with medical officers due to the following reasons:

- *Non-availability of MOs in the required scale:* Currently MOs with an average age of 70 years are being employed in the centre due to non-availability of personnel in working age with adequate qualifications.
- *Non-technical nature of ROs work:* ROs collect data related to caller identity and the health concern and then enter the data into the system before forwarding the call to HAO/MO/CO and this work is non-technical in nature for a doctor.
- *Increase in cost:* No. of ROs required will be six times more than the number of Medical officers. Thus, the cost would significantly increase.
- *Non-productive for a qualified doctor:* Considering the qualification and skill of a MO, doing non-technical work will be irrelevant and non-productive for an MO.

11. Reflection and conclusions

11.1. Awareness:

Lack of awareness uniformly across the state has resulted in skewed usage of the helpline geographically. So, there is a need to create awareness across the state especially in South Karnataka which has lower call share. Similarly, since the usage the helpline among women is very low at ~8% of the call share, it is imperative not only to create awareness among women, but also process women centric, such as Women HAOs to attend women callers.

The awareness should be created among rural and urban poor who are the needy segment, so some of the schemes /processes run by GoK/GoI across different departments through which this target segment is being reached may be explored to create awareness, beyond IEC programmes.

Considering that the primary objective of 104 is to reduce load on government health centres, the awareness should start from the health centres run by government.

11.2. Process:

Amongst the total calls received by the call centre, around 40% are not related to ailments but more of education/information seeking in nature. However, these educational calls are dealt in the same way as the calls related to ailments currently. Thus, the objective that the helpline is fulfilling is educating the beneficiaries in addition to addressing a minor ailment, which is a latent demand of beneficiaries. Lower demand for MO services may also be attributed to this increase in educational calls. Considering the significant volume of these calls, it would be prudent to create a special cell related to health education with objective of standardising the information provided to beneficiaries and also to explore other options to disseminate information by technological means, such as pre-recorded voice deployment, which could not only reduce manpower requirement and related costs but also be more effective. Further, with mobile data charges coming down and accessibility to smart phones increasing, development of 104 Arogya app(mobile application) may also be explored. This app can be leveraged for education, managing health lifestyle, suggestion of home remedies and also logging in grievances, which can provide convenience to beneficiary and also reduce load on the call centre. The App can also be used to communicate any new schemes launched by the Government.

Towards improvement of grievance mechanism, the follow-up and review mechanism should be made stronger. During our interactions with DHOs, they suggested that the resolution timelines may be monitored at a higher level to reduce resolution time as well as to improve effectiveness.

11.3. Infrastructure:

Currently the call centre has 3 PRI lines which would enable the centre to take 90 calls at a time. The total calling staff that would be present during the day shift would be ~100 persons.

As per the SLA, Schedule 4: Project Facilities and Infrastructure requirements, '*The capacity of the telephone lines to handle incoming calls should be 25% more than telephone lines required to handle the calls at peak hour*'. While it may have been so during the initial years, for the capacity of 100 seats at least 120 lines should be available. Therefore, one more PRI line may be added for call optimisation.

With respect to the expansion of capacity, the new centre in Bangalore is coming up, which would increase the overall seats of 104 Helpline to 200 with an estimated capacity to handle 40,000 calls per day. However, with more capacity and awareness, the expected number of calls would go much beyond 40,000, thus expansion plans of Bangalore/Hubballi units may be put in place for an additional 100 seats.

The key aspects required for establishing a call centre would be;

1. Educational institutions in the location providing Degrees in Science, Arts and commerce, GNM, MBBS, MBA courses must be present in sufficient numbers.
2. The centre should be accessible to staff through public transport system
3. Building infrastructure with connectivity to reliable power/phones/high speed internet should be available
4. Training facilities must be available within the centre
5. Transportation facility is required to be provided to staff, especially for night shifts
6. Separate rest rooms for men and women have to be present
7. Amenities such as library, canteen, recreation centre, ladies room shall be present
8. Security arrangements including security staff, biometric entry, video surveillance facilities may be available
9. Telephony/IT hardware and software facilities must be available for call receiving/answering, recording and quality monitoring

The study requires suggesting top five districts best suited to have health helpline centres in Karnataka. Based on availability of educational institutions in the requisite scale, urban amenities the best suited districts are; Bangalore, Mangalore, Tumkur, Mysore and Belgaum. However, the point may be noted that call centres need not be location specific and having too many call centres may add to the cost of management and complexity. It is essential to have more than one call centres to mitigate geographical risks. It is suggested to have two call centres, both of which already exist. So, expanding the existing centres at Hubballi and Bangalore would be a better option towards capacity augmentation than setting up of new centres.

11.4. People:

With respect to organisation the following points are discussed.

As per SLA the doctors to HAOs ratio must be 1:6, however analysing the call load it is observed that ratio of total handling time of MOs to HAOs is ~1:9. Thus it would be productive to reduce ratio of MOs to HAOs to 1:8.

Currently the female caller concerns are handled by both male and female HAOs/MOs. If a caller specifies that she would like to talk to only female staff, then the call is transferred manually. It would be a barrier for women to share her concerns with male receiver. During the primary search female callers have indicated their preference to talk to a female advisor at 104. The option of providing the service of Female HAOs/MOs and COs may be provided for female callers.

Considering that an estimated 40% of the calls are related to non-ailment/education, a separate structure focusing on education may be created. Graduates in life sciences may be hired as advisors. Separate structure can be created for the education related advisors including technology platform which can allow callers to listen to pre-recorded audio on education related queries. This would not only reduce manpower requirement but also be more focused as a role for paramedics.

Based on the call statistics of 2016-17 which would include Average Handling Time (AHT) Total number of calls received, hourly call receipt patterns and call ratios across each roles of RO, HAO, MO, CO and SIO, total manpower requirements and the organisational structure is developed for a 100-seat call centre which can receive twenty thousand calls per day.

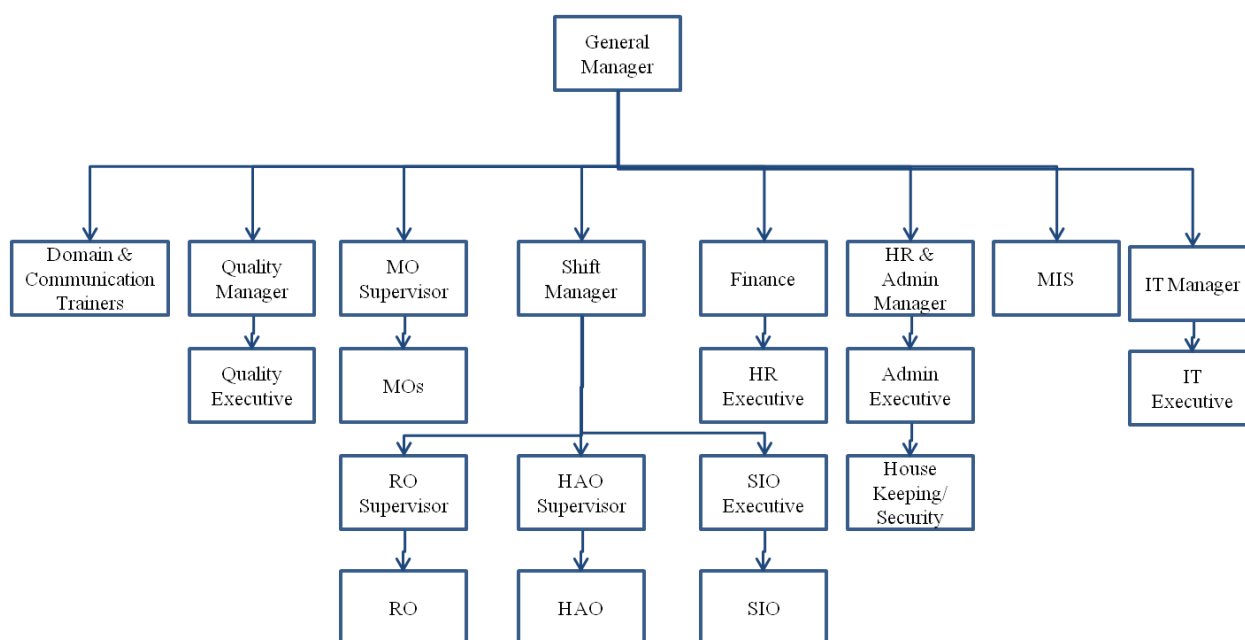
Total manpower requirement is calculated based on the hourly call pattern in the past across shifts. Using Erlong-C formula for the production staff (RO, HAO, MO, CO and SIO) and then supervisory, management and support staff is accordingly estimated. Assumptions for estimations are mentioned in Annexure II. The roles and manpower required are mentioned in Table 23.

Table 23: Total Manpower requirement for the Call centre

S.No	Role	No. of staff required
1	Receiving Officers	130
2	Health Advisory Officers	139
3	Medical Officers	20
4	Counselling Officers	8
5	Service Improvement Officers	5
6	General Manager	1
7	Shift Manager	3
8	Supervisors	13
9	HR & Admin Manager	1
10	HR Executive	1
11	MIS Executive	1
12	Domain Trainer	1
13	Communication Trainer	1
14	Quality Manager	1
15	Quality Executive	3
16	IT Manager	1
17	IT Executive	4
18	Finance Executive	1
19	Admin Executive	1
	TOTAL	335

Source: IMaCS analysis.

The organisation structure for the call centre is depicted in Figure12.

Figure12: Proposed Organisation Structure for 104 Call centre

Source: IMaCS analysis.

11.5. Impact of 104 HIHL

"The main objective of Arogya Sahayavani is to reduce the minor ailment load on the Public Health System and render qualitative service and grievance redressal mechanism. The pattern of OPD attendance has been mapped for the last five years along with HIHL call growth under Table 24. The share of Total calls to OPD is at 8%, which also includes significant share of educational related calls. Thus, the share of ailment related calls would be approximately at 5%. Considering that the growth in OPD attendance is in double digits, impact of calls would be challenging to quantify. The correlation between HIHL calls and OPD attendance has a very high positive correlation of 98% indicating that both have grown positively. Therefore, it may be concluded that while 104 has addressed the minor ailments, the load on public health system has not been significantly impacted.

Table 24: Relative growth of OPD attendance and calls to 104 HIHL

S.No	Description	2012-13	2013-14	2014-15	2015-16	2016-17
1	OPD attendance(in Lakh)	541.85	580.01	612.25	711.18	799.81
2	Growth Y-o-Y		7%	6%	16%	12%
3	Calls to 104 (in Lakh)		10.96 *	20.53	52.55	63.07
4	Ratio of total calls/OPD attendance		2%	3%	7%	8%

Source: HMIS, PSMRI, IMaCS analysis

Note:* - Annualised Value

With respect to grievance redressal mechanism the 88% of ASHA workers were delighted with the service and balance 22% were satisfied. The number of grievances w.r.t to ASHA has reduced indicating improved service levels. And in case of generic grievances 75% callers were either delighted or satisfied. Even DHOs were satisfied with the mechanism. Thus, Grievance mechanism had a positive impact on the Health care system and the same may be further strengthened.

12. Recommendations

The Arogya Sahayavani 104 since its inception in 2013 has not only managed to deliver health care to remote places in Karnataka but also has channelized grievances related to Government health care system. However, the reach of the helpline is skewed geographically and gender-wise, thus necessary steps must be taken to ensure optimal call distribution across the geography and gender through awareness. Similarly, there are opportunities to improve the service levels and beneficiary engagement by making necessary changes in processes, deployment of technology. The recommendations have been formulated in this direction to improve reach of the helpline across segments and to make the helpline more effective. The recommendations have been classified as follows:

- A. *Short Term Recommendations:* They can be acted upon without major policy changes and expenditure, and within a year.
- B. *Long Term Recommendations:* These can be implemented in the next one to three financial years, or with sizeable expenditure, or both but do not involve policy changes.
- C. *Recommendations requiring change in policy:* These are those which will need a lot of time, resources and procedure to implement.

A. Short term Recommendations:

The short-term recommendations which are focused on creation of awareness and improving processes are listed below:

1. **Creation of awareness across segments:** Lack of awareness uniformly across the state has resulted in skewed usage of the helpline geographically. So, there is a need to create awareness across the state especially in South Karnataka which has lower call share. Similarly, the since the usage the helpline among women is very low at ~8% of the call share, it is an imperative not only to create awareness among women. Further visibility of 104 is lesser unlike 108, which is visible on ambulances. Therefore, 104 HIHL brand must be strengthened.

Since the primary objective of the helpline is to reduce the minor ailment load on Public Health System. Accordingly, hospitals will be a good point to start creating awareness and divert minor ailment sufferers from OPD to 104 HIHL. Hence it is recommended to

- Have Graphic display boards at OPD registration/doctors' room, dressing and nursing chambers about 104 HIHL for minor ailments.
- Have Graphic display boards about Grievance lodging in case of corruption at various places such as diagnostic chambers, laboratory, operation theatre, Drug dispensary and other locations where corruption grievances are frequent.
- Engage 3A's (ASHA, Anganwadi worker, Auxiliary Nurse Midwifery(ANM)) to create awareness among women to utilise the 104 HIHL through graphic pamphlets for distribution among villages.
- To reach the poor and needy other schemes targeting BPL may be leveraged. For e.g. Printing about 104 on BPL Card cover.
- HIHL brand may be strengthened by incorporating a strong tagline (e.g. Health in your Hands) for which it stands
- While 104 HIHL gets visibility in various radio advertisements related to other epidemics (e.g. Dengue), mandatory tag line about 104 HIHL may be incorporated in all the advertisements where 104 is used as information line.
- Wide publicity through mass media and folk media may to be given to improve the awareness
- The awareness programmes on specific areas covering preventive, women and child health, personal hygiene, communicable and non- communicable diseases may be conducted to enhance effectiveness. The suggested categories are:
 1. **Gastro intestinal:** Acidity, heartburn, indigestion, diarrhoea
 2. **Respiratory:** Cold, Asthma, breathlessness, cough, cough with sputum and sometimes blood
 3. **Genito urinary:** Burning urination, burning menstruation, white discharge, PMS, frequent urination, prolapsed uterus, bleeding
 4. **Mental health:** Epilepsy (Fits), psychosis, aggressiveness/violent behaviour
 5. **Vision related:** Specifically, for persons more than 45 years old – vision correction, cataract
 6. **General:** Body ache, joint pains, fever with chills, any rashes on the body, mouth ulcers, white patches (leukoderma), leprosy

Preventive steps/ early warning signals for increasing non-communicable diseases to be included are:

4. **Diabetes:** Over eating of fried foods, fats, sugar, coffee/tea, alcohol, and sedentary lifestyle
 5. **Cancer:** 7 danger signs of oral cancer, cervical cancer amongst women with many children, breast cancer and self-examination tips, smoking related (at least get basic X-ray examinations done)
 6. **Coronary:** Blood pressure/Hypertension, Stroke, Heart Attack
2. **Improvements in Grievance communication & review:** Currently once the grievance is registered, it is communicated to concerned DHO through email and a follow-up is done after 7 days by SIO. It is recommended that the communication of grievance is also sent to the concerned institute (PHC/THC/DHC/UHC) directly in addition to DHO and a follow up may start on the 3rd day of communicating the grievance. A timeline matrix may be developed based on type of grievance in discussion with the Director, Health and Family Welfare. A monthly review meeting should be held to discuss those grievances which have not been resolved within stipulated time and necessary corrective and preventive actions may be taken in the meeting. In case of any changes in personnel managing these institutions, the Department of Health and Family Welfare Services must on a monthly basis, share the new contacts with the service provider.
3. **Optimisation of Medical officers engaged:** As per SLA the doctors to HAOs ratio has to be 1:6, however analysing the call load it is observed that ratio of total handling time of MOs to HAOs is ~1:9. Thus it would be productive to reduce ratio of MOs to HAOs to 1:8 accordingly number of medical officers may be reduced.
4. **Streamlining process to enable only female HAOs to address calls from female callers:** Only 8% of all the callers are female. During the primary research all the women callers have indicated their preference to women advisors. This would assist women callers to share their personal health problem without inhibitions. However, there is no option in the software to transfer calls from a women caller to women advisors. So necessary software system has to be developed/ procured to enable this facility. Similarly, male callers may be addressed by male advisors towards reducing the nuisance callers.

- 5. Amendment of Customer Delight Index (CDI):** As discussed in earlier section some of the parameters used in CDI are irrelevant and in some cases the weightage used needs to be amended. The recommended CDI structure is given in Table 25 below.

Table 25: Suggested Customer Delight Index Template

S.No	Question	Attributes: Points	Weightage
1	Was the service provided empathetic & polite throughout the call?	Yes: 100% No:0%	20%
2	Did you feel the agent understood and handled your health concern appropriately?	Yes: 100% No:0%	20%
3	Did the advice give you relief to your problem?	Yes: 100% No:0%	20%
4	Will you use the services of 104 again?	Yes: 100% No:0%	15%
5	Will you like to refer to 104 service to your relatives, friends and other?	Yes: 100% No:0%	15%
6	What was your overall experience when you last called 104?	Delighted:100% Satisfied:60% Not satisfied:10%	10%

Source: IMaCS analysis.

Further the CDI questionnaire should standardised/translated into Kannada to ensure the feedback is consistent across the callers. Though this is a short-term measure it is suggested to have automated calling mechanism for feedback considering that medical conditions are personal in nature which is discussed under long term recommendations.

- 6. Consolidate services between Hubballi/Bangalore centres:** Services across the two call centres may be consolidated based on the locational advantages. For e.g. Counselling may be gradually moved to Bangalore as availability of advisors with academic background in psychology is better, thus the quality of services may be improved. Similarly, Grievance Services may also be moved to Bangalore as the department HQ is situated in Bangalore and reviews of grievances may be scheduled by health department personnel more frequently along with SIOs.

As per the SLA, the capacity of telephonic lines must be 25% more than peak handling capacity. In this regard one more PRI line may be added at Hubballi call centre to increase the capacity from 90 lines to 120 lines.

B. Long Term Recommendations

1. **Automated feedback system on Customer satisfaction:** Considering the personal nature of health grievances automated feedback system may be deployed to take beneficiary feedback. In line with the feedback system deployed by IRCTC where in after the completion of each journey an automated call is received by the passenger about feedback on journey. Similarly, after each of the beneficiary call within 30 minutes an automated call can be made to the beneficiary and check if they are satisfied with the advice by pressing 1 for YES and 2 for NO on their phones. This will be less intimidating to the beneficiary and more responses may be expected since every caller will be requested feedback. The data thus received may be directly received from the system to Department of Health and Family Welfare Services. Based on the initial results continuous improvement goals may be set for improving customer service.
2. **Development of 104 mobile application:** With smart phones becoming more prevalent and data charges falling the acceptability and usage of mobile application is increasing. 104 HIHL mobile application may be developed where in list of home remedies, option to register grievances, monitor grievances, lifestyle management tips may be provided. All the government doctors should also have this app installed, and grievances will directly be routed from a complainant to relevant health care officer for resolution thus simplifying transactions. This may also reduce the load as for ailments such as acne and educational queries, the beneficiary may access through the application.
3. **Qualification for Counselling officers to be amended:** In the SLA, the qualification specified for counsellor is BSc. Since all BSc courses may not train students in counselling/psychology, the same may be removed from SLA.
4. **New Value-added services:** New services may be included which cover areas of food adulteration, natural calamities, and environment/sanitation.

C. Recommendations requiring change in Policy

- 1. Expansion of the capacity to 400 seats:** Currently 200 seats have been installed. Considering the low awareness across geography, gender and current growth rate, within 1 to 2 years the capacity deficit is expected to emerge once awareness is created. So, it is recommended to expand the capacity of HIHL within the existing units to 400 seats to make the health helpline more effective.
- 2. Government doctor's employment on rotation:** Considering the unavailability of MOs in the working age of less than 60 years the option of deployment of government medical officers on deputation on rotation basis needs to be done. Officers with special needs may also be looked at for these roles.
- 3. Complementary Human resources strategy to develop medical officers:** Alternative to Medical Officers (MOs) who have MBBS as qualification, complementary human resource strategy is the development MO Cadre for minor ailment. As specified under *National Health Policy 2017*. This can be done through appropriate courses like a B.Sc. in community health and/or through competency-based bridge courses and short courses. These bridge courses could admit graduates from different clinical and paramedical backgrounds like AYUSH doctors, B.Sc. Nurses, Pharmacists, GNMs, etc and equip them with skills to provide services at the sub -centre and other peripheral levels in addition to 104 call centre. These bridge courses may be developed and offered on PPP basis in medical colleges in Hubballi/Dharwad and Bangalore.

13. Annexures

ANNEXURE 1: TOR Questions and Remarks

Sl. No	Questions/Sub-questions	Remarks
1	What is the mechanism of conducting awareness of the 104 Arogya Sahayavani helpline in all the districts? How can this be made still better? Which are the districts where conducting awareness of this helpline needs special focus?	Awareness is primarily created through IEC programmes in addition to circulating pamphlets, advertisements. The districts which needs focus are Yadgir, Raichur, Chamarajanagar, Bellary, Koppal, Ramanagara, Chikkaballapura, Mandya, Bidar, Mysuru, Chitradurga, Kolar, Gadag
2	From the district cumulative call details, it emerges that the helpline service is more availed in Northern Karnataka district than districts of Southern Karnataka? What are the reasons for this?	The reasons for the same are creation of awareness through IEC programmes in North Karnataka and spreading of awareness through word of mouth.
3	What is the district wise ailment and grievance wise profile of calls received in the helpline centre? What is the district wise ailment profile? What lessons can be learnt, or suggestions given on the basis of analysis of this data?	Please Refer Chapter 10.2.District wise analysis of ailment/grievance for details
4	Has the service provider recruited all key personnel for the helpline service as per requirement of Service Level Agreement (Schedules-2, 3 and 4 of MoU).	Please refer chapter 10. Data collection and analysis; People section
5	What was the average time taken by the Registration Officer, Health Advisory Officer, Medical Officer and counselling Officer for a call during 2013, 2014 and 2015 (till March)? Is there any improvement in the time taken to register the calls, address them, reduction in call drops and turnaround time in case of service unavailability? Are these in adherence to the Service Level Agreements (SLA) as per MoU signed? If not, why not?	Please refer 10.3 Analysis of Average Handling Time and Other Performance Indicators
6	What is opinion of Medical Officers/Doctors at	The opinion of medical officers is

Sl. No	Questions/Sub-questions	Remarks
	Government Institutions on grievance redressals made by Arogya Sahayavani? What is their perception of augmentation/modification of the helpline service?	<ul style="list-style-type: none"> - Need to create more awareness, - The timelines have to be adhered to on grievance redressal - The grievance review mechanism needs to be strengthened
7	There is a time line for closure of calls received on grievances of ASHA, EPIMEDIC and GENERIC. Is the time line prescribed in the SLA is being adhered to? If not, what are the problems faced in closure of the calls?	SLA has no time line prescribed. For details Please refer 10.2 Analysis of Average Handling Time and Other Performance Indicators; Timelines for grievance redressal:
8	Were there any connectivity (internet) or communication problems to handle the calls at the helpline centre to take the increasing load of 20000+calls per day? If yes what are these? What is the action taken by the service provider to address these issues and what are the suggestions for modification/augmentation of the service? What are the actions to be initiated by the service provider, State/ Central Government?	Service provider has added Reception officers, optimised persons across shifts. For more details refer chapter 11. Reflection and conclusions and recommendations
9	What are the problems faced by the service provider such as (attrition of doctors and paramedics and lack of personnel with domain knowledge at Health Advisory are ones that are known from the discussion with service provider), Health Information/Service Improvement Levels? How can these be ameliorated/minimized/eliminated?	Attrition in case of HAOs, Non-availability of medical consultants in working age. Refer Recommendations
10	What are the additional services rendered by the helpline service during the 2nd and 3rd year of implementation? Were there demand-based services by the beneficiaries or added by the service provider themselves?	<p>The following are the additional services that were introduced on governments approval:</p> <ul style="list-style-type: none"> WhatsApp Grievance Monsoon Precautions RSBY 108 Ambulance Jyoti Sanjeevini

Sl. No	Questions/Sub-questions	Remarks
		IGMSY Vajapayee Arogya Shree Nagu Magu BBMP Sahaya Palliative Care Currency Grievances Rajeev Arogyav Shree Heat stroke Suvarna Arogya Chaitanya Dengue, Malaria Follow-Up Tobacco free Education Rajeev Arogya Bhagya H5N1 Avian Flu –H5N1 Bird Flu
11	The IT compliance audit was taken by a third-party software company recently what is the action taken on the observations made? Have all the actions small taken? If not, why not?	Refer chapter 10.3 Infrastructure for more details
12	User Satisfaction Index is said to have been done recently by considering 10 parameters which is 3.82 out of target score of 5. The revised target set is 4 for Financial Year 2015-16 and 2016-17. Are the 10 parameters for the index calculation are adequate or not? If not, can it be measured afresh by modifying the parameters with proportionate weightage to calls of Health Query, Medical Advice related, Counselling Service, Directory Services, Blood Bank Service, Eye Donation Service Health Services of ASHA, EPIMEDIC and GENERIC grievances?	Refer section on Customer Delight Index under chapter 10 findings and discussions and chapter 12. Recommendations. Regarding the aspect of measuring the index from the perspective of each service availed, this can be derived at the back end by analysing the feedback provided by the user based on the nature of service sought and not by way of a separate CDI for each service.
13	The main objective of Arogya Sahayavani is to reduce the minor ailment load on the Public Health System and render qualitative service and grievance redressal mechanism? To what extent has this objective been achieved?	Refer Chapter 11. Reflection and conclusions- Impact of 104 HIHL

Sl. No	Questions/Sub-questions	Remarks
14	What should be the minimum, optimum and maximum call load (in terms of number of calls handled by a person in 8 logged in hours) that should be handled by a person at the helpline facility? Based upon this, the Consultant Evaluation Organization must design and present the staffing pattern, the working process chart (from receiving the call to finally ending it after providing all the service that is expected for it) and organogram of a helpline centre that would handle 20000 calls per day (this is just about what is the present call load).	Refer Chapter 11. Reflection and conclusions- People for organisation chart and manpower requirement and Assumption under Annexure-IV. Existing work flow may be continued to be followed.
15	What should be the qualities, facilities and amenities (including availability of trained personnel of desired qualifications, experience and 24x7 mobility) a district should have to make it suitable for having a health helpline centre? On this basis which are the top five districts best suited to have health helpline centres in Karnataka?	Refer chapter 12. Reflection and conclusions - Infrastructure for more details
16	What are the other help lines that can be linked with the 104 Arogya Sahayavani?	Refer Recommendation - Long term recommendation - new value-added services
17	Government of India has suggested that registration officers in the service centre should be replaced by medical officer. The Evaluation Consultant Organisation to examine this issue and give suggestions?	Refer chapter 11. Findings and discussion

ANNEXURE II Select Case studies of Successful interventions by 104 HIHL

CATALYSING SUCCESFUL EYE DONATION

Beneficiary Name: Mr. Nijalingappa

Place: Bangalore South

Phone No: 9342784854

Date: 09-Oct-2017

Call handled by: a) Registration Officer (RO): Mrs. Geeta Kabbin

b) Health Advice Officer (HAO) : Mabubsab Nadaf

c) Service Improvement Officer(SIO) - Ms. Reshma Madiwalar

Supervisors: Mrs. Kavita

Shift Manager: Mr. Shamsheer

ABSTRACT

A beneficiary named **Mr. Nijalingappa** called **104 Arogyavani** from **Bangalore Urban** on **09-Oct-2017**, stating that his mother **Mrs. Jayalaxmi** is no more and he intends to donate his mother's eyes. So, he wanted details and procedure for donating his mother's eyes.

Service Improvement Officer (SIO) received the call and guided the beneficiary about the eye donation process and also, contacted a few Eye banks for collecting the Cornea.

Later, this concern was brought to the notice of Shift Manager. Shift Manager intervened and got in touch with **Dr. Jayaram (Trusty for Nayana Jyothi)** for further assistance.

Finally, the authorities from **Narayan Nethralaya Eye Bank** visited the beneficiary to collect the cornea.

DETAILS ABOUT THE SUCCESFUL EYE DONATION

A beneficiary named **Mr. Nijalingappa** called **104 Arogyavani** from **Bangalore Urban**, stating that his mother **Mrs. Jayalaxmi** is no more and he intends to donate his mother's eyes. So, he wanted details and procedure for donating his mother's eyes.

Mrs. Geeta Kabbin, the RO who handled this call, transferred the call to HAO when the beneficiary asked about Eye donation. The **HAO** who handled the call is **Mr. Mabubsab Nadaf**. He further transferred the call to SIO.

Later, SIO **Ms. Reshma Madiwalar** spoke to the beneficiary Mr. Nijalingappa and guided him about the eye donation process. Since, it was an Eye emergency, Reshma consulted **Mrs. Kavita** and she contacted **Nethradhama (Eye Bank)**. She informed the Eye Bank about the interest of the beneficiary for eye donation. It was informed that, they will not be able to reach the beneficiary in time, since; the beneficiary's residence was far off.

Ms. Reshma Madiwalar, then spoke to **Lions International Eye bank**, where they took beneficiary number but, said they needed death certificate for Eye donation.

Later, this concern was brought to the notice of Shift Manager. Shift Manager **Mr. Shamsheer** intervened and got in touch with **Dr. Jayaram (Trusty for Nayana Jyothi)** for further assistance.

Finally, the authorities from **Narayan Nethralaya Eye Bank** visited the beneficiary to collect the cornea, after the able intervention of Dr. Jayaram.

During the follow up with the beneficiary, post eye donation, he expressed, he is very much satisfied with the service rendered by 104 Arogyavani. He also informed that he will register his whole family for Eye Donation.

The eye donation was successful with the efforts rendered by the RO, HAO and SIO; able leadership and swift response of the supervisors; efficiency and skills of the SIO; guidance and support of the Shift manager.

HOSPITAL FACILITY

Beneficiary Name: Mr. Ravi

Place: Kolar

Phone No: 8147570177

Date: 16-Jun-2017

Call handled by: a) Service Improvement Officer (SIO) - Ms. Reshma Madiwalar

Supervisor: Mrs. Kavita

ABSTRACT

Beneficiary by name **Mr. Ravi** called **104 Arogyavani** from **Kolar** on **16-Jun-17** to get the phone number of Bangalore Government Hospital, Bangalore, as the beneficiaries' new born baby (neonate) suffered from **Asphyxia and Tachycardia**. The necessary information was provided by **Service Improvement Officer (SIO)**.

Again, we received call on **17-Jun-17** from the same beneficiary saying that now, he is in **Vani Villas Hospital, Bangalore** and there is no ventilator available in the hospital.

Understanding the need for swift response, immediately **Dr. Ramesh Babu, District Health Officer, Bangalore Urban** was approached and communicated about the incident. **Dr. Ramesh Babu** supported a lot by visiting **Vani Villas Hospital** personally and did the needful so as to provide necessary health facilities.

With the combined efforts of the Team – **104 Arogyavani** and **DHO, Bangalore Urban**, adequate and in time health facility was provided to the beneficiary, which catalysed saving the life of the neonate.

DETAILS ABOUT THE CRITICAL INSTANCE

Beneficiary by name **Mr. Ravi** called **104 Arogyavani** from **Kolar** on **16-Jun-17** to get the phone number of Bangalore Government Hospital, Bangalore, as the beneficiaries' new born baby (neonate) suffered from **Asphyxia and Tachycardia**. The beneficiary wanted to take the baby to Bangalore Government Hospital, Bangalore as referred by **Jalappa Medical College, Kolar**. Beneficiary informed the SIO that he couldn't afford to take the baby to the private hospital as his financial condition isn't strong enough to bear the expenses of private hospital.

Service improvement officer provided Government Hospital addresses. Later the beneficiary was given a follow up call to check if the information about the Government Hospitals given to him was useful. The beneficiary informed that he has contacted **Indira Gandhi Institute of Child Health Hospital, Bangalore** and the information given was useful.

Again, we received a call on **17-Jun-17** from the same beneficiary saying that now, he is in **Vani Villas Hospital, Bangalore** and there is no ventilator available in the hospital. The beneficiary was distressed and informed he was clueless as to what he should do now. Hence, the beneficiary once again called **104 Arogyavani** seeking help to save the baby and to provide necessary health facilities.

Understanding the need for swift response, immediately **Dr. Ramesh Babu, District Health Officer, Bangalore Urban** was approached and communicated about the incident. **Dr. Ramesh Babu** supported very much by visiting **Vani Villas Hospital** personally and did the needful so as to provide necessary health facilities. Later, he called **104 Arogyavani** and gave the update regarding the particular concern.

The beneficiary **Mr. Ravi** was called to check the health status of the baby and also about the facilities in the hospital. He said the baby is still in ICU. Beneficiary conveyed gratitude to **104 Arogyavani** and **District Health Officer (DHO)** for doing the needful immediately.

With the combined efforts of the Team – **104 Arogyavani** and **DHO, Bangalore Urban**, adequate and in time health facility was provided to the beneficiary, which catalysed saving the life of the neonate.

SUICIDAL TENDENCY

Beneficiary Name: Mr. Poornayya

Place: Mysore

Beneficiary Phone No: 9590715971

Beneficiary's Daughter Number: 7676293962

Date: 29-Sep-17

Call handled by: a) Service Improvement Officer (SIO) - Ms. Reshma Madiwalar

b) Counselling Officer (CO) – Mr. Basavaraj K Katti

Supervisors: Mrs. Kavita and Dr. Shivraj Humbi

ABSTRACT

On **29-Sep-17** we received a call from **Mr. Poornayya** from **Mysore** to **Service Improvement Officer (SIO)** seeking the information about eye donation. When SIO probed as to the eye donation is of a cadaver or he wants to enrol for the eye donation, the beneficiary expressed that he is going to commit suicide and therefore, he intends to donate eyes. Later, SIO gave information about eye donation and completed the call.

Further, SIO identified the suicidal tendency of the beneficiary and asked the **Counselling Officer (CO)** to call the beneficiary, to do the needful. CO called the beneficiary and spoke to him about his concern towards the tendency of suicide.

Later, CO found that the beneficiary is addicted to alcohol and misbehaves with his wife and daughter. Since, his family could not bear the torture; they abandoned the beneficiary and asked him to leave their house. The beneficiary moved to Mumbai and started to lead his life and realized the importance of family. He returned back to his family to ask for forgiveness, but, his family did not accept him. The beneficiary Poornayya got depressed and hence, wanted to commit suicide. The beneficiary called 104 Arogyavani to check the procedure to donate his eyes.

After a long conversation with the beneficiary, the beneficiary agreed to quit alcohol and also, agreed that he will not think of committing suicide and will work towards winning the confidence of his family.

DETAILS ABOUT THE CRITICAL INSTANCE

On **29-Sep-17** we received a call from **Mr. Poornayya** from **Mysore** to **SIO Ms. Reshma Madiwalar** seeking the information about eye donation. When SIO probed as to the eye donation is of a cadaver or he wants to enrol for the eye donation, the beneficiary expressed

that he is going to commit suicide and therefore, he intends to donate eyes. Later, SIO gave information about eye donation and completed the call.

Further, SIO **Ms. Reshma Madiwalar** identified the suicidal tendency of the beneficiary and asked the CO **Mr. Basavaraj** to call the beneficiary, to do the needful with the intervention of supervisors **Mrs. Kavita** and **Mr. Shivraj Humbi**. **Mr. Basavaraj** called the beneficiary and spoke to him about his concern towards the tendency of suicide. Later, CO found that the beneficiary is addicted to alcohol and misbehaves with his wife and daughter. Since, his family could not bear the torture; they abandoned the beneficiary and asked him to leave their house. The beneficiary moved to Mumbai and started to lead his life and realized the importance of family. He returned back to his family to ask for forgiveness, but, his family did not accept him. The beneficiary Poornayya got depressed and hence, wanted to commit suicide. The beneficiary called 104 Arogyavani to check the procedure to donate his eyes.

The CO, Mr. Basavaraj counselled the beneficiary and convinced that committing suicide is not the solution to the problem. He also, gave him information on de-addiction of alcohol.

The CO took a step further and counselled the beneficiary's wife and daughter and tried to convince them to accept the beneficiary and also, told them that the beneficiary is guilty about his behaviour and should be given a chance to change.

After a long conversation with the beneficiary's family, finally they agreed to give him a chance to stay with them and asked to give some time to discuss amongst themselves.

Later, CO called back the beneficiary Mr. Poornayya and explained regarding the conversation with his family and told about time taken by them and convinced him that he should not even think of committing suicide. Finally, Mr. Poornayya appreciated the service and assured that he is not going to commit suicide. And, will wait for his family to accept him.

CRITICAL INCIDENCE OF HIGH RISK PREGNANCY

Beneficiary Name: Ms. Rakshita

Place:

Beneficiary Phone No: 9964917845

Date: 28-Oct-2017

Call handled by Health Advice Officer (HAO):

Supervisor:

ABSTRACT

We received a call from the beneficiary **Ms. Rakshita** on **28-Oct-2017**. The beneficiary was suffering with high fever from few days.

After a thorough probing, the **Health Advice Officer (HAO)** suspected malaria & gave complete advice on Malaria and how to protect from malaria in future.

While probing the HAO found that the beneficiary is 5 months pregnant. HAO proactively asked few questions and found her HB level was very low also found she had "**high risk pregnancy**", HAO handled the call more carefully and gave complete information about pregnancy care.

The beneficiary was called back from 104 Arogyavani and enquired about her health status. Beneficiary still had fever. Beneficiary told she was not following proper diet due to nausea, but after taking advice from 104 Arogyavani she has started taking care of her diet & health. She is going for blood investigation tomorrow

Beneficiary Thanked 104 Arogyavani for educating her about pregnancy condition and told she will go for regular check-up and always be in touch with her ANM & Asha worker as guided by us.

SUCCESSFUL LEPROSY CARE

Beneficiary: Mr. Noorudin (Neighbour)

Place: Belagavi

Phone No: 9611274901

Date: 20-Nov-2017

Call handled by: **Service Improvement Officer (SIO):** Ms. Reshma Hiremani

Supervisor: Mrs.Kavita

ABSTRACT:

The beneficiary **Mr. Noorudin** called **104 Arogyavani** on **20-Nov-2017** seeking help for his neighbour (Mother and Child) who was suffering from leprosy. Mother's age being 35 and the child's age being 4 years. The mother's condition was very serious and there was no one to take care of her child, who was infected from leprosy. No relatives and family members are ready to help the mother and child.

Service Improvement Officer (SIO) called the beneficiary to check the status of the woman suffering with leprosy. The lady requested SIO, to take care of her child, as no one was ready to help her as her husband abandoned her. The SIO immediately called **District leprosy officer (DLO), Dr. Chandini**, seeking her help in this regard. **Dr. Chandini** spoke to her family members and convinced them to take care of the child. The KLE hospital Medical

officer also got in touch and informed beneficiary to take the child to **Leprosy Center Anand Nagar, Hubli.**

After a few days, SIO called **Mr. Noorudin** to know whether the child was taken to Leprosy Center Anand Nagar, Hubli. He informed that mother expired. Noorudin and society members have counselled the family & relatives to take care of the child. As informed by the Noorudin, the child is getting free treatment from District hospital, Belgaum.

With the able intervention of 104 Arogyavani & the **DLO Dr. Chandini & DHO, Belgaum,** the child is getting proper care & treatment successfully.

DETAILS ABOUT THE SUCCESSFUL LEPROSY CARE

The beneficiary **Mr. Noorudin** called **104 Arogyavani** on **20-Nov-2017** seeking help for his neighbour (Mother and Child) who was suffering from leprosy. Mother's age being 35 and the child's age being 4 years. The mother's condition was very serious and there was no one to take care of her child, who was infected from leprosy. No relatives and family members are ready to help the mother and child.

Service Improvement Officer **Ms. Reshma Hiremani** called the beneficiary to check the status of the woman suffering with leprosy. The lady requested Reshma, to take care of her child, as no one was ready to help her as her husband abandoned her. SIO immediately called **District leprosy officer (DLO), Dr. Chandini,** seeking her help in this regard. **Dr. Chandini** spoke to her family members and convinced them to take care of the child. The KLE hospital Medical officer also got in touch and informed beneficiary to take the child to Leprosy Center Anand Nagar, Hubli.

After a few days, SIO, **Reshma Hiremani** called **Mr. Noorudin** to know whether the child was taken to Leprosy Center Anand Nagar, Hubli. He informed that mother expired. Noorudin and society members have counselled the family & relatives to take care of the child. As informed by the Noorudin, the child is getting free treatment from District hospital, Belgaum.

With the able intervention of 104 Arogyavani & the **DLO Dr. Chandini & DHO, Belgaum,** the child is getting proper care & treatment successfully.

INFORMATION ABOUT GOVT. HOSPITAL & RBSK SCHEME

Beneficiary: Mr. Riyaz

Place: Uttar Kannada, Bhatkal

Phone No: 9916447430/9620151699

Date: 1-Dec-2017

Mr. Prakash: 9844873055 (Health Insurance Advisor)

Call handled by: Service Improvement Officer (SIO): Ms. Reshma Hiremani

Supervisor: Mrs. Kavita

ABSTRACT:

Beneficiary named **Riyaz** called 104 Arogyavani on **01-Dec-2017** asking for contact details of **Wenn Lock Hospital, Mangalore** as his 6 years old daughter, **Shahistha**, was suffering from some infection. The beneficiary wanted contact details of the hospital where he can avail the RBSK benefits. Service Improvement Officer gave the information about **Wenn Lock Hospital, Mangalore** and also gave the phone number of RBSK coordinator to get more information on the scheme.

Service Improvement Officer got in touch with the beneficiary Riyaz to the know whether, the information given was useful to him. Beneficiary informed that **Wenlock hospital coordinator** referred to the patient to **Udupi Adrash, Hospital**.

Further, follow up call was given to check the status of the child's health condition. After doing all the investigations it was found that the child is having **Colelithiasis (Gall bladder stone)**. The beneficiary has contacted the Health Insurance Advisor, Mr. Prakash of Udupi Adrash Hospital. Mr. Prakash informed the beneficiary this disease will not be covered under RBSK scheme.

After understanding the situation Service Improvement Officer spoke to **Mr. Anand SAST Grievance** authority to help the beneficiary for claiming the benefits. Later, the Mr. Anand spoke to the beneficiary and informed the beneficiary to pay the bill of Rs. 10793 because the disease is not covered under the RBSK scheme. Also, Mr. Anand assured that, he would do the needful, if the child needs to be operated, the beneficiary can avail the benefits of RBSK scheme.

DETAILS ABOUT THE INFORMATION GIVEN

Beneficiary named **Riyaz** called 104 Arogyavani on **01-Dec-2017** asking for contact details of **Wenn Lock Hospital, Mangalore** as his 6 years old daughter, **Shahistha**, was suffering from some infections informed by the doctor **New Medical Hospital, Kundapur**. The doctor has referred the child to **Wenn Lock Hospital, Mangalore** for further treatment since, Riyaz couldn't afford the treatment in private hospital. The beneficiary wanted contact details of the hospital where he can avail the RBSK benefits. Service Improvement Officer **Ms. Reshma Hiremani** gave the information about **Wenn Lock Hospital, Mangalore** and also gave the phone number of RBSK coordinator to get more information on the scheme.

Service Improvement Officer, Reshma Hiremani got in touch with the beneficiary Riyaz to the know whether the information given was useful to him. Beneficiary informed that **Wenlock hospital coordinator** referred to the patient to **Udupi Adrash, Hospital**.

Follow up call was given to the beneficiary to check the status of the child's health condition. The SIO learnt that, after doing all the investigations it was found that the child is having **Colelithiasis (Gall bladder stone)**. The beneficiary has contacted the Health Insurance Advisor, Mr. Prakash of Udupi Adrash Hospital. Mr. Prakash informed the beneficiary this disease will not be covered under RBSK scheme.

After understanding the situation Service Improvement Officer Ms. Reshma Hiremani spoke to **Mr. Anand SAST Grievance** authority to help the beneficiary for claiming the benefits. Later, the Mr. Anand spoke to the beneficiary and informed the beneficiary to pay the bill of Rs. 10793 because the disease is not covered under the RBSK scheme. Also, Mr. Anand assured that, he would do the needful, if the child needs to be operated, the beneficiary can avail the benefits of RBSK scheme.

CATALYSING ARRANGEMENT OF 108 AMBULANCE SERVICE

Beneficiary: Deviramma

Place: Shivamogga

Phone No: 8277826561

Date: 6-Dec-2017

Call handled by: Service Improvement Officer (SIO): Sirina Nadaf

Supervisor: Mrs. Kavita

ABSTRACT:

Beneficiary **Deviramma** called **104 Arogyavani** on **06-Dec-2017** seeking help in getting **108 Ambulance service**. The beneficiary informed that her daughter is suffering from Neurological problem. She was admitted in **Meghana Government Hospital, Shivamogga**. Later, she was shifted to **Shayadri Private Hospital, Shivamogga** due to no proper facility available in the Government hospital.

Later, the patient was referred to **Nimhans Hospital, Bangalore**. So, she wanted 108 ambulance services from **Shayadri Private Hospital, Shivamogga to Nimhans Hospital, Bangalore**. When she called the 108 ambulance service, the driver said this service can be given only within 50Km.

Service Improvement Officer immediately reached to **DHO, Dr. Hanumanthappa, Shimogga** seeking help for the beneficiary in getting 108 Ambulance facilities.

Later, Service improvement Officer called for the confirmation whether the 108 ambulance has reached to the beneficiary.

With the able intervention of **DHO, Dr. Hanumanthappa**, the beneficiary has got the 108 ambulance service within half an hour. Beneficiary appreciated 104 Arogyavani for swift response and efforts rendered in catalysing the arrangement of 108 Ambulance in time.

DETAILS ABOUT THE COMPLAINT

Beneficiary **Deviramma** called **104 Arogyavani** on **06-Dec-2017** seeking help in getting **108 Ambulance service**. The beneficiary informed that her daughter is suffering from Neurological problem. She was admitted in **Meghana Government Hospital, Shivamogga**. Later, she was shifted to **Shayadri Private Hospital, Shivamogga** due to no proper facility available in the Government hospital.

At **Shayadri Private Hospital, Shivamogga**, the Medical Officer referred the patient to **Narayan Hospital, Bangalore** to get further treatment. Beneficiary did not agree to go to Narayan Hospital Bangalore because she cannot afford the treatment for her daughter. So, she wanted 108 ambulance services from **Shayadri Private Hospital, Shivamogga to Nimhans Hospital, Bangalore**. When she called the 108 ambulance service, the driver said this service can be given only within 50Km.

So, the beneficiary called 104 Arogyavani seeking help in getting 108 ambulances facility as it was an emergency to take the patient to **Nimhans Hospital, Bangalore**.

Service Improvement Officer, **Ms. Sirina Nadaf** immediately reached to **DHO, Dr. Hanumanthappa, Shimogga** seeking help for the beneficiary in getting 108 Ambulance facilities.

Later, Service improvement Officer called for the confirmation whether the 108 ambulance has reached to the beneficiary.

With the able intervention of DHO, Dr. Hanumanthappa, the beneficiary has got the 108 ambulance service within half an hour.

Beneficiary appreciated 104 Arogyavani for swift response and efforts rendered in catalysing the arrangement of 108 Ambulance in time.

ANNEXURE III: Templates of Data Collection Instruments

A. SURVEY TOOLS FOR THE BENEFICIARIES

Survey Tool for the Beneficiaries of 104 Arogya Sahayavani

Services: One time caller

V1.1

Purpose

The purpose of this very brief survey is to help us serve your needs more effectively. By understanding where we are exceeding your expectations, or need to improve, we can allocate our resources to provide better services.

RESPONDENT DETAILS

Name of the respondent:

Age:

Address:

Contact Number:

Gender: Male Female

Education: Did not attend school

10th Class

Others

Primary Education

10+2and Above

Occupation: Agriculture

Own Business

Others: _____

Daily Wage Worker

Employed with public/private concerns

UTILITY OF AROGYA SAHAYAVANI

1. Have you or your family member ever used 104 Arogya Sahayavani?
 - a. Yes
 - b. No

(Survey Note: If the answer is 'No' to the above mentioned questions please end the survey)

2. How did you come to know about 104 Arogya Sahayavani?
 - a. Family/Friends
 - b. Advertisement
 - c. Awareness Camps
 - d. ASHA workers
 - e. Others:(Specify)_____
3. How do you access 104 Arogya Sahayavani?
 - a. Own/family phone
 - b. Neighbours/friends phone
 - c. Public phone
 - d. Asha workers
 - e. Others:(Specify)_____
4. How much of time it took to get to speak to the health adviser after dialling 104?
 - a. 2 to 3 minutes
 - b. 3 to 10 minutes
 - c. 10 to 15 minutes
 - d. More than 15 minutes
5. Was the service advisor empathetic and polite throughout the call?
 - a. Yes
 - b. No
6. Did you feel the advisor understood and handled your health concern appropriately?
 - a. Yes

b. No

7. What is your opinion about the health tips being played during the hold period

a. They were useful

b. Not useful

8. Was the advice given helpful in providing relief to the problem?

a. Yes

b. No

9. What was your overall experience when you last called 104?

a. Delighted

b. Satisfied

c. Unsatisfied

Survey Note: Ask Q 9.B only if the answer to Q.9 is either Satisfied or unsatisfied

9. B. What is reason for not being delighted and what is your recommendation to improve 104 services? _____

10. What is the amount of money you would have spent if you have availed services of a private doctor for the same problem for which you had called 104 (including travel/doctor fee)?

a. Less than Rs. 100

b. Rs. 100 to 300

c. Rs. 301 to 600

d. Rs. 601 to 999

e. More than Rs. 1000

11. How long it would take to reach nearest Government health facility or qualified private doctor from your home and return back to home (To and Fro)?

a. Less than one hour

b. 1- 2 hours

c. 2-3 hours

d. Half a day

- e. More than 8 hours

12. How do you compare doctors/advisors on 104 helpline with the nearest government/private doctors on utility of advice?

- a. Government/private doctors are better
- b. Both are same
- c. Advisors on 104 are better

13. In case of minor ailment which of the following will be your first preference?

- a. Government Hospital
- b. 104 Helpline
- c. Private Doctor/Hospital

14. In case, 104 arogya sahayavani facility is not available which of the following facilities you would have visited

- a. Government Hospital
- b. Private Doctor
- c. Others: (Specify)_____ -

15. Would you use 104 Arogya Sahayavani services again?

- a. Yes
- b. No

16. Would you recommend 104 Arogya Sahayavani services to your relatives and friends?

- a. Yes
- b. No

17. What are your recommendations to improve 104 services?_____

Closing Note: Thank you for your help in this initiative to improve the services of 104 Arogya Sahayavani

<p>Survey Tool for the Beneficiaries of 104 Arogya Sahayavani</p> <p>Services: Repeat caller</p> <p>V2.1</p>

Purpose

The purpose of this very brief survey is to help us serve your needs more effectively. By understanding where we are exceeding your expectations, or need to improve, we can allocate our resources to provide better services.

RESPONDENT DETAILS**Name of the respondent:****Age:****Address:****Contact Number:****Gender:** Male Female

Education: Did not attend school Primary Education
 10th Class 10+2 and Above
 Others

Occupation: Agriculture Daily Wage Worker
 Own Business Employed with public/private concerns
 Others: _____

UTILITY OF AROGYA SAHAYAVANI

1. Have you or your family member ever used 104 Arogya Sahayavani?

- a. Yes
- b. No

(Survey Note: If the answer is 'No' to the above mentioned questions please end the survey)

2. How did you come to know about 104 Arogya Sahayavani?

- a. Family/Friends
- b. Advertisement
- c. Awareness Camps
- d. ASHA workers
- e. Others (Specify)_____

3. How do you access 104 Arogya Sahayavani?

- a. Own/family phone
- b. Neighbours/friends phone
- c. Public phone
- d. Asha workers
- e. Others (Specify)_____

4. How many times have you called 104 Arogya Sahayavani during last six months

- a. Less than 3 times
- b. 3 to 5 times
- c. 5 to 10 times
- d. More than 10 times

5. How much of time it took to get to speak to the health adviser after dialling 104?

- a. 2 to 3 minutes
- b. 3 to 10 minutes
- c. 10 to 15 minutes
- d. More than 15 minutes

6. Was the service advisor empathetic and polite throughout the call?

- a. Yes
- b. No

7. Did you feel the advisor understood and handled your health concern appropriately?

- a. Yes
- b. No

8. What is your opinion about the health tips being played during the hold period

- a. They were useful
- b. Not useful

9. Was the advice given helpful in providing relief to the problem?

- a. Yes
- b. No

10. What was your overall experience when you last called 104?

- a. Delighted
- b. Satisfied
- c. Unsatisfied

Survey Note: Ask Q 10.B only if the answer to Q.10 is either Satisfied or unsatisfied

10. B. What is reason for not being delighted and what is your recommendation to improve 104 services? _____

11. What is the amount of money you would have spent if you have availed services of a private doctor for the same problem for which you had called 104 (including travel/doctor fee)?
 - a. Less than Rs. 100
 - b. Rs. 100 to 300
 - c. Rs. 301 to 600
 - d. Rs. 601 to 999
 - e. More than Rs. 1000

12. How long it would take to reach nearest Government health facility or qualified private doctor from your home and return back to home (To and Fro)?
 - a. Less than one hour
 - b. 1- 2 hours
 - c. 2-3 hours
 - d. Half a day
 - e. More than 8 hours

13. How do you compare doctors/advisors on 104 helpline with the nearest government/private doctors on quality of advice?
 - a. Government/private doctors are better
 - b. Both are same
 - c. Advisors on 104 are better

14. In case of minor ailment which of the following will be your first preference?
 - a. Government Hospital
 - b. 104 Helpline
 - c. Private Doctor/Hospital

15. In case, 104 arogya sahayavani is not available which of the following facilities you would have visited?

- a. Government Hospital
- b. Private Doctor
- c. Others (Specify)_____

16. Would you use 104 Arogya Sahayavani services again?

- a. Yes
- b. No

17. Would you recommend 104 Arogya Sahayavani services to your relatives and friends?

- a. Yes
- b. No

18. What are your suggestions to improve 104 services?

Closing Note:

Thank you for your help in this initiative to improve the services of 104 Arogya Sahayavani

**Survey Tool for the Beneficiaries of 104 Arogya Sahayavani
Services: Grievance Redressal for ASHA Workers
V3.1**

Purpose

The purpose of this very brief survey is to help us serve your needs more effectively. By understanding where we are exceeding your expectations, or need to improve, we can allocate our resources to provide better services.

RESPONDENT DETAILS

Name of the respondent:

Age:

Address:

Contact Number:

Education: Did not attend school	<input type="checkbox"/>	Primary Education	<input type="checkbox"/>
10 th Class	<input type="checkbox"/>	10+2 and Above	<input type="checkbox"/>
Others _____	<input type="checkbox"/>		

UTILITY OF AROGYA SAHAYAVANI

1. Have you ever used 104 Arogya Sahayavani?

- a. Yes
- b. No

(Survey Note: If the answer is 'No' to the above mentioned questions please end the survey)

2. How did you come to know about 104 Arogya Sahayavani?

- a. Family/Friends
- b. Advertisement
- c. Awareness Camps
- d. Others<Specify>_____

3. How many times have you called 104 Arogya Sahayavani during last six months

- a. Less than 3 times
- b. 3 to 5 times
- c. 5 to 10 times
- d. More than 10 times

4. How much of time it took to get to speak to the adviser after dialling 104?

- a. 2 to 3 minutes
- b. 3 to 10 minutes
- c. 10 to 15 minutes
- d. More than 15 minutes

5. Was the service advisor empathetic and polite throughout the call?

- a. Yes
- b. No

6. Did you feel the advisor understood and handled your concern appropriately?

- a. Yes
- b. No

7. Did the advisor called you back once the grievance was addressed?

Concurrent Evaluation of the 104 Arogya Sahayavani Health Information Helpline in Karnataka and perspective evaluation of its augmentation and modification

- a. Yes
- b. No

8. How much time did it take to address your grievance?

- a. < 11 days
- b. 11-21 days
- c. 21-31 days
- d. >200 days

9. What was your overall experience when you last called 104?

- a. Delighted
- b. Satisfied
- c. Unsatisfied

Survey Note: Ask Q 9.B only if the answer to Q.9 is either Satisfied or unsatisfied

9. B. What is reason for not being delighted and what is your recommendation to improve 104 services? _____

10. In case 104 Arogya Sahayavani facilities is not available which of the following you would have approached for grievance redressal?

- a. Local authorities
- b. Regional authorities – District medical officer etc
- c. None
- d. Others<Specify>_____

11. Would you use 104 Arogya Sahayavani services again?

- a. Yes
- b. No

12. Would you recommend 104 Arogya Sahayavani services to your relatives and friends?

- a. Yes
- b. No

13. What are your recommendations to improve 104 services?

Closing Note:

Thank you for your help in this initiative to improve the services of 104 Arogya Sahayavani

Survey Tool for the Beneficiaries of 104 Arogya Sahayavani

Services: Generic Grievances

V4.1

Purpose

The purpose of this very brief survey is to help us serve your needs more effectively. By understanding where we are exceeding your expectations, or need to improve, we can allocate our resources to provide better services.

RESPONDENT DETAILS

Name of the respondent:

Age:

Address:

Contact Number:

Gender: Male Female

Education: Did not attend school

10th Class

Others _____

Primary Education

10+2 and Above

UTILITY OF AROGYA SAHAYAVANI

1. Have you ever used 104 Arogya Sahayavani?

- a. Yes
- b. No

(Survey Note: If the answer is 'No' to the above mentioned questions please end the survey)

2. How did you come to know about 104 Arogya Sahayavani?

- a. Family/Friends
- b. Advertisement
- c. Awareness Camps
- d. Others<Specify>_____

3. How many times have you called 104 Arogya Sahayavani during last six months

- a. Less than 3 times
- b. 3 to 5 times
- c. 5 to 10 times
- d. More than 10 times

4. How much of time it took to get to speak to the adviser after dialling 104?

- a. 2 to 3 minutes
- b. 3 to 10 minutes
- c. 10 to 15 minutes
- d. More than 15 minutes

5. Was the service advisor empathetic and polite throughout the call?

- a. Yes
- b. No

6. Did you feel the advisor understood and handled your concern appropriately?

- a. Yes
- b. No

7. Did the advisor called you back once the grievance was addressed?
- a. Yes
 - b. No
8. How much time did it take to address your grievance?
- a. < 11 days
 - b. 11-21 days
 - c. 21-31 days
 - d. >200 days
9. What was your overall experience when you last called 104?
- a. Delighted
 - b. Satisfied
 - c. Unsatisfied

Survey Note: Ask Q 12.B only if the answer to Q.12 is either Satisfied or unsatisfied

9. B. What is reason for not being delighted and what is your recommendation to improve 104 services? _____

10. In case 104 Arogya Sahayavani facility is not available which of the following you would have approached for grievance redressal?

- a. Local authorities
- b. Regional authorities – District medical officer etc
- c. None
- d. Others<Specify>_____

11. Would you use 104 Arogya Sahayavani services again?

- a. Yes
- b. No

12. Would you recommend 104 Arogya Sahayavani services to your relatives and friends?

- a. Yes
- b. No

13. What are your recommendations to improve 104 services?

Closing Note:

Thank you for your help in this initiative to improve the services of 104 Arogya Sahayavani

ANNEXURE IV: ASSUMPTIONS FOR CALCULATING MANPOWER FOR HEALTH HELPLINE

Assumptions on AHT and call ratio

S.No	Role	Average Handling Time	Call ratio
1	Receiving Officer	00:00:58	100%
2	Health Advisory Officer	00:02:58	34%
3	Medical Officer	00:02:29	4%
4	Counselling Officer	00:06:53	1%
5	Service Improvement Officer	00:05:10	0.4%

Peak time efficiency: 85%

Buffer Capacity for leaves and holidays: 26.29%

Required Service Levels:99%

Time to Answer: 3 Seconds

Shift Timings: 6AM-2PM, 2PM-9PM, 9PM-6AM

**CONCURRENT EVALUATION OF THE 104- AROGYA SAHAYAVANI
HEALTH INFORMATION HELPLINE IN KARNATAKA AND PERSPECTIVE
EVALUATION OF ITS AUGMENTATION AND MODIFICATION,
DECEMBER - 2018**

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