Formative research for assessing Comprehensive Primary Health Care in Mysuru City.

Supported by

Health Systems Transformation Platform

Organisations

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List of Contents

List of Tables

List of Figures

Abbreviations

ADD	: Acute Diarrheal Diseases
AFB	: Acid Fast Bacilli
ANC	: Ante Natal Care
ANM	: Auxiliary Nurse Midwife
ARI	: Acute Respiratory Infections
ASHA	: Accredited Social Health Activist
BP	: Blood Pressure
CEB	: Census Enumeration Block
CHC	: Community Health Centre
COPD	: Chronic Obstructive Pulmonary Disease
CPHC	: Comprehensive Primary Health Care
CGHS	: Central Government Health Scheme
C-section	: Caesarean section
DKA	: Diabetic Keto Acidosis
ESI	: Employee State Insurance scheme
eVIN	: Electronic Vaccine Intelligence Network
HCPs	: Health Care Providers that included those in the facility (doctors, nurses, lab technicians and pharmacist and those in the field that included (ANMs and ASHAs)
KSMSC	: Karnataka State Medical Supplies Company
MCH	: Maternal and Child Health
NCD	: Non-Communicable Disease
NVBDCP	: National Vector Borne Disease Control Program.
OOPE	: Out-of-Pocket Expenditure
PHC	: Primary Health Centre
PNC	: Post Natal Care
TB	: Tuberculosis
UID	: Unique Identification Data
UPHC	: Urban Primary Health Centre

Summary

The overall aim of the Formative Research was to assess the status of urban Comprehensive Primary Health Care (CPHC) in Mysuru city. This part of the pre-final report covering the quantitative survey by St John's Research Institute, Bangalore, addresses the following specific objectives:

1. To identify and explore the role of key stakeholders in the provision of urban primary health care.
2. To describe the status of urban comprehensive primary healthcare (UPHC) in Mysuru city at three different levels – health systems, facility, and community
   a) at health system level for capacity for designing, developing, implementing, and monitoring urban primary health care in Mysuru city.
   b) public and private health facility readiness for delivering preventive and nondomiciliary curative primary health care in urban Mysuru.
   c) profile the community morbidity status, healthcare seeking, and costs incurred for selected acute and chronic conditions in urban wards of Mysuru city.
3. To identify and explain barriers and facilitators to comprehensive Primary Health Care

Methodology of the Community Assessment:

The community assessment was carried out in 25 wards of Mysuru city. Study design was population-based survey representative of Mysore city. Sampling design was as follows: The total number of wards surveyed in urban Mysuru was 25 out of 65 wards. The wards were divided into two strata, the first strata (STRATA1) consisted of wards with 5 to 20 CEBs each and the second strata (STRATA2) contained wards with more than 20 CEBs each. Out of 32 wards in STRATA1, 12 wards were randomly selected. Similarly, 13 wards were randomly selected from STRATA2 (total 33 wards). From the selected wards, 192 and 208 census enumeration blocks were randomly selected (16 CEBs in each ward). At the final stage, 15 households per CEB were selected by systematic sampling. The total sample size was 6000 households to conduct the community survey.

Methodology of the Health Facility Assessment:

All the public primary health facilities (20 UPHCs) and 20 private health facilities along with all the three public health and three private health facilities (<30 bedded) offering childbirth services and functioning 24/7 from Mysuru city. Sampling method was as follows: Health Care providers (HCP) - one doctor, nurse, lab technician, pharmacist, ANM and ASHA available at each facility selected purposively based on availability and seniority. Patients – four from each facility selected purposively. Data collection was from May to Sept 2022. Survey with HCPs to assess their roles, challenges, and suggestions for improving CPHC, record review to assess reach of services, observation checklist for amenities, equipment, supplies at the health facilities.

Results of the Community Assessment:

A total of 6007 households comprising of 21576 individuals were surveyed from 25 randomly selected wards of Mysuru city. Out of total population surveyed, 89.2% belonged to less than 60 years of age and 55.5% of them were above 30 years of age. Equal proportion of males (48.8%) and females (51.2%) were there in the surveyed population. One third of the population had education up to middle school level, and 1.1% of them were either widowed/ separated / divorced. Around 40% of them were employed. Among 6474 women in the reproductive age group, 100 (1.6%) mothers were currently pregnant and pregnancy in the

last 3 years was 563 (8.6%). Among 11978 individuals aged above 30 years, 17.3% of were either diabetes or hypertension. Approximately 82% of them had pucca house, 99% had improved toilet facility and 93% had improved water source which was comparable to NFHS-5 data.

Health Insurance: Two third of the households (67.8%) didn't have any insurance coverage. Only 17% of the households were covered under Ayushman Bharat / Aarogya Karnataka. ESI / CGHS and private insurance coverage was 7.8% and 7.4% respectively.
Only 26 households utilized their health insurance in the past one year.

Lifestyle of adults: Tobacco consumption in both smoking and chewing form was observed in 3% of the population respectively among individuals aged above 18 years.
Alcohol consumption was reported in 4.4% of the individual's majority being males. Only 5% of the individual noted to be part of some voluntary organization.

2 weeks morbidity status: Illness in the last 2 weeks was observed in 7% (n=1490) of the population studied, of which almost half of them sought treatment at health facilities indicating moderate utilization of health facilities for acute illnesses. Among those who sought treatment, only 32.5% received treatment from public health facility. Selfmedication and use of Over the Counter (OTC) drugs were the reasons reported among those who did not seek treatment at health facility.

Less facilities and long distance were the reasons reported for changing place of treatment among 9% of the people who sought treatment at multiple health facilities. No significant difference between public and private facilities in terms of change of place of treatment was observed. Distance to health facility, time taken to reach the health facility and time taken to consult the doctor were comparable between individuals seeking care at public and private health facilities, indicating the preference for choosing health facility was not governed by the above said factors. Income and savings were the most used mode for managing their routine medical expenses and were comparable between individuals choosing public and private health facilities. The preference for health facilities was comparable by gender, however, significant difference was seen by age categories. Significantly higher proportion of children between 6-18 years were consulted in private health facilities, which could be because of availability of paediatric specialist in the private set up.

Among the people who utilized PHCs, District Hospital and ESI hospital, higher proportion (~60%) belonged to middle aged and elderly. Families preferred private practitioners, clinics, and hospitals (~30%) for the ailments in their children and adolescents. Preference of health care facilities for their ailments in the past 2 weeks showed that higher proportion of people with morbidity of musculoskeletal pain, respiratory problems and for general weakness, preferred public health facilities for health care. For Non-Communicable Diseases, private hospitals were most preferred health facility.

Approximately 60% of people residing in the non-slum area preferred private clinics and hospitals for their ailments. Urban PHCs were the next place of preference for non-slum

population. Utilization of district hospital was noted be higher among population belonging to slum area. Even in slum population, 50% of them preferred private health facilities.

Maternal health: Antenatal care (ANC) was elicited only among the current pregnancies (n = 100) during the study period. All these pregnancies were registered and 46% of them had reported utilizing public health facilities for ANC care. The data on childbirth was recorded from the mothers who delivered in the past 3 years. More than half of the mothers utilized public health facilities for their deliveries, and a 53% of them had normal vaginal Childbirth. Significantly higher proportion of females had C-section in private health facilities (67%) compared to only 25% in public health facilities ($p<0.01$). Similarly for Postnatal care also, 55% of them preferred public health facilities.
The reasons for choosing the public health services for maternal health care were reported to be near distance and free of cost. Good doctor, timely service, and all facilities available at one place were the primary reasons for preferring private health facilities. Like the pattern observed for acute illnesses, the distance, time, and cost spent were not determining factors for choosing MCH facilities.

Child Health (≤ 60 months): About a quarter of the children (25%) were reported to be sick in the last 1 month. Acute Diarrhoeal Disease (ADD) (67.6%) was the most reported illness followed by Acute Respiratory Infection (ARI) (35.5%). For both the ailments, approximately equal proportion of households availed care from public and private health facilities. The preferred reasons for choosing public health facility were less / free of cost followed by trust in doctor and nearby distance which was similar for both ARI and ADD. Trust in doctor, timely service, and all facilities at one place were the reasons reported in favour of private health facility. Hospitalization rate for ARI and ADD were 13.2% and 4.0% respectively. Majority of them were hospitalized in private health facilities (ARI – 80% and ADD – 70%). Due to free cost of immunization, majority of children (< 2 years) have been reported to avail child immunization services in the public health facilities.
These findings indicate that although the preference of health facilities for outpatient care was equal in both public and private, but for hospitalization, majority of them preferred private health facilities. This could be due to the availability of comprehensive paediatric care in a private setting.

Non-Communicable Diseases (>30 years): The reported prevalence of either diagnosed diabetes or hypertension was 17.3% (15.9% in males / 18.7% in females). Both diabetes and hypertension were presented in 7.5% of the individuals (6.5% males/ 8.7% females). Diabetes and Hypertension alone was reported in 12.8% and 15.0% respectively. For NCD care, private health facilities were the preferred health facilities, considering the trust in doctor (80.0%) followed by timely service (50.0%) and all facility at one place (27.0%). Higher proportion of both diabetes (70.3%) and hypertension (65.9%) patients preferred private facility for buying medicine routinely. Even for the NCD complications, most of them were referred to private health facilities.
Non availability of NCD drugs round the year and lack of investigation facilities may be implicated as the reason for inclination towards private health facilities. Like other illnesses, income and savings were reported to be the commonest mode of managing routine medical expenses in NCD patients.

Health economics: The cost incurred for healthcare in public health facilities was very less as compared to private health facilities. Although there was no / minimal charge of

consultation in public health facilities, the median investigation cost and the drug cost was Rs. 65 (10, 520) and Rs. 110 (0, 425) respectively. The distribution of Out-of-Pocket Expenditure (OOPE) per person / ailment was ≤ Rs 500 (57%), 500-1000 (21.6%), 10005000 (15.9%) and > 5000 (5.4%). Considering the family income availability, catastrophic OOPE (>10% of the annual income) was observed in 8 of the surveyed households. Regarding the cost spent towards ANC care, those who preferred private health facilities had reported to spend five folds of what was spent in public health facilities (Median cost in Pvt = Rs 15,000, Govt. = Rs 3,000). For all maternal health services, income and savings were the most common utilized modes for managing medical expenses. Only 1% of them utilized health insurance for their childbirth purpose. The cost spent towards childbirth care was significantly higher among those who utilized private health facilities compared to public health facilities (Median cost in Pvt = Rs 50,000, Govt. = Rs 5,000). PNC care expenses were also noted to be higher in the private as compared to public health facilities. The median cost spent on treatment for both ARI and ADD in public was one third of what was spent in private health facility.

Satisfaction Score: Satisfaction score was assessed for NCDs and MCH services. People who had utilized public and private health facilities reported median score of 8 and 9 respectively.

Analysis was done to compare health seeking behaviour between wards with and without predominantly slum areas. The pattern of health seeking was similar in both slum and non-slum population. While comparing population who had shown and not shown BPL card during survey, higher proportion of public health facilities were utilized by people who showed BPL card.

Results of the Health Facility Assessment:

Characteristics of health facilities: Median population covered by UPHCs was 50097 and slum population was 6407. UPHCs were functional for 6 hours during daytime while most of the private clinics (95%) were primarily functional in evening hours. Nearly 70% of UPHCs were branded as Health and Wellness Centres, 30% of private clinics offer integrated medicine. Public health facilities were on an average distance of 1km from patients' residence while private health facilities were on an average of 2km distance. The patients from public and private differed significantly ($p<0.05$) by sociodemographic characteristics such as age (younger in private facilities); sex (more males seeking services at private facilities); occupation (lesser homemakers among those seeking services from private facilities) but not by education level. The commonest health problem for current visit of patients to the health facility was fever (30% and 39%) in both public and private health facilities; pain (25% in both). Few patients returned for follow-up or check-up of diabetes (11% and 16%) and hypertension (11% and 10%) from public and private health facilities. The commonest reason for choosing public health facility was free treatment (29%) and good response of health workers (39%), while for private health facilities it was good consultation (54%) and nearby location (27%).

Availability of amenities, essential drugs, and equipment: Waiting area was available in 100% of public and 80% of private health facilities. Toilets was available in all public UPHCs, public and private childbirth facilities. There was limited availability of space within and beyond (50 meter radius) all the health facilities for yoga practice, counselling, and nutrition demonstration. More than 70% of all facilities had pharmacies; >56% had a clinic and >40% had a lab on the same street. Basic CPHC equipment (BP apparatus, glucometer, weighing machine, pulse oximeter) were available in public and private facilities. While

ophthalmoscope, Snellen's chart, cardiopulmonary monitor were not available in 95% of UPHCs. Essentials drugs to manage minor health issues and treatment of NCDs such as diabetes and hypertension were available in all public health facilities. Essential drugs for initial management of obstetric and cardiac emergencies, prevention of cardiac and neurological complications was not available in >60% of public health facilities. Less than 25% of public and none of private health facilities had a UID for registration of patients, despite computer and online support being available in 100% of public health facilities. Around 25% of UPHCs provided all staff welfare activities such as immunisation, post exposure prophylaxis and annual health checks.

Services provided by health facilities: All UPHCs and 35% of private clinics offered maternity (antenatal) services. More than half of the UPHC's and 10% of private clinics offered neonatal services. More than 95% of public and only 15% of private clinics offered child health services. Less than 35% of UPCHs provided services for cancer, mental health and endocrine issues. More than half of the private clinics offered services for NCDs- diabetes and hypertension.

Load of services provided monthly by health facilities: Median monthly OPD registration of UPHCs was 1447 and of childbirth public and private health facilities was 1952 and 1140 respectively. Median monthly ANC registration was 26 in UPHCs and 353 in childbirth public but only 17 in private childbirth facilities. Two outreach services were conducted by UPHCs. Median patients treated at UPHCs, public and private childbirth health facilities for diabetes (99, 74, 160), hypertension (138, 70, 160) and TB (14, 23, 23) respectively. Median pregnancy tests at public UPHCs, public and private childbirth facilities was 10, 40 and 10 respectively; 169, 709 and 51 random blood sugar tests were performed respectively. Lipid profile, thyroid test, Renal test, and dengue test were performed only by private childbirth facilities. ANMs reported a current average of 40, 171 and 180 pregnant women, diabetics or hypertensive patients being followed up while ASHA reported a current average of 7, 211, 212 respectively.

Status of HCPs at public health facilities: Except for doctors and lab technicians, there was shortage of 27% nurses, 17% of ANMs, 80% of ASHAs, 25% of pharmacists, 60% of DEOs and 35% of Class D workers. More than 90% of nurses, lab technicians and ASHAs were employed on contract basis. All 100% of nurses, ANMs and ASHAs, 59% of lab technicians and 88% of pharmacists were females. Amongst doctors and nurses, 35% and 52% respectively received training on SBA; 48% and 30% respectively received training on RBSK and 52% and 35% respectively received training on RKSK over the last 5 years. While only 35% and 33% of ANMs received this training on RBSK and RKSK respectively. More than three quarters (78%) of lab technician received training on NVBDCP and 57% on TB over the last 5 years, 9% mentioned they had stock out of lab supplies in the last three months. More than half (55%) of pharmacists received training on eVIN over the last 5 years, 44% mentioned they had medication stock outs. ***Perceptions of patients on services received:*** The satisfaction score of private childbirth facilities (73.9±11.1) was higher than that of public facilities (69.2±11.8), but this was not significantly different. However, patients from UPHCs (71.3±10.7) were significantly more satisfied with services received than those from private clinics (58.3±17.2) at $p<0.0001$.

Challenges faced by HCPs:

Health system related challenges -- HCPs of health facilities reported the following challenges: Less ratio of HCP with population (35%), multi-tasking job (20%), lack of supplies and meeting targets (19%), clinical management (37%) by HCPs of private facilities.

Challenges reported by field level HCPs were: management of targets (28%), ratio of HCP and population (23%) and multi-tasking (21%).
Community related challenges -- By HCPs of health facilities: lack of cooperation of people (44%). Lack of acceptance of people to treatment protocols (41%). By field level HCPs: lack of cooperation of community (41%) and difficulty mobilizing the community (21%).

Suggestions to improve services*:*

***Health system related suggestions mentioned by edHCPs from UPHCs and private facilities*:** By HCPs of public and private health facilities: Building improvement (63%), drug availability (34%), better lab facilities (30%), better equipment and facilities (23%). By field level HCPs: Reimbursement (46%), better ratio of HCPs with population (38%) and better salary (35%). By patients of public health facilities: lab equipment improvement (18%), need for specialists (9%), inpatient facility for emergencies (8%). By patients of private health facilities: lab equipment improvement (4%), need for specialists (5%), inpatient facility for emergencies (2%).
Community related suggestions mentioned by HCPs--By HCPs of health facilities - On the spot treatment as well as better hygiene by 8%; 35% mentioned health education for the community.
By field level HCPs >27% - mobilization of people through key stakeholder involvement.

In summary, health facilities were easily accessible to the population. Regular supervision and monitoring of HCPs by a senior within the health facility or health office was occurring. Basic services of ANC, management of minor ailments, first aid for injuries was being managed by UPHCs and private clinics despite HCP shortage. Patients were satisfied with services received and accessed services based on proximity and their perception of HCPs. Leadership and governance need to focus towards improving quality of care rather than just quantity. The availability of services was limited to 7 hours by all the UPHCs and 5 hours by the private clinics. Only those facilities that provided childbirth services were functional 24/7. Both facility and field HCPs highlighted the need to improve the building / equipment / lab / maternal services. Services at public health facilities were mostly accessed by homemakers and women while the private health facilities were accessed mostly by males and younger age group. More robust health information system that not only facilitates registration of patients so that follow-ups and linkages between facility and field HCWs are planned strategically especially for those with chronic NCDs and CDs but would also aid in monitoring progress with meeting targets. Feedback from the community or individuals could be obtained to determine ways to improve access, quality, and availability of services. Capacity building of HCWs at all levels must be geared towards better communication with patients, identification of complications and appropriate referrals, linkages between public and private health facilities that probably use a common UID for patients to facilitate efficient follow-ups. Capacity building could be facilitated by using the mentoring approach. It would be prudent for public health facilities to be reorganised so that there is at least one facility offering childbirth services attached to 4-5 UPHCs. Moreover, given the health workforce shortage, a system to make diagnostic services more efficient, yet accessible could include sample collection at the UPHCs with an effort to transport samples to a referral diagnostic centre that would report back to the UPHC details of the test result. This will require a better health information system that links all UPHCs with the referral diagnostic centre.

Main Report

A. Objectives of the assessment of primary health care services in Mysuru city Overall objective of formative research was to describe the status of urban comprehensive primary health care system in Mysuru city, identify and analyse barriers and facilitators to comprehensive primary health care, and identify design options to strengthen urban primary health care.

A.1 Specific Objectives

1. To identify and explore the role of key stakeholders in the provision of urban primary health care.
2. To describe the status of urban comprehensive primary healthcare (UPHC) in Mysuru city at three different levels – health systems, facility, and community
    a) at health system level for capacity for designing, developing, implementing, and monitoring urban primary health care in Mysuru city.
    b) public and private health facility readiness for delivering preventive and nondomiciliary curative primary health care in urban Mysuru.
    c) profile the community morbidity status, healthcare seeking, and costs incurred for selected acute and chronic conditions in urban wards of Mysuru city
3. To identify and explain barriers and facilitators to comprehensive Primary Health Care and
4. To identify design options for strengthening urban primary health care.

B. Methods:

As part of a 5-month formative technical support project (April-August 2022), to assist the Government of Karnataka to strengthen comprehensive urban primary health care, Mysuru city corporation was selected. Mysuru city has a total population of 1261,000 as of 2022, with a plateaued approximate 2% increase in population since 1993 (https://www.macrotrends.net/cities/21343/Mysuru/population). We carried out a quantitative study with a [i] facility assessment and service availability survey of all urban public health facilities and similar private health facilities in Mysuru city corporation. [ii] community assessment through a general household survey, to assess profile of community morbidity status, their healthcare seeking behaviour and costs incurred for selected acute and chronic conditions in urban wards of Mysuru.

B.1 Health facility assessment

B.1.1 Sample:

***Selection of public health facilities*:** All 23 public urban primary health centers were selected for the assessment. It consisted of 20 UPHCs and three centers offering childbirth services.

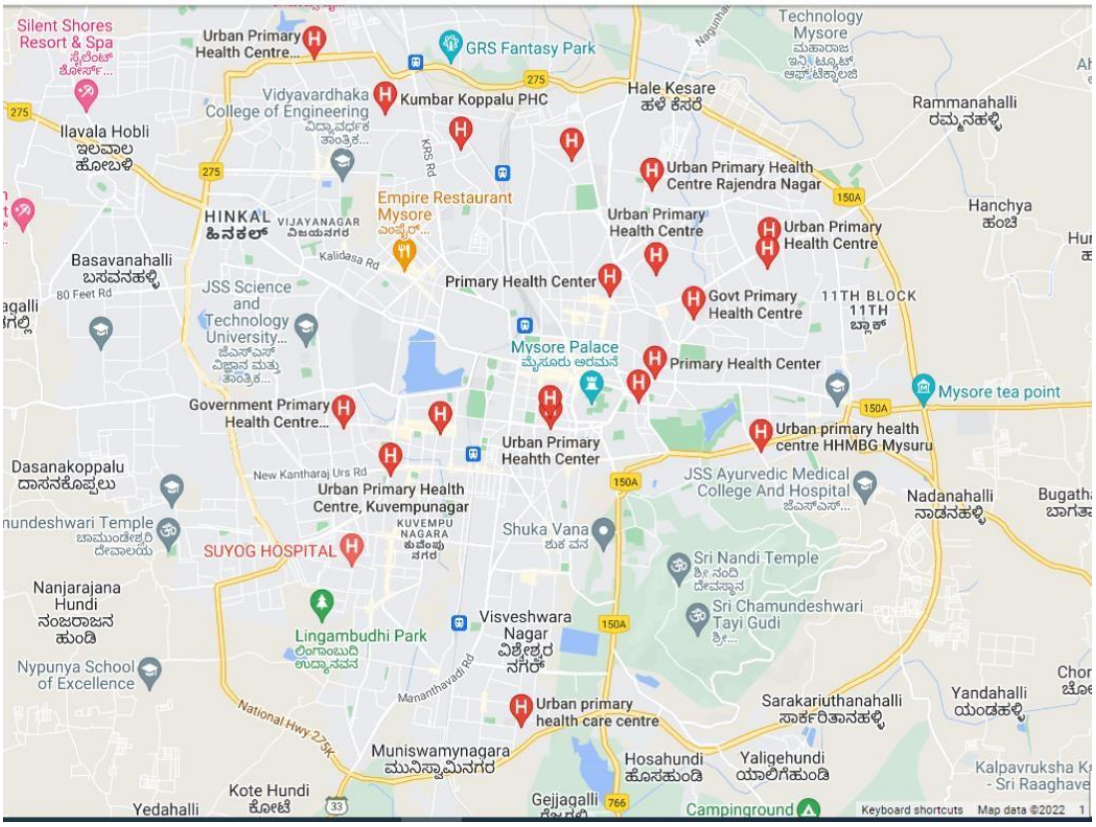


Figure 1. Map showing location of UPHCs in Mysuru city.

Selection of private health facilities: An equivalent number of private health facilities were selected. Initially the list of health facilities commonly utilized by the community that were elicited from the respondents in the community survey showed that the top health facilities mentioned were either public or private secondary or tertiary level hospitals (Figure 2). Hence from the rest of health facilities named (n=174), eight were not eligible to be included since they had >35 beds.
Thus, of a total of 168 health facilities, 85% were excluded for the reasons mentioned (Figure 2). Twenty-three health facilities – 3 hospitals offering childbirth services with less than 35 in-patient beds and 20 clinics were selected purposively if they consented to participate in the study.

Health facilities most commonly used by respondents in community for a health problem	
Names of health facility	n
K R hospital*	107
Medical*	27
Apollo hospital	22
Kamakshi	21
JSS Hospital	19
Kuvempunagraha*	19
ESI hospital*	18
Jayadeva Kumbarakoppal*	12
PHC Giribhovipalya*	11
Chandrasekar clinic	11
PHC Kumbarakoppal*	10
Mahadeshwara clinic	10
Raghavendra clinic	9
Metagali PHC*	9

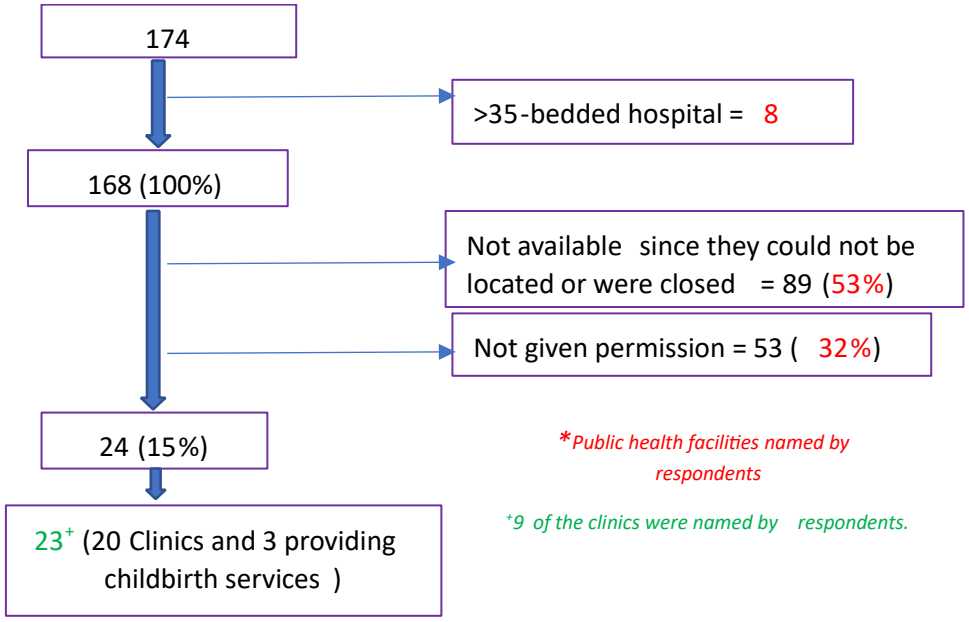


Figure 2: Selection of private health facilities

Selection of health care providers (HCP): From each public health facility, one doctor, nurse, lab technician, pharmacist, ANM and ASHA worker were selected, based on availability and their consent to participate in the survey (Table 1). Similarly in the private health facilities, based on availability HCPs were selected to assess their roles, challenges to provide and suggestions in improving comprehensive primary health care package of services.

Table 1: Number of facility and field health workers surveyed from public and private health facilities.

	Facility HCPs				Field HCPS	
	Doctor s	**Nurses**	**Lab technician**	**Pharmacist**	**ANM**	**ASHA**
Clinics / UPHCs						
Public UPHCs (n=20)	19*	20	20	20 x	20	19^^
Private Clinics (n=20)	20	0^	0^	0^	0^	0^
Facilities offering Childbirth services:						
Public (n=3)	3	3	3	3++	1xxx	1xxx
Private (n=3)	2	3+	3	3xx	0^	0^

**Kumbarakoppal- doctor did not complete;*
^: No nurse, lab tech, pharmacist, ANM, ASHA available in private clinics; +1 is an ANM;
++1 is a Diploma Nurse;
x: 3 are Diploma Nurses and 2 are Medical officers performing the pharmacist role too, took the survey in 5 UPHCs;
^: 1 UPHC, ASHA was not available xxx: No ANM/ASHA for two public health facilities offering childbirth services.

Selection of patients: Four patients were selected based on availability and their consent to participate in the study.

B.2. General Household Survey

Multi-stage stratified random sampling was used to identify the sample households.

Sampling method

The universe was the citizens residing in the 65 wards of the Mysuru City Corporation. Each ward was further subdivided into Census Enrolment Blocks (CEB). Those wards with less than 5 CEBs per ward will be excluded from the study sample. The total number of wards surveyed in urban Mysuru was 25 out of 65 wards. It was a 3-stage process to obtain the required sample size of 6000 households. The wards were divided into two strata, the first strata (STRATA1) consisted of wards with 5 to 20 CEBs each and the second strata (STRATA2) contained wards with more than 20 CEBs each. Out of 32 wards in STRATA1, 12 wards were randomly selected. Similarly, 13 wards were randomly selected from STRATA2 (total 33 wards).
From the selected wards (Table 2), 192 and 208 census enumeration blocks were randomly selected (16 CEBs in each ward). At the final stage, 15 households per CEB were selected by systematic sampling total 6000 households were chosen to conduct the community survey. (Figure 3)

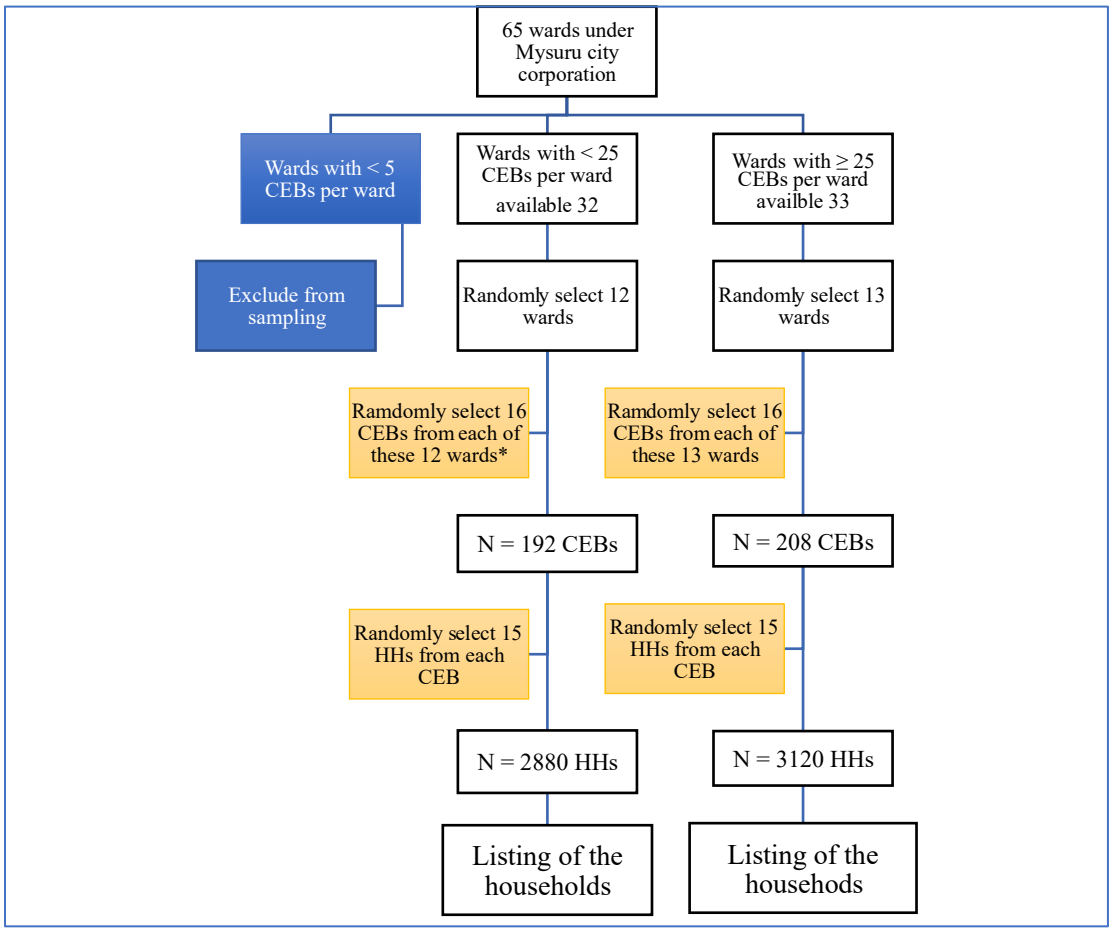


Figure 3: Process of sampling method for community survey

Table 2: Randomly selected wards in Strata 1 and strata 2

Sno	STRATA1	Ward No	Total no of CEB's available	STRATA2	Ward No	Total no of CEB's available
1	WARD No.0010	10	20	WARD No.-0001	1	30
2	WARD No.0023	23	23	WARD No.-0003	3	26
3	WARD No.0027	27	23	WARD No.-0007	7	37
4	WARD No.0028	28	23	WARD No.-0011	11	26
5	WARD No.0029	29	21	WARD No.-0020	20	28
6	WARD No.0030	30	20	WARD No.-0021	21	27
7	WARD No.0031	31	21	WARD No.-0026	26	25
8	WARD No.0037	37	24	WARD No.-0033	33	25
9	WARD No.0038	38	21	WARD No.-0040	40	27

10	WARD No.0041	41	21	WARD No.-0049	49	29
11	WARD No.0047	47	22	WARD No.-0054	54	25
12	WARD No.0060	60	16	WARD No.-0055	55	26
13				WARD No.-0058	58	28

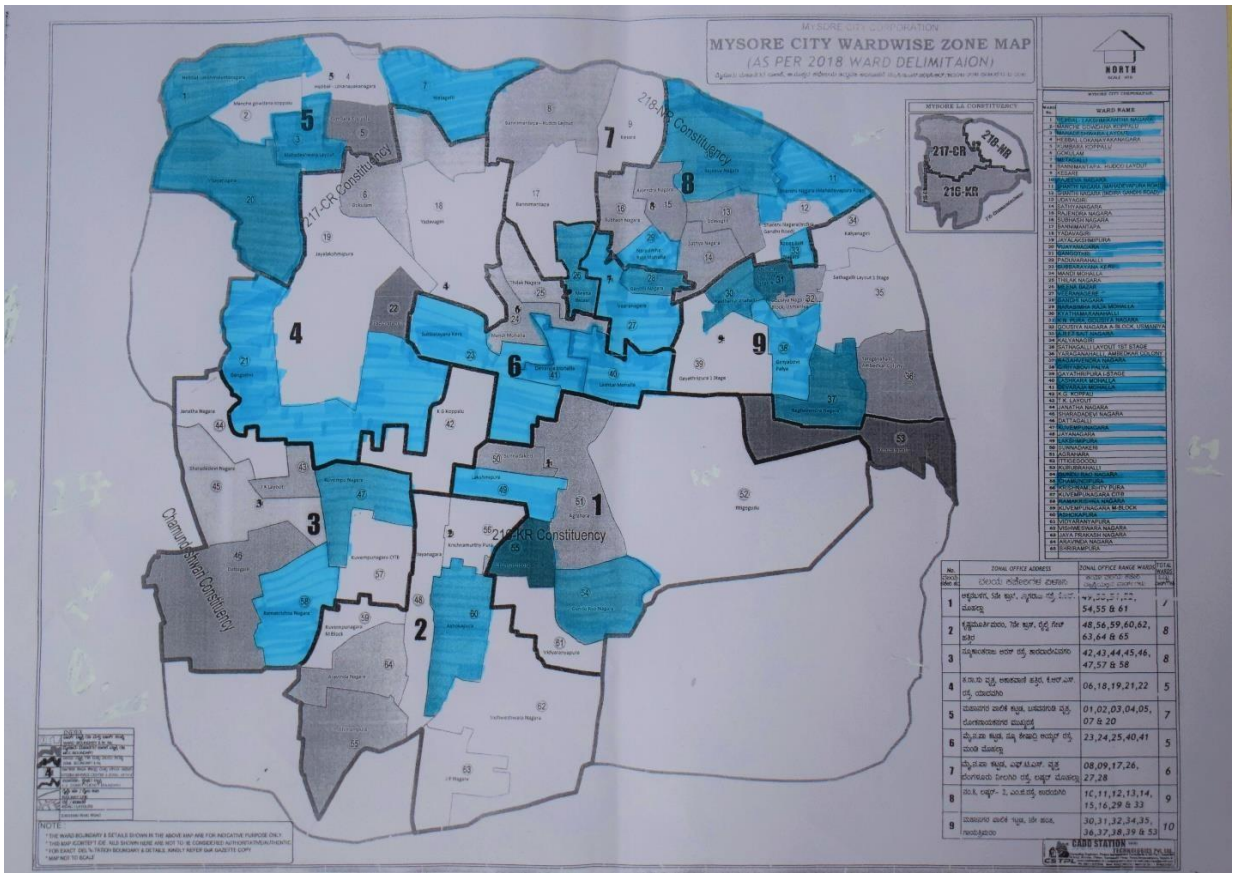


Figure 4: Mysuru city map- highlighting the wards studied

There were 192 CEBs in the first strata and 208 CEBs in the second strata. From each CEB, 15 households were randomly selected, giving a total of 6,000 households. These households were listed, and those with a patient with acute illness or a diabetic/hypertensive were chosen for the study.

Data analysis

Descriptive statistics were reported as number and percentages for all the categorical variables, median (IQR) for all continuous variables when not normally distributed or as mean (±SD) of both facility and community assessment. The cost of care analysis (for 2 week morbidity, Maternal and Child health services, Diabetes and Hypertension care) and satisfaction scores were reported as median with 25th and 75th percentiles.

B.3. Tools used for data collection

B.3.1. Tools for Facility Assessment

The tools were developed iteratively by a team of public health experts, doctors, nurses and in keeping with Standards for Urban Primary Health Care (Ministry of Health and Family Welfare, 2015). In all there were four forms to collect information relevant to meet the objectives of the study (Table 3). Two field investigators were trained by the core team to collect the information after they obtained informed consent from the head or medical officer of the health facility.

Form 1: This consisted of 8 sections as mentioned below.

- *Section A: Health Facility General Information:* This was completed by the trained field investigator and gave information on availability of CPHC services, specialists, and accessibility for patients
- *Section B: Health workers- Sanctioned and Filled (all available HP):* Total number of available health workers was elicited using this section
- *Surveys: Section C- Doctors; Section D – Nurses; Section E – Lab Technician; Section F – Pharmacist; Section G – ANMs; Section H – ASHAs [1 per facility]***:** The roles, suggestions for improvement of CPHC and challenges faced by health care personnel was obtained. ***Form 2: Facility Audit:*** This was an observation checklist which provided information on infrastructure, equipment and supplies including drugs and lab tests available at the health facility. ***Form 3: Record Reviews – Services and Load of Services:*** Information on services available and monthly load of these services were elicited through review of records available at the health facility and with the help of the relevant health care personnel.

Form 4: Patient Exit Interviews: Information on reasons for visiting the health facility, choice of health facility, services received, satisfaction with services received and suggestions for improving the present services.

Table 3: Details of tools used for data collection.

Tools used	Purpose	What method used	From whom
Form 1: Section A:	To obtain general information of the health facility: Type of facility, location, catchment population, intersectoral coordination, services available, health worker availability with timing and finance	Interviewed	Medical officer or senior nurse
Section B	To obtain information on personnel such as number of sanctioned health care providers (HCPs), number available	Interviewed Record review	Medical officer or senior nurse
Section C	To obtain information from one doctor on experience, education, training received, supervision and monitoring, challenges faced, roles performed, confidence in performance of roles, and suggestions for improvement	Interviewed	Medical officer or available duty doctor
Section D	To obtain information from one nurse on same topics as given in Section C	Interviewed	Senior nurse or nurse on duty

Section E	To obtain information from one Lab technician on same topics as given in Section C. In addition, information on stock outs and equipment's not working	Interviewed	Lab technician available
Section F	To obtain information from one pharmacist on same topics as given in Section C. In addition, information on stock outs and medicines not dispensed	Interviewed	Pharmacist or acting pharmacist
Section G	To obtain information from one ANM on training, outreach services provided, reach of services, population served, supervision and monitoring, roles, confidence in performing roles, challenges, and suggestions to improve services	Interviewed Record review	Senior ANM or ANM available
Section H	To obtain information from one ASHA on training, outreach services provided, reach of services – number followed up, number currently registered, population served, reports / registers maintained, supervision and monitoring, roles and confidence in performing roles, challenges faced, and finally on suggestions to improve services.	Interviewed Record review	Senior ASHA or who was available
Form 2	To obtain information on the health facility – Facility Audit	Observation by walk-through Interview	Senior nurse / pharmacist/ lab technician
Form 3	To obtain information on load of services	Record review Interview	Senior nurse/ pharmacist/lab technician/DEO
Form 4	To obtain information from patients who sought services in the health facility on purpose of seeking service, distance of health facility	Interview	Any patient who received services at the health facility –
	from home, suggestions to improve services, satisfaction on services received, services received for current visit		4 per health facility as available

B.3.2 Tools used for Community Assessment

Tools used for community survey has been appended (appendix 1)

C. Results:

C.1. Public and private health facility readiness for delivering preventive and nondomiciliary curative primary health care in urban Mysuru.

This section provides information on the total population covered, functioning time and type of health facility (Table 4), describes infrastructure, equipment, and supplies of the health facilities (Table 5-6); Staff welfare facilities (Table 7); services available and provided as reported by HCPs (Table 8-13; Figure 5).

C.1.1. Characteristics of health facilities

Table 4: Characteristics of health facilities

	Public		Private	
	UPHCS (n=20)	**Childbirth facility (n=3)**	**Clinics (n=20)**	**Childbirth facility (n=3)**
Total Population [Median]	50097			
Slum Population [Median]	6407			
Operating in own building [No (%)]	17 (85%)	3 (100%)	5 (25%)	1 (33%)
Functioning time				
24/7		1 (33%)		3 (100%)
9 hours + on call		2 (67%)		
6 hours	20 (100%)			
Morning hours only			1 (5%)	
Morning and evening hours			10 (50%)	
Evening hours only			9 (45%)	
Type of facility [No (%)]				
Health and wellness	14 (70%)			
UPHCs	6 (30%)			
Childbirth UPHC (10 beds)		1 (33%)		
Childbirth hospital (avg 24 beds)				3 (100%)
Childbirth CHC (30 beds)		2 (67%)		
Integrated medicine clinic			6 (30%)	
Allopathy medicine clinic			14 (70%)	

Most public facilities were operating in their own building.

Only public UPHCs reported on the median population (10600 and 3121) and slum population (1500 and 1900) as covered by ANMs and ASHAs, respectively.

Equipment such as BP apparatus, glucometer, thermometer, weighing machine, pulse oximeter, to cover basic CPHC services were mostly available in all public and private facilities. However, equipment such as cardiopulmonary monitors, ECG machine to identify any emergencies or ophthalmoscope and Snellen's chart to assess eyes were available in less than 30% of the health facilities as seen in Table 5. Certain lab equipment such as biochemistry analyzer were available in 20% of UPHCs (Table 5).

All the UPHCs and public childbirth facilities had basic essential drugs to manage minor health issues and for treatment of NCDs such as diabetes and hypertension. However, 3/20 (15%) of UPHCs did not have injection dexamethasone, 1/3 (33%) of public childbirth facility did not have injection Magnesium Sulphate, 19/20 (95%) of UPHCs did not have Injection Oxytocin all of which are useful for initial management of maternal complications. Tab Clopidogrel, a drug useful to prevent heart attacks and stroke amongst persons with heart disease (recent heart attack), recent stroke or blood circulation disease was not available 18/20 (90%) and 2/3 (67%) of UPHCs and public childbirth facilities. Emergency drugs that were not available included Inj. Calcium Gluconate in 14/20 (70%) of UPHCs, Injection Adrenalin and Inj. Hydrocortisone in 1/20 (5%) of UPHCs. Tab Aspirin was not available in 13/20 (65%) and 1 (33%); while Statins were not available in 9/20 (45%) and 1/3 (33%) of UPHCs and public facilities with childbirth services respectively. Antihypertensives such as Tab Enalapril was not available in 4/20 (20%) of UPHCs and Tab Losartan was not available in 12/20 (60%) of UPHCs and 1/3 (33%) of public childbirth facilities.

Information on drugs was available from only two private clinics and three private childbirth facilities.

Table 5: Infrastructure and equipment available in health facilities

	Public facilities (n=23)		**Private facilities (n=23)**	
	UPHCs (n=20)	**Childbirth facility (n=3)**	**Clinics (n=20)**	**Childbirth facility (n=3)**
Functional registration counter	18 (90%)	0 (-)	11 (55%)	3 (100%)
Equipment				
✓ ECG machine	2 (10%)	1 (33%)	1 (5%)	3 (100%)
✓ Snellen's chart	6 (30%)	1 (33%)	1 (5%)	1 (33%)
✓ Ophthalmoscope	1 (5%)	1 (33%)	1 (5%)	1 (33%)
✓ Cardiopulmonary monitor	1 (5%)	2 (67%)	1 (5%)	1 (33%)
Lab equipment				
✓ Differential blood cell count machine	4 (20%)	2 (67%)	0 (-)	3 (100%)
✓ Colorimeter	11 (55%)	2 (67%)	0 (-)	2 (67%)
✓ Biochemistry analyzer	13 (65%)	1 (33%)	0 (-)	3 (100%)

There was a waiting area for patients available in all UPHCs, public and private childbirth facilities and in 16/20 (80%) of private clinics. Only public and private childbirth facilities had a functional labor room. All the UPHCs, public and private childbirth facilities and 10/20 (50%) of private clinics

have easily accessible pathways. Toilets were available in all UPHCs, public and private childbirth facilities and in only 3/20 (15%) of private clinics.

Other infrastructure facilities such a room for practicing yoga or meditation were available on 11/23 (48%) of public facilities but not available in private facilities. A room was available for nutrition demonstration in only [4/23 (17%) and 1/23 (4%)] and for counseling patients [3/23 (13%) and 1/23 (4%)] of public and private facilities, respectively.

Only 2/23 (9%) of public facilities had a park within 50 meters. None of the health facilities had a gym close by. Most [16/23 (70%) each], of both public and private facilities had an average of three pharmacies on the same street; [13/23 (56%) and 16/23 (70%)] had an average of 2 clinics on the same street; [10/23 (43%) and 11/23 (48%)] of public and private facilities respectively had an average of one lab in the same street.

Limited number of public facilities (<25%) had provision of a UID for registration of patients, ordering of tests, prescriptions, referral, and follow-up (Table 6) and this was non-existent in almost all private facilities.

Table 6: Availability of health information technology at public facilities (n=23)

	YES	NO
UID for each patient		
Registration	5 (22%) *	18 (78%)
Ordering tests	5 (22%) *	18 (78%)
Pharmacy	4 (17%) **	19 (83%)
Referring	5 (22%) *	18 (78%)
Follow-up	5 (22%) *	18 (78%)
Reports sent to the government. ✓	21 (91%)	2 (9%)
Births	21 (91%)	2 (9%)
Deaths	22 (96%)	1 (4%)
Communicable diseases		
Equipment for data entry		
Computer	23 (100%)	-
Online support	23 (100%)	-
Passive data entry		
Aggregate numbers	12(52%)	11 (48%)
Facility data	23(100%)	-
Community data	23 (100%)	-
Registration with NDHM	2 (9%)	21 (91%)

**Kumbarakoppal, Bannimantap, Vishweswaranagar, Chamundipura, Giribhovipalya ** except for Kumbarakopall others are included*

All the public facilities (100%) had outsourced waste management to an external agency, while only 5/23 (22%) of private facilities reported outsourced waste management. Basic amenities for infection control such as wash basins, color coded bins in relevant places - lab and treatment area were available in all the public facilities, but this was not available in most of the private clinics.

Only 5/20 (25%) and 2/3 (67%) of UPHCs and public childbirth facilities had provided all staff welfare activities for their staff (Table 7).

Table 7: Staff welfare activities in public facilities (n=23)

	UPHCs (n=20)	***Childbirth facility (n=3)***
All below staff welfare services provided: 7 (30%)	5 (25%)	2 (67%)
Immunisations offered – all four* Tetanus toxoid Typhoid Hepatitis B Covid 19	6 (30%) 13 (65%) 9 (45%) 15 (75%) 17 (85%)	2 (67%) 3 (100%) 2 (67%) 3 (100%) 3 (100%)
Post exposure prophylaxis (PEP) available – 97%	12 (60%)	3 (100%)
Annual health check for staff available - 65%	19 (95%)	3 (100%)
Private childbirth facility- 2 (67%) offered all immunisations; offered annual health checks; offered PEP. Except for one private clinic, all others had only a doctor and sometimes a class D worker for cleaning the facility. Hence these details were not ascertained in the clinics.		

C.1.2. Services provided by health facilities.

Table 8: Maternity and child health services available at facilities

	Public (n=23)		***Private (n=23)***	
Clinical services	***UPHCs (n=20)***	***Childbirth facility (n=3)***	***Clinics (n=20)***	***Childbirth facility (n=3)***
Maternity and neonatal services Antenatal care Postnatal care Labor Neonatal	20 (100%) 20 (100%) 0 (-) 11 (55%)	3 (100%) 3 (100%) 3 (100%) 3 (100%)	7 (35%) 2 (10%) 0 (-) 2 (10%)	3 (100%) 3 (100%) 3 (100%) 3 (100%)

Child health services				
Immunization	20	3 (100%)	3 (15%)	2 (67%)
Treatment- minor illnesses/problems	(100%)	3 (100%)	9 (45%)	3 (100%)
Growth monitoring	20	3 (100%)	3 (15%)	3 (100%)
First aid for injuries	(100%)	3 (100%)	8 (40%)	3 (100%)
Referral	19 (95%)	3 (100%)	2 (10%)	2 (67%)
Emergency services	20	3 (100%)	2 (10%)	3 (100%)
	(100%)			
	19 (95%)			
	19 (95%)			

Only 11/20 (55%) of UPHCs and 2/20 (10%) of clinics offered neonatal services. Private clinics provided limited maternity services 7/20 (35%) only offered antenatal care and 2 /20 (10%) offered postnatal care as seen in Table 8. Majority of the public facilities (>95%) offered all the child health services, while only a limited number of private clinics offered child health services such as immunisation 3/20 (15%); growth monitoring 3/20 (15%)l referral and emergency services 2/20 (10%).

The commonest reasons for referrals of children as cited by public facilities included:

Severe injuries – 9/23 (39%);

Gastro-enteritis: diarrhoea, vomiting - 6/23 (26%);

Malnutrition: severe / moderate - 5/23 (22%);

Respiratory problems – 4/23 (17%);

Very high fever – 3/23 (13%)

Convulsions – 3/23 (13%)

Skin problems – 3/23 (13%)

The commonest child health emergencies as elicited from public facilities included:

Severe injuries – 15/23 (65%);

Gastro-enteritis – 5/23 (22%);

High fever – 5/23 (22%);

Respiratory problems – 4/23 (17%);

Malnutrition: severe / moderate - 2 (9%)

Table 9: Reported adult health services of public and private facilities

	Public (n=23)	***Private (n=23)***

Adult clinical services	*UPHCs (n=20)*	*Childbirth facility (n=3)*	*Clinics (n=20)*	*Childbirth facility (n=3)*
Treatment of minor illnesses Provision of medical certificate First aid for minor injuries Minor surgical interventions (abscess/wound)	20 (100%) 17 (85%) 20 (100%) 18 (90%)	3 (100%) 3 (100%) 3 (100%) 3 (100%)	17 (85%) 2 (10%) 17 (85%) 12 (60%)	3 (100%) 3 (100%) 3 (100%) 3 (100%)
✓ **Treatment of NCDs** Diabetes Hypertension Cancer COPD	20 (100%) 20 (100%) 4 (20%) 16 (80%)	3 (100%) 3 (100%) 2 (67%) 2 (67%)	11 (55%) 11 (55%) 1 (5%) 6 (30%)	2 (67%) 2 (67%) 2 (67%) 2 (67%)
Mental health Thyroid problem	3 (13%) 0		1 (4%) 1 (4%)	
✓ **Treatment of communicable diseases** Tuberculosis Malaria Dengue Chikungunya Typhoid Leprosy STI All viral diseases	20 (100%) 14 (70%) 4 (20%) 4 (20%) 5 (22%) 7 (35%) 2 (9%) 0 (-)	3 (100%) 2 (67%) 2 (67%) 1 (33%) 0 (-) 1 (33%) 0 (-) 0 (-)	9 (39%) 6 (30%) 6 (30%) 0 (-) 7 (35%) 0 (-) 0 (-) 3 (15%)	1 (33%) 2 (67%) 2 (67%) 0 (-) 1 (33%) 0 (-) 0 (-) 0 (-)

Less than 35% of UPHCs were providing treatment of cancer, mental health, and thyroid problems as well as for dengue, chikungunya, typhoid, leprosy and STIs among communicable diseases while rest of adult health services were being provided by more than 70% (Table 9). Among the private clinics only 55% offered treatment for diabetes and hypertension and <40% offered treatment for COPD, and other communicable diseases such as tuberculosis, malaria, dengue, and typhoid.

The commonest emergency reported was injuries by both public and private [10/23 (44%) and 4/23 (17%)] facilities respectively (Table 10). Injury was also reported as the commonest reason for a referral by 14/23 (61%) of public facilities and 3/23 (13%) of private facilities.

Table 10: Adult emergency and referral services reported by public and private facilities

Reported adult emergency and referral services	Public (n=23)	Private (n=23)

✓ **Emergency services provided**		
Injuries (burns/wounds/fractures/abscess)	10 (44%)	4 (17%)
Road traffic accident cases	9 (39%)	3 (13%)
Cardiac (heart attack/Low BP/high BP)	8 (35)%	1 (4%)
Diabetes related (DKA/hypoglycemia)	5 (22%)	1 (4%)
Respiratory (COPD/Asthma/Breathing difficulty)	5 (22%)	1 (4%)
Bites (dog/snake)	3 (13%)	Not reported
CNS related (epilepsy/unconscious) ▪ Suicide	2 (9%)	Not reported
	1 (4%)	Not reported
✓ **Referral in the last month?**		
Injuries	14 (61%)	3 (13%)
Cardiac cases	6 (26%)	3 (13%)
Accident	5 (22%)	3 (13%)
Bites	4 (17%)	Not reported
CNS related	3 (13%)	Not reported
Others (MLC/suicide)	3 (13%)	Not reported
Respiratory related	1 (4%)	3 (13%)
Renal cases	Not reported	2 (9%)
Cancer cases	Not reported	1 (4%)

Table 11 and Table 12 provides information on load of services and lab investigations performed for a month in public and private facilities. Table 11 provides information on reach of services by field health care workers such as the ANMs and ASHAs.

Table 11: Monthly load of services of public facilities based on record review of the last month

	Median per public facility for one month		***Median per private facility for one month****	
	UPHCs (n=20)	***Childbirth facility (n=3)***	***Clinics (n=20)***	***Childbirth facility (n=3)***
OPD registration-Morning	1447	1952	NOT AVAILA	1140
ANC registration	26	353		17
Newborn registration as per ASHA	6	Not elicited		Not elicited
Postnatal registration as per ASHA	6	Not elicited		Not elicited
Outreach sessions	2	0		0
Emergencies managed	3	7		Not validated
Acute malnutrition – referred to NRC	2	0		0
Children treated				
Anemia	0	0		0
Diarrhea	4	1		4

Number of adults with			B	
TB on treatment	13	21	L	21 2
TB – completed treatment	1	2	E	10
Diabetes – New	5	1		150 10
Diabetes – Old	94	73 2		150
Hypertension – New	4	68		
Hypertension - Old	134			
Referrals made				
Maternal	0	9		0
Neonatal	0	2		1
DM	0	0		0
HTN	0	0		0
Cancer	0	0		0
Palliative	0	0		0

*OPD services/Services as prescribed under RCH-II, NH programmes, referral services, basic lab services, outreach services * only one or two facilities reported details; Record review performed either in May, June, July, August 2022.*

Table 12: Lab investigations performed in a month based on record review of the last month

Lab investigations	*Median per month in public facilities*		*Median per month in private facilities*	
	UPHCs (n=20)	*Childbirth facility (n=3)*	*Clinics (n=20)*	*Childbirth facility (n=3)*
Pregnancy tests	10	40	NOT APPLICABLE	10
Hemoglobin	71	362		81
Blood group and typing	19	145		15
HIV	21	222		28
HBsAg	14	130		25
VDRL	14	128		15
Malaria smear test	384	176		8
AFB sputum test	8	18		3
Routine urine test	38	322		60
Blood sugar – RBS	169	709		51
HbA1C*	5	NA		10
Lipid profile	0	0		19
Thyroid test	0	0		38
Serum potassium and creatinine	0	0		25
Dengue	0	0		10

**0nly 12/23 public facilities performed HbA1C. Record review performed either in May, June, July, August 2022.*

Majority (87%) of the public facilities reported outreach services (Figure 5). None of these outreach services were reported by private facilities.

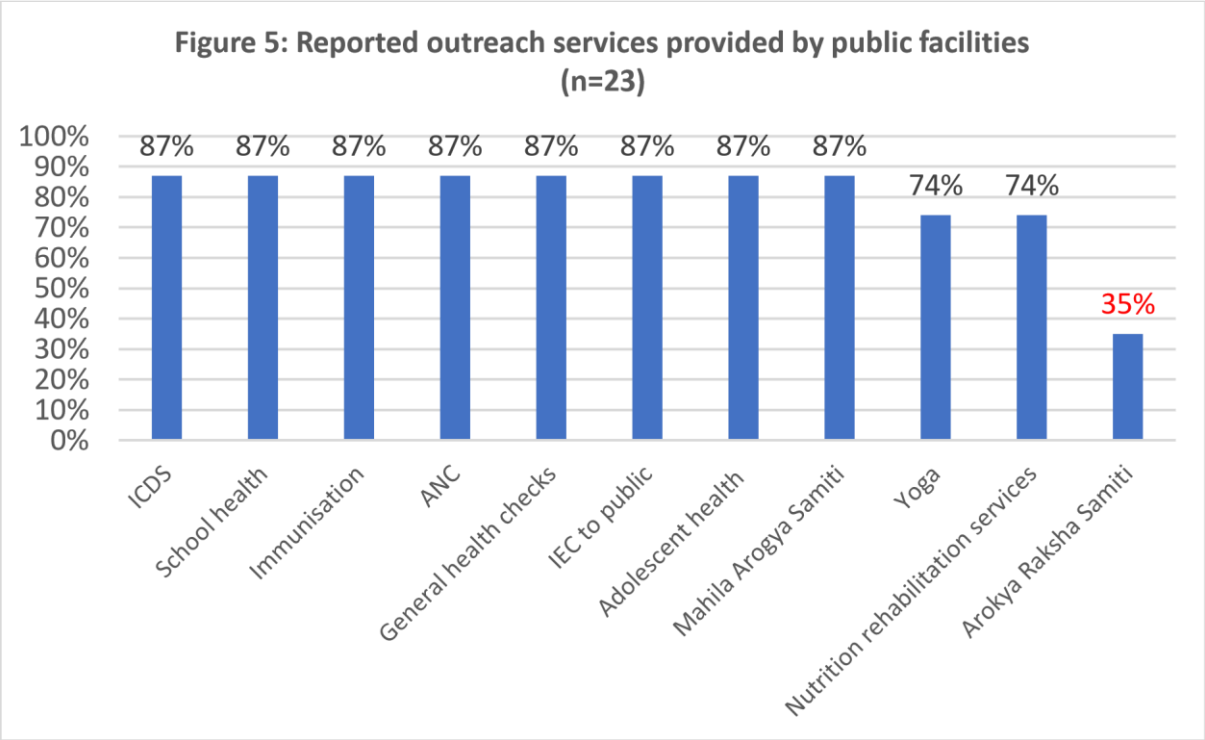


Table 13: Median number of persons reached for health services at the community by UPHCs (n=20)

Presently registered	Currently registered Median** by ANMs	Currently registered Median** by ASHAs
Pregnant women	40	7
Newborns	-	6
Postnatal mothers	-	6
Adults with diabetes	171	211
Adults with hypertension	180	212
Adults on TB treatment	4	
Others (cancer/mental health)	5	2

**1 UPHC did not have an ASHA who could do the survey; **Surveyed in Apr or May 2022*

Health workers – numbers against standards, roles, challenges in providing services **Table 14: Health workers filled against required Standards for UPHCs (n=20)**

Health workers** [1000000 population approximately]	Required based on Standards	Filled	Gap (Filled posts from Standards)
Doctors (1 fulltime + 2 parttime)	20+60	21	0
Nurses (3/UPHC)	60	44	16 (27%)
ANMs (10000 population/ANM)	100	83	17 (17%)
ASHAs (2500 population/ASHA)	400	81	319 (80%)
Lab technician (1 per UPHC) *	20	22	0
Pharmacist (1 per UPHC) **	20	15	5 (25%)
DEO / M & E Unit (1 per UPHC)	20	8	12 (60%)
Others (LDC / SDA) - PH manager one per UPHC - LHV 1 per UPHC - 2 support staff per UPHC	80 20 20 40	14	27 (34%)
Health Inspection Officer		39	
Class D worker (3 per UPHC)	60	39	21 (35%)
Counsellors			
*1 UPHC with 2 and 1 without a lab technician; ** 5 UPHCS with no pharmacist, acting pharmacists: 3 nurses and 2 medical officer*			

Table 14 shows the gap in HCPs both facility level and field based at the UPHCs. There was 80% gap of ASHAs based on standards required for the post.

Of the public facilities: two had gynaecologist and pediatrician on call; while of private facilities: three had gynaecologist, four had pediatricians, two had pediatric surgery doctors on call. More than 90% of nurses and lab technicians were appointed on contract basis while 76% of doctors had permanent appointment (Table 15).

Table 15: Demographic variables of health workers from UPHCs (n=20)

More than 80% doctors and nurses had received supervision in the last 3 months, while 60% of them were monitored monthly by a senior.

Amongst doctors and nurses only 11 (48%) and 10 (30%) received training on Rashtriya Bal Swasthya Karyakram (RBSK); 12 (52%) and 8 (35%) received training on Rashtriya Kishor Swasthya Karyakram (RKSK) respectively (Table 15). These programs are focused on the overall quality of life and health of children and adolescents.

One of each health workers was selected for assessing training received (Table 16-Table 18),

	Doctors* (n=21)	Nurses (n=46)	Lab technician (n=22)	Pharmacist (n=17)	ANM (n=84)	ASHA (n=81)
Appointment						
On contract	3 (14%)	43 (93%)	21 (95%)	10 (59%)	60(71%)	81 (100%)
Through NGO	2 (10%)	0 (-)	0 (-)	0 (-)	6 (7%)	0 (-)
Permanent	16 (76%)	3 (7%)	1 (5%)	7 (41%)	18 (22%)	0 (-)
Age in years						
(Mean±SD)	45.8±11.6	37.1±9.2	32.9±7.3	35.3±9.1	34.2±7.2	36.4±6.3
Range	25-59	22-58	24-50	22-54	24-57	24-54
Sex						
Male	8 (38%)	0 (-)	9(41%)	2 (12%)	0 (-)	0 (-)
Female	13 (62%)	46 (100%)	13 (59)%	15 (88%)	84 (100%)	81 (100%)

**1 facility had 2 doctors*

their roles (Table 19-20) and challenges faced in providing required services (figure 15-16) are presented further.

Table 16: Training received as reported by doctors and nurses from public facilities

Areas of training received in the last 5 years	Doctors (n=23)	Nurses (n=23)
SBA	8 (35%)	12 (52%) *
New-born	16 (70%)	23 (100%) **
RBSK	11 (48%)	10 (30%)
Infection control	15 (65%)	21 (91%)
Family planning	17 (74%)	21 (91%) *
Non-Communicable Diseases (NCDs) – YES	17 (74%)	23 (100%)
✓ Diabetes	17 (74%)	23 (100%)
✓ Cancers	17 (74%)	23 (100%)
✓ Hypertension (HTN)	17 (74%)	23 (100%)
✓ Mental Health (MH) problems	16 (70%)	19 (83%)
✓ Injuries	14 (61%)	18 (78%)
✓ COPD	13 (57%)	0 (....)
✓		
RKSK	12 (52%)	8 (35%) **
Communicable Diseases (CDs)-		
Tuberculosis (TB)	18 (78%)	16 (70%)
Dengue	17 (74%)	12 (52%)
HIV	15 (65%)	0 (-)
Diarrheal diseases	15 (65%)	11 (48%)

**3 from public childbirth facility received training; ** 1 from public childbirth facility*

Table 17: Training reported to have been received by lab technicians and pharmacies at all public facilities (n=23)

Areas of training received in the last 5 years	Lab technicians (n=23)
Malaria / National Vector Borne Disease Control Program (NVBDCP)	18 (78%)
Tuberculosis	13 (57%)
NUHM	8 (35%)
Biomedical waste management	4 (17%)
Non-Communicable Diseases	4 (17%)
IHIP (Integrated health information platform)	3 (13%)
No training	1 (4%)
Areas of training received in the last 5 years	**Pharmacists (n=23*)**
Electronic Vaccine Intelligence Network (eVIN) app/Karnataka State Medical Supplies Company (KSMSC)	11 (47%)
Vaccine storage	5 (22%)
Nikshay (Personal Protective Equipment and products)	3 (13%)
Biomedical waste management	1 (4%)
Integrated Disease Surveillance Project (IDSP)	1 (4%)
Did not respond to question	2 (9%)

**5 UPHCs and 1 public childbirth facility did not have qualified pharmacists. The nurse / doctor acting as pharmacists gave the interview.*

Most of the lab technicians 18 (78%) had training on NVBDCP and on tuberculosis 13 (57%). While amongst pharmacists 11 (55%) mentioned they received training on eVIN (Table 17).

Two (9%) of the lab technicians mentioned that they had stock-out of lab supplies in the last three months and their equipment were not functional. While among the pharmacists and acting pharmacists (4 nurses and 2 medical officers), 10/23 (44%) mentioned that they had medication stock outs. These included drugs for treatment of diabetes and hypertension.

Table 18: Training reported to have been received by ANMs and ASHAs in public facilities

Area of training in the last 5 years	ANMs* (n=21)	ASHA** (n=20)

SBA	14 (67%)	Module1-20 (100%)
Newborn	19 (90%)	Module 2- 20 (100%)
RBSK	8 (35%)	Module 3 – 20 (100%)
Infection control	12 (57%)	Module 4 – 18 (90%)
NCDs Diabetes Cancers Hypertension Mental health Injuries	 16 (76%) 17 (81%) 16 (76%) 13 (62%) 16 (76%)	Module 5 – 13 (65%) Module 6 – 10 (50%) Module 7 – 4 (20%) All Modules – 1 (5%)
RKSK	7 (33%)	
Communicable diseases TB Dengue Diarrheal diseases	 17 (81%) 17 (81%) 17 (81%)	**No ANMs and ASHAs in 2 public childbirth facilities* ***No ASHA in one UPHC*

Most of the ANMs (Table 18) reported to have been trained on newborn care [19 (90%)], on cancers [17 (81%)], on Diabetes and hypertension [16 (76%)] and on communicable diseases – TB, dengue, diarrheal diseases [17 (81%)].

Of the ASHAs (Table 18), most (>90%) had training on Module 1 that introduced them to their roles and responsibilities, Module 2 on MCH, Module 3 on family planning, contraceptives, Reproductive and Sexual Health (RSH) including Adolescent RSH, Module 4 on National health programs including AYUSH and management of minor ailments. While training on Module 5 which was on knowing self, human rights, leadership, skills-communication, decision-making, negotiation, coordination; Module 6 on MNH skills to save lives; Module 7 Neonatal and Child health skills to save lives was received by 65%, 50% and 20% respectively.

Table 19: Role of doctors at public facilities (n=23)

Doctors' role at public facilities	***Frequency of performance***							
	Most often		***Less often***		***Rarely***		***Blank /Not responded***	
	a	***b***	***a***	***b***	***a***	***b***	***a***	***B***
Clinical management of patient	19	1	0	0	0	0	1	2
Visit subcenter	12	0	5	0	2	0	1	3
Preparation of operational plans	12	0	2	0	4	0	2	3
School visits	10	0	4	0	4	0	2	3

Supervision of nurses and health workers	18	1	0	0	1	0	1	2
Training of staff	16	1	1	0	2	0	1	2
Intersectoral coordination	12	1	5	0	2	0	1	2
Supervision of administrative works	16	1	2	0	1	0	1	2
Coordination with AYUSH*	8	0	1	0	2	0	9	3
Field visits to understand local problems	15	0	2	0	2	0	1	3

*a=UPHCs (n=20); b= public childbirth facilities (n=3); *AYUSH: Ayurveda, Siddha, Homeopathy medicine*

The most often roles of doctors as seen in Table 19 at public facilities included clinical management of patients 19/23 (82%), supervision of staff and other health workers 18/23 (78%), supervision of administrative work and training of staff – 16/23 (70%). All 23 of private facility doctors only mentioned clinical management as their main role.

Table 20: Role of nurses at public facilities (n=23)

Staff nurses' roles at public facilities	Frequency of performance based on rank order (n=23)							
	Most often		Less often		Rarely		Not responded / Blank	
	a	b	a	B	a	b	a	b
Clinical management of patient	20	3	0	0	0	0	0	0
Conduct of MCH clinics	17	1	2	0	0	3	0	0
Outreach camps /School health services*	9	0	5	0	4	1	2	2
Equipment – functional and maintained	17	3	3	0	0	0	0	0
Supervision of other HCPs*	5	0	0	0	5	0	10	3
Conduct deliveries	0	3	0	0	0	0	20	0
Cleanliness and IC in facility	14	3	4	0	0	0	1	0
Educational activities – Facility / Community*	17	3	3	0	0	0	0	0
Attending meetings with others – ANMs / ASHAs*	9	0	1	0	5	0	5	3

- *Not relevant for private health facilities and only two facilities had a nurs e.*
- *a=UPHCs; b=public childbirth facility*

The most often roles of nurses at public facilities included clinical management 20/23 (87%);

Educational activities, conduct of MCH clinics and maintenance of equipment 17/23 (73%). Only 2 private health facilities had nurses and they reported clinical management, conduct of MCH clinics, management of women during childbirth and supervision of the cleanliness of the facility were their main roles.

More than 91% of ANMs and ASHAs reported to have been supervised and 100% were monitored by a senior monthly.

C.2. Profile the community morbidity status, healthcare seeking, and costs incurred for selected acute and chronic conditions in urban wards of Mysuru city

Survey was carried out in 6007 households of Mysuru urban, comprising of 21576 individuals, having 51.2% females. Table 1 represents the summary of the demographic characteristics of the surveyed population. Among 6474 women in the reproductive age group, 100 (1.6%) mothers were currently pregnant and pregnancy in the last 3 years were 563 (8.6%). Among 11978 individuals aged above 30 years, 17.3% of were either diabetes or hypertension.

C.2.1. *Demographic profile of the community*

Table 21: Demographic characteristics of the study population

Parameters	**N (%)**
Number of HH	6007
Individuals	21576
Current pregnancy (18-49)	100 / 6474 (1.6%)
Pregnancy in the last 3 years (18 – 52 years)	563 / 6555 (8.6%)
Reproductive age group women (18 – 49 years)	6474 (30.0%)
Children below 5 years	1262 / 21576 (5.8%)
Children sick below 5 years	256 / 1262 (20.3%)
Either Diabetes or hypertensives (age > 30 years)	2078 / 11978 (17.3 %)

Out of total population surveyed, 89.2% belonged to less than 60 years of age and 55.5% of them were above 30 years of age. The age distribution by gender of the study population is given in Table 22. There were 5.8% (n=1262) of children below 5 years of age, among them 25% were sick in the past 1 month (Table 23).

Table 22: Descriptive statistics of age group by gender of the population

Age group (in years)	**Male, N = 10528 (48.8%)**	**Female, N = 11048 (51.2%)**	**Total, N (%)**
0-5	680 (6.5%)	582 (5.2%)	1262 (5.8%)
6-20	2178 (20.7%)	2109 (18.9%)	4287 (19.8%)
21-35	2757 (26.2%)	3199 (28.7%)	5876 (27.5%)

36-50	2593 (24.6%)	2764 (24.8%)	5358 (24.7%)
51-65	1574 (14.9%)	1747 (15.7%)	3321 (15.3%)
≥66 years	746 (7.9%)	727 (6.5%)	1472 (6.8%)

Table 23: Distribution of age group <5 years by gender of the population

Age	Male, N = 680 (%)	Female, N = 582 (%)	Total, N = 1262 (%)
Below 1 year	55 (61.1%)	35 (38.9%)	90 (7.1%)
1 – 5 years	625 (53.3%)	547 (46.7%)	1172 (92.8%)
Total	680 (53.9%)	582 (46.1%)	1262

Socio-demographic characteristics such as marital status, education and occupation of the population is presented in Table 24. Among 16907 individuals ≥ 18 years of age, 69.2% were currently married. Among 20298 individuals ≥ 6 years of age, 22% had completed graduation and above and one fourth of them had completed high school. Majority (~60%) of the females were home maker. More than one fifth of the population (21.6%) were employed either in government or private sector, approximately 6% of the individual were unemployed during survey period.

Table 24: Demographic parameters of the surveyed population

Demographic Parameters	Male, N (%)	Female, N (%)	Total, N (%)
Marital Status (> 18 years)	8084 (76.8%)	8823 (79.9%)	16907 (78.4%)
Never married	1722 (21.3%)	1082 (12.3%)	2804 (16.6%)
Currently married	5752 (71.2%)	5948 (67.4%)	11700 (69.2%)
Widowed/Separated/Divorced	290 (3.6%)	1589 (18.0%)	1879 (11.1%)
Education (≥6 years)	9843 (93.5%)	10455 (94.6%)	20298 (94.1%)
Illiterate	866 (8.8%)	1589 (15.2%)	2454 (12.1%)
Primary and middle	2300 (23.3%)	2480 (23.7%)	4780 (23.5%)
High school	2666 (27.1%)	2793 (26.7%)	5459 (26.9%)
PUC/ Class 11&12	1556 (15.8%)	1528 (14.6%)	3084 (15.2%)
Graduate	2075(21.1%)	1713 (16.4%)	3788 (18.7%)
Postgraduate and above	380 (3.9%)	353 (3.4%)	733 (3.6%)
Occupation	10472	10975	21447
Govt	358 (3.4%)	115 (1.0%)	473 (2.2%)
Private	2594 (24.8%)	807 (7.4%)	3401 (15.9%)
Business and Self employed	1741 (16.6%)	206 (1.8%)	1947 (9.1%)
Daily wages	1703 (16.3%)	396 (3.6%)	2099 (9.8%)
Retired	541 (5.2%)	94 (0.9%)	635 (3%)
Student	2278 (21.8%)	2224 (20.3%)	4502 (21%)
Home maker	485 (4.6%)	6466 (58.9%)	6951 (32.4%)
Unemployed	772 (7.4%)	667 (6.1%)	1441 (6.7%)

Table 25: Household Characteristics of the surveyed population

Household characteristics	N (%)
Religion	6007
Hindu	4656 (77.5%)

Muslim	1227 (20.4%)
Christian	110 (1.8%)
Others	14 (0.2%)
Caste	6007
SC/ST	851 (14.4%)
OBC	2868 (48.5%)
General	2288 (38%)
BPL card shown	4170 (69.4%)
House ownership - Owned	4013 (66.8%)
House Type – Pucca/Semi pucca/Kutcha	4904 (81.6%) / 1024 (17%) / 79 (1.3%)
Drinking water -Within the premises/ Near the premises / Away	5015 (83.5%) / 565 (9.4%) / 420 (7.0%)
Toilet – Improved not shared / Shared facility / Unimproved & no facility	3538 (58.9%) / 2419 (40.3%) / 50 (0.8%)
Solid waste segregated at source– Yes	5671 (94.4%)
Cooking fuel - LPG/electricity	5955 (99.1%)
Fridge availability	3955 (65.8%)
Computer (laptop) with/ without internet / not available	441 (7.3%)/158 (2.6%) / 5408 (90%)
Motor vehicle 4 -wheeler	518 (8.6%)
3-wheeler	237 (3.9%)
2-wheeler	5178 (86.2%)
Phone Ownership Smart / Land phones	5584 (93%) / 1971 (32.8%)

Table 25 showed the household characteristics of the surveyed population. Most of the surveyed population were Hindu by religion (77.5%) and OBC by caste (48.5%). BPL card was shown by 70% of the surveyed households. More than 2/3rd of the households was having their own houses. About 82% of the surveyed house were of Pucca in nature. Most of them had drinking water facility within their premises (83.5%) and improved toilet facility (99.0%). Majority of the segregated solid waste at source (94.4%) and used LPG as cooking fuel (99.1%) and these data were comparable to NFHS-5. Refrigerator was available in more than 2/3rd of the households.
About 90% of the households were not having either computer or laptop. Most of the households had two wheelers (86.2%) and average of two smart phones per household.

C.2.2. Health Insurance (Table.26):

Majority of the households' members did not have any kind of health insurance (70.5%) which was like what was observed in NFHS -5 data (73.8%). Among those who were having health insurance Ayushman Bharat/ Arogya Karnataka was the most reported followed by privately purchased health insurance.

Table 26: Health insurance statistics of the surveyed population

Health Insurance	**Yes, N (%)**
Type of Health Insurance	
Ayushman Bharat/Arogya Karnataka	989 (16.5%)

Employees state Insurance scheme / CGHS	466 (7.8%)
Other privately purchased health insurance	446 (7.4%)
Medical reimbursement from employer	34 (0.6%)
No insurance	4072 (67.8%)
Insurance used in last 1 year	26

Health Insurance	**Male, N (%)**	**Female, N (%)**	**Total, N (%)**
Type of Health Insurance			
Ayushman Bharat/Arogya Karnataka	1523 (14.5%)	1558 (14.1%)	3081 (14.3%)
Employees state Insurance scheme / CGHS	783 (7.4%)	744 (6.7%)	1527 (7.1%)
Other privately purchased health insurance	788 (7.5%)	792 (7.2%)	1580 (7.3%)
Medical reimbursement from employer	59 (0.6%)	52 (0.5%)	111 (0.5%)
No insurance	7325 (70.1%)	7902 (71.6%)	15227 (70.5%)
Insurance used in last 1 year	26	28	54 (0.2%)

C.2.3. Lifestyle characteristics (Table 27):

Tobacco consumption in both smoking and chewing form was observed in 3% of the population respectively among individuals aged above 18 years. Alcohol consumption was reported in 4.4% of the individual's majority being males. Majority of the survey individuals consumed fruits (61.5%) and vegetables (92.8%) for more than 4 days a week. Nealy half of the surveyed individuals reported that to use salt at the time of food preparation. More than ¼ the of the household members were doing brisk walk for more than 4 days a week. Considering eating fruits, vegetables and walking for more than 4 days a week and none of the habits of using tobacco and alcohol as healthy habits, only 13% of the surveyed individuals were noted to be having healthy lifestyle. Only 5% of the individual noted to be part of some voluntary organization.

Table 27 Lifestyle characteristics (in ≥18 years age group) of the surveyed population

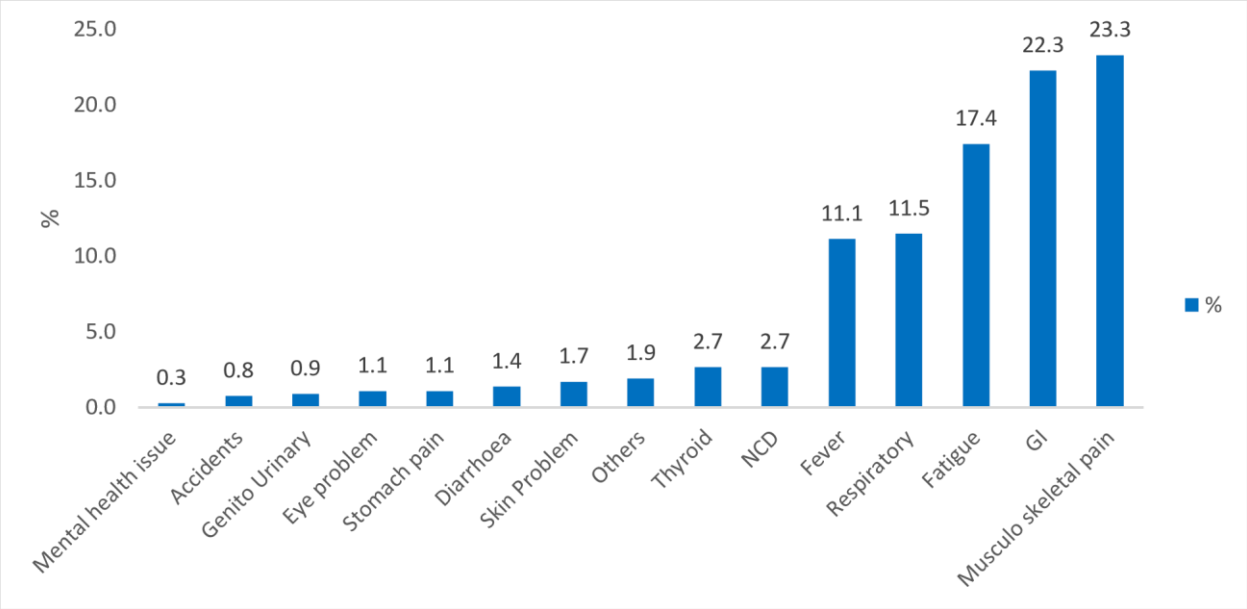
Age group (>18yrs)	**Male N = 7929 (%)**	**Female N = 8662 (%)**	**Total N = 16591 (%)**
Smoking tobacco	470 (5.9%)	69 (0.8%)	539 (3.2%)
Chewing tobacco	387 (5.5%)	74 (0.9%)	461 (3.1%)
Alcohol	608 (7.7%)	117 (1.4%)	725 (4.4%)
Fruit Eating>=5 days/week	4346 (61.5%)	4846 (61.5%)	9192 (61.5%)
Vegetable eating>=5 days/week	6584 (93.2%)	7304 (92.6%)	13888 (92.8%)

How often Add salt			
Always / Often	51 (0.8%)	45 (0.5%)	96 (0.6%)
Sometimes / Rarely	869 (12.3%)	870 (11.0%)	1739 (11.7%)
Never	2624 (37.1%)	2988 (37.9%)	5612 (37.5%)
At food preparation	3522 (49.9%)	3980 (50.5%)	7502 (50.2%)
Brisk walk	1844 (26.1%)	1970 (25%)	3814 (25.5%)
Eye check up on own	1274 (18.1%)	1522 (19.3%)	2796 (18.7%)
Unhealthy lifestyle	**1037 (13.1%)**	**161 (1.9%)**	**1198 (7.2%)**
Healthy lifestyle	**1096 (13.8%)**	**1159 (13.4%)**	**2255 (13.6%)**
Member of voluntary organization	N = 7066	N = 7884	N = 14950
Mahila Arogya Samiti	24 (0.3%)	50 (0.6%)	74 (0.5%)
Self-Help Group	71 (1%)	186 (2.4%)	257 (1.7%)
Other (Dharmasthala/Ujjivana/Gramina kuta)	69 (1%)	298 (3.8%)	367 (2.5%)
None	6902 (97.7%)	7350 (93.2%)	14252 (95.3%)

C.2.4. 2-weeks morbidity:

Around 7% (n-1490) of the surveyed population reported to have some illness in the past 2 weeks (Figure 6). Almost half of them sought treatment at health facility. Among those not seeking treatment at health facility, majority reported using home remedies or medicines available at home.

Figure 6: Types of ailments in the surveyed population in the last 2 weeks



Health seeking behaviour (Table 8.1)

Public health facility was utilized by 32.5% of the individual who sought treatment and remaining went to private health facility (67.5%). Allopathy system of medicine was the most utilized system of medicine. One third of the patients were advised investigations and 84% were prescribed medicines for their ailments.

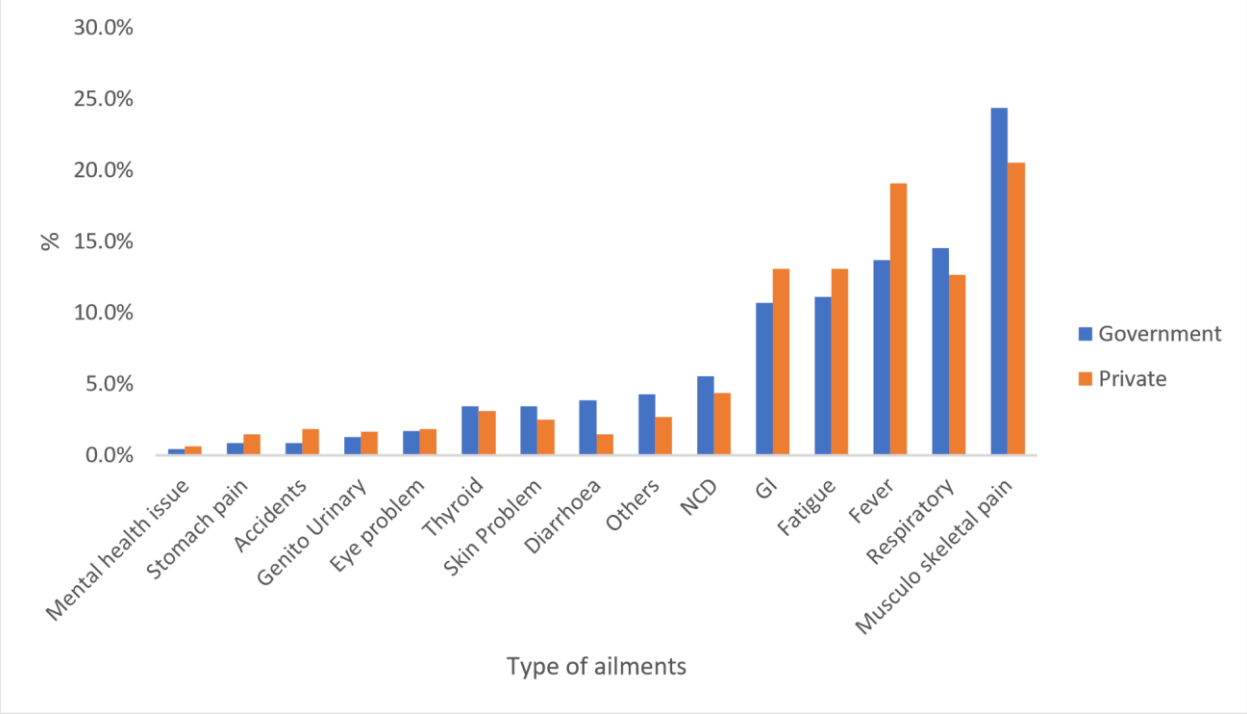


Figure 7: Place of health care for different ailments in the surveyed population in the last 2 weeks

Mode of travel: Most frequently used mode of travel for health seeking to health care facility was two-wheeler (38.0%) followed by walking (23.7%). Median distance to reach health care facility was around 2 km for both public and private facility. The reported time to reach the health facility for illness was less than 30 minutes for most of them. Similarly, time to consult the doctor was also reported to be less than 30 minutes for majority of the individuals. Almost 2/3rd (60.4%) of the patients preferred morning hours as time of consultation.

Cost of care analysis for acute ailments (Table 28.2)

The median consultation cost reported was 0 (0, 100) and 200 (100, 300) in public and private health care facility respectively. Almost 40% of those consulting in public facility did not pay any consultation fees. The median cost of investigations was 65 (10, 520) and 100 (10, 800) for public and private health care facility respectively. Significantly higher median cost was spent on medicines in private facility [290 (150, 500)] as compared to public [110 (0, 425)]. Travel cost was similar for both health facility [Rs. 50 (10, 100) Vs 75 (50, 127)]. Majority of the individuals reported to use either income or saving to manage their routine medical expenses.

Table 28.1: Health seeking behaviour characteristics in 2 weeks morbidity (for the first episode)

2-week Morbidity	**N (%)**
Illness in the last 2 weeks (n = 21576)	1490 (6.9%)

Sought treatment at health facility	740 (49.7%)
0-5	57 (7.7%)
6-20	108 (14.6%)
21-35	95 (12.8%)
36-50	206 (27.8%)
51-65	160 (21.6%)
≥66	114 (15.4%)
Treatment received from health facility	N = 740
Govt	241 (32.5%)
Private	499 (67.5%)
Medicine system	N = 740
Allopathy	710 (96.0%)
Ayurveda	12 (1.6%)
Homeopathy	13 (1.8%)
Others	5 (0.6%)
At least 1 ailment	1490 (6.9%)
2 or more ailment	34 (0.2%)
Investigations advised	247 (35.7%)
Medicines prescribed	603 (84%)
Mode of travel	**N = 720**
Walk	171 (23.7%)
Bus	68 (9.4%)
Auto and others	129 (17.9%)
2-wheeler	273 (38%)
Car	79 (11%)

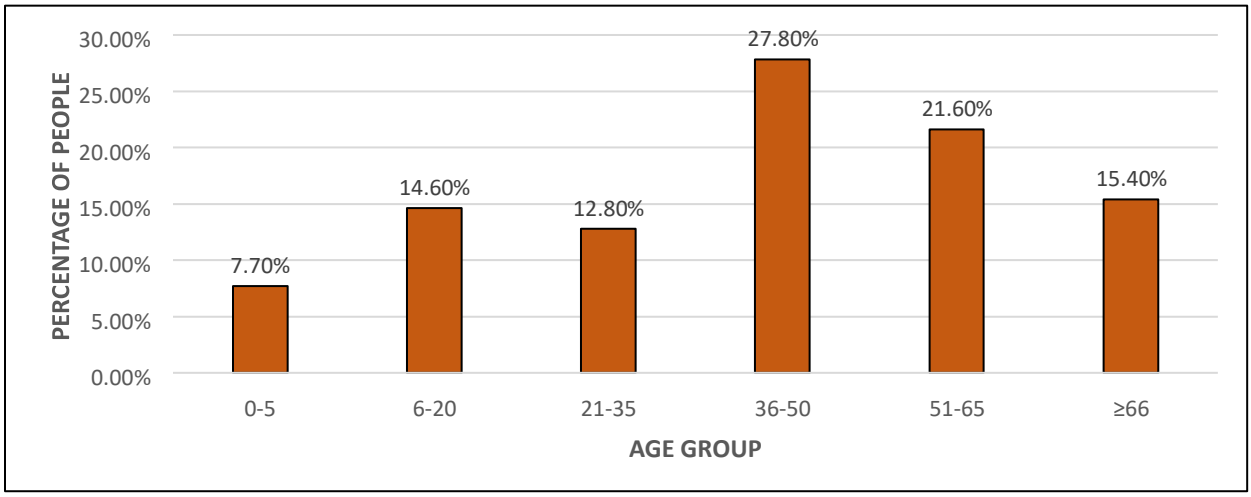


Figure 8: Distribution of individuals who sought treatment at health facility by age group

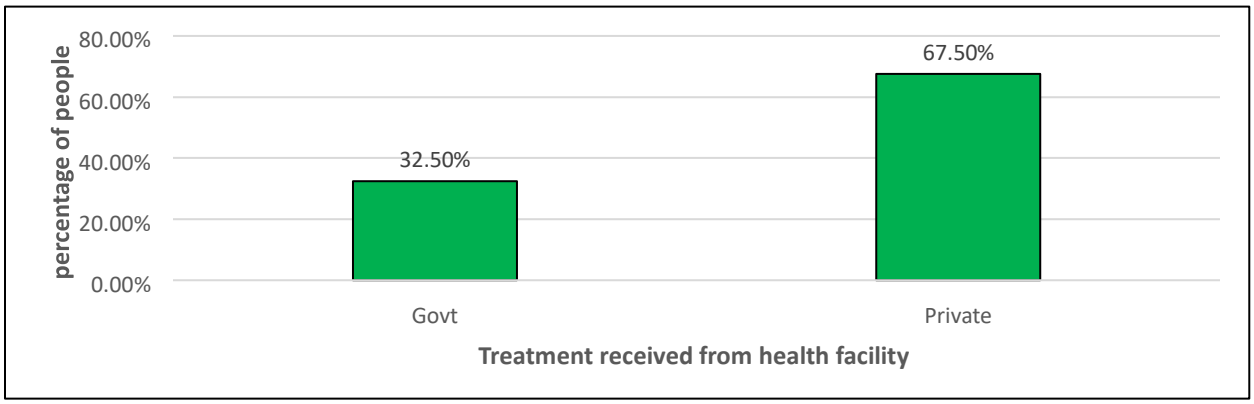


Figure 9: Distribution of individuals according to type of facility from where they received treatment

Table 28.2: 2 weeks morbidity – Distance, time and cost involved (for the first episode of ailment)

	Govt	**Pvt**	**Total**
Distance to HF median (IQR) in Km	2 (1, 4)	2.5 (1, 5)	2 (1, 4)
Time to reach the facility Less than 30 minutes 30 minutes – 1 hour > = 1 hour	 406 (56.7%) 268 (37.4%) 41 (5.9%)	 135 (56.7%) 85 (35.7%) 18 (7.3%)	 271 (56.7%) 183 (38.3%) 24 (5%)
Time taken to consult the doctor Less than 30 minutes 30 minutes – 1 hour > = 1 hour	 361 (51.4%) 250 (35.6%) 91 (13%)	 112 (46.9%) 74 (31%) 53 (22.2%)	 249 (53.8%) 176 (38.0%) 38(8.2%)
Time of consultation			
Morning	451 (67.7%)	187 (81.7%)	264 (60.4%)
Afternoon	80 (12%)	29 (12.7%)	51 (11.7%)
Evening	117 (17.6%)	7 (3.1%)	110 (25.2%)
Night	18 (2.7%)	6 (2.6%)	12 (2.7%)
Ailment 1	**Govt**	**Pvt**	**Total**
Consultation cost in Rs	0 (0, 100)	200 (100, 300)	110 (10 , 250)
Consultation amount not paid	39.8%	6.3% (Rs 10)	
Testing cost in Rs	65 (10, 520)	100 (10, 800)	100 (10, 520)
Drugs cost in Rs	110 (0, 425)	290 (150, 500)	200 (100, 500)
Cost spent on travel in Rs	50 (10, 100)	75 (50, 127)	60 (30, 100)
Managing routine medical expenses	**Govt N = 241**	**Pvt N = 477**	**Total N = 718**
Income	97 (40.2%)	186 (38.9%)	283 (39.4%)
Savings	151 (62.7%)	306 (64.2%)	477 (66.4%)
Borrowed	1 (0.4%)	9 (2.0%)	10 (1.4%)
Selling property / jewelry	3 (1.2%)	2 (0.4%)	5 (0.7%)
Insurance	3 (1.2%)	2 (0.4%)	5 (0.7%)

C.2.5. Maternal health:

Among 6474 women in the reproductive age group, 100 (1.6%) mothers were currently pregnant and pregnancy in the last 3 years were 563 (8.6%).

Antenatal care:

About 46% and 44% of the mothers preferred public and private health facility for their antenatal care respectively. More than 2/3rd of the ANC mothers showed their thai card during interview and very few (2.0%) were reported to have missed one of the ANC visit to health facility. Two-wheeler (40.0%) was the preferred most of transport for the ANC care. The median cost spent on ANC care was 2900 (1125, 5000) for mother utilizing public health facility. In contrast, higher median cost of 15000 (5500, 20000) was the amount spent in private health facility. Almost of them reported to use either income or saving to manage their ANC care medical expenses. The median
(9) satisfaction score was similar for both public and private.

Childbirth care:

Public health facility was utilized for Childbirth care by 55% of the women. The reported mode of Childbirth was LSCS and other form of assisted Childbirth in 47.6% of the mothers which was comparable to NFHS-5 data of Mysuru city. Cash transfer benefits like Janani Suraksha Yojana were availed by 45.3% of the delivered mothers. Car (64.5%) the most commonly mode of transport for Childbirth. Only 10 mothers reported to have some complications during Childbirth for which majority were referred and went to public health facility (60%). Significant difference was noted in the median cost spent for Childbirth between public [5000(4500, 10000)] and private health facility [50000 (25000, 60000)]. Around 7% of them borrowed/sold property/ jewellery to manage their Childbirth care medical expenses. The median (9) satisfaction score was similar for both public and private.

Postnatal care:

Postnatal care data was available on 547 mothers. Slightly more than half of them (54.8%) availed PNC care in public health facility. Cash transfer benefits like Janani Suraksha Yojana were availed by 42.8% of the delivered mothers. Car (52.9%) the most commonly mode of transport for PNC services. Complications was reported in 6 mothers and majority (80%) were referred and went to private health facility. The median cost spent for PNC care in public [3000(2000, 5000)] and private health facility [20000 (8000, 50000)]. Almost of them reported to use either income or saving to manage their PNC care medical expenses. The median (9) satisfaction score was similar for both public and private.

Table 29.1: Maternal health: Health seeking behaviour characteristics

Maternal Health	**ANC N = 100 (%)**	**CHILDBIRTH N = 563 (%)**	**PNC N = 547 (%)**
Place of care			
Govt	46 (46%)	304 (54.7%)	300 (54.8%)
Private	44 (44%)	250 (45%)	246 (45%)
Traditional	1 (1%)	2 (0.4%)	1 (0.2%)
Primary respondent was not aware	9 (9%)	7 (1.2%)	0 (0%)
Thai card showed	77 (77 %)	512 (92.8%)	489 (89.4%)
Type of Childbirth			

Normal		289 (52.5%) Govt: 216 (74.7%) Private: 73 (25.3%)	
LSCS & others		262 (47.6%) Govt: 86 (33%) Private: 175 (67%)	
JSY / other cash transfer		248 (45.3%)	227 (42.8%)
Mode of transport	**ANC**	**CHILDBIRTH**	**PNC**
Walk	10 (11.1%)	6 (1.1%)	28 (5.2%)
Bus	8 (8.9%)	30 (5.4%)	28 (5.2%)
Auto and others	12 (13.3%)	122 (22.1%)	113 (20.9%)
2-wheeler	36 (40%)	38 (6.9%)	86 (15.9%)
Car	24 (26.7%)	356 (64.5%)	286 (52.9%)
Missed ANC visits	2 (2%)		
Complications (mother)	0 (0%)	10 (1.8%)	6 (1.1%)
Type of hospital went	NA	10	5
Govt		6 (60%)	1 (20%)
Private		3 (30%)	4 (80%)
None		1 (10%)	0 (0%)

Table 29.2: Maternal health: Cost of care and satisfaction score

	ANC	**CHILDBIRTH**	**PNC**
HH spend [Median (IQR)] Govt Pvt	5000 (2000, 15000) 2900 (1125, 5000) 15000 (5500, 20000)	10000 (5000, 50000) 5000 (4500, 10000) 50000 (25000, 65000)	5000 (2000, 20000) 3000 (2000, 5000) 20000 (8000, 50000)
Routine medicine expenses	**N = 100**	**N = 563**	**N = 547**
Income	35 (35%)	224 (39.8%)	226 (41.3%)
Savings	66 (66%)	385 (68.4%)	373 (68.2%)
Borrow from family	2 (2%)	15 (2.7%)	12 (2.2%)
Selling property / jewelry	0	15 (2.7%)	9 (1.6%)
Insurance	1 (1%)	6 (1.1%)	3 (0.5%)
Satisfaction score Median	8 (8,9)	9 (8,9)	8.5 (8,9)

C.2.6. Child Health:

The mean age of children (≤5 years) was 2.7 ± 1.5 years. One fourth of the children (25%) were reported to be sick in the last 1 month. The most common illness reported was Acute Diarrhoeal Disease (ADD) (67.6%) followed by Acute Respiratory Infection (ARI) (35.5%). For both the ailments, approximately equal proportion of households availed care from public and private health facilities. The preferred reasons for choosing public health facility were less / free of cost followed by trust in doctor and nearby distance which was similar for both ARI and ADD. Trust in doctor, timely service, and all facilities at one place were the reasons reported in favour of private health facility. Time spent for consultation was less than 30 minutes in public health facility, and 30 – 60 minutes in private health facility. Child hospitalization rate was 13.2% and 4.0% for ARI and ADD respectively. The median cost spent on treatment for ARI in public was 128 (87, 335) and in private health facility was 500 (185, 10500). For ADD, the median cost was 60 (50,100) in public health facility and 145(100, 200) in private health facility. The median (9) satisfaction score was similar for both public and private.

Table 30: Child health: Health seeking behaviour, and satisfaction score

Child Health (age ≤ 5 years)	**N = 1065**			
Mean age	2.7 ± 1.5 years			
Currently sick in the last 1 month	256 (24%)			
Ailment				
ARI	91 (35.5%)			
ADD	173 (67.6%)			
Others (Speech and hearing issues; cleft lip)	2 (0.8%)			
	ARI		**ADD**	
Place of treatment				
Govt	46 (50.5%)		87 (50.6%)	
Private	45 (49.5%)		85 (49.4%)	
Child hospitalized	12 (13.2%)		7 (4.0%)	
Primary reason	**Govt**	**Pvt**	**Govt**	**Pvt**
Close by	15 (23.4%)	1 (4%)	14 (8%)	6 (3.4%)
Less cost/free of cost	29 (45.3%)	2 (8%)	117 (66.9%)	8 (4.5%)
Trust / good doctor	16 (25%)	15 (60%)	39 (22.3%)	81 (45.8%)
Timely service	3 (4.7%)	5 (20%)	3 (1.7%)	56 (31.6%)
All facility at one place	1 (1.5%)	2 (8%)	2 (1.1%)	26 (14.7%)
Time spent on consultation	**Govt**	**Pvt**	**Govt**	**Pvt**
<30 minutes	14 (53.8%)	5 (29.4%)	57 (65.5%)	37 (43.5%)
30 minutes -1 hour	7 (26.9%)	9 (52.9%)	24 (27.6%)	38 (44.7%)
1 – 2 hours	5 (19.2%)	3 (16.8%)	6 (6.9%)	10 (11.8%)
Money spent on treatment	**128 (87, 335)**	**500 (185, 10500)**	**60 (50, 100)**	**145 (100, 200)**

Median satisfaction score	**8 (8, 9)**	**9 (8, 9)**	**8 (8, 9)**	**9 (8, 9)**

Child immunization:

Table 31 shows the proportion of children (<=24 months) completely immunized was 83.0%. About 73.4% of them received immunization from public health facility. Primary reason for preferring public health facility was less/free of cost (81.9%) followed by trust in doctor (57.9%).

Table 31: Health care seeking characteristics for child immunization

Child immunization Done (<= 24 months)	**N = 463 / 553 (83.7%)**	
Place		
Govt	340 (73.4%)	
Private	123 (26.6%)	
Primary reason	**Govt**	**Pvt**
Close by	92 (27%)	12 (9.7%)
Less cost/free of cost	303 (89.1%)	9 (7.4%)
Trust / good doctor	197 (57.9%)	103 (83.7%)
Timely service	27 (7.9%)	61 (49.6%)
All facility at one place	22 (6.5%)	32 (26%)
Time spent for immunization		
<30 minutes	159 (47%)	56 (45.5%)
30 minutes -1 hour	154 (45.6%)	58 (47.2%)
1 – 2 hours	25 (7.4%)	9 (7.3%)

Non-Communicable diseases (Diabetes Mellitus and Hypertension):

Data pertaining to diabetes and hypertension was assessed in individuals aged more than 30 years. The reported prevalence of either diagnosed diabetes or hypertension was 17.3%, (15.9% in males / 18.7% in females). Both diabetes and hypertension were presented in 7.5% of the individuals (6.5% males/ 8.7% females). Diabetes and Hypertension alone was reported in 12.8% and 15.0% respectively.

For both diabetes and hypertension, approximately 65% of the individuals preferred private health facility and the allopathy was the preferred system of medicine (99.0%). The reason for preferring private health facility were trust in doctor (80.0%) followed by timely service (50.0%) and all facility at one place (27.0%). Around 3 fourth of the patients are on regular treatment for their medical conditions. Higher proportion of both diabetes (70.3%) and hypertension (65.9%) patients preferred private facility for buying medicine routinely. The regular fasting blood sugar check among diabetic individuals was done in private health facility (69.5%).

About 7% of the diabetic individuals and 3.8% of the hypertensives were told to have some complications by the consultant. Most of them were referred to private health facility for their complications. Eye, kidney, cholesterol, and ECG check up in the last 1 year was reported to be done in 63.7%, 69.5%, 69.4% and 70.9% of the diabetic individuals respectively. Among hypertensives, Eye, kidney, cholesterol, and ECG check up in the last 1 year was reported to be done in 54.1%, 44.5%, 46,7% and 56.8% respectively. Table x provides the data on recent blood sugar levels and the recorded

BP at the time of survey. Like other illnesses, income and savings were reported to be the commonest mode of managing routine medical expenses in NCD patients. The median satisfaction score was 8 (8,9) in both public and private health facility.

Table 32.1: Non-Communicable Diseases: Health seeking behaviour characteristics

Characteristics	**DM (N= 1313)**		**HTN (N=1539)**	
Gender distribution	**Male**	**Female**	**Male**	**Female**
	619 (47.1%)	694 (52.9%)	655 (42.6%)	884 (57.4%)
Routine visit				
Govt	415 (31.6%)		532 (35.4%)	
Private	898 (68.4%)		969 (64.6%)	
System of medicine				
Allopathy	1291 (98.5%)		1475 (98.7%)	
Ayurveda	16 (1.2%)		12 (0.8%)	
Others	4 (0.3%)		8 (0.6%)	
Reasons for preference Govt				
Close by	80 (19.3%)		99 (18.6%)	
Less cost/free of cost	423 (71.3%)		554 (71.8%)	
Trust/Good doctor	246 (59.3%)		294 (55.3%)	
Timely service	55 (13.2%)		62 (11.6%)	
All facility at one place	51 (12.3%)		48 (9%)	
Reasons for preference Private				
Close by	132 (14.9%)		123 (12.7%)	
Less cost/free of cost	94 (6.3%)		103 (6%)	
Trust/Good doctor	723 (80.5%)		789 (81.4%)	
Timely service	420 (46.8%)		481 (49.7%)	
All facility at one place	248 (27.6%)		257 (26.5%)	
Last 6 months number of doctors consulted 1 doctor 2 doctors 3 or more	 741 231 58		 831 245 49	
Regular treatment	962 (73.4%)		1132 (76.1%)	
Last 7 days missed taking medicine: For 1-2 days	117		160	
3 and more days	26		20	
Routine medicine	1301		1481	
Govt	386 (29.7%)		505 (34.1%)	
Private	915 (70.3%)		976 (65.9%)	

Table 32.2: Non-Communicable Diseases: Details of investigations and complications

	DM (N = 1313)	**HTN (N = 1539)**
Eye checkup in last 1 year	827 (63.7%)	775 (54.1%)

Kidney checkup in last 1 year	902 (69.5%)	637 (44.5%)
Cholesterol checkup in last 1 year	902 (69.4%)	669 (46.7%)
ECG checkup in last 1 year	920 (70.9%)	813 (56.8%)
Fasting blood sugar	N = 1259	
Govt	390 (31%)	
Private	869 (69%)	
Complications doctor told	91 (7%)	54 (3.8%)
Referred place		
Govt	28 (32.9%)	21 (43.8%)
Private	57 (67.1%)	27 (56.3%)

Table 32.3: Non-Communicable Diseases: Recent investigations and measurements details

Investigations	**Most recent levels (Mean ± SD)**
FBS (N = 520) (in mg/Dl)	155 ± 47
PPBS (N = 483) (in mg/Dl)	186 ± 83
RBS (N = 116) (in mg/Dl)	124 ± 24
SBP (in mm of Hg)	126 ± 36
DBP (in mm of Hg)	88 ± 15

Table 32.4: Non-Communicable Diseases: Managing routine medical expenses and satisfaction scores

Routine medicine expenses	**DM (N = 1313)**	**HTN (N = 1539)**
Income	460 (35%)	487 (31.6%)
Savings	949 (72.3%)	1083 (70.4%)
Borrowed	26 (2%)	24 (1.5%)
Selling property / jewelry	9 (0.7%)	8 (0.5%)
Insurance	5 (0.4%)	8 (0.5%)
Satisfaction score Median Govt	**8 (8, 9)**	**8 (8, 9)**
Satisfaction score Median Private	**8 (8, 9)**	**8 (8, 9)**

C.2.7. Subgroup analysis:

1. **Classification based on type of house:**

Type of house was classified in to pucca and other (semi pucca and Kutcha clubbed together) for subgroup analysis.

Demographic characteristics:

Table 33 provides the comparison of demographic parameters between pucca and non pucca categories. The distribution of education and occupation category was comparable between pucca and non pucca categories. Higher proportion of individual (24.1%) had completed graduate and above in individuals living in Pucca houses compared to non pucca houses (13.9%). Lower proportion (67.4%) of household members showed their BPL card as against 83.7% in non Pucca houses. Socio economic parameters, possession of motor vehicles, were comparable between pucca and non

pucca houses. Higher proportion of individuals were holding Arogya Karnataka health insurance in individuals living in non pucca houses. Lifestyle characteristics were comparable between pucca and non pucca houses. Although, the presence of 2 weeks morbidity was comparable between pucca and non pucca houses, higher proportion of individuals (61.3%) sought treatment in health facility among individuals living in non pucca houses. Higher proportion of individuals (70.1%) belonged to pucca houses were availing treatment from private health facility compared to 58.5% of individuals belonged non pucca houses. Mode of transport for the type of houses was comparable. Individuals belonged to non -pucca houses, the preferred time of consultation morning followed by evening and after noon. Whereas among individuals in pucca houses, the most preferred time of consultation was morning and evening. Time to reach health facility and time taken to consult the doctor was comparable by type of facility and houses. Among individuals living in non pucca houses, higher proportion mentioned income as main source of income form managing their routine medical expenses, whereas among pucca houses, savings was the major source of income for the same. The median cost spent towards investigations and buying medicine were slightly higher for individuals belonged to pucca houses. More percentage of mother (72.2%) lived in non-pucca houses, availed their ANC and PNC care form public health facility with no significant difference for place of Childbirth. The median cost spent towards ANC, Childbirth and PNC care for mothers belonged to pucca were 5000, 20000, 7000 respectively, which were noted to be higher compared to non – pucca houses. Place of routine visit for diabetic and hypertensive care was comparable with approximately equal proportion preferring public and private health facility between members of pucca and non pucca houses. Reported reasons for preference of public and private health facility by pucca and non pucca house members were like overall study group.

Table 33.1: Comparison of demographic parameters between individuals having pucca and non pucca houses

Demographic Parameters	**Pucca house**	**Non pucca house (semi pucca and kutcha)**
Marital Status (≥18 years)	13954	2954
Currently married	9793 (70.2%)	1907 (64.6%)
Widowed / Separated / Divorced	1410 (10.1%)	470 (15.9%)
Never married	2353 (16.9%)	451 (15.3%)
Unspecified	398 (2.9%)	126 (4.3%)
Education (≥6 years)	16654	3644
Illiterate / Primary / Middle	5027 (30.2%)	1540 (42.3%)
High school	4482 (26.9%)	977 (26.8%)
PUC	2587 (15.5%)	497 (13.6%)
Graduate and above	4015 (24.1%)	506 (13.9%)
Healthy lifestyle	2083 (16.9%)	172 (6.52%)
Health Insurance	N = 13619	N = 3045
AB / AK	2142 (12.1%)	939 (24.2%)
ESI / CGHS	1273 (7.2%)	254 (6.6%)
Private	1484 (8.4%)	96 (2.5%)
Employers	85 (0.5%)	26 (0.7%)
Not available	12718 (71.9%)	2558 (66.1%)

Table 33.2: Comparison of 2-week morbidity characteristics between individuals having pucca and non pucca houses

Morbidity in last 2 weeks	**Pucca house**		**Non pucca house**	
Present	1211 (8.3%)		279 (8.2%)	
Availed treatment at				
Govt	170 (29.9%)		71 (41.5%)	
Private	399 (70.1%)		100 (58.5%)	
Medicine system				
Allopathy	543 (95.6%)		167 (97.7%)	
Ayurveda	11 (1.9%)		1 (0.6%)	
Others	14 (2.5%)		3 (1.8%)	
	Public	**Private**	**Public**	**Private**
Manage routine medical expenses				
Income	49 (28.8%)	121 (31.8%)	48 (67.6%)	65 (67%)
Savings	120 (70.6%)	264 (69.5%)	31 (43.7%)	42 (43.3%)
Borrowed	1 (0.6%)	7 (1.8%)	0 (0%)	2 (2.1%)
Selling property / jewelry	1 (0.6%)	1 (0.3%)	1 (1.4%)	0 (0%)
Insurance	1 (0.6%)	0 (0%)	0 (0%)	1 (1%)
Consultation cost- Rs	100 (50, 200)	200 (120, 300)	190 (112, 300)	150 (100, 250)
Testing cost- Rs	800(200, 2000)	300(100, 1375)	500(187.5, 812.5)	500(100, 1500)
Drugs cost -Rs	290 (100, 500)	300 (150, 500)	250 (80, 500)	250 (150, 500)
Travel cost- Rs	80 (50, 100)	90 (50, 142.5)	100 (50, 200)	100 (50, 200)

Table 33.3: Comparison of maternal health characteristics between individuals having pucca and non pucca houses

	ANC		**CHILDBIRTH**		**PNC**	
	Pucca N (%)	**Non pucca N (%)**	**Pucca N (%)**	**Non pucca N (%)**	**Pucca N (%)**	**Non pucca N (%)**
Place of care	227	54	647	132	229	54
Govt	116 (50.7%)	39 (72.2%)	462 (71.4%)	101 (76.5%)	116 (50.7%)	39 (72.2%)

Private	111 (48.5%)	15 (27.8%)	185 (28.6%)	31 (23.5%)	111 (48.5%)	5 (27.8%)
Type of Childbirth			N = 450	N = 101		
Normal			226 (50.2%)	63 (62.4%)		
LSCS and others			223 (49.6%)	38 (37.6%)		
HH spend Median (IQR)	5000 (2000,20000)	5000 (2000,10000)	20000 (5000,50000)	5000 (4125,15000)	7000 (2000,25000)	5000 (2000,6000)

2. Classification based on households belonging to wards with predominant notified slum and non-slum areas; and whether BPL card was shown or not shown at the time of survey:

Subgroup analysis based on households belonging to wards with predominant notified slum and non-slum areas was carried out. Another subgroup analysis was done which was based on the availability of BPL card at the time of survey. Categorization was done based on the households belonging to wards with predominant notified slum and non-slum areas; and the households showing or not showing the BPL card at the time of interview. Results of these two subgroup analyses were also like what was observed in the results by type of houses. Table no. 34 and 35 provides the comparison of households belonging to wards with predominant slum and non-slum areas; and those showing or not showing the BPL card at the time of interview respectively.

Table 34.1: Comparison of demographic parameters between households belonging to wards with predominant notified slums and non-slum areas

Demographic Parameters	**Slum N = 6222 (28.8%)**	**Non slum N = 15354 (71.2%)**
Marital Status (≥18 years)	**N = 4865 (78.2%)**	**N = 11675 (76%)**
Currently married	3295 (67.7%)	8393 (71.9%)
Widowed / Separated / Divorced	577 (11.9%)	1302 (11.2%)
Never married	850 (17.5%)	1696 (14.5%)
Unspecified	143 (2.9%)	284 (2.4%)
Education (≥6 years)	N = 5811 (93.4%)	14057 (91.6%)
Illiterate / Primary / Middle	3314 (57%)	8427 (59.9%)
High school	577 (9.9%)	1304 (9.3%)
PUC	1390 (23.9%)	2722 (19.4%)
Graduate and above	530 (9.1%)	1604 (11.4%)
Healthy lifestyle	830 (13.3%)	1425 (9.3%)
Health Insurance		
AB / AK	789 (12.7%)	2292 (14.9%)
ESI / CGHS	538 (8.6%)	989 (6.4%)
Private	738 (11.9%)	842 (5.5%)

Employers	29 (0.5%)	82 (0.5%)
Not available	4128 (66.4%)	11149 (72.6%)

Table 34.2: Comparison of 2-week morbidity characteristics between individuals belonging to wards with predominant notified slums and non-slum areas

Morbidity in last 2 weeks	**Slum [N = 6222 (28.8%)]**		**Non slum [N = 15354 (71.2%)]**	
Present	432 (8.4%)		1058 (8.2%)	
Availed treatment at				
Govt	78 (35.9%)		163 (31.2%)	
Private	139 (64.1%)		360 (68.8%)	
Medicine system				
Allopathy	207 (95.0%)		503 (96.4%)	
Ayurveda	7 (3.2%)		5 (1%)	
Others	3 (1.4%)		14 (2.7%)	
	Public	**Private**	**Public**	**Private**
Managing routine medical expenses				
Income	30 (38.5)	45 (32.4)	67 (41.1)	141 (39.2)
Savings	45 (57.7)	99 (71.2)	106 (65.0)	227 (63.1)
Borrowed	0	1 (0.7)	0	8 (2.2)
Selling property / jewelry	1 (1.3)	1 (0/.7)	1 (0.6)	1 (0.3)
Insurance	2 (2.6)	0	1 (0.6)	2 (0.6)
Consultation cost in Rs	30 (0, 150)	200 (100, 500)	0 (0, 100)	150 (100, 300)
Testing cost in Rs	150 (10, 500)	100 (10, 500)	35 (0, 745)	100 (10, 900)
Drugs cost in Rs	200 (0, 500)	300(100, 1000)	100 (0, 350)	250 (150, 500)
Cost spent on travel in Rs	85 (20, 100)	100 (50, 195)	50 (0, 100)	60 (41, 107)

Table 34.3: Comparison of maternal health characteristics between individuals belonging to wards with predominant notified slums and non -slum areas

	ANC		**CHILDBIRTH**		**PNC**	
	Slum N (%)	**Non slum N (%)**	**Slum N (%)**	**Non slum N (%)**	**Slum N (%)**	**Non slum N (%)**
Place of care						
Govt	33 (54.1%)	122 (55.0%)	65 (48.9%)	239 (56.5%)	64 (50%)	236 (56.3%)
Private	28 (45.9%)	98 (44.9%)	67 (50.4%)	183 (43.3%)	64 (50%)	182 (43.4%)

Type of Childbirth						
Normal			73 (55.7%)	216 (51.4%)		
LSCS and others			58 (44.3%)	203 (48.3%)		
HH spend	7000	5000	25000	10000	5000	5000
Median (IQR)	(5000, 20000)	(2000, 20000)	(5000, 60000)	(5000, 39500)	(2000, 25000)	(2125, 20000)

Table 35.1: Comparison of health insurance between households showing and not showing BPL card at the time of survey

Demographic Parameters	BPL card shown N = 15170	BPL card not shown N = 6397
Health Insurance		
AB / AK	2742 (18.1%)	339 (5.3%)
ESI / CGHS	864 (5.7%)	663 (10.4%)
Private	734 (4.8%)	846 (13.2%)
Employers	45 (0.3%)	66 (1%)
Not available	10785 (70.8%)	4483 (70.1%)

Table 35.2: Comparison of 2-week morbidity characteristics households showing and not showing BPL card at the time of survey

Morbidity in last 2 weeks	BPL card shown N = 15170		BPL card not shown N = 6397	
Present	990 (7.5%)		500 (10.5%)	
Availed treatment at				
Govt	189 (39%)		52 (20.4%)	
Private	296 (61%)		203 (79.6%)	
Medicine system				
Allopathy	470 (97.1%)		240 (94.1%)	
Ayurveda	5 (1%)		7 (2.7%)	
Others	9 (1.8%)		8 (3.1%)	
	Public	**Private**	**Public**	**Private**
Managing routine medical expenses				
Income	85 (45%)	131 (46.1%)	12 (23.1%)	55 (28.5%)
Savings	115 (60.8%)	173 (60.9%)	36 (69.2%)	133 (68.9%)
Borrowed	0 (0%)	3 (1.1%)	1 (1.9%)	6 (3.1%)
Selling property / jewelry	2 (1.1%)	1 (0.4%)	0 (0%)	0 (0%)
Insurance	1 (0.5%)	1 (0.4%)	0 (0%)	0 (0%)
Consultation cost in Rs	150 (50, 250)	150 (100, 300)	150 (100, 300)	225 (150, 500)

Testing cost in Rs	500 (162.5, 800)	300(100, 1500)	500 (350, 3500)	500 (200, 1500)
Drugs cost in Rs	300 (100, 500)	250 (150, 500)	440 (92.5, 500)	300 (100, 700)
Cost spent on travel in Rs	72.5 (50, 100)	80 (50, 145)	100 (50, 167)	100 (50, 200)

Table 35.3: Comparison of maternal health characteristics between individuals showing and not showing BPL card at the time of survey

	ANC		**CHILDBIRTH**		**PNC**	
	BPL card shown	**BPL card not shown**	**BPL card shown**	**BPL card not shown**	**BPL card shown**	**BPL card not shown**
	N (%)	**N (%)**	**N (%)**	**N (%)**	**N (%)**	**N (%)**
Place of care	205	78	580	199	205	78
Govt	134 (65.4%)	21 (26.9%)	430 (74.1%)	133 (66.8%)	134 (65.4%)	21 (26.9%)
Private	69 (33.7%)	57 (73.1%)	150 (25.9%)	66 (33.2%)	69 (33.7%)	57 (73.1%)
Type of Childbirth			425	126		
Normal			237 (55.8%)	52 (41.3%)		
LSCS and others			187 (44%)	74 (58.7%)		
HH spend Median (IQR)	5000 (2000,15000)	10000 (5000,25000)	10000 (5000,35500)	25000 (5000,60000)	5000 (2000,20000)	8000 (3000,30000)

C.3. Perceptions of patients on services received at health facilities

This section presents results of patients perceptions and experiences of services received at both public and private facilities.

Table 36: Socio-demographic characteristics of patients from public and private facilities

Patient sociodemographic	**Public facility (n=92)**	**Private facility (n=84)***	**Test of characteristics Signficance**
Age (mean±SD) years [Range]	45.6±16.3 [17-81]	39±17 [3-96]	t test=2.62 (p=0.009)
Sex			
Male	37 (40%)	48 (57%)	Chi-square=5.03 (p=0.025)
Female	55 (60%)	36 (43%)	

Occupation			
Govt/private employed	19 (21%)	22 (26%)	
Business / self-employed	14 (15%)	6 (7%)	Chi-square =19.91 ✓ (p=0.0005)
Daily wages	4 (4%)	6 (7%)	
Unemployed (Retired / not working/student)	10 (5%)	28 (33%)	
Homemaker	45 (49%)	22 (26%)	
Education in years			
- Median (Q1,Q3)	10 (7, 12)	12 (8,15)	
Nil	16 (17%)	7 (8%)	Chi-square=6.26 (p=0.18)
Primary 0-5th Std	5 (5%)	10 (12%)	
Secondary (6-12th Std)	51 (55%)	42 (50%)	
Graduation	16 (17%)	20 (24%)	
Postgraduate	4 (4%)	5 (6%)	
Distance from home to health facility (KMs)- Median (Q1,Q3)	1.0 (0.5, 3)	2 (1,5)	
Duration of travel in minutes - Median (Q1,Q3)	10 (5, 15)	10 (5,15)	
From private facilities patients were not available despite three successive attempts** - ***1 patient from 3 facilities; - ***2 patients from 1 facility*** - ***3 patients from 1 facility***			

Nearly half of the patients 45 (49%) from public facilities were homemakers while in private facilities 22 (26%) each, were homemakers and public or private employed. Half of all patients from both public and private facilities [51 (55%) and 42 (50%) respectively)] had secondary education, while 20 (24%) of private health patients were graduates (Table 20). The patients from public and private differed significantly ($p<0.05$) by sociodemographic characteristics such as age (younger in private facilities); sex (more males seeking services at private facilities); occupation (lesser homemakers among those seeking services from private facilities) but not by education level (Table 20).

The commonest health problem for current visit to the health facility was fever (30% and 39%) in both public and private health facilities; pain (25% in both). Few patients returned for follow-up or check of diabetes (11% and 16%) and hypertension (11% and 10%) from public and private health facilities (Figure 10).

The commonest reason for choice of public health facility was free treatment (29%) and good response of health workers 39%, while for private health facilities it was good consultation (54%) and nearby (27%) as seen in Figure 11.

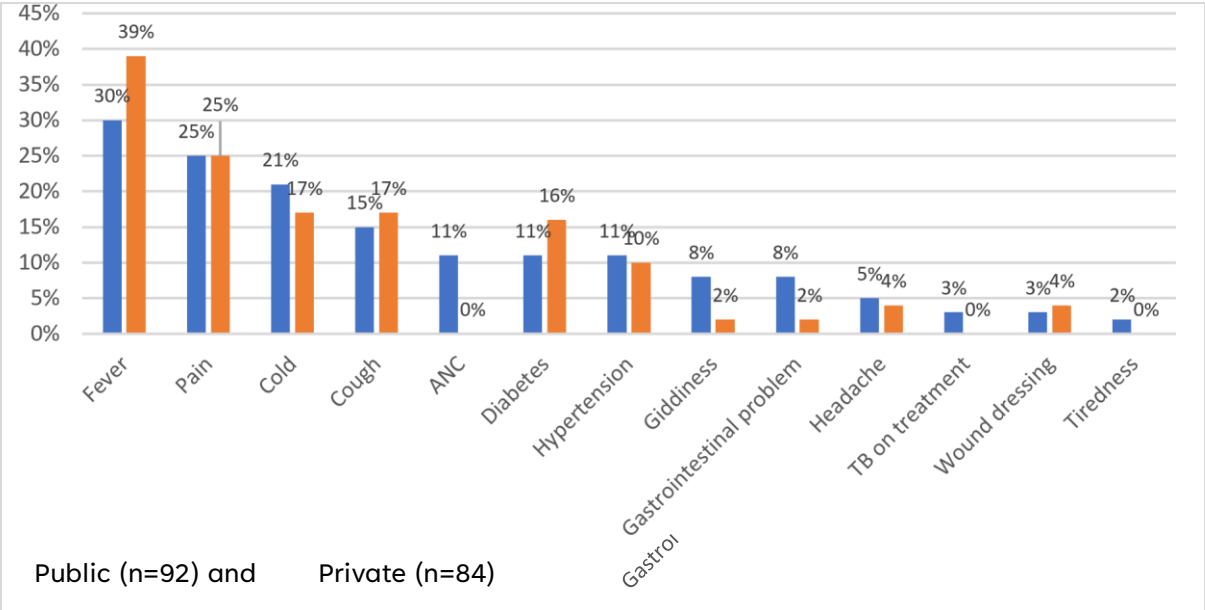


Figure 10: Patient exit interview: Health problem for the current visit to the facility

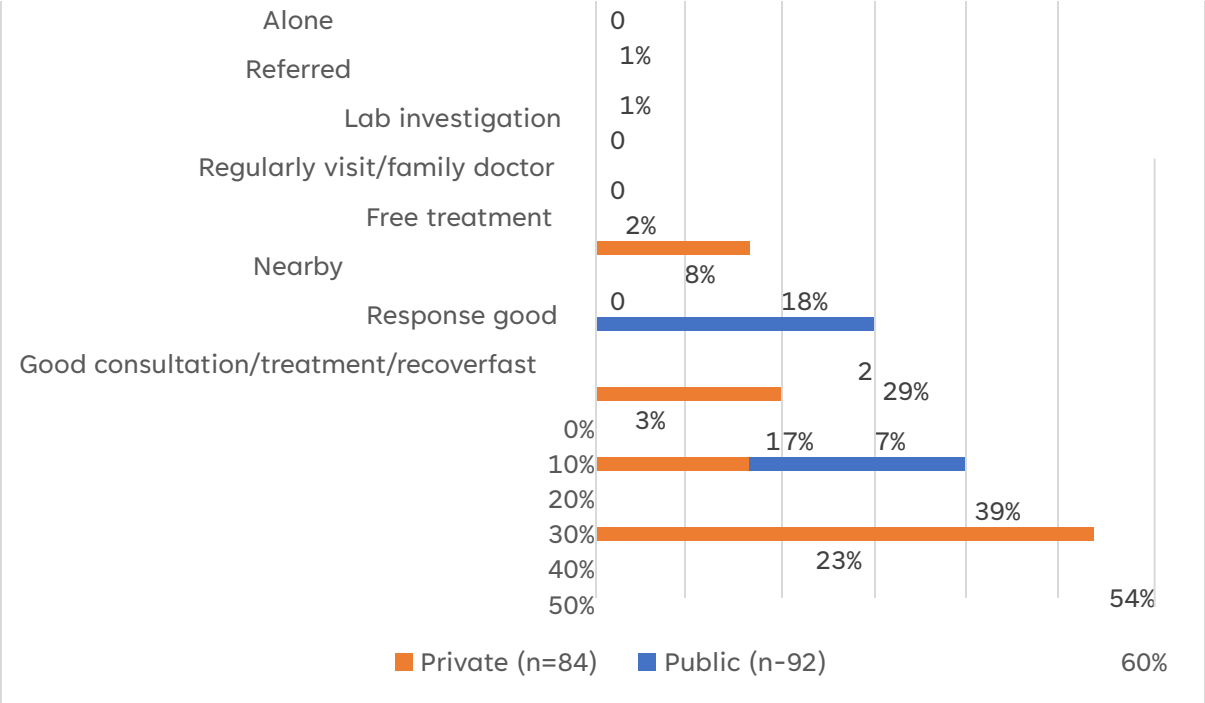


Figure 11: Patient exit interview: Reason for choice of facility for current visit

The good response of health care workers was mentioned by 33% of patients on what they liked most of the facility and 29% mentioned good consultation of the public facilities. While of patients from private health facilities, 20% mentioned good consultation (Figure 12).

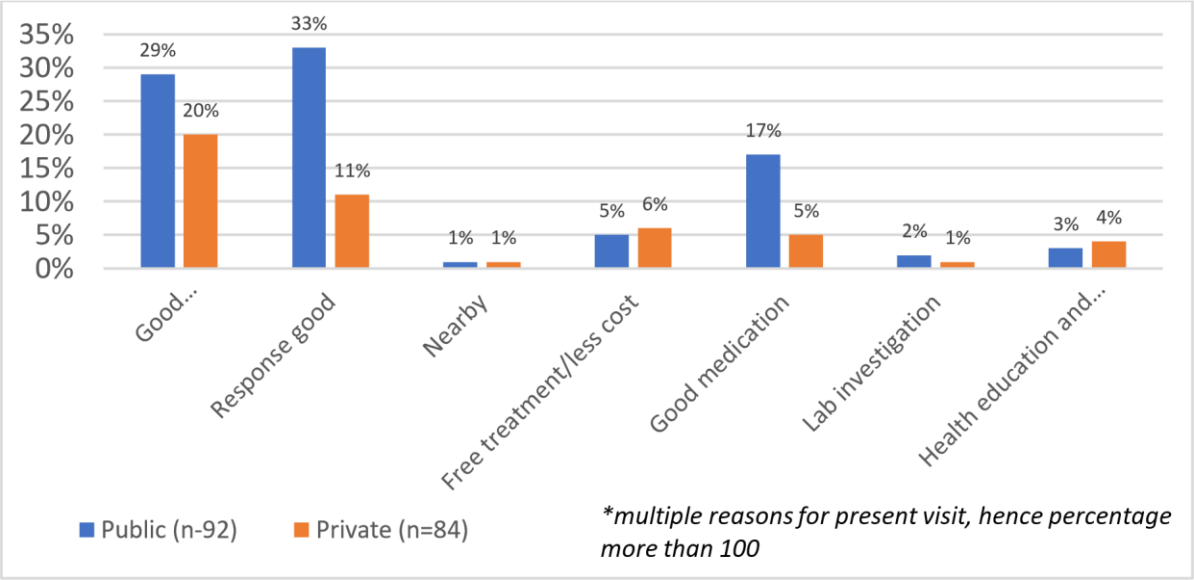


Figure 12: Patient exit interview: What is liked most about the health facility by patients

Most of the patients in both public and private facilities (>74%) mentioned they had been examined, their BP was checked, they received a prescription, their condition and medications were explained to them at the current visit (Figure 13).

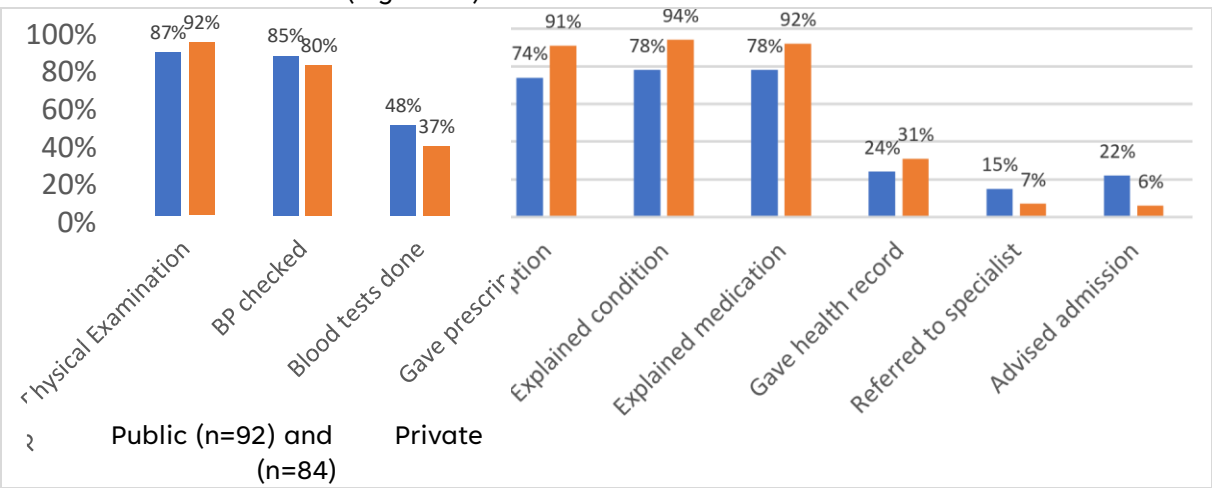


Figure 13: Patient exit interview: Services received at the facility for current visit

The satisfaction score of private childbirth facilities was higher than that of public facilities, but this was not significantly different. However, patients from public facilities (UPHCs) were significantly more satisfied with services received than with private clinics ($p<0.0001$) as seen in Table 21. Figure 14 shows that a few (6%) of patients attending private facilities had poor satisfaction levels to services received.

Table 37: Overall satisfaction on services as reported by patients at exit interview

	Overall		Childbirth facility		UPHCs/Clinics	
	Public (n=89)	Private (n=82)	Public (n=11)	Private (n=12)	Public (n=78)	Private (n=70)

Mean±SD	71.0±10.8	60.6±17.3	69.2±11.8	73.9±11.1	71.3±10.7	58.3±17.2
t test [95% CI] (p value)	t=4.75 [6.08-14.72] (p<0.0001)		t=0.98 [-14.63-5.23] (p=0.33)		t=5.58 [8.39-17.60] (p<0.0001)	
**3 patients from public and 2 patients from private did not respond to the scale*						

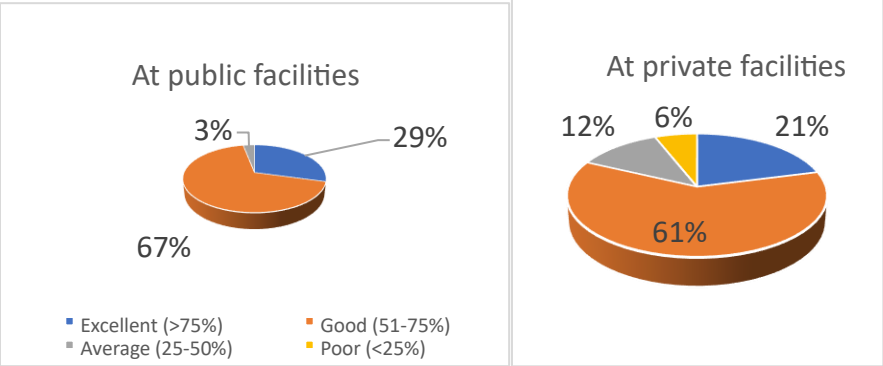


Figure 14: Patient exit interview: Level of satisfaction for services received at the health facility

C.4. To identify and explain barriers and facilitators to CPHC

The challenges of health workers (Doctors, nurses, lab technicians and pharmacists) from public facilities and those at field (ANMs and ASHAs) were grouped together and presented in Figure 15 and Figure 16. Ratio of HCP with population was reported as the largest challenge (35%), followed by multi-tasking (20%), lack of supplies and meeting targets (19%) were mentioned by HWs of public facilities. While clinical management was reported by 37% of HCPs of private facilities (Figure 15). Among the field level HCPs, management of targets (28%), ratio of HCP and population (23%) and multi-tasking (21%) were the challenges to provide needed services (Figure 16).

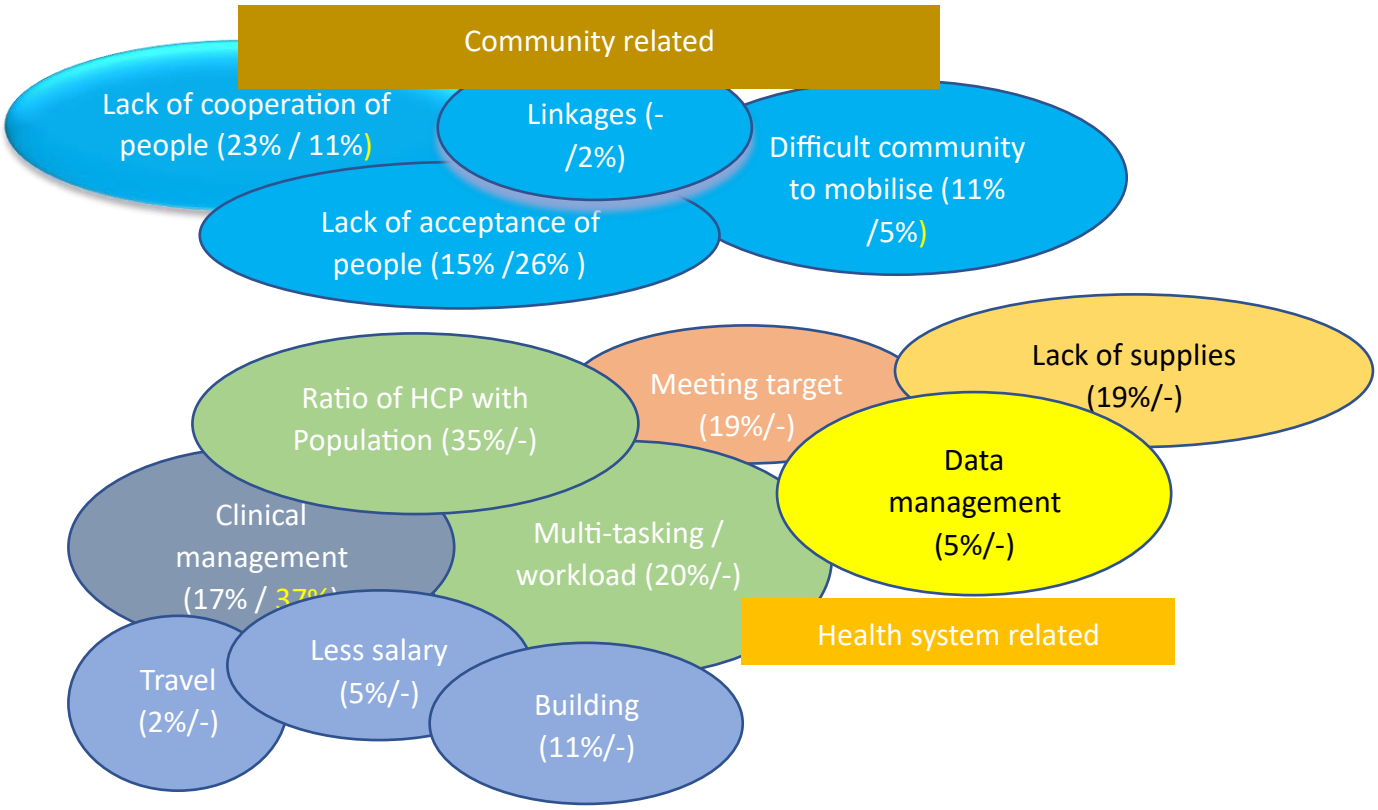


Figure 15: Challenges faces by HCPs from UPHCs (n=65) / doctors of private facilities

Of the community related challenges 23% and 11% of HCPs from public and private facilities mentioned lack of cooperation of people. Lack of acceptance of people to treatment protocols was mentioned by 15% and 26% respectively (Figure 15). While 41% of field HCPs of public facilities mentioned lack of cooperation of community and 21% mentioned it was difficult to mobilize the community (Figure 16)

- Leadership & governance
- Health financing
- Health workforce
- Essential products and technologies
- Health service delivery
- Health information systems
- Community ownership and partnership

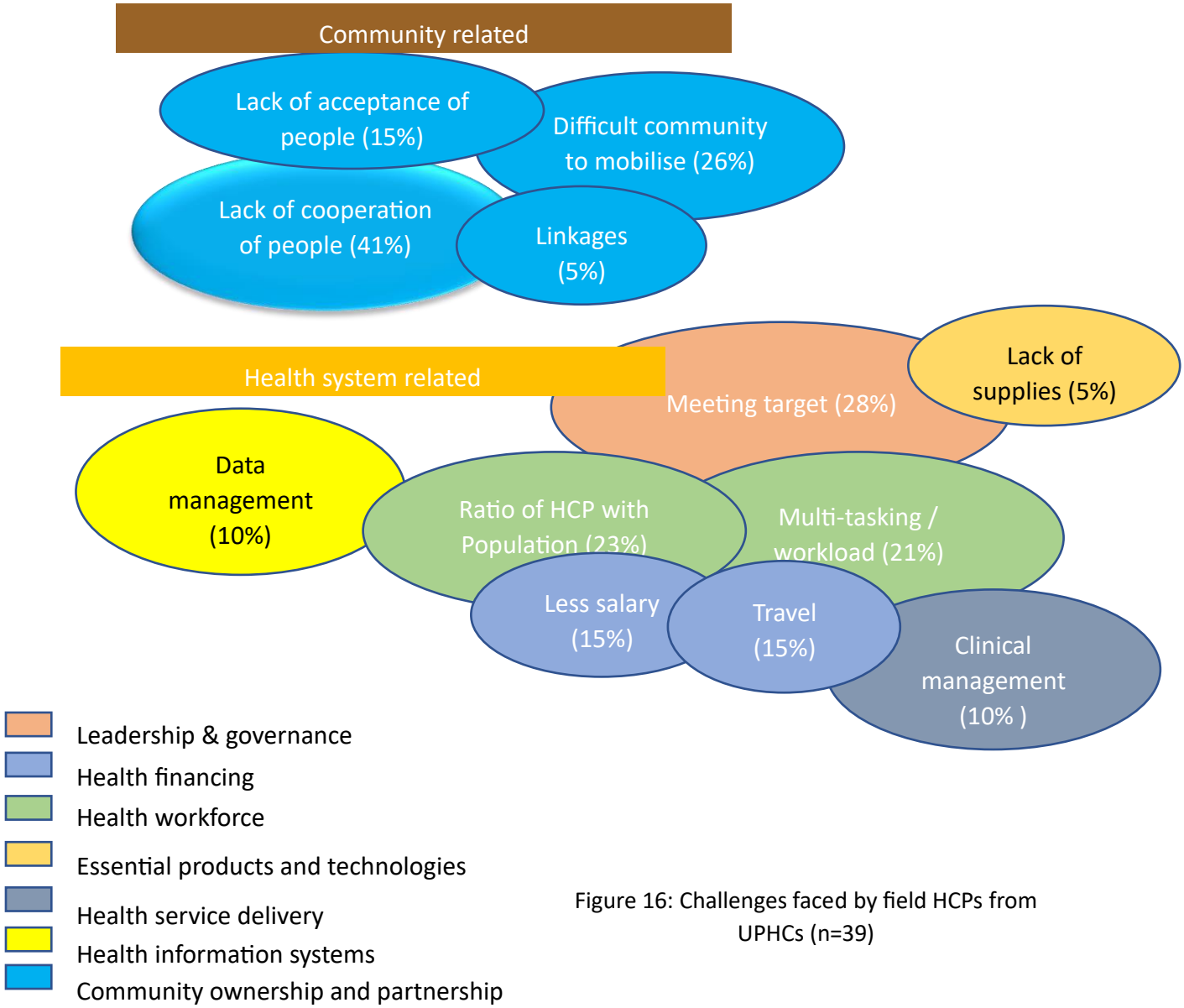


Figure 16: Challenges faced by field HCPs from UPHCs (n=39)

C.5. To identify design options for strengthening urban primary health care Suggestions for improvement of services provided

Suggestions to improve services related to health systems were mentioned by HCPs from UPHCs and private facilities included building (39% versus 24%). Drug availability (34%), better lab facilities (30%) and better equipment and facilities (23%) were mentioned by HCPs from UPHCs. On the spot treatment as well as better hygiene was mentioned by 8% of them from UPHCs as community-related suggestions for improvement. While 35% of HCPs primarily doctors mentioned health education for the community (figure 17). Reimbursement, better ratio of HCPs with population and better salary were three health system related suggestions given by 46%, 38% and 35% respectively of field HCPs (Figure 18). More than a quarter of field HCPs (27%) mentioned mobilization of people through key stakeholder involvement as a suggestion to

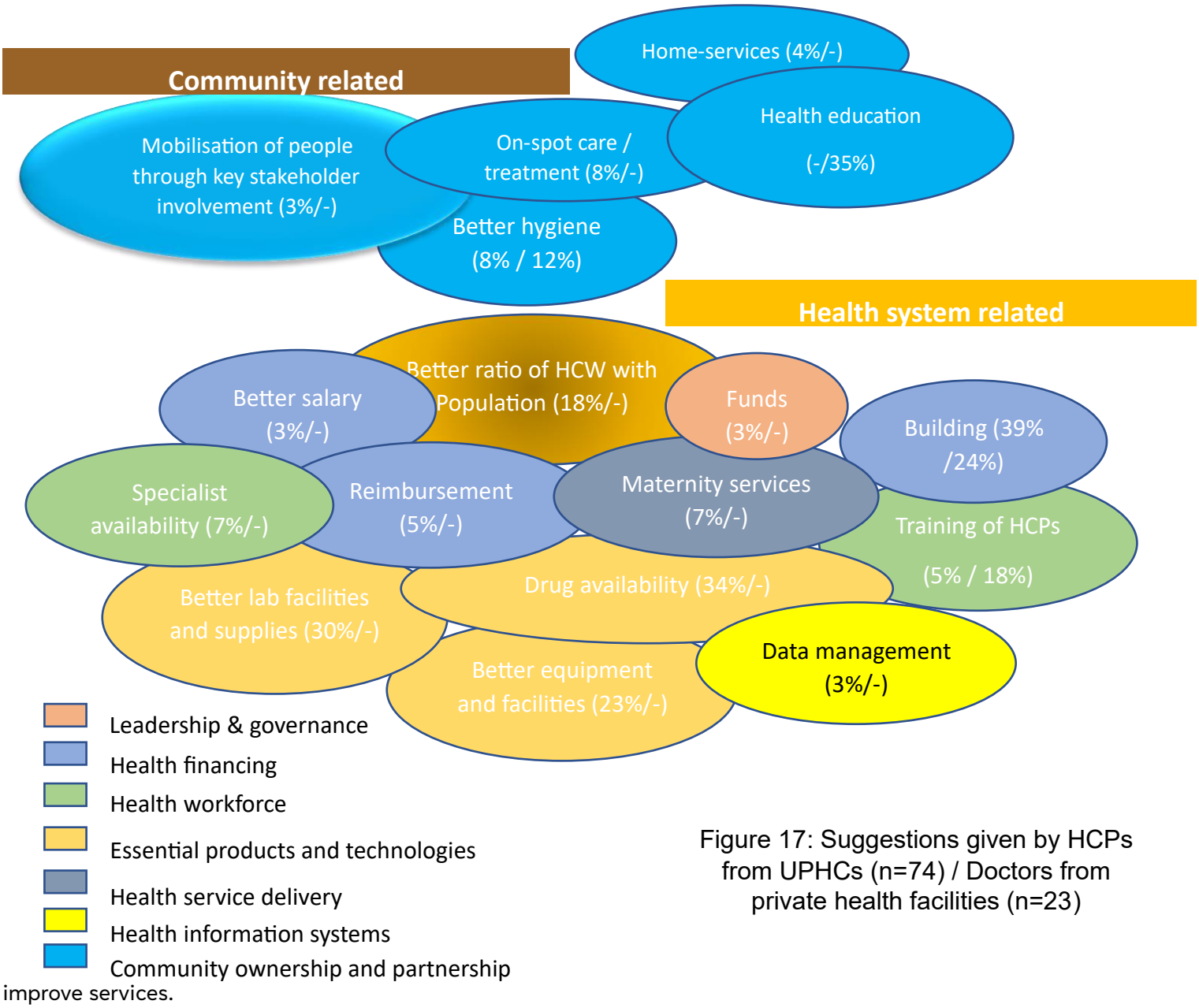


Figure 17: Suggestions given by HCPs from UPHCs (n=74) / Doctors from private health facilities (n=23)

improve services.

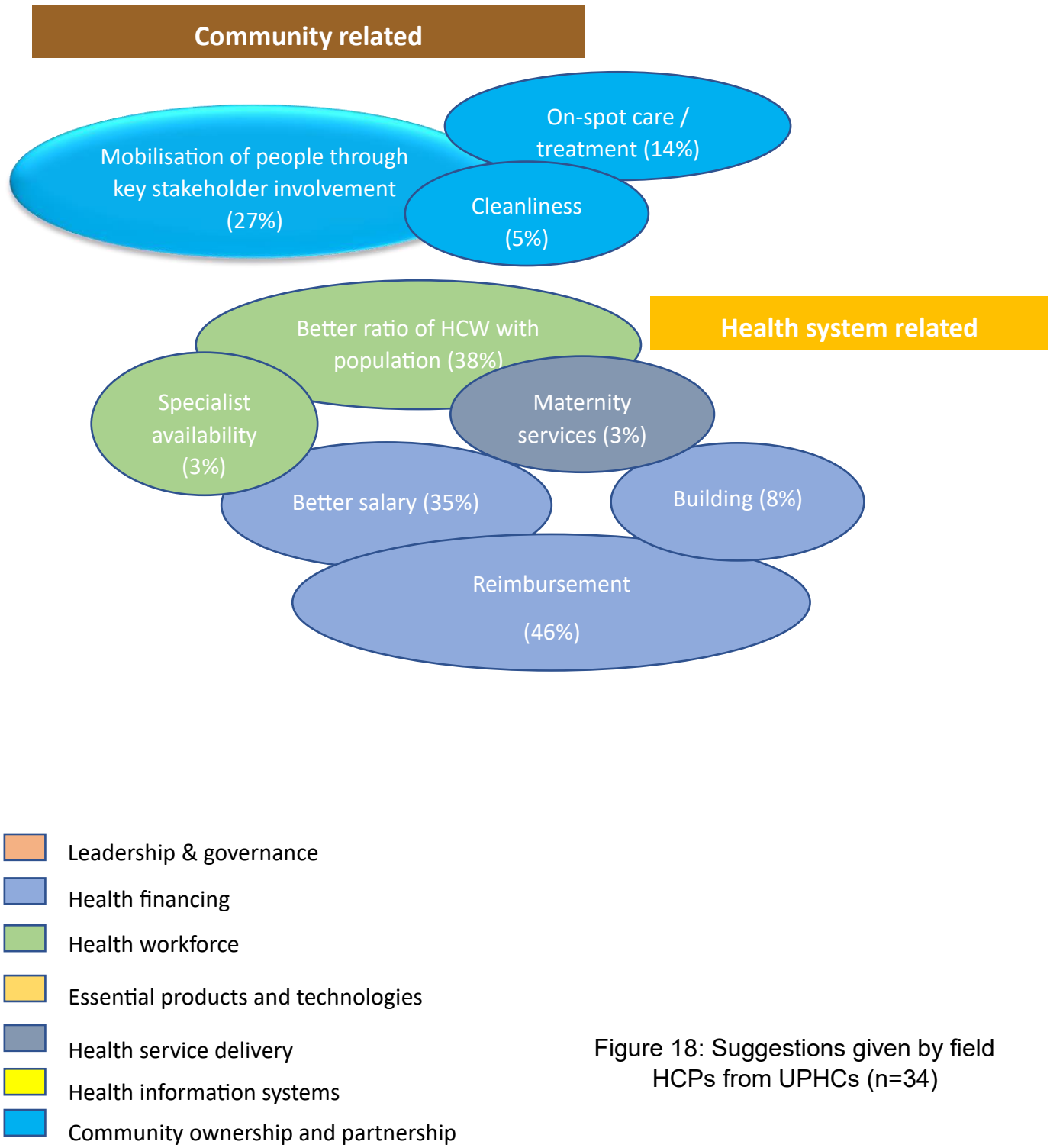


Figure 18: Suggestions given by field HCPs from UPHCs (n=34)

Sixteen percent of patients mentioned that lab equipment needs to be improved; 9% mentioned the need for specialists, 8% suggested inpatient (IP) facilities for emergency from public health facilities to improve services. The same suggestions were given by 4%, 5% and 2% respectively of patients from private health facilities (Figure 19).

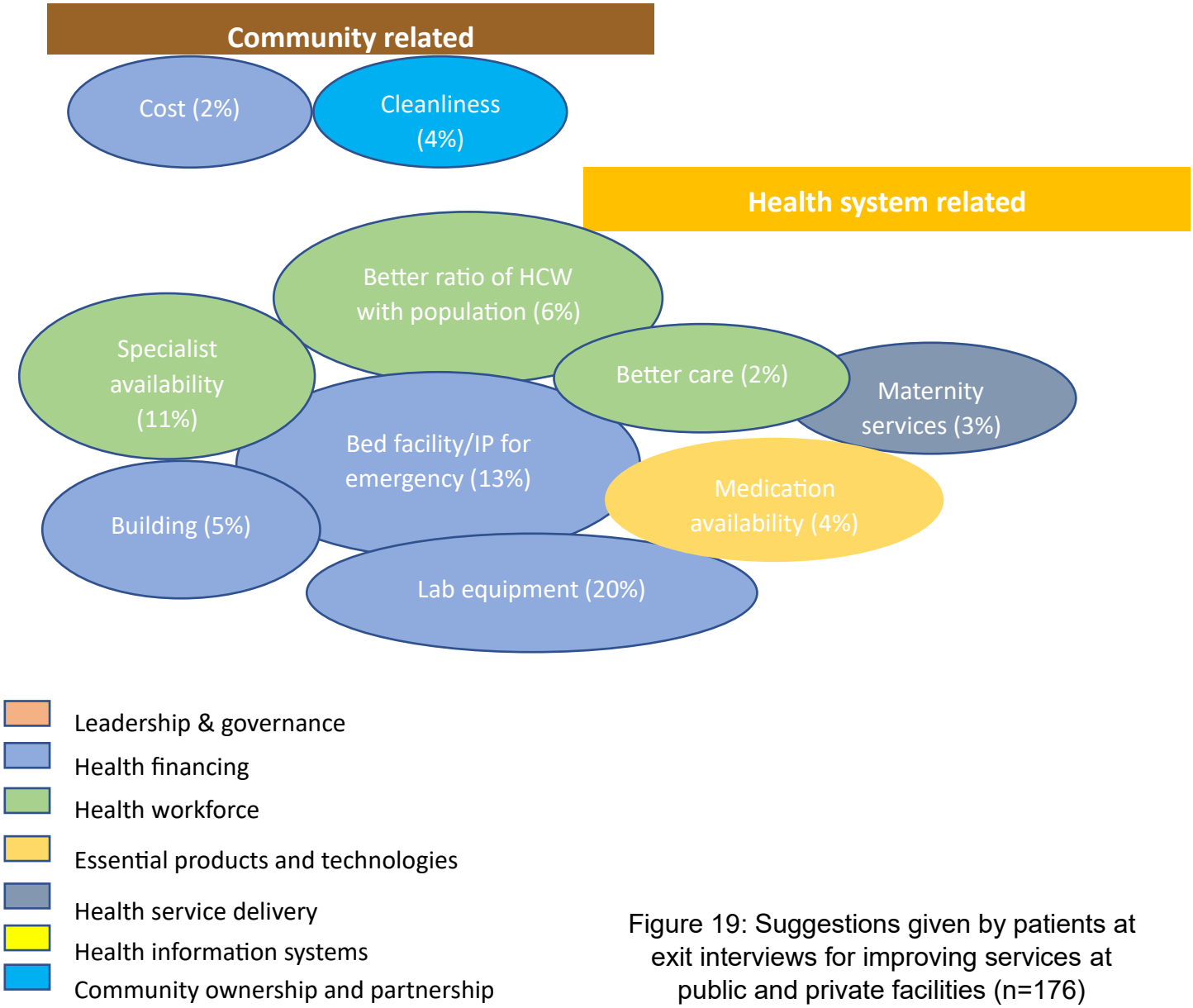


Figure 19: Suggestions given by patients at exit interviews for improving services at public and private facilities (n=176)

Conclusions:

The community assessment was a population-based survey carried out in Mysuru city with the objective of profiling the community morbidity status, health care-seeking and costs incurred for selected acute and chronic conditions in urban wards of Mysuru city. A total of 6007 households comprising of 21576 individuals were surveyed from 25 randomly selected wards of Mysuru city. Among 6474 women in the reproductive age group, 100 (1.6%) mothers were currently pregnant and pregnancy in the last 3 years were 563 (8.6%). Among 11978 individuals aged above 30 years, 17.3% of were either diabetes or hypertension.

Health Insurance:

Two third of the households (67.8%) didn't have any insurance coverage. Only 17% of the households were covered under Ayushman Bharat / Aarogya Karnataka. ESI / CGHS and private insurance

coverage was 7.8% and 7.4% respectively. Only 26 households utilized their health insurance in the past one year (link it with morbidity profiling) **Morbidity status:**

Illness in the last 2 weeks was observed in 7% (n=1490) of the population studied, of which almost half of them sought treatment at health facilities indicating moderate utilization of health facilities for acute illnesses. Among those who sought treatment, only 32.5% received treatment from public health facility. The use of public health care facilities was noted to be low compared to private health care facilities. Self-medication and use of Over the Counter (OTC) drugs were the reasons reported among those who did not seek treatment at health facility.

Among the illnesses in the last 2 weeks common ones were.....

Among those who sought treatment at health facilities, 9% reported changing place of treatment after the first visit. Most of them reported that less facilities and long distance were the reasons to change place of treatment. No significant difference between public and private facilities in terms of change of place of treatment was observed. Only 34 individuals reported to have had 2 or more ailments in the last 2 weeks. Distance to health facility, time taken to reach the health facility and time taken to consult the doctor were comparable between individuals seeking care at public and private health facilities, indicating the preference for choosing health facility was not governed by the above said factors. Income and savings were the most used mode for managing their routine medical expenses and were comparable between individuals choosing public and private health facilities. The preference for health facilities was comparable by gender, however, significant difference was seen by age categories. Significantly higher proportion of children between 6-18 years were consulted in private health facilities, which could be because of availability of paediatric specialist in the private set up.

The cost incurred for healthcare in public health facilities was very less as compared to private health facilities. Although there was no / minimal charge of consultation in public health facilities, the median investigation cost and the drug cost was Rs. 65 (10, 520) and Rs. 110 (0, 425) respectively. Patients at exit interview clearly pointed to the need for costs to be affordable, especially in private health facilities, but also in public health facilities since they had to seek diagnostic services outside. This could be due to non-availability of drugs and investigations required in the public health facilities which was highlighted as a suggestion for improving services by HCPs from facilities as well as by patients at exit interviews. But for the private health facilities, cost spent on drugs and investigations was two folds as compared to public health facilities.

Maternal health:

Ante natal care (ANC) was elicited only among the current pregnancies (n = 100) during the study period. All these pregnancies were registered and 46% of them had reported utilizing public health facilities for ANC care. Regarding the cost spent towards ANC care, those who preferred private health facilities had reported to spend five folds of what was spent in public health facilities (Median cost in Pvt = Rs 15,000, Govt. = Rs 3,000)

The data on Childbirth was recorded from the mothers who delivered in the past 3 years. More than half of the mothers utilized public health facilities for their deliveries, and a 53% of them had normal vaginal Childbirth. Significantly higher proportion of females had C-section in private health facilities (67%) compared to only 25% in public health facilities ($p<0.01$). Similarly for Postnatal care also, 55% of them preferred public health facilities. Although all UPHCs conducted ANC, the opportunity for childbirth in these settings was non-existent. Patients thus clearly pointed to the need for comprehensive maternity services – ANC, childbirth, and PNC.

For all maternal health services, income and savings were the most common utilized modes for managing medical expenses. Only 1% of them utilized health insurance for their childbirth purpose. The cost spent towards childbirth care was significantly higher among those who utilized private health facilities compared to public health facilities (Median cost in Pvt = Rs 50,000, Govt. = Rs

5,000). PNC care expenses were also noted to be higher in the private as compared to public health facilities.

The reasons for choosing the public health services for maternal health care reported were near distance and free of cost. Good doctor, timely service, and all facilities available at one place were the primary reasons for preferring private health facilities. Like the pattern observed for acute illnesses, the distance, time and cost spent were not determining factors for choosing MCH facilities.

Child Health (≤ 60 months):

About a quarter of the children (25%) were reported to be sick in the last 1 month. Acute

Diarrhoeal Disease (ADD) (67.6%) was the most reported illness followed by Acute Respiratory Infection (ARI) (35.5%). For both the ailments, approximately equal proportion of households availed care from public and private health facilities. The median cost spent on treatment for both ARI and ADD in public was one third of what was spent in private health facility. The preferred reasons for choosing public health facility were less / free of cost followed by trust in doctor and nearby distance which was similar for both ARI and ADD. Trust in doctor, timely service, and all facilities at one place were the reasons reported in favour of private health facility. Hospitalization rate for ARI and ADD were 13.2% and 4.0% respectively. Majority of them were hospitalized in private health facilities (ARI – 80% and ADD – 70%). Due to free cost of immunization, majority of children (< 2 years) have been reported to avail child immunization services in the public health facilities.

These findings indicate that although the preference of health facilities for outpatient care was equal in both public and private, but for hospitalization, majority of them preferred private health facilities. This could be due to the availability of comprehensive paediatric care in a private setting.

Non Communicable Diseases (>30 years):

The reported prevalence of either diagnosed diabetes or hypertension was 17.3%, (15.9% in males / 18.7% in females). Both diabetes and hypertension were presented in 7.5% of the individuals (6.5% males/ 8.7% females). Diabetes and Hypertension alone was reported in 12.8% and 15.0% respectively.

For NCD care, private health facilities were the preferred health facilities, considering the trust in doctor (80.0%) followed by timely service (50.0%) and all facility at one place (27.0%). Higher proportion of both diabetes (70.3%) and hypertension (65.9%) patients preferred private facility for buying medicine routinely. The regular fasting blood sugar check among diabetic individuals was done in private health facility (69.5%). Even for the NCD complications, most of them were referred to private health facilities.

Non availability of NCD drugs round the year and lack of investigation facilities may be implicated as the reason for inclination towards private health facilities. Like other illnesses, income and savings were reported to be the commonest mode of managing routine medical expenses in NCD patients.

The health facility assessment included walk-through for observation of amenities, infrastructure equipment and supplies of all UPHCs, equivalent number of private health facilities and three public and private childbirth facilities that were less than 30 bedded; interviews with HCPs, and record reviews. In summary, health facilities are easily accessible to the population and located within 1-2 km from the community. The community were able to access services they were seeking within thirty minutes of seeking services. Regular supervision and monitoring of HCPs by a senior within the health facility or health office is occurring. Basic services of ANC, management of minor ailments, first aid for injuries is being managed by UPHCs and private clinics despite HCP shortage. Patients are satisfied with services received and access services based on proximity and their perception of HCPs. This is encouraging despite challenges faced by the HCPs on inadequate facilities, supplies and infrastructure as well as shortage of health workforce.

Most of the HCPs at the health facility had received training in relation to common maternal, child, NCD and communicable disease services but only few had received training on RBSK and RKSK which are essential components of services for CPHC. Leadership and governance need to focus towards improving quality of care rather than just quantity. Although majority of HCPs reported to have been supervised or monitored by a senior, this entailed just reviewing reports and targets achieved rather than the quality. Information on financing of the activities at the public and private health facilities was not forthcoming from the senior level HCP.

The facility assessment clearly pointed to gaps in the provision of care due to vital shortage of health workforce coupled with lack of available equipment for diagnostic services, as well as some shortage in supply of essential medications for management of NCDs. The availability of services was limited to 7 hours by all the UPHCs and 5 hours by the private clinics. Only those facilities that provided childbirth services were functional 24/7. Both facility and field HCPs highlighted in the need to improve the building / equipment / lab / maternal services. Services at public health facilities were mostly accessed by homemakers and women while the private health facilities were accessed mostly by males and younger age group. Health information system is non-existent in both public and private health facilities with no continuity of services for individuals who seek services, especially children and those adults with NCDs. Feedback from the community or individuals is often not obtained to determine ways to improve access, quality, and availability of services.

Organisation approaches that would require improvement includes a more robust health information system that not only facilitates registration of patients so that follow-ups and linkages between facility and field HCPs are planned strategically especially for those with chronic NCDs and CDs but would also aid in monitoring progress with meeting targets. Coupled with workforce shortage both at the health facility and the field, capacity building of HCPs at all levels must be geared towards better communication with patients, identification of complications and appropriate referrals, linkages between public and private health facilities that probably use a common UID for patients to facilitate efficient follow-ups. Capacity building could be facilitated by using the mentoring approach rather than the monitoring and supervision approach. It would be prudent for public health facilities to be re-organised so that there is at least one facility offering childbirth services attached to 4-5 UPHCs. Moreover given the health workforce shortage, a system to make diagnostic services more efficient, yet accessible could include sample collection at the UPHCs with an effort to transport samples to a referral diagnostic centre that would report back to the UPHC details of the test result. This will require a better health information system that links all UPHCs with the referral diagnostic centre.

ICD Mortality Data The distribution of mortality data by ICD classification is provided in table no. 16.

	Male n-7692	**Female n-3770**	**Total n-11462**
Sepsis	319 (4.1)	162 (4.3)	481 (4.2)
Acute Respiratory Infection	83 (1.1)	83 (2.2)	166 (1.4)
HIV/AIDS	12 (0.2)	5 (0.1)	17 (0.1)
Diarrheal Diseases	44 (0.6)	37 (1.0)	81 (0.7)
Meningitis	34 (0.4)	43 (1.1)	77 (0.7)
Pulmonary TB	195 (2.5)	48 (1.3)	243 (2.1)
Haemorrhagic fever	52 (0.7)	50 (1.3)	102 (0.9)
Unspecified Infectious illness	70 (0.9)	41 (1.1)	111 (1.0)
Oral Neoplasm	27 (0.4)	4 (0.1)	31 (0.3)
Unspecified neoplasms	153 (2.0)	66(1.8)	219 (1.9)
Digestive neoplasms	201 (2.6)	79 (2.1)	280 (2.4)
Respiratory neoplasm	79 (1.0)	31 (0.8)	110 (1.0)
Breast neoplasm	0	65 (1.7)	65 (0.6)
Female reproductive neoplasm	0	64 (1.7)	64 (0.6)
Male reproductive neoplasm	30 (0.4)	0	30 (0.3)
Unspecified non communicable disease	1624 (21.1)	625 (16.6)	2249 (19.6)
Diabetes mellitus	557 (7.2)	299 (7.9)	856 (7.5)
Severe malnutrition	18 (0.2)	9 (0.2)	27 (0.2)
Severe anaemia	74 (1.0)	59 (1.6)	133 (1.2)
Unspecified cardiac disease	1151 (15.0)	749 (19.9)	1900 (16.6)
Acute cardiac disease	1043 (13.6)	474 (12.6)	1517 (13.2)

Table No. 38: ICD classification by gender

Stroke	464 (6.0)	228 (6.0)	692 (6.0)
COPD	435 (5.7)	92 (2.4)	527 (4.6)
Asthma	17 (0.2)	36 (1.0)	53 (0.5)
Pregnancy related	0	5 (0.1)	5 (0.0)
Prematurity	111 (1.4)	63 (1.7)	174 (1.5)
Birth asphyxia	35 (0.5)	26 (0.7)	61 (0.5)
Neonatal Pneumonia	27 (0.4)	6(0.2	33 (0.3)
Unspecified perinatal cause	2 (0.3)	10 (0.3)	3 (0.3)
Neonatal Sepsis	82 (1.1)	58 (1.5)	140 (1.2)
Congenital formation	76 (1.0)	36 (1.0)	112 (1.0)
Unspecified external cause of death	617 (8.0)	196 (5.2)	813 (7.1)
Epilepsy	37 (0.5)	21 (0.6)	58 (0.5)

Table no. 39: ICD classification by age category

	0-28 DAYS n-322	**1 -1 4 YEARS n-328**	**>14 YEARS n-10274**
Diarrheal Diseases	6 (1.9)	8 (2.4)	65 (0.6)
Pulmonary TB	0	5 (1.5)	230 (2.2)
Unspecified Infectious illness	0	22 (6.6)	85 (0.8)
Sepsis	0	13 (3.9)	440 (4.3)
Haemorrhagic fever	0	20 (6.0)	78 (0.8)
HIV/AIDS	0	0	17 (0.2)
Oral Neoplasm	0	0	29 (0.3)
Unspecified neoplasms	0	7 (2.1)	208 (2.0)
Digestive neoplasms	0	0	265 (2.6)

Respiratory neoplasm	0	0	107 (1.0)
Breast neoplasm	0	0	62 (0.6)
Female reproductive neoplasm	0	0	61 (0.6)
Male reproductive neoplasm	0	0	30 (0.3)
Severe anaemia	0	2 (0.6)	121 (1.2)
Unspecified non communicable disease	0	22 (6.6)	2095 (20.4)
Diabetes mellitus	0	4(0.3)	797 (7.8)
Severe malnutrition	0	1 (0.3)	20 (0.2)
Meningitis	1 (0.3)	17 (5.1)	58 (0.6)
Unspecified cardiac disease	0	0	1827 (17.8)
Acute cardiac disease	0	0	1471 (14.3)
Stroke	0	0	687 (6.7)
Acute RI	0	3 (0.9)	162(1.6)
COPD	0	3 (0.9)	506 (4.9)
Asthma	0	0	52 (5.9)
Pregnancy related	0	0	5 (0.5)
Prematurity	157 (48.8)	14 (4.2)	0
Birth asphyxia	59 (18.3)	2 (0.6)	0
Neonatal Pneumonia	13 (4.0)	11 (3.3)	0
Unspecified perinatal cause	22 (6.8)	1 (0.3)	0
Neonatal Sepsis	49 (15.2)	54 (16.1)	0
Congenital formation	15 (4.7)	92 (27.5)	0
Unspecified external cause of death	0	24 (7.2)	756 (7.4)
Epilepsy	0	13 (3.9)	40 (0.40