WHO Level II HOUSEHOLD SURVEY

TO MEASURE ACCESS TO AND USE OF MEDICINES IN GHANA

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WHO Medicines Survey Conducted in GHANA in May/June 2008

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LIST OF ABBREVIATIONS

ACT	Artemisin-based combination therapy
AF	Affordability
AV	Availability
GDP	Gross domestic product
EML	Essential Medicines List
GA	Geographic Access
GHS	Ghanaian Cedi
HAI	Health Action International
OB	Originator brand
Ind.	Indicator
Inj	Injection
HH	Household
M	Mixed
MSH	Management Sciences for Health
NMP	National Medicines Policy
Nb	Number
NSAIM	Non-steroidal anti-inflammatory medicines
Q	Quintile
QL	Quality
RU	Rational Use
SD	Standard Deviation
SES	Socio-economic status
STG	Standard Treatment Guidelines
USD	United States dollars (also $)
WHO	World Health Organization
% ile	Percentile

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CONFLICT OF INTEREST STATEMENT

None of the authors of this survey or anyone who had influence on the conduct, analysis or interpretation of the results has any competing financial or other interests.

EXECUTIVE SUMMARY

Background

This field study to measure access to and use of medicines was undertaken in GHANA in May-June 2008 using a standardized methodology developed by the World Health Organization. The study assessed information on the socio-economic level of households, and access to and use of medicines for acute and chronic conditions as well as opinions and perceptions about medicines.

Methods

The survey was conducted in six regions: Greater Accra region, Brong Ahafo region, Central Region, Volta Region, Upper West region and Western region. In each region, six reference public heath care facilities were selected among those participating in the Level II Facility Survey that was carried out in parallel. Within defined distances from each reference public health care facility, households were selected by purposive cluster sampling. A total of 1065 household respondents were interviewed by means of a structured paper questionnaire Data entry was performed with EpiData software and analysis with Excel.

Key results

- Opinions and perceptions about medicines

Overall, respondents believe that the quality of medicines and services in their public health care facility is appropriate.

- Geographic access and availability of medicines

Overall, indicators of geographic access to medicines suggest that the majority of households (80%) are close (15 minutes travel time) to a heath care facility, and have easy access to medicines in case of acute illness and for chronic diseases. In general, most people (84%) perceive that geographic access to public health facilities is easy. Indicators of availability of medicines suggest that availability of medicines in public health care facilities does affect access to medicines. Availability is perceived to be better in private pharmacies (63%) compared to public health facilities (56%).

The most frequent source of medicines in case of acute illness is public health facilities (55% compared to 27% in private pharmacies).

- affordability of medicines

46% of prescriptions for acute illness were entirely covered by health insurance and therefore obtained free of charge. The average number of medicines per prescription was three and the average cost of cost of one prescription for acute illness was Gh₵6.02 for those who did not receive medicines free-of-charge, and the average monthly cost of medicines for chronic diseases was Gh₵4.0.

Overall, indicators of affordability of medicines suggest that the price households pay for medicines is an obstacle to accessing medicines. In households with sick members, catastrophic medicines expenditures are not too frequent (31%). The penetration of medicines insurance coverage in Ghana is fairly high (46% and 47% of households for acute and

chronic conditions respectively) and is not limited to households with higher level of expenditures. About a third of household respondents however believe that medicines are not affordable.

- Medicine use and medicines at home

A little over one out of two (53%) households have medicines at home suggesting good access to medicines. This percentage is lower in households who live further from a reference facility. Four out of ten medicines found at home did not have an appropriate label and a primary package in good condition.

- Medicine use and acute illnesses

Overall, indicators suggest some level of mixed attitudes towards appropriate use of medicines among the sampled population in cases of acute illness. The most common prescribers were doctors and nurses (74%). The use of injections during acute illness is low (2%). However, about 19% of the persons with acute illness did not take their prescribed medicines as recommended. One out of three of all medicines taken for acute illness were vitamin preparations and anti-bacterials. Artesunate+Amodiaquine hydrochloride accounted for 33.3 percent of medicines and proportion of antimalarials prescribed in case of acute illness. Two monotherapies, chloroquine and quinine together also accounted for one in four (1:4) of the antimalarials kept at home.

- Medicine use and chronic diseases

Majority of persons (76% out of 173) diagnosed with a chronic disease had medicines at home. The most frequent categories of medicines taken for chronic diseases were non-opioid analgesics and NSAIMs (18%), antihypertensive drugs (16%), antianginal drugs (13%) and insulins and antidiabetic agents (11%). The most frequent reason for non-adherence to treatment was because the affected persons did not follow their prescriptions for chronic diseases. Affordability did not appear to be a reason for non-compliance as only two out of the fourteen chronic disease sufferers mentioned cost as a problem and reason for non-compliance.

Conclusions

Results of the survey show that while access to medicines in Ghana is fairly good, their appropriate use by households leaves much to be desired. For example, majority of households (four out of five) have access to medicines and are within 15 minutes travel time to health facilities and furthermore perceived availability to be better in private facilities. Similarly, relative majority of households (53%) tended to keep medicines at home. The findings also indicated that the situation has consequences for appropriate use of medicines by households. Nineteen percent of households with acute illness reported not taking medicines as prescribed while one in four anti-malarials found in households were mono-therapies when the standard treatment is combination therapy. Household non-adherence to medicines use regimens by chronic disease sufferers was also reported.

Another key finding of the survey is the reported fairly low (31%) catastrophic household health expenditures. This is a likely result of the opportunity the national health insurance

provides for households to obtain insurance coverage in times of illness although in case of illness, a little more than half of households reporting acute illness (54%) and chronic disease (53%) do not have access to insurance coverage.

Altogether, the findings suggest the need for multi-faceted interventions to address the existing gaps in household access to medicines.

Recommendations

Based on the results of the survey and discussions with stakeholders, the following recommendations can be made for improving household use of medicines in Ghana

1. A new era of community pharmacy service could be tried where family pharmacists will be assigned to visit families and check on their medicine use.
2. Advantage should be taken of private pharmacies to orientate them to educate clients on the use of medicines at home.
3. Radio and TV advertisements should be revived to inform the way people keep medicines at home. In particular, the TV programme "Adult Education" in the local languages should be revisited to help improve the issue of medicines kept at home.
4. Education on medicine should start from childhood because that is the only way drug misuse and abuse can be curbed.
5. There is need to step up provider education through drugs and therapeutic committees training backed by effective monitoring to make prescribers and dispensers recognize and carry out effective patient and client education and counseling as an essential component of care.
6. There is need to step up public education and sensitization to encourage the public to join the national health insurance scheme as a means of relief from catastrophic health care expenditures.

:

LIST OF KEY INDICATORS

Key Indicators - All households	
1. Geographic access to medicines	
% households who have to travel > one hour to reach the closest public health care facility	**3%**
% respondents who agree that the location of public health care facilities is convenient	**84%**
% respondents who agree that they would use public health care facilities more if opening hours were convenient	**81%**
2. Availability of medicines	
% respondents who agree that medicines are usually available at their public health care facility	**56%**
3. Affordability of medicines	
% households whose monthly medicines expenditures represent > 40% of discretionary spending	**27%**
% respondents who agree that they can get free medicines at their public health care facility	**39%**
% respondents who agree that medicines are more expensive at private pharmacies than at public health care facilities	**67%**
% respondents who agree that they can get credit from the private pharmacy if need be	**18%**
% respondents who agree that they can usually afford to buy the medicines they need	**68%**
% respondents who agree that they would obtain prescribed medicines if insurance reimbursed part of their cost	**83%**
% respondents who agree that they had to borrow money or sell things in the past to pay for medicines	**31%**
4. Access to medicines - Mixed indicators	
% households with medicines at home	**53%**
% households with children and medicines at home	**51%**
% medicines found at home and obtained from a public health care facility	**45%**
% home medicines obtained from a public health care facility and with an adequate label and primary package	**62%**
% antibacterials found at home and kept for future use	**17%**
% respondents who agree that the quality of services delivered in public health care facilities is good	**74%**
% respondents who agree that the quality of services delivered by private health care providers is good	**63%**
% respondents who heard the word 'generic' before to describe a medicine	**8%**
Of these, % respondents who agree that generic medicines are lower in quality than brand medicines	**34%**
Of these, % respondents who agree that generic medicines are lower in price than brand medicines	**50%**

1. *INTRODUCTION*

In May/June 2008, the World Health Organization conducted a study on household access to and use of medicines in Ghana. The main goal of the study was to document access to and use of medicines in the population and across socio-economic levels, and to answer the following questions:

- How do people perceive geographic access, affordability and quality of medicines?
- Are medicines geographically accessible? Are there differences between urban, and rural or remote areas?
- Are medicines available in public health care facilities?
- Are medicines affordable for the treatment of common acute and chronic conditions, and especially for people with low income?
- How widespread is medicines insurance coverage?
- Who does prescribe medicines and where do households buy medicines?
- Is the use of medicines rational?
- How does Ghana compare to other countries with regards to access to and use of medicines?

2. *GHANA BACKGROUND*

Ghana is a relatively small sized country, covering an area of 238,537 km (92,100 sq miles) and lies along the west coast of Africa. It is divided into 10 administrative regions. The total population is 23.5 million with the majority living in rural areas (56.2%)

Ghana is a low income country with a GDP of US $647 per capita. About 30% of the population lives on less than US $1/day, and 53.6% lives on less than US $2/day. Of the total labor force, approximately 11.2% of persons are unemployed.

Life expectancy at birth is 58 years, with 3.3% of the population over the age of 60 years, and 41.3% of the population below 15 years. According to the last national census in 2000, the average number of people per household is 5.1. Key contributors to morbidity and mortality are malaria, HIV/AIDS related conditions, anaemia, cerebro vascular accidents, pneumonia, septicaemia, as well as hypertension and cardiovascular diseases.

2.1. Health sector

In 2006, the per capita total expenditure on health was US$33 (average exchange rate). Approximately 5.1% of the GDP is spent on health. Of the total expenditure on health, 34.2% is government expenditures, which represents 4.4% of all government expenditures. The remaining 65.8% of total expenditures on health is private expenditures, of which 77.6% are out-of-pocket expenditures[6].

There are "four main categories of health care delivery systems in Ghana – the public, private-not-for-profit, private-for-profit, and traditional systems" (Ghana Medium Term Health Strategy [GMTHS]: 1995). The health system is centred on the Ministry of Health which is the highest policy making body and all stakeholders in the health sector are ultimately responsible to it. The Ghana Health Service (GHS), established by the Ghana Health Service and Teaching Hospitals Act 525, 1996, is responsible for the administration and management of state owned-hospitals and other health facilities but excluding teaching hospitals and quasi-state institutions such as the universities and security services.

The public health service is offered through a hierarchy of hospitals, health centres, maternity homes and clinics including Community-based Health Planning and Services (CHPS) compounds. Services are run on a three-tier system of care; from primary through secondary to tertiary services organized at five levels: community, sub district, district, regional and national. Community and sub-district levels provide primary care, with district and regional hospitals providing secondary health care. The teaching hospitals are at the apex providing tertiary services and responsible for the most specialised clinical and maternity care and also provide the highest level of academic and practical training and research in medicine and related health fields. In order to give real meaning to the interface of the various levels, the structures incorporate a functional referral system from lower levels to the level immediately above them although this is not always adhered to.

The public health sector is complemented by the private health sector, which provides about 42 per cent of Ghana's health care services. The main providers in the private sector are the mission based providers and the private medical and dental practitioners. The Christian Health Association of Ghana (CHAG) which constitutes the mission based providers represents member health institutions of sixteen Christian Churches involved in the provision of health care. Government provides about 80% of salaries of CHAG health staff. Private for profit providers also offer health care services under the umbrella of the Private Medical and Dental Practitioners. Table 1 provides the health sector structure of health facilities by category of ownership.

Table 1. Health sector structure according to Health facilities by type and ownership

Facility category	Ownership	No. of facilities
Teaching hospitals	Government	2
Regional hospitals	Government	9
Psychiatric hospitals	Government	3
Hospitals	CHAG	55
	Government	93
	Islamic	10
	Private	156
	Quasi government	22
Poly clinic	Government	10
Health centres & clinics	CHAG	156
	Government	1059
	Islamic	8
	Private	688
	Quasi government	64
Maternity homes	Government	9
	Private	379

	Quasi government	1
CHPS	Government	285
	Private	2
Grand Total		3011

Source: CHIM/PPME-GHS: The Health Sector In Ghana; Facts And Figures, 2007

The role played by the traditional birth attendants (TBAs) and the traditional healers is also receiving national recognition. The Ministry of Health also collaborates with various ministries, departments and agencies (MDAs) as well as other partners and stakeholders in the health sector. The key ones include the Ministries of Education, Environment, Science and Technology, Works and Housing and Local Government and Rural Development.

All residents have access to public health insurance through the payment of premiums, which covers about ninety percent of medicines. Some of the population also has private health insurance, which may or may not cover most essential medicines. In 2007, eight million, two hundred and one thousand, six hundred and sixty six persons (8,291,666) representing 42%[1] of the population had health coverage through the national health insurance scheme.

2.2. Pharmaceutical sector

There are approximately 8000 licensed private retail medicine outlets in the GHANA. Sectors which dispense a substantial proportion of medicines to patients include the public sector representing about 55 % of the total health facilities while the private sector made up of the mission based providers and the private medical and dental practitioners represent about 45%. By the end of 2007, approximately 300 private pharmacies and about 230 chemical sellers' shops had been accredited by the National Health Insurance Authority to dispense medicines to patients from both public and private accredited health facilities[8].

National Medicines (Drugs) Policy

In Ghana, a National Medicines Policy (NMP) document exists in official form. It forms the basis of forms the basis of government's responsibility to ensure access of its citizens to good quality drugs at affordable prices, enacting drug regulations, developing professional standards, and promoting the rational use of drugs. An implementation plan that sets out activities, responsibilities, budget and timeline is in place; it was last updated in 2004.

Regulatory system

In Ghana, there is a formal medicines regulatory authority, the Food and Drugs Board, which is funded through regular budget from the government and fees from registration of

[1] Source: MoH Ghana Facts and Figures: NHIS Summary Statistics: http://www.moh-ghana.org/moh/docs/NHIS%20SUMMARY%20STATISTICS/NHISSUMMARYSTATISTICS.pdf

medicines. Legal provisions are in place requiring transparency and accountability and promoting a code of conduct in regulatory work. The Foods and Drugs Board provides information on: legislation, regulatory procedures, prescribing information (such as indications, contra indications, side effects, etc.), authorized companies, and/or approved medicines.

A quality management system with an officially defined protocol for ensuring the quality of medicines is in place in Ghana. Medicine samples are tested for medicines registration and post-marketing surveillance. In 2008, 979 of 1,147 human allopathic medicines samples received were quality tested, with 70 representing 7.15 failing to meet quality standards. Regulatory procedures are in place for ensuring the quality of imported medicines.

Legal provisions are also in place for the licensing and practice of prescribers and pharmacies. The Medical and Dental Council of Ghana is the statutory governmental agency that regulates the standards of training and practice of medicine and dentistry in Ghana while the Pharmacy Council is responsible for the regulation of the pharmacy profession.

The country's drug policy makes prescribing by generic name and generic substitution mandatory in both the public and private sectors but the policy is poorly enforced particularly in the private sector.

Medicines supply system

Public sector procurement is pooled at the national level. Both public sector medicines procurement and distribution are the responsibility of the Procurement Unit of the Ministry of Health. Purchase of pharmaceuticals by the Central Medical Store (CMS) is through international competitive bidding and purchasing from local Private suppliers. The Regional Medical Stores (RMS) and teaching hospitals are meant to procure medicines through the CMS and from the local Private sector. All the regional hospitals and facilities are, in turn, expected to procure from the RMS in their respective regions. Although the MOH policy enjoins public facilities to procure through the public system, except in cases of non-availability, significant purchases are made from the private sector at all levels of the system.

The following tender processes are used for public sector procurement:

- National competitive tender
- International competitive tender
- Negotiation / direct purchasing

The break down of the transactions reviewed by procurement methods in number, value and percentage in 2006 by the Procurement Unit of the Ministry of Health are as follows:

Table 3: Break down of the transactions reviewed by procurement methods in number, value percentage in 2006 is as follows

Methods	No.	Value Million cedi	Percent
International Competitive Bidding (ICB)	10	80,581.00	37.37
National Competitive Bidding (NCB)	231	45,085.00	20.91
National shopping[2]	688	60,918.00	28.25
Sole sourcing	500	22,678.00	10.52
CMS/RMS/Others	123	6,351.00	2.95
TOTAL	**1552**	**215,613.00**	100

Source: Procurement Unit, Ministry of Health

Public sector procurement is limited to medicines on the Essential Medicines List (EML). There are regulations for local preference in public sector procurement, which is usually within a margin of 15-20 percent.

Medicines financing

In 2008, the Ministry of Health budget for medicines was US$ 62,606,022. The total medicines expenditures per capita was US$ 2.66 and the percent government medicines expenditure was 9.6%[3]. There is a paucity of accurate pharmaceutical market statistics but estimates put the Ghana pharmaceutical market (both for non prescription – OTC – and prescription medicines) to be approximately 30% locally produced and 70% imported products[4].

There is a national policy for Government to finance the procurement and management of adequate quantities of essential drugs to the public sector. While the principle of cost recovery is in place, appropriate mechanisms also exit that offer exemptions from medical care including medicines for persons under eighteen years and pensioners under the state social security scheme (SSNIT) or persons seventy years and above and pregnant women.

The National Health Insurance Scheme (NHIS) became operational in 2004 through an Act of parliament (ACT) passed in 2003. Ghanaians and residents in Ghana can become members through the payment of premiums, which cover about ninety percent of medicines. Membership registration is done through a District Mutual Health Insurance Scheme and as at the end of 2008, there were 145 DMHIS schemes in operation with a

[2] This is the type of bidding open to companies within Ghana but not necessarily Ghanaian and usually in the private sector

[3] MoH Annual General Statement, 2008

[4] Jonathan Harper and Martha Gyansa-Lutterodt (2007) The viability of pharmaceutical manufacturing in Ghana to address priority endemic diseases in the West Africa sub-region Deutsche Gesellschaft

cumulative recorded membership of twelve and a half million. Some of the population also have private health insurance, which may or may not cover most essential medicines. All public health facilities in the country are automatically accredited to the NHIS. Private health facilities however have to apply to the NHIA for accreditation to participate in the NHIS. As at then end of December 2008, a total of 1,551 private providers of different categories had been accredited.

Ghana has a policy of covering medicine prices that applies to the public sector. The Ministry of Health seeks to address the issues of sustainability, equity of access and affordability through an official policy that determines the margins to be applied on medicines. At the central, regional and service delivery points, the margins are intended to maintain the viability of the facility's Revolving Drug Fund. The main premise is to allow the facilities to generate sufficient funds to maintain procurement capacity, a hedge against inflation and losses or wastage that might occur.

Ghana does not have a national medicine price monitoring system for retail/patient prices. In recent past however, the Ministry of Health in collaboration with the World Health Organization (WHO) and Health Action International (HAI) Africa initiative has been undertaking studies to measure prices of medicines using an international standardized methodology developed by WHO and HAI.

There are also no regulations mandating retail/patient medicine price information to be made publicly accessible. There are however official written guidelines on medicine donations that provide rules and regulations for donors and provide guidance to the public, private and/or NGO sectors on accepting and handling donated medicines.

Rational use of medicines

Ghana's Essential Medicines List (EML), last updated in 2004, contains five hundred and sixty six (566) simple-substance formulations. The national EML is the basis for public sector procurement. There is a unit that coordinates the selection of products on the national EML.

3. METHODOLOGY

3.1. Overview

This study was conducted using a standardized methodology developed by the World Health Organization (WHO). Six different geographic areas were chosen to implement the WHO Level II Facility Survey aimed at collecting data in 36 public health facilities, 36 mission/NGO/private health facility dispensaries 72 private drug outlets, and in 6 warehouses supplying the public sector. All 36 public health care facilities surveyed (6 per region) in the Level II Facility Survey became *reference* facilities for the purposes of the Household Survey.

The Household Survey measuring access to and use of medicines targeted data to be collected from 30 households located in the vicinity of each *reference* public health care facility. Households were systematically chosen according to their distance from the *reference* facility: a third of sampled households were to be within 5 km, a third between 5 and 10 km and a third further than 10 km from the *reference* facility.

3.2. Selection of geographic areas and reference public health care facilities

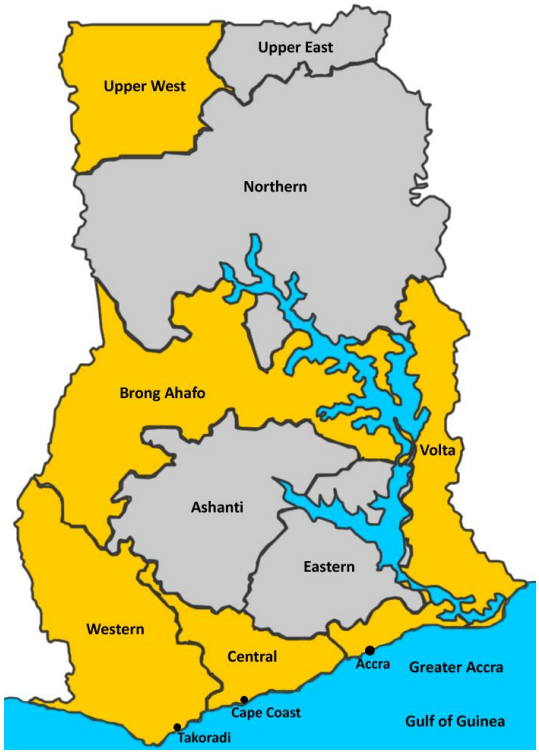
Sampling was conducted in a manner consistent with the WHO Level II Facility methodology[5]. Six regions were selected as "survey areas" for data collection of the Level II Facility Survey based on a combination of purposive and random sampling. Initially, two regions were selected. The largest urban centre of Greater Accra Region was selected as one survey area and Upper West Region was selected as representative of a low income area. Additional four regions were chosen both randomly and some purposively based on the following considerations. Central region was included because it is known to be the poorest region in the south of Ghana and there is need to determine access to medicines in the region. Brong Ahafo region was included because it has its regional medical stores outside the regional capital and it is important to find out how this may affect medicines procurement and distribution patterns. Volta region was included because of its heterogeneity in terms of agro-ecological zones. Western region was included because of its geographical location as the south westerly border region of Ghana. This resulted in the following six survey areas:

1. Greater Accra Region
2. Brong Ahafo Region
3. Central Region
4. Upper West Region
5. Volta Region
6. Western Region

[5] Methodology derived from the WHO Operational Package for Monitoring and Assessing Country Pharmaceutical Situations: Guide for Coordinators and Data Collectors.

Figure 1 below is a map of Ghana showing the geographic location of the six survey areas in the survey.

Figure 3.1: Geographic Location of the six surveyed areas in the study



In each survey area, the sample of *reference* facilities was identified by first selecting the main public regional hospital. Five additional public health care facilities per survey area were then selected systematically across the region from a list of all public health care facilities expected to carry a full supply of essential medicines.

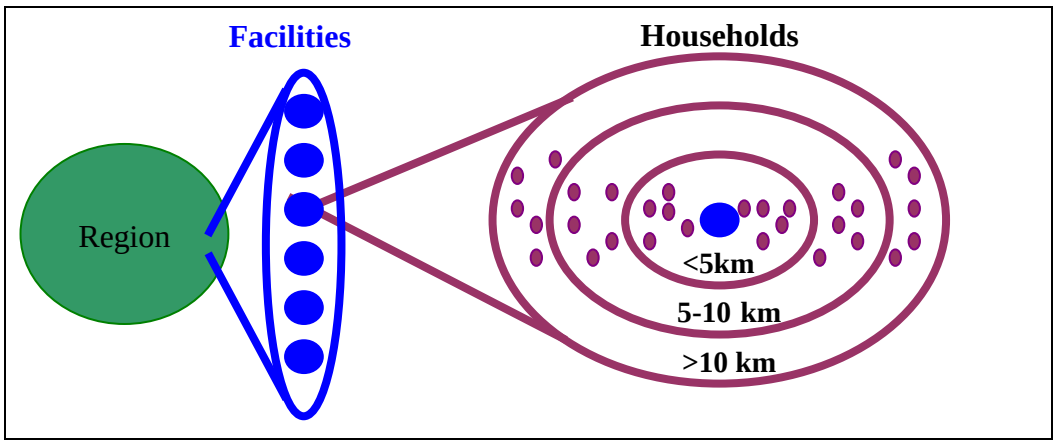
Table 3.1: Sampling of reference health care facilities, by region

	Region					
Facility	**Brong Ahafo**	**Central**	**Gt. Accra**	**Upper West**	**Volta**	**Western**
Atebubu Hospital	30					
Goaso Hospital	30					
Nsawkaw Health Centre	28					
St. Mary's Hospital	30					
Sunyani Reg. Hospital	30					
Techiman	30					
Abura Dunkwa Hospital		30				
Central Reg. Hospital		30				
Elimina U.H.C.		30				
Foso Catholic Hospital		30				
Praso		30				
Swedru Gov't Hospital		30				
Dangbe East Dist. Hospital			30			
Dodowa Health Centre			30			
Madina Health Centre			29			
Mamprobi Polyclinic			30			
Manna Mission Hospital			30			
Ridge Hospital			31			
Gwollu Health Centre				30		
Hamile Health Centre				30		
Lawra Hospital				30		
Nadowli Hospital				30		
Tumu Hospital				30		
Wa Regional Hospital				30		
Comboni Polyclinic					30	
Hohoe					30	
Ketu Dist. Hospital					30	
Kpando Hospital					20	
Peki					30	
Regional Hospital Ho					30	
Aboso						31
K'tsim						28
Dixcove						30
Eikwe						30
ENRH						28
Sefwi Wiaso						30
Total	**178**	**180**	**180**	**180**	**170**	**177**

3.3. Selection of households

According to WHO methodology, the quota sample of households per *reference* facility is divided into 6 clusters. Beginning with the *reference* health care facility as a central reference point, households are selected in opposite directions, as illustrated in figure 3.2.

Figure 3.2: Household Sampling



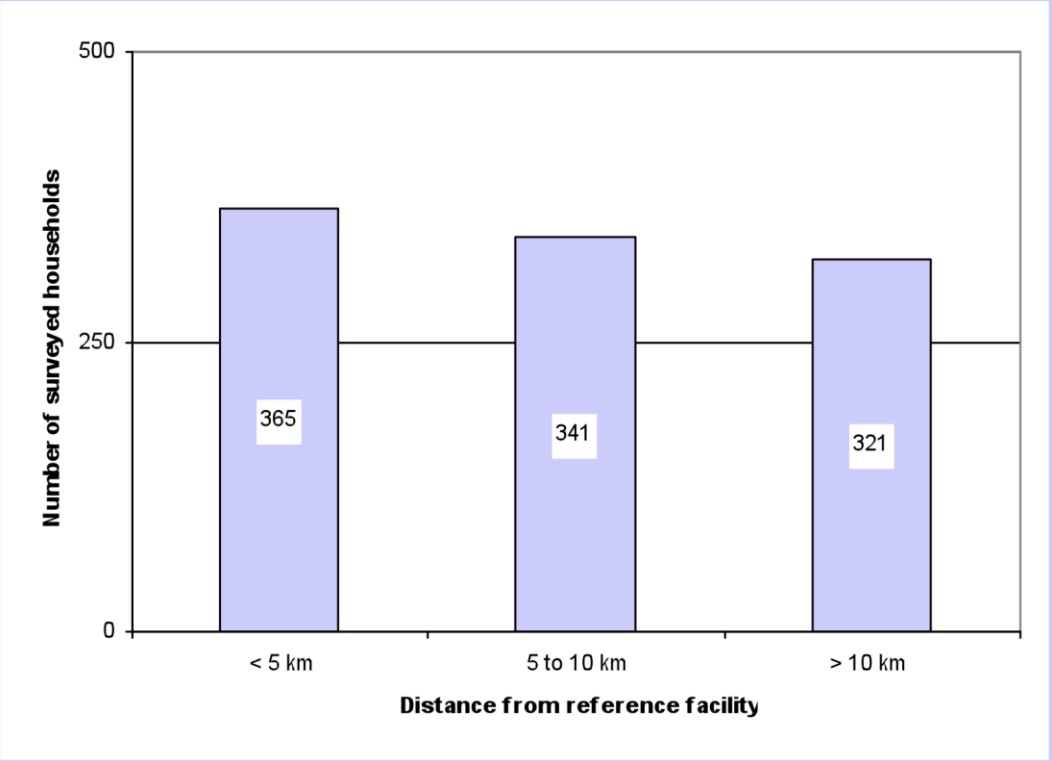
Interviewers were trained to use judgment in selecting households. General rules of thumb applied were:

- Households should not be next to each another;
- Households should not be excluded if respondents are not immediately present but an appointment can be scheduled to interview them later in the same day;
- Households should have an economic status that is generally representative of the area in terms of dwelling condition, size, organization of the household premises, and water supply.

In Ghana, 1065 households participated in the survey. Of these, 169 households were adjacent to the largest public hospital of each area. Within each cluster, a random starting household was selected at the required distance from the reference health care facility. After completing an interview with the respondent of this household (or scheduling one for a later time), 4 households were skipped before selecting another household in the cluster. Not every household was able to participate in the survey; in such cases, the next household was chosen as a replacement.

Figure 3.3 overleaf presents the number of households in each cluster.

Figure 3.3: Household Clusters



Key Points:

- Households were not equally distributed across three clusters defined by the distance of households to reference health care facilities. There was a tendency towards covering more households in shorter distances from the reference facility.

3.4. Selection of respondents

Interviewers were trained to use judgment in selecting respondents. Respondents were selected if they met at least three of the following criteria:

- Main health care decision maker
- Most knowledgeable about health of household members
- Most knowledgeable about health expenditures of the household
- Most knowledgeable about health utilization by household members
- Designated care giver for sick household members

3.5. Data Collection

The survey team consisted of a survey manager, a survey coordinator and survey liaison, 6 area supervisors, 18 data collectors and 2 data entry personnel. The data collectors included a skills mix of pharmacy graduates, public health nurses, biostatisticians and social scientists who complemented each other in a meaningful way. All survey personnel received training in the standard survey methodology and data collection/data entry procedures at a workshop held from 5th May to 9th May 2008.

As part of the workshop, a data collection pilot test was conducted in households; it was not included in the survey sample.

Data collection took place between 19th May 2008 and 6th June 2008. Data collectors visited households in pairs and collected information using a standard paper household questionnaire made of 37 questions. (Annex 1) In addition, an Excel spreadsheet displaying quintiles of monthly household expenditures by number of household members in Ghana was distributed to data collectors during the training workshop. (Annex 2) This spreadsheet was used to describe categories A, B, C, D, and E of level of expenditures during interviews with household respondents.

Area supervisors checked all completed questionnaires at the end of each day of data collection. Upon completion of the survey, the survey manager conducted a quality control check of all completed questionnaires prior to data entry.

3.6. Data Entry

Survey data were entered by a team of 2 data entry persons EpiData software was used for data entry. Data entry was checked by entering twice 20% of the questionnaires using the double data entry functions of Epidata; erroneous entries and potential outliers were verified and corrected as necessary through data cleaning.

3.7. Data Analysis

Household Epidata records were merged into four Ghana files for analysis. Files were imported into an Excel workbook containing macros and formulas that automatically generated tables and figures of the report.

4. RESULTS

4.1. Characteristics of surveyed households

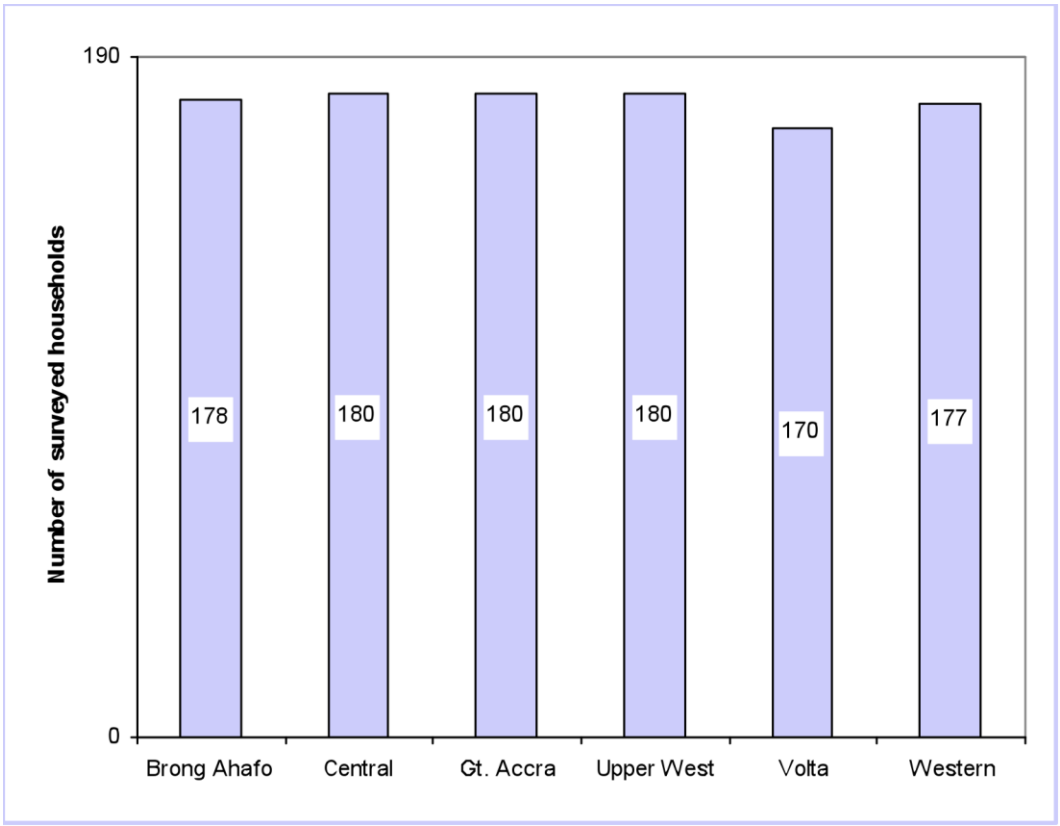
Understanding the characteristics of surveyed households is critical to assessing their representativeness in the Ghanaian context. Interpretation of survey results depends on the location, size, composition and socio-economic status of households, as well as characteristics of respondents and morbidity of the population included in the survey.

4.1.1. Geographic location

Disparities observed among households may be related to different environments, for example urban versus rural areas or distance from the closest health care facility. In the medicines survey, regions are determined according to the WHO methodology for Level II Facility Surveys, which calls for surveying the largest urban area, and five systematic randomly chosen administrative areas.

Figure 4.1 presents the number of households in each of the six selected regions.

Figure 4.1: Number of surveyed households in each region



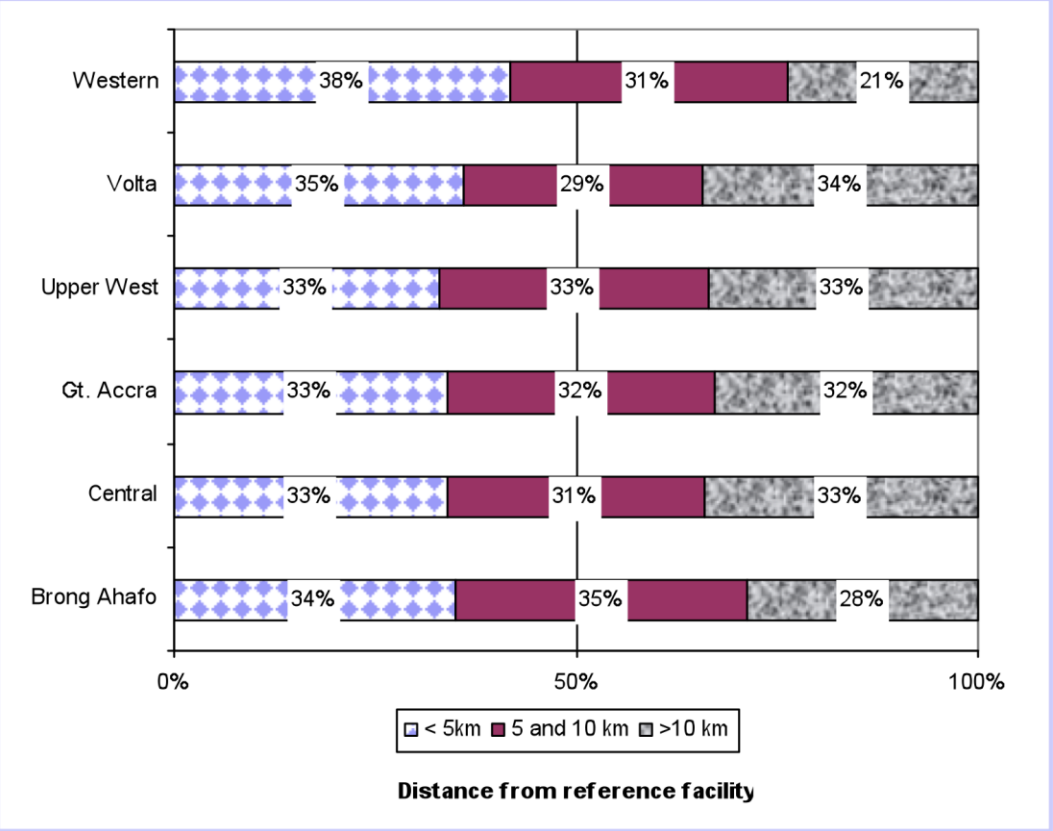
Key Points:

- The largest urban area Greater Accra contributed for 180 households.

- A similar contingent of households came from each of the six administrative areas.

Figure 4.2 presents the percentage of households per cluster in each of the six selected regions.

Figure 4.2: Representation of regions in each household cluster



Key Point:

- The profile of each cluster of households was similar with regards to region representation except the Western region where there was a preponderance of the first cluster at the expense of the third cluster.

4.1.2. Size and composition

Altogether, 1065 households were surveyed producing a total household population of 5384. The mean household size was 6, with 55% of the households having children. In these households, the mean number of children is 3 with a mean of one child under 5 years. Majority (84%) of the households reported to have at least one member earning income. The proportion was slightly higher among households surveyed in rural areas and/or from households further away from reference facility (>10km). A mean household total expenditure of Gh₵136 was recorded for the 4-week period preceding the survey. The

mean household total expenditure decreased among households further away from the reference facility. Majority (56.1%) of the households with someone earning income were engaged in farming or fishing. This was a little higher among rural and/or households further away from the reference facility households. Table 4.1 presents the composition and size of surveyed households.

Table 4.1: Characteristics of surveyed households

	Distance from reference facility			
	All	< 5 km	5 to 10 km	> 10 km
Number of households	1065	365	341	321
Average household size	6	6	6	5
Percentage of households with children	55%	60%	51%	51%
Average number of children per household with children	3	2	3	3
Average number of children under 5 yo per household with children	1	1	1	1
Total population	5384	1808	1746	1618
Average population age	32	33	35	29
Females	54%	53%	53%	57%
Children	34%	36%	33%	34%
Percentage of households where someone earns money	84.0%	81.1%	85.0%	88.5%
Average of 4-wk household total expenditures (GHS)*	136	144	131	128
Occupation of member earning money:				
farmer/fisherman	56.1%	54.8%	55.7%	60.4%
teacher	18.0%	15.9%	20.5%	18.1%
artisan	3.2%	4.1%	1.8%	3.7%
office worker	1.4%	1.1%	1.8%	1.6%
civil servant	1.1%	1.6%	0.9%	0.9%
agricultural/fish labor	0.6%	0.3%	0.9%	0.6%
non-agricultural labor	0.5%	0.3%	0.6%	0.6%
health worker	0.2%	0.3%	0.3%	0.0%
self-employed/own business	0.2%	0.0%	0.3%	0.3%

US$1 is 1.01GHS
Average for the week of May 5, 2008

Key Points:

- The size and composition of sampled households were similar to those of the 2000 census (5.1) but not similar to those of the recent 2008 Demographic and Health Survey (DHS) (3.7). The dissimilarity in household size with the latter is likely due to differences in sampling approach.
- Household expenditure tended to decrease as distance from reference facility

increased.

4.1.3. Socio-economic status (SES)

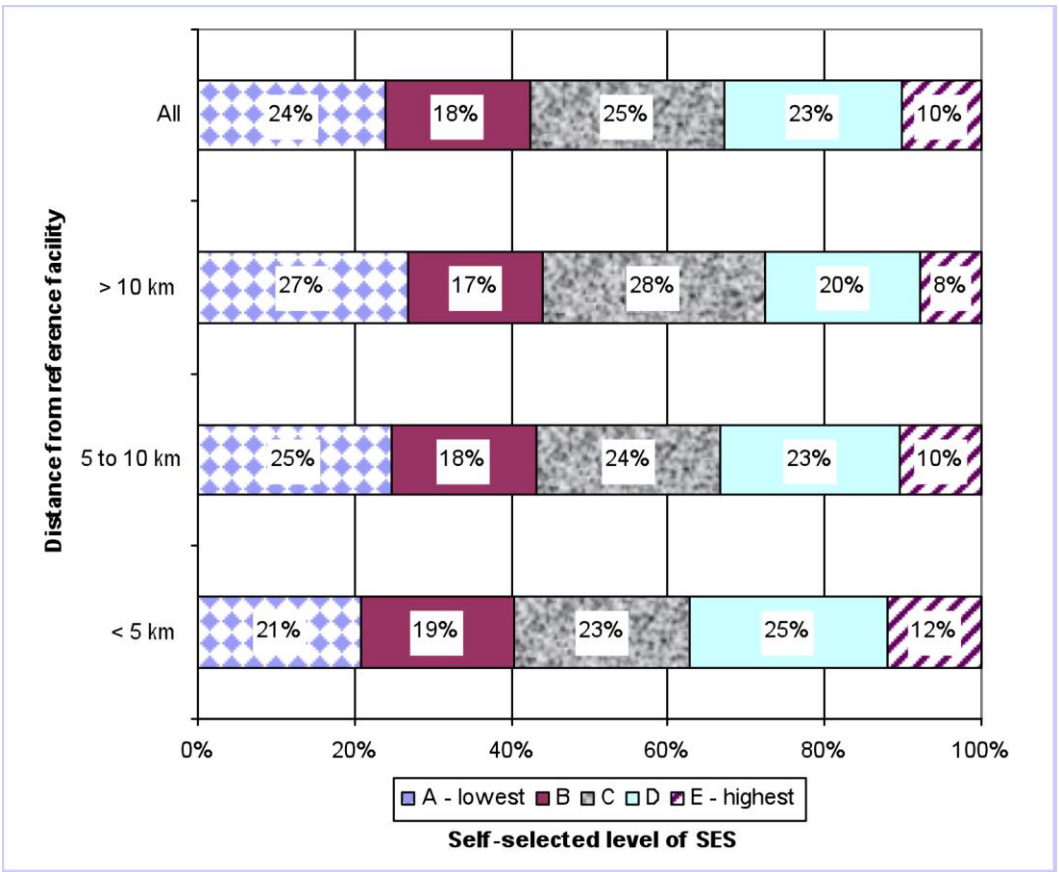
Socio-economic status is a key attribute of households, influencing their options and decisions about health care. Socio-economic status can be estimated by collecting information on expenditures/income and assets of households.

The medicines survey identified poor households by asking respondents to match their household expenditures with one of five pre-defined ranges (See Annex 2). In the Ghana survey, the lowest range of expenditures was range A defined as spending less than 16 Ghana Cedis per person and per month. Range B corresponded to spending between 16 and 24 Ghana Cedis per person and per month; range C to spending between 25 and 37 Ghana Cedis per person and per month; range D to spending between 38 and 70 Ghana Cedis per person and per month. Range E was the highest possible range of expenditures, defined as spending more than 70 Ghana Cedis per person and per month. Respondents chose one of these five ranges of expenditures that corresponded to the monthly total expenditures of their household.

Figure 4.3 presents household clusters by band of expenditures, i.e. by the socio-economic level selected by respondents.

Forty-four percent of the respondents identified their households in the two poorest categories (1st & 2nd quintiles) while another 35% also classified theirs among the top two richest categories (4th & 5th quintile).

Figure 4.3: Household clusters and SES



Key Points:

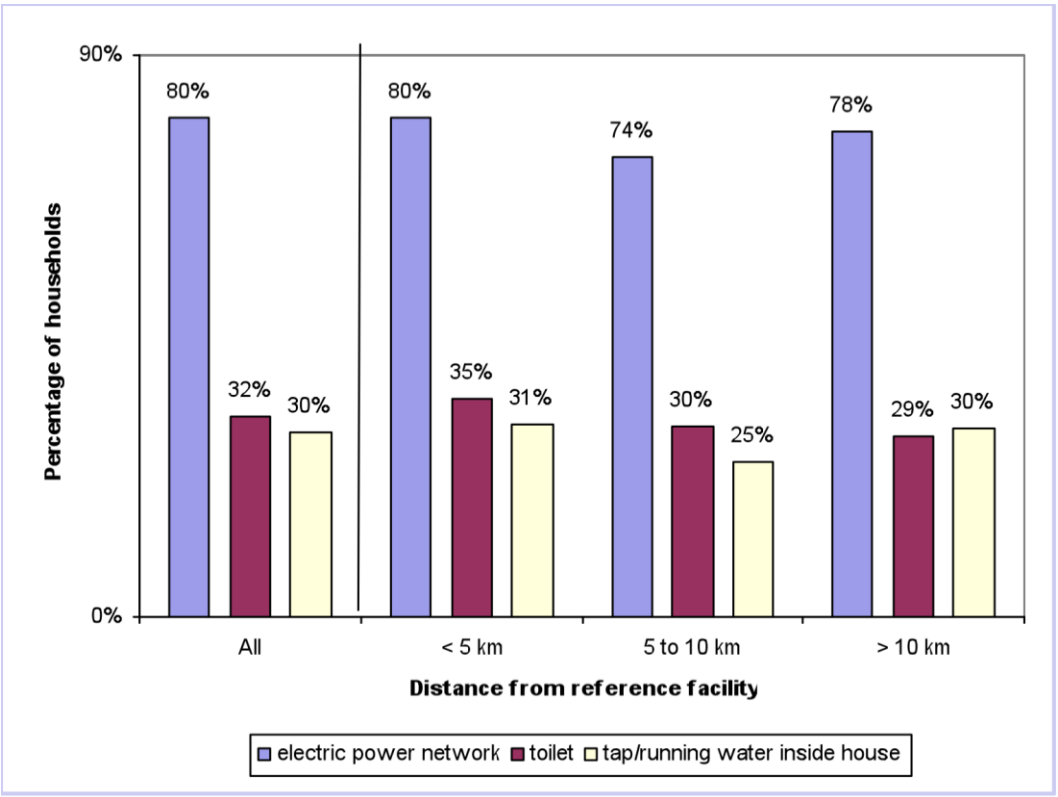
- A relative majority (44%) of respondents classified their household in lower socio-economic groups.
- Households of higher self-selected SES level tended to live closer to the reference facilities (e.g. 37% for <5km, 33% for 5 – 10km and 28% for >10km).

4.1.4. Assets

Assets are another expression of SES, complementary to household expenditures. The medicines survey collected information about 14 different items by asking a Yes/No question: 'Does anyone in your household have such item?' Items are Ghana-specific and comprised list of assets that best discriminates among socio-economic strata in Ghana. Assets chosen by the Ghana survey team were, by alphabetical order: bicycle, DVD player, electric iron, electric kettle, electricity, land/livestock, mobile telephone, motorcycle, motor vehicle, refrigerator, own toilet, radio, television, and tap/running water inside house.

Figure 4.4 presents the percentage of households with selected assets.

Figure 4.4: Household clusters and assets



Key Points:

- The percentage of households with electric power network, owns toilet and tap/running water inside house was higher in the cluster closer to a reference facility. This pattern however was not consistent as the distance increased
- Overall, the percentage of households with access to tap/running water inside the house was 30 percent. It decreased from 31 to 25 percent as the distance to reference facility increased from 5 to 10km but increased again to 30 percent and the distance increased to > 10km.

4.1.5. Expenditures

The medicines survey collected direct information on food and health expenditures. Providing an actual value of 4-week total expenditures was optional. Recall period of total and health expenditures covered the four preceding weeks. Recall period of food expenditures was limited to the previous week: food expenditures results have been adjusted to take into account the difference in recall period. Discretionary expenditures was calculated as the difference between total 4-week expenditures and 4-week food expenditures.

Table 4.2 presents the mean, 25th percentile, median, and 75th percentile of household expenditures collected in the Ghana survey. The mean is the average value, sensitive to outliers, whereas the median is the 50th percentile, i.e. the value below which 50% of the values are positioned. The 25th and 75th percentiles are the boundaries of half of the values around the median, i.e. 50 % of the values are within the 25th (lower quartile) and 75th (upper quartile) percentiles. The large difference between means and medians of expenditures displayed on Table 4.2 is due to the presence of extreme outliers at the higher ranges of expenditures.

Table 4.2: Monthly household expenditures

	Valid N	Mean	Percentile 25	Median	Percentile 75	Maximum
4-wk hh total expenditures	781	136	60	107	177	1,450
4-wk hh food expenditures	1037	122	60	100	160	1,000
4-wk discretionary expenditures	779	16	0	0	30	1,350
4-wk hh health expenditures	1065	11	0	0	2	2,400
4-wk hh medicine expenditures	1065	4	0	0	1	412
4-wk hh hospital expenditures	1065	1	0	0	0	400
4-wk hh voluntary health insurance expenditures	1065	4	0	0	0	2,400
4-wk hh other health expenditures	1065	1	0	0	0	490

Key Points:

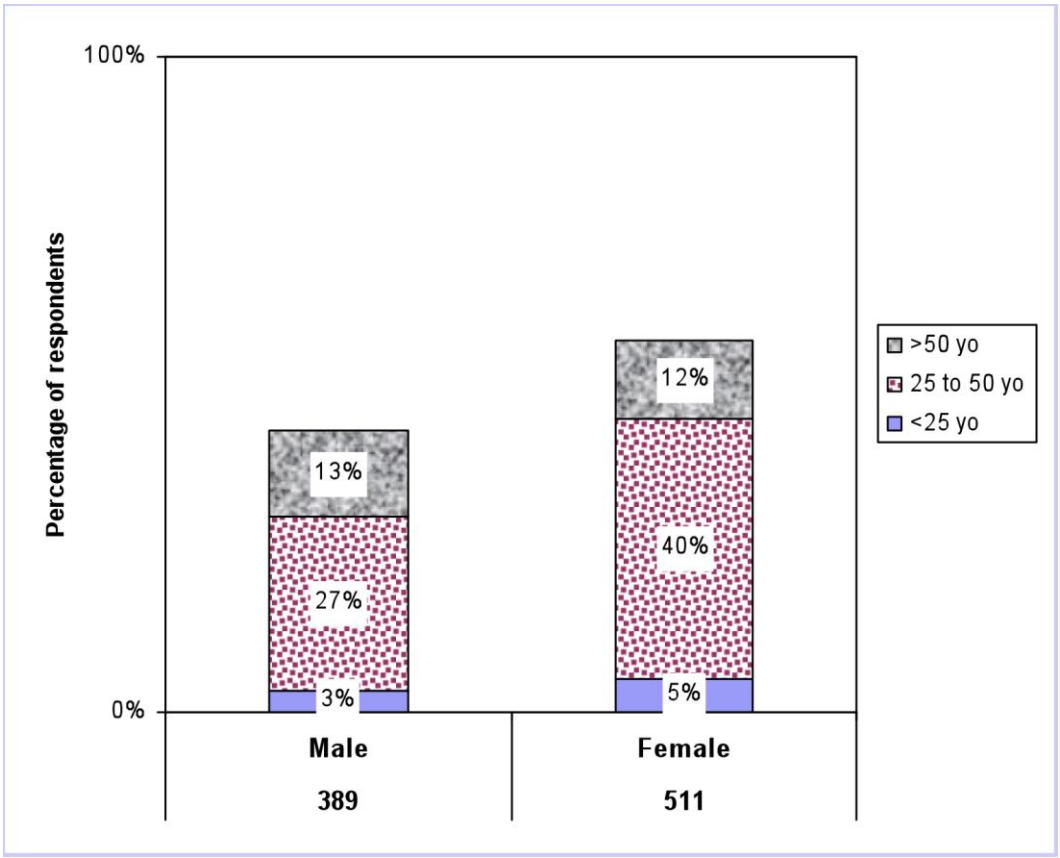
- About 73% of the respondents chose to provide an actual amount of total household expenditures. In this group of 781 respondents, the median value of total 4-wk household expenditures was 107.00 Ghana cedis.

4.1.6. Respondents

Respondents were selected because they were the household health care decision makers. Therefore, the gender, age and education of respondents provide information about the characteristics of the main health care decision makers in households. The profile of respondents is important to consider in the interpretation of the opinion questions of the survey.

Figure 4.5 presents the gender and age of respondents.

Figure 4.5: Gender and age of respondents/health care decision makers



Key Points:

- Respondents were selected because they were the main health care household decision makers.
- Women represented the majority of respondents: i.e. 57 percent.
- Sixty-five percent of respondents were between 25 and 50 years old: and one in four (1:4) of the respondents were over 50 years old.

Table 4.3 presents the education and gender of respondents.

Table 4.3: Education and gender of respondents

	All		Male		Female	
Number of respondents	900		389		511	
No formal schooling	209	23.22%	67	17.22%	142	27.79%
Some primary school	135	15.00%	45	11.57%	90	17.61%
Completed primary school	206	22.89%	89	22.88%	117	22.90%
Completed junior secondary school	152	16.89%	74	19.02%	78	15.26%
Completed senior high school or equivalent	92	10.22%	47	12.08%	45	8.81%
Completed college/ preuniversity/ university	95	10.56%	59	15.17%	36	7.05%
Completed post-graduate degree	7	0.78%	5	1.29%	2	0.39%

Key Points:

- About 77 percent of respondents have had some formal education.
- About 26.78 percent of respondents completed secondary school and 11.34 percent continued education beyond secondary school.
- The level of education between male and female tended to be higher in favour of male respondents.

4.1.7. Morbidity

The medicines survey collected information about household morbidity by asking respondents to provide the number of household members with acute illness within two weeks preceding the survey and the number of members with chronic diseases.

Table 4.4 presents the prevalence of acute and chronic conditions in surveyed households.

Table 4.4: Prevalence of acute and chronic conditions in surveyed households

		At least one chronic disease		
		Yes	No	All
At least one recent acute illness	Yes	55 **5%**	235 **22%**	290 **27%**
	No	112 **11%**	663 **62%**	775 **73%**
	All	167 **16%**	898 **84%**	1065 **100%**

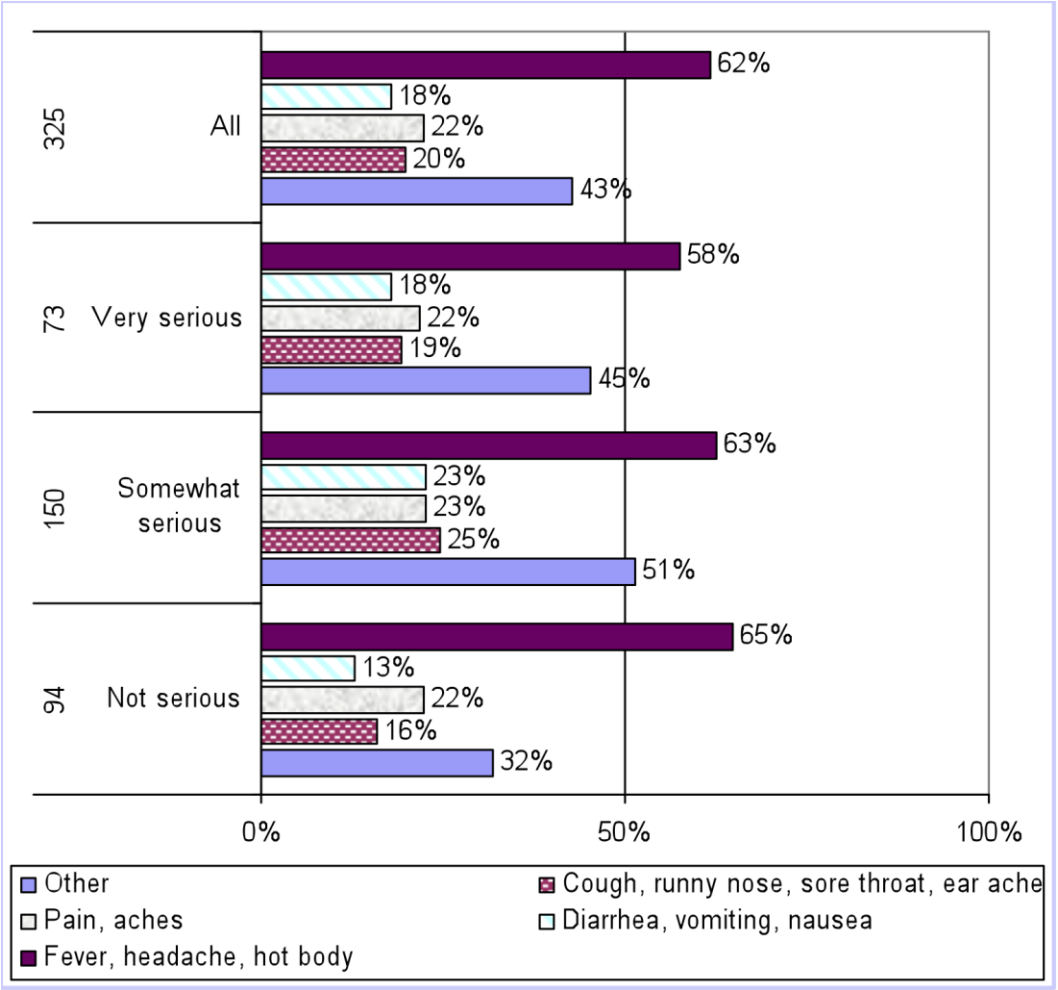
Key Points:

- Sixty-two percent of sampled households were free of current health problems.
- On the other hand, 5 percent of sampled households reported both acute and chronic conditions.
- Twenty-seven percent of households disclosed one or more recent acute illnesses, and 16 percent of households reported one or more chronic diseases
- Acute illnesses were reported more often than chronic diseases.

Respondents were asked questions on the condition of each sick member. With regards to acute illnesses, symptoms and perceived severity were documented as they were recalled by the respondent.

Figure 4.6 presents symptoms of recent acute illnesses, by perceived severity. A combination of fever, headache and hot body was reported by about 61 percent of the affected households. This was followed in far second place by pain/aches (23%) and then cough, runny noise, sore throat and ear ache (18%). A little over 43 percent reported of other health problems including chicken pox, skin rashes, stomach ache, itchy eyes and boils among others.

Figure 4.6: Reported symptoms and perceived severity of acute illness

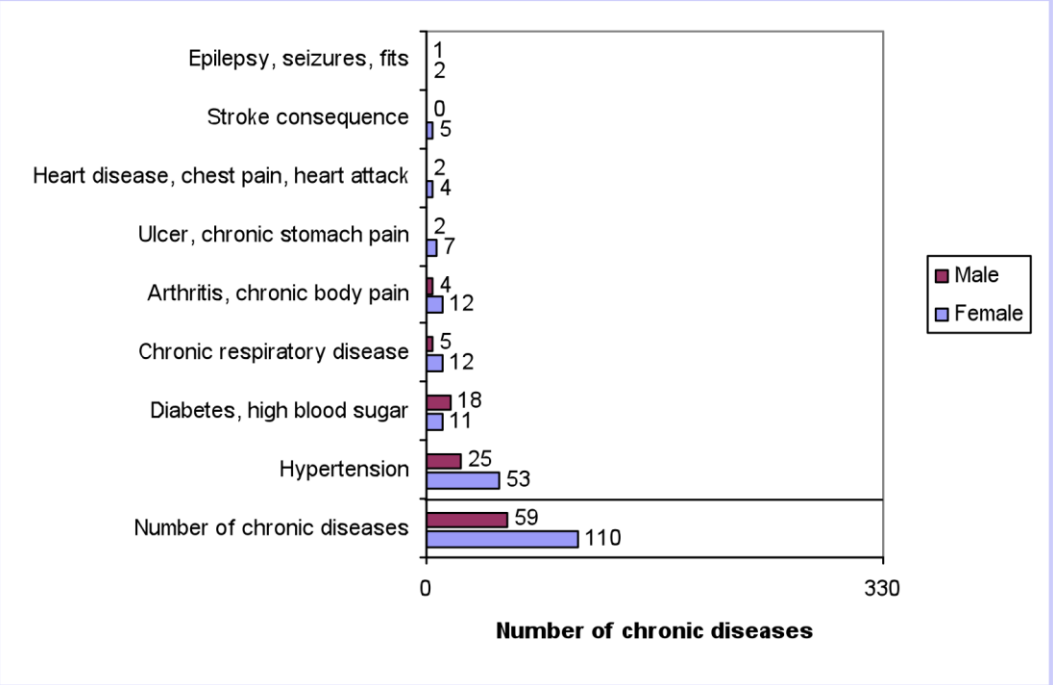


Key Points:

- The most frequent symptoms of acute illness were those related to fever and pain aches: 62and 22 percent respectively.
- Seventy three respondents, representing 22% of the recent acute illnesses, reported at least one very serious symptom.

With regards to chronic conditions, cases were documented as they were recalled by respondents. The most frequent chronic illness reported was hypertension (46.4%). It was followed by diabetes (16.9%) and chronic respiratory disease (10.2%). Figure 4.7 presents reported chronic diseases, by gender.

Figure 4.7: Chronic diseases and gender



Key Points:

- The most frequent reported chronic disease was by far hypertension.
- The proportion of women with hypertension was relatively higher than men but not significantly different (48% vs. 43%). The proportion of men with diabetes was however markedly higher than women (31% vs. 10%) as it were with other chronic diseases (20% vs. 18%). More women however had stroke consequences than men.

4.1.8. Medicines found in households

In each household, the data collector asked to see all medicines kept at home, and recorded the name, source, reason for keeping them, and the condition of their label and primary package. A total of 1493 medicines were recorded. Non-opioid analgesics and NSAIMs represented 36 percent of them while antimalarial for curative treatment accounted for 9 percent. Unclassified agents also accounted for 11 percent of the medicines found in the households.

Table 4.5 presents the most frequent categories of medicines found in households by EML category.

Table 4.5: Most frequent categories of medicines found in households

EML class	Total	Percent
Non-opioid analgesics and NSAIMs	476	35.90%
Vitamins/minerals	182	13.73%
Unclassified agents	152	11.46%
Antimalarial for curative treatment	123	9.28%
Antibacterials other than beta lactam drugs	108	8.14%
Beta lactam drugs	81	6.11%
Antianemia drugs	78	5.88%
Antitussives	32	2.41%
Antacids/other antiulcer drugs	32	2.41%
Insulins/antidiabetic agents	31	2.34%
Antihypertensive drugs	31	2.34%

Key Points:

- Over 30% of the medicines found in these households were Non-opioid analgesics and NSAIMs.

4.2. Geographic access and availability of medicines

Geographic access to public health facilities is an important indicator of equity in access to medicines.

4.2.1. Proximity to health care facilities

The medicines survey recorded the proximity of each household to different types of health care facilities, using the time to travel as unit of distance. Facilities were classified into the following categories: public hospital, private or NGO hospital, public health care center or dispensary, private clinic or physician, traditional healer, private pharmacy, or drug seller. For each facility, options to choose from were less than 15 minutes, between 15 minutes and 1 hour, and over one hour of travel time.

Table 4.6 displays the proximity of households to any health care facility and to public health care facilities.

Table 4.6: Travel time to health care facilities

	Any health care facility		Public health care facility	
	Number of households		Number of households	
Less than 15 min of travel time	848	80%	440	41%
Over 1 hour of travel time	2	0%	36	3%

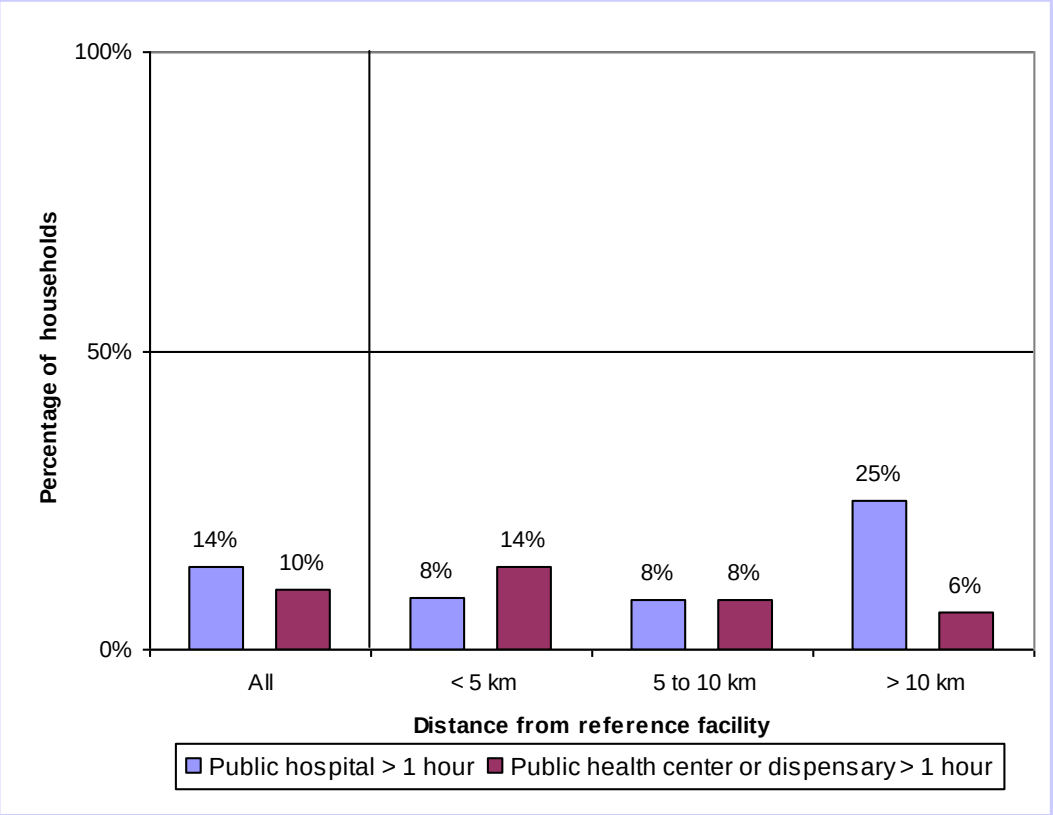
Key Points:

- Eighty percent of the surveyed households were close to a health care facility and 41 percent was close to a public health care facility.
- Three percent of the surveyed households had to travel more than 1 hour to reach the closest public health care facility.

4.2.2. Proximity to public health care facilities

Figure 4.8 focuses on the proximity of surveyed households to public health care facilities. It presents the percentage of households that live at more than one hour from different types of public health care facilities, by household cluster.

Figure 4.8: Household clusters and travel time to closest public health care facility



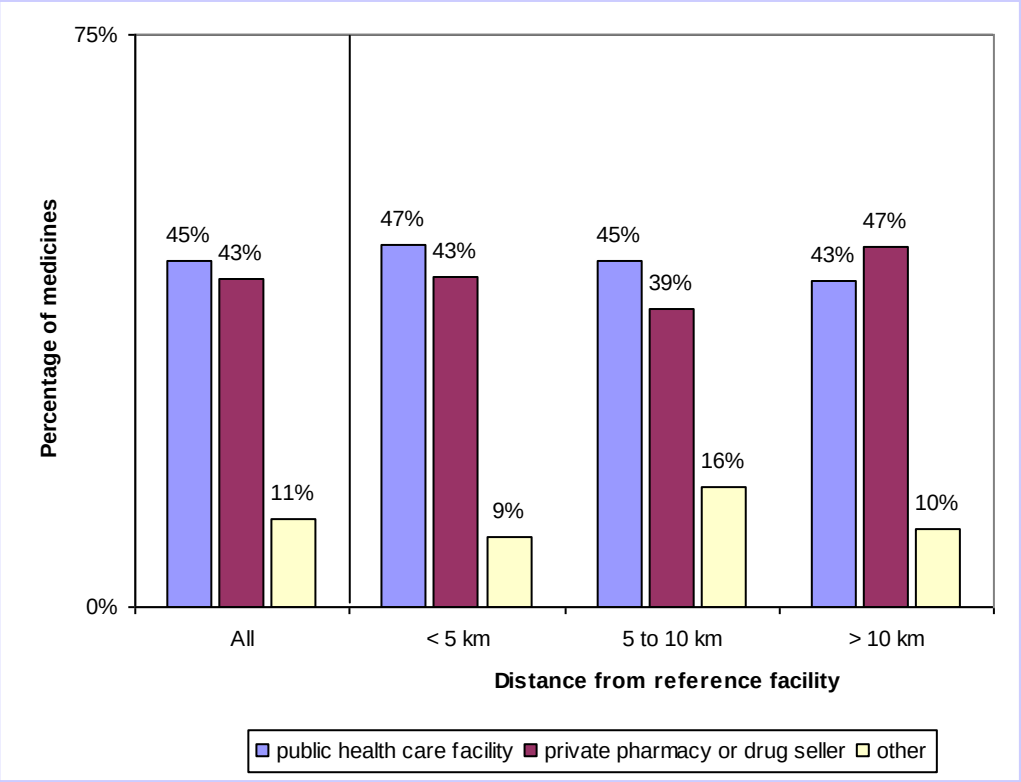
Key Points:

- Overall, the proportion of households at more that one hour travel time from a public hospital was 14% and the proportion of households at more than one hour travel time from a public health care center or dispensary was 10%.
- The further away surveyed households were from reference facilities, the further away they were from a public hospital. For instance, 25% of the households 10 km away from the reference facility travel more than one hour to get to the nearest public hospital compared to 8% for those within 5km distance.

4.2.3. Sources of medicines found in households

Figure 4.9 presents the percentage distribution of sources of medicines found in households, by household cluster.

Figure 4.9: Source of medicines found in households



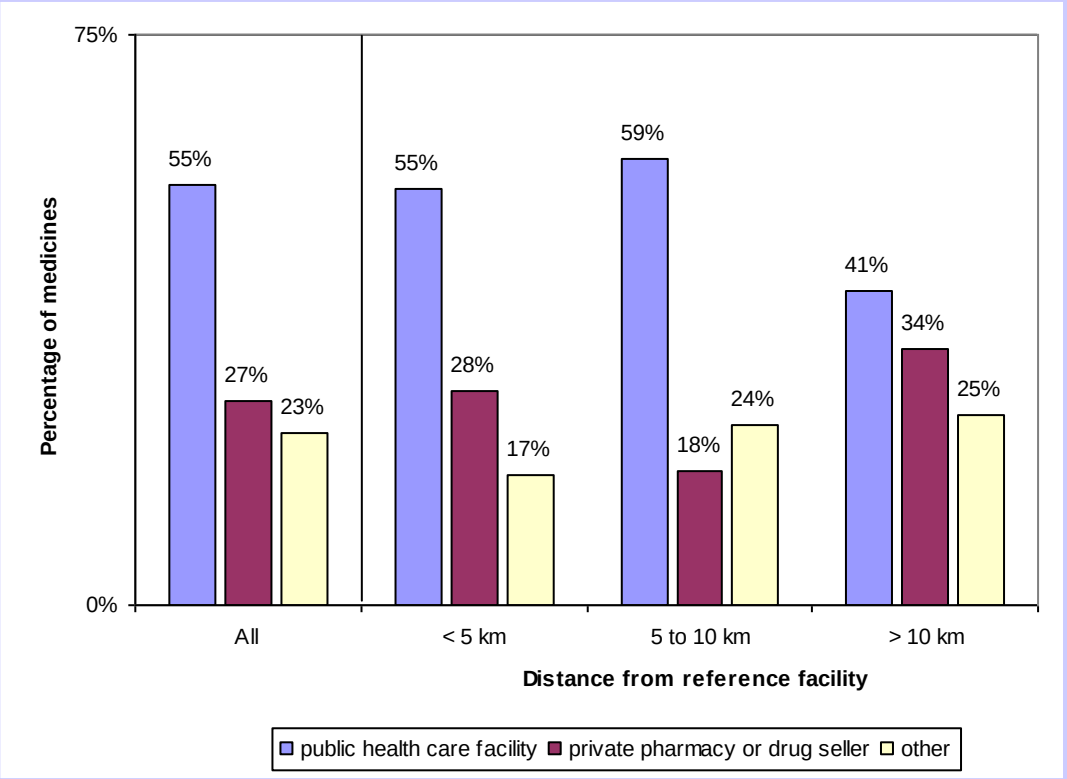
Key Points:

- Over all, 45 percent of medicines found in households came from a public health care facility.
- This proportion was slightly higher in household closer to the reference facility.

4.2.4. Sources of medicines in case of acute illness

Figure 4.10 presents the sources of medicines in case of acute illness, by household cluster.

Figure 4.10: Sources of medicines taken for an acute illness



Key Points:

- In case of acute illness, a majority (55%) of households obtained their medicines from a public health care facility.

4.2.5. Opinions about geographic access and availability of medicines

Table 4.7 presents the percentage of respondents who agreed with statements related to geographic access and availability of medicines.

Table 4.7: Opinions about geographic access and availability of medicines

	Opinion	Distance from reference facility			
		All	< 5 km	5 to 10 km	> 10 km
Number of respondents		1027	365	341	321
The public health care facility closest to my household is easy to reach.	Agree	84%	88%	75%	81%
My household would use public health care facilities more if opening hours were convenient.	Agree	81%	81%	78%	75%
The public health care facility closest to my household usually has the medicines we need.	Agree	56%	53%	55%	53%
The private pharmacy closest to my household usually has the medicines my household needs.	Agree	63%	59%	62%	58%

Key Points:

- About 84 percent of respondents were satisfied with the location of their public health care facility. This percentage was highest (88%) in the household cluster closest to a reference facility.
- In all three household clusters, respondents perceived that availability of medicines is better in private than in public health care facilities.

4.3. Affordability of medicines

Affordability of medicines is another critical indicator of equity in access to medicines. The level of medicine insurance coverage and the actual cost of medicines for different conditions are important to consider when assessing medicines affordability. The percentage of households experiencing catastrophic expenditures during the month preceding the survey provides a useful account of the affordability of medicines in the surveyed population.

4.3.1. Insurance coverage

Table 4.8 presents the percentage of households who received prescriptions free-of charge in case of acute illness and the percentage of households who received insurance coverage in care of acute and chronic conditions, by household cluster.

Table 4.8: Medicines insurance coverage

		Distance from Reference Facility		
	All	< 5 km	5 to 10 km	> 10 km
Medicines for acute illness were entirely covered by health insurance and obtained free-of-charge	46%	46%	49%	42%
Persons with chronic disease had at least one mediicne covered by health insurance	47%	42%	50%	49%

Key Points:

- Forty-six percent of prescriptions for acute illness were obtained free of charge.
- Medicines insurance coverage for acute and chronic conditions was practically frequent.

4.3.2. Cost of medicines for acute illnesses

In addition to collecting monthly household expenditures for medicines, the medicines survey collects information about the cost of prescriptions for recent acute illnesses. Table 4.9 presents the cost of prescriptions for acute illnesses, by household cluster.

Table 4.9: Cost of prescriptions for a recent acute illness

			Distance from Reference Facility		
		All	< 5 km	5 to 10 km	> 10 km
Number of acute illnesses		326	98	106	93
Number of medicines per prescription	Mean	3	3	3	3
Cost of one prescription (GHS) when medicines are not free-of-charge	Mean	6.0	4.8	4.0	8.2
	Maximum	36	31	28	36

Key Points:

- The average cost of one prescription for acute illness was 6 Ghana cedis when medicines were not obtained-free-of-charge.
- The average number of medicines per prescription was 3.

4.3.3. Cost of medicines for chronic diseases

The household medicines survey also collected information about the price of medicines taken for chronic diseases. In this case, the monthly cost of each prescribed medicine was recorded.

Table 4.10 presents the monthly cost of medicines for chronic diseases, by household cluster.

Table 4.10: Monthly cost of medicines for chronic diseases

			Distance from Reference Facility		
		All	< 5 km	5 to 10 km	> 10 km
Number of persons with chronic disease		176	45	60	68
Number of medicines per prescription	Mean	2	2	2	2
	Maximum	9	9	9	9
Monthly cost of medicines (GHS)	Mean	4.2	2.2	2.2	7.3
	Maximum	150	37	35	150

Key Points:

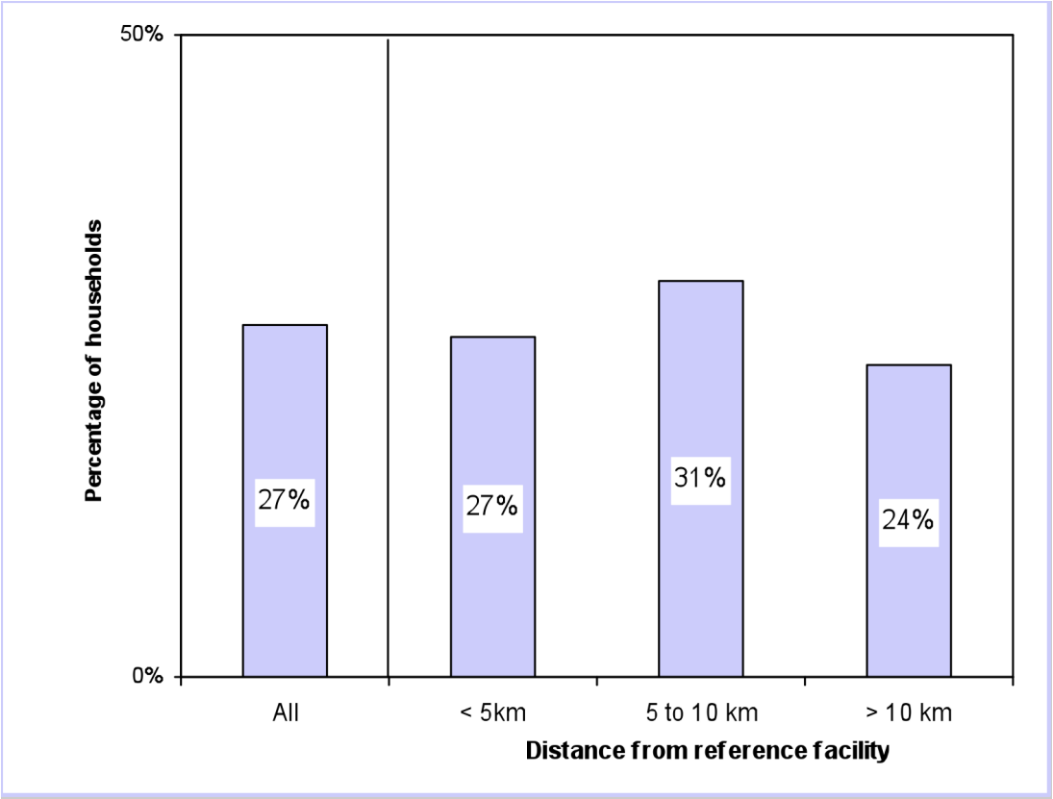
- The average monthly cost of a prescription for chronic disease was 4 Ghana cedis.
- The average number of medicines taken for a chronic disease was 2.

4.3.4. Catastrophic expenditures related to medicines

Catastrophic expenditures are payments that push people into poverty. They can be expressed in different ways. In the survey, catastrophic expenditures was calculated as expenditures higher than 40% of discretionary expenditures [ref Xu K., The Lancet 2003; 362: 111-117]. Catastrophic expenditures were calculated in the group of 781 respondents who disclosed the actual amount of total expenditures by their household during the month preceding the survey.

Figure 4.11 presents the percentage of households with catastrophic expenditures related to medicines during the month preceding the survey, by household cluster.

Figure 4.11: Catastrophic expenditures related to medicines in month preceding survey



Key Points:

- During the month preceding the survey, 27 percent of households experienced catastrophic payments related to medicines.
- Distance to the reference facility did not appear to influence the chances of households making catastrophic payments related to medicines as indicated by the percentage of households per clusters in the survey. The percentage of those who lived within 5 km and beyond 10km was lower than those between 5 and 10 km from the reference facility.

4.3.5. Opinions about affordability of medicines

Table 4.11 presents the percentage of respondents who agreed with statements related to affordability of medicines.

Table 4.11: Opinions about affordability of medicines

		All	< 5 km	5 to 10 km	> 10 km
Number of respondents	Opinion	1027	365	341	321
My household can get free medicines at the public health care facility.	Agree	39%	40%	37%	36%
Medicines are more expensive at private pharmacies than at public health care facilities.	Agree	67%	69%	65%	58%
My household can usually get credit from the private pharmacy if we need to.	Agree	18%	17%	16%	19%
My household can usually afford to buy the medicines we need.	Agree	68%	68%	69%	57%
My household would obtain prescribed medicines if insurance reimbursed part of their cost.	Agree	83%	84%	80%	77%
In the past, my household had to borrow money or sell things to pay for medicines.	Agree	31%	28%	30%	32%

Key Points:

- Sixty-eight percent respondents agreed that they can usually afford to buy all the medicines they need.
- About two-thirds (67%) of respondents agreed that medicines are more expensive in private pharmacies than in public health care facilities.
- The majority of respondents (61%) believed that it is not possible to obtain free medicines from public health care facilities.

4.4. Medicine use and medicines at home

The objective of the medicines survey is to understand which medicines people access and use, who prescribes them, where they can be obtained, how much they cost and why people take or do not take them. Collecting information on medicines kept at home contributes to answering these questions.

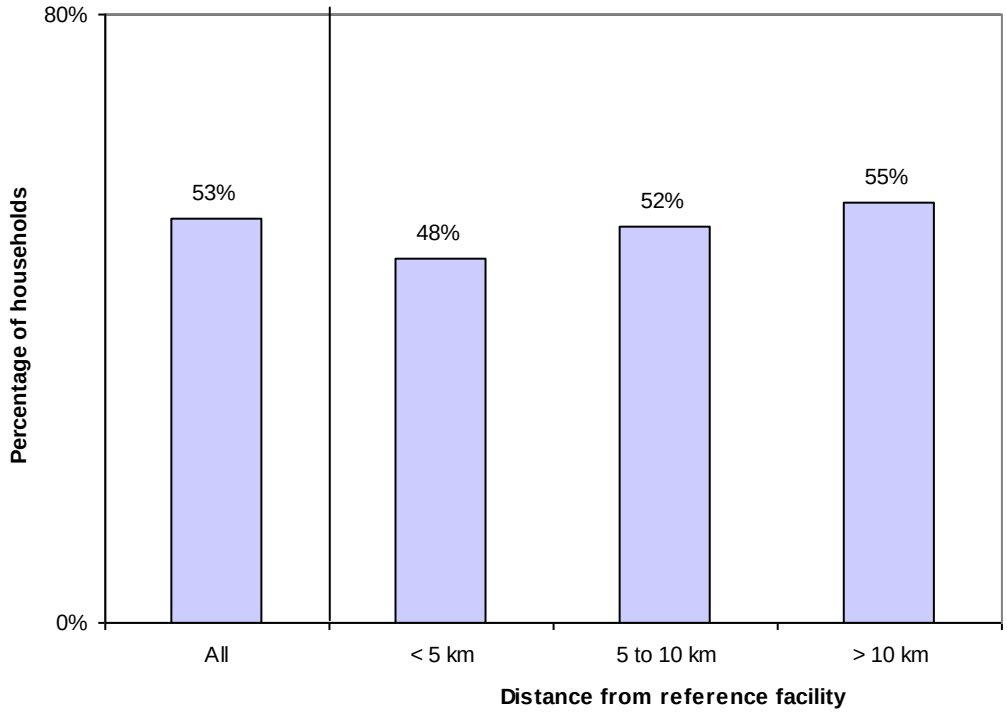
4.4.1. Number of households where medicines could be found

For each medicine found at home, information was recorded on name, source, reason for being there, as well as label and packaging conditions. Medicines

were entered in the data base with both their actual and generic names, and a code derived from the 15th edition WHO Model List of Essential Medicines.

Figure 4.12 presents the percentage of households where medicines were found.

Figure 4.12: Households with medicines at home



Key Points:

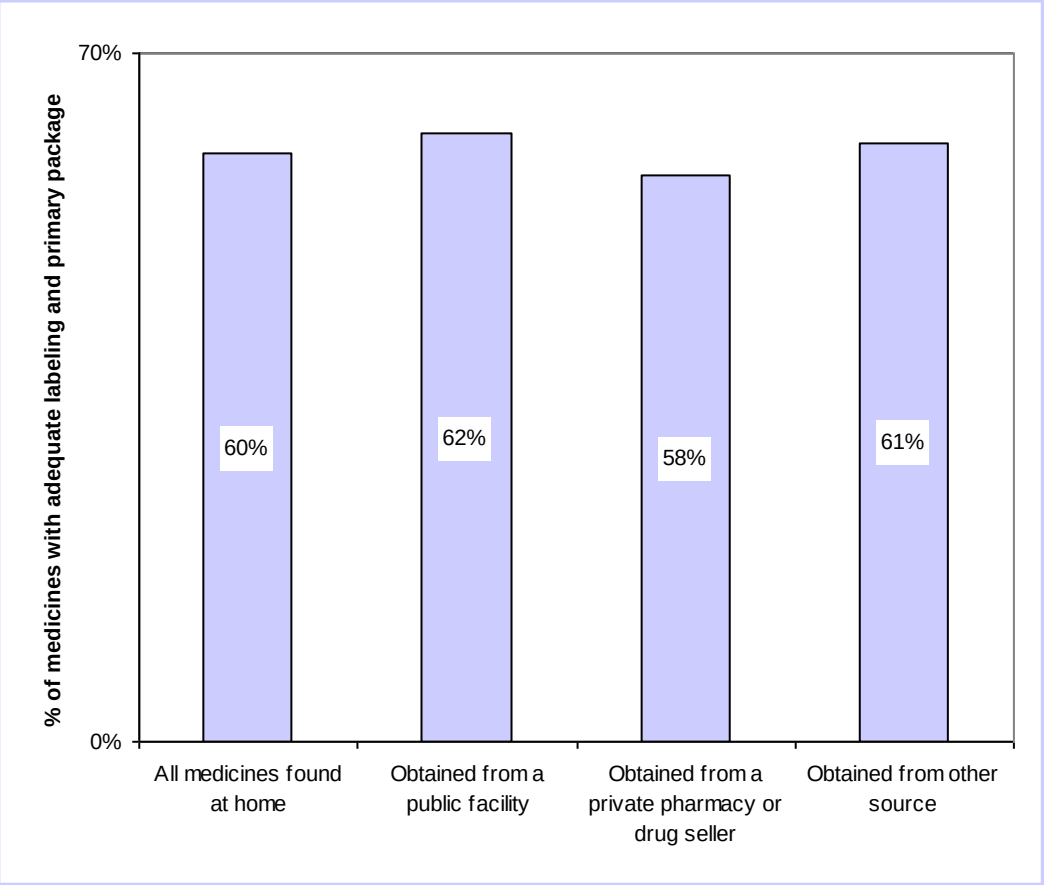
- About 53 percent of households kept medicines at home.
- Households further away from reference facilities were more likely to keep medicines at home.

4.4.2. Labeling and packaging of medicines found in households

Labels of medicines found in households were acceptable for inclusion in the study if they contained medicine name, dose, and expiration date. Similarly, the primary package of a medicine was included if it is an envelope or a closable container which contains only one medicine.

Figure 4.13 presents the percentage of medicines that had an acceptable label and primary package, by source of medicine.

Figure 4.13: Percentage of medicines found in households with both adequate label and primary package, by source



Key Points:

- Overall, about 60 percent of medicines found in households had a label in good condition and were in an appropriate container.
- Household practices in relation to keeping medicines in an adequate container with an appropriate label or not did not vary between medicines from various sources.

4.4.3. Antibacterials found in households

Table 4.12 presents the most frequent antibacterials found in households, by generic name and frequency. The four most common antibiotics found in surveyed households were amoxicillin (32.2%), metronidazole (25.3%), trimethoprim+sulphamethoxazole (19.2%) and tetracycline (6.6%). Thirteen different categories of antibacterials were found.

Table 4.12: Most frequent anti-bacterials found in households

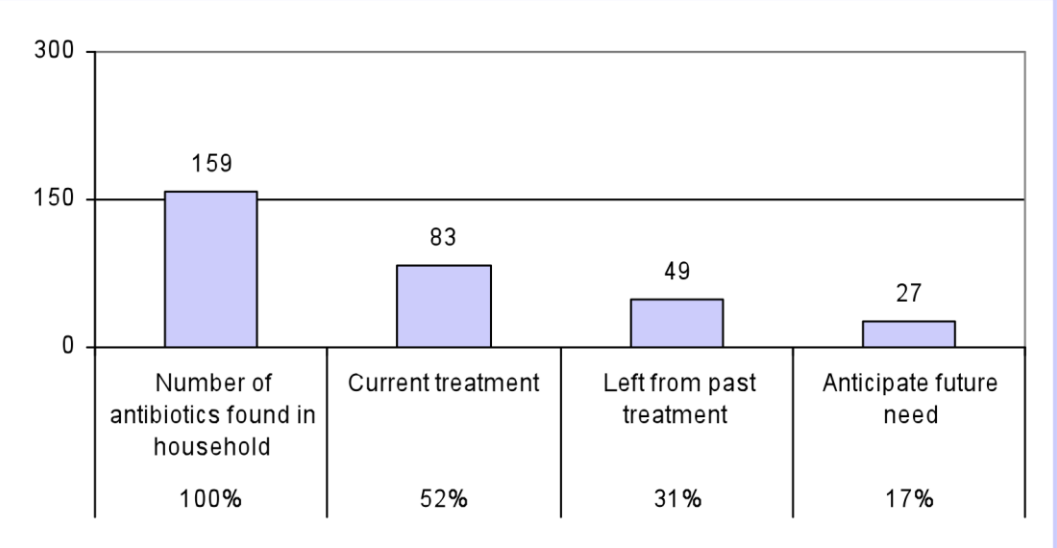
Generic	Total
amoxicillin	64
metronidazole	51
trimethoprim+sulphamethoxazole	29
tetracycline	11
ciprofloxacin	7
cloxacillin sodium	5
chloramphenicol	4
penicillin, phenoxymethyl	4
erythromycin	2
ampicillin	2
gentamicin sulfate	2
amoxicillin + clavulanic acid	2
floxacillin	4
Grand Total	187

Key Points:

- Amoxicillin was the antibacterial most frequently found in households, and, together with Metronidazole and trimethoprim+sulphamethoxazole represented about 77 percent of antibiotics. .

Figure 4.14 presents the reasons for keeping antibacterials at home. Three main reasons were cited for keeping antibacterials at home. They were either kept for current treatment, left from past treatment or in anticipation for future need.

Figure 4.14: Reasons for keeping antibacterials at home



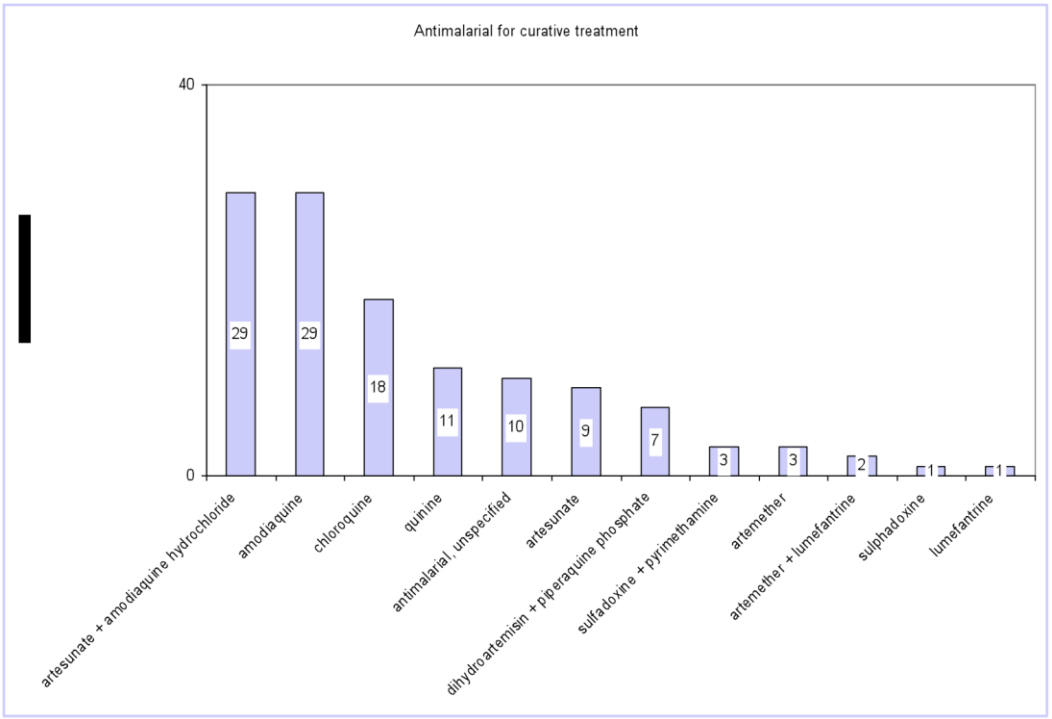
Key Points:

- About 50 percent of identified antibacterials found in surveyed households were kept for current use.
- Nearly a third of identified antibacterials found in surveyed households were left over from past treatment.
- Only 17 percent of identified antibacterials found in surveyed households were kept for future use.

4.4.4. Antimalarials found in households

Figure 4.15 presents antimalarials found in households, by generic name and by frequency.

Figure 4.15: Antimalarials found in households



Key Points:

- A total of 123 antimalarials were found in surveyed households.
- A total of 11 different antimalarial entities were identified.
- Amodiaquine accounted for one in four of antimalarials kept at home as was artesunate + amodiaquine hydrochloride combination.
- Two monotherapies, chloroquine and quinine together also accounted for one in four of the antimalarials kept at home.

4.5. Medicine use during acute illnesses

For each recent acute illness reported, information was also recorded on name, route of administration, prescriber, and source of each medicine taken for this illness. Medicines were entered in the data base with both their actual and generic names, and a code derived from the 15th edition WHO Model List of Essential Medicines.

4.5.1. Actions taken when an acute illness occurs

Table 4.13 presents the actions taken in case of recent acute illness. Majority of persons with an acute illness sought care and took medicines. The proportion was however higher among those who perceived their illness as very serious.

Table 4.13: Actions taken for a recent acute illness

	All	Percent
Number of sick persons with an acute illness perceived as very serious	73	
Went for care and took all prescribed medicines	54	74%
Went for care and took some of the prescribed medicines	13	18%
Went for care but did not take any medicines	2	3%
Did not go for care	4	5%
Number of sick persons with an acute illness perceived as moderately serious	150	
Went for care and took all prescribed medicines	108	72%
Went for care and took some of the prescribed medicines	22	15%
Went for care but did not take any medicines	4	3%
Did not go for care	14	9%
Number of sick persons with an acute illness perceived as not serious	94	
Went for care and took all prescribed medicines	58	62%
Went for care and took some of the prescribed medicines	18	19%
Went for care but did not take any medicines	3	3%
Did not go for care	12	13%

Key Points:

- Majority of persons with varied severity of acute illness who sought care took all prescribed medicines,
- The more severe the illness the more likely the care seekers are likely to take all their prescribed medicines.

4.5.2. Medicines taken for a recent acute illness

Table 4.14 presents the most frequent categories of medicines taken for a recent acute illness. A total of 842 medicines were prescribed for the recent acute

illness. The three most common categories were non-opioid analgesics and NSAIMs (26%), antimalarial for curative treatment (19%) and vitamins/minerals (13%). About 8% were also categorized as unclassified agents.

Table 4.14: Most frequent EML categories taken for a recent acute illness

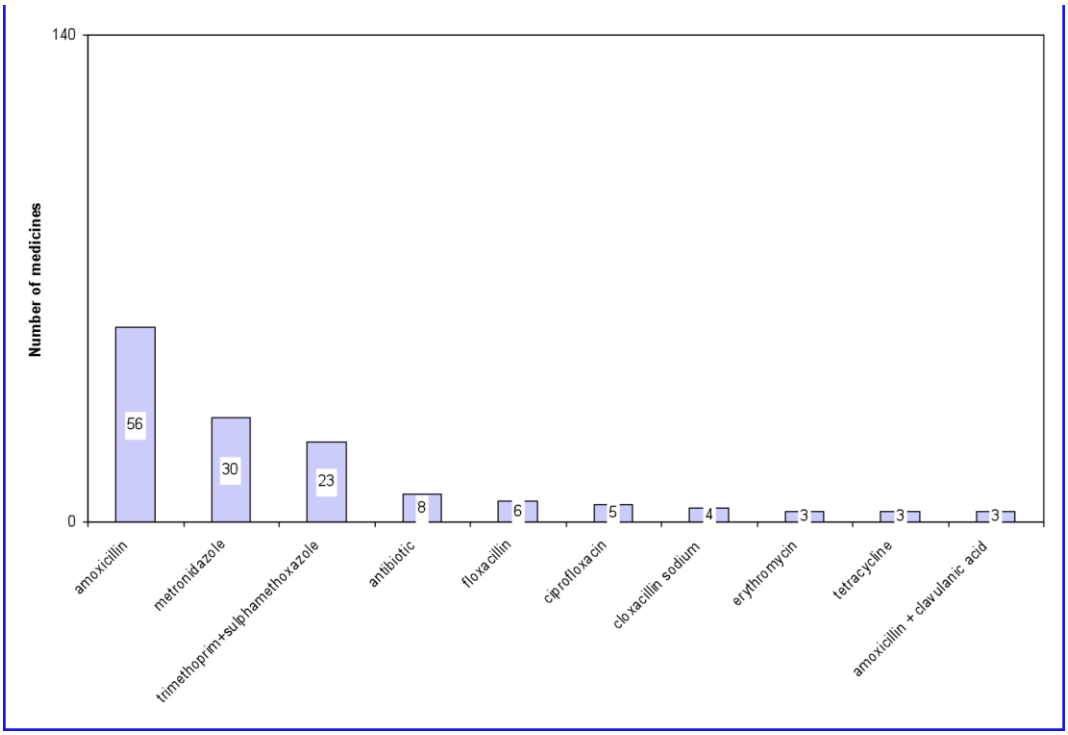
EML class	Total	Percent
Non-opioid analgesics and NSAIMs	223	26%
Antimalarial for curative treatment	159	19%
Vitamins/minerals	107	13%
Beta lactam drugs	74	9%
Antibacterials other than beta lactam drugs	67	8%
Unclassified agents	67	8%
Antianemia drugs	51	6%
Antitussives	32	4%
Analgesics, antipyretics, NSAIMs, DMARDs	18	2%
Antacids/other antiulcer drugs	16	2%
Intestinal anthelminthics	12	1%
Antiallergic/anaphylaxis	8	1%
Antibacterial, unspecified	8	1%
Grand Total	842	100%

Key Points:

- The two most frequent categories of medicines prescribed for acute illness were Non-opioid analgesics and NSAIMs and Antimalarial for curative treatment suggesting that the common presenting complaints were possibly headaches, fevers and malaria.

Figure 4.16 presents anti-bacterials prescribed for acute illnesses, by generic name and by frequency.

Figure 4.16: Antibacterials taken for a recent acute illness



Key Points:

- A total of 141 identified antibacterials representing 10 different generic names were reported to have been taken for a recent acute illness.
- Amoxicillin was the most frequently used antibacterial in case of acute illness representing 39%, followed by metronidazole (21%) and trimethoprim+sulphamethoxazole (16%). This is in line with the medicines found at home.

Of all medicines prescribed for acute illness, 159 were antimalarials. Table 4.15 provides a distribution of which antimalarials were prescribed, by generic name and by frequency.

Table 4.15: Antimalarials taken for a recent acute illness

Generic antimalarials	Total	Percent
artesunate + amodiaquine hydrochloride	53	33.33%
antimalarial, unspecified	29	18.24%
amodiaquine	24	15.09%
artesunate	14	8.81%
chloroquine	13	8.18%
quinine	9	5.66%
dihydroartemisin + piperaquine phosphate	6	3.77%
sulfadoxine + pyrimethamine	6	3.77%
artemether + lumefantrine	4	2.52%
artemether	1	0.63%
Grand Total	159	100.00%

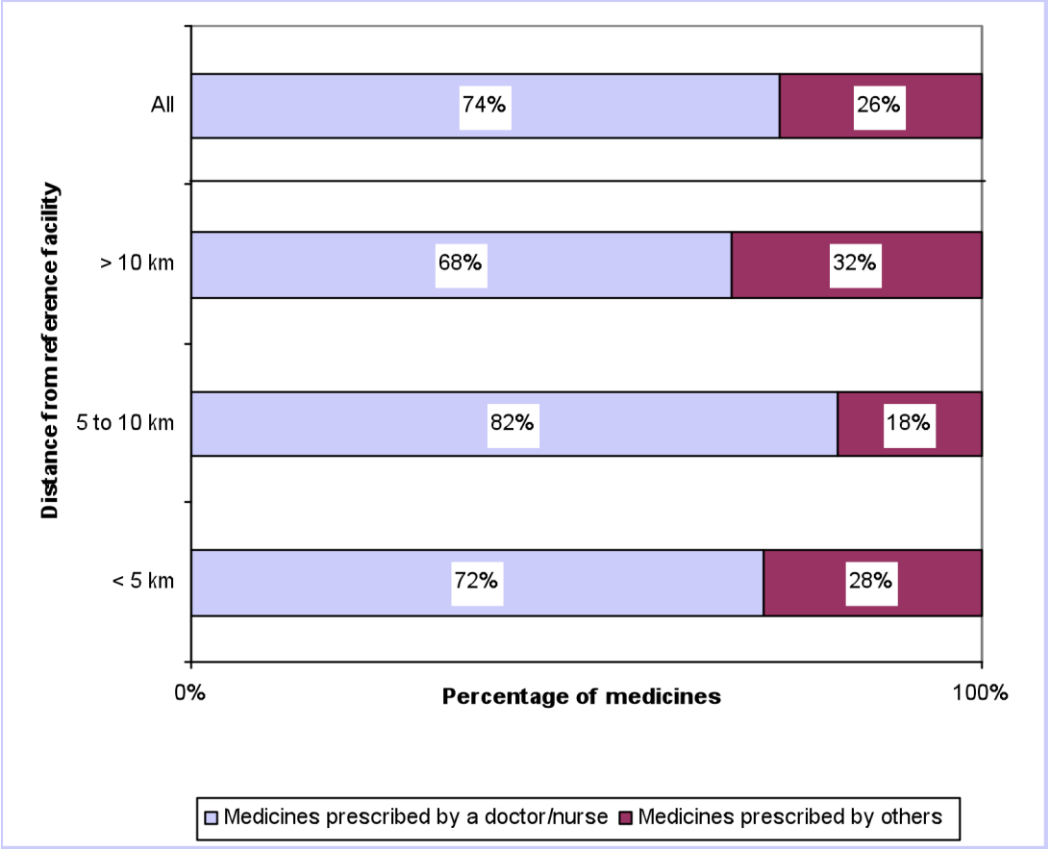
Key Points:

- Artesunate+Amodiaquine hydrochloride accounted for 33.3 percent of antimalarials prescribed in case of acute illness.
- There were many records of antimalarial monotherapy being used for a recent acute illness.

4.5.3. Prescribers of medicines in case of acute illness

Figure 4.17 presents prescribers of medicines in case of acute illness, by household cluster. Doctors and nurses constituted the largest group (74%) of prescribers of medicines in case of acute illness. The remaining 25% included pharmacists, drug sellers, household members, friends and the sick individuals. The proportion of medicines prescribed by a doctor/nurse didn't differ much for households within 5 km or over 10 km from the reference facilities.

Figure 4.17: Prescribers of medicines in case of acute illness



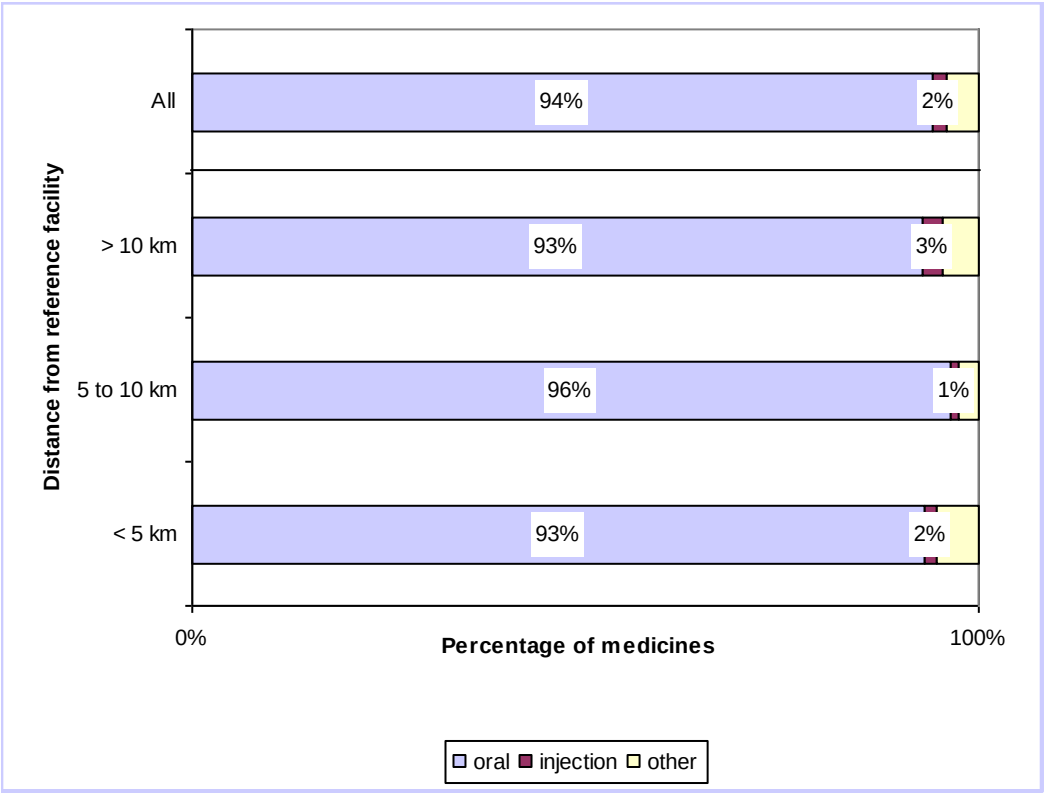
Key Points:

- In case of acute illness, the majority of medicines were prescribed by nurses and/or doctors.
- The likelihood of a household to consult a doctor/nurse for an acute illness was not influenced very much by distance from reference facilities.

4.5.4. Routes of administration of medicines prescribed for acute illness

Figure 4.18 presents the route of administration of medicines prescribed for acute illness. An overwhelming majority of the medicines for acute illness were administered orally.

Figure 4.18: Route of administration of medicines prescribed for acute illness



Key Points:

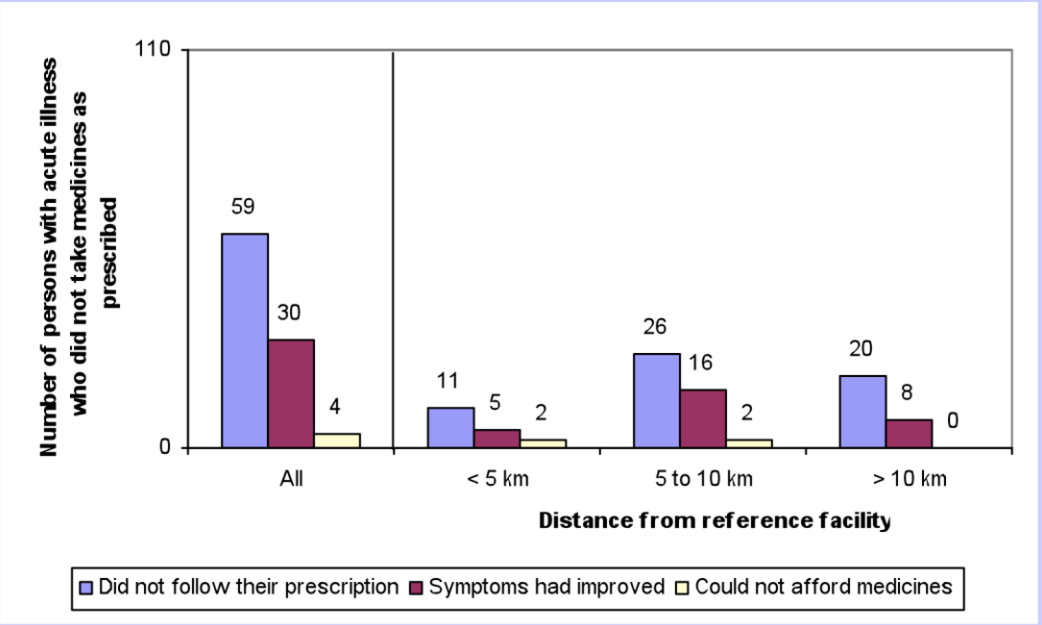
- In case of acute illness, a large percentage of prescribed medicines were pills. Injections made up only a small minority of medicines prescribed for acute illness.

4.5.5. Reasons for not taking medicines prescribed for acute illness

The medicine survey includes a list of possible reasons that could explain why a person did not take prescribed medicines. If non-compliance is identified, this list is read to the respondent who chooses yes if he/she feels this reason explains why the medicine was not taken. Yes may be selected for several possible reasons.

In all, about 19% of the persons with acute illness did not take their prescribed medicines as recommended. Figure 4.19 presents the number of persons with acute illness who did not take the medicines as recommended, and the most frequent reasons chosen to explain non-compliance. Majority of the persons didn't take their medicines because symptoms improved (30/59). Four persons did not take the prescribed medicines because their households could not afford to purchase them.

Figure 4.19: Reasons for not taking prescribed medicines for acute illness



Key Points:

- Most individuals with a recent acute illness took medicines as prescribed.
- Most of those that did not comply with prescriptions did so because symptoms had improved, only four persons (7%) did not take medicines as prescribed because they could not afford them.

4.6. Medicine use for chronic diseases

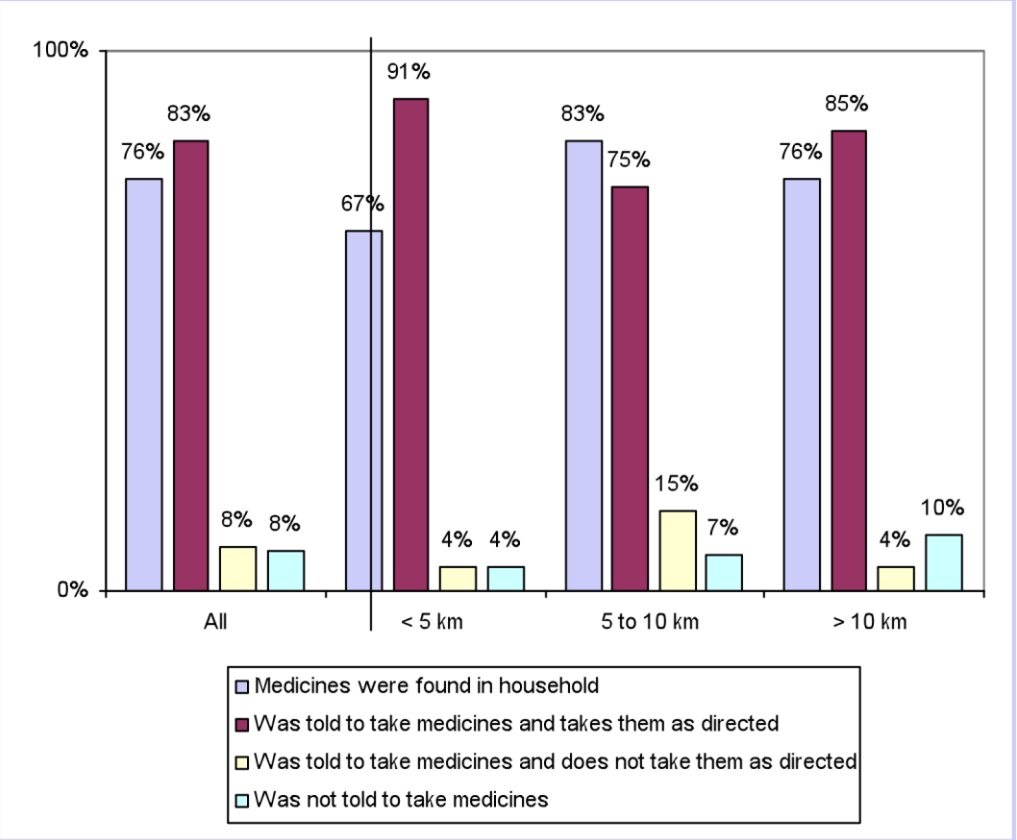
A total of 167 households reported at least one chronic disease. In households with a person diagnosed with a chronic disease, information was recorded on the name of each medicine prescribed to the person with a chronic disease, the condition for which it was recommended, the number of days of supply usually obtained, the usual cost for one month, and insurance coverage for every person with a chronic disease. Medicines were entered in a data base with both their actual and generic names, and a code derived from the 15th edition WHO Model List of Essential Medicines.

4.6.1. Actions taken when a chronic disease has been diagnosed

Figure 4.20 presents actions taken in case of chronic disease, by household cluster. About 74% of the 170 persons with a chronic disease already had medicines at home at the time of the survey. The proportion was a little higher among households far away from reference facilities. In majority (83%) of the

cases, the affected persons were told how to take medicines and were acting accordingly.

Figure 4.20: Actions taken for chronic diseases



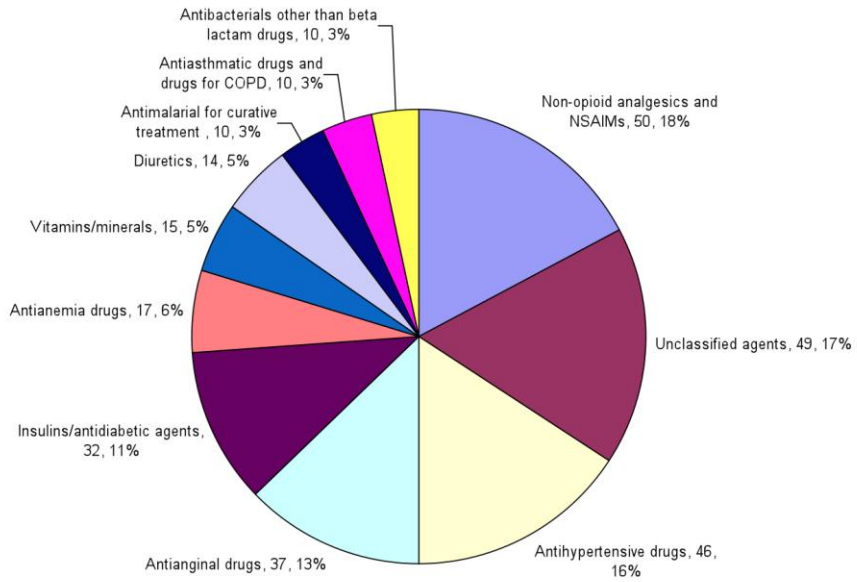
Key Points:

- Most (83%) of the persons with a chronic disease were told to take medicines and did take them as directed.
- Seventy four (76%) percent of persons diagnosed with a chronic disease had medicines at home
- Few individuals (8%) were diagnosed with a chronic disease and not told to take medicines

4.6.2. Medicines prescribed for chronic diseases

Figure 4.21 presents the most frequent categories of medicines taken for a chronic disease. Of the 290 medicines recorded, about 18% were categorized as non-opioid analgesics and NSAIMs. This was followed closely by antihypertensive drugs (16%), antianginal drugs (13%) and insulins and antidiabetic agents (11%). About 17% of the medicines could not be classified.

Figure 4.21: Most frequent categories of medicines for chronic diseases

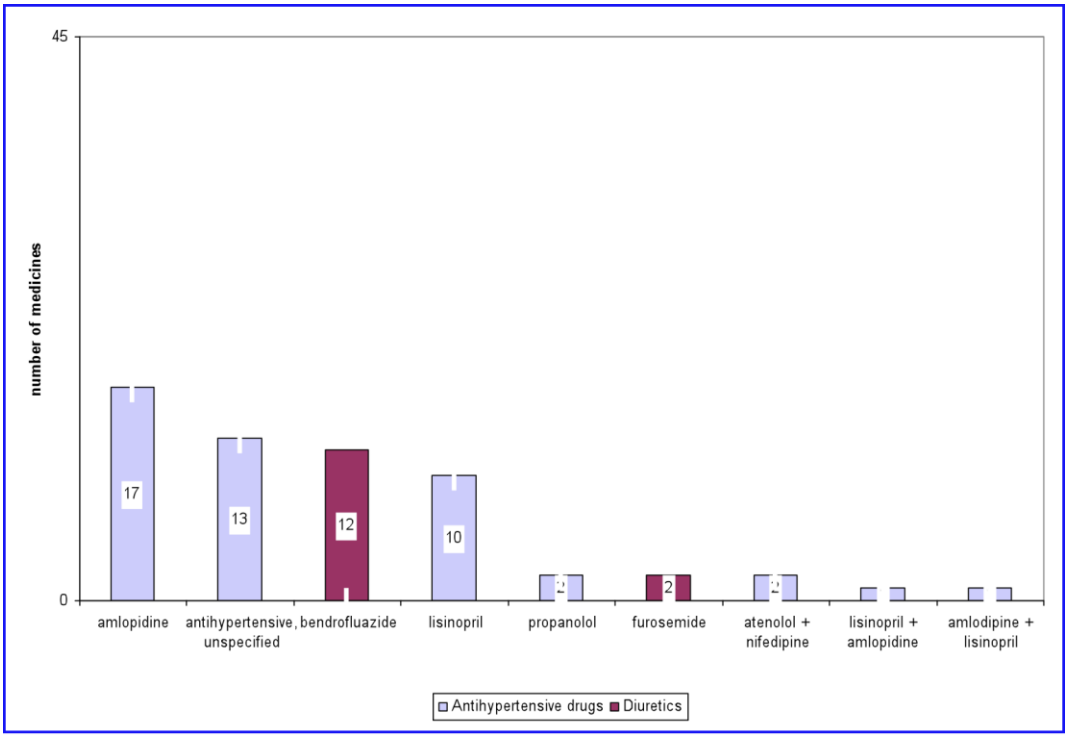


Key Points:

- A total of 284 medicines were recorded being used for chronic diseases.
- About 24% of the medicines were classified as either antianginal drugs or insulins and antidiabetic agents according to the WHO EML classification

Figure 4.22 presents the names of diuretics and anti-hypertensive medicines collected. A total of 55 medicines were recorded for the 79 cases of hypertension reported. About 22% of the medicines were just categorized as antihypertensives. About a quarter of them (25.45%) were diuretics.

Figure 4.22: Diuretics and antihypertensive medicines



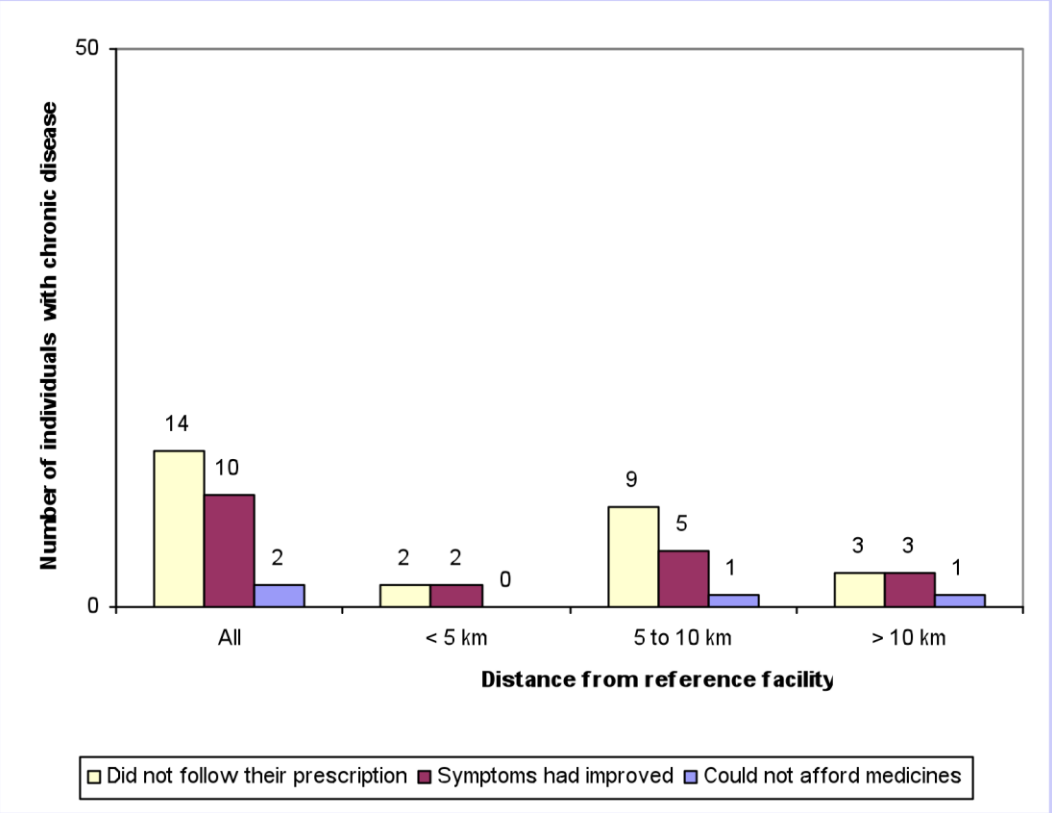
Key Points:

- Diuretics were almost exclusively represented by bendrofluazide.
- Amlopidine was the most frequently used anti-hypertensive, followed closely by lisinopril.

4.6.3. Reasons for not taking medicines prescribed for a chronic disease

Figure 4.23 presents the number of persons with chronic disease who did not take prescribed medicines as recommended.

Figure 4.23: Reasons for not taking medicines for a chronic disease as prescribed



Key Points:

- Of the 173 individuals with a chronic disease, only 14 did not take prescribed medicines to treat their disease.
- Of the 14 persons who did not take medicines to treat their chronic disease, 2 were not compliant because they could not afford medicines.

4.7. Opinions about quality of care

The medicines survey collected opinions of respondents about quality of care. Statements describing opinions were read to respondents who were asked if they agreed or disagreed. Data collectors were instructed to tick the option 'do not know' only if respondents were not sure or did not want to answer a particular question.

Table 4.16 presents opinions of respondents about quality of care in their area.

Table 4.16: Opinions about quality of care

		Distance from reference facility			
		All	< 5 km	5 to 10 km	> 10 km
Number of respondents	Opinion	1027	365	341	321
The quality of services delivered at public health care facilities in my neighborhood is good.	Agree	74%	68%	74%	73%
The quality of services delivered by private health care providers in my neighborhood is good.	Agree	63%	62%	63%	55%
Imported medicines are of better quality than locally manufactured medicines.	Agree	46%	47%	45%	41%

Key Points:

- Opinions of respondents about the quality of services in public health care facilities were positive.
- More respondents agreed that the quality of services is better in public health care facilities than in private facilities: 74% versus 63%

4.8. Opinions about pricing and quality of medicines

The medicines survey also collected opinions of respondents about the pricing and quality of medicines. Statements related to these attributes were read to respondents who were asked if they agreed or disagreed. Data collectors were instructed to tick the option 'do not know' only if respondents were not sure or do not want to answer a particular question.

Table 4.17 presents opinions of respondents about pricing and quality of medicines.

Table 4.17: Opinions about pricing and quality of medicines

		All	< 5 km	5 to 10 km	> 10 km
Number of respondents	Opinion	1027	365	341	321
In public facilities, health providers take into account our ability to pay when they decide which medicines to prescribe.	Agree	23%	19%	20%	27%
In private facilities, health providers take into account our ability to pay when they decide which medicines to prescribe.	Agree	23%	24%	17%	27%
When I receive a prescription, I am comfortable asking how much the medicines will cost.	Agree	37%	34%	39%	34%
It is easy for me to find out how much medicines cost.	Agree	49%	42%	45%	53%
Two identical medicines may be sold at different prices.	Agree	57%	53%	52%	60%
I know where to find medicines at the lowest price in my neighborhood.	Agree	41%	39%	42%	37%
When I buy a medicine, I ask for the least expensive product.	Agree	22%	23%	21%	19%
When a pharmacist recommends a medicine, I can be sure that it is the best value for money.	Agree	71%	69%	69%	65%
When a pharmacist recommends a medicine, I can be sure that it is of good quality.	Agree	76%	77%	75%	68%
Medicines of better quality are more expensive.	Agree	76%	78%	72%	68%
There are places in my neighborhood where I would never buy medicines because they sell medicines of poor quality.	Agree	21%	21%	20%	20%
Our government makes sure that the medicines we buy are of good quality.	Agree	82%	82%	78%	77%
Different names may be used for the same medicine.	Agree	45%	43%	45%	43%
I have heard the word "generic" before to describe a medicine.	Agree	8%	8%	10%	8%

Key Points:

- Opinions of respondents about the pricing of medicines suggest that they have a satisfactory knowledge of medicines.
- More respondents agreed that better quality medicines are more expensive (76%).

4.9. Opinions about generic medicines

Regarding knowledge about generic medicines, majority (73.4%) of respondents answered 'do not know' to the question related to generic medicines. Table 4.18 presents the percentage of respondents who knew about generics and agreed with statements related to generics.

Table 4.18: Opinions about generics

		Distance from reference fecility			
		All	< 5 km	5 to 10 km	> 10 km
Number of respondents who heard the word "generic" before to describe a	Opinion	86	28	33	25
A generic medicine is usually lower in quality than a brand medicine.	Agree	34%	25%	39%	36%
A generic medicine is usually lower in price than a brand medicine.	Agree	50%	46%	55%	48%

Key Points:

- Of the 86 respondents who had heard the word 'generic' before, 34% believed that generic medicines are of lesser quality and 50% believed that they are less expensive than brand medicines.

4.10. Conclusions and recommendations

Results of the survey show that while access to medicines in Ghana is fairly good, their appropriate use by households leaves much to be desired. For example, the majority of households (four out of five) have access to medicines and are within 15 minutes travel time to health facilities and furthermore perceived availability to be better in private facilities. Similarly, relative majority of households (53%) tended to keep medicines at home. The findings also indicated that the situation has consequences for appropriate use of medicines by households. Nineteen percent of households with acute illness reported not taking medicines as prescribed while one in four anti-malarials found in households were mono-therapies when the standard treatment is combination therapy. Household non-adherence by chronic disease sufferers was also reported.

Another key finding of the survey is the reported fairly low (31%) catastrophic household health expenditures. This is a likely result of the opportunity the national health insurance provides for households to obtain insurance coverage in times of illness - although in case of illness, a little more than half of households reporting acute illness (54%) and chronic disease (53%) do not have access to insurance coverage.

Altogether, the findings suggest the need for multi-faceted interventions to address the existing gaps in household access to medicines.

Recommendations

Based on the results of the survey and discussions with key stakeholders from the public and private sectors as well as research institutions at a one day workshop in Accra, the following recommendations can be made for improving household use of medicines in Ghana:

1. A new era of community pharmacy service could be tried where family pharmacists will be assigned to visit families and check on their medicine use.
2. Advantage should be taken of private pharmacies to orientate them to educate clients on the use of medicines at home.
3. Radio and TV advertisements should be revived to inform the way people keep medicines at home. In particular, the TV programme "Adult Education" in the local languages should be revisited to help improve the issue of medicines kept at home.
4. Education on medicine should start from childhood because that is the only way drug misuse and abuse can be curbed.
5. There is need to step up provider education through drugs and therapeutic committees training backed by effective monitoring to make prescribers and dispensers recognize and carry out effective patient and client education and counselling as an essential component of care.
6. There is need to step up public education and sensitization to encourage the public to join the national health insurance scheme as a means of relief from catastrophic health care expenditures.

References

1) Ghana Health Service (2007), The Health Sector In Ghana; Facts And Figures, 2007, CHIM/PPME-GHS
2) Harper Jonathan and Martha Gyansa-Lutterodt (2007) The viability of pharmaceutical manufacturing in Ghana to address priority endemic diseases in the West Africa sub-region Deutsche Gesellschaft http://www.afro.who.int/index.php?option=com_docman&task=doc...gid (30/11/2010)
3) MoH Ghana Facts and Figures: NHIS Summary Statistics: http://www.moh-ghana.org/moh/docs/NHIS%20SUMMARY%20STATISTICS/NHISSUMMARYSTATISTICS.pdf
4) WHO Operational package for assessing, monitoring and evaluating country pharmaceutical situations: Guide for coordinators and data collectors. WHO/TCM/2007.2.

Annexes

Annex 1: Household survey questionnaire (not attached to this version)