

IMPLEMENTATION AND EVALUATION OF HEALTH SCREENING SERVICES TO DIABETIC AND HYPERTENSIVE PATIENTS IN A SELECTED COMMUNITY PHARMACY AT BELGAUM CITYSUSHILKUMAR PL^{1,3*}, MAHENDRAKUMAR BJ², SUMAN BAISHNAB³, GLORIA SAM K³, CHAITANYA KUMAR T³

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ABSTRACT

Objective: The objective was to select, set up and initiate the health screening services in the community pharmacy, to design and develop patient data collection form and patient identity card, to implement health screening services in a selected community pharmacy and to evaluate the health screening services data.

Methods: The study was a prospective, investigational and community interventional study, conducted for a period of 10 months from May 2008 to February 2009.

Results: A total of 98 patients and 24 customers under risk factors were screened during the study. Out of which 58 (59.18%) patients were diabetic with hypertensive, 26 (26.53%) were hypertensive and 14 (14.28%) were diabetic. The systolic and diastolic blood pressure, random blood sugar and body mass index values of the screened patients reveals the need for the provision of health screening services in the community pharmacy by a pharmacist. Various demographic factors such as age, gender, occupation, economic status, educational background, periodic check-up showed equal impact of pharmacist involvement and need to provide these services in the community pharmacy.

Conclusion: This study suggest that there is ample scientific evidence showing that certain risk factors pre-dispose individuals to development of diabetes and hypertension, there is sufficient evidence to conclude that community screening is a cost effective approach to reduce the morbidity and mortality associated with these diseases in healthy individuals. Community screening programs may provide a means to enhance public awareness regarding seriousness of diabetes and hypertension and its complications.

Keywords: Health screening services, Community pharmacy, Diabetes, Hypertension.

INTRODUCTION

WHO defines health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity [1]. Screening refers to an examination of a group of individuals with or without positive signs and symptoms or detection of the individuals with a high probability of a given disease typically by means of an affordable, comprehensive, reliable, inexpensive flexible test. Services refer to help or assistance by health professionals for high risk individuals, who will be benefited by assessing and knowing the current status of their health [6]. Health screening services are the services provided by the health care professionals to screen the health status of individuals with or without positive signs and symptoms [10]. Early diagnosis is always a better chance for cure and prevention of the disease [17].

Pharmacists in health screening services

The pre-requisites for providing health screening services is that he/she should be qualified and trained adequately before implementation of health screening services [2].

Pharmacists are well placed in the community to identify people with diabetes and hypertension, to bring about a drastic change the community pharmacist need to take the lead role in prevention of the complications by providing pharmaceutical care[16]. This can be done by providing health screening services such as blood glucose monitoring, blood pressure (BP) measurement, body mass index (BMI) in the community pharmacy and in turn benefit the community by providing optimal care [3]. Pharmacists should be involved in teaching patients how to check their BPs at home, as patients are taking on a larger role in their self-care [8].

Health care delivery depends on number of independent factors in India. The prevailing poverty, ignorance, illiteracy and poor health consciousness, further adds to the problem. The increasing number of diabetics and hypertensives is a major problem in India [7].

The prevalence of Type 2 diabetes is rising globally and is predicted to reach 3 million in the UK by 2010. An individual may have Type 2 diabetes for many years and up to 50% will have already developed micro vascular complications by the time they are diagnosed many also have an increased risk of coronary artery disease [4].

Hypertension is a chronic disease affecting over 65 million Americans and an established risk factor for heart failure, myocardial infarction, and stroke. Estimated annual costs associated with hypertension treatment are \$55.5 billion. Unfortunately, only 31% of patients with hypertension have their BP controlled (defined as <140/90 mmHg)[5]. The Health Survey for England shows that 37% of the adult population are hypertensive (140/90 mmHg or on treatment for hypertension) [15].

The objectives of the study are to select, set up and initiate the health screening services in the community pharmacy, to design and develop patient data collection form and patient identity card, to implement health screening services in a selected community pharmacy and to evaluate the health screening services data.

Thus, considering the need, prevalence, incidence of diabetes, and hypertension in the community, the health screenings are found to be the most essential tool for detection, prevention and management of the disease at an early stage [9,13]. Thus, the study aims to detect the

status of health in patients with diabetes and hypertension by providing health screening services in community pharmacies.

Objectives

1. To select, set up and initiate the health screening services in the community pharmacy
2. To design and develop patient data collection form and patient identity card
3. To implement health screening services in a selected community pharmacy
4. To evaluate the health screening services data.

METHODS

Research design

This study was a prospective, investigational and community interventional study, conducted for a period of 10 months from May 2008 to February 2009.

Setting and study population

After conducting a survey of the community pharmacies of the entire Belgaum city, and thoroughly explaining the nature of the study to the community pharmacists, the selection of the community pharmacy was done on the basis of the following criteria. The owner of the pharmacy should be a pharmacist working in his premise. Adequate infrastructure, space requirements and provision of materials essential for providing health screening services in the pharmacy. The community pharmacist's acceptance and co-operation during the study, his enthusiasm, and interest are included in the study. Those who excluded are pharmacy run by two or more than two parties. Non-availability of community pharmacist in pharmacy for most of the time. The patients were considered for screening in the community pharmacy by following the inclusion and exclusion criteria.

Inclusion criteria

- Patients age above 18 years of either gender
- Patients diagnosed with Type 1 or Type 2 diabetes mellitus and/or hypertension
- Patients with risk factors
- The customers who would like to know their BP, blood sugar and BMI (health status) are included in the study.

Exclusion criteria

- Patients not willing to participate in the study
- Patients enrolled in other studies are excluded from the study.

Ethical considerations

The study was approved by Institutional Ethics Committee and issued ethical clearance certificate (Appendix 1). A letter was issued from the proprietor regarding consent for the acceptance, conductance and co-operation for the study in his premise (Appendix 2).

Study procedure

The investigator (clinical pharmacist) identified the patients on the basis of prescriptions (diabetic or hypertensive), patient case records, previous prescription bills or laboratory investigation report monitored at the counter at the time of visit. Patients consent was taken prior to their screening. After the patients consent they were provided the following health screening services like BP measurement, blood glucose measurement, weight and height of patient for BMI by the clinical pharmacist. The collected data of the health screening values were documented in a suitably designed patient data collection form.

RESULTS

Details of screened patients

Totally 98 patients of diabetes and hypertension were screened during the study. Of which 58 (59.18%) patients were diabetic with hypertensive, 26 (26.53%) were hypertensive and 14 (14.28%) were diabetic (Table 1).

Demographic characteristics of screened patients

A total of 98 patients were screened out of which 62 (63.26%) were male and 36 (36.73%) were female (Table 2).

A total of 98 patients were screened out of which 58 patients belonged to diabetic with hypertensive group (Table 3).

A total of 98 patients were screened out of which 26 patients belonged to hypertensive group (Table 4).

A total of 98 patients were screened out of which 14 patients belonged to diabetic group (Table 5).

Marital status

A total of 98 patients were screened out of which 84 (85.71%) patients were married and 14 (14.28%) were unmarried.

Occupational details

A total of 98 patients were screened out of which the occupational status of the individuals was analyzed based on the following criteria.

9 (9.18%) patients were businessmen, 4 (4.08%) were Govt. employees, 14 (14.28%) were agricultural sector, 71 (72.44%) belonged to other group.

Details of smoking habit of screened patients

A total of 98 patients were screened out of which the smoking habit of the individuals screened was analyzed based on the following criteria. 20 (20.41%) patients belonged to smoking category, 65 (66.0%) belonged to non-smoking category, 8 (8.16%) were past smokers and 5 (5.10%) were chain smokers.

Alcohol drinking habit

A total of 98 patients were screened out of which the alcohol drinking habit of the individuals screened was analyzed based on the following criteria. 37 (37.76%) were alcoholics, 61 (62.24%) were non-alcoholics.

A total of 98 patients were screened out of which 58 (59.18%) patients belonged to diabetes with hypertension group, 26 (26.53%) screened

Table 1: Details of screened patients (n=98)

Number of diabetic with hypertensive patients screened (%)	Number of hypertensive patients screened (%)	Number of diabetic patients screened (%)
58 (59.18)	26 (26.53)	14 (14.28)

Table 2: Details of gender of screened patients (n=98)

Gender	Total (%)
Male	62 (63.26)
Female	36 (36.73)

Table 3: Age group details of diabetic with hypertensive screened patients (n=58)

Age group (years)	Total n=58 (%)
18-28	0
29-38	1 (1.72)
39-48	8 (13.79)
49-58	19 (32.75)
59-68	21 (36.21)
69-78	9 (15.51)

patients belonged to hypertension and 14 (14.29%) screened patients belonged to diabetic group. Table 6 shows patients were assessed which undergo blood sugar check-up periodically.

Regular check-up of BP

A total of 98 patients were screened out of which 58 (59.18%) patients belong to diabetes with hypertension group, 26 (26.53%) screened patients belong to hypertension and 14 (14.29%) screened patients belong to diabetic group. Table 7 shows patients were assessed which undergo blood sugar checkup periodically.

Exercise details of screened patients

A total of 98 patients were screened out of which 58 (59.18%) patients belonged to diabetes with hypertension group, 26 (26.53%) screened patients belonged to hypertension and 14 (14.29%) screened patients belonged to diabetic group. The following patients were assessed which perform their exercise.

Details of BMI of screened patients

A total of 98 patients were screened out of which 58(59.18%) patients belonged to diabetes with hypertension group, 26 (26.53%) screened patients belonged to hypertension and 14 (14.29%) screened patients belonged to diabetic group. 44 (44.89%) were in normal range, 40 (40.81%) were overweight, 14 (14.28%) were obese (Table 8).

Family history of diabetes

A total of 98 patients were screened out of which 58 (59.18%) patients belonged to diabetes with hypertension group, 26 (26.53%) screened patients belonged to hypertension and 14 (14.29%) screened patients belonged to diabetic group were assessed for determining the family history of diabetes in screened patients (Table 9).

Table 4: Age group details of hypertensive screened patients (n=26)

Age group (years)	Total n=26 (%)
18-28	8 (30.76)
29-38	8 (30.76)
39-48	5 (19.23)
49-58	3 (11.53)
59-68	1 (3.84)
69-78	1 (3.84)

Table 5: Age group details of diabetic screened patients (n=14)

Age group (years)	Total n=14 (%)
18-28	0
29-38	2 (14.28)
39-48	4 (28.57)
49-58	5 (35.71)
59-68	3 (21.42)
69-78	0 (0)

Table 6: Details of screened patients undergoing periodic blood sugar check up

Parameters	Diabetes with hypertension n=58 (%)	Hypertension n=26 (%)	Diabetes n=14 (%)
Once in a week	-	-	-
Once in a month	5 (8.62)	-	1 (7.14)
Once in 3 months	34 (58.62)	2 (7.69)	11 (78.57)
Once in 6 months	15 (25.86)	2 (7.69)	1 (7.14)
No	4 (6.89)	22 (84.61)	1 (7.14)

Family history of hypertension

A total of 98 patients were screened out of which 58 (59.18%) patients belonged to diabetes with hypertension group, 26 (26.53%) screened patients belonged to hypertension and 14 (14.29%) screened patients belonged to diabetic group were assessed for determining the family history of hypertension in screened patients (Table 10).

Systolic BP position

A total of 98 patients were screened out of which 58 (59.18%) patients belonged to diabetes with hypertension group, 26 (26.53%) screened patients belonged to hypertension and 14 (14.29%) belonged to diabetes group. Table 11 shows the systolic BP values in the screened patients

Table 7: Details of screened patients undergoing periodic BP check up

Parameters	Diabetes with hypertension n=58 (%)	Hypertension n=26 (%)	Diabetes n=14 (%)
Once in a week	-	3 (11.53)	-
Once in a month	5 (8.62)	8 (30.76)	3 (21.42)
Once in 3 months	33 (56.89)	9 (34.61)	1 (7.14)
Once in 6 months	16 (27.58)	3 (11.53)	4 (28.57)
No	4 (6.89)	3 (11.53)	6 (42.85)

BP: Blood pressure

Table 8: Details of BMI of screened patients (n=98)

BMI (kg/m ²)	Total n=98 (%)
18.5-24.9 (normal)	44 (44.89)
25-29.9 (overweight)	40 (40.81)
30-34.9 (obese)	14 (14.28)
35-39.9 (obese very high)	-

BMI: Body mass index

Table 9: Details of family history of diabetes in screened patients (n=98)

History of diabetes	Total n=98 (%)
Yes	78 (79.59)
No	20 (20.41)

Table 10: Details of family history of hypertension in screened patients (n=98)

History of hypertension	Total n=98 (%)
Yes	70 (71.43)
No	28 (28.57)

Table 11: Details of systolic BP position in screened patients (n=98)

BP classification (mmHg)	Diabetes with hypertension n=58 (%)	Hypertension n=26 (%)	Diabetes n=14 (%)
Normal<120	0	2 (7.69)	0
Pre-hypertension 120-139	25 (43.10)	7 (26.92)	10 (71.43)
Stage 1 hypertension 140-159	23 (39.66)	15 (57.69)	4 (28.57)
Stage 2 hypertension>160	10 (17.24)	2 (7.69)	0

BP: Blood pressure

Diastolic BP position

A total of 98 patients were screened out of which 58 (59.18%) patients belonged to diabetes with hypertension group, 26 (26.53%) screened patients belonged to hypertension and 14 (14.29%) belonged to diabetes group. Table 12 shows the diastolic BP values in the screened patients.

Random blood sugar measurement in diabetes with hypertension patients

A total of 98 patients were screened out of which 58 (59.18%) patients belonged to diabetes with hypertension group. Table 13 shows the random blood sugar values in the diabetes with hypertension patients.

Random blood sugar measurement for diabetes patients

A total of 98 patients were screened out of which 14 (14.29%) patients belonged to diabetes group. Table 14 shows the random blood sugar values in the diabetes patients.

Random blood sugar measurement for hypertensive patients

A total of 98 patients were screened out of which 26 (26.53%) patients belonged to hypertension group. Table 15 shows the random blood sugar values in the hypertension patients.

BP screening for the customers under risk factors (n=24)

A total of 24 customers were provided with BP measurement and BMI. Of 24, 16 (66.67%) were male and 8 (33.33%) were female and the following age criteria was assigned: 18-28 years - 3 (12.5%), 29-38 years - 11 (45.83%), 39-48 years - 10 (41.67%). The BMI of the

Table 12: Details of diastolic BP position in screened patients (n=98)

BP classification (mmHg)	Diabetes with hypertension n=58 (%)	Hypertension n=26 (%)	Diabetes n=14 (%)
Normal<80	9 (15.52)	3 (11.54)	0
Pre-hypertension 80-89	19 (32.76)	10 (38.46)	12 (85.71)
Stage 1 hypertension 90-99	25 (43.10)	11 (42.31)	2 (14.29)
Stage 2 hypertension>100	5 (8.62)	2 (7.69)	0

BP: Blood pressure

Table 13: Details of random blood sugar measurement in diabetes with hypertension screened patients (n=58)

Random blood sugar range (mg/dl)	Diabetes with hypertension n=58 (%)
<60	0
Normal 60-160	9 (15.51)
Moderate 160-200	31 (53.44)
Severe>200	18 (31.03)

Table 14: Details of random blood sugar measurement in diabetes screened patients (n=14)

Random blood sugar range (mg/dl)	Diabetes n=14 (%)
<60	0
Normal 60-160	1 (7.14)
Moderate 160-200	10 (71.42)
Severe>200	3 (21.42)

customers are categorized 6 (25%) were in normal range, 13 (54.17%) were overweight, 5 (20.83%) were obese.

Details of systolic and diastolic BP position in screened customers are given in Tables 16 and 17.

DISCUSSION

A total of 98 patients were screened during the study period after considering the inclusion and exclusion criteria from the community pharmacy of Belgaum city. Of which 58 (59.18%) patients were diabetic with hypertensive, 26 (26.53%) were hypertensive, and 14 (14.28%) were diabetic were screened during the study. A total of 98 patients were screened during the study out of which, 62 (63.26%) were male and 36 (36.73%) were female. More number of male patients were screened may be because males have independent decision taking ability, head of the family, no hesitation to interact with the person of same gender, they can visit themselves, he visits the community pharmacy or the market place more frequently as compared to females in his family. Less number of female patients were enrolled into the study, may be because of dependency on others, gender barriers (as the service provider as well as the community pharmacist were male), family background, carelessness, economic status etc. Moreover, the females enrolled into the study generally were accompanied with their husbands. Of 98 patients screened the smoking habit of the individuals screened, 65 (66.0%) belonged to non-smoking category 20 (20.41%) patients belonged to smoking category, 8 (8.16%) were past smokers and 5 (5.10%) were chain smokers. All women patients were non-smokers. India has a great culture where women do not smoke, where as if patients are smokers it is one of the risk factors for hypertension as well as it affects the level of the fasting/random capillary blood glucose levels. A total of 98 patients were screened during the study, the alcohol drinking habit of the individuals screened, 61 (62.24%) were non-alcoholics and 37 (37.76%) were alcoholics. All women's are non-alcoholic. India has a great culture where women do not take alcohol. And as maximum number of patients was literate the awareness of non-drinking was found to be more.

A total of 98 patients were screened during the study, out of which 58 (59.18%) patients belonged to diabetes with hypertension

Table 15: Details of random blood sugar values in hypertensive screened patients (n=26)

Random blood sugar range (mg/dl)	Hypertension n=26 (%)
<60	0
Normal 60-160	23 (88.46)
Moderate 160-200	3 (11.53)
Severe>200	0

Table 16: Details of systolic BP position in screened customers

BP classification (systolic) (mmHg)	Total n=24 (%)
Normal<120	0
Pre-hypertension 120-139	13 (54.17)
Stage 1 hypertension 140-159	8 (33.33)
Stage 2 hypertension>160	3 (12.5)

BP: Blood pressure

Table 17: Details of diastolic BP position in screened customers

BP classification (diastolic) (mmHg)	Total n=24 (%)
Normal<80	5 (20.83)
Pre-hypertension 80-89	17 (70.83)
Stage 1 hypertension 90-99	2 (8.33)
Stage 2 hypertension>100	0

BP: Blood pressure

group, 26 (26.53%) screened patients belonged to hypertension and 14 (14.29%) screened patients belonged to diabetic group the maximum no of patients undergoing periodic checkup was found to be in once in 3 months which was 34 (58.62%) in diabetes with hypertension patients. As discussed earlier the economic condition of the patient is more responsible for the personal health care, whereas it was 11 (78.57%) patients for once in 3 months for only diabetic patients out of 14 patients, and 2 (7.69%) in hypertensive patients out of 26 patients.

A total of 98 patients were screened during the study, out of which 58 (59.18%) patients belong to diabetes with hypertension group, 26 (26.53%) screened patients belong to hypertension and 14 (14.29%) screened patients belong to diabetic group the maximum number of patients undergoing periodic checkup was found to be in once in 3 months which was 33 (56.89%) in diabetes with hypertension patients. Whereas, it was maximum 4 (28.57%) patients for once in 3 months for only diabetic patients out of 14 patients due to negligence, and maximum of 9 (34.61%) patients in once in 3 months and 8 (30.76%) patients in once in a month out of 26 patients in hypertension group. A total of 98 patients were screened during the study out of which 70 (71.43%) patients had family history of hypertension and 78 (79.59%) patients had family history of diabetes which is evident that family history of the disease plays a vital role in acquiring the disease.

BP screening for the customers under risk factors (n=24)

A total of 24 customers were provided with BP measurement and BMI. Of 24 patients screened 16 (66.67%) were male and 8 (33.33%) were female. The maximum patients screened under risk factors were from the age group 29 to 38 years - 11 (45.83%), secondly 10 (41.67%) patients were from the age group 39 to 48 years. Of 24 patient screened, 6 (25%) had normal BMI, 13 (54.17%) were overweight, and 5 (20.83%) were in obese category. Most people with higher BMI are more prone to get diabetes as well as hypertension. Obesity is one of the risk factors for hypertension.

Out of 24 patients screened under risk factor, 13 (54.17%) were in pre-hypertension stage (120-139 mm/Hg), 8 were in Stage 1 hypertension 140-159 mm/Hg and 3 (12.5%) were in Stage 2 hypertension (>160 mm/Hg). Of 24 patients screened under risk factor, 17 (70.83%) were in pre-hypertension stage 80-89 mm/Hg, whereas 5 (20.83%) had normal diastolic BP, and 2 (8.33%) had Stage 1 hypertension (90-99 mm/Hg).

Considering all the parameters discussed above, it is evident that provision of health screening services in the community pharmacy plays an important role in knowing the current state of health of an individual irrespective of an individual having the disease prior or has a chance of getting it. The individual can always know his current state of health or the need for him/her to visit the physician for further treatment. As these tests are, affordable, flexible, comprehensive, reliable and inexpensive [11].

CONCLUSION

The results obtained in the study have shown the significant values of BMI, BP, blood sugar, and the general perspective of the community towards their personal health care. Therefore, it is clear that the need for the pharmacist in the community exists for provision of Health screening services in maintaining the disease detecting traces of illness in its early stages; as it is suitable for everyone and not just for high-risk individuals. Early diagnosis is always a better chance for cure and prevention of the disease. These assessments could help identify early signs of a disease and could provide an individual with an evaluation of the overall current state of health.

The results shows the effectiveness as in case of a diabetic or hypertensive patient from a middle-class family cannot afford to visit to the clinic, doctors consultation, laboratory charges at regular intervals, a good glycemic control is the key to prevent the complications.

The study highlights on the important and vital role that a community pharmacist has to play as they are the most assessable healthcare professionals, important liaison between referral and the patient and they have got opportunity to remind, reinforce and extend the education of the patient, evaluate the patient's knowledge and facilitate patient concordance [12].

Limitation of the study was glycosylated hemoglobin measurement is accepted worldwide for assessment of blood glucose level. However, the measurement could not be done for cost considerations. Lack of time was one of the important reasons which prevented the community pharmacist to actively participate in the study. As it is an evolving provision of health screening services in this area only few fasting capillary glucose was measured in few patients.

During the test, implementation of these services in the community pharmacy a slight hesitation was seen at the preliminary stage by the customers or the patients identified or asked to get the screening done may be because the approach or view of the customers in respect of the pharmacist is generally limited upon dispensing area, but because of these provision a new perspective of a pharmacist was revealed to the customers.

Future goals

To bring about a drastic change the community, pharmacists need to take the lead role in prevention of the complications by providing pharmaceutical care [11]. This could be done by providing health screening services in the community pharmacy and in turn benefit the community by providing optimal care.

Community pharmacy has a great opportunity to use health screening as a tool for:

- Early detection/diagnosis and prevention of disease
- Maintaining the current state of health
- Screening done at a rate affordable to the customers
- Reduce risk factors
- Prevent illness
- Improve the quality of life
- Maintain good health and well being
- Reduce cost and future complications [14].

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
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APPENDIX 1

Ethical clearance certificate

 <p>K.L.E.SOCIETY'S JAWAHARLAL NEHRU MEDICAL COLLEGE, NEHRU NAGAR, BELGAUM-590010 (KARNATAKA-INDIA) (Affiliated to KLE University, Belgaum)</p>	
Website: http://www.jnmc.edu E-Mail : dom@jnmc@sancharnet.in : jnmc@sancharnet.in	Phone: (+ 91-0)831 Office : 2471350 Principal: 2471701 Fax No. +91 (0)831 - 2470759
Ref. No. : <i>MDC/EC/998</i>	Date: <i>24/6/2008</i>
To, Mr. SushilkumarLondhe, M. Pharm student in K.L.E.'s College of Pharmacy, Belgaum. Dear Mr. SushilkumarLondhe, The JNMC – Institutional Ethics Committee on Human Subjects Research met on 23 rd June, 2008 to consider your application for approval of the research project "Implementation and evaluation of health screening services to diabetic and Hypertensive patients in a selected Community Pharmacy at Belgaum city." After review of the documents submitted by you and satisfactory explanations provided to the members, the committee has provided approval date through June 22 nd , 2009 at which time the study will be reviewed by the committee. If you have any questions concerning the above, please feel free to contact the committee office. <p style="text-align: right;">Sincerely,  (Dr. V. D. Patil) Chairman, JNMC Institutional Ethics Committee on Human Subjects Research</p>	

APPENDIX 2

Consent letter from Ankita Medicals

<p>Ankita Medicals 1564, Maruti Galli, Belgaum - 590002 Tel : 0831-2461658 Mob: 9341100749 Fax: 0831-2462845 TIN No: 29270048509 DL No.:KA/BGM/20-21/718, 208-410, 218-384</p>	
<p><u>CONSENT FORM</u></p>	
From – Mr. Ashok R Pujar Proprietor and Pharmacist Ankita Medicals, Maruti galli, Belgaum.	Date: 31/5/2008
To, The Principal, KLES College of pharmacy, Belgaum	
<p>Sub-Acceptance and co-operation to conduct study. Sir,</p> <p>With reference to the above cited subject , I learnt from Mr.Sushilkumar P Londhe doing MPharm (Pharmacy Practice) as explained and detailed about the study for the title- Implementation and Evaluation of Health Screening services to Diabetic and Hypertensive patients in a selected Community Pharmacy at Belgaum city. I am very glad that you have chosen my pharmacy as a study site for conduct of research work. During his stay I will be supporting and giving cooperation in all aspects to conduct the study smoothly. This is for your kind information.</p> <p>Thanking you,</p>	
<p> Yours Faithfully, Mr.Ashok R Pujar Proprietor and Pharmacist Ankita Medicals, Maruti galli, Belgaum</p>	

APPENDIX 3
Patient Data Collection Form

Patient name:.....

Age:.....

Gender: [] Male [] Female

Marital status: [] Married [] Unmarried [] Divorced

Occupation: [] Businessman [] Govt. Employee [] Agriculture [] Other

Education: [] <5th std. [] 6th-10th std [] No formal education [] Degree

Income/month: [] <1000 [] 1000-5000 [] 5000-10,000

Smoking: [] Smoker [] Non-smoker [] Past smoker [] Chain-smoker

Alcoholic: [] Yes [] No

Address:

.....

.....

Doctor name and address:.....

.....

.....

Mob no:..... Phone no:.....

Do you have any other diseases/complications:.....

How long do you have diabetes:..... years

I have just found out []

Less than 1 year []

1-5 years []

6-10 years []

More than 10 years []

How long do you have hypertension:.....years

I have just found out []

Less than 1 year []

1-5 years []

6-10 years []

Is there family history of diabetes: [] Yes [] No

Is there family history of hypertension: [] Yes [] No

Are you regularly checking blood sugar level/blood pressure: [] Yes [] No

If yes,

Once in a week []

Once in a month
 Once in 3 months
 Once in 6 months
 Do you exercise: Yes No
 Are you following special diet: Yes No

Fasting/random capillary blood glucose, height, weight and blood pressure measurement values

Date/time	Height (cm/mts)	Weight (kg)	Blood pressure (mmHg)	Blood sugar level (mg/dl)	
				Fasting	Random

APPENDIX 4

Front side

Implementation and evaluation of health screening services to diabetic and hypertensive patients in a selected community pharmacy at Belgaum city

Patient Identity Card

Date:
 Time:
 ID No:
 Name:
 Gender:
 Address: Phone:
 Physician name and address: Phone:
 For more information contact : Mr. Sushilkumar Londhe (9916458782)
 1) Dept of Clinical Pharmacy 2) Ankita Medicals
 KLEs College of Pharmacy, Maruti Galli,
 Belgaum Belgaum

Back Side

Fasting/random capillary blood glucose, height , weight and blood pressure measurement values

Date/time	Height (cm/mts)	Weight (kg)	Blood pressure (mmHg)	Blood sugar level (mg/dl)	
				Fasting	Random

Dear Doctor,

Mr./Mrs.....is a client of my pharmacy..... (Tel).....and he/she came to me to:

Buy a medicine for

Complain of diabetes symptoms.....

Complain of hypertension symptoms.....

Test his/her blood glucose level, which was higher than normal

Test his/her blood pressure which was higher than normal

I expect you would like to assess him/her for possible unknown diabetes/hypertension/both.

Any other (specify).....

We ask your attention to this patient, particularly concerning the aspects mentioned above.

The Pharmacist

Pharmacy stamp

APPENDIX 5

Patient Consent Form

I have been explained by the investigator Mr. Sushilkumar Londhe the nature and effects of the research study entitled - Implementation and Evaluation of Health screening services to Diabetic and Hypertensive patients in a selected Community Pharmacy at Belgaum city

I wish to get my blood sugar test and blood pressure measurement done

Procedure for measuring blood sugar level:

1. Clean the finger with cotton gauze soaked in spirit.
2. The finger will be pricked with a lancet
3. A drop of blood will be produced
4. The drop will be touched on to a strip
5. The result available in....second

App time (date) of last meal:.....am/pm

Time of blood test undertaken:..... am/pm

Time of blood pressure measured:.....am/pm

I am happy for a copy of the test results to be forwarded to my physician

Name of the Doctor:

Address:

Please do not pass on a copy of the test results to my physician

I have read and understood the procedure I understand that a high blood glucose and high blood pressure will need further investigation and that I do not have necessarily diabetes/hypertension.

I have also understood that if am not interested for further participation in the study I have option of withdrawing from the study at any time without giving any reason

Date:

Relatives signature:

Time:

Signature of the patient:

APPENDIX 6

Implementation and evaluation of health screening services to diabetic and hypertensive patients in a selected community pharmacy at Belgaum city

Name:.....Gender:.....

Date:.....

Age:.....

Blood pressure:.....Height:.....Weight:

Pharmacist:

Work place before initiation



Work place after the setup



Front view of Ankita Medicals



Mr. Ashok Pujar the proprietor of Ankita Medicals

Clinical pharmacist measuring blood pressure of the patient

