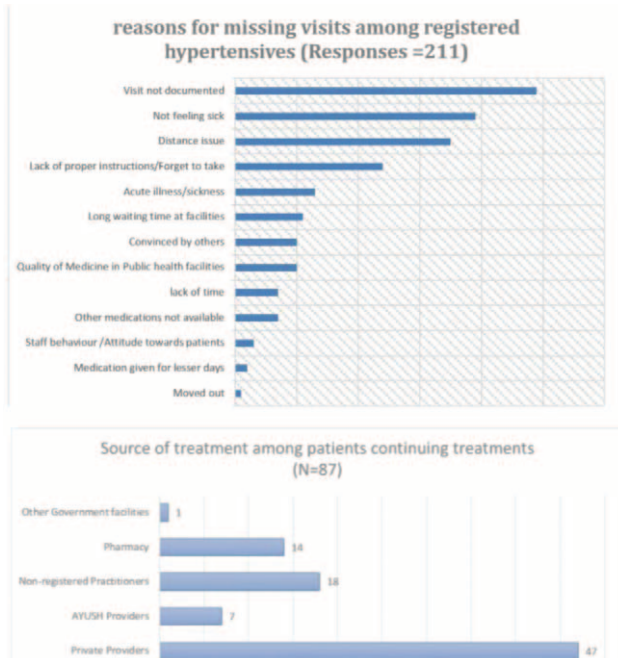


**Objective:** Objective: Regular visit to health facilities is important for hypertension control. Under India Hypertension Control Initiative, hypertensive patients are enrolled in public hospitals and provided with patient-specific monthly medication for regular treatment at home and advised to return to the health facility after a month. However, at least 50% -60% of registered patients were not visiting the health facility for 3 to 6 months following their last visits. This article aims to document the major reasons for missed appointments and to characterize the patient and health system barriers.



**Design and method:** We used a telephonic interview for collecting information from the patients who missed the appointments for more than 3 consecutive months. Out of 300 randomly selected patients, 206 were interviewed with a pre-structured questionnaire to explore patients' experiences along with medical record reviews from the patient database. Interviews were conducted during the last quarter of 2019 and analyzed in both descriptive statistics and textual descriptions.

**Results:** Not feeling sick or not experiencing any bodily symptoms due to hypertension (18.4%) followed by far distance between the health facility and the patient's home (16.5%) were the major reasons reported by the patients. Among other reasons, lack of proper instructions/guidance from the facility (11%), acute health conditions of patients (6%) and long waiting time at the public health facilities (5%) are also documented as the reasons for poor follow up. These factors cumulatively shifting a patient towards private sectors as 54% patients who were continuing their treatment are preferring private sectors.

**Conclusions:** The results suggest the need for a more patient-centric care model such as guiding the patient properly at the health facility, saving patients time in the clinic, personalized care for acutely ill and aged patient and addressing the distance barriers between a patient's home and the health facility. Further, introducing reminder system by means of phone calls/SMS/visit may help to retain the higher follow-up of the patient.

#### CLINICAL FACTORS AND HYPERTENSION ASSOCIATED WITH HOSPITAL READMISSION IN HEART FAILURE PATIENTS

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**Objective:** To systematically investigate the patients' perspectives about the reasons for their hospital readmission related to hypertension after discharged of stabilized HF patients and to study how to improve our heart failure care system to reduce the number of readmission in cost effective way.

**Design and method:** Patients were recruited for this study was admitted to national institute of cardiovascular diseases, through emergency department. Patients discharged with a primary discharge diagnosis for HF who were then readmitted for any cause in the subsequent 6 month were eligible for the study. We recruited patients over the period of 3 month form June 2019 till August 2019. Eligible patients were approached, consented, and interviewed within the next 24 hours while they were still in hospital.

**Results:** For the readmission, median length of stay was 6 days. Total 500 patient included, out of which 375 (75%) were male and most important cause of heart failure is ischaemic cardiomyopathy 400 (80%). No death recorded. Common reasons for readmission are lack of counselling 200(40%), under dose 75(15%), non-compliance 60(12%), volume over load 50(10%), hypertension 50(10%), secondary infection 35(7%). Only 50 out of 500 patients which is 10 % of the study participants were associated with hypertension in hospital readmission . Out of 500 patients, 80% had ischemic cardiomyopathy which is directly proportional to HF.

**Conclusions:** We concluded that hypertension is not largely associated with heart failure hospitalization in our single center study. But patient compliance of medication, appropriate fluid intake, self-care and life style modification are the important elements in hospital readmission of heart failure.

#### DEVELOPMENT OF A MOBILE HEALTH APP FOR THE MANAGEMENT OF HYPERTENSION, INCLUDING TREATMENT ADHERENCE ASSESSMENT, USING IMAGE DETECTION TECHNOLOGY – INSPIRERS-HTN

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**Objective:** We aim to develop a mHealth smartphone app with a novel strategy to support the management of hypertension, including the measurement of adherence to treatment, taking advantage of the widespread use of smartphones and using only their embedded sensors.

**Design and method:** We have designed and developed a cross-platform, multi-language app which allows to register a pharmacological treatment and to customize alerts for the patient to take his/her medication and to measure his/her blood pressure (BP). Moreover, the app will be able to identify the number of pills in a blister and to capture the BP values from the screen of BP measuring devices, using the smartphone's camera. Thus, the app will quantify adherence to therapy and generate automatic BP reports.

Blister photos and BP values collected by the users are enhanced using standard image processing methods for contrast increase, gap filling and relevant elements location. Classification strategies allow to count the pills present in the blisters, while the Google MLKit text mining API is employed for BP values recognition. Health Level Seven International (HL7) Fast Health Interoperability Resources (FHIR) standard is used for health care data modeling and exchange, promoting interoperability while guaranteeing data quality and security.

Evaluation of the app's performance by real users will be presented, regarding its usability and the offline validity of the data acquisition.

**Results:** The user interface concept of the app has been defined and the mockups have been produced.

Regarding pill counting, blisters with diverse materials and textures were considered. Different processing strategies are used depending on blisters' characteristics, which has allowed an accuracy above 95% for most of the tested blisters. Extracting the BP measures from smartphone acquired images using the MLKIT app seems to be feasible. Further improvements and evaluations are ongoing. We will show preliminary results regarding usability and offline validity.

**Conclusions:** We propose a new smartphone app that will support the management of hypertension, including an innovative image detection tool that will allow to objectively measure adherence to therapy and will facilitate the capture of BP values.