

ICTPH launches its primary-care Ophthalmic Intervention

By

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The estimated prevalence of blindness in 1990 ranged from 0.08% in children to 4.4% in persons aged over 60 years, with an overall global prevalence of 0.7%. In view of the proportion of treatable eye diseases or treatable causes of blindness, such as cataract, trachoma, onchocerciasis and some eye conditions in children, it was estimated that 75% of all blindness in the world could have been avoided. (VISION - 2020 Global Initiative for the Elimination of Avoidable Blindness Action Plan 2006 - 2011, 2007) (Blindness in the Elderly, Editorial, 2008)

The risk factors for loss of vision are age, gender, poverty, and poor access to health care. It is estimated that more than 82.2% of all blind individuals are 50 or older. The burden for visual impairment accounts for approximately 3% of the total global burden of disease and 9% of total years lived with disability in 2001 (Loss of Vision and Hearing, Disease Control Priorities in Developing Countries, Second Edition, 2006). Multiple community based screening (Quigley, Park, Tracey, & Pollack, 2002), eye injury prevention (Luque, et al., 2007), and community based provisioning (American Optometric Association Community Health Centre Committee, Michelle Proser, Peter Shin, 2008) (Vision Centres, 2010) experiences guide towards adopting a comprehensive outlook catering to community ophthalmic needs.

The ICTPH Health Systems strategy (Johar, 2010) aims to facilitate a comprehensive healthcare delivery model for remote rural Indian population. Provisioning ophthalmic services at primary-care entails refractive error correction (myopia, hypermetropia, astigmatism, and presbyopia), cataract – detection, management and referral for surgical intervention, managing chronic disease complications such as diabetic retinopathy by regular fundus examination using ophthalmoscopy and glaucoma through intraocular pressure assessment using tonometry.

With this framework, ICTPH launched its village based servicing of community ophthalmic requirements through its field based partner SughaVazhvu Healthcare. The village based primary healthcare delivery points called the Rural Micro Health Centres (RMHCs), offer a unique platform to provision the entire gamut of healthcare services – inclusive of vertical, specialty specific domains such as dentistry, ophthalmology and mental health services.

The ophthalmic intervention has been launched in all of SughaVazhvu's RMHCs, Andipatti on June 29, 2011, in Allakkudi on July 18, 2011 and in Karambayam on September 28, 2011. At present, the ophthalmic intervention at SughaVazhvu comprises:

- Measurement of visual acuity
- Treatment for basic eye infections such as conjunctivitis, blepharitis, trachoma
- Detection of eye conditions such as pterygium, cataract, glaucoma, retinopathy for further referral.
- Comprehensive refraction correction including dispensing of spectacles at the RMHC.



July 18, 2011: Launch of Vision intervention at Alakkudi RMHC

(a 6 year old boy's visual acuity being tested by our Health Extension Worker)

Community based Marketing Campaign (pre-intervention) Prior to launching our ophthalmic intervention, all the households(HH) in the respective catchments were intimated through a page long communication of the services that would be available at the RMHC. The distribution mechanism varied across the two centers; postal delivery services in Andipatti, and door-to-door pamphlet delivery as coordinated by SughaVazhvu in Alakkudi. As our [pre-enrolment exercise](#) preceded our ophthalmic intervention launch, the benefit of community mapping, inclusive of complete address, geo-tag, basic HH information (number of members, age, gender) was already available in our Health Management Information System (HMIS). This facilitated automated address generation for inland letters which were delivered in Andipatti using the postal service, and audit of the HH delivery of these letters using our field staff. In Alakkudi, we had used the same process as pre-enrolment for the pamphlet delivery.

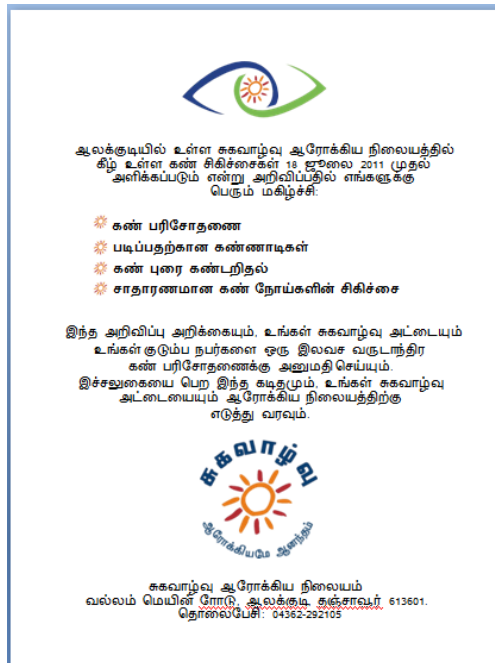
(The postal communication used in Andipatti)



June 29, 2011: Launch of Vision intervention at Andipatti RMHC

(the inland letters that were sent over to each household in the catchment)

(For Alakkudi RMHC, we used a model similar to the pre-enrolment protocol; we intimated each household(HH) through a pamphlet handed out at HH)



On the day of launch, at Andipatti, we had 52 patients visit the RMHC for vision tests, at Alakkudi, we had 136 patients visit the RMHC for their vision test.



July 18, 2011: Launch of Vision intervention at Alakkudi RMHC

(patients awaiting their turn in the waiting area; 136 patients visited on the day of launch)

Over the three months that we provisioned vision services in our RMHCs, we have seen 254 cases (25% of total visits) with specific eye complaints or diagnosis. In eye conditions, cataract shows up as the major condition encountered so far. Also, to people diagnosed with refractive errors and wanting to purchase spectacles, we have sold 68 pairs of spectacles at our RMHCs. Following charts give a synopsis of patient flow, visual acuity and data related to conditions such as cataract, conjunctivitis.

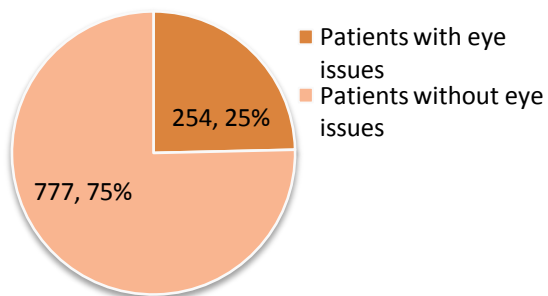


Fig 1: Total patient numbers

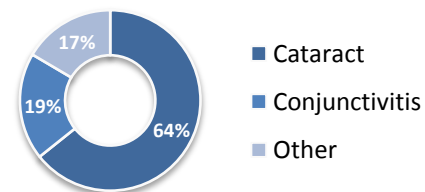
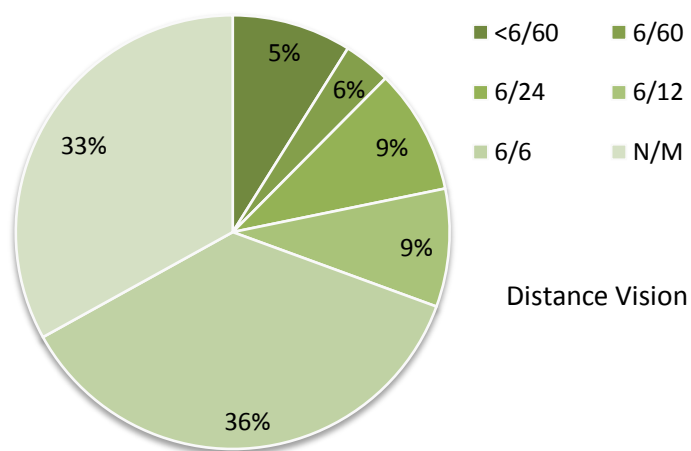
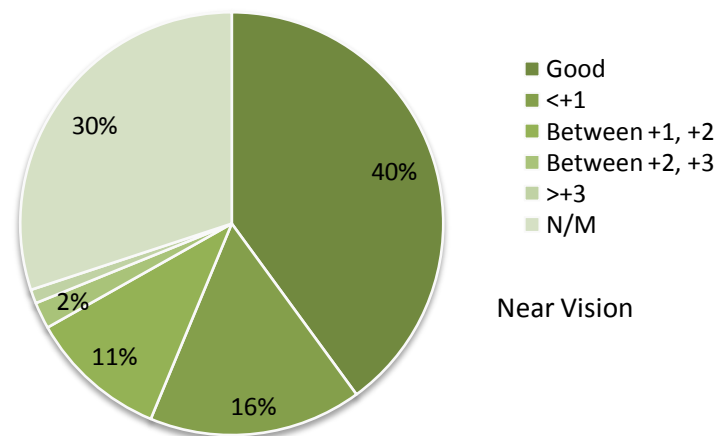


Fig 2: Split by eye conditions



Distance Vision



Near Vision

Fig3 and Fig4: Patient split by visual acuity (Distance vision and Near Vision)

*Others include Pterygium, Bitot's spots, Hemorrhage, Blepharitis

*N/M = not measured

Changes to our HMIS:

We had made changes to our HMIS in mainly three areas : (i)capturing visual acuity, (ii)physical examination and chief diagnosis, and (iii)supply chain management.

Screenshots pertaining to this have been provided in Appendix I.

Human resource challenges:

Nearly a third of the population has some form of refractive error and refractive errors are the second most leading cause of curable blindness; the leading cause being cataract. One question we debated was whether a comprehensive refractive error correction capability needs to be developed at the RMHC. In India, at present, refractive error correction is handled by specially trained personnel: vision technicians, qualified Optometrists or by Ophthalmologists. There is a great paucity of these personnel in India and the ratios significantly deteriorate as one moves towards Rural India. Also, the existing standard training courses take anywhere around a year or more to produce certified personnel capable of handling refractive error correction.

To counter this challenge of resource availability, we came up with the concept of a ‘master trainer’. The idea was to recruit one qualified personnel such as an optometrist and have him train our physicians. The master trainer’s role was not to assess patients by himself but to train our staff and oversee the quality of eye care delivery in our RMHCs.

In course of our intervention design, we had visited centers of excellence in eye care such as L.V.Prasad Eye Institute and Aravind Eye Care. They have vision centers established in deep rural pockets but which target population size of about 50,000; nearly 5 times that which we cover through a single RMHC. These centers are staffed with personnel called vision technicians who are trained for above 2 years in the respective base hospitals and work in the base hospital for a short period before being moved to man the vision centers.

Confronted by this human resource challenge, we decided to roll out refractive correction only for presbyopia(aging eye) : the training requirement for presbyopia correction is very minimal. We tied up with [Vision Spring](#) for training on the presbyopia intervention and also for the near vision glasses’ supply chain. Two staff from SughaVazhvu were sent to Vision Spring at Hyderabad for training. The training was based on established protocols in screening of visual acuity and dispensing glasses for presbyopia correction.

While our staff received training on limited refractive error correction(presbyopia), we were keen to address comprehensive refractive correction. The necessity to develop this strategy was further strengthened once we started vision services in our RMHC and started to diagnose many patients who needed not just near vision correction but also correction for

distance vision and/or astigmatism. To handle this challenge, we recruited an Optometrist at SughaVazhvu as a vision master trainer. He helped develop a training program to train our physicians on refractive error correction. During his training, we had a fairly positive experience, with our physicians learning streak retinoscopy and refractive correction in less than a week. Under the Optometrist's supervision, our physicians started to perform refractive error correction at our RMHCs and the accuracy had been very encouraging.

We had developed this training in-house and wished to collaborate with an established organization to ensure quality and practice of standard and efficient techniques. After thorough diligence, we chose Sight Care Foundation, a Chennai based organization specializing in refraction correction training. We had Sight Care Foundation personnel come over to Thanjavur for training our cohort of physicians. The training lasted for three days and the trainees were taught elements of subjective and objective refraction correction, optical dispensing and counseling of patients. Elements of this training were used to improve our own internal training and we now have a 4 day training module for our physicians which shall be delivered by our vision master trainer.



(At the Alakkudi RMHC, Dr.Uma Priyadarshini, the resident physician, assessing the objective refraction correction using streak retinoscopy on day of Vision launch)



Spectacles: For refraction correction, as we had started off with only a solution for presbyopia, we sourced reading glasses from Vision Spring. (*Vision Spring has done extensive research on the models that are most relevant to the base of the pyramid contexts and has a well developed kit for presbyopia with a select set of frame designs*) We procured glasses for our presbyopia intervention from Vision Spring and sell the glasses at the price that Vision Spring arrived upon based on their market research. Over time, we launched comprehensive refraction correction and introduced more frame models in our RMHC. At present, we have about 65 models of frame designs in our RMHCs that one can choose from. The supply chain for spectacles has been tied up locally and we dispense spectacles in the RMHC within 2 days of spectacles being ordered.



(A display of different models of glasses at the Andipatti RMHC. Patients choose from this available selection of frames and curiously look through the mirror to check out their new look!)

Referral Management

Cataract and camp based approach:

Since the launch of our vision program, we have detected 144 cataract cases in our RMHCs, currently registered in our HMIS. We have observed that there is a significant awareness in the population about cataract and our belief is that the awareness is largely due to the extensive camps that are conducted by the likes of Aravind Eye Care in the region. Apart from Aravind Eye care, several other charitable organizations and also physician groups conduct camps to screen cataract patients and operate on them. While several camps and outreach activities are carried out specifically for vision, our understanding is that they reach out to less than 10% of the population and usually, it is the same set of people who end up returning to the camps for free checks and medication. Also, given that camps are conducted at a point in time and space, there is little scope to develop a sustained relationship with the community and follow up for outcomes. Given these drawbacks with the camp model, we have made a conscious effort to direct all our activity and patient flow to the RMHC rather than do outreach activities from our RMHC and serve the community elsewhere. As we integrate deeper into the communities, we expect to win people's trust and change the different aspects related to their health seeking mindset.



(One of the first few patients to purchase distance vision glasses at the RMHC; a goat herder by profession and consequently a traveler, he was keen to get his glasses before he set off from Andipatti. His eagerness and joy upon receiving glasses he ordered was a great reaffirmation of our intervention.)

Way forward:

At SughaVazhvu, we plan to roll out a school based dental intervention for the population soon. Once we roll out this intervention, we shall explore options of in-school screening of students for dental and vision related conditions. Given our RMHC capabilities, we are well positioned now to dispense glasses to students by referring them to the nearest RMHC.

Over the last 3 months wherein we started implementation of the vision intervention at SughaVazhvu, we have observed 144 patients with a cataract. As yet, we have no formal referral network in place and we deal with patients on a case by case basis. We shall address the referral pathways of such secondary and tertiary conditions once our strategy for managed care, which we currently developing is finalized. At present, we have 8 eye infection/disease protocols. While most of these have been well internalized in our system, over the next few months, we shall endeavor to refine them to our context and also increase the breadth of curative and preventive protocols specific to vision.

Overall, the vision intervention has taken off on a very positive note. In helping our populations see better, we have ourselves moved a step closer in realizing our vision of accessible and affordable healthcare for rural Indian populations!

Appendix I

Fig1: Data entry – visual acuity

VISION	
Distance (Right)	6/12
Distance (Left)	6/24
Near vision	<+1.0
Cataract	Not Measured

PHYSICAL EXAMS			
Ab	No	NA	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Abdomen
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Back
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Breasts
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cardiac
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Chest
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ears
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremities/joints
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Eyes
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	General

Fig2: Data entry – visual acuity

VISION

Distance (Right)	6/12
Distance (Left)	6/24
Near vision	Not Measured
Cataract	<6/60

PHYSICAL EXAMS

Ab	No	NA	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Abdomen
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Back
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Breasts
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cardiac
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Chest
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ears
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremities/joints
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Eyes
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	General

Fig3: Eye – Physical examination

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ears
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremities/joints
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Eyes
	<input type="checkbox"/>		Abnormal Acuity
	<input type="checkbox"/>		Abnormal Visual Fields
	<input type="checkbox"/>		Purulent Discharge
	<input type="checkbox"/>		Clear Discharge
	<input checked="" type="checkbox"/>		Conjunctivitis
		<input checked="" type="radio"/>	Left
		<input type="radio"/>	Right
		<input type="radio"/>	Both
	<input type="checkbox"/>		Periorbital Edema
	<input type="checkbox"/>		Bruising
	<input type="checkbox"/>		Periorbital Tenderness
	<input type="checkbox"/>		Ptosis
	<input checked="" type="checkbox"/>		Strabismus
		<input type="radio"/>	Left
		<input checked="" type="radio"/>	Right
		<input type="radio"/>	Both
	<input type="checkbox"/>		Scleral Icterus
	<input type="checkbox"/>		Pale Conjunctiva
	<input checked="" type="checkbox"/>		Subconjunctival Haemorrhage
		<input type="radio"/>	Left
		<input type="radio"/>	Right
		<input checked="" type="radio"/>	Both
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	General
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Gu
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Head
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Lymph Nodes
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Neck

Fig4: Eye – entry of symptoms('S' in SOAP methodology)

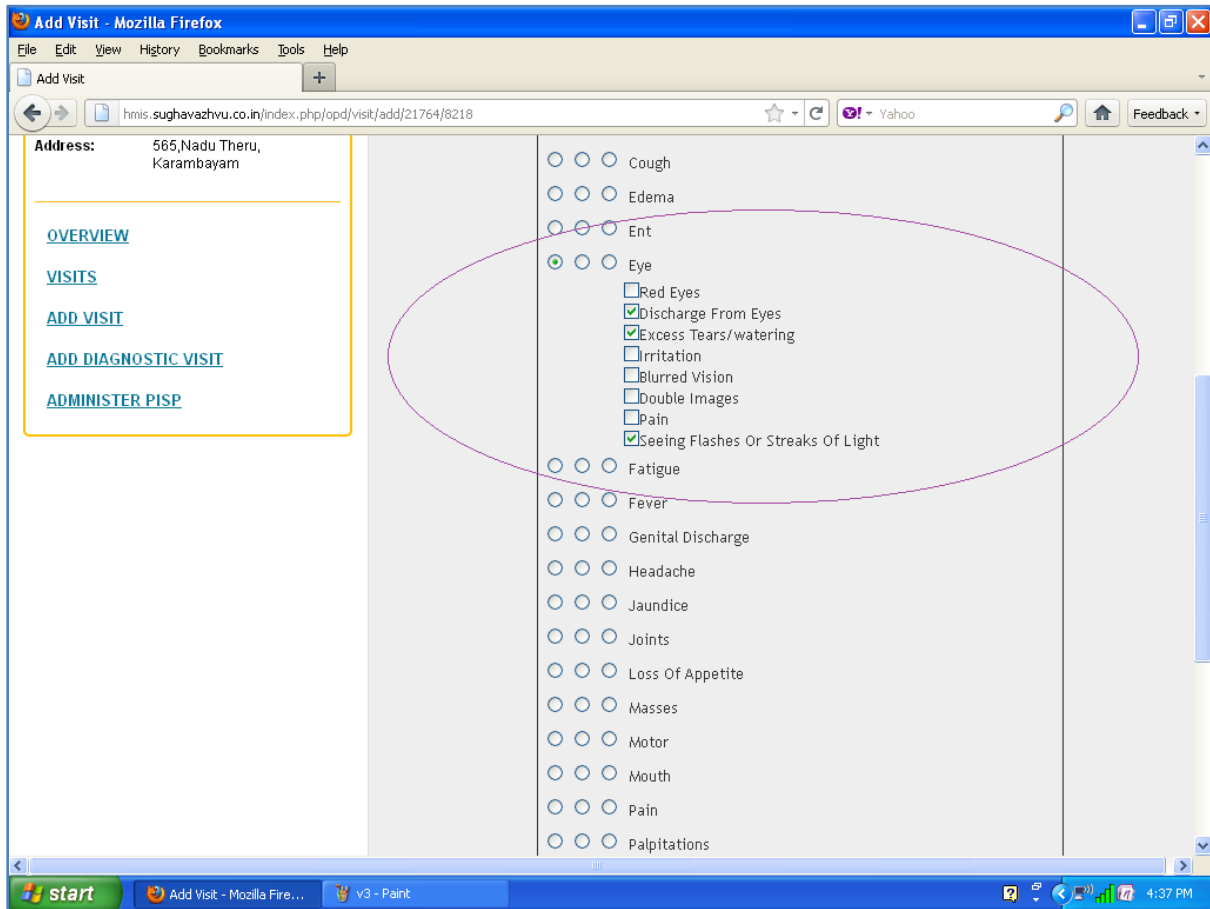


Fig5: Eye – recording chief complaint('S' in SOAP methodology)

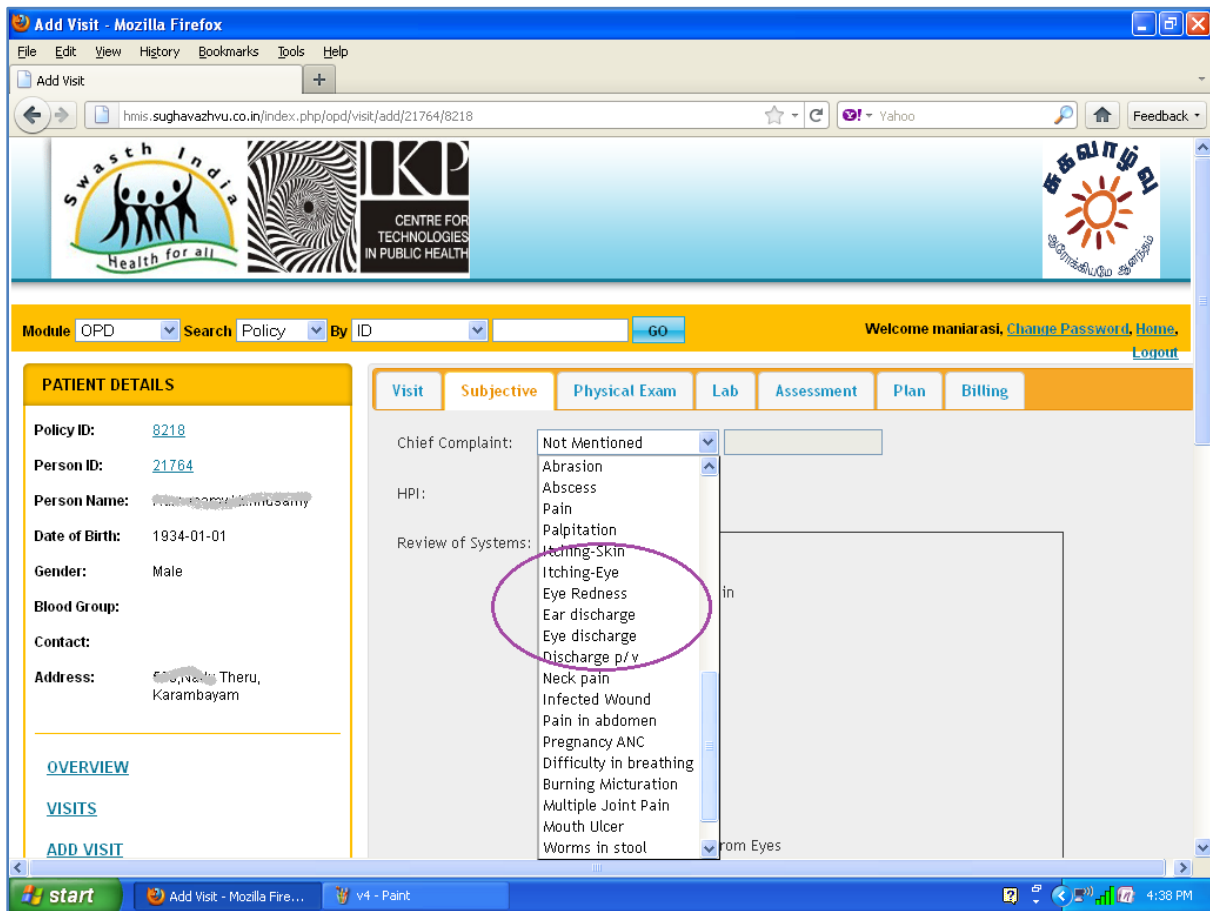
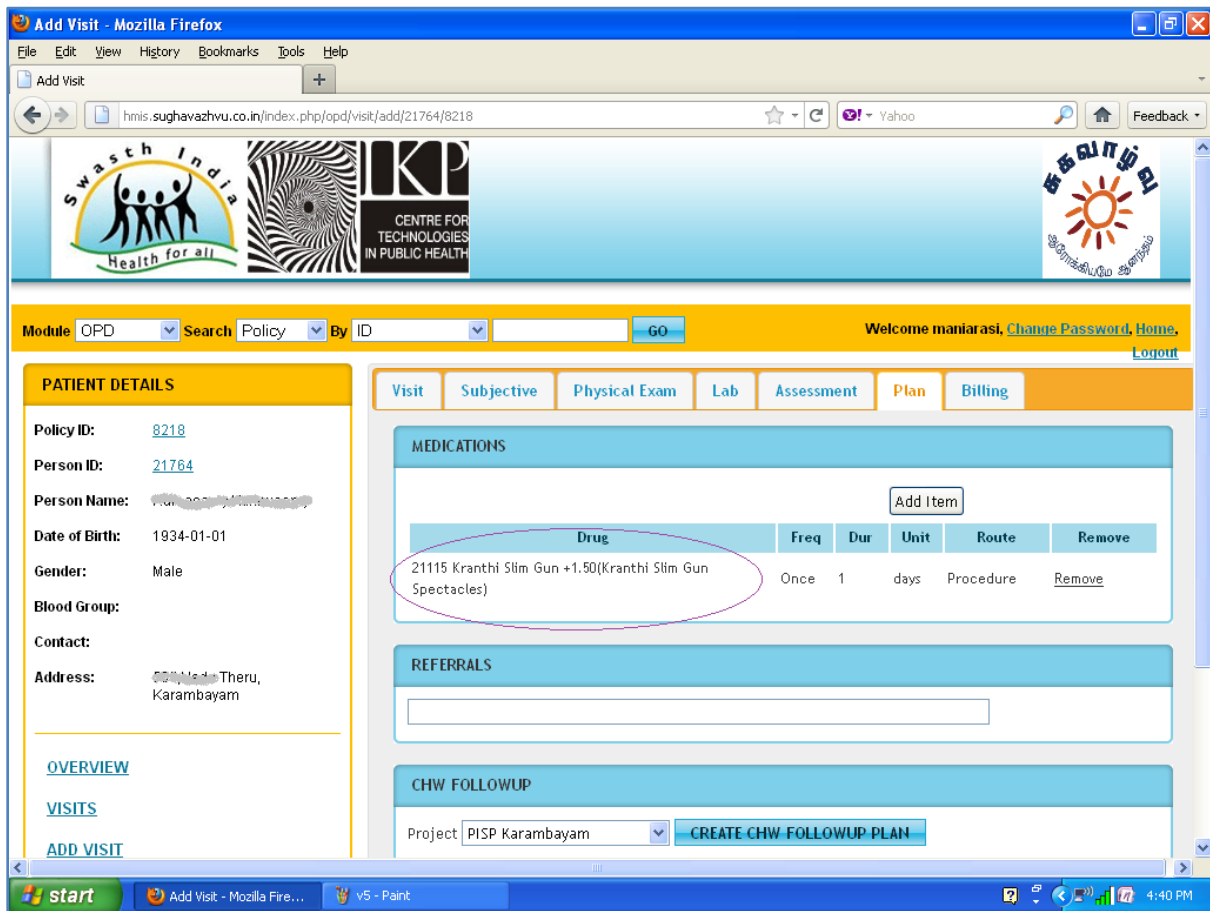


Fig6: Spectacles dispensing : HMIS



The screenshot shows the 'Add Visit' page in the HMIS application. The browser window title is 'Add Visit - Mozilla Firefox'. The URL is 'hmis.sughavazhvu.co.in/index.php/opd/visit/add/21764/8218'. The page header includes logos for 'Swasth India Health for all' and 'Centre for Technologies in Public Health'. Below the header, there is a navigation bar with 'Module' set to 'OPD', a search bar, and a 'GO' button. A welcome message for 'maniarasi' is displayed. The main content area is divided into two columns. The left column contains 'PATIENT DETAILS' with fields for Policy ID (8218), Person ID (21764), Person Name, Date of Birth (1934-01-01), Gender (Male), Blood Group, Contact, and Address (Karambayam). The right column has tabs for 'Visit', 'Subjective', 'Physical Exam', 'Lab', 'Assessment', 'Plan', and 'Billing'. The 'Medications' section contains a table with one entry circled in red:

Drug	Freq	Dur	Unit	Route	Remove
21115 Kranthi Slim Gun +1.50(Kranthi Slim Gun Spectacles)	Once	1	days	Procedure	Remove

Below the medications table are sections for 'REFERRALS' and 'CHW FOLLOWUP'. The 'CHW FOLLOWUP' section shows a dropdown for 'Project' set to 'PISP Karambayam' and a 'CREATE CHW FOLLOWUP PLAN' button. The Windows taskbar at the bottom shows the Start button, open applications (Add Visit - Mozilla Firefox, v5 - Paint), and the system clock (4:40 PM).