



Sustainability: Practices today for tomorrow

An Investigation of Emerging Practices for Non-Profit Eye Hospitals in Developing Markets

Key Questions

- Key Question 1: How do financial and environmental sustainability interlink?
- Key Question 2: How can hospitals market their services in a way that increases revenue?
- Key Question 3: How can hospitals improve their environmental impact in a way that increases revenue?
- Key Question 4: What does this have to do with me?

Agenda

- Introduction to the course
- Overview of Financial Sustainability
- Put in Practice: Case study on Financial Sustainability
- Overview of Environmental Sustainability
- Put in Practice: Case Study on Environmental Sustainability
- Tying it Together
- Questions & Wrap up

Overview

Financial Sustainability

Financial Sustainability

- Sustainability is a measure of an organization's ability to fulfil its mission and serve its stakeholders over time
- Applied to finances
 - Increasing Revenue
 - Controlling Expenses

Bowman, Woods, "Financial Capacity and Sustainability of Ordinary Nonprofits,"
Nonprofit Management and Leadership, Vol. 22, No. 1, Fall 2011, pp. 37–51.

Importance of Sustainability

- Not-for-profit eye hospitals face tremendous funding constraints that affect operational efficiencies
- To reduce dependence on external funds, imperative the institution achieve financial sustainability

Put in Practice

Review of efforts at 3 hospitals

International Business Development (IBD Program)

- Intensive management consulting course for University of California, Berkeley MBA students
 - Operating since 1992 in 89 countries
- Projects are developed with faculty mentors who are experts in management consulting and international business strategy



Focal Hospitals

- HV Desai Eye Hospital (2016)
- Dr. Shroff's Charity Eye Hospital (2018)
- Clínica Oftalmológica Divino Niño Jesus, Peru (2017)



Aim of Work Across Three Hospitals

Improve the financial sustainability of the hospital
by identifying how to increase the volume and
conversion of paying patients



Methodology

IBD Teams

- Conduct competitive analysis assessment
- Complete patient satisfaction surveys
- Final recommendations focused on brand, health promotion, pricing, staff, amenities

Review of Cases

- Review IBD projects
- Conduct written and oral interviews with hospital directors and staff
- Analyze responses and identify common themes, strategies

Common Recommendations

Brand

Patient
Experi-
ence

Pricing

Staff

Brand

Patient
Experience

Pricing

Staff

- Target client profiles
- Quality over charity
- Patient ambassadors
- Consistency in look and message
- Place materials where target patients congregate

Brand

Patient
Experience

Pricing

Staff

- Patient satisfaction surveys
- Patient waiting time
- Improve waiting experience

Brand

Patient
Experience

Pricing

Staff

- Willingness to pay more for efficiency
- Consider entry point for services
- Consider accessibility of high-end services
- Ensure patient can take home or take a picture of pricing and bundle information sheet(s)

Brand

Patient
Experience

Pricing

Staff

- Staff as extension of brand
- Standardize counseling
- “Patient as god”

CASE STUDY:

HV Desai Eye Hospital, India

Purpose

To help HV Desai design ways to increase **surplus** from services by **enhancing the paying patient experience**

Brand

- Refine branding and increase awareness

Pricing

- Optimize pricing and transparency

Staff

- Improve patient-staff interaction

Amenities

- Enhance amenities and services

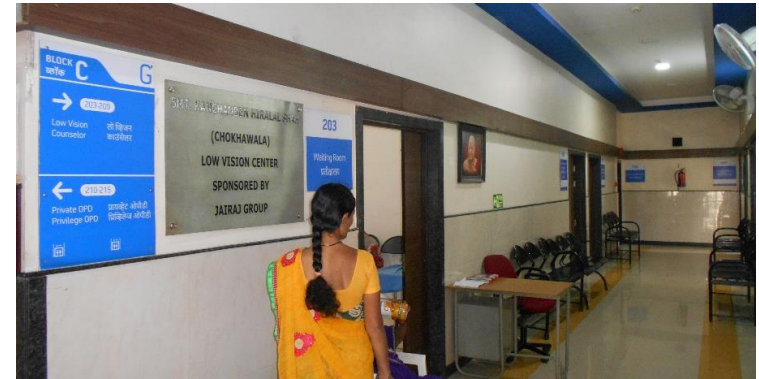
Brand

Pricing

Staff

Amenities

Signage Campus Development



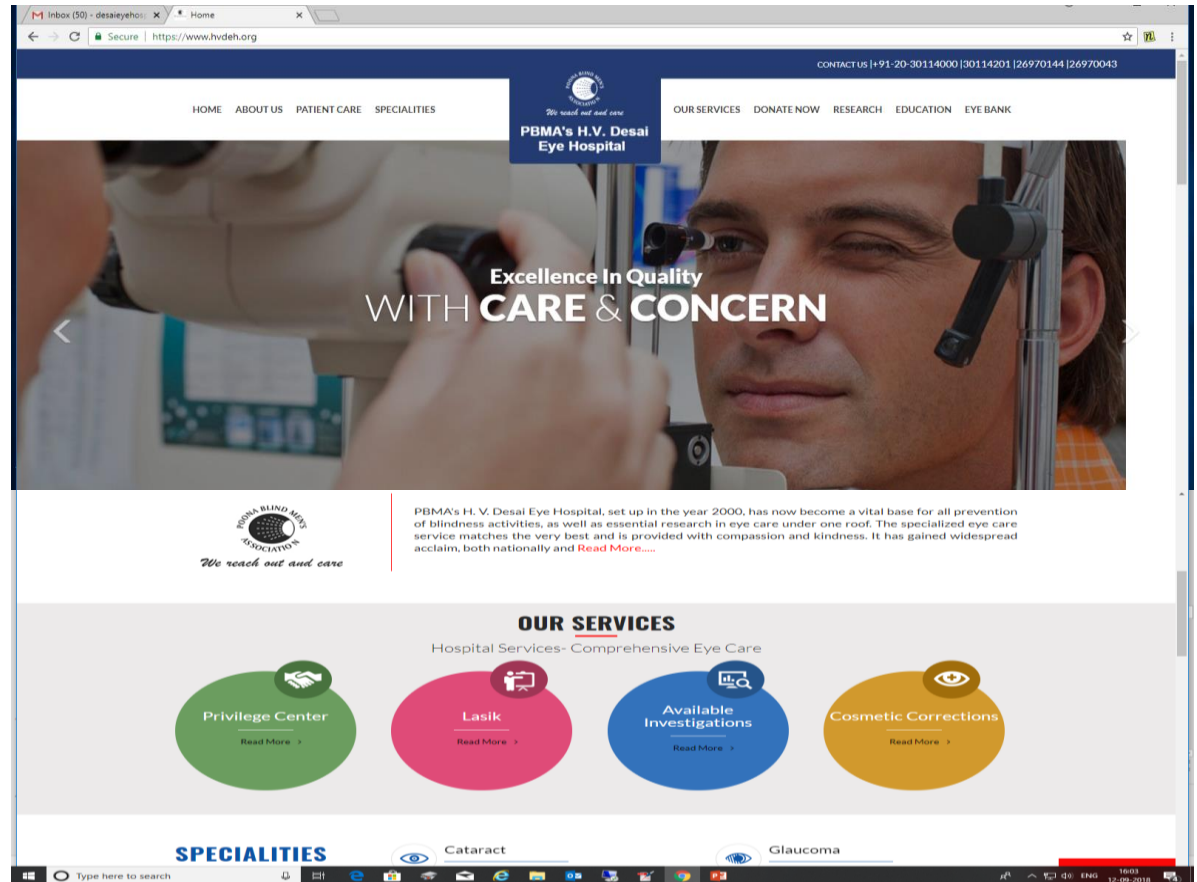
Brand

Pricing

Staff

Amenities

Website
Redesigned



Brand

Pricing

Staff

Amenities

पुणे में पचास साल की उम्र के बाद का पांच में से एक व्यक्ति डायबिटीज का मरीज

एच वी देसाई आई हॉस्पिटल ने अंधेपन को लेकर किया महत्वपूर्ण सर्वेक्षण : कई चौंकाने वाली जानकारियां मिलीं

पुणे, 17 जनवरी, (वि.प्र.)

पुणे शहर में पचास साल की उम्र के बाद का पांच में से एक व्यक्ति को मधुमेह या डायबिटीज है। यह सर्वेक्षण एच. वी. देसाई आई हॉस्पिटल द्वारा किया गया। शहर में अंधेपन का अनुमान लेने के लिए

से एक से अधिक) लोगों को डायबिटिक रेटिनोपैथी था। आश्चर्यजनक यह था कि उसमें से दो तिहाई से अधिक (70%) लोगों ने कभी भी डायबिटिक रेटिनोपैथी के लिए आंखों की जांच नहीं की थी। इस सर्वेक्षण में पुणे शहर के 3600 व्यक्तियों



■ रैपिड असेसमेंट ऑफ अवॉइडेबल ब्लाईंडनेस एंड डायबिटीज रेटिनोपैथी सर्वे में मेडिकल डायरेक्टर व सर्वे की मुख्य अन्वेषक डॉ. सुचेता कुलकर्णी द्वारा पत्रकार-वार्ता में जानकारी

विश्व काचबिंदू सप्ताह पर

एच.वी.देसाई आय हॉस्पिटल ने किया जन जागरण

संवाददाता

पुणे. विश्व काचबिंदू सप्ताह के अवसर पर एच. वी.देसाई आय हॉस्पिटल द्वारा विविध जागरूकता उपक्रम आयोजित किए गए। इस



अवसर पर रैली निकाली गई। इसके साथ ही मोहम्मदवाडी गांव में जांच और काचबिंदू से लोगों को अवगत कराया गया। डॉ.विद्या चलेकर, डॉ.कल्याणी वीकेएस डॉक्टरों की टीम ने लोगों से संवाद स्थापित किया। काचबिंदू के बारे में मार्गदर्शन की पुस्तिकाएं लोगों को बांटी गईं। बाहरी मरीज विभाग के मरीजों सहित नजदीकी परिसर के लोग काचबिंदू जागरूकता के बारे में आयोजित उपक्रम में सहभागी हुए थे।

सर्वेक्षण की मुख्य अन्वेषक डॉ. सुचेता कुलकर्णी पत्रकार-वार्ता में जानकारी देते हैं, यहां देसाई आई हॉस्पिटल के सीईओ राजेश कापसे व अन्य उपस्थित थे।

देसाई आई हॉस्पिटल में 20 जनवरी को बैठक

सीईओ राजेश कापसे ने कहा कि इस सर्वेक्षण के निष्कर्षों का उपयोग शहर के मोरियाबंद के और साथ ही डायबिटिक रेटिनोपैथी की सेवा में सुधार लाने के लिए और उसकी योजना तैयार करने के लिए किया जायेगा। एच.वी. देसाई आई हॉस्पिटल में इसके लिए 20 जनवरी को एक बैठक आयोजित की जा रही है, इसमें अन्वेषक के निष्कर्ष और की जानेवाली अधिकारी, का इस बैठक में

जागरूकता के अभाव से अंधेपन का खतरा

डायबिटिक रेटिनोपैथी हमेशा के लिए अंधापन ला सकता है, अगर समय में इसका निदान हुआ और उपचार किये गए तो यह अंधापन पूरी तरह से रोका जा सकता है, लेकिन इस समस्या के बारे में जागरूकता का अभाव यह मुख्य कारण है, जिस वजह से मधुमेह रोगियों में अंधेपन का खतरा पैदा होता है, विश्व में प्रत्येक

RAPID ASSESSMENT OF AVOIDABLE BLINDNESS AND DIABETIC RETINOPATHY

In Pune, one in five persons above 50 is diabetic: survey

EXPRESS NEWS SERVICE
PUNE, JANUARY 17

A RECENTLY CONDUCTED survey - "Rapid Assessment of Avoidable Blindness and Diabetic Retinopathy" (RAAB plus DR) - has revealed that over 20 per cent of the people over the age of 50 were diabetic in Pune.

The survey was conducted by H V Desai Eye Hospital in July and August last year to find out the estimates of blindness in the city and its causes. Dr Sucheta Kulkarni, medical director, H V Desai Hospital and lead investigator of the survey, said, "Our teams went to various areas of the city and did a door-to-door sur-

vey. A total of 3,600 persons were surveyed. We also conducted examinations to find out how many are diabetic and how many have diabetic retinopathy/eye complication of Diabetes which can cause permanent blindness."

Over 22 per cent had diabetes and nearly 13 per cent (more than one in ten) had diabetic retinopathy. It was also revealed that over 70 per cent of them never underwent an eye checkup for diabetic retinopathy. The survey was conducted with the technical support of the London School of Hygiene & Tropical Medicine.

Diabetic Retinopathy can cause permanent blindness if not detected and treated on time. However, lack of awareness about

the problem is the main reason why diabetics are at risk of losing eyesight, said doctors.

India has one of the largest number of populations afflicted with diabetes. Urgent intervention to tackle this epidemic of Diabetes is required if we are to control people getting complications of diabetes, they added.

Colonel Deshpande, chief medical director, H V Desai Hospital, said, "Although prevalence of blindness is on the decline, cataract still remains the main cause of blindness. We found that almost 47 per cent of blindness was due to cataract. Despite availability of cataract services in government, NGO and private sector hospitals, high

cost of the surgery still remains the main reason people do not get operated."

Rajesh Kapase, CEO, H V Desai Hospital, said findings of the survey will be used for planning and improving services for cataract as well as diabetic retinopathy in the city. The survey would help us assess the impact of the National programme for control of blindness.

A meeting is being planned at H V Desai Eye Hospital on January 20 to discuss results of the survey and plan further strategies. State, district and municipal health officials, along with various NGO representatives, are expected to participate in the meeting.

Newspaper
Articles

Brand

Pricing

Staff

Amenities

Awareness
Creation

कॉन्टेक्ट लेंस

1. Use only the solution recommended by your practitioner.
2. Check the expiry date, when you are buying. Preservatives can irritate lenses, the solution can be the risk of infection. I need to be sure to use only the solution recommended by your practitioner.
3. Replace the lens immediately after use.
4. Clean the lens with the solution recommended by your practitioner.
5. Do not use the lens if it is dirty or if it has a tear.
6. Do not use the lens if it is dirty or if it has a tear.
7. Do not use the lens if it is dirty or if it has a tear.
8. Do not use the lens if it is dirty or if it has a tear.
9. Do not use the lens if it is dirty or if it has a tear.
10. Do not use the lens if it is dirty or if it has a tear.
11. Do not use the lens if it is dirty or if it has a tear.

Services Offered

1. Soft Contact lens
2. Rigid Contact lens
3. Cosmetic contact lens
4. Specialty contact lens for keratoconus, post trauma

डोळ्यांची सुरक्षा व काळजी

मेव सुरक्षा सर्वोत्तरी कारण डोळे अवमोल आहेत

एच. वी. देसाई नेत्र रुग्णालय
११/१, तावटे वली, फ्लॅट-१, इलहास, पुणे - ४११००९
फोन : २२० २६१०००१ / २६१०००२, फॅक्स : २६१०००३
ईमेल : vdesai@vdesaihospital.org

डोळ्यांची सुरक्षा व काळजी

मेव सुरक्षा सर्वोत्तरी कारण डोळे अवमोल आहेत

कृत्रिम डोळे

डोळ्यांची अँलजी

एच. वी. देसाई नेत्र रुग्णालय
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फोन : २२० २६१०००१ / २६१०००२, फॅक्स : २६१०००३
ईमेल : vdesai@vdesaihospital.org

Brand

Pricing

Staff

Amenities

Redesigned
pricing
template

CHARGES FOR CATARACT OPERATIONS

LENS TYPE	MONOFOCAL LENS		MULTIFOCAL LENS		TORIC MONOFOCAL LENS	
	WITH CASH	CASHLESS	WITH CASH	CASHLESS	WITH CASH	CASHLESS
IMPORTED HYDROPHOBIC LENS (ALCON / TECNIS / HANITA / SUPERPHOB)	Rs. 33000/-	Rs. 35000/-	Rs. 70000/-	Rs. 72000/-	Rs. 50000/-	Rs. 52000/-
IMPORTED HYDROPHOBIC LENS (HOYA / ZEISS / NIDEK)	Rs. 31000/-	Rs. 33000/-				
IMPORTED HYDROPHILIC LENS (RAYONE)	Rs. 20000/-	Rs. 23000/-	Rs. 46000/-	Rs. 48000/-		
INDIAN HYDROPHOBIC LENS (ACRIOL / SUPRAPHOB)	Rs. 15500/-	Rs. 17500/-	Rs. 33000/- (ACRIDIFF / REGEN)	Rs. 35000/-	Rs. 27500/- (ACRIOL / SUPERPHOB)	Rs. 29500/-
INDIAN HYDROPHILIC LENS (RYCF)	Rs. 11500/-	Rs. 13500/-	Rs. 27500/- (IDIFF / MULTIDIFF)	Rs. 29500/-		

Brand

Pricing

Staff

Amenities



Counselling
Workshop for
Cataract
and other
subspecialties
surgeries



Brand

Pricing

Staff

Amenities

Dress
Aprons



Brand

Pricing

Staff

Amenities

Soft Skills
NABH Training



Brand

Pricing

Staff

Amenities

Privilege
OPD



Brand

Pricing

Staff

Amenities

Construction
of new
Operation
Theatre



Brand

Pricing

Staff

Amenities

LASIK
department



Brand

Pricing

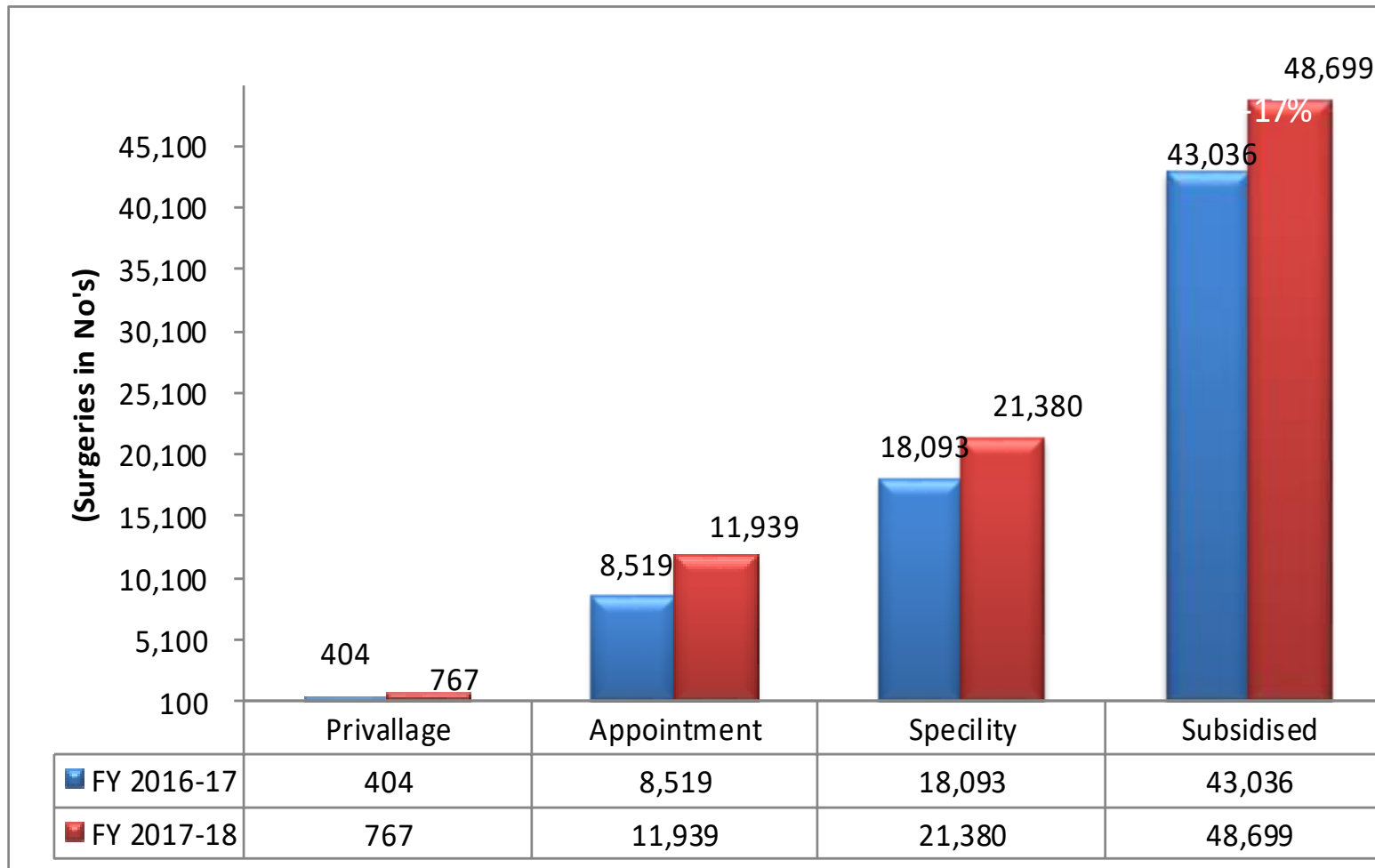
Staff

Amenities

Independent
Insurance
Department

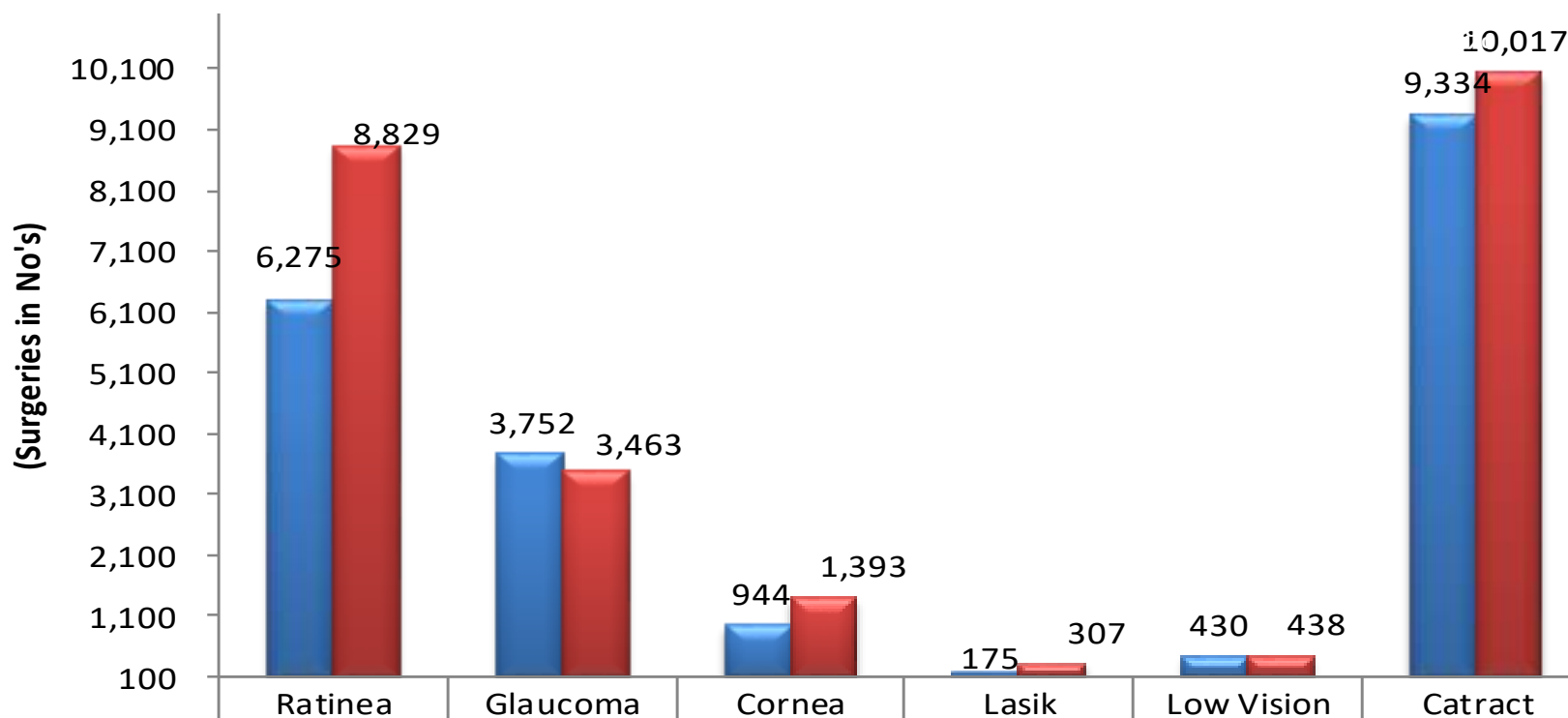


OPD Graph FY2016-17 FY2017-18



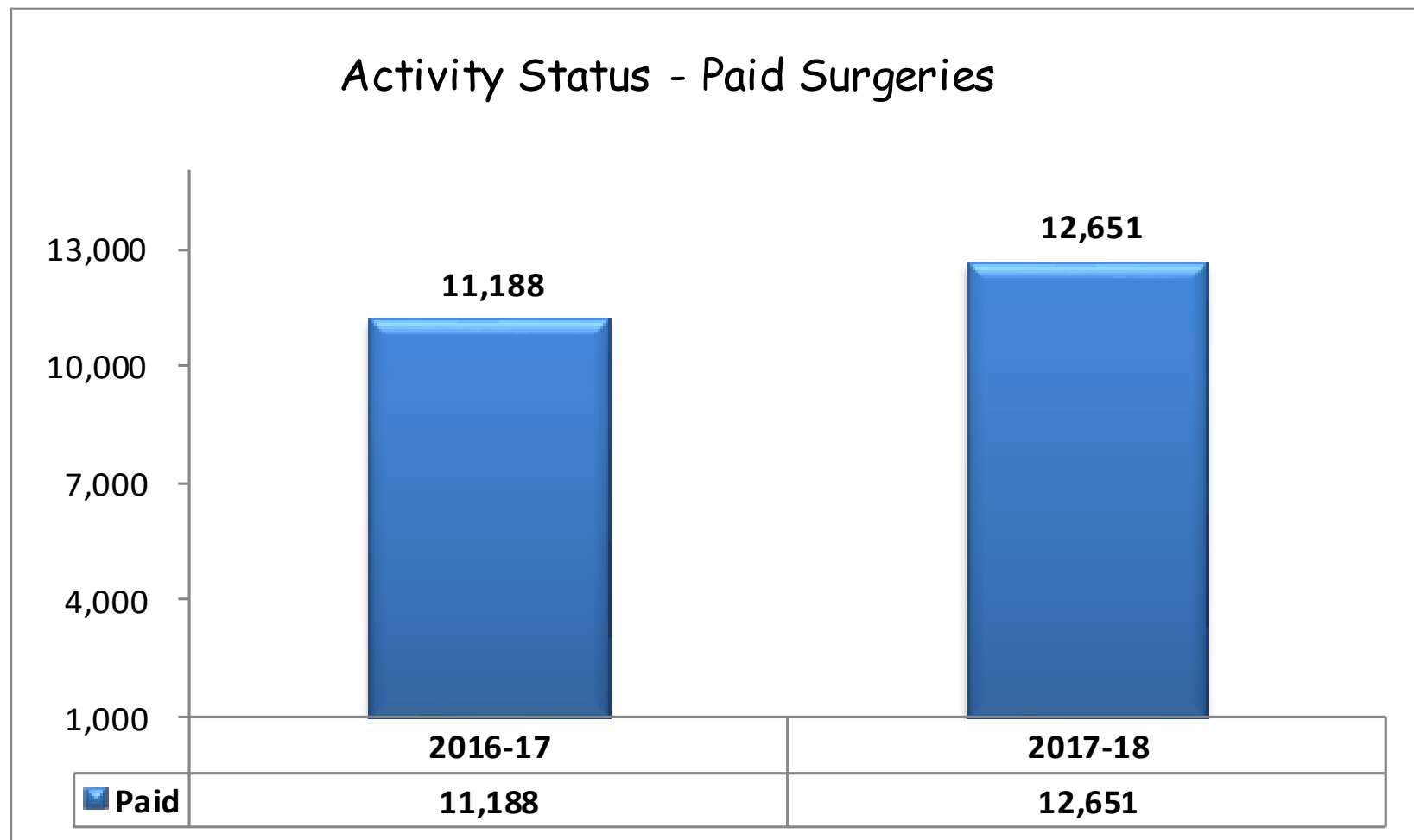
Investigation / OPD Procedures Graph

FY2016-17 & FY2017-18



	Ratinea	Glaucoma	Cornea	Lasik	Low Vision	Catract
FY 2016-17	6,275	3,752	944	175	430	9,334
FY 2017-18	8,829	3,463	1,393	307	438	10,017

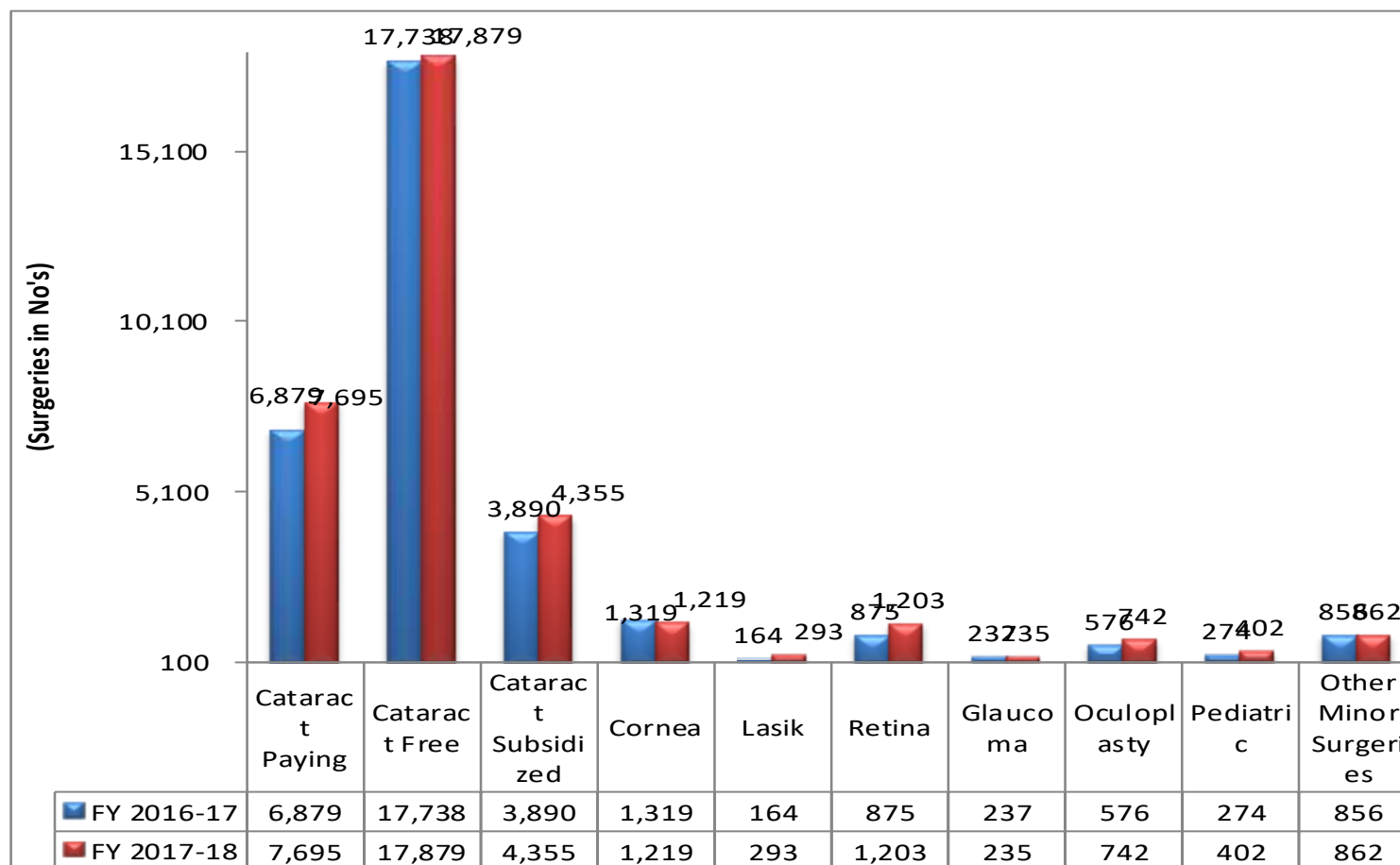
Activity Status – Paid Surgeries



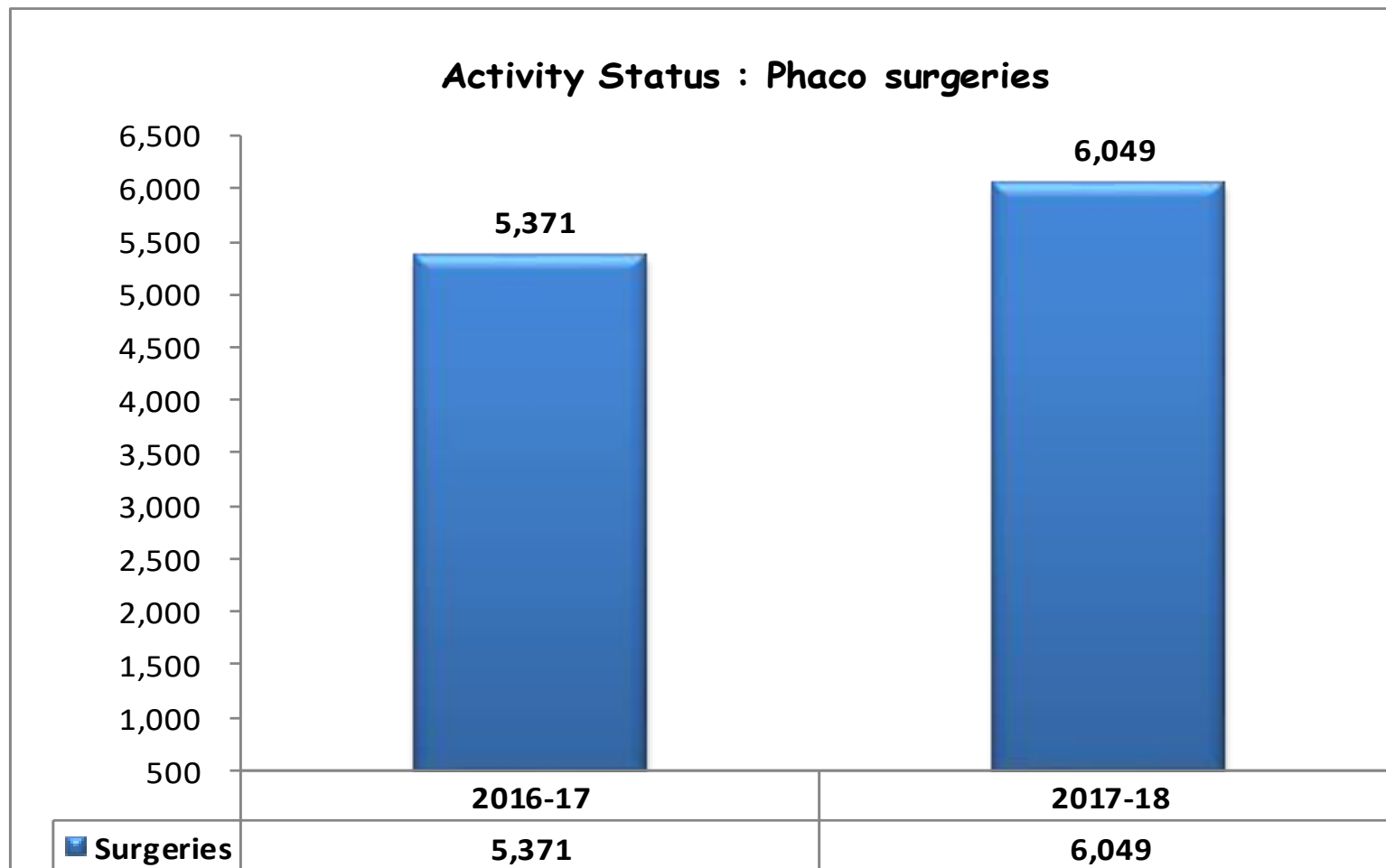
Surgery performance for Twelve Months [April - Mar]

Department wise Surgeries Graph

FY 2016-17 & FY 2017-18



Activity Status – Phaco Surgeries



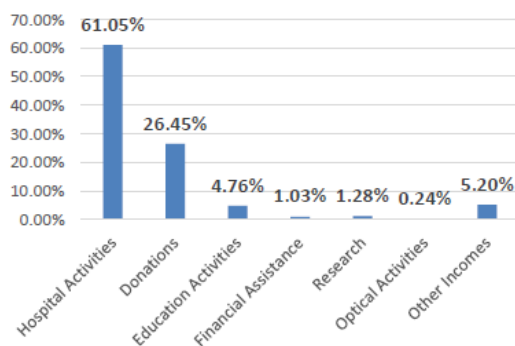
Surgery performance for Twelve months [April – Mar]

Revenue FY 15-16 to FY 17-18

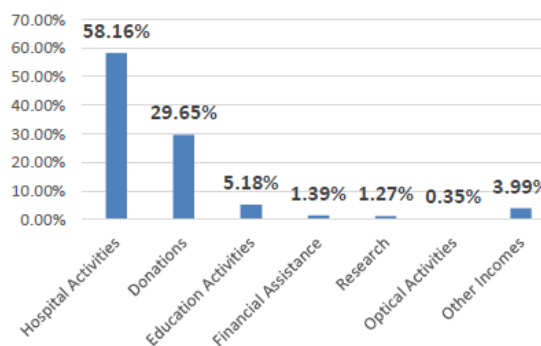
PBMA's H V Desai Eye Hospital

	2017-18	2017-18	2016-17	2016-17	2015-16	2015-16
Hospital Activities	1,789.72	61.05%	1,467.91	58.16%	1,363.79	67.59%
Donations	775.49	26.45%	748.24	29.65%	377.00	18.68%
Education Activities	139.41	4.76%	130.84	5.18%	101.92	5.05%
Financial Assistance	30.05	1.03%	35.13	1.39%	60.77	3.01%
Research	37.43	1.28%	32.15	1.27%	37.25	1.85%
Optical Activities	6.99	0.24%	8.77	0.35%	13.11	0.65%
Other Incomes	152.32	5.20%	100.82	3.99%	63.83	3.16%
	2,931.41	100.00%	2,523.86	100.00%	2,017.67	100.00%

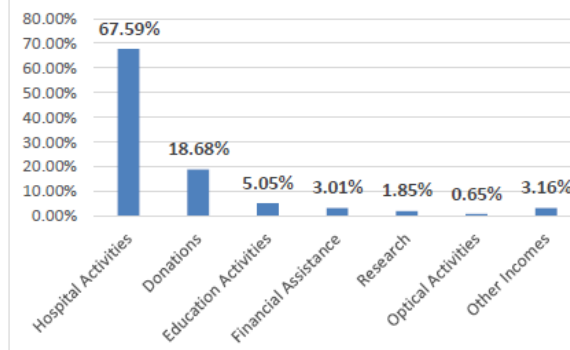
HVDEH - Income Analysis F.Y. 2017-18



HVDEH - Income Analysis F.Y. 2016-17

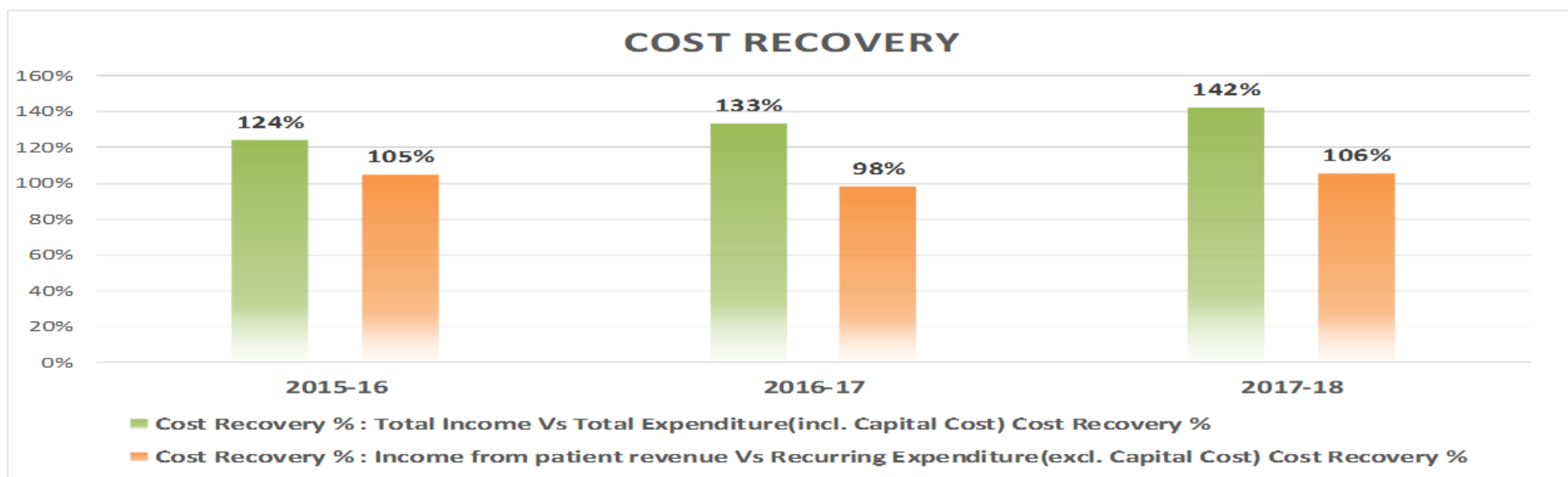


HVDEH - Income Analysis F.Y. 2015-16



Cost Recovery Statistics

Financial Year	Cost Recovery % : Total Income Vs Total Expenditure(incl. Capital Cost)	Cost Recovery % : Income from patient revenue Vs Recurring Expenditure(excl. Capital Cost)	Activity Status %	
			Free & Subsidised Surgery	Paid Surgery
2015-16	124%	105%	70%	30%
2016-17	133%	98%	66%	34%
2017-18	142%	106%	64%	36%



CASE STUDY:
Clínica Oftalmológica
Divino Niño Jesus, Peru

Alberto Lazo Legua

Executive Director, Clínica Oftalmológica Divino Niño Jesus



Brand

Pricing

Patient
Experience

Branding

- Shift from charity
- Reflect wide-range of services available
- Cater to different social demographics

Brand

Pricing

Patient
Experience

Pricing

- Patient study
- Patient willingness to pay 50 soles from 30 soles

Brand

Pricing

Patient
Experience

Patient Experience

- Need for signage
- Easy ways for patients to reach the clinic

Overview of Environmental Sustainability

Cassandra L Thiel, PhD

16 September, 2018 – IAPB COMs, Hyderabad India

Sustainability: Practices today for tomorrow

Author has no financial disclosures or conflicts of interest related to this topic. Images are not meant to support or criticize any particular company, product, or health system.



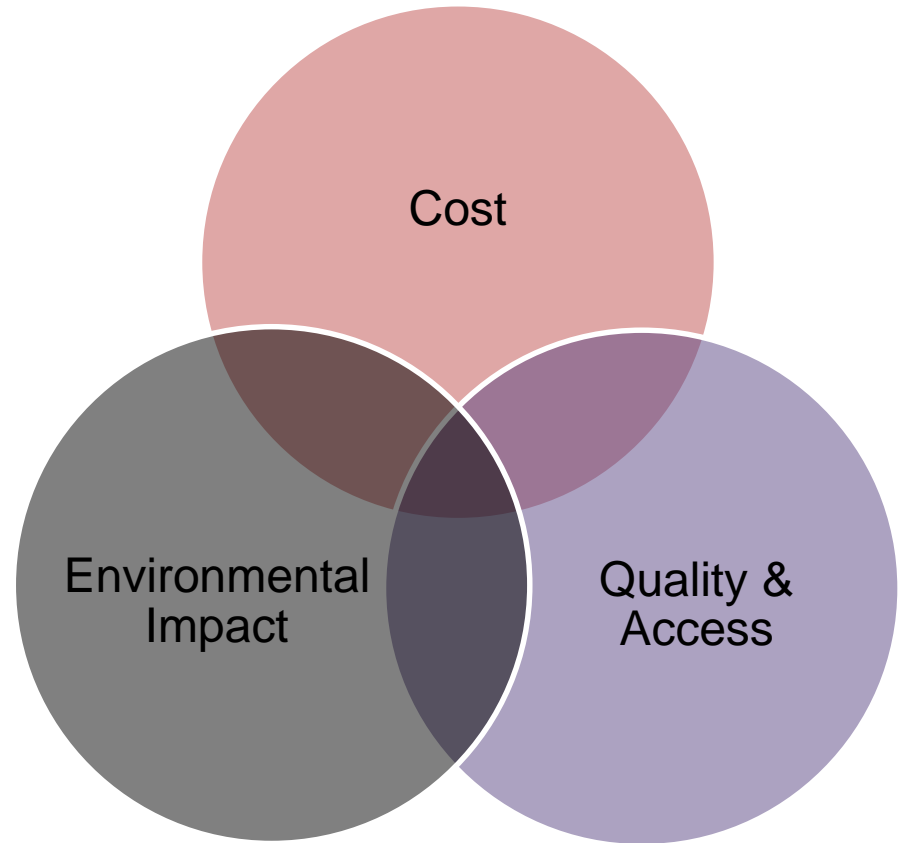
Sustainability

Addressing human industrial systems and consumption so that we “meet our needs without compromising future generation’s ability to meet their needs.”

-Bruntland Report, 1987

THE “TRIPLE BOTTOM LINE”

- People (Equity),
- Profit (Economy),
- Planet (Environment)



United Nation's Sustainable Development Goals (SDGs)



QUESTION 1:

Is environmental sustainability an important topic for ophthalmologists to be concerned about? (Why or why not?)



Climate Change or Global Warming



Consumption of Plastics

Healthcare creates

- 10% of US's GHGs
- 5% of UK's GHGs
- 7% of Australia's GHGs

Sustainable Development Unit. (2016). Carbon Footprint update for NHS in England 2015. Retrieved from http://www.sduhealth.org.uk/documents/publications/2016/Carbon_Footprint_summary_NHS_update_2015_final_v2.pdf

Malik, A., Lenzen, M., McAlister, S., & McGain, F. (2018). The carbon footprint of Australian health care. *The Lancet Planetary Health*, 2(1), e27-e35. doi:[https://doi.org/10.1016/S2542-5196\(17\)30180-8](https://doi.org/10.1016/S2542-5196(17)30180-8)

“If the US health care sector were itself a country, it would rank **13th in the world for **GHG emissions**, ahead of the entire U.K.”**

Eckelman, M. J. and J. Sherman (2016). "Environmental Impacts of the U.S. Health Care System and Effects on Public Health." *PLoS ONE* 11(6): e0157014.



“Tackling climate change could be the greatest global health opportunity of the 21st century.”

Watts N, Adger WN, Agnolucci P, et al. Health and climate change: policy responses to protect public health. *Lancet* 2015; published online June 23. [http://dx.doi.org/10.1016/S0140-6736\(15\)60854-62](http://dx.doi.org/10.1016/S0140-6736(15)60854-62).

Costello A, Abbas M, Allen A, et al. Managing the health effects of climate change: *Lancet* and University College London Institute for Global Health Commission. *Lancet* 2009; 373: 1693–733.

Beyond that, climate change affects our patients' health and the quality of the care we provide.

Image: Evacuation of NYU Medical Center during Hurricane Sandy, 2012



#ClinicallySustainable
@CassandraThiel

The Carbon Footprint of Cataract Surgery (in the UK)

- A single phacoemulsification emits about 180kg CO₂-equivalents (this is about one week of “living” for the average Brit).
- Over 50% of these GHG emissions originates in procurement of supplies.
- Supplies are largely single-use disposables.

How can we improve sustainability in eye care and eye health?

Morris, D. S., T. Wright, J. E. A. Somner and A. Connor (2013). "The carbon footprint of cataract surgery." *Eye*(27): 495-501.

Eye (2013), 1–7

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www.nature.com/eye

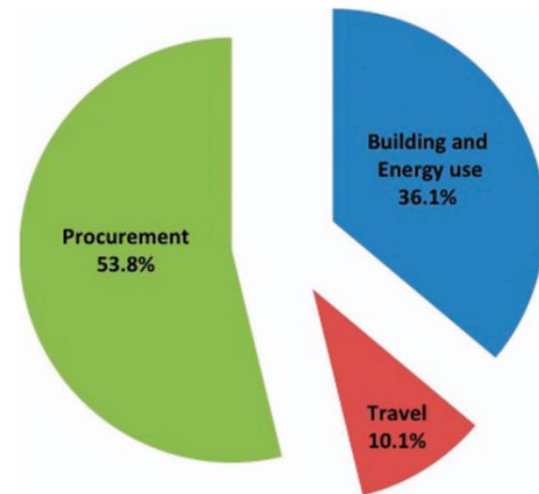


Figure 2 The carbon footprint of a patient undergoing first eye cataract surgery divided into primary sectors of GHG emissions.

Venkatesh, R., S. W. van Landingham, A. M. Khodifad, A. Haripriya, C. L. Thiel, P. Ramulu and A. L. Robin (2016). "Carbon footprint and cost-effectiveness of cataract surgery." *Current Opinion in Ophthalmology* 27(1): 82-88.

QUESTION 2:

What would a "sustainable ophthalmology" practice look like?

A Note about Aravind Eye Care System, the Special Case in this Study

Rangan VK, Thulasiraj RD. Making Sight Affordable (Innovations Case Narrative: The Aravind Eye Care System). Innovations: Technology, Governance, Globalization 2007;2(4):35-49.

Rangan VK. The Aravind eye hospital, Madurai, India: in service for sight: Harvard Business School, 1993.

Haripriya A, Chang DF, Reena M, Shekhar M. Complication rates of phacoemulsification and manual small-incision cataract surgery at Aravind Eye Hospital. J Cataract Refract Surg 2012;38(8):1360-9.

TED talk: https://www.ted.com/talks/thulasiraj_ravilla_how_low_cost_eye_care_can_be_world_class



Aravind by the Numbers.

Rates for Phacoemulsification at Aravind Eye Hospital, India²

300,000 *Cataract Surgeries
per Year*

1.1% *Intra-op
Complication Rate*

0.6% *Posterior Capsule
Rupture*

96% *Corrected Distance
Visual Acuity
(6/12 or better)*

0.04% *Rates of
Endophthalmitis*

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#Cl @CassandraLThiel @CassandraLThiel



Waste Generation in the OR

1 Cataract Removal, Phaco
(USA)

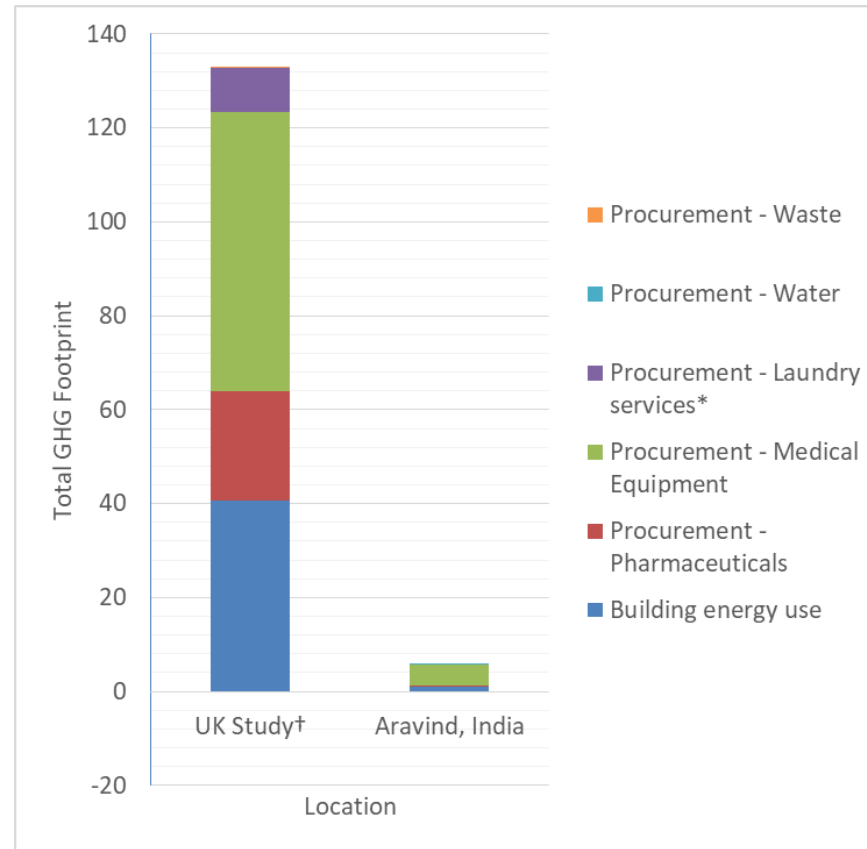
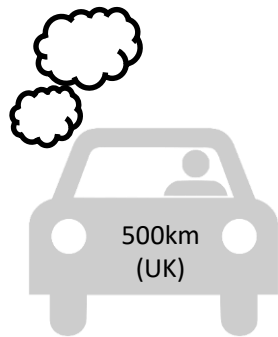


93 Cataract Removals, Phacos
(Aravind, India)



Awarded "best paper" at American Academy of Ophthalmology's (AAO) Annual Meeting. Chicago, IL. 2016

Carbon Footprint of Average Single Phacoemulsification at Aravind and the UK



Published in: Thiel, C., et. al (2017). Cataract surgery and environmental sustainability: Waste and lifecycle assessment of phacoemulsification at a private healthcare facility. *Journal of Cataract & Refractive Surgery*, 43(11), 1391-1398. doi: <https://doi.org/10.1016/j.jcrs.2017.08.017>

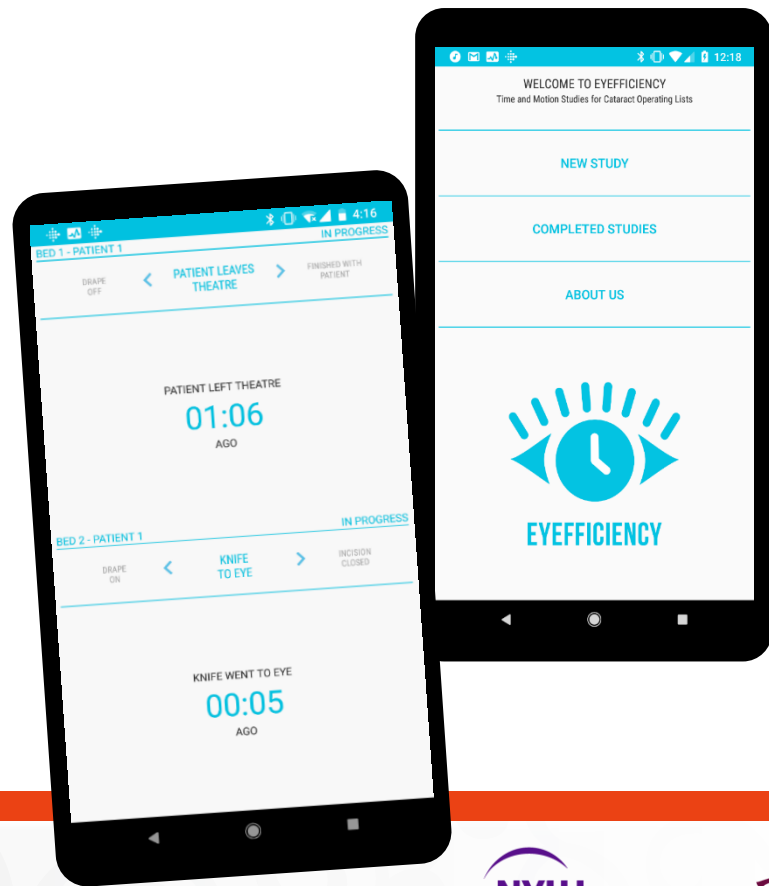
†Modified to match system boundaries, from Morris, D. S., T. Wright, J. E. A. Somner and A. Connor (2013). "The carbon footprint of cataract surgery." *Eye*(27): 495-501.

Ongoing Sustainability Efforts

Eyefficiency Cataract Surgical Auditing Tool Benchmarks a unit's

- Throughput
- Cost per Case
- Waste Generation
- Carbon Footprint

Currently beta testing
Preparing for general
release in 2020!



Thank You Team!

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The National Science Foundation
International Agency for the Prevention of
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Centre for Sustainable Healthcare
Coalition for Sustainable Healthcare &
Environmental Resources Management
US-India Exchange Foundation (Fulbright
Commission)



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CASE STUDY:

Honiara, Solomon Islands

CASE STUDY:

Honiara, Solomon Islands

sustainable infrastructure

Neil Murray

Acknowledgement: The Fred Hollows Foundation
NZ

The brief

- Honiara, Solomon Islands
- new national eye clinic and day stay theatre complex
- single storey, roof 800 square metres
- developed world standard air conditioning

The problems

hot and wet

unreliable power and water supply

temperature: average 26.6 degrees centigrade

humidity: average 79%

rainfall: average 2171mm

national grid power: average 10 power outages
per day/expensive

municipal water: frequent pipe/supply/quality
problems

The solutions

100KwH solar power system

400 roof mounted solar panels
with battery storage and
generator back up

designed to deliver 94% of
anticipated power usage

roof water tank storage
20,000 litres (filtered)



The outcomes

power:

annual average supply 70,000 Kwh

more than 96% of the facility's power requirements

pay back solar investment within 5 years

The outcomes

water:

self sufficient for all water needs

high water quality – monitored on site

The learnings

adequate roof space for solar sufficiency is also
adequate for water sufficiency (2015 rule of thumb)

surge free value add: clean power protects
sophisticated electronic equipment extends
working life

clean high quality adequate water: protection for
equipment and instruments and against waterborne
contamination/infection

TYING IT ALL TOGETHER

Discussion Questions

1. What changes have you or your organization tried to implement to improve financial or environmental sustainability? (What were the outcomes?)
2. After this session, what is one thing you will try to improve the financial and/or environmental sustainability of your organization?



CENTRE *for*
SUSTAINABLE
HEALTHCARE
inspire • empower • transform

Online forums by specialty:
<http://networks.sustainablehealthcare.org.uk>

Royal College
Sustainability Work Group



The ROYAL COLLEGE of
OPHTHALMOLOGISTS



International Organization
with GGHH forum and
Annual CleanMed
Conference

IAPB Environmental
Sustainability Work Group



Other Ophthalmology Sustainability Events and Groups

International Agency for Prevention of Blindness (IAPB)



Newly formed Sustainability Working Group

Their 2020 General Assembly in Auckland New Zealand will have a “Sustainability” theme

Aravind Eye Hospital in Pondicherry hosting a summit on “Eye Care Delivery and Environmental Impact – Creating Environmentally Sustainable Eye Care Delivery”



21 & 22 September, 2018