

## Summary

- Cleveland Clinic is committed to information transparency: tracking, monitoring and publishing annual outcomes reports by specialty, providing detailed data on the volumes of activity delivered and the outcomes achieved
- Although Cleveland Clinic is a multi-specialty hospital system, individual specialties (institutes) have a high degree of independence:
  - financial accountability
  - dedicated resources
  - research programmes
- Cleveland Clinic has a number of organisation-wide, cross-specialty departments to support continuous improvement:
  - patient experience
  - quality and patient safety
  - connected care – covering post-discharge services and care
  - Global Center for Health Innovation
- Cleveland Clinic has developed a number of innovations to improve patient experience including:
  - perioperative patient navigators
  - preassessment closer to home
  - patient experience dashboard

## Delivery model

- Not-for-profit, multi-specialty academic medical centre and hospital system based around 14 relatively autonomous specialist clinical institutes with dedicated facilities, staff and budgetary responsibility
- Acts as a secondary care provider locally as well as a national and international referral centre
- All medical staff are directly employed on an annual contract basis

## Background and history

- Cleveland Clinic was established in the 1920s and is now one of the largest hospital systems in the USA with high rankings for many specialties in the America's Best Hospital survey

## Health system context

- The USA has a mixed model of insurance coverage, with public funds covering the elderly, disabled and low income groups through CMS-administered Medicare and Medicaid programmes managed by federal and/or state governments
- Cleveland Clinic serves patients from all insurance groups

<sup>1</sup> This case review was externally commissioned. Sources included site visits, interviews and review of company reports/information systems. Specific international sources are given where appropriate.



## Cleveland Clinic overview

- Not-for-profit multi-specialty academic medical centre
- One main campus with 1,440 beds and 14 clinical institutes
- Eight community hospitals (3,000 beds)
- ~100 operating theatres
- 90 outpatient sites
- Two international sites (Dubai, Toronto)
- \$6.5 billion annual revenues
- \$248 million/year research spend; 2,200 ongoing clinical trials
- 1,800 residents/fellows (in 2013)
- 43,400 staff – all directly employed

<sup>1</sup> Full time faculty

<sup>2</sup> Except critical public holiday

<sup>3</sup> 14 full-time; 9 part-time

## Orthopaedics and Rheumatologic Institute overview

- Ranked third for orthopaedics and second for rheumatology in America's Best Hospitals Survey, 2014/15, US News & World Reports
- **Clinical services:**
  - institute full-time faculty:
    - 60 orthopaedic surgeons<sup>1</sup> (54 orthopaedic; 6 spine)
    - 32 rheumatologists
    - 12 MSK radiologists
    - 24 specialist orthopaedic surgical nurses
    - 9 podiatrists; 10 sports and exercise physicians; 5 medical orthopaedists; 3 physiatrists (physical medicine and rehabilitation)
  - six operating theatres assigned to orthopaedic surgery:
    - 9- to 10-h theatre day (7:30 am to 4 or 5:30pm), 5 days/week, 52 weeks/year<sup>2</sup>
    - 21,000 surgeries/year (on all sites)
    - >485,000 clinic visits
- **Orthopaedics teaching and research:**
  - >\$50m in total research support (including \$24 million NIH funding):
    - 32 clinical research faculty
    - 23 support staff<sup>3</sup>
    - 65 externally-funded research projects in orthopaedic surgery
  - extensive training and education

# Cleveland Clinic Cole Eye Institute



## Clinical research

- >\$10.2 million research funding in 2013:
  - \$5.9 million from federal sources
- \$10 million in new grants in 2013 to support the institute's Ophthalmic Imaging Center:
  - new, prototype intraoperative integrated optical coherence tomography (OCT) in research use
- \$2 million 5-year NIH Eye Institute grant for early diagnosis and patient-specific therapy of the cornea
- Louise Timken Microsurgical Education Laboratory opened in July 2013 for training surgical residents and fellows

## Cole Eye Institute

- Ranked seventh for ophthalmology in America's Best Hospitals Survey, 2014/15, US News & World Reports

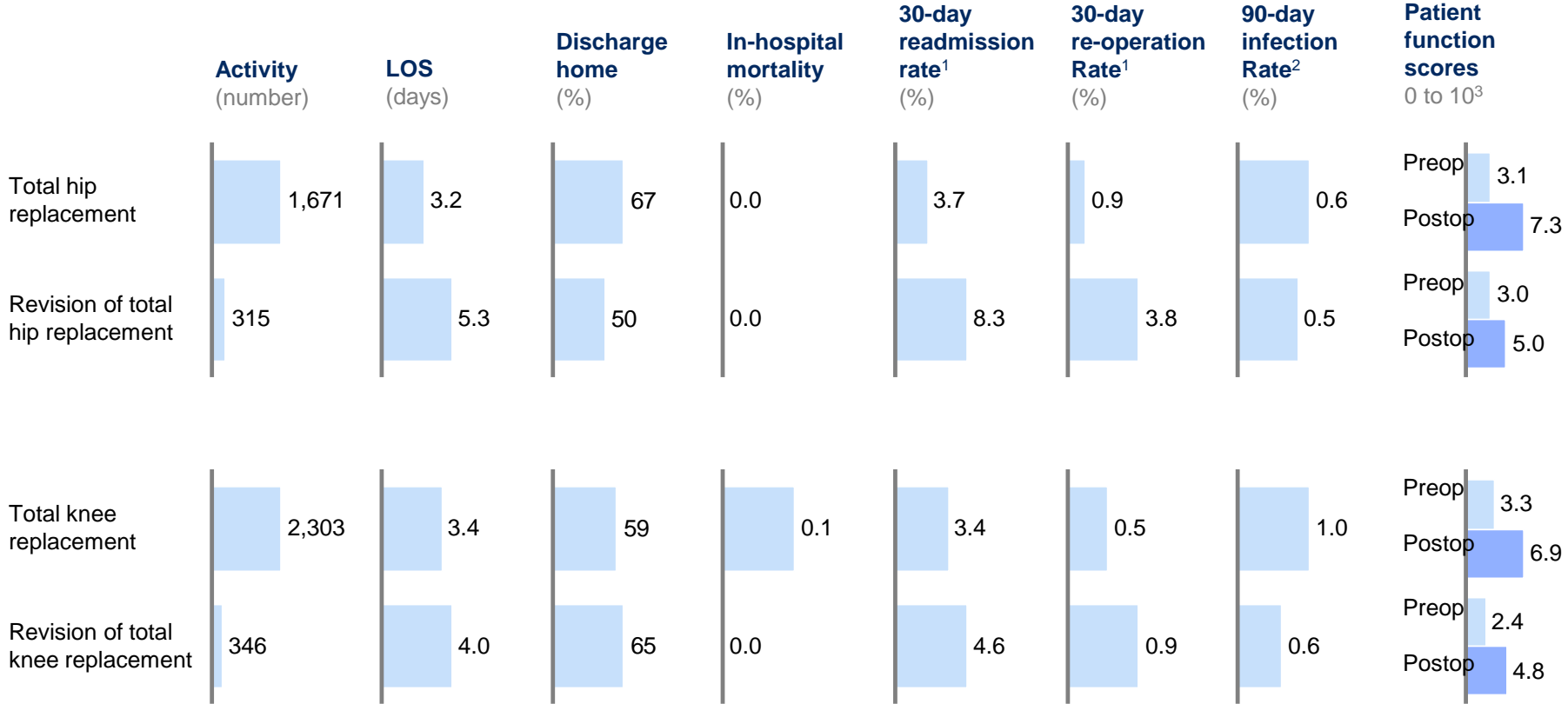
## Clinical services:

- 45 ophthalmologists and researchers almost all of whom are sub-specialists:
  - cornea and external disease
  - glaucoma
  - keratorefractive surgery
  - neuro-ophthalmology
  - oculoplastics
  - orbital surgery
  - ophthalmic oncology
  - paediatric ophthalmology
  - adult strabismus
  - vitreoretinal care
- Dedicated site with five day surgery operating theatres plus one operating theatre for paediatric ophthalmology:
  - 10,143 surgical procedures/year
    - 8,247 surgeries (in theatres)
    - 1,896 outpatient surgical procedures
  - 2,042 laser procedures/year
  - 189,999 clinic visits/year
  - 9-h theatre day (7:30am to 4:30pm), 5 days/week, 52 weeks/year<sup>2</sup> – parallel lists one day/week

# Cleveland Clinic: Activity and outcomes for selected joint replacement pathways



Data for 2013



<sup>1</sup> Within 30 days of discharge.

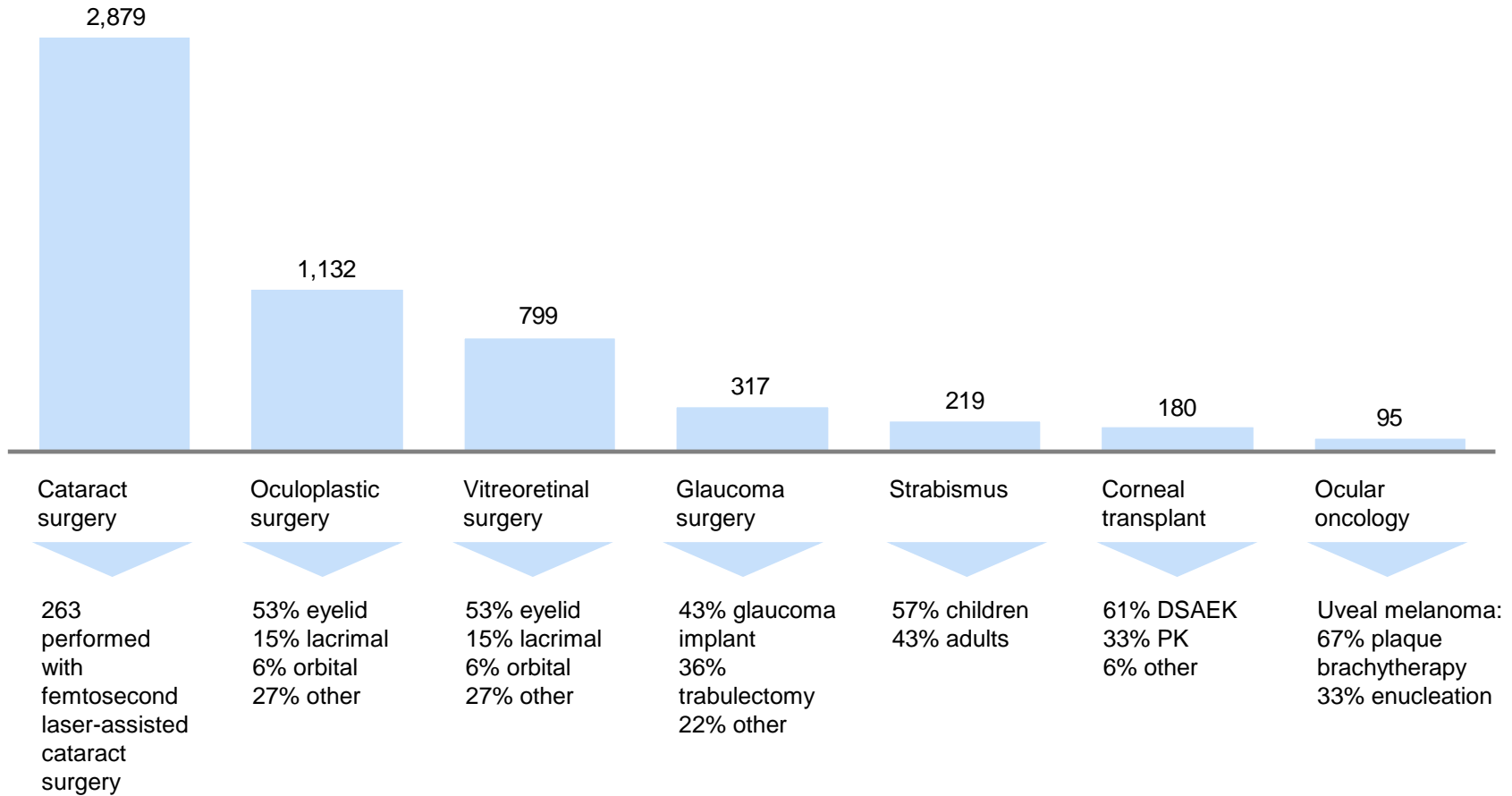
<sup>2</sup> Within 90 days of surgery.

<sup>3</sup> Patient function scores are measured preop and 90 days postop. The instrument measures how much physical activity (eg daily activities, housework, work outside the home and exercising) are free from limitations due to leg problems. Scores ranges from 0 (extreme limitations, low function) to 10 (no limitations, high function)

# Cole Eye Institute's surgical activity by sub-specialty

## Surgical operations at Cole Eye Clinic by sub-specialty, 2013

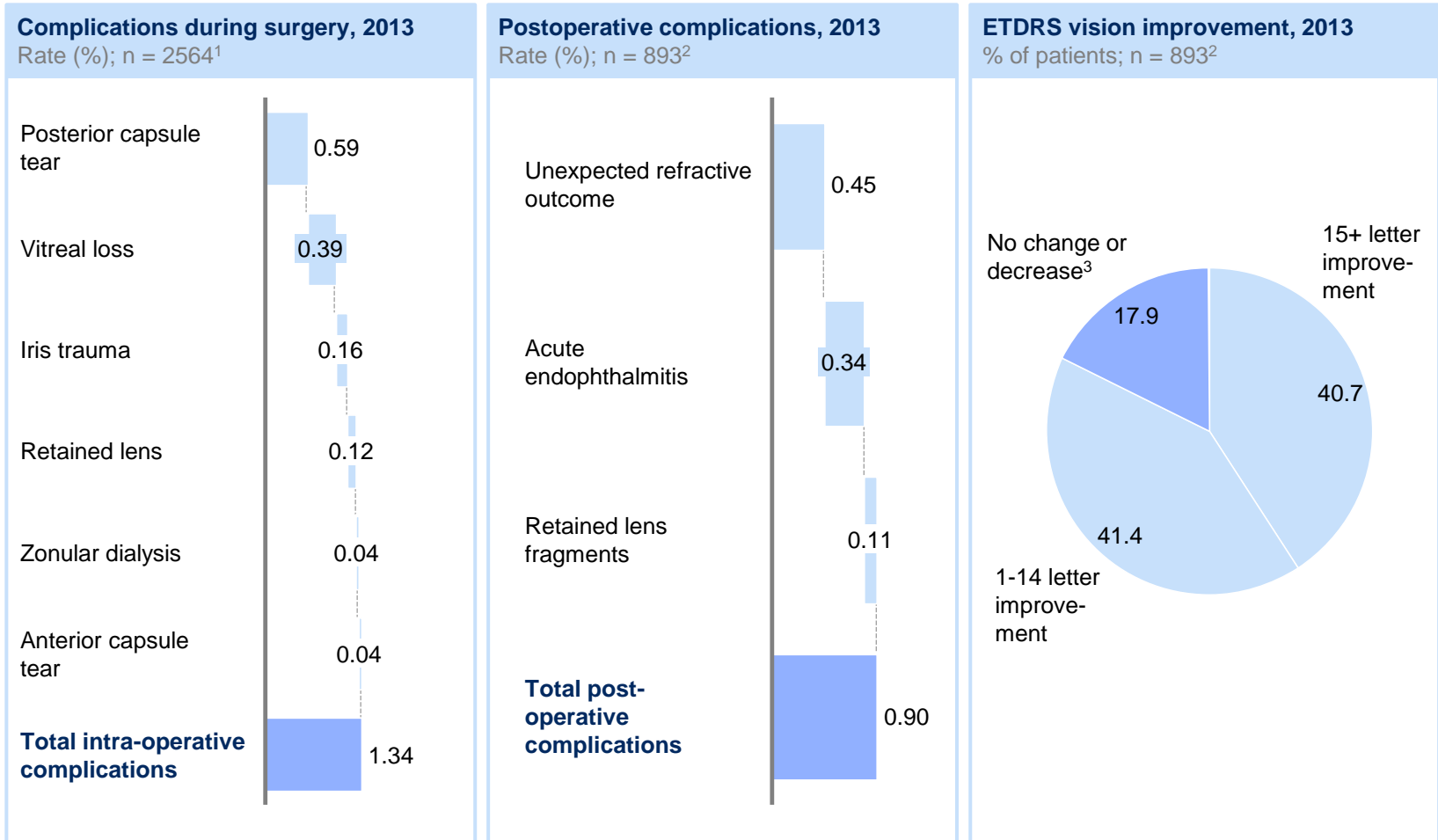
Number of operations



DSAEK, Descemet's stripping automated endothelial keratoplasty - lamellar corneal transplant procedure in which only the diseased portion of the cornea is replaced; PK, penetrating keratoplasty

Note: excludes refractive surgery

# Cole Eye Institute's outcomes for cataract surgery



ETDRS, Early Treatment Diabetic Retinopathy Study visual acuity protocol

<sup>1</sup> Patients for whom full outcomes recorded (89% of cataract procedures performed)

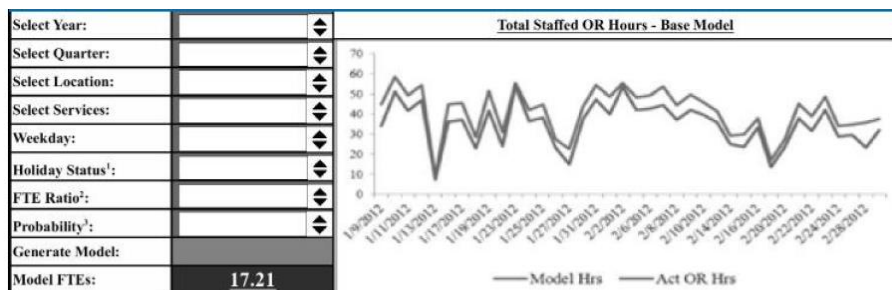
<sup>2</sup> Outcomes tracked in patients returning for follow-up within 12 months

<sup>3</sup> Some patients had other disorders of the eye (in addition to cataract) such as glaucoma, retinal disease or anterior segment disease, and other clinical co-morbidities, which may explain limited visual improvement in some patients.



# Cleveland Clinic has developed a model to predict staffing needs, manage costs and support effective recruitment practices

## Operating theatres staffing model based on real-time case hours



Metric	Min, Max, Avg			Staffing Model Calculations					
	Min	Max	Avg	M-F	Mon	Tue	Wed	Thu	Fri
Avg Daily Hours	8.90	58.50	41.06	<b>41.06</b>	42.73	45.52	40.27	46.30	29.72
Standard Deviation			11.24	<b>11.24</b>	7.96	9.20	7.54	9.35	13.46
Avg ORs Running	2	5	4.53	<b>4.53</b>	4.63	4.63	4.75	5.00	3.57
Hours per OR	4.45	11.70	9.07	<b>9.07</b>	9.24	9.84	8.48	9.26	8.32
Base Model Hours	8.90	58.50	41.06	<b>47.36</b>	46.01	46.52	45.84	46.58	48.28
Productivity <sup>4</sup>			84.4%						
Base Model FTEs	3.20	21.02	14.76	<b>17.02</b>	16.53	16.72	16.47	16.74	17.35
Adj Hours				<b>7.50</b>	1.50	1.50	1.50	1.50	1.50
Adj Model FTEs	3.20	21.02	14.76	<b>17.21</b>	16.72	16.91	16.66	16.93	17.54

Staffing Model - Manual Adjustments						
Adjustment Description:	Mon	Tue	Wed	Thu	Fri	Total
#1 Non-Direct-Care Activities	1.5	1.5	1.5	1.5	1.5	7.50
#2						0.00
#3						0.00
#4						0.00

\*Model Includes: OR01, OR02, OR03, OR04, OR05

**Staffing Model Notes**  
<sup>1</sup> Selecting 'Non-Holiday' status excludes the full week associated with any CCF holiday.  
<sup>2</sup> FTE Ratios are based on best available literature; changes must be approved by Senior Director of Nursing.  
<sup>3</sup> Standard probability factor for all CCF OR staffing models = 66%. Exceptions may be approved by Senior Director of Nursing.  
<sup>4</sup> Actual (billable) in-room hours divided by base model hours.

## How the model works

- **Step 1:** number of operating theatres x theatre opening hours/week x nursing staff required per theatre (2.2 to 2.7)<sup>1</sup> = **total working hours required**
- **Step 2:** nursing working hours per week x 52 (weeks/year) adjusted for benefit relief (25%)<sup>2</sup> = **FTE hours/year**
- **Step 3:** (total working hours required)/(FTE hours/year) = **minimum FTEs required for direct patient care in theatres**
- **Step 4:** FTEs required split between registered nurses and surgical technicians

## Other applications

- Equivalent staff planning models developed for:
  - day case surgery
  - post-anaesthesia care units (recovery rooms)<sup>3</sup>
  - support services<sup>4</sup>
  - sterile processing<sup>5</sup>

## Impact

- **Patient outcomes:** significant untoward events in theatre fell by 65% (from 17 in 2009 to 6 in 2011, and have continued to fall)
- **Managerial processes and staff satisfaction:**
  - approval-to-hire time fell by 45% from 18.8 to 10.3 days
  - positions approved increased from 46% to 81%
  - managers "feel much more comfortable operating in 'lean' mode because they know needed positions will be approved quickly"
  - employee engagement score rose from 3.71 to 3.85 in one year
- **Theatre nursing costs:** fell by 3% in the first year (2010/11)

<sup>1</sup> The requirement is service line (specialty) specific, calculated as: 2 (base level) plus adjustment factor defined by historical demand to add additional staffing resource (for patient safety requirements and technology complexity). 2.7 is requirement for vascular surgery due to high proportion of patients requiring moderate sedation.

<sup>2</sup> Set as 25% for all service lines to account for all breaks and time off.

<sup>3</sup> Based on clinical guidance of the American Society of Peri-Anesthesia Nurses.

<sup>4</sup> Based on square footage cleaning capacity from national environmental services companies.

<sup>5</sup> Based on time studies to measure production/capacity.

# Cleveland Clinic's patient experience dashboard allows real-time monitoring of survey results and feedback trends



- The Office of Patient Experience (OPE) collects and analyses patient feedback from several sources to provide greater insight into how patients perceive their experience
- The OPE maintains a patient experience dashboard for hospital leaders to monitor real-time survey results and feedback trends specific to their areas, and to help prioritise improvement initiatives



# Cleveland Clinic's approach to improving patient experience



	Description
<b>Best practices</b>	<ul style="list-style-type: none"> <li>• Monitors national and local HCAHPS trends to identify how the top performing hospitals identify and maintain success</li> <li>• Consult with Cleveland institutes and community hospitals to identify, implement, promote best practices</li> </ul>
<b>Patient survey administration and data analysis</b>	<ul style="list-style-type: none"> <li>• Collects and analyses patient feedback from several sources to provide greater insight into how patients perceive their experience</li> <li>• Maintains the patient experience dashboard</li> </ul>
<b>Ombudsman</b>	<ul style="list-style-type: none"> <li>• Liaison between the Cleveland Clinic and the patient to resolve problems that may arise during the course of treatment</li> </ul>
<b>Patient experience forums</b>	<ul style="list-style-type: none"> <li>• Cleveland Clinic employees participate in deeper discussions about key patient experience issues</li> <li>• Representatives from every Cleveland Clinic community hospital, outpatient health centre and main campus</li> </ul>
<b>Patient experience teams</b>	<ul style="list-style-type: none"> <li>• Multidisciplinary, collaborative teams of unit-based carers who meet regularly to review patient comments from surveys and create action plans to address negative comments as necessary</li> </ul>
<b>Exceptional healing partners</b>	<ul style="list-style-type: none"> <li>• Employee recognition programme that celebrates 12 employees every year who consistently anticipate and exceed patient and family expectations and embody Cleveland Clinic values</li> </ul>
<b>Health literacy education and solutions</b>	<ul style="list-style-type: none"> <li>• Provides literacy information and education to patients to help them better understand how to make appropriate health decisions</li> </ul>
<b>Communicate with H.E.A.R.T.</b>	<ul style="list-style-type: none"> <li>• Customer service training programme that helps employees address patient and family concerns and questions at the point of service (Hear the story; Empathize; Apologize; Respond to the problem; Thank them)</li> </ul>
<b>Voice of the Patient Advisory Councils (VPAC)</b>	<ul style="list-style-type: none"> <li>• More than 15 VPACs meet regularly to discuss a variety of issues and challenges facing patients</li> <li>• Allows staff the opportunity to hear directly from the people they service</li> </ul>
<b>Cleveland Clinic experience</b>	<ul style="list-style-type: none"> <li>• Organisation-wide initiative designed to integrate exceptional employee and patient experiences</li> <li>• Comprises three interactive learning sessions discussing Cleveland Clinic's mission, values, expectations</li> </ul>

# Cleveland Clinic takes a system-level approach to quality, value and improving patient experience

## Description

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### Standardisation

- Patient pathways
- Procurement

- **Patient pathways:**
    - Cleveland Clinic has developed proprietary pathways for most procedures
    - physicians must **justify deviations from the pathway**
    - **deviations, and the reasons for them, are continuously monitored** and reviewed (by specialty-level institutes and departments) to determine if pathways need to be improved, updated or amended
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### Rigorous outcomes measurement and follow-up

- **Unblinded physician-level data** on a range of key performance indicators available with a **48-h time lag** to all faculty in a department
  - **Performance dashboard** acts as a prompt and shared evidence base for performance dialogue between department/institute leadership teams and Cleveland Clinic Surgical Services team
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### Employment model

- All physicians are employed on **annual contracts**
  - **Institute leadership** (chairs and department heads) **are accountable** for the performance of their services so have a clear incentive to manage the performance of their department faculty
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### Culture

- Patient experience
- Continuous improvement

- **Patient experience:**
  - defined as a core strategic priority with its own office, leadership (reporting direct to CEO) and budget (\$6.4 million); training and engagement for all staff to champion patient experience
  - continuous benchmarking against other leading organisations for patient satisfaction: best practices programme monitors national and local HCAHPS trends to maintain and sustain improvements
- **Continuous improvement:**
  - staff trained in 6 Sigma lead 'task forces' to mobilise physicians and other employees into 100s of teams to address specific expenses