Cedars–Sinai Health System: Approach to Efficiency, Effectiveness and Appropriateness

Georgia Regents University
Cedars–Sinai Medical Center

Founded 1902
960 beds
~11,000 employees, 2,100 Medical Staff; 2,000 volunteers; 400 faculty; 470 research staff; 490 residents/fellows; 700 med student rotations
Level I Trauma Center
6–7,000 babies delivered/year
On average, every day we serve: 750+ inpatients; 270 ER patients; 120+ surgeries; 1,400+ outpatient visits & procedures
Health Care in Los Angeles 2014

• Medicare patients ↑

• Medicare Advantage patients ↑
  ◦ 37% today in CA

• Narrow networks
  ◦ Dual eligibles will migrate to managed care
  ◦ Public exchanges
  ◦ Private exchanges
  ◦ Employer defined contribution
What Others Are Doing: Payers

---

**1. Los Angeles Times**

Cedars-Sinai and UCLA cut from Los Angeles health plan

*About 2,200 city workers and family will lose their doctors as Anthem Blue Cross pare down pricey providers.*

**2. Los Angeles Times**

Insurers limiting doctors, hospitals in health insurance market

*Insurers in California’s new health insurance exchange are holding down premiums by limiting choices, raising concerns that patients will struggle to get care.*

---

- Potential disruption from private exchanges and narrow networks.
- In 2011, less than 10% of companies used “High Performing Networks” (narrow networks) and in 2014 estimated to be 40%.
- By 2018, that of the 170 million members currently enrolled in company sponsored health plans, 25-40% are projected to be enrolled in private exchanges.

---

**Narrow Network Example, California**

- UCLA Medical Center is available only through Anthem Blue Cross and Health Net plans.
- Only 36% of Blue Shield of California’s typical physician network will be included in its exchange plans.
- Cedars-Sinai Medical Center is available only through two Health Net plans.
RE: New Cigna Product - LocalPlus®

Dear [Name],

Beginning January 1, 2014, Cigna will offer the LocalPlus® product suite to customers in Southern California’s five counties: Los Angeles, Orange, Riverside, San Bernardino, and San Diego. LocalPlus is a new product with a smaller network of health care professionals. The product will give employers and individuals in Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties a new option to access quality, cost-effective health care. The LocalPlus product suite includes LocalPlus, LocalPlus IN, Choice Fund LocalPlus, and Choice Fund LocalPlus IN plans.

While you continue to be a participating health care professional in other Cigna networks, you were not selected to participate in the LocalPlus product network.

We appreciate the care you provide to your patients with Cigna medical coverage, and realize that your patients look to you for advice with their health care decisions. You can help your patients maximize the benefits available through their medical plan and minimize their out-of-pocket expense by referring them to health care professionals participating in the LocalPlus network.
Health Care in Los Angeles 2014

- Consolidation of markets

- Coordination challenges—Population Health
  - Primary Care shortage; team approach (Medical Home)
  - EHR—"one patient, one record"
  - "Health and Appiness"

- Financial challenges
  - Decrease total cost of care
  - Funding the academic enterprise

- Consumerism—more transparency
Physician Data (2010–2011)

Prostate Removal Surgery (incl TURP): Utilization and Readmission Rates

<table>
<thead>
<tr>
<th>Procedures (n)</th>
<th>Mean Cost</th>
<th>Readmission Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phys. C</td>
<td>$6,396</td>
<td>3.1%</td>
</tr>
<tr>
<td>Phys. D</td>
<td>$6,114</td>
<td>6.9%</td>
</tr>
<tr>
<td>Phys. E</td>
<td>$6,776</td>
<td>7.7%</td>
</tr>
<tr>
<td>Phys. F</td>
<td>$6,405</td>
<td>22.7%</td>
</tr>
<tr>
<td>Phys. G</td>
<td>$6,347</td>
<td>9.5%</td>
</tr>
<tr>
<td>Phys. H</td>
<td>$10,075</td>
<td>9.5%</td>
</tr>
</tbody>
</table>

Source: engage2Health; standard analytic Medicare files (2010 and 2011); metrics have not yet been adjusted for severity of condition at admission
Back & Neck – Spinal Fusion: Utilization and Readmission Rates

**Volume (# Medicare Procedures)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cedars-Sinai Average</td>
<td>102</td>
<td>76</td>
<td>71</td>
<td>62</td>
<td>62</td>
<td>68</td>
</tr>
</tbody>
</table>

**Length of Stay**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cedars-Sinai Average</td>
<td>5.5</td>
<td>4.7</td>
<td>5.8</td>
<td>6.1</td>
<td>4.2</td>
<td>6.8</td>
</tr>
</tbody>
</table>

**Total Costs**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cedars-Sinai Average</td>
<td>$44,985</td>
<td>$34,746</td>
<td>$40,211</td>
<td>$40,346</td>
<td>$33,866</td>
<td>$45,535</td>
</tr>
</tbody>
</table>

**Readmission Rate**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cedars-Sinai Average</td>
<td>5.9%</td>
<td>5.3%</td>
<td>8.5%</td>
<td>9.7%</td>
<td>4.8%</td>
<td>7.6%</td>
</tr>
</tbody>
</table>

Source: engage2Health; standard analytic Medicare files (2010 and 2011); metrics have not yet been adjusted for severity of condition at admission
Cedars–Sinai is High–Quality, Yet High–Cost

We may not agree with all the conclusions or methods, but sources show our costs to be high:

- Dartmouth Atlas
- Thomson Reuters
- UHC
- VHA

Reference: Chart "Hospital-specific one-year mortality vs. one year costs" recreated from Dr. Elliot Fisher’s presentation "The ACO Model and Health Care Reform: Integration and Accountability".

Comparative Data from Dartmouth Atlas End of Life Report

Hospital Days Last 6 Months of Life, 2010

- NY Pres
- CSMC
- UCLA
- 90th Percentile
- Brigham & women's
- HUP
- Michigan
- Hopkins
- UCSF
- Chicago
- California Average
- Hermann
- UC Davis
- National Average
- Emory
- Vanderbilt
- Stanford
- 50th Percentile
- UCSD
- 10th Percentile

Days

0 5 10 15 20 25
Healthcare is Moving from a Volume-Based System to a Value-Based System

Doing the right thing for our patients, in the right settings, with the right resources, to improve value.

\[
\text{Value} = \frac{\text{Quality}}{\text{Cost}}
\]
Guiding Principles for Cedars–Sinai Medicine

• Maintain the highest quality patient care
• Maintain a pluralistic medical staff
• Inclusiveness and transparency
• All do our part to improve efficiency
• Information drives improvement
• Continuous learning and improvement
Cedars–Sinai Medicine: Approach

Best Practices Applied to Care

Delivery Model Redesign

Utilizing Clinical Decision Support

Patient & Physician Engagement

Transparency
How Do Best Practices Increase “Value”?

1. **Best practices outline expectations** about the appropriateness of care for defined clinical conditions.

2. **Care is delivered** according to best practices, with the support of real-time decision aids and cumulative data about variations in care.

3. **Unexplained variations in care are reduced**, with a decrease in unnecessary or ineffective use of resources.

4. **Fewer resources** are used to achieve the same or better quality.

5. **The value of care rises** as the overall cost of care decreases while quality sustains or improves.
## Best Practices

### Inpatient
- COPD
- Pneumonia
- Hip & Knee Replacement
- Non-Malignant Gyn
- Stroke
- ACS/AMI
- A Fib
- Chest Pain
- OB
- Sepsis
- Spine Surgery
- Cellulitis
- Gastroenteritis/Diverticulitis
- ICU/Monitored Beds/LOC
- Urology (Male)
- Stability Criteria for Discharge
- Respiratory Therapy

### Continuum of Care
- Preventing early inductions
- PTCA appropriateness
- End of Life including a comprehensive “Human Caring Strategy”
- Frailty
- Headaches
- Hypertension
- Heart Failure
- Back Pain
- Diabetes
- Pre-procedure testing guidelines
- Chronic Pain
- Cancer
- Referral appropriateness from PMD to Specialists

### Appropriateness of Utilization
- Imaging
- Ambulatory Surgery and Procedures
- Physical Therapy
- Pharmacy (high cost therapeutics and greater use of generics)
- Pathology/High Cost Lab Tests/Duplicate testing
- Transfusion of Blood Products
Elective Delivery <39 weeks

Baseline

Interventions

CSMC Goal < 5%

N=2

N=0

N=1

N=1

N=1

N=2

N=6 (*5)


N=2
Hip & Knee Replacement

FY12: 0.95
FY13: 0.87
FY14TD: 0.85

Solid red line indicates updated baseline FY11 LOSI: 1.02
Non-Malignant Gyn

FY12: 1.05
FY13: 1.02
FY14TD: 0.96

Solid red line indicates updated baseline FY11 LOSI: 1.06
End of Life

• Improving appropriate utilization of the ICU
  - Decrease in the number of ICU admissions and ICU LOS
  - Reduce the proportion of deaths occurring in the ICU

• Implementation strategies to improve ICU utilization
  - Change in the institutional criteria to preclude admission of patients who are unlikely to derive meaningful benefit from ICU care
  - Empower physicians to be gatekeepers
  - Increase number of intermediate care units

• Increase number of patients with informed advance healthcare planning, ensuring appropriate care aimed at meeting patients’ goals and reducing deaths in the ICU

• Created new advance directive for community

• Standards of Care for Patients with Chronic Terminal Illnesses approved by MEC
FY14 – Reduce the percentage of deaths in the ICU with chronic, terminal illness to less than 31%

<table>
<thead>
<tr>
<th>EOL Summary</th>
<th>Jun '12</th>
<th>FY13</th>
<th>Jul '13</th>
<th>Aug '13</th>
<th>Sept '13</th>
<th>Oct '13</th>
<th>Nov '13</th>
<th>Dec '13</th>
<th>Jan '14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of inpatient deaths</td>
<td>76</td>
<td>1,056</td>
<td>77</td>
<td>83</td>
<td>64</td>
<td>82</td>
<td>88</td>
<td>69</td>
<td>95</td>
</tr>
<tr>
<td>% ICU deaths with chronic terminal condition</td>
<td>34.9%</td>
<td>32.2%</td>
<td>20.6%</td>
<td>20.0%</td>
<td>22.6%</td>
<td>27.90%</td>
<td>21.30%</td>
<td>20.6%</td>
<td>7.5%</td>
</tr>
<tr>
<td>% Comfort Care at Admit</td>
<td>5.3%</td>
<td>3.4%</td>
<td>5.2%</td>
<td>4.8%</td>
<td>0%</td>
<td>1.2%</td>
<td>4.5%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>% Comfort Care at Discharge</td>
<td>57.9%</td>
<td>56.7%</td>
<td>66.2%</td>
<td>55.4%</td>
<td>53.1%</td>
<td>52.4%</td>
<td>59.1%</td>
<td>41%</td>
<td>57%</td>
</tr>
</tbody>
</table>
Cedars-Sinai Medicine: Approach

- Best Practices Applied to Care
- Utilizing Clinical Decision Support
- Delivery Model Redesign
- Patient & Physician Engagement
- Transparency
Clinical Decision Support

75% of decision support interventions succeed when the information is provided to clinicians automatically, whereas none succeed when clinicians are required to seek out the advice.

<table>
<thead>
<tr>
<th>Predictors of Success</th>
<th>Adjusted OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic provision of decision support as part of workflow</td>
<td>112</td>
</tr>
<tr>
<td>Provision of decision support at the time and location of decision making</td>
<td>15</td>
</tr>
<tr>
<td>Provision of recommendation rather than just an assessment</td>
<td>7</td>
</tr>
<tr>
<td>Computer-based generation of decision support</td>
<td>6</td>
</tr>
</tbody>
</table>

“Off hand, I’d say you’re suffering from an arrow through your head, but just to play it safe, I’m ordering a bunch of tests.”
Why CDS: Quality and Cost Outcomes

• Evaluation of 167,233 patients at 41 hospitals

• Clinical decision support associated with:
  o 21% mortality reduction for pneumonia
  o 16% reduction in patient complications

<table>
<thead>
<tr>
<th>Electronic Process</th>
<th>Cost Savings Per Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision support</td>
<td>$538</td>
</tr>
<tr>
<td>Order entry</td>
<td>$132</td>
</tr>
<tr>
<td>Test results</td>
<td>$110</td>
</tr>
<tr>
<td>Notes and records</td>
<td>–$2</td>
</tr>
</tbody>
</table>

**CDS Process Approval and Implementation**

<table>
<thead>
<tr>
<th>Step 1</th>
<th>• Internal and external data sources reviewed and analyzed to determine if there is an opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2</td>
<td>• Comprehensive review of the literature and existing guidelines</td>
</tr>
<tr>
<td>Step 3</td>
<td>• Best Practice team identified</td>
</tr>
<tr>
<td>Step 4</td>
<td>• Review of the evidence and opportunity</td>
</tr>
<tr>
<td>Step 5</td>
<td>• Identification of opportunity and agreement on evidence</td>
</tr>
<tr>
<td>Step 6</td>
<td>• Development of best practice and determination of need for CDS</td>
</tr>
<tr>
<td>Step 7</td>
<td>• Approval by appropriate governance body: 1) IP - organized medical staff and 2) Amb-best practice advisory group</td>
</tr>
</tbody>
</table>
CDS Process Approval and Implementation (continued)

Step 8 • Proposal to Clinical Content Committee for Clinical Decision Support Opportunities

Step 9 • Solution finalized and built

Step 10 • Communication and education

Step 11 • Decision for Test of Change Pilot or House Wide Rollout

Step 12 • Performance analysis

Step 13 • Logic modification

Step 14 • Continued monitoring and refinement
The Hemoglobin level of this patient may not meet National Blood Transfusion Guidelines:

- Less than 7 gm/dL for patients in general, or
- Less than 8 gm/dL for patients with known cardiovascular disease

To CONTINUE placing this order, please select an indication for transfusion and click "Accept".
To CANCEL this order, please return to Order Entry using the hyperlink below and remove the order.

Note: If you select "See Comments" - please click on the paper icon (located next to magnifying glass), enter your comments, and then click on "Accept"
Last HGB: Not on file
Last HCT: Not on file

Acknowledge reason:  

Active Blood Loss  Sub-Arachnoid Hemorrhage  Sickle Cell Disease or Thalassemia
See Comments  Chemotherapy

Return to Order Entry to remove transfuse order
Blood Utilization: Red Blood Cell Transfusions Before and After Best Practice Alert (BPA) Monitoring, April 2012 to September 2013

Before Best Practice Alert (BPA)
April ‘12 to Dec. ‘12

Average Prior to BPA April ‘12 to Dec. ‘12:
335 Units RBC/Month

After Best Practice Alert (BPA)
Jan. ‘13 to Sept. ‘13

Average Post BPA Jan. ‘13 to Sept. ‘13:
315 Units RBC/Month; 6% Decrease

Data courtesy of the Blood Bank
CSMC Pilot Units: 4, 5 and 8 SE and SW
Pre-transfusion Hemoglobin 2012–2014

2012
N=753
Mean Hgb=8.0
Median Hgb=7.8
% cases Hgb≥8.1=41%

2014
N=206
Mean Hgb=7.5
Median Hgb=7.5
% Cases Hgb≥8.1=22%
Duplicate Lab Testing

Duplicate Lab Results
(N=89,274)
19,636,
22%
69,638,
78%
- MD Cancels Order
- Pt Receives Lab

239 Total Labs
High Volume:
- CBC (18,056 Orders)
- Magnesium, Serum (15,588 Orders)
- Phosphate, Blood (15,270 Orders)
- Metabolic Panel (20,724 Orders)
Duplicate Head Imaging

Duplicate Imaging Results
(N=1,998)

- 263, 13% (MD Cancels Order)
- 1,735 (Pt Receives Imaging)
**Chest PT**

**CPT Orders**

Screensavers are up

Screensavers are up and CDS live

CPT removed from order sets

Screensavers are up

- Clinical workstation screen savers are up “Stop Unnecessary Chest PT” - November 12, 2012
- Clinical workstation screen savers are down (end of Dec 2012)
- Screen savers up (Feb 2013)
- Screen Savers are down (end of March 2013)
- Screen Savers up (Nov 2013)
April 2011- December 2013; Total Xopenex Dispensed

- Guidelines and screensaver implemented
- Xopenex removed from order sets
- CDS implemented
CODE SEPSIS

Call the Code - Start the Countdown

1

*from time Code Sepsis orders written to administration of antibiotics
Sepsis Co-Champions: H. Jones; P. Zakowski; Operational Champion: L. Burnes Bolton
This patient may meet clinical stability and discharge criteria for pneumonia:
- Patient’s vital signs are stable for 24 hour period:
  - Temperature less than or equal to 37.8 °C (100 °F)
  - Respiratory rate less than or equal to 24 breaths per minute
  - Heart rate less than or equal to 100 beats per minute
  - Systolic blood pressure greater than or equal to 90mm Hg
  - Oxygen saturation greater than or equal to 90% while patient is breathing room air or at base line for patients with chronic obstructive lung disease or those receiving oxygen therapy at home

- Patient is able to take oral antibiotics
- Patient is able to maintain adequate hydration and nutrition
- Patient’s mental status is normal (at his or her base line level)
- Patient has no other active clinical or psychosocial problems requiring hospitalization

Patient Vitals in the past 24 hrs: 02/28/13 0900, Temp: 99.6 °F (37.6 °C), Resp: 22
CDS Results

400+ best practice elements have been incorporated into CDS:

- 22% reduction in duplicate lab testing resulting in an over 5% reduction in average number of lab tests per patient day
- 13% reduction in duplicate head imaging with CDS
- 27% reduction in mean and 31% reduction in median initial antibiotic time to administration for sepsis. Sepsis Mortality Index decreased 0.33 points (from 4 months prior to 4 months after the alert)
- Over 72% reduction in inpatient orders for Gastric Emptying
- 73% decrease in Chest Physiotherapy Treatments
- 26% reduction in COPD charges from FY 11 to FY 13
- Annual savings of $200,000 in reduction EPO, despite cost increases
- Pneumonia patients are discharged when stable 30% of the time, up from 18%, which represents a 67% improvement
CDS Results

- Average annual Xopenex dispensed reduction of 55% for annual savings of $16,331. April 2011 dispensed a high of 1350 doses and December 2013 was a low of 55 doses (96% variance)
- Reduction of $89,168 in Anti-emetics from June 2013–October 2013. Estimated annualized savings of $214,003
- Reduction of $229,905 in Pegfilgrastim from June 2013–October 2013. Estimated annualized savings of $551,880
- 20% reduction in cost/patient of Albumin for IDH post implementation of CDS
- Despite increase in acuity, 6% reduction of RBC transfusions on 8 pilot sites 9 months before the alert compared with 9 months post-implementation of the alert
- Acute therapies
  - PT has seen appropriateness of referrals increase from 80% to 99%, a 24% change
  - PT Referrals seen within 24 hours has increased from 72% to 79%, a 10% change
  - OT screens reduced from 15% to 9%, representing a 40% decrease in screens.
  - Appropriate OT referrals have increased from 85% to 91%, representing a 7% change
120 recommendations

150 more over the next 9 months

40 subspecialty societies representing > 500,000 physicians
Don't do imaging for uncomplicated headache. Imaging headache patients absent specific risk factors for structural disease is not likely to change management or improve outcome. (American College of Radiology) 1,2,3,4,5

Acknowledgment reason:

- Onset age > 50 or at max severity
- Systemic cause
- Abnormal neuro exam
- Associated with seizures
- Cancer / HIV / Immunodeficiency
- Pregnancy
- Other (See Comments)

Choosing Wisely. American College of Radiology
Information for Patients: Imaging Tests for a Headache (ACR)

Best Practice Advisories
Choosing Wisely (1 Advisory)

Don't place, or leave in place, urinary catheters for incontinence or convenience or monitoring of output for non-critically ill patients.

Please see below for current catheter and either place order to remove catheter or enter an appropriate override reason.

Urethral Catheter 05/16/13 Double-lumen (Active)
Number of days: 4

Acknowledgment reason:

- Critical illness with the need for accurate flow rate
- Obstruction or retention
- To assist with the healing of open sacral...
- Patients requiring prolonged immobilization
- Hospice
- See Comments

Open order: Remove Urinary Catheter

Refresh: Last refreshed on 5/20/2013 at 1:56 PM
## Impact Analysis

<table>
<thead>
<tr>
<th></th>
<th>Pre Intervention Jan 1 – Sep 9</th>
<th>Post Intervention Sep 10 – Nov 25</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>mean orders</strong></td>
<td>203</td>
<td>166</td>
</tr>
<tr>
<td><strong>% change</strong></td>
<td>-18.2%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>p-value</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Antipsychotics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients ≥ 70</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Benzo-Sedatives</strong></td>
<td>133</td>
<td>116</td>
</tr>
<tr>
<td>Patients ≥ 65</td>
<td>-12.5%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Butalbital</strong></td>
<td>4.13</td>
<td>3.58</td>
</tr>
<tr>
<td>Adults</td>
<td>-13.3%</td>
<td>&lt;0.04</td>
</tr>
<tr>
<td><strong>Vitamin-D levels</strong></td>
<td>322</td>
<td>286</td>
</tr>
<tr>
<td></td>
<td>-13.7%</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Rates per 10,000 encounters
Cedars–Sinai Medicine: Approach

- Best Practices Applied to Care
- Delivery Model Redesign
- Utilizing Clinical Decision Support
- Patient & Physician Engagement
- Transparency
Crimson Screen Shot

Inpatient

Average LOS
4.98
5.30
Cases: 27463

% Cases Above Avg LOS
34.40%
37.33%
Cases: 9447 / 27463

Average Charges
$118,083
$151,130
Cases: 27463

% Cases Above Avg Charge
40.99%
37.45%
Cases: 11256 / 27463

Avoidable Days
538 Days

Cases with Denials
1.33%
2.36%
Cases: 365 / 27463

Average Consulting Physicians Used
1.85
1.37
Cases: 27463

% Cases Above CMS GMLOS
38.98%
38.98%
Cases: 9415 / 24156

Outpatient

Average LOS (Hrs) (OP Proc.)
12.69
11.98
Cases: 22813

% Cases Above Avg LOS (OP Proc.)
38.88%
39.10%
Cases: 8669 / 22813

Average Charges (OP Proc.)
$20,537
$19,538
Cases: 22813

% Cases Above Avg Charge (OP Proc.)
42.94%
37.75%
Cases: 9795 / 22813
The combination of clinical performance software and education is intended to:

- To facilitate 1:1 discussions between physicians related to efficiency, effectiveness and appropriateness
- Reduce practice variation among individual clinicians
- Provide transparency into quality and cost performance
- Identify key opportunities for clinical or operational change
- Increase compliance with evidence-based medicine/best practices
- Build the foundation for Accountable Care
- Support the cost-effectiveness goals of CSM
Cedars–Sinai Medicine: Approach

- Best Practices Applied to Care
- Delivery Model Redesign
- Utilizing Clinical Decision Support
- Patient & Physician Engagement
- Transparency
Cedars–Sinai Medicine: Approach

Delivery Model Redesign

Best Practices Applied to Care

Utilizing Clinical Decision Support

Patient & Physician Engagement

Transparency
Innovative Delivery Models
Redesigning care models to better focus on prevention, population health and enhanced coordination across the continuum

<table>
<thead>
<tr>
<th>Patient Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Initial Wellness Visit and Assessment</td>
</tr>
<tr>
<td>• Care Plan Development</td>
</tr>
<tr>
<td>• Introduction to Care Team</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ambulatory Primary Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Patient Centered Medical Home; Team Based Care</td>
</tr>
<tr>
<td>• Performance-driven PCP incentives</td>
</tr>
<tr>
<td>• Transparent data sharing on practice variation and clinical efficiency</td>
</tr>
<tr>
<td>• Post-dc follow up visit within 5 days</td>
</tr>
<tr>
<td>• Complex Care Management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specialty Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Use of evidence-based best practice guidelines to reduce variation</td>
</tr>
<tr>
<td>• Transparent data sharing on practice variation and clinical efficiency</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wrap-Around Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Drug Therapy Management Programs</td>
</tr>
<tr>
<td>• Case Management and Social Work</td>
</tr>
<tr>
<td>• Advance Care Planning (Advanced Directive &amp; POLST)</td>
</tr>
<tr>
<td>• Urgent Care</td>
</tr>
<tr>
<td>• Injection Center</td>
</tr>
<tr>
<td>• Refill Center with generic drug conversion protocols</td>
</tr>
<tr>
<td>• Dietician and Certified Diabetes Educator</td>
</tr>
<tr>
<td>• Outpatient Palliative Care</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inpatient/Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hospitalists and dedicated care managers at all facilities</td>
</tr>
<tr>
<td>• ER triage program to carefully avoid admission</td>
</tr>
<tr>
<td>• Discharge planning on admit to include ambulatory care manager as needed</td>
</tr>
<tr>
<td>• Daily hospital rounds</td>
</tr>
<tr>
<td>• One day LOS review</td>
</tr>
<tr>
<td>• Frailty program/interventions</td>
</tr>
<tr>
<td>• Inpatient to observation review</td>
</tr>
<tr>
<td>• Readmit review and referral to housecall or other appropriate program</td>
</tr>
<tr>
<td>• Post Discharge Calls</td>
</tr>
<tr>
<td>• Inpatient Palliative Care</td>
</tr>
<tr>
<td>• High Risk/Homebound Referrals</td>
</tr>
<tr>
<td>• Hospice and Palliative Care Referrals</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skilled Nursing Facility (SNF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• SNF Care Manager</td>
</tr>
<tr>
<td>• Nurse Practitioner s assigned to all SNF patients</td>
</tr>
<tr>
<td>• Post Discharge Calls</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Biometric Monitoring</td>
</tr>
<tr>
<td>• Nurse Practitioner House Calls</td>
</tr>
<tr>
<td>• Patient Portal / eVisits</td>
</tr>
</tbody>
</table>
## Results to Date

### Best Practices
- Protocols developed for over **50 conditions** that consider appropriateness, efficiency, effectiveness, progression and outcomes
- Best practices **impact over 80%** of Medical Center discharges
- **Greater than 10% reduction** in LOS index over 2 years

### Enhanced Continuity & Coordination
- Pilot has resulted in **reduction of readmissions by 50%**
- Roll-out of Advance Directive efforts and over 1 year there has been a greater than **25% reduction in patients dying in the ICU with chronic, terminal illness**

### Engaged Physicians, Patients & Payers
- Advanced Primary Care/Medical Home available to **all patients** of Cedars-Sinai Medical Group
- Web Portal (MyCSLink) has been available since December 2013 and there are approximately 25,000 active accounts
- The physicians that represent **80% of the discharges** have all received 1:1 sessions to review their performance data

### Reduced Variation & Cost
*For managed populations have achieved:*
- **7% reduction** in ED Admissions/1,000
- **12% reduction** in Inpatient Admissions/1,000
- Achieved **75% compliance** with generic drug utilization
- Extrapolated = **$22 million** benefit to payer over 1 year
CDS: Future Projects

- Several LOS CDS projects
  - OB LOS alerts
  - Banners
  - Managing to expected LOS
  - Checklists
  - Decrease number of send-out tests

- Develop stability criteria for discharge on hundreds of conditions

- Replicate RBC process with other blood products

- Implement MEWS, CDS and new best practices for sepsis care

- Choosing Wisely®: Additional 48 alerts by April 2014
Clinical Decision Support

- Clinical Decision Support Systems can be of great benefit to the care team and the patient at the point of care in decision-making and selecting the safest and most effective therapies for their patient, thus providing a powerful tool for improving patient care and outcomes.

- Sensitive, smart, carefully thought, and well designed alerts are appreciated and help avoid alert fatigue.

- 75% of decision support interventions succeed when the information is provided to clinicians automatically, whereas none succeed when clinicians are required to seek out the advice\(^1\).

- CDS is 112% more effective than education alone\(^1\).