Improving Quality Outcomes by Addressing Gaps in Care

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ACO Physician Integration

The Memorial Hermann ACO allows for integration of a pluralistic physician model to drive quality outcomes.

~4,000 MHMD Physicians, ~3500 ‘CIN’
Clinically Integrated Network
Private, Employed & Faculty Integration

MEMORIAL HERMANN
Accountable Care Organization

3 DISTINCT PRACTICE MODELS

Employed

Private

Faculty

Population Health Infrastructure
Our mission is to ADVANCE the overall health of each individual and population through innovative technology solutions that drive preventative care and evidence-based disease management. These solutions are powered by claims and clinical data derived from multiple sources that generate a master person longitudinal record. By placing these tools directly within the Electronic Health Record workflow, quality performance is improved, physician integration is strengthened and cost is reduced.
Population Health Platform

**Applications**
- EMRs
  - Allscripts
  - Athena
  - Care4
- eClinicalWorks
- GE Healthcare
- PointClickCare

**Algorithms**
- Sepsis
- TOC
- Readmissions
- HCC Suspected
- 3M
- Truven

**Analytics**
-付費申告
- TOC
- 再入院
- HCC 猜測
- 3M
- Truven

**EverydayWell**

**SmartData**

**EMRs**
- Allscripts
- Athena
- Care4

**Paid Claims**
- Aetna
- BCBS
- CMS
- Humana
- MHHP
- United Healthcare

**On-site Biometrics**

**HealtheIntent**

**Declaration of Interest**

**Supporting Information**
SmartData Sources

Payer

Clinical (HIE)
*Daily & Historical Extracts

Clinical (EMR)

Biometric

Aetna
Blue Cross Blue Shield
Humana
Memorial Hermann Health Plan
MSSP
United Healthcare

Allscripts (116 PCP & Specialty Clinics)
Athena (24 Urgent Care Clinics)
Cerner Millennium (15 Hospitals, 106 PCP & Specialty Clinics)
eClinicalWorks (124 PCP & Pediatric Clinics)
GE Centricity (2 PCP Clinics)
Greater Houston HIE
Post Acute: PointClick Care, HomeCare Homebase, etc.
United Surgical Partners International (3 Hospitals)

Allscripts (116 PCP & Specialty Clinics)
Cerner Millennium (15 Hospitals, 106 PCP & Specialty Clinics)
eClinicalWorks (124 PCP & Pediatric Clinics)
GE Centricity (2 PCP Clinics)

Cerner Millennium (Wellness Data)
SmartRegistry
SmartRegistry

• Powered by Cerner’s HealtheIntent platform, which creates a single person record across ~40 sources comprised of payor claims data and clinical data
• Places patients into different registries based on certain health condition(s)
• Allows clinicians to manage and improve the overall health of a population one person at a time
• Measures are heavily driven by CMS ACO Measures of Excellence, but also include a variety of Memorial Hermann custom measures
List of Registries

- Senior Wellness
- Adult Wellness
- Pediatric Wellness
- Childhood & Adolescent Immunizations
- Adult Diabetes
- Ambulatory Urgent Care
- Asthma
- Back Pain
- COPD
- Depression
- Heart Failure
- Hepatitis C
- Hypertension
- Ischemic Vascular Disease Coronary Artery Disease
- Rheumatoid Arthritis
### For All Wellness Registries
- Annual Office Visit (7+)
- Chlamydia Screening (Women 16-25)
- Depression Screening (12+)
- Tobacco Use Screening and Cessation (13+)

### Pediatric Wellness
- Tobacco Exposure Screening
- Well-Child Visits (First 15 Months of Life; Yearly)

### Adult and Senior Wellness
- BP Measurement / Rescreen if high
- BMI and Follow-Up Plan
- Bone Density Screening (Women 65-84)
- Breast Cancer Screening (Women 50-74)
- Cervical Cancer Screening (Women 21-64)
- Colorectal Cancer Screening (50-75)
- Depression Screening and Follow-Up Plan
- Fall Risk Screening (65+)
- Hepatitis C Screening (DOB 01/01/1945-12/31/1965)
- HIV Screening (18-64)
- HPV Vaccination (18-26)
- Influenza Vaccination
- Lipid Panel (q 5 yrs, Men 35+; Women 45+)
- Pneumococcal Vaccination (65+)
- Post-Osteoporotic Fracture Evaluation (50-85)
- Shingles Vaccination (60+)
- Screening Male Smoker for AAA (Males 65-75)
- TdaP Vaccination

### Asthma:
- Medication Management

### Adult Diabetes
- Anti-platelets for DM with IVD/CAD
- Blood Pressure < 140/90mm Hg
- Diabetes Tx Mgmt ACEi/ARB Therapy
- Eye Exam
- Foot Exam
- HbA1C and Lipid Monitoring
- HbA1C control (Goal <8%, Poor HbA1c >9%)
- Nephropathy Screening
- Semi-Annual Office Visit
- Statin Therapy- Diabetic Group

### Ambulatory Urgent Care:
- Acute Otitis Externa Topical Therapy
- Avoidance of Antibiotic Treatment in patients with Acute Bronchitis
- Appropriate Treatment for Children with URI
- Appropriate Testing for Children with Pharyngitis

### Heart Failure
- ACEI/ARB for Low EF (<40%)
- Beta Blocker for Low EF (<40%)
- Beta Blocker Therapy After AMI
- Semi-Annual Office Visit

### Hypertension:
- Blood Pressure < 140/90 mm Hg

### Ischemic Vasc. Disease/Coronary Artery Disease
- AMI or CAD: ACEI or ARB if diabetic or EF <40%
- Antiplatelet Therapy for DM with IVD/CAD
- Lipid-Lowering Therapy
- Statin Therapy- ASCVD Group

### Back Pain
- Avoid Imaging for Low Back Pain

### COPD
- Pneumococcal Vaccination
- Semi-Annual Office Visits

### Hepatitis C
- Hepatitis A Vaccination
- Hepatitis B Vaccination

### Depression
- Depression Remission- 12 Months
- Meds During Acute & Continuous Phase
- Utilization of Full PHQ-9 Tool

### Rheumatoid Arthritis Management
- Medication Management

### Childhood & Adolescent Immunizations:
- DTaP
- Hepatitis A
- Hepatitis B
- HiB
- Human Papillomavirus (HPV)
- Influenza
- IPV
- Meningococcal
- MMR
- Pneumococcal Vaccination- Pediatric
- Rotavirus
- TdaP
- Varicella
SmartRegistry Governance Committee

- Established August 2017
- Consists of key stakeholders from across the organization
- Scorecard and incentive discussions
- Positive feedback loop with practicing physician leaders
SmartRegistry Governance Committee

• ISD facilitates monthly meetings to discuss registry and measure updates, changes, and workflow standardization

• Major decisions of the committee include:
  – Diabetes Algorithm Updates (Cerner adopted these as the Clinical Standard for all clients)
  – Onboarding new registries and measures
  – Retiring outdated measures
  – Updating content to yearly standards
  – Roll-out strategies to clinicians
  – Provider feedback
Timeline of Adult Diabetes Registry Criteria Changes

Phase I Changes
Completed July 2016
MH partnership with Cerner on a major revamp of original algorithm
Population decrease of 37%

Phase II Changes
Completed July 2017
Updates to visit concepts and insulin medication concepts
Population decrease by 9%

Phase III Changes
Completed October 2017
Updates to medication-based concepts based on the CMS Supreme Diabetes Rule
Population decrease by 2%

Phase IV Changes
In Progress
Validating inclusion criteria based on:
1) Claims-only data
2) Insulin logic
3) Validating Problems vs Diagnoses Statuses
Population decrease TBD

Overall population decrease of 47%.
SmartRegistry Changes Over Time

- 2015: 60 Measures, 12 Registries
- 2016: 64 Measures, 12 Registries
- 2017: 80 Measures, 13 Registries
- 2018: 98 Measures, 15 Registries
Data Mapping Process

Workflow Analysis
Identify all formats in each data source how the data must be documented to meet each measure

Concept Mapping
Each concept is made up of hundreds of codes; ensure that each code is mapped appropriately

Data Intelligence Dashboard Validation
Validate that each mapped code has hits in the dashboard from each source

Workflow Validation
Provide documentation for a standardized workflow in each individual data source for each measure
Importance of Workflow Standardization

• Work with clinical stakeholders to optimize and standardize workflows
• Discretely documented information can be mapped

When the standardized workflow is followed, measures will be met

If standardized workflow has not been followed, the measures will not show as met
**Physician** documentation for “Breast Cancer Screening” in EMR:

- **Cerner Ambulatory:**
- **eClinicalWorks:**
- **All Scripts:**

Closes gap in **SmartRegistry**:

- Breast Cancer Screening (ages 50-64)
  - From Document: Breast Mammo Scrn
    - BIL incl CAD MA
    - Memorial Hermann (EMR)
    - Dec 18, 2017 2:58 P.M.
  - Screening mammography results documented and reviewed (PV)
    - CPT-4 3014F
    - Jan 19, 2017

Satisfies the following **Programs**:
- HEDIS
- NCQA
- MSSP
- STARS
- MIPS Quality
- Commercial Contracts
For EMRs that do not have the SmartRegistry component fully integrated, the Point of Care (POC) Report has been created to show the gaps of care for all patients (scorable and non-scorable).

The Report shows three types of gaps:
- Measures due now,
- Measures due within six months and
- Measures that have not been achieved.

The Report also shows Hierarchical Condition Categories (HCC).
Care⁴ Integrated Workflow

- Care⁴ Ambulatory users have integrated access to Registry care gaps via the Recommendations Module.
- SmartRegistry care gaps can be addressed and are actionable via this module.
Care⁴ Integrated Workflow

- Care⁴ Ambulatory users also have web-based access to the SmartRegistry portal directly from within the application.
- Web-based access allows physicians to view and filter their entire attributable patient population and scorecards.
- SmartAnalytics reporting and dashboards are also available within the web-based application.
A fully integrated panel within eClinicalWorks displays gaps of care for patients via a SmartRegistry API call to SmartData.

- **Risk Score**: represents a patient’s overall expected health outcome or cost; the higher the risk score, the more costly than average a patient’s care is likely to be.
- **Quality Score**: the overall score for patient’s quality of measures completed and achieved.
- **Measure Status**:
  - Black – measure has been performed and was successfully achieved.
  - Grey – patient is excluded from this measure due to one of the exclusion rules.
  - Red – measure has not been achieved or documentation is missing.
- **Supporting Facts**: supporting evidence explaining how the measure was achieved/performed (i.e. – claims data or EMR data)
AllScripts Workflow

- A fully integrated panel within AllScripts displays gaps of care for patients via a SmartRegistry API call to SmartData.

- This component shows patient demographic information, registry and measure supporting facts, gaps of care with statuses, satisfied dates, and due dates.
Memorial Hermann is currently working with various EMRs to deliver a HealtheInsights Smart APP in line within a Physicians workflow. This app displays patients care gaps from the SmartData platform.
Lessons Learned

• Validation is the KEY to success
  • There is no such thing as too much validation.

• Emphasis on standardized workflows
  • Understanding providers’ workflow in each EMR and coding tool

• Understanding mapping processes
  • Proprietary codes, standardized codes, concepts, etc.

• Keep customizations to a minimum
  • Clinical Standard vs. MH Custom Measures

• Consistency across components
  • Similar builds across each EMR component
SmartAnalytics
SmartAnalytics

• Powered by Cerner’s HealthIntent platform, which creates a single person record across ~40 sources comprised of payer and clinical data
• All large data is processed through the normalization engine on the Hadoop platform
• Data is then made available through Business Objects or Tableau on a Vertica database that allows for highly tuned querying
SmartAnalytics: MHMG Quality Dashboard

• Shows overall registry and measure quality scores for MHMG providers
• Shows a breakdown of registry and measure performance by practice
SmartAnalytics:
MHMG Quality – Provider View

• Shows a breakdown of registry and measure performance by individual provider
SmartAnalytics: Incentive Dashboard

• Shows a breakdown of registry and measure performance by provider for scorable measures
# MHMG Physician Results

<table>
<thead>
<tr>
<th>Population</th>
<th>Measure</th>
<th>Initial Met %</th>
<th>End Met %</th>
<th>% Increase</th>
<th>Population Growth %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adult Wellness</strong></td>
<td>Annual Office Visit</td>
<td>83%</td>
<td>94%</td>
<td>11%</td>
<td>38%</td>
</tr>
<tr>
<td>Panel Size ~186,000</td>
<td>Depression Screening</td>
<td>11%</td>
<td>19%</td>
<td>8%</td>
<td>41%</td>
</tr>
<tr>
<td></td>
<td>BP Measurement</td>
<td>77%</td>
<td>89%</td>
<td>12%</td>
<td>38%</td>
</tr>
<tr>
<td><strong>Senior Wellness</strong></td>
<td>Annual Office Visit</td>
<td>90%</td>
<td>97%</td>
<td>7%</td>
<td>24%</td>
</tr>
<tr>
<td>Panel Size ~65,000</td>
<td>Depression Screening</td>
<td>17%</td>
<td>26%</td>
<td>9%</td>
<td>24%</td>
</tr>
<tr>
<td></td>
<td>BP Measurement</td>
<td>83%</td>
<td>91%</td>
<td>8%</td>
<td>24%</td>
</tr>
<tr>
<td></td>
<td>BMI</td>
<td>86%</td>
<td>92%</td>
<td>6%</td>
<td>24%</td>
</tr>
<tr>
<td><strong>Adult Diabetes</strong></td>
<td>Eye Exam</td>
<td>22%</td>
<td>28%</td>
<td>6%</td>
<td>33%</td>
</tr>
<tr>
<td>Panel Size ~37,000</td>
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<td></td>
<td></td>
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<td></td>
</tr>
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</table>
# Employed Physician Results

<table>
<thead>
<tr>
<th>Program</th>
<th>Measures</th>
<th>Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Wellness</td>
<td>Annual Office Visit</td>
<td>Q1 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q2 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q3 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q4 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q1 2018</td>
</tr>
<tr>
<td>Depression Screening (ages 18-64)</td>
<td>Q1 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q2 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q3 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q4 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q1 2018</td>
</tr>
<tr>
<td>Blood Pressure Measurement</td>
<td>Q1 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q2 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q3 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q4 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q1 2018</td>
</tr>
<tr>
<td>Senior Wellness</td>
<td>Annual Office Visit</td>
<td>Q1 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q2 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q3 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q4 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q1 2018</td>
</tr>
<tr>
<td>Depression Screening (ages 65 and up)</td>
<td>Q1 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q2 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q3 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q4 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q1 2018</td>
</tr>
<tr>
<td>Blood Pressure Measurement</td>
<td>Q1 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q2 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q3 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q4 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q1 2018</td>
</tr>
</tbody>
</table>
## ACO Contract Performance

<table>
<thead>
<tr>
<th>Payor</th>
<th>Measure</th>
<th>Pre</th>
<th>Post</th>
<th>Savings Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Payor A</strong></td>
<td><strong>Breast Cancer Screening</strong></td>
<td>79.5%</td>
<td>80.0%</td>
<td>$636,787</td>
</tr>
<tr>
<td></td>
<td><strong>Diabetes A1c Testing</strong></td>
<td>94.0%</td>
<td>94.5%</td>
<td></td>
</tr>
<tr>
<td>84,418 Lives</td>
<td><strong>Diabetes Control</strong></td>
<td>67.5%</td>
<td>71.1%</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pediatric Well Child Visit</strong></td>
<td>83.7%</td>
<td>86.6%</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Post MI: Ace-I/ARB Therapy</strong></td>
<td>89.8%</td>
<td>91.2%</td>
<td></td>
</tr>
<tr>
<td><strong>Payor B</strong></td>
<td><strong>Breast Cancer Screening</strong></td>
<td>72.1%</td>
<td>73.3%</td>
<td>$2,500,000</td>
</tr>
<tr>
<td>103,675 Lives</td>
<td><strong>Cervical Cancer Screening</strong></td>
<td>79.0%</td>
<td>80.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Diabetic Care – Retinal Eye Exam</strong></td>
<td>33.7%</td>
<td>40.1%</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Diabetic Care – Nephropathy Screening</strong></td>
<td>74.7%</td>
<td>84.6%</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Diabetic Care – HbA1c &lt;8%</strong></td>
<td>35.9%</td>
<td>41.6%</td>
<td></td>
</tr>
</tbody>
</table>
# ACO Contract Performance (cont’d)

<table>
<thead>
<tr>
<th>Payor</th>
<th>Measure</th>
<th>Pre</th>
<th>Post</th>
<th>Savings Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payor C</td>
<td>Ace-1/ARB: Persistent use with lab monitoring</td>
<td>89.6%</td>
<td>92.1%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diabetes: HbA1c &lt;8%</td>
<td>60.9%</td>
<td>69.4%</td>
<td></td>
</tr>
<tr>
<td>34,000</td>
<td>Diuretics: Persistent use with lab monitoring</td>
<td>88.2%</td>
<td>91.9%</td>
<td>$636,787</td>
</tr>
<tr>
<td>Lives</td>
<td>Persistent Medication with annual monitoring:</td>
<td>89.1%</td>
<td>92.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACE-1/ARB, Digoxin, Diuretics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Well child visits 3-6 years of life</td>
<td>81.9%</td>
<td>82.7%</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td>$3,696,787</td>
</tr>
</tbody>
</table>
ADVANCE Quality Performance

People

Technology

Process
“With continued improvements in the SmartRegistry application, I have been able to use this component within Cerner to help assure that I am addressing key health maintenance issues and helping patients remain up-to-date with treatment and prevention of chronic medical problems. Integration within the EHR and capturing claims data saves me time that would have otherwise been spent searching for data that previously may not have been easily available.”

Director of Medical Operations, MHMG
THANK YOU!!