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Cone Health Order Sets Optimization Study

Executive Summary

Using evidence-based optimized order sets to improve outcomes while reducing the cost of care

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Cone Health, one of North Carolina's largest and most comprehensive health networks, conducted an analysis to determine how optimizing a subset of its EHR order sets with the latest evidence could improve patient outcomes, while reducing unwarranted clinical variations and the cost of care. Clinical variations are defined as "unwarranted" when they cannot be explained by the condition or the preference of the patient, but rather only by differences in the health system's performance.

Cone Health used the following steps to understand the impact of order set optimization on mortality, length of stay (LOS), and variable direct costs across the health system.

1. Uploaded the order sets in rich text format (RTF) into Provation® Order Set Advisor™, which compares the order sets to UpToDate® evidence and guidelines and performs a gap analysis.
2. Reviewed the gap analysis and recommendations.
3. Uploaded the optimized order sets back into the EHR system with inserted evidence links to inform.
4. Put the optimized order sets into practice.
5. Analyzed the impact of the order sets on patient outcomes.

Realized cost savings
$6.2M
PER YEAR
from using two optimized order sets

Mortality Risk
56%
REDUCED RISK
of dying while hospitalized with optimized stroke order set

Reduction in direct variable costs
$332
PER PATIENT
that received care using optimized heart failure order set

Reduction in LOS
4%
REDUCED RISK
of having one additional inpatient day with optimized sepsis order set

Significant benefits for Cone Health and its patients

Cone Health's ability to use Provation applications to compare their own order sets with UpToDate® evidence enabled them to efficiently optimize their order sets and achieve benefits, such as:

Reduced Care Variation

"We've shown that using an order set (versus not using an order set), has resulted in a $4 million opportunity because it reduces care variation."

Improved Patient Outcomes

"From one change to our sepsis order set, we realized a cascade of improvements such as shortened lengths of stay, fewer complications, and patients feeling better."

Reduced Cost of Care

"If you make a single change to an order set, you can save hundreds of thousands of dollars within months."

Cost effective order set results from economic models[1, 2, 3]

Cohort	Sepsis	Stroke	HF Acute	HF Focused	Pneumonia
Protocol Name	CHL IP GEN ADULT SEPSIS FOCUSED ORDERS	CHL IP NEU ISCHEMIC STROKE / TIA ADMISSION	CHL IP CAR ACUTE HEART FAILURE ADMISSION	CHL IP CAR HEART FAILURE FOCUSED	CHL IP GEN PNEUMONIA ADMISSION ADULT
Associated Impact on Inpatient Mortality	13% Decreased Risk	56% Decreased Risk	34% Decreased Risk	39% Decreased Risk	35% Decreased Risk
Impact on Total Direct Cost / Encounter	($277)	($222)	($332)	($332)	($152)
Impact on Contribution Margin / Encounter	$339	$43	$105	$209	$137
Direct variable cost savings using order set	$842	$1,632	$263	$151	$303
# of cases with / without order set	4,933 / 10,546	3,123 / 2,101	3,451 / 5,540	991 / 8,000	1,445 / 3737
Total opportunity over 4 years (annualized)	$8,879,732 ($2,271,031)	$3,428,832 ($876,939)	$1,457,020 ($372,639)	$1,208,000 ($308,951)	$1,132,311 ($290,336)
Top cost driver as % of opportunity	LOS: 49%	LOS: 44%	LOS: 24%	LOS: 55%	LOS: 66%
Second cost driver as % of opportunity	Pharm: 17%	Pharm: 41%	Therapeutic Services: 21%	Supplies: 12%	Therapeutic Services: 9%

[1]Schmidt, M (2021). *How Does Orderset Optimization Benefit Our Patients & System: Using evidence based optimized ordersets to improve outcomes while reducing the cost of care.* Cone Health Study.
[2]Financial impact uses economic models that adjust for multiple factors to find the average cost or CM per encounter.
[3]Healthcare Economics Methodology to Assess IP Mortality and Direct Variable Cost Outcomes; Robust multivariate Poisson and OLS models with Robust Huber White Standard Errors that adjusted for variables including: payer, length of stay, MS DRG, and MS DRG case mix index.

Summary

Order sets are powerful tools to reduce care variation. When order sets are optimized using Provation® Order Set Advisor™, Cone Health finds a reduced risk of inpatient mortality, shorter length of stay (LOS), and reduced cost of care. Even better, Provation allows you to optimize your order sets before implementing change across the organization to ensure clinicians deliver evidence-based patient care.

CONE HEALTH

Want to start optimizing your order sets?
Get started at provationmedical.com/order-sets

Provation
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www.provationmedical.com

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