



Center for Information Technology Leadership
Improving Healthcare Value

**The Value of
Computerized Provider
Order Entry
in Ambulatory Settings**



ABOUT CITL

Center for Information Technology Leadership

CITL (Center for Information Technology Leadership), chartered by Partners HealthCare in Boston and supported by HIMSS (Healthcare Information and Management Systems Society), is a nonprofit research organization that helps the healthcare community make more informed IT decisions. Focusing on healthcare value, we examine major issues affecting the industry through biannual reports and symposiums.

CITL's rigorous, uncompromising approach involves a mix of research techniques, including literature reviews, expert assessments, and market research. CITL's reports are published and distributed by HIMSS, which provides leadership in healthcare for the advancement and management of information technology. HIMSS, with more than 13,000 members, encourages emerging technologies and promotes public policies that will improve healthcare delivery.

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ACPOE E-mail Survey

Vendors Contacted

Healthcare IT

GE Medical Systems
Cerner
Eclipsys
Epic
IDX
McKessonHBOC
Meditech
Siemens
3M
NextGen
Misys
Per-se
Physician Micro Systems
iSoft (United Kingdom)
MedTech (New Zealand)

ePrescribing

Allscripts
Amicore
ePhysician
FireKey (NaviMedix)
Heleos
iMedica
iScribe
Medemorphus
MDeverywhere
MDPad
PocketScript
Patient Keeper
Mercury MD
MedUnite
(pre ProxyMed)
RxHub
SureScript
NDCHealth
ProxyMed

Knowledgebase

MicroMedex
Theradoc
First DataBank
Clineanswers

CPOE in Ambulatory Settings

Please type free text answers to the questions below.

Return the completed survey to Jan Walker (jwalker3@partners.org) or fax to 781-416-8913. To include your responses in our project, we must receive the survey by November 5, 2002.

Definition of Ambulatory Computerized Provider Order Entry (ACPOE)

Ambulatory CPOE is an application that allows providers to write drug, laboratory, radiology, referral, and procedure orders electronically in ambulatory care settings. These systems also integrate some level of decision-support functionality to assist providers in reducing error rates and practicing in an evidence-based fashion. Finally, these systems may also allow providers to perform administrative functions such as coding visits, providing codes for laboratory tests, and scheduling future visits. Any one system may not have all these capabilities; nevertheless, we are interested in your experiences with any of them.

“Ambulatory care settings” is a broad term referring to care outside hospitals and other inpatient settings. For this survey, we define ambulatory care settings as freestanding and hospital-based clinics (both primary and specialty care), ambulatory surgery centers, physicians’ offices, and home care settings.

SECTION I – Ambulatory CPOE products currently available

1. Does your organization currently have an ambulatory CPOE product for sale?
 Yes No

If Yes, please answer questions 2 – 10. If No, please skip to SECTION II.

2. Please indicate your product’s name, current production version, and mode of delivery (software license, ASP).
3. What is the target market for your product: small, medium, large physician practices, community hospitals, health systems? Please specify outpatient setting size and type.
4. When was this product first implemented? How many installations of this product are currently up and running?
5. Using the *ACPOE Features* list at the end of this survey, please indicate your product’s current features and functions.

6. Please describe your product's IT staffing, human resource, and training needs.
7. Please discuss your pricing model and any implementation cost data that you are willing to share. We will not quote specific prices without your permission.
 License model and cost: per server, per CPU, per MD, per user? Other?
 Maintenance fee structure and terms: % total contract price annually? Other?
 Implementation fees: (typically 2x license costs)?
8. What benefits have providers and other stakeholders (payers, purchasers) realized from your product?
- What are the financial impacts?
 - What are the clinical impacts?
 - What is the impact on user and patient satisfaction?
 - What is the impact on legal or compliance risk?
9. How much value can providers and other stakeholders (payers, purchasers) expect immediately upon implementation of your ACPOE system? Over six months?
 Over one year?
10. If you think some of your physician users have particular insight and data on the financial, clinical, or organizational benefits of your product, we would like to speak with them. Please provide contact information.

Thank you for completing this section. Please skip to SECTION IV.

SECTION II – Ambulatory CPOE products in development

11. Are you planning on developing an ACPOE product?

Yes No

If Yes, please answer questions 12 - 18. If No, please skip to SECTION III.

12. When will your product be available?
13. Using the ACPOE Features list at the end of this survey, please indicate the features and functions the first version of your product will support.
14. What IT staffing, human resource, and training resources will your product require?
15. How will your product be delivered (software license, ASP)?
16. What market will this product be developed for: small, medium, large physician practices, community hospitals, health systems? Please specify outpatient setting size and type.
17. What's the expected price range for this product? Please detail your intended pricing model. We will not quote specific prices without your permission.
License model: per server, per CPU, per user (MD, RN, NP, ancillary staff)?

License costs?

Maintenance costs?

Implementation costs?
18. What benefits do you anticipate providers and other stakeholders (payers, purchasers) realizing from your product?
- a. What will be the financial impacts?
 - b. What will be the clinical impacts?
 - c. What will be the impact on user and patient satisfaction?
 - d. What will be the impact on legal or compliance risk?

Thank you for completing this section. Please skip to SECTION IV.

SECTION III – No ambulatory CPOE products or plans

19. Why are you not planning on developing an outpatient CPOE product?

SECTION IV – General questions about CPOE in ambulatory settings

1. What are the main barriers to implementing ACPOE?
2. What are the best practices for implementing ACPOE?
3. What are the strategic advantages of ACPOE for different constituents: providers, payer, purchasers, and pharmaceutical outlets?
4. What additional sources – studies, CPOE users, experts – should we consult as we investigate the value of ambulatory CPOE?
5. Is there anything more you want to add about outpatient CPOE that we did not ask about?

Section V - ACPOE features

Please select all features and functions that apply to your outpatient CPOE system and, where indicated, provide free text comments.

1. Patient data

- Demographics
- Height, weight, body-surface area (BSA)
- Diagnoses
- Problem list
- Laboratory data
- Cultures
- Imaging data
- Consultation reports
- Pharmacy
- Insurer
- Other (specify with free text)

Medication data: Current Past Over-the-counter Supplements
Medication allergies: Medication name Reaction
Drug sensitivities: Medication name Reaction

2. Knowledge bases

Drug references (e.g., USPDI, vol. 1)
Patient education (e.g., USPDI, vol. 2)
Formulary
Medication cost
Test costs
Administrative code sets (e.g., ICD-9, CPT-4)
Medical necessity
Other (specify with free text)

3. Ordering

Medication: New Refills Indications

Laboratory: Hematology Chemistry Indications
Culture (e.g., blood, urine) to be collected by laboratory
Procedural specimens (e.g., spinal fluid, wound cultures) obtained at office
Prewritten orders for patient-collected specimen at home

Imaging
Referral
Structured ordering (templates, sets)
Charge capture
Other (specify with free text)

4. User interface

Presentation: Textual Graphical Spoken

Data entry: Keyboard/Mouse Touch-screen
Handwriting (light pen, tablets) Voice recognition

5. Decision support

Static references (Merck manual, PDR, etc.)

Single medication: Formulary compliance Common side effects
Route/dosing range verification Dosing calculation

Drug interaction checking:

What: Allergy Medications in current order OTC medications
Medications in medication list Supplements Diagnosis
Laboratory

When: At ordering At refill Whenever patient data is updated

Medication checks are by: Name Medication class
Full chemical interaction (e.g., all sulfa drugs)

Guidelines: Built-in Modifiable by practice

Sharable with other practices/sites

Consequent orders

Other (specify with free text)

6. Connectivity

Connection to	Direct connection	Fax-based	Paper-based
Insurer	<input type="checkbox"/> Eligibility verification <input type="checkbox"/> Pre-approval/authorization <input type="checkbox"/> Automated reporting	<input type="checkbox"/>	<input type="checkbox"/>
In-patient facility	<input type="checkbox"/> EMR <input type="checkbox"/> Scheduling <input type="checkbox"/> Pre-admission orders <input type="checkbox"/> In-patient CPOE	<input type="checkbox"/>	<input type="checkbox"/>
Pharmacy	<input type="checkbox"/> New prescription <input type="checkbox"/> Refills <input type="checkbox"/> Refill requests from pharmacy	<input type="checkbox"/>	<input type="checkbox"/>
Laboratory	<input type="checkbox"/> Test ordering <input type="checkbox"/> Test scheduling <input type="checkbox"/> Result reporting	<input type="checkbox"/>	<input type="checkbox"/>
Imaging	<input type="checkbox"/> Test ordering <input type="checkbox"/> Test scheduling <input type="checkbox"/> Result reporting	<input type="checkbox"/>	<input type="checkbox"/>
Referrals	<input type="checkbox"/> Ordering referral <input type="checkbox"/> Scheduling referral <input type="checkbox"/> Result reporting	<input type="checkbox"/>	<input type="checkbox"/>

7. *Hardware and software*

Database: Cache Microsoft SQL NCR Teradata
 Oracle Sybase Proprietary (specify with free text)

Server Operating System: AIX, HPUX, UNIX Linux
 Microsoft Windows Solaris
 Proprietary (specify with free text)

Client Platform: Personal computer Web browser client Palm OS PDA
 Pocket PCs Mobile phone client (WAP)

8. *Infrastructure requirements*

What additional software is required to support your outpatient order entry system?

- Electronic Medical Record (EMR)
- Clinical data repository
- Enterprise Master Patient Index
- Scheduling system
- Financial System
- Billing and coding system
- Other (specify with free text)
- N/A

Does your system include pre-developed interfaces or support for:

- Your own clinical systems?
- Other vendors' clinical systems (specify with free text)?
- Systems integration standards (e.g., HL7) (specify with free text)?
- Other?
- N/A

What level of connectivity is required to support the following means of accessing your system?

	Dial-up Modem	ISDN	DSL	Cable Modem or T1	More than single T1	Proprietary network required	N/A
Off-site remote access from home	<input type="checkbox"/>	<input type="checkbox"/>					
Intra-site access for multi-site installations	<input type="checkbox"/>	<input type="checkbox"/>					
ASP-style access	<input type="checkbox"/>	<input type="checkbox"/>					

Thank you very much for completing this survey.